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**APPENDIX D**

**Traffic Impact Analysis**

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# **ARCO MTBE PHASE OUT**

## **TRAFFIC IMPACT ANALYSIS**

OCTOBER 2000

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**APPENDIX A**  
**INTERSECTION CAPACITY UTILIZATION**

1. Wilmington & I-405 NB on/off

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	644	.20*	420	.13
NBR	1	1600	36	.02	251	.16
SBL	1	1600	43	.03*	127	.08
SBT	3	4800	709	.15	1170	.24*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		762		756	
WBT	0	3200	0	.40*	0	.33*
WBR	0.5		507		315	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .73 .67

Existing+Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	644	.20*	439	.14
NBR	1	1600	36	.02	307	.19
SBL	1	1600	43	.03*	127	.08
SBT	3	4800	709	.15	1170	.24*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		762		756	
WBT	0	3200	0	.40*	0	.33*
WBR	0.5		507		315	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .73 .67

2. Wilmington & I-405 SB on/off

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	546	.17*	759	.24*
NBR	1	1600	512	.32	821	.51
SBL	1.5		217	.14*	1051	{.39}*
SBT	2.5	6400	1412	.29	1449	.39
SBR	0	0	0		0	
EBL	1	1600	131	.08*	66	.04*
EBT	0	0	0		0	
EBR	1	1600	305	.19	156	.10
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment		Multi		.18*	NBR	.24*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 1.01

Existing+Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	546	.17*	833	.26*
NBR	1	1600	512	.32	821	.51
SBL	1.5		217	.14*	1051	{.39}*
SBT	2.5	6400	1412	.29	1449	.39
SBR	0	0	0		0	
EBL	1	1600	131	.08*	66	.04*
EBT	0	0	0		0	
EBR	1	1600	305	.19	156	.10
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment		Multi		.18*	NBR	.22*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 1.01

3. Wilmington & 223rd

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	13	.01	35	.02
NBT	2	3200	624	.20*	699	.22*
NBR	1	1600	333	.21	499	.31
SBL	1	1600	174	.11*	177	.11*
SBT	2	3200	912	.29	745	.23
SBR	1	1600	674	.42	339	.21
EBL	1	1600	340	.21*	348	.22
EBT	2	3200	352	.11	758	.24*
EBR	1	1600	16	.01	11	.01
WBL	1	1600	304	.19	156	.10*
WBT	2	3200	487	.15*	247	.08
WBR	1	1600	126	.08	162	.10
Right Turn Adjustment					NBR	.02*
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.77		.79

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	13	.01	35	.02
NBT	2	3200	624	.20*	699	.22*
NBR	1	1600	333	.21	499	.31
SBL	1	1600	174	.11*	177	.11*
SBT	2	3200	912	.29	745	.23
SBR	1	1600	674	.42	339	.21
EBL	1	1600	340	.21*	348	.22
EBT	2	3200	352	.11	758	.24*
EBR	1	1600	16	.01	11	.01
WBL	1	1600	304	.19	191	.12*
WBT	2	3200	487	.15*	282	.09
WBR	1	1600	126	.08	236	.15
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.77		.79

4. Wilmington & Watsoncntr

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	28	.02*	228	.14*
NBT	2	3200	842	.26	1266	.40
NBR	0	0	2		5	
SBL	1	1600	7	.00	23	.01
SBT	2	3200	1133	.40*	977	.35*
SBR	0	0	132		130	
EBL	0	0	73	{.05}*	90	{.06}*
EBT	1	1600	1	.05	3	.06
EBR	1	1600	18	.01	42	.03
WBL	0	0	0		9	
WBT	1	1600	0	.00*	8	.03*
WBR	0	0	0		29	
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.57		.68

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	28	.02*	228	.14*
NBT	2	3200	842	.26	1266	.40
NBR	0	0	2		5	
SBL	1	1600	7	.00	23	.01
SBT	2	3200	1133	.40*	1012	.36*
SBR	0	0	132		130	
EBL	0	0	73	{.05}*	90	{.06}*
EBT	1	1600	1	.05	3	.06
EBR	1	1600	18	.01	42	.03
WBL	0	0	0		9	
WBT	1	1600	0	.00*	8	.03*
WBR	0	0	0		29	
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.57		.69

5. Wilmington & Sepulveda

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	52	.03	27	.02
NBT	2	3200	497	.18*	327	.16*
NBR	0	0	74		187	
SBL	1	1600	73	.05*	517	.32*
SBT	2	3200	395	.18	425	.19
SBR	0	0	187		197	
EBL	1	1600	357	.22*	215	.13
EBT	2	3200	215	.07	412	.14*
EBR	0	0	20		21	
WBL	1	1600	95	.06	244	.15*
WBT	2	3200	270	.08*	440	.14
WBR	d	1600	59	.04	293	.18
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 .87

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	52	.03	27	.02
NBT	2	3200	497	.18*	327	.16*
NBR	0	0	74		187	
SBL	1	1600	73	.05*	517	.32*
SBT	2	3200	395	.18	441	.21
SBR	0	0	187		216	
EBL	1	1600	357	.22*	215	.13
EBT	2	3200	215	.07	412	.14*
EBR	0	0	20		21	
WBL	1	1600	95	.06	246	.15*
WBT	2	3200	270	.08*	456	.14
WBR	d	1600	59	.04	293	.18
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 .87

6. Alameda & I-405 NB

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	317	.10*	582	.18*
NBR	1	1600	19	.01	185	.12
SBL	1	1600	46	.03*	102	.06*
SBT	2	3200	342	.11	414	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	284	.18*	283	.18*
WBT	0	0	0		0	
WBR	1	1600	274	.17	117	.07
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .41 .52

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	317	.10*	601	.19*
NBR	1	1600	19	.01	218	.14
SBL	1	1600	46	.03*	102	.06*
SBT	2	3200	342	.11	414	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	284	.18*	283	.18*
WBT	0	0	0		0	
WBR	1	1600	274	.17	117	.07
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .41 .53

7. Alameda & 223/Wardlow Access

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	201	.06*	503	.16*
NBR	0	0	188	.12	465	.29
SBL	1	1600	108	.07*	104	.07*
SBT	3	4800	513	.11	406	.08
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	117	.07*	49	.03*
WBT	0	0	0		0	
WBR	1	1600	131	.08	90	.06
Right Turn Adjustment Clearance Interval			NBR	.01*	NBR	.11*
				.10*		.10*

TOTAL CAPACITY UTILIZATION .31 .47

8. Alameda & Sepulveda

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	17	.01	13	.01
NBT	2	3200	272	.14*	424	.16*
NBR	0	0	160		91	
SBL	1	1600	123	.08*	73	.05*
SBT	2	3200	401	.13	376	.12
SBR	1	1600	103	.06	294	.18
EBL	0	0	27		176	
EBT	1	1600	216	.16*	555	.48*
EBR	0	0	20		30	
WBL	0.5		47	{.03}*	57	{.04}*
WBT	1	3200	184	.11	295	.16
WBR	0.5		106		145	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .51 .83

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	201	.06*	503	.16*
NBR	0	0	188	.12	465	.29
SBL	1	1600	108	.07*	104	.07*
SBT	3	4800	513	.11	406	.08
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	117	.07*	115	.07*
WBT	0	0	0		0	
WBR	1	1600	131	.08	141	.09
Right Turn Adjustment Clearance Interval			NBR	.01*	NBR	.08*
				.10*		.10*

TOTAL CAPACITY UTILIZATION .31 .48

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	17	.01	13	.01
NBT	2	3200	272	.14*	424	.16*
NBR	0	0	160		91	
SBL	1	1600	123	.08*	102	.06*
SBT	2	3200	401	.13	395	.12
SBR	1	1600	103	.06	313	.20
EBL	0	0	27		176	
EBT	1	1600	216	.16*	555	.48*
EBR	0	0	20		30	
WBL	0.5		47	{.03}*	57	{.04}*
WBT	1	3200	184	.11	295	.16
WBR	0.5		106		145	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .51 .84



9. I-405 SB on/off & 223/Wardlow

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	1	.00*	0	.00*
NBR	0	0	4		6	
SBL	1	1600	53	.03*	183	.11*
SBT	0	0	2		0	
SBR	1	1600	109	.07	53	.03
EBL	2	2880	286	.10*	426	.15*
EBT	2	3200	393	.12	329	.10
EBR	1	1600	3	.00	6	.00
WBL	1	1600	2	.00	2	.00
WBT	3	4800	641	.16*	418	.13*
WBR	0	0	121		256	.16
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .39 .49

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	1	1600	1	.00*	0	.00*
NBR	0	0	4		6	
SBL	1	1600	53	.03*	183	.11*
SBT	0	0	2		0	
SBR	1	1600	109	.07	53	.03
EBL	2	2880	286	.10*	426	.15*
EBT	2	3200	393	.12	329	.10
EBR	1	1600	3	.00	95	.06
WBL	1	1600	2	.00	2	.00
WBT	3	4800	641	.16*	418	.13*
WBR	0	0	121		256	.16
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .39 .49

10. 223rd & Wardlow Access

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	102		115	
NBT	2	3200	0	.10*	0	.16*
NBR	0	0	208		400	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	627	.20*	1705	.53*
EBR	1	1600	98	.06	71	.04
WBL	2	2880	166	.06*	72	.03*
WBT	3	4800	361	.08	396	.08
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .46 .82

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	102		115	
NBT	2	3200	0	.10*	0	.16*
NBR	0	0	208		400	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	627	.20*	1794	.56*
EBR	1	1600	98	.06	155	.10
WBL	2	2880	166	.06*	72	.03*
WBT	3	4800	361	.08	396	.08
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .46 .85

11. 223rd & Gate 16

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	1		64	
NBT	1	1600	0	.00	0	.10*
NBR	0	0	2		95	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	692	.22	1681	.53*
EBR	0	0	1		5	
WBL	0	0	3		0	
WBT	2	3200	981	.31*	522	.16
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .41 .73

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	1		64	
NBT	1	1600	0	.00	0	.16*
NBR	0	0	2		198	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	692	.22	1681	.53*
EBR	0	0	1		5	
WBL	0	0	3		0	
WBT	2	3200	981	.31*	666	.21
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .41 .79

12. 223rd & Gate 62

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	17	.01*	32	.02*
NBT	0	0	0		0	
NBR	1	1600	27	.02	269	.17
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	643	.20*	1440	.45*
EBR	1	1600	8	.01	14	.01
WBL	1	1600	31	.02*	26	.02*
WBT	3	4800	1021	.21	661	.14
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.13*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .33 .72

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	17	.01*	176	.11*
NBT	0	0	0		0	
NBR	1	1600	27	.02	372	.23
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	643	.20*	1440	.45*
EBR	1	1600	8	.01	14	.01
WBL	1	1600	31	.02*	26	.02*
WBT	3	4800	1021	.21	661	.14
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.10*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .33 .78

13. Temple & Willow

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	1	1600	157	.10*	55	.03*
NBT	2	3200	465	.15	271	.09
NBR	0	0	29		25	
SBL	1	1600	83	.05	170	.11
SBT	2	3200	285	.13*	436	.18*
SBR	0	0	131		149	
EBL	1	1600	55	.03*	37	.02
EBT	3	4800	951	.22	1484	.34*
EBR	0	0	92		124	
WBL	1	1600	31	.02	38	.02*
WBT	3	4800	1468	.32*	767	.17
WBR	0	0	90		46	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .68 .67

Existing+Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	1	1600	157	.10*	60	.04*
NBT	2	3200	465	.15	276	.09
NBR	0	0	29		25	
SBL	1	1600	83	.05	170	.11
SBT	2	3200	285	.13*	436	.18*
SBR	0	0	131		149	
EBL	1	1600	55	.03*	37	.02
EBT	3	4800	951	.22	1484	.34*
EBR	0	0	92		124	
WBL	1	1600	31	.02	38	.02*
WBT	3	4800	1468	.32*	767	.17
WBR	0	0	90		46	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .68 .68

14. Cherry & Willow

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	2	2880	131	.05	112	.04
NBT	3	4800	908	.19*	894	.19*
NBR	1	1600	88	.06	243	.15
SBL	2	2880	161	.06*	358	.12*
SBT	3	4800	584	.15	870	.22
SBR	0	0	135		207	
EBL	2	2880	130	.05*	188	.07
EBT	3	4800	642	.15	1434	.33*
EBR	0	0	59		130	
WBL	2	2880	154	.05	260	.09*
WBT	3	4800	967	.23*	924	.24
WBR	0	0	134		222	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 .83

Existing+Project						
	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	2	2880	131	.05	112	.04
NBT	3	4800	908	.19*	894	.19*
NBR	1	1600	88	.06	243	.15
SBL	2	2880	161	.06*	358	.12*
SBT	3	4800	584	.15	870	.22
SBR	0	0	135		207	
EBL	2	2880	130	.05*	188	.07
EBT	3	4800	642	.15	1434	.33*
EBR	0	0	59		130	
WBL	2	2880	154	.05	260	.09*
WBT	3	4800	967	.23*	924	.24
WBR	0	0	134		227	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 .83

15. Cherry & I-405 SB Ramp

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	1567	.33	1705	.36
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	1104	.35*	1305	.41*
SBR	1	1600	364	.23	380	.24
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	385	.24	399	.25
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.24*	EBR	.25*
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>			<b>.69</b>		<b>.76</b>	

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	1567	.33	1705	.36
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	1104	.35*	1305	.41*
SBR	1	1600	364	.23	380	.24
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	1	1600	385	.24	399	.25
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.24*	EBR	.25*
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>			<b>.69</b>		<b>.76</b>	

16. Cherry & I-405 NB Ramp

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	1063	.33	1535	.48
NBR	1	1600	681	.43	567	.35
SBL	0	0	0		0	
SBT	2	3200	1269	.40*	1592	.50*
SBR	1	1600	416	.26	322	.20
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	1	1600	634	.40	521	.33
Right Turn Adjustment			Multi	.38*	WBR	.31*
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>			<b>.88</b>		<b>.91</b>	

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	1063	.33	1535	.48
NBR	1	1600	681	.43	567	.35
SBL	0	0	0		0	
SBT	2	3200	1269	.40*	1592	.50*
SBR	1	1600	416	.26	322	.20
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	1	1600	634	.40	521	.33
Right Turn Adjustment			Multi	.38*	WBR	.31*
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>			<b>.88</b>		<b>.91</b>	

17. Temple & I-405 NB Ramp

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	464	.15*	529	.17*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	413	.13	343	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	302	.19*	230	.14*
WBT	0	0	0		0	
WBR	1	1600	145	.09	87	.05
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .44 .41

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	464	.15*	529	.17*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	413	.13	343	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	302	.19*	230	.14*
WBT	0	0	0		0	
WBR	1	1600	145	.09	92	.06
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .44 .41

18. I-710 NB Ramps & Firestone

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	320	.11*	580	.20*
NBT	0	0	0		0	
NBR	1	1600	420	.26	550	.34
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1140	.24	2810	.59*
EBR	1	1600	350	.22	490	.31
WBL	0	0	0		0	
WBT	3	4800	1760	.37*	1940	.40
WBR	1	1600	500	.31	200	.13
Right Turn Adjustment			NBR	.05*	NBR	.14*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 1.03

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	320	.11*	580	.20*
NBT	0	0	0		0	
NBR	1	1600	420	.26	550	.34
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1140	.24	2810	.59*
EBR	1	1600	350	.22	490	.31
WBL	0	0	0		0	
WBT	3	4800	1760	.37*	1950	.41
WBR	1	1600	500	.31	200	.13
Right Turn Adjustment			NBR	.05*	NBR	.14*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .63 1.03

19. I-710 SB Ramps & Firestone

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	0	.00	690	.24*
SBT	0	0	0		0	
SBR	2	3200	550	.17	640	.20
EBL	0	0	0		0	
EBT	3	4800	1700	.48*	2680	.66*
EBR	0	0	600		490	
WBL	0	0	0		0	
WBT	3	4800	1550	.32	1960	.41
WBR	1	1600	510	.32	560	.35
Right Turn Adjustment			SBR	.05*		
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				<b>.63</b>		<b>1.00</b>

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	0	.00	690	.24*
SBT	0	0	0		0	
SBR	2	3200	550	.17	640	.20
EBL	0	0	0		0	
EBT	3	4800	1700	.48*	2680	.66*
EBR	0	0	600		490	
WBL	0	0	0		0	
WBT	3	4800	1550	.32	1960	.41
WBR	1	1600	510	.32	560	.35
Right Turn Adjustment			SBR	.05*		
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				<b>.63</b>		<b>1.00</b>

20. Garfield & Firestone Ave

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	620	.22*	440	.15*
NBT	2	3200	580	.20	590	.22
NBR	0	0	70		110	
SBL	2	2880	190	.07	320	.11
SBT	2	3200	460	.14*	720	.23*
SBR	1	1600	150	.09	320	.20
EBL	2	2880	520	.18*	640	.22*
EBT	3	4800	700	.15	1860	.39
EBR	1	1600	290	.18	640	.40
WBL	2	2880	70	.02	130	.05
WBT	3	4800	1400	.29*	1420	.30*
WBR	1	1600	220	.14	180	.11
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				<b>.93</b>		<b>1.00</b>

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	2	2880	620	.22*	440	.15*
NBT	2	3200	580	.20	590	.22
NBR	0	0	70		110	
SBL	2	2880	190	.07	330	.11
SBT	2	3200	460	.14*	720	.23*
SBR	1	1600	150	.09	320	.20
EBL	2	2880	520	.18*	640	.22*
EBT	3	4800	700	.15	1860	.39
EBR	1	1600	290	.18	640	.40
WBL	2	2880	70	.02	130	.05
WBT	3	4800	1400	.29*	1420	.30*
WBR	1	1600	220	.14	180	.11
Clearance Interval				.10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				<b>.93</b>		<b>1.00</b>

21. Pier B ST & I-710 on/off

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	60	.02	70	.02
NBT	1	1600	71	.04*	194	.12*
NBR	1	1600	91	.06	59	.04
SBL	1	1600	84	.05*	85	.05*
SBT	2	3200	66	.04	195	.07
SBR	0	0	100	.06	32	
EBL	0.5		4		10	{.01}*
EBT	1.5	3200	249	.08*	39	.02
EBR	3	4800	151	.03	22	.00
WBL	0.5		4		2	
WBT	1	3200	6	.01	25	.02*
WBR	0.5		163	.10	99	.06
Right Turn Adjustment Clearance Interval			NBR	.02* .10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.29		.30

Existing+Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	60	.02	70	.02
NBT	1	1600	71	.04*	194	.12*
NBR	1	1600	91	.06	64	.04
SBL	1	1600	84	.05*	85	.05*
SBT	2	3200	66	.04	195	.07
SBR	0	0	100	.06	32	
EBL	0.5		4		10	{.01}*
EBT	1.5	3200	249	.08*	39	.02
EBR	3	4800	151	.03	22	.00
WBL	0.5		4		2	
WBT	1	3200	6	.01	25	.02*
WBR	0.5		163	.10	99	.06
Right Turn Adjustment Clearance Interval			NBR	.02* .10*		.10*
<b>TOTAL CAPACITY UTILIZATION</b>				.29		.30

22. Riverside Dr. & I-10 EB on/off ramp

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 EB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: AM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 EB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	0	1	0	0	0	0	2	1	1	2	0
Volume	268		234				0	539	214	336	752	0
Parking		N						N			N	
Coord.		N						N			N	
LT Treat.	U						?			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								



LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	268		0	336
2. Opposing mainline volume	0		752	753
3. Number of exclusive LT lanes	1		0	1
Cross Product [2] * [1]	0		0	253008
Left Lane Configuration (E=Excl, S=Shrd):	E		S	E
Left Turn Treatment Type:	U		U	U
4. LT adjustment factor	1.000			1.000
5. LT lane vol	0		0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E		E	S
6. RT volume	234		214	0
7. Exclusive lanes	1		1	0
8. RT adjustment factor	0.850		0.850	0.850
9. Exclusive RT lane volume	275		252	
10. Shared lane vol				0
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0		539	752
12. Parking adjustment factor	1.00		1.00	1.00
13. No. of thru lanes including shared	0		2	2
14. Total approach volume	0		539	752
15. Prop. of left turns in lane group	0.00		0.00	0.00
16. Left turn equivalence			2.94	2.94
17. LT adj. factor:			1.000	
18. Through lane volume	0		270	376
19. Critical lane volume	275		270	376
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60		60	60

SIGNAL OPERATIONS WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
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Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	275		270	376
RT lane vol: [5]	0		0	0
Left turn protection: (P/U/N)	U		U	U
Dominant left turn: (Indicate by '<')				

Selection Criteria based on the specified left turn protection

< Indicates the dominant left turn for each opposing pair

Plan 1:	U	U	U	U
Plan 2a:	U	P	U	P
Plan 2b:	P	U	P	U
Plan 3a:	<P	P	<P	P
Plan 3b:	P	<P	P	<P
Plan 4:	N	N	N	N

Phase plan selected (1 to 4)		1		1
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Min. cycle (Cmin) 60	Max. cycle (Cmax) 120
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Timing Plan

	Value	EAST-WEST			NORTH-SOUTH		
		Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes		EWT			NST		
Critical phase vol [CV]		275	0	0	376	0	0
Critical sum [CS]	651						
EBD adjustment [CBD]	0.90						
Reference sum [RS]	1539						
Lost time/phase [PL]		4	0	0	4	0	0
Lost time/cycle [TL]	8						
Cycle length [CYC]	60.0						
Phase time		26.0	0.0	0.0	34.0	0.0	0.0
Critical v/c Ratio [Xcm]	0.41						
Status	Under capacity						

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 EB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 EB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	0	1	0	0	0	0	2	1	1	2	0
Volume	555		276				0	928	449	448	661	0
Parking		N						N			N	
Coord.		N						N			N	
LT Treat.	U						?			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	555		0	448
2. Opposing mainline volume	0		661	1377
3. Number of exclusive LT lanes	1		0	1
Cross Product [2] * [1]	0		0	616896
Left Lane Configuration (E=Excl, S=Shrd):	E		S	E
Left Turn Treatment Type:	U		U	U
4. LT adjustment factor	1.000			1.000
5. LT lane vol	0		0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E		E	S
6. RT volume	276		449	0
7. Exclusive lanes	1		1	0
8. RT adjustment factor	0.850		0.850	0.850
9. Exclusive RT lane volume	325		528	
10. Shared lane vol				0
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0		928	661
12. Parking adjustment factor	1.00		1.00	1.00
13. No. of thru lanes including shared	0		2	2
14. Total approach volume	0		928	661
15. Prop. of left turns in lane group	0.00		0.00	0.00
16. Left turn equivalence			2.69	5.34
17. LT adj. factor:			1.000	
18. Through lane volume	0		464	330
19. Critical lane volume	325		528	330
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60		60	60



HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 EB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing+Prj  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 EB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	0	1	0	0	0	0	2	1	1	2	0
Volume	555		276				0	931	451	448	661	0
Parking		N						N			N	
Coord.		N						N			N	
UT Treat.	U						?			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	555		0	448
2. Opposing mainline volume	0		661	1382
3. Number of exclusive LT lanes	1		0	1
Cross Product [2] * [1]	0		0	619136
Left Lane Configuration (E=Excl, S=Shrd):	E		S	E
Left Turn Treatment Type:	U		U	U
4. LT adjustment factor	1.000			1.000
5. LT lane vol	0		0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E		E	S
6. RT volume	276		451	0
7. Exclusive lanes	1		1	0
8. RT adjustment factor	0.850		0.850	0.850
9. Exclusive RT lane volume	325		531	
10. Shared lane vol				0
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0		931	661
12. Parking adjustment factor	1.00		1.00	1.00
13. No. of thru lanes including shared	0		2	2
14. Total approach volume	0		931	661
15. Prop. of left turns in lane group	0.00		0.00	0.00
16. Left turn equivalence			2.69	5.36
17. LT adj. factor:			1.000	
18. Through lane volume	0		466	330
19. Critical lane volume	325		531	330
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60		60	60

SIGNAL OPERATIONS WORKSHEET

EAST	WEST	NORTH	SOUTH
BOUND	BOUND	BOUND	BOUND

Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	325	531	330
RT lane vol: [5]	0	0	0
Left turn protection: (P/U/N)	U	U	U
Dominant left turn: (Indicate by '<')			

Selection Criteria based on the specified left turn protection

< Indicates the dominant left turn for each opposing pair

Plan 1:	U	U	U	U
Plan 2a:	U	P	U	P
Plan 2b:	P	U	P	U
Plan 3a:	<P	P	<P	P
Plan 3b:	P	<P	P	<P
Plan 4:	N	N	N	N

Phase plan selected (1 to 4)

1 1

Min. cycle (Cmin) 60

Max. cycle (Cmax) 120

Timing Plan

Value	EAST-WEST			NORTH-SOUTH		
	Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes	EWT			NST		
Critical phase vol [CV]	325	0	0	531	0	0
Critical sum [CS]	856					
CBD adjustment [CBD]	0.90					
Reference sum [RS]	1539					
Lost time/phase [PL]	4	0	0	4	0	0
Lost time/cycle [TL]	8					
Cycle length [CYC]	60.0					
Phase time	23.7	0.0	0.0	36.3	0.0	0.0
Critical v/c Ratio [Xcm]	0.54					
Status	Under capacity					



23. Riverside Dr & I-10 WB on/off ramp

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 WB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: AM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 WB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	0	0	0	2	0	1	1	2	0	0	2	1
Volume				349		449	278	529	0	0	739	629
Parking					N			N			N	
Coord.					N			N			N	
JT Treat.				U			U			?		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	349	278	0	
2. Opposing mainline volume	0	1368	529	
3. Number of exclusive LT lanes	2	1	0	
Cross Product [2] * [1]	0	380304	0	
Left Lane Configuration (E=Excl, S=Shrd):	E	E	S	
Left Turn Treatment Type:	U	U	U	
4. LT adjustment factor	1.000	1.000		
5. LT lane vol	0	0	0	
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	S	E	
6. RT volume	449	0	629	
7. Exclusive lanes	1	0	1	
8. RT adjustment factor	0.850	0.850	0.850	
9. Exclusive RT lane volume	528		740	
10. Shared lane vol		0		
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0	529	739	
12. Parking adjustment factor	1.00	1.00	1.00	
13. No. of thru lanes including shared	0	2	2	
14. Total approach volume	0	529	739	
15. Prop. of left turns in lane group	0.00	0.00	0.00	
16. Left turn equivalence		5.29	2.37	
17. LT adj. factor:			1.000	
18. Through lane volume	0	264	370	
19. Critical lane volume	528	264	740	
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	

SIGNAL OPERATIONS WORKSHEET

EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
---------------	---------------	----------------	----------------

Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	528	264	740
RT lane vol: [5]	0	0	0
Left turn protection: (P/U/N)	U	U	U
Dominant left turn: (Indicate by '<')			

Selection Criteria based on the specified left turn protection

Plan 1:	U	U	U	U
Plan 2a:	U	P	U	P
Plan 2b:	P	U	P	U
Plan 3a:	<P	P	<P	P
Plan 3b:	P	<P	P	<P
Plan 4:	N	N	N	N

< Indicates the dominant left turn for each opposing pair

Phase plan selected (1 to 4)

	1		1
--	---	--	---

Min. cycle (Cmin) 60

Max. cycle (Cmax) 120

Timing Plan

Value	EAST-WEST			NORTH-SOUTH		
	Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes	EWT			NST		
Critical phase vol [CV]	528	0	0	740	0	0
Critical sum [CS]	1268					
CBD adjustment [CBD]	0.90					
Reference sum [RS]	1539					
Lost time/phase [PL]	4	0	0	4	0	0
Lost time/cycle [TL]	8					
Cycle length [CYC]	60.0					
Phase time	25.7	0.0	0.0	34.3	0.0	0.0
Critical v/c Ratio [Xcm]	0.79					
Status	Under capacity					

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 WB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 WB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	0	0	0	2	0	1	1	2	0	0	2	1
Volume				149		343	155	1328	0	0	860	377
Parking					N			N			N	
Coord.					N			N			N	
LT Treat.				U			U			?		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	149	155	0	
2. Opposing mainline volume	0	1237	1328	
3. Number of exclusive LT lanes	2	1	0	
Cross Product [2] * [1]	0	191735	0	
Left Lane Configuration (E=Excl, S=Shrd):	E	E	S	
Left Turn Treatment Type:	U	U	U	
4. LT adjustment factor	1.000	1.000		
5. LT lane vol	0	0	0	
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	S	E	
6. RT volume	343	0	377	
7. Exclusive lanes	1	0	1	
8. RT adjustment factor	0.850	0.850	0.850	
9. Exclusive RT lane volume	404		444	
10. Shared lane vol		0		
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0	1328	860	
12. Parking adjustment factor	1.00	1.00	1.00	
13. No. of thru lanes including shared	0	2	2	
14. Total approach volume	0	1328	860	
15. Prop. of left turns in lane group	0.00	0.00	0.00	
16. Left turn equivalence		4.67	5.09	
17. LT adj. factor:			1.000	
18. Through lane volume	0	664	430	
19. Critical lane volume	404	664	444	
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	

SIGNAL OPERATIONS WORKSHEET

EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
---------------	---------------	----------------	----------------

Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	404	664	444
RT lane vol: [5]	0	0	0
Left turn protection: (P/U/N)	U	U	U
Dominant left turn: (Indicate by '<')			

Selection Criteria based on the specified left turn protection

< Indicates the dominant left turn for each opposing pair

Plan 1: U	U	U	U
Plan 2a: U	P	U	P
Plan 2b: P	U	P	U
Plan 3a: <P	P	<P	P
Plan 3b: P	<P	P	<P
Plan 4: N	N	N	N

Phase plan selected (1 to 4)

1	1
---	---

Min. cycle (Cmin) 60

Max. cycle (Cmax) 120

Timing Plan

	Value	EAST-WEST			NORTH-SOUTH		
		Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes		EWT			NST		
Critical phase vol [CV]		404	0	0	664	0	0
Critical sum [CS]	1068						
CB adjustment [CBD]	0.90						
Reference sum [RS]	1539						
Lost time/phase [PL]		4	0	0	4	0	0
Lost time/cycle [TL]	8						
Cycle length [CYC]	60.0						
Phase time		23.7	0.0	0.0	36.3	0.0	0.0
Critical v/c Ratio [Xcm]	0.67						
Status	Under capacity						

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/I-10 WB Ramp  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing+Prj  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: I-10 WB Ramp  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	0	0	0	2	0	1	1	2	0	0	2	1
Volume				149		343	158	1328	0	0	860	377
Parking					N			N			N	
Coord.					N			N			N	
LT Treat.				U			U			?		
Peak hour factor:	1.00			Area Type: CBD or Similar								

SIGNAL OPERATIONS WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
--	---------------	---------------	----------------	----------------

Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	404	664	444
LT lane vol: [5]	0	0	0
Left turn protection: (P/U/N)	U	U	U
Dominant left turn: (Indicate by '<')			

Selection Criteria based on the specified left turn protection

Plan 1: U	U	U	U	U
Plan 2a: U	P	U	P	P
Plan 2b: P	U	P	U	U
Plan 3a: <P	P	<P	P	P
Plan 3b: P	<P	P	<P	<P
Plan 4: N	N	N	N	N

< Indicates the dominant left turn for each opposing pair

Phase plan selected (1 to 4)

	1		1
--	---	--	---

Min. cycle (Cmin) 60

Max. cycle (Cmax) 120

Timing Plan

	Value	EAST-WEST			NORTH-SOUTH		
		Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes		EWT			NST		
Critical phase vol [CV]		404	0	0	664	0	0
Critical sum [CS]	1068						
CBD adjustment [CBD]	0.90						
Reference sum [RS]	1539						
Lost time/phase [PL]		4	0	0	4	0	0
Lost time/cycle [TL]	8						
Cycle length [CYC]	60.0						
Phase time		23.7	0.0	0.0	36.3	0.0	0.0
Critical v/c Ratio [Xcm]	0.67						
Status	Under capacity						



LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	149	158	0	
2. Opposing mainline volume	0	1237	1328	
3. Number of exclusive LT lanes	2	1	0	
Cross Product [2] * [1]	0	195446	0	
Left Lane Configuration (E=Excl, S=Shrd):	E	E	S	
Left Turn Treatment Type:	U	U	U	
4. LT adjustment factor	1.000	1.000		
5. LT lane vol	0	0	0	
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	S	E	
6. RT volume	343	0	377	
7. Exclusive lanes	1	0	1	
8. RT adjustment factor	0.850	0.850	0.850	
9. Exclusive RT lane volume	404		444	
10. Shared lane vol		0		
<b>THROUGH MOVEMENT</b>				
11. Thru volume	0	1328	860	
12. Parking adjustment factor	1.00	1.00	1.00	
13. No. of thru lanes including shared	0	2	2	
14. Total approach volume	0	1328	860	
15. Prop. of left turns in lane group	0.00	0.00	0.00	
16. Left turn equivalence		4.67	5.09	
17. LT adj. factor:			1.000	
18. Through lane volume	0	664	430	
19. Critical lane volume	404	664	444	
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	

SIGNAL OPERATIONS WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
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Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	404	664	444
RT lane vol: [5]	0	0	0
Left turn protection: (P/U/N)	U	U	U
Dominant left turn: (Indicate by '<')			

Selection Criteria based on the specified left turn protection	Plan 1: U	U	U	U
	Plan 2a: U	P	U	P
	Plan 2b: P	U	P	U
< Indicates the dominant left turn for each opposing pair	Plan 3a: <P	P	<P	P
	Plan 3b: P	<P	P	<P
	Plan 4: N	N	N	N

Phase plan selected (1 to 4) 1 1

Min. cycle (Cmin) 60 Max. cycle (Cmax) 120

Timing Plan	Value	EAST-WEST			NORTH-SOUTH		
		Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes		EWT			NST		
Critical phase vol [CV]		404	0	0	664	0	0
Critical sum [CS]	1068						
CBD adjustment [CBD]	0.90						
Reference sum [RS]	1539						
Lost time/phase [PL]		4	0	0	4	0	0
Lost time/cycle [TL]	8						
Cycle length [CYC]	60.0						
Phase time		23.7	0.0	0.0	36.3	0.0	0.0
Critical v/c Ratio [Xcm]	0.67						
Status	Under capacity						

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/Slover  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing+Prj  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: Slover  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Volume	276	207	58	43	22	18	27	843	154	8	678	79
Parking		N			N			N			N	
Coord.		N			N			N			N	
RT Treat.	U			U			U			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/Slover  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: AM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: Slover  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Volume	185	30	19	38	18	39	49	592	18	3	850	188
Parking		N			N			N			N	
Coord.		N			N			N			N	
LT Treat.	U			U			U			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	185	38	49	3
2. Opposing mainline volume	57	49	1038	610
3. Number of exclusive LT lanes	1	1	1	1
Cross Product [2] * [1]	10545	1862	50862	1830
Left Lane Configuration (E=Excl, S=Shrd):	E	E	E	E
Left Turn Treatment Type:	U	U	U	U
4. LT adjustment factor	1.000	1.000	1.000	1.000
5. LT lane vol	0	0	0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	E	S	S
6. RT volume	19	39	18	188
7. Exclusive lanes	1	1	0	0
8. RT adjustment factor	0.850	0.850	0.850	0.850
9. Exclusive RT lane volume	22	46		
10. Shared lane vol			21	221
<b>THROUGH MOVEMENT</b>				
11. Thru volume	30	18	592	850
12. Parking adjustment factor	1.00	1.00	1.00	1.00
13. No. of thru lanes including shared	1	1	2	2
14. Total approach volume	30	18	613	1071
15. Prop. of left turns in lane group	0.00	0.00	0.00	0.00
16. Left turn equivalence	1.46	1.45	3.87	2.56
17. LT adj. factor:				
18. Through lane volume	30	18	306	536
19. Critical lane volume	30	46	306	536
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	60



HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/Slover  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: Slover  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Volume	276	207	58	43	22	18	27	838	154	8	678	79
Parking		N			N			N			N	
Coord.		N			N			N			N	
LT Treat.	U			U			U			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	276	43	27	8
2. Opposing mainline volume	40	265	757	992
3. Number of exclusive LT lanes	1	1	1	1
Cross Product [2] * [1]	11040	11395	20439	7936
Left Lane Configuration (E=Excl, S=Shrd):	E	E	E	E
Left Turn Treatment Type:	U	U	U	U
4. LT adjustment factor	1.000	1.000	1.000	1.000
5. LT lane vol	0	0	0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	E	S	S
6. RT volume	58	18	154	79
7. Exclusive lanes	1	1	0	0
8. RT adjustment factor	0.850	0.850	0.850	0.850
9. Exclusive RT lane volume	68	21		
10. Shared lane vol			181	93
<b>THROUGH MOVEMENT</b>				
11. Thru volume	207	22	838	678
12. Parking adjustment factor	1.00	1.00	1.00	1.00
13. No. of thru lanes including shared	1	1	2	2
14. Total approach volume	207	22	1019	771
15. Prop. of left turns in lane group	0.00	0.00	0.00	0.00
16. Left turn equivalence	1.44	1.82	2.96	3.70
17. LT adj. factor:				
18. Through lane volume	207	22	510	386
19. Critical lane volume	207	22	510	386
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	60



SIGNAL OPERATIONS WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
--	---------------	---------------	----------------	----------------

Phase Plan Selection from Lane Volume Worksheet

Critical through-RT vol: [19]	207	22	510	386
RT lane vol: [5]	0	0	0	0
Left turn protection: (P/U/N)	U	U	U	U
Dominant left turn: (Indicate by '<')				

Selection Criteria based on the specified left turn protection

< Indicates the dominant left turn for each opposing pair

Plan 1:	U	U	U	U
Plan 2a:	U	P	U	P
Plan 2b:	P	U	P	U
Plan 3a:	<P	P	<P	P
Plan 3b:	P	<P	P	<P
Plan 4:	N	N	N	N

Phase plan selected (1 to 4)

	1		1	
--	---	--	---	--

Min. cycle (Cmin) 60

Max. cycle (Cmax) 120

Timing Plan

	Value	EAST-WEST			NORTH-SOUTH		
		Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
Movement codes							
Critical phase vol [CV]		EWT			NST		
Critical sum [CS]	717	207	0	0	510	0	0
BD adjustment [CBD]	0.90						
Reference sum [RS]	1539						
Lost time/phase [PL]		4	0	0	4	0	0
Lost time/cycle [TL]	8						
Cycle length [CYC]	60.0						
Phase time		19.0	0.0	0.0	41.0	0.0	0.0
Critical v/c Ratio [Xcm]	0.45						
Status	Under capacity						

HCS: Signalized Intersections Release 3.1c

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PLANNING ANALYSIS

Intersection: Riverside Ave/Slover  
 Project No: 326.012  
 City/State: Colton, CA  
 Time Period Analyzed: PM Existing+Prj  
 Analyst:  
 Date: 6/20/2000  
 East/West Street Name: Slover  
 North/South Street Name: Riverside Ave

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Num. Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Volume	276	207	58	43	22	18	27	843	154	8	678	79
Parking		N			N			N			N	
Coord.		N			N			N			N	
RT Treat.	U			U			U			U		
Peak hour factor:	1.00			Area Type: CBD or Similar								

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	276	43	27	8
2. Opposing mainline volume	40	265	757	997
3. Number of exclusive LT lanes	1	1	1	1
Cross Product [2] * [1]	11040	11395	20439	7976
Left Lane Configuration (E=Excl, S=Shrd):	E	E	E	E
Left Turn Treatment Type:	U	U	U	U
4. LT adjustment factor	1.000	1.000	1.000	1.000
5. LT lane vol	0	0	0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	E	S	S
6. RT volume	58	18	154	79
7. Exclusive lanes	1	1	0	0
8. RT adjustment factor	0.850	0.850	0.850	0.850
9. Exclusive RT lane volume	68	21		
10. Shared lane vol			181	93
<b>THROUGH MOVEMENT</b>				
11. Thru volume	207	22	843	678
12. Parking adjustment factor	1.00	1.00	1.00	1.00
13. No. of thru lanes including shared	1	1	2	2
14. Total approach volume	207	22	1024	771
15. Prop. of left turns in lane group	0.00	0.00	0.00	0.00
16. Left turn equivalence	1.44	1.82	2.96	3.72
17. LT adj. factor:				
18. Through lane volume	207	22	512	386
19. Critical lane volume	207	22	512	386
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	60

LANE VOLUME WORKSHEET

	EAST BOUND	WEST BOUND	NORTH BOUND	SOUTH BOUND
<b>LEFT TURN MOVEMENT</b>				
1. LT volume	276	43	27	8
2. Opposing mainline volume	40	265	757	997
3. Number of exclusive LT lanes	1	1	1	1
Cross Product [2] * [1]	11040	11395	20439	7976
Left Lane Configuration (E=Excl, S=Shrd):	E	E	E	E
Left Turn Treatment Type:	U	U	U	U
4. LT adjustment factor	1.000	1.000	1.000	1.000
5. LT lane vol	0	0	0	0
<b>RIGHT TURN MOVEMENT</b>				
Right Lane Configuration (E=Excl, S=Shrd)	E	E	S	S
6. RT volume	58	18	154	79
7. Exclusive lanes	1	1	0	0
8. RT adjustment factor	0.850	0.850	0.850	0.850
9. Exclusive RT lane volume	68	21		
10. Shared lane vol			181	93
<b>THROUGH MOVEMENT</b>				
11. Thru volume	207	22	843	678
12. Parking adjustment factor	1.00	1.00	1.00	1.00
13. No. of thru lanes including shared	1	1	2	2
14. Total approach volume	207	22	1024	771
15. Prop. of left turns in lane group	0.00	0.00	0.00	0.00
16. Left turn equivalence	1.44	1.82	2.96	3.72
17. LT adj. factor:				
18. Through lane volume	207	22	512	386
19. Critical lane volume	207	22	512	386
Left Turn Check (if [16] > 8)				
20. Permitted left turn sneaker capacity: 7200/Cmax	60	60	60	60

25. Paramount & SR-91 EB on/off

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	727	.23*	847	.26*
NBR	1	1600	59	.04	427	.27
SBL	1	1600	133	.08*	502	.31*
SBT	2	3200	433	.14	616	.19
SBR	0	0	0		0	
EBL	1.5		38	.02*	241	.15*
EBT	0	3200	0		0	
EBR	0.5		76	.05	451	.28
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .43 .82

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	2	3200	727	.23*	850	.27*
NBR	1	1600	59	.04	429	.28
SBL	1	1600	133	.08*	502	.31*
SBT	2	3200	433	.14	616	.19
SBR	0	0	0		0	
EBL	1.5		38	.02*	241	.15*
EBT	0	3200	0		0	
EBR	0.5		76	.05	451	.28
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .43 .83

26. Paramount & SR-91 WB on/off

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	422	.26*	362	.23*
NBT	2	3200	483	.15	652	.20
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	478	.15*	765	.24*
SBR	1	1600	216	.14	274	.17
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	132	.08*	190	.12*
WBT	0	0	0		0	
WBR	1	1600	162	.10	186	.12
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .59 .69

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	422	.26*	365	.23*
NBT	2	3200	483	.15	652	.20
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	2	3200	478	.15*	765	.24*
SBR	1	1600	216	.14	274	.17
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	132	.08*	190	.12*
WBT	0	0	0		0	
WBR	1	1600	162	.10	186	.12
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .59 .69

27. Paramount & Artesia

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	121	.08	95	.06
NBT	2	3200	791	.25*	943	.29*
NBR	d	1600	63	.04	144	.09
SBL	2	2880	111	.04*	154	.05*
SBT	2	3200	532	.17	743	.23
SBR	1	1600	52	.03	102	.06
EBL	1	1600	63	.04*	163	.10
EBT	2	3200	312	.11	1225	.43*
EBR	0	0	49		160	
WBL	1	1600	128	.08	103	.06*
WBT	2	3200	743	.27*	497	.21
WBR	0	0	126		181	
Clearance Interval				.10*	.10*	

TOTAL CAPACITY UTILIZATION .70 .93

Existing+Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	121	.08	95	.06
NBT	2	3200	791	.25*	948	.30*
NBR	d	1600	63	.04	144	.09
SBL	2	2880	111	.04*	154	.05*
SBT	2	3200	532	.17	743	.23
SBR	1	1600	52	.03	102	.06
EBL	1	1600	63	.04*	163	.10
EBT	2	3200	312	.11	1225	.43*
EBR	0	0	49		160	
WBL	1	1600	128	.08	103	.06*
WBT	2	3200	743	.27*	497	.21
WBR	0	0	126		181	
Clearance Interval				.10*	.10*	

TOTAL CAPACITY UTILIZATION .70 .94