

APPENDIX B

Traffic Operations Data

San Ysidro LPOE Reconfiguration Mobility Study 1: Camino de la Plaza & Virginia Ave													San Ysidro LPOE Reconfiguration Mobility Study 2: Camino de la Plaza & SB I-5 On/Off-Ramps													
2030 With ITC Timing Plan: AM Peak													2030 With ITC Timing Plan: AM Peak													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↕	↔	↕	↕	↔	↕	↕	↔	↔	↕	↔	Lane Configurations	↔	↕	↔	↕	↕	↔	↕	↕	↔	↔	↕	↔	
Volume (vph)	0	328	51	196	437	4	45	0	133	3	0	0	Volume (vph)	70	431	4	8	237	95	5	2	35	401	30	414	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0		Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00		Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.88			1.00		Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.88	0.89	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.87			1.00		Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	
Fit	0.98	1.00		1.00	1.00		1.00	0.85			1.00		Fit	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	0.85	
Fit Protected	1.00	0.95		1.00	0.95		1.00	1.00			0.95		Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3468	1770		3535	1538		1361	1580			1580		Satd. Flow (prot)	1770	3528		1770	3539	1583	1613	1863	1396	1770	1353	1339	
Fit Permitted	1.00	0.95		1.00	0.76		1.00	0.66			0.66		Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3468	1770		3535	1224		1361	1105			1105		Satd. Flow (perm)	1770	3528		1770	3539	1583	1613	1863	1396	1770	1353	1339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	357	55	213	475	4	49	0	145	3	0	0	Adj. Flow (vph)	76	468	4	9	258	103	5	2	38	436	33	450	
RTOR Reduction (vph)	0	19	0	1	0	0	0	81	0	0	0	0	RTOR Reduction (vph)	0	1	0	0	0	57	0	0	30	0	111	92	
Lane Group Flow (vph)	0	393	0	213	478	0	49	64	0	0	3	0	Lane Group Flow (vph)	76	471	0	9	258	46	5	2	8	436	134	146	
Confl. Peds. (#/hr)								100			100		Confl. Peds. (#/hr)	100		100					100		100		100	
Tum Type	Prot			Prot			Perm			Perm			Tum Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	
Protected Phases	7	4		3	8		2			6			Protected Phases	7	4		3	8	1	5	2	3	1	6	7	
Permitted Phases							2			6			Permitted Phases						8		2				6	
Actuated Green, G (s)		13.4		13.6	31.0		31.0	31.0		31.0		31.0	Actuated Green, G (s)	9.3	17.2		2.5	10.4	31.6	0.8	13.1	15.6	21.2	33.5	42.8	
Effective Green, g (s)		13.4		13.6	31.0		31.0	31.0		31.0		31.0	Effective Green, g (s)	9.3	17.2		2.5	10.4	31.6	0.8	13.1	15.6	21.2	33.5	42.8	
Actuated g/C Ratio		0.19		0.19	0.44		0.44	0.44		0.44		0.44	Actuated g/C Ratio	0.13	0.25		0.04	0.15	0.45	0.01	0.19	0.22	0.30	0.48	0.61	
Clearance Time (s)		4.0		4.0	4.0		4.0	4.0		4.0		4.0	Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0		3.0	Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		664		344	1566		542	603		489		489	Lane Grp Cap (vph)	235	867		63	526	805	18	349	391	536	648	819	
v/s Ratio Prot		c0.11		c0.12	0.14			c0.05				0.00	v/s Ratio Prot	c0.04	c0.13		0.01	0.07	0.02	c0.00	0.00	0.00	c0.25	c0.10	0.02	
v/s Ratio Perm							0.04					0.00	v/s Ratio Perm						0.01			0.01			0.09	
v/c Ratio		0.59		0.62	0.31		0.09	0.11		0.01		0.01	v/c Ratio	0.32	0.54		0.14	0.49	0.06	0.28	0.01	0.02	0.81	0.21	0.18	
Uniform Delay, d1		25.8		25.8	12.6		11.3	11.4		10.9		10.9	Uniform Delay, d1	27.5	23.0		32.7	27.4	10.8	34.3	23.2	21.2	22.6	10.6	5.9	
Progression Factor		1.00		0.82	0.96		1.00	1.00		1.00		1.00	Progression Factor	0.63	0.40		0.72	0.59	0.13	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.4		3.2	0.1		0.3	0.4		0.0		0.0	Incremental Delay, d2	0.8	0.7		1.0	0.7	0.0	8.3	0.0	0.0	9.2	0.7	0.1	
Delay (s)		27.2		24.3	12.1		11.6	11.8		10.9		10.9	Delay (s)	18.0	9.8		24.5	16.9	1.4	42.6	23.2	21.3	31.8	11.3	6.0	
Level of Service		C		C	B		B	B		B		B	Level of Service	B	A		C	B	A	D	C	C	C	B	A	
Approach Delay (s)		27.2			15.9			11.7				10.9	Approach Delay (s)		11.0			12.8				23.7			19.6	
Approach LOS		C			B			B				B	Approach LOS		B			B			C				B	
Intersection Summary													Intersection Summary													
HCM Average Control Delay		18.8			HCM Level of Service			B					HCM Average Control Delay		15.9			HCM Level of Service				B				
HCM Volume to Capacity ratio		0.34											HCM Volume to Capacity ratio		0.56											
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			12.0					Actuated Cycle Length (s)		70.0			Sum of lost time (s)				16.0				
Intersection Capacity Utilization		45.8%			ICU Level of Service			A					Intersection Capacity Utilization		58.8%			ICU Level of Service				B				
Analysis Period (min)		15											Analysis Period (min)		15											
c Critical Lane Group													c Critical Lane Group													

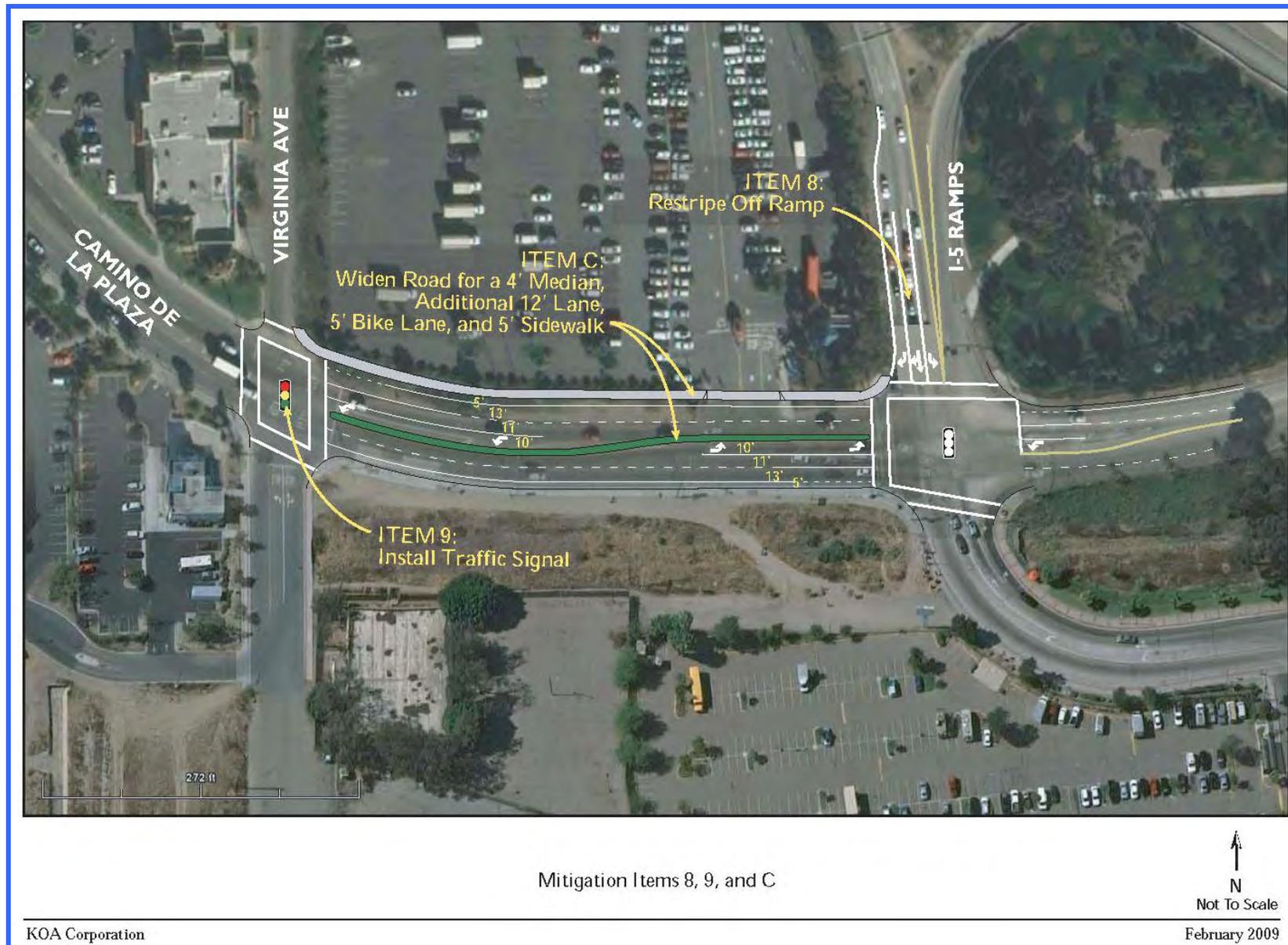
San Ysidro LPOE Reconfiguration Mobility Study 3: Camino de la Plaza & San Ysidro Blvd													San Ysidro LPOE Reconfiguration Mobility Study 4: I-5 NB Ramps & E San Ysidro Blvd												
2030 With ITC Timing Plan: AM Peak													2030 With ITC Timing Plan: AM Peak												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	Lane Configurations												
Volume (vph)	354	106	339	8	78	32	29	57	5	32	50	273	Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0	Total Lost time (s)												
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	0.88	Lane Util. Factor												
Frbp, ped/bikes	1.00	1.00	0.86		1.00	0.86	1.00	0.98		1.00	1.00	0.92	Frbp, ped/bikes												
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00	Flpb, ped/bikes												
Fit	1.00	1.00	0.85		1.00	0.85	1.00	0.99		1.00	1.00	0.85	Fit												
Fit Protected	0.95	0.97	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00	Fit Protected												
Satd. Flow (prot)	1681	1722	1361		1854	1361	1770	3438		1770	3539	2567	Satd. Flow (prot)												
Fit Permitted	0.95	0.97	1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00	Fit Permitted												
Satd. Flow (perm)	1681	1722	1361		1854	1361	1770	3438		1770	3539	2567	Satd. Flow (perm)												
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	385	115	368	9	85	35	32	62	5	35	54	297	Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	265	0	0	31	0	3	0	0	0	107	RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	246	254	103	0	94	4	32	64	0	35	54	190	Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100	Confl. Peds. (#/hr)												
Turn Type	Split		Perm	Split		Perm	Prot		Prot		pm+ov		Turn Type												
Protected Phases	4	4		8	8		5	2		1	6	4	Protected Phases												
Permitted Phases			4			8						6	Permitted Phases												
Actuated Green, G (s)	19.6	19.6	19.6		7.7	7.7	1.6	25.1		1.6	25.1	44.7	Actuated Green, G (s)												
Effective Green, g (s)	19.6	19.6	19.6		7.7	7.7	1.6	25.1		1.6	25.1	44.7	Effective Green, g (s)												
Actuated g/C Ratio	0.28	0.28	0.28		0.11	0.11	0.02	0.38		0.02	0.38	0.64	Actuated g/C Ratio												
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0	Clearance Time (s)												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	Vehicle Extension (s)												
Lane Grp Cap (vph)	471	482	381		204	150	40	1233		40	1269	1639	Lane Grp Cap (vph)												
w/s Ratio Prot	0.15	0.15			0.05		0.02	0.02		0.02	0.02	0.03	w/s Ratio Prot												
w/s Ratio Perm			0.08			0.00						0.04	w/s Ratio Perm												
w/c Ratio	0.52	0.53	0.27		0.46	0.03	0.80	0.05		0.88	0.04	0.12	w/c Ratio												
Uniform Delay, d1	21.3	21.3	19.6		29.2	27.8	34.0	14.7		34.1	14.6	4.9	Uniform Delay, d1												
Progression Factor	0.62	0.62	0.41		1.00	1.00	1.00	1.00		1.00	1.00	1.00	Progression Factor												
Incremental Delay, d2	4.0	4.0	1.7		1.6	0.1	69.2	0.1		93.6	0.1	0.1	Incremental Delay, d2												
Delay (s)	17.0	17.1	9.8		30.9	27.9	103.2	14.8		127.7	14.7	5.1	Delay (s)												
Level of Service	B	B	A		C	C	F	B		F	B	A	Level of Service												
Approach Delay (s)		14.0			30.0			43.4				17.5	Approach Delay (s)												
Approach LOS		B			C			D				B	Approach LOS												
Intersection Summary													Intersection Summary												
HCM Average Control Delay			18.3									B	HCM Average Control Delay			0.0									A
HCM Volume to Capacity ratio			0.34										HCM Volume to Capacity ratio			0.00									
Actuated Cycle Length (s)			70.0									16.0	Actuated Cycle Length (s)			3.0									0.0
Intersection Capacity Utilization			63.3%									B	Intersection Capacity Utilization			0.0%									A
Analysis Period (min)			15										Analysis Period (min)			15									
c Critical Lane Group													c Critical Lane Group												

San Ysidro LPOE Reconfiguration Mobility Study											2030 With ITC	
5: Camino de la Plaza & NB I-5/I-805 On-Ramp											Timing Plan: AM Peak	
	↖	→	↘	↙	←	↗	↖	↑	↘	↓	↙	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗			↖↗	↖↗	↖↗		↖↗			
Volume (vph)	347	519	0	0	252	128	88	0	280	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00		1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.86			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Fit Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1770		1361			
Fit Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1770		1361			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	377	564	0	0	274	139	96	0	304	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	0	252	0	0	0
Lane Group Flow (vph)	377	564	0	0	274	66	96	0	52	0	0	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot				Perm		Prot		custom			
Protected Phases	7	4			8	5						
Permitted Phases					8		2					
Actuated Green, G (s)	15.0	52.1			33.1	33.1	9.9	9.9				
Effective Green, g (s)	15.0	52.1			33.1	33.1	9.9	9.9				
Actuated g/C Ratio	0.21	0.74			0.47	0.47	0.14	0.14				
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	736	2634			1673	749	250	192				
w/s Ratio Prot	c0.11	c0.16			0.08	c0.05						
w/s Ratio Perm					0.04		0.04					
w/c Ratio	0.51	0.21			0.16	0.09	0.38	0.27				
Uniform Delay, d1	24.3	2.7			10.5	10.1	27.3	26.8				
Progression Factor	0.37	0.15			0.83	0.65	1.00	1.00				
Incremental Delay, d2	0.4	0.1			0.2	0.2	1.0	0.8				
Delay (s)	9.3	0.5			9.0	6.8	28.3	27.6				
Level of Service	A	A			A	A	C	C				
Approach Delay (s)	4.0				8.3		27.8		0.0			
Approach LOS	A				A		C		A			
Intersection Summary												
HCM Average Control Delay			10.4		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			44.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

San Ysidro LPOE Reconfiguration Mobility Study 1: Camino de la Plaza & Virginia Ave													San Ysidro LPOE Reconfiguration Mobility Study 2: Camino de la Plaza & SB I-5 On/Off-Ramps												
2030 With ITC Timing Plan: PM Peak													2030 With ITC Timing Plan: PM Peak												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔	Lane Configurations	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	4	1219	134	480	1244	7	139	0	392	6	0	4	Volume (vph)	500	1150	25	55	658	575	59	23	149	404	170	1036
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0			Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00			Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.79		0.92			Frbp, ped/bikes	1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.82	1.00	0.85	0.87
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00			Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	1.00	0.99		1.00	1.00		1.00	0.85		0.95			Fit	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.97			Fit Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3487		1770	3536		1410	1244		1583			Satd. Flow (prot)	1770	3501		1770	3539	1583	1770	1863	1303	1770	1333	1314
Fit Permitted	0.95	1.00		0.95	1.00		0.75	1.00		0.48			Fit Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3487		1770	3536		1114	1244		790			Satd. Flow (perm)	1770	3501		1770	3539	1583	1770	1863	1303	1770	1333	1314
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1325	146	522	1352	8	151	0	426	7	0	4	Adj. Flow (vph)	543	1250	27	60	715	625	64	25	162	439	185	1126
RTOR Reduction (vph)	0	7	0	0	0	0	0	361	0	0	3	0	RTOR Reduction (vph)	0	1	0	0	0	66	0	0	36	0	86	9
Lane Group Flow (vph)	4	1464	0	522	1360	0	151	65	0	0	8	0	Lane Group Flow (vph)	543	1276	0	60	715	559	64	25	126	439	583	633
Confl. Peds. (#/hr)													Confl. Peds. (#/hr)	100		100					100		100		100
Tum Type	Prot			Prot			Perm			Perm			Tum Type	Prot			Prot	pm+ov		Prot	pm+ov	Prot	pm+ov		
Protected Phases	7	4		3	8		2	2		6			Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases							2			6			Permitted Phases						8		2				6
Actuated Green, G (s)	1.3	48.2		33.0	79.9		16.8	16.8		16.8			Actuated Green, G (s)	29.0	44.0		4.0	19.0	46.0	4.0	19.0	23.0	27.0	42.0	71.0
Effective Green, g (s)	1.3	48.2		33.0	79.9		16.8	16.8		16.8			Effective Green, g (s)	29.0	44.0		4.0	19.0	46.0	4.0	19.0	23.0	27.0	42.0	71.0
Actuated g/C Ratio	0.01	0.44		0.30	0.73		0.15	0.15		0.15			Actuated g/C Ratio	0.26	0.40		0.04	0.17	0.42	0.04	0.17	0.21	0.25	0.38	0.65
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0			Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0			Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	21	1528		531	2568		170	190		121			Lane Grp Cap (vph)	467	1400		64	611	720	64	322	272	434	509	848
v/s Ratio Prot	0.00	c0.42		c0.29	0.38			0.05					v/s Ratio Prot	c0.31	0.36		0.03	c0.20	0.19	c0.04	0.01	0.02	0.25	c0.44	0.20
v/s Ratio Perm							c0.14			0.01			v/s Ratio Perm						0.16			0.08		0.29	0.29
v/c Ratio	0.19	0.96		0.98	0.53		0.89	0.34		0.06			v/c Ratio	1.16	0.91		0.94	1.17	0.78	1.00	0.08	0.46	1.01	1.15	0.75
Uniform Delay, d1	53.8	29.9		38.2	6.7		45.7	41.7		39.9			Uniform Delay, d1	40.5	31.2		52.9	45.5	27.6	53.0	38.2	38.1	41.5	34.0	13.3
Progression Factor	1.00	1.00		1.12	0.56		1.00	1.00		1.00			Progression Factor	0.46	0.31		0.75	0.54	0.20	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	14.1		8.2	0.0		44.6	4.9		1.0			Incremental Delay, d2	82.6	3.9		68.0	87.6	3.3	112.5	0.5	1.3	46.1	86.5	3.6
Delay (s)	58.2	44.0		51.1	3.7		90.3	46.5		40.9			Delay (s)	101.1	13.7		107.8	112.3	8.8	165.5	38.6	39.4	87.6	120.5	17.0
Level of Service	E	D		D	A		F	D		D			Level of Service	F	B		F	F	A	F	D	D	F	F	B
Approach Delay (s)		44.1			16.9			58.0		40.9			Approach Delay (s)		39.8			65.9			71.5			74.3	
Approach LOS		D			B			E		D			Approach LOS		D			E			E			E	
Intersection Summary													Intersection Summary												
HCM Average Control Delay			33.1							C			HCM Average Control Delay			59.9									E
HCM Volume to Capacity ratio			0.95										HCM Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			110.0						12.0				Actuated Cycle Length (s)			110.0									16.0
Intersection Capacity Utilization			104.8%							G			Intersection Capacity Utilization			96.7%									F
Analysis Period (min)			15										Analysis Period (min)			15									
c Critical Lane Group													c Critical Lane Group												

San Ysidro LPOE Reconfiguration Mobility Study 3: Camino de la Plaza & San Ysidro Blvd													San Ysidro LPOE Reconfiguration Mobility Study 4: I-5 NB Ramps & E San Ysidro Blvd													
2030 With ITC Timing Plan: PM Peak													2030 With ITC Timing Plan: PM Peak													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Volume (vph)	665	209	158	26	181	84	131	104	12	45	125	1184	Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0	Total Lost time (s)													
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	0.88	Lane Util. Factor													
Frbp, ped/bikes	1.00	1.00	0.79		1.00	0.79	1.00	0.96		1.00	1.00	0.94	Fit													
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00	Fit Protected													
Fit	1.00	1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85	Satd. Flow (prot)													
Fit Protected	0.95	0.97	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00	Fit Permitted													
Satd. Flow (prot)	1681	1724	1244		1851	1244	1770	3356		1770	3539	2614	Satd. Flow (perm)													
Fit Permitted	0.95	0.97	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00	Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Satd. Flow (perm)	1681	1724	1244		1851	1244	1770	3356		1770	3539	2614	Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Peak-hour factor, PHF	0.92	0.92	0.92		0.92	0.92	0.92	0.92		0.92	0.92	0.92	RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Adj. Flow (vph)	723	227	172		28	197	91	142		113	49	136	Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
RTOR Reduction (vph)	0	0	103		0	77	0	8		0	0	0	Confl. Peds. (#/hr)	100			100			100			100			
Lane Group Flow (vph)	470	480	69		0	225	14	142		118	0	49	Tum Type	Split		Perm	Split		Perm	Prot		Prot	pm+ov			
Confl. Peds. (#/hr)	100				100			100		100		100	Protected Phases	4	4		8		8	5		2	1	6	4	
Tum Type	Split		Perm		Split		Perm	Prot		Prot		pm+ov	Permitted Phases			4		8							6	
Protected Phases	4	4			8		8	5		2		1	Actuated Green, G (s)	44.2	44.2	44.2		17.0	17.0	14.8		27.1	5.7	18.0	62.2	
Permitted Phases			4				8						Effective Green, g (s)	44.2	44.2	44.2		17.0	17.0	14.8		27.1	5.7	18.0	62.2	
Actuated Green, G (s)	44.2	44.2	44.2		17.0	17.0	14.8	27.1		5.7	18.0	62.2	Actuated g/C Ratio	0.40	0.40	0.40		0.15	0.15	0.13		0.25	0.05	0.16	0.57	
Effective Green, g (s)	44.2	44.2	44.2		17.0	17.0	14.8	27.1		5.7	18.0	62.2	Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Actuated g/C Ratio	0.40	0.40	0.40		0.15	0.15	0.13	0.25		0.05	0.16	0.57	Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0	Lane Grp Cap (vph)	675	693	500		286	192	238		827	92	579	1478	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	w/s Ratio Prot	0.28	0.28			0.12		0.08		0.04	0.03	0.04	0.32	
Lane Grp Cap (vph)	675	693	500		286	192	238	827		92	579	1478	w/s Ratio Perm			0.06			0.01						0.13	
w/s Ratio Prot	0.28	0.28			0.12		0.08	0.04		0.03	0.04	0.32	w/c Ratio	0.70	0.69	0.14		0.79	0.07	0.60		0.14	0.53	0.23	0.80	
w/s Ratio Perm			0.06			0.01						0.13	Uniform Delay, d1	27.3	27.3	20.8		44.8	39.8	44.8		32.4	50.9	40.0	19.0	
w/c Ratio	0.70	0.69	0.14		0.79	0.07	0.60	0.14		0.53	0.23	0.80	Progression Factor	0.56	0.56	0.14		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Uniform Delay, d1	27.3	27.3	20.8		44.8	39.8	44.8	32.4		50.9	40.0	19.0	Incremental Delay, d2	5.5	5.3	0.5		13.3	0.2	4.0		0.4	5.8	1.0	4.6	
Progression Factor	0.56	0.56	0.14		1.00	1.00	1.00	1.00		1.00	1.00	1.00	Delay (s)	20.7	20.5	3.5		58.0	39.9	48.8		32.7	56.7	41.0	23.6	
Incremental Delay, d2	5.5	5.3	0.5		13.3	0.2	4.0	0.4		5.8	1.0	4.6	Level of Service	C	C	A		E	D	D		C	E	D	C	
Delay (s)	20.7	20.5	3.5		58.0	39.9	48.8	32.7		56.7	41.0	23.6	Approach Delay (s)													
Level of Service	C	C	A		E	D	D	C		E	D	C	Approach LOS													
Approach Delay (s)		18.0			52.8			41.2			26.3		Intersection Summary													
Approach LOS		B			D			D			C		HCM Average Control Delay			0.0										
Intersection Summary													HCM Volume to Capacity ratio			0.00										
HCM Average Control Delay			27.3										Actuated Cycle Length (s)			3.0										
HCM Volume to Capacity ratio			0.77										Intersection Capacity Utilization			0.0%										
Actuated Cycle Length (s)			110.0										Analysis Period (min)			15										
Intersection Capacity Utilization			77.9%										c Critical Lane Group													
Analysis Period (min)			15																							
c Critical Lane Group																										

San Ysidro LPOE Reconfiguration Mobility Study											2030 With ITC	
5: Camino de la Plaza & NB I-5/I-805 On-Ramp											Timing Plan: PM Peak	
	↖	→	↘	↙	←	↗	↖	↗	↘	↙	↘	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗			↖↗	↖↗	↖↗		↖↗			
Volume (vph)	905	797	0	0	1196	300	92	0	235	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0		4.0			
Lane Util. Factor	0.97	0.95			0.95	1.00	1.00		1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00	1.00		0.79			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	3433	3539			3539	1583	1770		1244			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	3433	3539			3539	1583	1770		1244			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	984	866	0	0	1300	326	100	0	255	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	159	0	0	228	0	0	0
Lane Group Flow (vph)	984	866	0	0	1300	167	100	0	27	0	0	0
Confl. Peds. (#/hr)							100		100	100		100
Turn Type	Prot				Perm		Prot		custom			
Protected Phases	7	4			8	5						
Permitted Phases					8		2					
Actuated Green, G (s)	35.7	90.5			50.8	50.8	11.5	11.5				
Effective Green, g (s)	35.7	90.5			50.8	50.8	11.5	11.5				
Actuated g/C Ratio	0.32	0.82			0.46	0.46	0.10	0.10				
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)	1114	2912			1634	731	185	130				
w/s Ratio Prot	c0.29	0.24			c0.37	c0.06						
w/s Ratio Perm					0.11		0.02					
w/c Ratio	0.88	0.30			0.80	0.23	0.54	0.21				
Uniform Delay, d1	35.2	2.3			25.2	17.8	46.7	45.1				
Progression Factor	0.68	0.68			0.94	0.68	1.00	1.00				
Incremental Delay, d2	3.8	0.1			2.5	0.4	3.2	0.8				
Delay (s)	27.9	1.7			26.1	12.5	49.9	45.9				
Level of Service	C	A			C	B	D	D				
Approach Delay (s)	15.6				23.4		47.0		0.0			
Approach LOS	B				C		D		A			
Intersection Summary												
HCM Average Control Delay			21.8		HCM Level of Service		C					
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)		12.0					
Intersection Capacity Utilization			74.0%		ICU Level of Service		D					
Analysis Period (min)			15									
c Critical Lane Group												



KOA Corporation

Queuing and Blocking Report
2030 With ITC
11/19/2009

Intersection: 1: Camino de la Plaza & Virginia Ave

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	T	TR	L	T	TR	L	TR	LR
Maximum Queue (ft)	130	113	124	187	156	72	67	33
Average Queue (ft)	62	43	83	59	65	21	33	3
95th Queue (ft)	109	91	130	141	127	51	59	17
Link Distance (ft)	313	313		470	470	68	68	93
Upstream Blk Time (%)						1	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)			100					
Storage Blk Time (%)	0		7	1				
Queuing Penalty (veh)	0		14	2				

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	R	L	TR	R
Maximum Queue (ft)	132	133	83	40	69	82	37	19	63	586	433	88
Average Queue (ft)	50	33	30	7	29	35	7	2	18	241	87	40
95th Queue (ft)	102	82	62	26	58	66	28	13	46	437	299	68
Link Distance (ft)			470	470		722	722		305	886	886	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				170			100		100		175
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

Intersection: 3: Camino de la Plaza & San Ysidro Blvd

Movement	EB	EB	EB	WB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	L	T	TR	L	T	T	R	R
Maximum Queue (ft)	123	174	145	124	47	27	34	61	42	50	86	67
Average Queue (ft)	59	94	72	49	15	5	5	26	8	18	45	27
95th Queue (ft)	106	146	128	97	40	17	19	58	30	44	76	53
Link Distance (ft)	501	501	501	311				525	525		880	880
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)						90				155		
Storage Blk Time (%)												
Queuing Penalty (veh)												

Queuing and Blocking Report
2030 With ITC
11/19/2009

Intersection: 4: I-5 NB Ramps & E San Ysidro Blvd

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	L	T	T	T	T	R	R
Maximum Queue (ft)	127	124	67	106	87	107	65	118
Average Queue (ft)	50	68	8	31	38	55	29	44
95th Queue (ft)	96	109	37	76	74	93	54	85
Link Distance (ft)			722	722	501	501	501	452
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	500	500						
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 5: Camino de la Plaza & NB I-5/I-805 On-Ramp

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	T	R	R
Maximum Queue (ft)	127	124	67	106	87	107	65	118
Average Queue (ft)	50	68	8	31	38	55	29	44
95th Queue (ft)	96	109	37	76	74	93	54	85
Link Distance (ft)			722	722	501	501	501	452
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	500	500						
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 17

Queuing and Blocking Report
2030 With ITC

11/19/2009

Intersection: 1: Camino de la Plaza & Virginia Ave

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L
Maximum Queue (ft)	10	334	334	125	473	489	96
Average Queue (ft)	1	328	265	123	358	300	76
95th Queue (ft)	5	332	418	129	502	480	99
Link Distance (ft)		313	313		453	453	68
Upstream Blk Time (%)		72	9		4	0	58
Queuing Penalty (veh)		0	0		35	4	0
Storage Bay Dist (ft)	150			100			
Storage Blk Time (%)		75		59	3		
Queuing Penalty (veh)		3		369	16		

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	R
Maximum Queue (ft)	175	482	492	194	646	606	528	118	190
Average Queue (ft)	163	462	243	83	442	423	129	70	42
95th Queue (ft)	205	522	486	187	726	690	484	131	171
Link Distance (ft)		453	453		706	706	706		305
Upstream Blk Time (%)		18	1		2	0	2		1
Queuing Penalty (veh)		142	6		10	0	7		0
Storage Bay Dist (ft)	150			170				100	100
Storage Blk Time (%)	24	21		0	54			16	0
Queuing Penalty (veh)	136	107		0	30			28	0

Intersection: 2: Camino de la Plaza & SB I-5 On/Off-Ramps

Movement	SB
Directions Served	R
Maximum Queue (ft)	200
Average Queue (ft)	194
95th Queue (ft)	222
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	175
Storage Blk Time (%)	5
Queuing Penalty (veh)	32

Queuing and Blocking Report
2030 With ITC

11/19/2009

Intersection: 3: Camino de la Plaza & San Ysidro Blvd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	SB
Directions Served	L	LT	R	LT	L	T	TR	L	T	R
Maximum Queue (ft)	212	258	90	275	115	177	87	91	580	902
Average Queue (ft)	97	129	38	147	77	41	25	35	51	484
95th Queue (ft)	175	216	71	240	129	145	62	77	248	1143
Link Distance (ft)	504	504	504	311		525	525		880	880
Upstream Blk Time (%)									0	6
Queuing Penalty (veh)									0	22
Storage Bay Dist (ft)					90			155		0
Storage Blk Time (%)					12	0				3
Queuing Penalty (veh)					6	0				0

Intersection: 4: I-5 NB Ramps & E San Ysidro Blvd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR
Maximum Queue (ft)	175	482	492	194	646	606	528	118
Average Queue (ft)	163	462	243	83	442	423	129	70
95th Queue (ft)	205	522	486	187	726	690	484	131
Link Distance (ft)		453	453		706	706	706	
Upstream Blk Time (%)		18	1		2	0	2	
Queuing Penalty (veh)		142	6		10	0	7	
Storage Bay Dist (ft)	150			170				100
Storage Blk Time (%)	24	21		0	54			16
Queuing Penalty (veh)	136	107		0	30			28

Intersection: 5: Camino de la Plaza & NB I-5/I-805 On-Ramp

Movement	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	T	R
Maximum Queue (ft)	231	264	78	120	387	488
Average Queue (ft)	139	159	30	56	190	269
95th Queue (ft)	210	232	68	99	309	400
Link Distance (ft)			706	706	504	504
Upstream Blk Time (%)					0	0
Queuing Penalty (veh)					0	1
Storage Bay Dist (ft)	500	500				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 1129