

APPENDIX D

EXISTING SYNCHRO WORKSHEETS

Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	2	2	2	2	2	2	2	2	2	2	2	2
Volume (vph)	352	354	282	449	355	5	143	1	1	1	1	1
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	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1593	1770	1593	1770	1593	1770	1593	1770	1593	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1593	1770	1593	1770	1593	1770	1593	1770	1593	1770
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
Adj. Flow (vph)	391	391	313	498	391	5	155	1	1	1	1	1
RTOR Reduction (vph)	0	0	253	0	1	0	0	115	0	1	0	0
Lane Group Flow (vph)	2	391	140	313	506	0	412	14	0	2	0	0
Turn Type	Prot	Prot	Prot	Prot	Split	Split	Prot	Split	Prot	Split	Prot	Split
Permitted Phases	7	4	3	8	2	2	2	2	2	2	2	2
Permitted Phases	7	4	3	8	2	2	2	2	2	2	2	2
Actuated Green, G (s)	0.8	22.4	16.2	37.8	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
Effective Green, g (s)	0.8	22.4	16.2	37.8	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
Actuated g/C Ratio	0.01	0.29	0.29	0.21	0.49	0.28	0.28	0.28	0.28	0.28	0.28	0.28
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	4.0
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	3.0
Lane Grp Cap (vph)	18	541	460	372	911	493	439	439	439	439	439	439
Via Ratio Prot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Via Ratio Perm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay, d1	37.8	24.6	21.3	29.2	13.8	26.2	20.7	20.7	20.7	20.7	20.7	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	4.7	0.4	15.7	0.7	11.7	0.1	0.1	0.1	0.1	0.1	0.1
Delay (s)	40.5	29.3	21.7	44.9	14.5	37.9	20.8	20.8	20.8	20.8	20.8	20.8
Level of Service	D	C	C	D	B	D	C	C	C	C	C	C
Approach Delay (s)	25.5	25.5	25.5	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	27.7											
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	77.1											
Intersection Capacity Utilization	71.3%											
Analysis Period (min)	15											
Critical Lane Group	c											

Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	2	2	2	2	2	2	2	2	2	2	2	2
Volume (vph)	386	299	0	189	275	201	404	1	1	1	1	1
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	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1593	1770	1593	1770	1593	1770	1593	1770	1593	1770
Flt Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1593	1770	1593	1770	1593	1770	1593	1770	1593	1770
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
Adj. Flow (vph)	429	335	0	210	306	312	449	0	0	0	0	0
RTOR Reduction (vph)	0	250	0	0	234	0	0	0	0	0	0	0
Lane Group Flow (vph)	429	335	0	210	312	312	449	0	0	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	4	3	8	2	2	2	2	2	2	2	2
Permitted Phases	7	4	3	8	2	2	2	2	2	2	2	2
Actuated Green, G (s)	0.8	22.4	16.2	37.8	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
Effective Green, g (s)	0.8	22.4	16.2	37.8	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
Actuated g/C Ratio	0.01	0.29	0.29	0.21	0.49	0.28	0.28	0.28	0.28	0.28	0.28	0.28
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	4.0
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	3.0
Lane Grp Cap (vph)	851	393	370	492	878	436	370	492	878	436	370	492
Via Ratio Prot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Via Ratio Perm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay, d1	16.2	14.9	16.5	15.4	15.8	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	0.8	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Delay (s)	16.7	15.2	17.3	15.7	16.1	16.7	16.7	16.7	16.7	16.7	16.7	16.7
Level of Service	B	B	B	B	B	B	B	B	B	B	B	B
Approach Delay (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	16.6											
HCM Volume to Capacity ratio	0.55											
Actuated Cycle Length (s)	50.0											
Intersection Capacity Utilization	46.5%											
Analysis Period (min)	15											
Critical Lane Group	c											

HCM Signalized Intersection Capacity Analysis

Movement	WBS	WBV	WBR	WBSR	WBVR	WBSRV
Lane Configurations	TT	n	↑↓	↑↑	↓↓	↑↑
Volume (vph)	94	7	0	443	50	3
Ideal Flow (vphpl)	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		
FL	0.96			0.96		
FL Protected	0.96			1.00		
Satd. Flow (prot.)	3414			3485		
FL Permitted	0.96			1.00		
Satd. Flow (perm)	3414			3485		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Ax. Flow (vph)	93	6	0	492	56	3
RTOR Reduction (vph)	7	0	0	14	0	0
Turn Lane Flow (vph)	94	0	0	534	0	3
Turn Type	Prol	Prol				
Permitted Phases	6	5	2	1	6	
Permitted Phases	3	4	4	0	6	
Actuated Green, G (s)	3.1	14.1	14.1	0.6	18.7	
Effective Green, g (s)	3.1	14.1	14.1	0.6	18.7	
Actuated g/C Ratio	0.10	0.47	0.47	0.02	0.53	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	365		1649	36	2221	
v/s Ratio Prot.	60.03		0.16	0.00	60.26	
v/s Ratio Perm	0.26		0.32	0.08	0.40	
Uniform Delay, d1	12.3		4.9	14.3	2.8	
Progression Factor, f	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1		0.1	1.0	0.1	
Delay (s)	12.7		5.0	15.3	2.9	
Level of Service	B		A	B	A	
Approach Delay (s)	12.7		5.0		2.9	
Approach LOS	B		A		A	
Intersection Summary						
HCM Average Control Delay	4.3					
HCM Volume to Capacity ratio	0.38					
Adjusted Cycle Length (s)	29.8					
Intersection Capacity Utilization	32%					
Analysis Period (min)	15					
Critical Lane Group						

HCM Signalized Intersection Capacity Analysis		Existing AM
4: Half Mile Road & El Camino Real		12/1/2010

Lane Configurations		EB		EB1		EB2		WB		WB1		WB2		WB3		WB4		WB5		WB6		WB7		WB8		WB9		WB10		WB11		WB12		WB13		WB14		WB15		WB16		WB17		WB18		WB19		WB20		WB21		WB22		WB23		WB24		WB25		WB26		WB27		WB28		WB29		WB30		WB31		WB32		WB33		WB34		WB35		WB36		WB37		WB38		WB39		WB40		WB41		WB42		WB43		WB44		WB45		WB46		WB47		WB48		WB49		WB50		WB51		WB52		WB53		WB54		WB55		WB56		WB57		WB58		WB59		WB60		WB61		WB62		WB63		WB64		WB65		WB66		WB67		WB68		WB69		WB70		WB71		WB72		WB73		WB74		WB75		WB76		WB77		WB78		WB79		WB80		WB81		WB82		WB83		WB84		WB85		WB86		WB87		WB88		WB89		WB90		WB91		WB92		WB93		WB94		WB95		WB96		WB97		WB98		WB99		WB100		WB101		WB102		WB103		WB104		WB105		WB106		WB107		WB108		WB109		WB110		WB111		WB112		WB113		WB114		WB115		WB116		WB117		WB118		WB119		WB120		WB121		WB122		WB123		WB124		WB125		WB126		WB127		WB128		WB129		WB130		WB131		WB132		WB133		WB134		WB135		WB136		WB137		WB138		WB139		WB140		WB141		WB142		WB143		WB144		WB145		WB146		WB147		WB148		WB149		WB150		WB151		WB152		WB153		WB154		WB155		WB156		WB157		WB158		WB159		WB160		WB161		WB162		WB163		WB164		WB165		WB166		WB167		WB168		WB169		WB170		WB171		WB172		WB173		WB174		WB175		WB176		WB177		WB178		WB179		WB180		WB181		WB182		WB183		WB184		WB185		WB186		WB187		WB188		WB189		WB190		WB191		WB192		WB193		WB194		WB195		WB196		WB197		WB198		WB199		WB200		WB201		WB202		WB203		WB204		WB205		WB206		WB207		WB208		WB209		WB210		WB211		WB212		WB213		WB214		WB215		WB216		WB217		WB218		WB219		WB220		WB221		WB222		WB223		WB224		WB225		WB226		WB227		WB228		WB229		WB230		WB231		WB232		WB233		WB234		WB235		WB236		WB237		WB238		WB239		WB240		WB241		WB242		WB243		WB244		WB245		WB246		WB247		WB248		WB249		WB250		WB251		WB252		WB253		WB254		WB255		WB256		WB257		WB258		WB259		WB260		WB261		WB262		WB263		WB264		WB265		WB266		WB267		WB268		WB269		WB270		WB271		WB272		WB273		WB274		WB275		WB276		WB277		WB278		WB279		WB280		WB281		WB282		WB283		WB284		WB285		WB286		WB287		WB288		WB289		WB290		WB291		WB292		WB293		WB294		WB295		WB296		WB297		WB298		WB299		WB300		WB301		WB302		WB303		WB304		WB305		WB306		WB307		WB308		WB309		WB310		WB311		WB312		WB313		WB314		WB315		WB316		WB317		WB318		WB319		WB320		WB321		WB322		WB323		WB324		WB325		WB326		WB327		WB328		WB329		WB330		WB331		WB332		WB333		WB334		WB335		WB336		WB337		WB338		WB339		WB340		WB341		WB342		WB343		WB344		WB345		WB346		WB347		WB348		WB349		WB350		WB351		WB352		WB353		WB354		WB355		WB356		WB357		WB358		WB359		WB360		WB361		WB362		WB363		WB364		WB365		WB366		WB367		WB368		WB369		WB370		WB371		WB372		WB373		WB374		WB375		WB376		WB377		WB378		WB379		WB380		WB381		WB382		WB383		WB384		WB385		WB386		WB387		WB388		WB389		WB390		WB391		WB392		WB393		WB394		WB395		WB396		WB397		WB398		WB399		WB400		WB401		WB402		WB403		WB404		WB405		WB406		WB407		WB408		WB409		WB410		WB411		WB412		WB413		WB414		WB415		WB416		WB417		WB418		WB419		WB420		WB421		WB422		WB423		WB424		WB425		WB426		WB427		WB428		WB429		WB430		WB431		WB432		WB433		WB434		WB435		WB436		WB437		WB438		WB439		WB440		WB441		WB442		WB443		WB444		WB445		WB446		WB447		WB448		WB449		WB450		WB451		WB452		WB453		WB454		WB455		WB456		WB457		WB458		WB459		WB460		WB461		WB462		WB463		WB464		WB465		WB466		WB467		WB468		WB469		WB470		WB471		WB472		WB473		WB474		WB475		WB476		WB477		WB478		WB479		WB480		WB481		WB482		WB483		WB484		WB485		WB486		WB487		WB488		WB489		WB490		WB491		WB492		WB493		WB494		WB495		WB496		WB497		WB498		WB499		WB500		WB501		WB502		WB503		WB504		WB505		WB506		WB507		WB508		WB509		WB510		WB511		WB512		WB513		WB514		WB515		WB516		WB517		WB518		WB519		WB520		WB521		WB522		WB523		WB524		WB525		WB526		WB527		WB528		WB529		WB530		WB531		WB532		WB533		WB534		WB535		WB536		WB537		WB538		WB539		WB540		WB541		WB542		WB543		WB544		WB545		WB546		WB547		WB548		WB549		WB550		WB551		WB552		WB553		WB554		WB555		WB556		WB557		WB558		WB559		WB560		WB561		WB562		WB563		WB564		WB565		WB566		WB567		WB568		WB569		WB570		WB571		WB572		WB573		WB574		WB575		WB576		WB577		WB578		WB579		WB580		WB581		WB582		WB583		WB584		WB585		WB586		WB587		WB588		WB589		WB590		WB591		WB592		WB593		WB594		WB595		WB596		WB597		WB598		WB599		WB600		WB601		WB602		WB603		WB604		WB605		WB606		WB607		WB608		WB609		WB610		WB611		WB612		WB613		WB614		WB615		WB616		WB617		WB618		WB619		WB620		WB621		WB622		WB623		WB624		WB625		WB626		WB627		WB628		WB629		WB630		WB631		WB632		WB633		WB634		WB635		WB636		WB637		WB638		WB639		WB640		WB641		WB642		WB643		WB644		WB645		WB646		WB647		WB648		WB649		WB650		WB651		WB652		WB653		WB654		WB655		WB656		WB657		WB658		WB659		WB660		WB661		WB662		WB663		WB664		WB665		WB666		WB667		WB668		WB669		WB670		WB671		WB672		WB673		WB674		WB675		WB676		WB677		WB678		WB679		WB680		WB681		WB682		WB683		WB684		WB685		WB686		WB687		WB688		WB689		WB690		WB691		WB692		WB693		WB694		WB695		WB696		WB697		WB698		WB699		WB700		WB701		WB702		WB703		WB704		WB705		WB706		WB707		WB708		WB709		WB710		WB711		WB712		WB713		WB714		WB715		WB716		WB717		WB718		WB719		WB720		WB721		WB722		WB723		WB724		WB725	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HCM Signalized Intersection Capacity Analysis

Existing AM
12/1/2010

5: Quarter Mile Road & El Camino Real

Existing AM
12/1/2010

6: Del Mar Heights Road & Mango Drive

Existing AM
12/1/2010

Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Volume (vph)	1900	1900	1900	1900	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	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	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd Flow (prot)	1770	1863	1900	1770	1863	1900	1770	1863	1900	1770	1863	1900	1770	1863	1900	1770
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	0.90	0.90	0.90	0.90
Adj Flow (vph)	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620	1677	1710	1620
Turn Type	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru	Thru
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Permitted Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Actuated Green, G (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Effective Green, g (s)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Actuated g/C Ratio	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
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	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	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	24	321	273	107	396	51	1317	51	1317	51	1317	51	1317	51	1317	51
V/C Ratio Prot	0.00	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.01	0.05
V/C Ratio Perm	0.25	0.29	0.05	0.09	0.44	0.06	0.30	0.06	0.30	0.06	0.30	0.06	0.30	0.06	0.30	0.06
Uniform Delay, d1	21.8	16.1	15.4	20.8	15.1	21.6	9.7	21.6	9.7	21.6	9.7	21.6	9.7	21.6	9.7	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.5	0.1	47.8	0.8	76.8	0.1	89.8	0.8	76.8	0.1	89.8	0.8	76.8	0.1	89.8
Delay (s)	27.2	16.6	15.5	68.7	15.9	98.4	9.8	111.5	10.5	98.4	9.8	111.5	10.5	98.4	9.8	111.5
Level of Service	C	B	B	E	B	F	A	F	A	F	A	F	A	F	A	F
Approach Delay (s)	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Approach LOS	B	B	B	C	B	B	B	C	B	B	B	C	B	B	B	C
Intersection Summary																
HCM Average Control Delay	20.0															
HCM Volume to Capacity ratio	0.54															
Actuated Cycle Length (s)	44.7															
Intersection Capacity Utilization	45.0%															
Analysis Period (min)	15															
Critical Lane Group	C															

Baseline

Synchro 7 - Report
Page 5

Intersection Summary

HCM Average Control Delay

HCM Volume to Capacity ratio

Actuated Cycle Length (s)

Intersection Capacity Utilization

Analysis Period (min)

Critical Lane Group

Level of Service

Approach Delay (s)

Approach LOS

Intersection Summary

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Intersection Summary

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Intersection Summary

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Intersection Summary

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Level of Service

Approach Delay (s)

Approach LOS

Intersection Summary

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Actuated Cycle Length (s)

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Level of Service

Approach Delay (s)

Approach LOS

Intersection Summary

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Actuated Cycle Length (s)

Intersection Capacity Utilization

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Critical Lane Group

Level of Service

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Approach LOS

Intersection Summary

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Level of Service

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Approach LOS

Intersection Summary

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Critical Lane Group

Level of Service

Approach Delay (s)

Approach LOS

Intersection Summary

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Level of Service

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Intersection Summary

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Analysis Period (min)

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Level of Service

Approach Delay (s)

Approach LOS

Intersection Summary

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Critical Lane Group

Level of Service

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Intersection Summary

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Intersection Summary

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Analysis Period (min)

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Level of Service

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Approach LOS

Intersection Summary

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Critical Lane Group

Level of Service

Approach Delay (s)

Approach LOS

Intersection	EB	EB	WB	WB	NB	NB
Lane Configurations	4+4	4+4	4+4	4+4	4+4	4+4
Volume (veh/h)	1321	53	0	1327	0	107
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	1468	59	0	1473	0	119
Proportions						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None	None	None	None	None
Median storage (veh)						
Upstream signal (ft)	575			607		
pX, platoon unblocked						
vC, conflicting volume	0.88			0.88		0.88
vC1 stage 1 cont vol	1527			2234		619
vC2 stage 2 cont vol						
vC3 stage 3 cont vol						
vC4 stage 4 cont vol						
vC5 stage 5 cont vol						
vC6 stage 6 cont vol						
vC7 stage 7 cont vol						
vC8 stage 8 cont vol						
vC9 stage 9 cont vol						
vC10 stage 10 cont vol						
vC11 stage 11 cont vol						
vC12 stage 12 cont vol						
vC13 stage 13 cont vol						
vC14 stage 14 cont vol						
vC15 stage 15 cont vol						
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Movement	EBB	EBL	EBR	WBL	WBT	WBR	NBB	NBL	NBR	SBB	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	224	1264	0	0	1411	866	373	0	763	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	6.3	6.3	6.3	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Lane Util. Factor	0.97	0.95	0.91	0.91	1.00	0.95	0.91	0.95	0.95	0.95	0.95	0.95
Flt Protected	1.00	1.00	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Satd Flow (prot)	3433	3539	3085	3085	3539	3433	3085	3539	3433	3085	3539	3433
Satd Flow (perm)	3433	3539	3085	3085	3539	3433	3085	3539	3433	3085	3539	3433
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
Adj. Flow (vph)	249	1404	0	0	1568	961	414	0	848	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	463	0	27	27	0	0	0
Lane Group Flow (vph)	249	1404	0	0	1568	961	414	0	848	0	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5	2	6	6	6	6	6	6	6	6	6	6
Actuated Green, G (s)	11.6	69.5	52.7	52.7	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Effective Green, g (s)	11.6	69.5	52.7	52.7	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Actuated g/C Ratio	0.10	0.38	0.44	0.44	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Clearance Time (s)	5.2	6.3	6.3	6.3	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Vehicle Extension (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lane Grp Cap (vph)	332	2050	2233	2233	595	541	469	484	484	541	469	484
vs Ratio Prot	0.07	0.40	0.31	0.31	0.33	0.22	0.29	0.26	0.26	0.29	0.26	0.26
vs Ratio Perm	0.75	0.68	0.70	0.70	0.75	0.69	0.90	0.86	0.86	0.90	0.86	0.86
Uniform Delay, d1	52.8	17.6	27.3	27.3	28.1	35.5	38.8	38.1	38.1	35.5	38.8	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.0	1.9	1.9	1.9	7.3	7.0	22.5	16.8	16.8	7.0	22.5	16.8
Delay (s)	66.8	19.5	29.2	29.2	35.4	42.5	61.4	54.8	54.8	42.5	61.4	54.8
Level of Service	E	B	C	C	D	D	E	D	D	E	D	D
Approach Delay (s)	26.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6	31.6
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	35.1											
HCM Volume to Capacity ratio	0.82											
Actuated Cycle Length (s)	120.0											
Intersection Capacity Utilization	93.6%											
Analysis Period (min)	15											
Critical Lane Group	C											

Movement	EBB	EBL	EBR	WBL	WBT	WBR	NBB	NBL	NBR	SBB	SBL	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (vph)	108	1179	674	92	1769	69	195	10	13	79	57	303
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	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.97	0.95	1.00	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd Flow (prot)	1770	5085	1583	1770	5085	3433	3242	1770	1663	1583	1583	1583
Satd Flow (perm)	1770	5085	1583	1770	5085	3433	3242	1770	1663	1583	1583	1583
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
Adj. Flow (vph)	120	1310	749	102	1968	66	217	11	14	88	63	337
RTOR Reduction (vph)	0	0	374	0	4	0	12	0	0	0	0	137
Lane Group Flow (vph)	120	1310	749	102	1968	66	217	11	14	88	63	337
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	7.9	41.3	41.3	6.7	40.1	7.0	11.8	7.0	11.8	12.2	16.8	16.8
Effective Green, g (s)	7.9	41.3	41.3	6.7	40.1	7.0	11.8	7.0	11.8	12.2	16.8	16.8
Actuated g/C Ratio	0.09	0.47	0.47	0.08	0.46	0.09	0.14	0.09	0.14	0.14	0.19	0.19
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	4.0
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	3.0
Lane Grp Cap (vph)	159	2392	745	135	2311	274	428	246	356	303	303	303
vs Ratio Prot	0.07	0.65	0.24	0.05	0.41	0.05	0.05	0.05	0.05	0.05	0.03	0.13
vs Ratio Perm	0.75	0.55	0.50	0.76	0.69	0.79	0.05	0.79	0.05	0.36	0.19	0.66
Uniform Delay, d1	39.0	16.6	16.1	39.7	21.8	35.7	33.2	34.3	29.7	32.9	32.9	32.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.2	0.3	0.5	21.1	4.5	14.4	0.0	0.9	0.2	0.9	0.2	5.1
Delay (s)	57.2	16.9	16.7	60.8	26.3	50.1	33.2	35.1	30.0	33.9	33.9	37.9
Level of Service	E	B	B	E	C	C	D	D	C	D	C	D
Approach Delay (s)	19.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0
Approach LOS	B	B	B	C	C	C	D	D	C	D	C	D
Intersection Summary												
HCM Average Control Delay	26.1											
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	87.8											
Intersection Capacity Utilization	70.2%											
Analysis Period (min)	15											
Critical Lane Group	C											

HCM Signalized Intersection Capacity Analysis

[illegible]

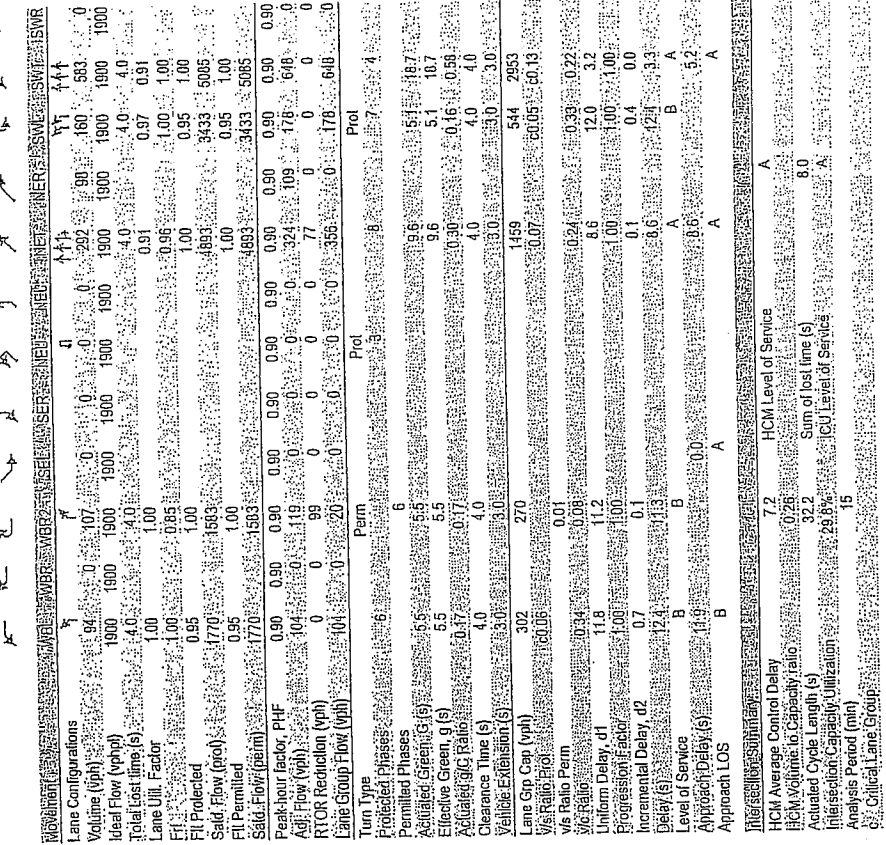
Project	Existing A/M
HCM Signalized Intersection Capacity Analysis 14' Del Mar Heights Road & Carmel Country Rd.	12/1/2010

[illegible]

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←	←
Volumes (vph)	206	619	112	79	993	210	77	151	11	54	80	125	125
Ideal Flow (vphpl)	1900	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	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00
Flt. Protected	1.00	0.98	1.00	0.97	1.00	0.98	1.00	0.97	1.00	0.98	1.00	0.97	1.00
Flt. Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	4969	1770	4969	1770	4969	1770	4969	1770	4969	1770	4969	1770
Satd. Flow (perm)	1770	4969	1770	4969	1770	4969	1770	4969	1770	4969	1770	4969	1770
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	0.90
Adj. Flow (vph)	229	688	124	86	1103	233	86	168	12	60	67	139	139
RTOR Reduction (vph)	0	30	0	0	40	0	0	4	0	0	111	0	0
Lane Group Flow (vph)	229	762	0	88	1286	0	86	176	0	160	95	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	1	3	8	5	2	1	6	1	6	1	6	1
Actuated Green, G (s)	11.9	27.6	6.5	22.2	4.5	12.7	2.7	10.9	2.7	10.9	2.7	10.9	2.7
Effective Green, g (s)	11.9	27.6	6.5	22.2	4.5	12.7	2.7	10.9	2.7	10.9	2.7	10.9	2.7
Actuated g/C Ratio	0.18	0.42	0.03	0.34	0.07	0.19	0.04	0.17	0.04	0.17	0.04	0.17	0.04
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	4.0	4.0
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	3.0	3.0
Lane Grp Cap (vph)	322	2094	176	1678	122	358	73	279	0.03	0.03	0.03	0.03	0.03
VS Ratio Prot	0.19	0.16	0.05	0.26	0.05	0.10	0.03	0.06	0.03	0.06	0.03	0.06	0.03
VS Ratio Perm	0.74	0.37	0.50	0.77	0.70	0.48	0.82	0.31	0.82	0.31	0.82	0.31	0.82
Uniform Delay, d1	25.2	13.0	28.0	19.4	29.9	23.5	31.2	24.1	31.2	24.1	31.2	24.1	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.2	0.1	2.2	2.3	16.9	1.1	49.9	0.7	49.9	0.7	49.9	0.7	49.9
Delay (s)	32.4	13.1	30.2	21.7	46.7	24.6	81.1	24.9	81.1	24.9	81.1	24.9	81.1
Level of Service	C	B	C	C	D	C	F	C	F	C	F	C	F
Approach Delay (s)	17.4	22.2	31.7	37.5	31.7	37.5	31.7	37.5	31.7	37.5	31.7	37.5	31.7
Approach LOS	B	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary													C
HCM Average Control Delay	22.7												C
HCM Volume to Capacity ratio	0.65												12.0
Actuated Cycle Length (s)	65.5												12.0
Intersection Capacity Utilization	63.7%												B
Analysis Period (min)	15												15
g Critical Lane Group	C												C

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←	←
Volumes (vph)	145	546	34	65	1088	35	43	25	53	48	58	316	316
Ideal Flow (vphpl)	1900	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	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.87	1.00
Flt. Protected	1.00	0.98	1.00	0.97	1.00	0.98	1.00	0.97	1.00	0.98	1.00	0.87	1.00
Flt. Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	0.87	1.00
Satd. Flow (prot)	1770	5040	1770	5040	1770	5040	1770	5040	1770	5040	1770	5040	1770
Satd. Flow (perm)	1770	5040	1770	5040	1770	5040	1770	5040	1770	5040	1770	5040	1770
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	0.90
Adj. Flow (vph)	161	607	38	72	1187	38	48	28	59	53	64	351	351
RTOR Reduction (vph)	0	9	0	0	5	0	0	48	0	0	239	0	0
Lane Group Flow (vph)	161	636	0	72	1221	43	48	99	0	53	176	0	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	1	3	8	5	2	1	6	1	6	1	6	1
Actuated Green, G (s)	6.2	22.1	2.7	16.6	1.7	10.4	2.4	11.1	2.4	11.1	2.4	11.1	2.4
Effective Green, g (s)	6.2	22.1	2.7	16.6	1.7	10.4	2.4	11.1	2.4	11.1	2.4	11.1	2.4
Actuated g/C Ratio	0.02	0.41	0.05	0.35	0.03	0.19	0.04	0.21	0.04	0.21	0.04	0.21	0.04
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	4.0	4.0
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	3.0	3.0
Lane Grp Cap (vph)	205	2078	89	1756	66	325	79	337	66	325	79	337	66
VS Ratio Prot	0.09	0.13	0.04	0.24	0.03	0.02	0.03	0.11	0.03	0.02	0.03	0.11	0.03
VS Ratio Perm	0.79	0.31	0.81	0.70	0.86	0.12	0.67	0.52	0.86	0.12	0.67	0.52	0.86
Uniform Delay, d1	23.1	10.6	25.2	15.1	25.8	17.8	25.2	18.9	25.8	17.8	25.2	18.9	25.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.7	0.1	38.8	1.2	70.1	0.2	20.1	1.5	70.1	0.2	20.1	1.5	70.1
Delay (s)	40.8	10.7	65.0	16.3	95.9	18.0	45.3	20.3	95.9	18.0	45.3	20.3	95.9
Level of Service	D	B	E	B	F	B	D	C	F	B	D	C	F
Approach Delay (s)	16.7	19.9	45.7	23.2	45.7	23.2	45.7	23.2	45.7	23.2	45.7	23.2	45.7
Approach LOS	B	B	D	B	D	B	D	B	D	B	D	B	D
Intersection Summary													C
HCM Average Control Delay	20.4												C
HCM Volume to Capacity ratio	0.64												16.0
Actuated Cycle Length (s)	53.6												16.0
Intersection Capacity Utilization	66.7%												C
Analysis Period (min)	15												15
g Critical Lane Group	C												C

Movement	EB	WB	NB	WB	EB	WB	NB	WB	EB	WB	NB	
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	
Volume (vph)	543	119	385	967	249	332			543	119	385	
Ideal Flow (vphpl)	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	
Lane Util. Factor	0.91	1.00	0.91	0.97	1.00	0.85			0.91	1.00	0.85	
Flt	0.97	1.00	1.00	1.00	1.00	0.85			0.97	1.00	0.85	
Flt Protected	1.00	0.95	1.00	0.95	1.00	0.95			1.00	0.95	1.00	
Satd. Flow (prot)	4948	1770	5085	3433	1963	1963			4948	1770	5085	
Satd. Flow (perm)	4948	1770	5085	3433	1963	1963			4948	1770	5085	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			0.90	0.90	0.90	
Adj. Flow (vph)	603	132	428	1074	277	369			603	132	428	
RTOR Reduction (vph)	59	0	0	0	0	294			59	0	0	
Lane Group Flow (vph)	676	0	428	1074	277	75			676	0	428	
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot			Prot	Prot	Prot	
Permitted Phases	4	3	3	3	2	2			4	3	3	
Activated Green, G (s)	13.1	15.2	32.3	10.2	10.2	10.2			13.1	15.2	32.3	
Effective Green, g (s)	13.1	15.2	32.3	10.2	10.2	10.2			13.1	15.2	32.3	
Activated g/C Ratio	0.26	0.30	0.64	0.20	0.20	0.20			0.26	0.30	0.64	
Clearance Time (s)	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	3.0	3.0	
Lane Grp Cap (vph)	1284	533	3252	693	320	320			1284	533	3252	
vs Ratio Prot	60.14	0.24	60.21	60.08	0.05	0.05			60.14	0.24	60.21	
vs Ratio Perm	0.53	0.80	0.33	0.40	0.23	0.23			0.53	0.80	0.33	
g/C Ratio	0.53	0.80	0.33	0.40	0.23	0.23			0.53	0.80	0.33	
Uniform Delay, d1	16.0	16.3	4.2	17.5	16.9	16.9			16.0	16.3	4.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2	0.4	8.5	0.1	0.4	0.4	0.4			0.4	8.5	0.1	
Delay (s)	16.4	24.8	4.2	17.9	17.2	17.2			16.4	24.8	4.2	
Level of Service	B	C	A	B	B	B			B	C	A	
Approach Delay (s)	16.4	10.1	7.5						16.4	10.1	7.5	
Approach LOS	B	B	B						B	B	B	
Intersection Summary												
HCM Average Control Delay	13.4			13.4			13.4			13.4		
HCM Volume to Capacity ratio	0.60			0.60			0.60			0.60		
Actuated Cycle Length (s)	50.5			50.5			50.5			50.5		
Intersection Capacity Utilization	51.6%			51.6%			51.6%			51.6%		
Analysis Period (min)	15			15			15			15		
c: Critical Lane Group												

												
Movement	WB	WB	WB	WB	WB	WB	WB	WB	WB	WB	WB	
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	TTT	
Volume (vph)	94	0	107	0	0	0	0	0	292	99	180	
Ideal Flow (vphpl)	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	4.0	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.91	
Flt	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.91	
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1770	1503	1503	1503	1503	1503	1503	1770	1770	1503	
Satd. Flow (perm)	1770	1770	1503	1503	1503	1503	1503	1503	1770	1770	1503	
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	
Adj. Flow (vph)	104	0	119	0	0	0	0	0	324	109	178	
RTOR Reduction (vph)	0	0	99	0	0	0	0	0	77	0	0	
Lane Group Flow (vph)	104	0	20	0	0	0	0	0	356	0	178	
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	
Permitted Phases	6	6	6	6	6	6	6	6	6	6	6	
Activated Green, G (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Effective Green, g (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Activated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	
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	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	302	270	270	270	270	270	270	270	544	2953	6013	
vs Ratio Prot	60.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	60.05	60.13	60.13	
vs Ratio Perm	0.34	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.33	0.22	0.22	
Uniform Delay, d1	11.3	11.2	11.2	11.2	11.2	11.2	11.2	11.2	12.0	3.2	3.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.0	0.0	
Delay (s)	12.0	11.3	11.3	11.3	11.3	11.3	11.3	11.3	12.4	3.3	3.3	
Level of Service	B	B	B	B	B	B	B	B	B	A	A	
Approach Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.2	5.2	
Approach LOS	B	A	A	A	A	A	A	A	A	A	A	
Intersection Summary												
HCM Average Control Delay	7.2			7.2			7.2			7.2		
HCM Volume to Capacity ratio	0.28			0.28			0.28			0.28		
Actuated Cycle Length (s)	32.2			32.2			32.2			32.2		
Intersection Capacity Utilization	29.5%			29.5%			29.5%			29.5%		
Analysis Period (min)	15			15			15			15		
c: Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
241 Carmel Creek Road & Carmel Country Road

Movement	EB	EBT	EBL	WB	WBT	WBL	NB	NBT	NBL	SB	SBL	SBT	WB	WBT	WBL	NB	NBT	NBL	SB	SBL	SBT		
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑		
Volume (vph)	279	116	123	60	291	29	268	372	28	66	392	362	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Loss (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Flt	1.00	1.00	0.65	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Satd. Flow (prot)	1770	1653	1593	1829	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770		
Flt Permitted	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Satd. Flow (perm)	1770	1653	1593	1829	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770	3502	1770		
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	310	131	137	67	323	32	299	413	31	73	424	404	1900	1900	1900	1900	1900	1900	1900	1900	1900		
RTOR Reduction (vph)	0	112	0	3	0	0	0	6	0	0	194	0	194	0	194	0	194	0	194	0	194		
Turn Type	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill		
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Permitted Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Actuated Green, G (s)	16.9	16.8	16.8	21.0	16.0	29.7	16.0	29.7	7.0	20.7	16.0	29.7	16.9	16.8	16.8	21.0	16.0	29.7	7.0	20.7	16.0		
Effective Green, g (s)	16.8	16.8	16.8	21.0	16.0	29.7	16.0	29.7	7.0	20.7	16.0	29.7	16.8	16.8	16.8	21.0	16.0	29.7	7.0	20.7	16.0		
Actuated g/C Ratio	0.18	0.19	0.19	0.23	0.18	0.33	0.18	0.33	0.08	0.23	0.18	0.33	0.18	0.18	0.18	0.23	0.18	0.33	0.08	0.23	0.18		
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	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	3.0	3.0	3.0	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)	329	346	294	424	313	1149	313	1149	137	750	329	346	329	346	294	424	313	1149	137	750	329		
WS Ratio Prot	60.16	0.07	0.02	60.23	60.17	0.15	60.17	0.15	0.01	60.20	60.16	0.07	60.16	0.07	0.02	60.23	60.17	0.15	0.01	60.20	60.16		
WS Ratio Perm	0.94	0.98	0.95	0.99	0.96	0.98	0.96	0.98	0.55	0.89	0.94	0.98	0.94	0.98	0.95	0.99	0.96	0.98	0.55	0.89	0.94		
g/C Ratio	36.4	32.3	30.5	34.6	36.9	23.3	36.9	23.3	40.2	33.8	36.4	32.3	36.4	32.3	30.5	34.6	36.9	23.3	40.2	33.8	36.4		
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	34.6	0.7	0.1	40.1	39.7	0.2	39.7	0.2	3.9	12.4	34.6	0.7	40.1	39.7	0.2	39.7	0.2	3.9	12.4	34.6	0.7		
Delay (s)	71.0	35.0	30.5	74.6	75.6	23.8	75.6	23.8	44.1	46.2	71.0	35.0	74.6	75.6	23.8	75.6	23.8	44.1	46.2	71.0	35.0		
Level of Service	E	C	C	E	E	C	E	C	D	D	E	C	E	E	C	E	C	D	D	D	E		
Approach Delay (s)	52.8			74.6			74.6		44.5		52.8		74.6			74.6		44.5		46.0			
Approach LOS	D			E			E		D		D		E			E		D		D			
Intersection Summary																						D	
HCM Average Control Delay	51.6										HCM Level of Service										D		
HCM Volume to Capacity ratio	0.94										HCM Volume to Capacity ratio										0.94		
Actuated Cycle Length (s)	90.5										Sum of lost time (s)										16.0		
Intersection Capacity Utilization	87.2%										CV Level of Service										E		
Analysis Period (min)	15																						
c Critical Lane Group																							

HCM Signalized Intersection Capacity Analysis	Existing AM
22 nd High Bluff Drive & El Camino Real	12/12/2010

[illegible]

HCM Signalized Intersection Capacity Analysis 24: Camel Grove Road & Carmel Creek Road

HCM Unsignalized Intersection Capacity Analysis 23: High Bluff Drive & Carmel Vista Road

Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	152	89	116	198	81	24	30	264	81	15	755	140
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	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.98	1.00	0.95	0.97	0.98	1.00	0.95	1.00	0.98	1.00	0.95	1.00
Satd Flow (prot)	1823	1863	1779	1779	1823	1863	1779	1779	1823	1863	1779	1779
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
Adj Flow (vph)	168	129	129	221	66	27	33	293	90	17	840	156
RTOR Reduction (vph)	0	0	108	0	4	0	0	34	0	0	18	0
Lane Group Flow (vph)	0	157	21	0	312	0	23	349	0	17	978	0
Turn Type	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot
Permitted Phases	1	4	8	8	1	4	8	8	1	4	8	8
Adjusted Green, G (s)	11.3	11.3	15.6	15.6	11.3	11.3	15.6	15.6	11.3	11.3	15.6	15.6
Effective Green, g (s)	11.3	11.3	15.6	15.6	11.3	11.3	15.6	15.6	11.3	11.3	15.6	15.6
Adjusted g/C Ratio	0.05	0.16	0.23	0.23	0.05	0.16	0.23	0.23	0.05	0.16	0.23	0.23
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	4.0
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	3.0
Lane Grp Cap (vph)	300	259	402	402	300	259	402	402	300	259	402	402
W/Ratio Prot	0.09	0.01	0.18	0.18	0.09	0.01	0.18	0.18	0.09	0.01	0.18	0.18
W/Ratio Perm	0.52	0.08	0.78	0.78	0.52	0.08	0.78	0.78	0.52	0.08	0.78	0.78
Uniform Delay, d1	26.4	24.5	25.1	25.1	26.4	24.5	25.1	25.1	26.4	24.5	25.1	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1	9.1	9.1	1.6	0.1	9.1	9.1	1.6	0.1	9.1	9.1
Delay (s)	28.0	24.6	34.2	34.2	28.0	24.6	34.2	34.2	28.0	24.6	34.2	34.2
Level of Service	C	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	26.8	24.6	34.2	34.2	26.8	24.6	34.2	34.2	26.8	24.6	34.2	34.2
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	26.8											
HCM Volume to Capacity Ratio	0.78											
Adjusted Cycle Length (s)	69.0											
Intersection Capacity Utilization	58.2%											
Analysis Period (min)	15											
Critical Lane Group	C											

Movement	SE	SW	NE	NW	SE	SW	NE	NW	SE	SW	NE	NW
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Volume (vph)	44	6	65	13	26	14	103	30	2	3	16	175
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	49	7	72	14	29	16	117	33	2	3	18	194
Directional Lane Factors	SE	SW	NE	NW	SE	SW	NE	NW	SE	SW	NE	NW
Volume Total (vph)	56	72	59	132	216	49	14	117	3	3	16	175
Volume Left (vph)	0	72	16	2	194	0	72	16	2	194	0	72
Volume Right (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Head (s)	0.37	0.67	0.08	0.16	0.50	0.37	0.67	0.08	0.16	0.50	0.37	0.67
Departure Headway (s)	5.9	4.7	4.9	4.8	4.1	5.9	4.7	4.9	4.8	4.1	5.9	4.7
Degree Utilization, X	0.09	0.09	0.09	0.20	0.24	0.09	0.09	0.09	0.20	0.24	0.09	0.09
Capacity (veh/h)	571	705	665	716	839	571	705	665	716	839	571	705
Control Delay (s)	8.3	7.9	8.4	9.0	9.4	8.3	7.9	8.4	9.0	9.4	8.3	7.9
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
Delay	8.3											
HCM Level of Service	A											
Intersection Capacity Utilization	30.9%											
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

25: Carmel Valley Road & I-5 SB Ramps

Existing AM
12/1/2010

[illegible]

HCM Signalized Intersection Capacity Analysis

Existing AM
12/1/2010

[illegible]

27. Valley Drive Drive to 2nd Street																		
Movement	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
Lane Configurations	20	6	16	704	14	133	68	857	145	111	1041	17						
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Total Lost time (s)	0.95	0.91	0.95	0.95	0.95	0.91	0.95	1.00	0.91	1.00	0.91							
Lane Util. Factor	1.00	0.97	0.85	1.00	0.99	0.985	1.00	0.98	1.00	1.00	1.00							
Flt	0.95	0.98	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95							
Flt Protected	1681	1617	1504	1681	1611	1504	1770	14975	1770	5073								
Satd. Flow (prot)	0.95	0.98	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00								
Flt Permitted	1681	1617	1504	1681	1611	1504	1770	14975	1770	5073								
Satd. Flow (perm)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
Peak-hour factor, PHF	22	7	18	782	16	146	77	942	161	123	157	19						
Adj. Flow (vph)	0	3	14	0	1	89	0	23	0	0	2	0						
RTOR Reduction (vph)	16	13	1	407	405	44	77	1080	1	123	174	0						
Lane Group Flow (vph)																		
Turn Type	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Permitted Phases	3.5	3.5	3.5	23.7	23.7	23.7	14.4	32.0	23.6	29.6	6							
Actuated Green, G (s)	3.5	3.5	3.5	23.7	23.7	23.7	14.4	32.0	23.6	29.6								
Effective Green, g (s)	3.5	3.5	3.5	23.7	23.7	23.7	14.4	32.0	23.6	29.6								
Actuated G/C Ratio	0.05	0.05	0.05	0.33	0.33	0.33	0.06	0.15	0.33	0.33								
Clearance Time (s)	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	3.0	3.0	3.0								
Lane Grp Cap (vph)	83	79	74	560	536	501	109	2236	587	1682								
v/s Ratio Prot	60.01	0.01	0.00	0.24	0.25	0.03	0.04	0.22	0.07	0.23								
v/c Ratio	0.19	0.17	0.01	0.73	0.75	0.09	0.71	0.49	0.21	0.70								
Uniform Delay, d1	32.5	32.5	32.2	20.9	21.2	16.3	32.8	13.8	17.1	20.7								
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Incremental Delay, d2	1.1	1.0	0.1	4.7	6.0	0.1	18.8	0.2	0.2	1.3								
Delay (s)	33.6	33.4	32.3	25.6	27.1	16.4	51.6	14.0	17.3	22.0								
Level of Service	C	C	C	C	C	C	B	D	B	C								
Approach Delay (s)	33.1	33.1	32.0	25.0	25.0	16.1	16.1	16.1	21.5	21.5								
Approach LOS	C	C	C	C	C	B	B	B	C	C								
Intersection Summary																		
HCM Average Control Delay	20.9																	
HCM Volume to Capacity ratio	0.69																	
Actuated Cycle Length (s)	71.2																	
Intersection Capacity Utilization	63.9%																	
Analysis Period (min)	15																	
1. Phase conflict between lane groups																		
c Critical Lane Group																		

Movement												SB	EB	WB	NB	SB	EB	WB	NB
Lane Configurations	0	0	0	0	0	1008	200	147	768	0	0	541	629						
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900									
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0									
Total Lost time (s)	0.91	1.00	0.97	0.95															
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00									
Flt	0.95	0.98	1.00	0.95	0.96	1.00	1.00	1.00	0.94	0.86									
Flt Protected	1681	1617	1604	1681	1611	1604	1770	14875	1770	5073									
Satd. Flow (vph)	0.95	0.90	1.00	0.95	0.96	1.00	0.95	1.00	0.94	0.86									
Flt Permitted	1681	1617	1604	1681	1611	1604	1770	14875	1770	5073									
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90									
Adj. Flow (vph)	0	0	0	0	1120	222	163	876	0	0									
RTOR Reduction (vph)	0	0	0	0	0	89	0	0	0	16									
Lane Group Flow (vph)	0	0	0	0	1120	133	163	876	0	0									
Cont. Peds. (fltr)	200																		
Turn Type	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill		
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Actuated Phases	16.4	16.4	3.7	26.9															
Actuated Green, G (s)	16.4	16.4	3.7	26.9															
Effective Green, g (s)	0.32	0.32	0.07	0.52															
Actuated g/C Ratio	4.0	4.0	4.0	4.0															
Clearance Time (s)	3.0	3.0	3.0	3.0															
Vehicle Extension (s)	1626	506	248	1856															
Lane Grp Cap (vph)	c0.22		0.05	c0.25															
v/s Ratio Prot			0.08																
v/c Ratio	0.69	0.26	0.66	0.47															
Uniform Delay, d1	15.2	3.0	23.2	7.7															
Progression Factor	1.00	1.00	1.00	1.00															
Incremental Delay, d2	1.2	0.3	6.2	0.2															
Delay (s)	16.5	3.3	29.3	7.9															
Level of Service	B	B	C	B															
Approach Delay (s)	0.0			11.3															
Approach LOS	A	B	B	B															
Intersection Summary																			
HCM Average Control Delay	14.0																		
HCM Volume to Capacity ratio	0.67																		
Actuated Cycle Length (s)	51.3																		
Intersection Capacity Utilization	95.4%																		
Analysis Period (min)	15																		
c Critical Lane Group																			

HCM Signalized Intersection Capacity Analysis
300 Valley Centre Drive & Carmel View Road
Existing AM
12/11/2010

Lane Configurations										Peak Hour Factor, PHF										Total Lost Time (s)										Vehicle Extension (s)										Level of Service										Approach LOS																													
Volume (vph)										Saturated Flow (pcu/h)										Flow (vph)										Flow (pcu/h)										Flow (vph)										Flow (pcu/h)										Flow (vph)										Flow (pcu/h)									
1900 1900 1900 1900 1900 1900										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
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100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
100 0.95 100 0.95 100 0.95										1770 3539 3510 1770 1583										100 0.95 100 0.95 100 0.95										30 4.0 30 4.0 30 4.0 30 4.0										C A A B A										A																													
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Baseline

Synchro 7 - Report
Page 28

HCM Signalized Intersection Capacity Analysis
29+ SR-56 EB on ramp & El Camino Real

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Synchro 7 - Report
Page 27

Intersection Summary											
Movement	EB	EB	EB	WB	WB	WB	WB	WB	WB	WB	WB
Lane Configurations	3	3	3	3	3	3	3	3	3	3	3
Volume (vph)	65	214	142	167	362	97	316	309	209	1070	183
Ideal Flow (vphpl)	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	4.0
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Fit	1.00	0.85	0.85	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.95
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583
Fit Permitted	0.31	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	572	2787	1583	1770	1804	1770	3539	1583	3433	3539	1583
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
Adj. Flow (vph)	72	238	158	174	402	108	351	343	232	189	203
RTOR Reduction (vph)	0	0	132	0	11	0	0	0	194	0	159
Lane Group Flow (vph)	72	238	26	174	499	0	351	343	30	189	203
Turn Type	custom	custom	custom	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	4	4	4	3	8	5	2	2	1	3	5
Activated Green, G (s)	14.2	14.2	14.2	9.5	27.7	21.5	13.8	13.8	31.2	23.5	23.5
Effective Green, g (s)	14.2	14.2	14.2	9.5	27.7	21.5	13.8	13.8	31.2	23.5	23.5
Adjusted g/C Ratio	0.17	0.17	0.17	0.11	0.33	0.25	0.15	0.15	0.37	0.28	0.28
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	96	467	265	199	590	449	577	258	1265	982	439
v/s Ratio Prot	0.13	0.09	0.02	0.10	0.29	0.20	0.10	0.02	0.35	0.06	0.04
v/s Ratio Perm	0.13	0.09	0.02	0.10	0.29	0.20	0.10	0.02	0.35	0.06	0.04
g/C Ratio	0.75	0.51	0.10	0.87	0.65	0.70	0.59	0.15	0.64	0.21	0.14
Uniform Delay, d1	33.6	32.1	29.8	37.0	26.5	29.4	32.9	30.4	25.8	23.5	23.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.5	0.9	0.2	31.9	10.8	8.6	1.6	0.3	13.3	0.1	0.1
Delay (s)	61.1	33.0	30.0	69.9	37.3	48.0	34.5	30.7	30.1	23.6	23.6
Level of Service	E	C	C	E	D	D	C	C	D	C	C
Approach Delay (s)	45.3			34.9			34.9			35.0	
Approach LOS	D			C			C			C	
Intersection Summary											
HCM Average Control Delay	37.0			HCM Level of Service			D				
HCM Volume to Capacity ratio	0.61			Sum of lost time (s)			12.0				
Activated Cycle Length (s)	84.7			ICU Level of Service			D				
Intersection Capacity Utilization	80.9%			g, Critical Lane Group			g, Critical Lane Group				
Analysis Period (min)	15										

Intersection Summary											
Lane Configurations	EB	EB	EB	WB	WB	WB	WB	WB	WB	WB	WB
Volumes (vph)	437	0	180	0	0	0	0	0	394	74	183
Ideal Flow (vphpl)	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	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Fit	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Fit Protected	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	1681	1681	1583	1681	1681	1583	1681	1583
Fit Permitted	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	1681	1681	1583	1681	1681	1583	1681	1583
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
Adj. Flow (vph)	486	0	200	0	0	0	0	0	438	82	203
RTOR Reduction (vph)	0	0	138	0	0	0	0	0	32	0	0
Lane Group Flow (vph)	243	243	62	0	0	0	0	0	488	0	203
Turn Type	Spill	Spill	Prot	Spill	Spill	Prot	Spill	Spill	Prot	Spill	Prot
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Activated Green, G (s)	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Effective Green, g (s)	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Adjusted g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	518	518	487	518	518	487	518	518	487	518	487
v/s Ratio Prot	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
v/s Ratio Perm	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Uniform Delay, d1	11.0	11.0	9.8	11.0	11.0	9.8	11.0	11.0	9.8	11.0	9.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.7	0.1	0.7	0.7	0.1	0.7	0.7	0.1	0.7	0.1
Delay (s)	11.7	11.7	9.9	11.7	11.7	9.9	11.7	11.7	9.9	11.7	9.9
Level of Service	B	B	A	B	B	A	B	B	A	B	A
Approach Delay (s)	11.7			11.7			11.7			12.2	
Approach LOS	B			B			A			B	
Intersection Summary											
HCM Average Control Delay	11.6			11.6			11.6			12.0	
HCM Volume to Capacity ratio	0.50			0.50			0.50			12.0	
Activated Cycle Length (s)	39.3			39.3			39.3			40.6%	
Intersection Capacity Utilization	40.6%			40.6%			40.6%			40.6%	
Analysis Period (min)	15			15			15			15	
Critical Lane Group	EB			WB			WB			WB	

HCM Signalized Intersection Capacity Analysis
24. CD 55 WB Pecos & Carmel Country Road
Existing AM
12/1/2010

Existing AM
12/1/2010

Movement	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
Volume (vph)	0	0	0	754	576	742	0	308	133	209																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

Baseline

Synchro 7 - Report
Page 32

HCM Signalized Intersection Capacity Analysis

Existing AM
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Baseline

Synchro 7 - Report
Page 31

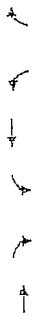
ALL-Way Stop Control

HCM Signalized Intersection Capacity Analysis
 35: SR-56 EB Ramps & Carmel Country Road
 Existing AM
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Intersection Summary												
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Baseline
 Synchro 7 - Report
 Page 33

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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Movement									
Lane Configurations	↑↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (veh/h)	1183	62	0	1401	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	1314	69	0	1537	0	0	0	0	0
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Pedestrian Clearance									
Right turn lane (veh)									
Median type	None	None	None	None	None	None	None	None	None
Median storage (veh)									
Upstream signal (ft)	575			607					
Pkatoon unblocked									
VC, conflicting volume	0.89			0.89					
VC1, stage 1 conf vol	1363			2127					
VC2, stage 2 conf vol									
IC, single (s)	0.86			1824					
IC, 2 stage (s)	1.1			163					
IF (s)	2.2			3.5					
pl queue free %	100			100					
cl capacity (veh/h)	516			61					
Directional Capacity									
Volume Total	526	526	332	778	778	84			
Volume Left	0	0	0	0	0	0			
Volume Right	0	0	0	0	0	0			
cSH	1700	1700	1700	1700	1700	962			
Volume to Capacity	0.31	0.31	0.20	0.46	0.46	0.08			
Queue Length 95th (ft)	0	0	0	0	0	7			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.1			
Lane LOS	A	A	A	A	A	A			
Approach Delay (s)	0.0	0.0	0.0	0.0	0.0	9.1			
Approach LOS	A	A	A	A	A	A			
Intersection Summary									
Average Delay	0.3								
Intersection Capacity Utilization	12.1%								
Analysis Period (min)	15								



Movement									
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Volume (veh/h)	0	875	133	0	849	1900	1900	1900	1900
Ideal Flow (veh/h)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3539	3539	3539	3539	3539	3539	3539	3539	3539
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3539	3539	3539	3539	3539	3539	3539	3539	3539
Peak hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (veh/h)	0	972	1259	0	943	2127	2127	2127	2127
RTOR Reduction (veh/h)	0	0	0	0	0	0	0	0	0
Lane Group Flow (veh/h)	0	972	1259	0	972	2127	2127	2127	2127
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Permitted Phases	4	4	4	4	4	4	4	4	4
Adjusted Green, G (s)	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9
Effective Green, g (s)	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9	41.9
Adjusted g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (veh/h)	1879	1879	1879	1879	1879	1879	1879	1879	1879
V/C Ratio Prot	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
V/C Ratio Perm	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Uniform Delay, d1	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Delay (s)	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Level of Service	B	B	B	B	B	B	B	B	B
Approach Delay (s)	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Approach LOS	B	B	B	B	B	B	B	B	B
Intersection Summary									
HCM Average Control Delay	20.3								
HCM Volume to Capacity ratio	0.75								
Activated Cycle Length (s)	78.9								
Intersection Capacity Utilization	96.0%								
Analysis Period (min)	15								
Critical Lane Group									

HCM Signalized Intersection Capacity Analysis 9: Del Mar Heights Road & I-15 NB Ramps

Existing PM
4/25/2011

Volume	235	1463	0	0	1017	795	515	10	749	0	0	0	0
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Volume (vph)	1900	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	1900
Total Lost time (s)	5.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	3433	3539	5065	5065	5065	5065	5065	5065	5065	5065	5065	5065	5065
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3433	3539	5065	5065	5065	5065	5065	5065	5065	5065	5065	5065	5065
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	0.90
Adj. Flow (vph)	261	1626	0	0	1130	884	683	11	832	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	513	0	9	9	0	0	0	0
Lane Group Flow (vph)	261	1626	0	0	1130	371	533	493	482	0	0	0	0
Turn Type	Prot	Prot	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot	Spill	Prot
Protected Phases	5	2	2	6	6	6	8	8	8	8	8	8	8
Permitted Phases	12.0	61.2	47.0	47.0	47.0	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9
Actuated Green, G (s)	12.0	61.2	47.0	47.0	47.0	43.9	43.9	43.9	43.9	43.9	43.9	43.9	43.9
Effective Green, g (s)	0.10	0.54	0.99	0.99	0.99	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Actuated g/C Ratio	5.2	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	343	1893	1992	620	615	549	550	550	550	550	550	550	550
Lane Grp Cap (vph)	0.06	60.46	0.22	0.23	0.32	0.32	0.33	0.32	0.32	0.32	0.32	0.32	0.32
v/s Ratio Prot	0.76	0.86	0.57	0.60	0.67	0.90	0.88	0.88	0.88	0.88	0.88	0.88	0.88
v/s Ratio Perm	52.6	24.0	28.5	29.0	35.3	35.9	35.5	35.5	35.5	35.5	35.5	35.5	35.5
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.2	4.2	12.3	17.3	14.6	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1
Incremental Delay, d2	62.2	23.3	29.7	35.2	47.6	59.2	59.1	59.1	59.1	59.1	59.1	59.1	59.1
Delay (s)	E	C	C	C	C	D	D	D	D	D	D	D	D
Level of Service	E	C	C	C	C	D	D	D	D	D	D	D	D
Approach Delay (s)	33.9	31.3	31.3	50.3	50.3	50.3	50.3	50.3	50.3	50.3	50.3	50.3	50.3
Approach LOS	C	C	C	D	D	D	D	D	D	D	D	D	D

Intersection Summary	37.5	HCM Level of Service	D
HCM Average Control Delay	0.87	HCM Volume to Capacity ratio	11.9
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.9
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c - Critical Lane Group			

Baseline

Synchro 7 - Report
Page 1

HCM Signalized Intersection Capacity Analysis 10: Del Mar Heights Road & High Bluff Drive

Existing PM
12/1/2010

Volume	242	1984	237	15	140	28	518	55	134	27	29	0	0
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Volume (vph)	1900	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	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	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.91	1.00	0.91	1.00	1.00	1.00	1.00
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	5065	5065	5065	1770	5067	3433	3161	1770	5067	1770	5067	5067
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	5065	5065	5065	1770	5067	3433	3161	1770	5067	1770	5067	5067
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	0.90
Adj. Flow (vph)	269	2204	279	17	1267	31	667	72	149	30	32	89	89
RTOR Reduction (vph)	0	0	106	0	3	0	0	110	0	0	0	83	83
Lane Group Flow (vph)	269	2204	173	17	1265	0	667	111	0	1	30	32	89
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	4	8	8	5	2	1	1	6	6	6	6
Permitted Phases	16.2	15.9	15.9	17	31.4	20.2	23.4	3.4	3.4	6.6	6.6	6.6	6.6
Actuated Green, G (s)	16.2	15.9	15.9	17	31.4	20.2	23.4	3.4	3.4	6.6	6.6	6.6	6.6
Effective Green, g (s)	0.16	0.51	0.51	0.02	0.35	0.22	0.26	0.04	0.07	0.07	0.07	0.07	0.07
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	317	2882	804	33	1760	767	823	67	136	116	116	116	116
Lane Grp Cap (vph)	0.15	60.43	0.11	0.01	0.26	0.20	0.03	0.02	0.02	0.02	0.02	0.02	0.02
v/s Ratio Prot	0.65	0.85	0.22	0.52	0.74	0.90	0.13	0.45	0.24	0.06	0.06	0.06	0.06
v/s Ratio Perm	35.9	19.3	12.3	43.9	25.9	34.1	25.7	42.6	39.5	39.0	39.0	39.0	39.0
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	18.6	3.0	0.1	12.9	1.6	13.0	0.1	4.7	0.9	0.2	0.2	0.2	0.2
Incremental Delay, d2	54.5	22.3	12.4	56.9	27.5	47.5	25.9	47.5	40.4	36.2	36.2	36.2	36.2
Delay (s)	D	C	B	E	C	D	C	D	D	D	D	D	D
Level of Service	D	C	B	E	C	D	C	D	D	D	D	D	D
Approach Delay (s)	24.1	27.9	27.9	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
Approach LOS	C	C	C	D	D	D	D	D	D	D	D	D	D

Intersection Summary	28.9	HCM Level of Service	C
HCM Average Control Delay	0.79	HCM Volume to Capacity ratio	12.0
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c - Critical Lane Group			

Baseline

Synchro 7 - Report
Page 9

HCM Signalized Intersection Capacity Analysis		Existing PM
141st Del Mar Heights Road & Carmel Country Road		12/1/2010

Lane Configurations		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50		51		52		53		54		55		56		57		58		59		60		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80		81		82		83		84		85		86		87		88		89		90		91		92		93		94		95		96		97		98		99		100		101		102		103		104		105		106		107		108		109		110		111		112		113		114		115		116		117		118		119		120		121		122		123		124		125		126		127		128		129		130		131		132		133		134		135		136		137		138		139		140		141		142		143		144		145		146		147		148		149		150		151		152		153		154		155		156		157		158		159		160		161		162		163		164		165		166		167		168		169		170		171		172		173		174		175		176		177		178		179		180		181		182		183		184		185		186		187		188		189		190		191		192		193		194		195		196		197		198		199		200		201		202		203		204		205		206		207		208		209		210		211		212		213		214		215		216		217		218		219		220		221		222		223		224		225		226		227		228		229		230		231		232		233		234		235		236		237		238		239		240		241		242		243		244		245		246		247		248		249		250		251		252		253		254		255		256		257		258		259		260		261		262		263		264		265		266		267		268		269		270		271		272		273		274		275		276		277		278		279		280		281		282		283		284		285		286		287		288		289		290		291		292		293		294		295		296		297		298		299		300		301		302		303		304		305		306		307		308		309		310		311		312		313		314		315		316		317		318		319		320		321		322		323		324		325		326		327		328		329		330		331		332		333		334		335		336		337		338		339		340		341		342		343		344		345		346		347		348		349		350		351		352		353		354		355		356		357		358		359		360		361		362		363		364		365		366		367		368		369		370		371		372		373		374		375		376		377		378		379		380		381		382		383		384		385		386		387		388		389		390		391		392		393		394		395		396		397		398		399		400		401		402		403		404		405		406		407		408		409		410		411		412		413		414		415		416		417		418		419		420		421		422		423		424		425		426		427		428		429		430		431		432		433		434		435		436		437		438		439		440		441		442		443		444		445		446		447		448		449		450		451		452		453		454		455		456		457		458		459		460		461		462		463		464		465		466		467		468		469		470		471		472		473		474		475		476		477		478		479		480		481		482		483		484		485		486		487		488		489		490		491		492		493		494		495		496		497		498		499		500		501		502		503		504		505		506		507		508		509		510		511		512		513		514		515		516		517		518		519		520		521		522		523		524		525		526		527		528		529		530		531		532		533		534		535		536		537		538		539		540		541		542		543		544		545		546		547		548		549		550		551		552		553		554		555		556		557		558		559		560		561		562		563		564		565		566		567		568		569		570		571		572		573		574		575		576		577		578		579		580		581		582		583		584		585		586		587		588		589		590		591		592		593		594		595		596		597		598		599		600		601		602		603		604		605		606		607		608		609		610		611		612		613		614		615		616		617		618		619		620		621		622		623		624		625		626		627		628		629		630		631		632		633		634		635		636		637		638		639		640		641		642		643		644		645		646		647		648		649		650		651		652		653		654		655		656		657		658		659		660		661		662		663		664		665		666		667		668		669		670		671		672		673		674		675		676		677		678		679		680		681		682		683		684		685		686		687		688		689		690		691		692		693		694		695		696		697		698		699		700		701		702		703		704		705		706		707		708		709		710		711		712		713		714		715		716		717		718		719		720		721		722		723		724		725		726		727		728		729		730		731		732		733		734		735		736		737		738		739		740		741		742		743		744		745		746		747		748		749		750		751		752		753		754		755		756		757		758		759		760		761		762		763		764		765		766		767		768		769		770		771		772		773		774		775		776		777		778		779		780		781		782		783		784		785		786		787		788		789		790		791		792		793		794		795		796		797		798		799		800		801		802		803		804		805		806		807		808		809		810		811		812		813		814		815		816		817		818		819		820		821		822		823		824		825		826		827		828		829		830		831		832		833		834		835		836		837		838		839		840		841		842		843		844		845		846		847		848		849		850		851		852		853		854		855		856		857		858		859		860		861		862		863		864		865		866		867		868		869		870		871		872		873		874		875		876		877		878		879		880		881		882		883		884		885		886		887		888		889		890		891		892		893		894		895		896		897		898		899		900		901		902		903		904		905		906		907		908		909		910		911		912		913		914		915		916		917		918		919		920		921		922		923		924		925		926		927		928		929		930		931		932		933		934		935		936		937		938		939		940		941		942		943		944		945		946		947		948		949		950		951		952		953		954		955		956		957		958		959		960		961		962		963		964		965		966		967		968		969		970		971		972		973		974		975		976		977		978		979		980		981		982		983		984		985		986		987		988		989		990		991		992		993		994		995		996		997		998		999		1000		1001		1002		1003		1004		1005		1006		1007		1008		1009		1010		1011		1012		1013		1014		1015		1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Project Name	Existing PM
HCM Signalized Intersection Capacity Analysis	12/1/2010
13: Del Mar Heights Road & El Camino Real	

13. Derivatives: Heights, Nodes & Edges														
Movement														
	EB1	EB2	EB3	EB4	WB1	WB2	WB3	WB4	WB5	WB6	WB7	WB8	WB9	WB10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	4391	1351	344	102	741	176	257	394	238	147	146	191	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-1.0	3.0	4.0	5.0	-1.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Lane Util. Factor	0.97	0.91	0.97	0.91	0.97	0.91	0.97	0.91	1.00	0.97	1.00	0.97	0.91	0.91
Fr.	1.00	0.97	1.00	0.97	1.00	0.97	1.00	1.00	0.95	1.00	0.95	1.00	0.91	0.91
Fr Protected	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4631	3433	4939	3433	4939	3433	5085	1953	3433	4653	3433	4653	4653
Fr Permitted	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4631	3433	4939	3433	4939	3433	5085	1953	3433	4653	3433	4653	4653
Peak-hour factor, P.H.F	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	488	1501	382	113	823	195	285	438	254	163	163	212	212	212
RTOR Reduction (vph)	0	56	0	0	52	0	0	0	130	0	176	0	176	0
Lane Group Flow (vph)	488	1827	0	113	957	10	285	438	134	163	163	198	198	198
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	7	4	3	8	5	2	2	2	2	2	2	2	2	2
Permitted Phases	13.1	28.5	3.5	19.0	7.5	13.2	13.2	6.0	11.7	6.0	11.7	6.0	11.7	11.7
Adjusted Green, G (s)	13.1	28.5	3.5	19.0	7.5	13.2	13.2	6.0	11.7	6.0	11.7	6.0	11.7	11.7
Effective Green, G (s)	13.1	28.5	3.5	19.0	7.5	13.2	13.2	6.0	11.7	6.0	11.7	6.0	11.7	11.7
Actuated G/C Ratio	0.19	0.41	0.06	0.27	0.11	0.19	0.19	0.09	0.09	0.09	0.17	0.09	0.17	0.17
Actuated Cycle Time (s)	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
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	3.0	3.0	3.0
Lane Cap (vph)	649	2035	173	1354	372	959	302	297	786	302	297	786	302	297
vs Ratio Prot	0.31	50.37	0.03	70.20	50.08	50.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
vs Ratio Perm	0.75	0.90	0.65	0.71	0.77	0.77	0.45	0.45	0.55	0.55	0.25	0.55	0.25	0.25
vs Ratio	0.75	0.90	0.65	0.71	0.77	0.77	0.45	0.45	0.55	0.55	0.25	0.55	0.25	0.25
Uniform Delay, d1	26.6	19.0	32.3	22.7	30.1	24.8	24.8	30.4	30.4	25.0	25.0	30.4	25.0	25.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	5.7	8.5	1.8	9.2	0.3	1.0	1.0	1.0	2.1	2.1	0.2	0.2	0.2
Delay (s)	31.5	24.7	40.8	24.5	39.3	25.2	25.9	32.4	32.4	27.2	27.2	30.6	27.2	27.2
Level of Service	C	C	D	D	D	D	C	C	C	C	C	C	C	C
Approach Delay (s)	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary														
HCM Average Control Delay	26.9				HCM Level of Service				C					
HCM Volume to Capacity ratio	0.72													
Actuated Cycle Length (s)	69.3				Sum of lost time (s)				13.0					
Intersection Capacity Utilization	66.5%													
Analysis Period (min)	15													

HCM Signalized Intersection Capacity Analysis
15: Del Mar Heights Road & Torrey Ridge Drive

Existing PM
12/1/2010

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	787	155	89	101	246	108	0	246	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	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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.91	0.97	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	874	172	99	112	276	209	0	276	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	49	0	0	0	0	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	997	0	99	443	112	424	0	70	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Permitted Phases	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2
Permitted Phases	Permitted Phases	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2
Actuated Green, G (s)	16.2	24	22.6	5.5	5.5	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Effective Green, g (s)	16.2	24	22.6	5.5	5.5	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Actuated g/C Ratio	0.45	0.07	0.63	0.15	0.15	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
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	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	3.0	3.0	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)	2226	118	3183	523	241	447	400	400	400	400	400	400	400	400	400	400	400	400	400	400
V/C Ratio	0.45	0.04	0.14	0.21	0.07	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Uniform Delay, d1	6.9	16.7	2.8	13.4	13.3	12.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	38.0	0.0	0.2	0.3	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Delay (s)	7.0	54.6	2.8	13.6	13.7	13.7	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Level of Service	A	D	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Approach Delay (s)	7.0	12.3	3.7	13.7	13.7	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Approach LOS	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary	EB				WB				NB				SB				Total			
HCM Average Control Delay	9.8				12.4				12.4				12.4				12.4			
HCM Volume to Capacity Ratio	0.43				0.52				0.52				0.52				0.52			
Actuated Cycle Length (s)	36.1				40.8				40.8				40.8				40.8			
Intersection Capacity Utilization	40.7%				44.2%				44.2%				44.2%				44.2%			
Analysis Period (min)	15				15				15				15				15			
Critical Lane Group	EB				WB				NB				SB				Total			

Movement	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Volume (vph)	787	155	89	101	246	108	0	246	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	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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	1.00	0.91	0.97	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Flt Protected	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
Flt Permitted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770	1770
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	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	874	172	99	112	276	209	0	276	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	49	0	0	0	0	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	997	0	99	443	112	424	0	70	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Permitted Phases	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2
Permitted Phases	Permitted Phases	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2	2	3	8	2
Actuated Green, G (s)	16.2	24	22.6	5.5	5.5	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Effective Green, g (s)	16.2	24	22.6	5.5	5.5	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Actuated g/C Ratio	0.45	0.07	0.63	0.15	0.15	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
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	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	3.0	3.0	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)	2226	118	3183	523	241	447	400	400	400	400	400	400	400	400	400	400	400	400	400	400
V/C Ratio	0.45	0.04	0.14	0.21	0.07	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Uniform Delay, d1	6.9	16.7	2.8	13.4	13.3	12.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	38.0	0.0	0.2	0.3	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Delay (s)	7.0	54.6	2.8	13.6	13.7	13.7	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Level of Service	A	D	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Approach Delay (s)	7.0	12.3	3.7	13.7	13.7	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1	12.1
Approach LOS	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary	EB				WB				NB				SB				Total			
HCM Average Control Delay	9.8				0.43				9.8				0.43				HCM Level of Service			
HCM Volume to Capacity ratio	36.1				40.7%				36.1				40.7%				Sum of lost time (s)			
Actuated Cycle Length (s)	15				15				15				15				ICU Level of Service:			
Intersection Capacity Utilization	40.7%				40.7%				40.7%				40.7%				A			
Analysis Period (min)	15				15				15				15				A			
Output - Lost Time	15				15				15				15				A			

HCM Signalized Intersection Capacity Analysis
19: Townsgate Drive & Carmel Country Road

Existing PM
12/1/2010

Movement	THRU-LEFT	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU
Lane Configurations	11	11	11	11	11	11	11	11	11	11	11
Volume (vph)	110	105	173	45	115	111	364	7	182	493	68
Ideal Flow (vphpl)	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	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	0.95
Flt. Protected	0.95	1.00	0.95	1.00	0.90	1.00	0.95	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1770	1863	1583	1770	1673	1770	3529	1770	3529	1583	1583
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1673	1770	3529	1770	3529	1583	1583
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
Adj. Flow (vph)	122	117	192	50	126	123	404	8	202	548	76
RTOR Reduction (vph)	0	0	147	0	107	0	1	0	0	0	52
Lane Group Flow (vph)	122	117	45	50	123	411	0	202	548	24	6
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	1	6	5	2	1	6	5	2	1	6	5
Actuated Green, G (s)	7.6	13.4	13.4	9.2	6.1	14.5	16	18.0	18.0	18.0	18.0
Effective Green, g (s)	7.6	13.4	13.4	9.2	6.1	14.5	9.6	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.19	0.24	0.24	0.08	0.16	0.25	0.17	0.32	0.32	0.32	0.32
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	236	439	373	106	271	190	899	299	1120	501	501
vs Ratio Prot	0.07	0.06	0.03	0.03	0.07	0.12	0.11	0.09	0.09	0.02	0.02
vs Ratio Perm	0.52	0.27	0.12	0.47	0.30	0.65	0.46	0.68	0.49	0.05	0.05
Uniform Delay, d1	22.9	17.7	17.1	25.9	21.0	24.4	17.9	22.2	15.7	13.5	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.3	0.1	3.3	0.6	7.4	0.4	5.9	0.3	0.0	0.0
Delay (s)	24.8	18.0	17.3	29.2	21.6	31.7	18.2	28.1	16.1	13.5	13.5
Level of Service	C	B	B	C	C	C	B	C	B	B	B
Approach Delay (s)	19.6	20.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
Approach LOS	B	B	C	C	C	C	B	C	B	B	B
Intersection Summary											
HCM Average Control Delay	20.2										
HCM Volume to Capacity ratio	0.47										
Actuated Cycle Length (s)	56.9										
Intersection Capacity Utilization	49.7%										
Analysis Period (min)	15										
Critical Lane Group											

Baseline

Synchro 7 - Report
Page 18

HCM Signalized Intersection Capacity Analysis
20: Townsgate Drive & El Camino Real

Existing PM
12/1/2010

Movement	THRU-LEFT	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU	THRU
Lane Configurations	11	11	11	11	11	11	11	11	11	11	11
Volume (vph)	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
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	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.91	1.00	0.91
Flt. Protected	0.95	1.00	0.95	1.00	0.90	1.00	0.97	1.00	0.97	1.00	0.97
Satd. Flow (prot)	1770	1862	1583	1770	1692	1770	4910	1770	4910	1770	5002
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1862	1583	1770	1692	1770	4910	1770	4910	1770	5002
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
Adj. Flow (vph)	12	7	11	166	0	87	8	743	222	108	410
RTOR Reduction (vph)	0	11	0	0	0	73	0	77	0	1	1
Lane Group Flow (vph)	12	7	11	155	10	14	8	808	0	104	411
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	1	6	5	2	7	4	3	8	3	8	3
Actuated Green, G (s)	0.7	1.0	6.7	7.0	0.7	16.6	3.4	19.3	3.4	19.3	3.4
Effective Green, g (s)	0.7	1.0	6.7	7.0	0.7	16.6	3.4	19.3	3.4	19.3	3.4
Actuated g/C Ratio	0.02	0.02	0.15	0.16	0.02	0.38	0.08	0.44	0.08	0.44	0.08
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	28	39	271	264	28	1865	130	2244	130	2244	130
vs Ratio Prot	0.01	0.00	0.06	0.01	0.00	0.16	0.06	0.09	0.06	0.09	0.06
vs Ratio Perm	0.43	0.19	0.58	0.05	0.29	0.48	0.75	0.18	0.75	0.18	0.75
Uniform Delay, d1	21.3	21.0	17.2	15.5	21.3	10.3	19.7	7.4	19.7	7.4	19.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	2.3	2.9	0.1	5.6	0.2	20.5	0.0	20.5	0.0	20.5
Delay (s)	31.5	23.3	20.1	15.6	26.8	10.5	40.3	7.5	40.3	7.5	40.3
Level of Service	C	C	C	B	C	B	D	A	D	A	D
Approach Delay (s)	26.6	18.5	10.6	10.6	10.6	10.6	14.1	14.1	14.1	14.1	14.1
Approach LOS	C	B	B	B	B	B	B	B	B	B	B
Intersection Summary											
HCM Average Control Delay	13.0										
HCM Volume to Capacity ratio	0.49										
Actuated Cycle Length (s)	43.7										
Intersection Capacity Utilization	47.0%										
Analysis Period (min)	15										
Critical Lane Group											

Baseline

Synchro 7 - Report
Page 19

HCM Signalized Intersection Capacity Analysis
22: High Bluff Drive & El Camino Real

Volume	172	271	315	96	160	97	258	945	92	113	464	43
Lane Configurations	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	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	0.85	0.85	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1663	1583	1770	3315	3433	5018	1770	1770	1770	5020	5020
Fit Permitted	0.95	1.00	1.00	1.00	0.95	0.97	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1663	1583	1770	3315	3433	5018	1770	1770	1770	5020	5020
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
Adj. Flow (vph)	80	301	350	107	187	107	287	1050	102	126	516	46
RTOR Reduction (vph)	0	0	224	0	94	0	19	0	0	18	0	0
Lane Group Flow (vph)	80	301	350	107	187	107	287	1050	102	126	516	46
Turn Type	2	2	2	2	6	6	3	8	3	8	7	4
Protected Phases	2	2	2	2	6	6	3	8	3	8	7	4
Permitted Phases	2	2	2	2	6	6	3	8	3	8	7	4
Actuated Green, G (s)	17.4	17.4	17.4	17.4	4.8	4.8	6.0	17.3	4.5	15.8	4.5	15.8
Effective Green, g (s)	17.4	17.4	17.4	17.4	4.8	4.8	6.0	17.3	4.5	15.8	4.5	15.8
Actuated g/C Ratio	0.28	0.29	0.29	0.29	0.08	0.08	0.10	0.28	0.09	0.28	0.09	0.28
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	4.0
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	3.0
Lane Grp Cap (vph)	513	459	459	142	265	343	1447	133	1322	133	1322	133
W/S Ratio Prot	0.05	0.19	0.09	0.09	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.11
v/s Ratio Perm	0.19	0.36	0.27	0.27	0.07	0.07	0.07	0.07	0.09	0.09	0.09	0.11
g/C Ratio	0.19	0.36	0.27	0.27	0.07	0.07	0.07	0.07	0.09	0.09	0.09	0.11
Uniform Delay, d1	15.8	18.7	16.4	27.0	27.0	27.0	28.5	19.6	27.6	18.3	27.6	18.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	7.1	1.5	20.0	10.2	16.1	28	2.8	61.3	0.2	61.3	0.2
Delay (s)	16.5	25.8	17.9	47.0	37.2	43.6	22.5	22.5	89.0	18.5	89.0	18.5
Level of Service	B	C	B	D	D	D	D	D	F	B	F	B
Approach Delay (s)	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	27.9											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	60.0											
Intersection Capacity Utilization	53.3%											
Analysis Period (min)	15											
Critical Lane Group	C											

Baseline

HCM Signalized Intersection Capacity Analysis
21: Carmel Creek Road & Carmel Country Road

Volume	284	237	123	32	59	17	94	344	39	25	381	1224
Lane Configurations	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	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.95	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1663	1583	1770	3315	3433	5018	1770	1770	1770	5020	5020
Fit Permitted	0.95	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1663	1583	1770	3315	3433	5018	1770	1770	1770	5020	5020
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
Adj. Flow (vph)	316	263	137	36	110	104	382	413	28	423	216	216
RTOR Reduction (vph)	0	0	104	0	8	0	11	0	0	112	0	0
Lane Group Flow (vph)	316	263	137	36	110	104	382	413	28	423	216	216
Turn Type	4	4	4	4	6	6	2	6	4	6	6	6
Protected Phases	4	4	4	4	6	6	2	6	4	6	6	6
Permitted Phases	4	4	4	4	6	6	2	6	4	6	6	6
Actuated Green, G (s)	15.0	15.0	15.0	15.0	4.8	4.8	20.6	15.0	4.5	17.4	4.5	17.4
Effective Green, g (s)	15.0	15.0	15.0	15.0	4.8	4.8	20.6	15.0	4.5	17.4	4.5	17.4
Actuated g/C Ratio	0.21	0.24	0.24	0.24	0.14	0.14	0.08	0.21	0.09	0.21	0.09	0.21
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	4.0
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	3.0
Lane Grp Cap (vph)	430	452	384	282	137	1162	137	1162	46	942	46	942
W/S Ratio Prot	0.16	0.14	0.02	0.02	0.09	0.09	0.02	0.02	0.02	0.02	0.02	0.17
v/s Ratio Perm	0.73	0.58	0.09	0.09	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.17
g/C Ratio	0.73	0.58	0.09	0.09	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.17
Uniform Delay, d1	21.6	20.6	16.1	25.1	27.9	15.6	29.8	19.1	20.0	19.1	20.0	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	1.9	0.1	4.8	21.1	0.2	20.7	1.0	20.7	1.0	20.7	1.0
Delay (s)	28.0	22.5	16.2	29.9	49.0	15.8	50.5	20.1	40.7	20.1	40.7	20.1
Level of Service	C	C	B	C	D	B	D	D	D	D	D	D
Approach Delay (s)	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	23.2											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	61.6											
Intersection Capacity Utilization	59.9%											
Analysis Period (min)	15											
Critical Lane Group	C											

Baseline

HCM Signalized Intersection Capacity Analysis 24: Carmel Grove Road & Carmel Creek Road

HCM Unsignalized Intersection Capacity Analysis 23: High Bluff Drive & Carmel Vista Road

Lane Configurations	116	50	70	55	26	9	108	720	134	5	37	82
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
FL Protected	0.97	1.00	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Satd Flow (prot)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FL Permitted	0.97	1.00	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Satd Flow (perm)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Adj. Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	66	0	6	0	0	16	0	0	25	0
Lane Group Flow (vph)	30	185	12	0	34	0	120	833	0	7	423	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	4	1	4	1	8	1	5	2	1	6	1	6
Permitted Phases	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Effective Green, g (s)	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Adjusted g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
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	4.0
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	3.0
Lane Grp Cap (vph)	273	241	205	205	205	205	205	205	205	205	205	205
vs Ratio Prot	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
vs Ratio Perm	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Uniform Delay, d1	22.7	20.5	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	0.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Delay (s)	29.2	20.6	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Level of Service	C	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	25.7	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	17.2											
HCM Volume to Capacity Ratio	0.59											
Adjusted Cycle Length (s)	56.6											
Intersection Capacity Utilization	49.1%											
Analysis Period (min)	15											
Critical Lane Group	C											

Lane Configurations	178	25	125	4	11	4	90	24	8	2	7	96
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
FL Protected	0.97	1.00	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Satd Flow (prot)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
FL Permitted	0.97	1.00	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Satd Flow (perm)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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
Adj. Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
RTOR Reduction (vph)	0	0	66	0	6	0	0	16	0	0	25	0
Lane Group Flow (vph)	30	185	12	0	34	0	120	833	0	7	423	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	4	1	4	1	8	1	5	2	1	6	1	6
Permitted Phases	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Effective Green, g (s)	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Adjusted g/C Ratio	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
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	4.0
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	3.0
Lane Grp Cap (vph)	273	241	205	205	205	205	205	205	205	205	205	205
vs Ratio Prot	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
vs Ratio Perm	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Uniform Delay, d1	22.7	20.5	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4	23.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	0.1	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Delay (s)	29.2	20.6	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Level of Service	C	C	C	C	C	C	C	C	C	C	C	C
Approach Delay (s)	25.7	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Intersection Summary												
HCM Average Control Delay	17.2											
HCM Volume to Capacity Ratio	0.59											
Adjusted Cycle Length (s)	56.6											
Intersection Capacity Utilization	49.1%											
Analysis Period (min)	15											
Critical Lane Group	C											

HCM Signalized Intersection Capacity Analysis

25: Carmel Valley Road & I-5 SB Ramps

Existing PM

12/1/2010

Movement	EB	WB	CB	EB	WB	CB	EB	WB	CB	EB	WB	CB	EB	WB	CB	EB	WB	CB
Lane Configurations	T			T			T			T			T			T		
Volume (vph)	0	611	137	604	351	0	0	0	0	0	0	855	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	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	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.95	0.95	0.91	0.95	0.95
Flt	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Flt Protected	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3442	3433	3539	3539	3433	3442	3433	3539	3539	3433	3442	3433	3539	3539	3433	3442	3433	3539
Flt Permitted	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3442	3433	3539	3539	3433	3442	3433	3539	3539	3433	3442	3433	3539	3539	3433	3442	3433	3539
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	0.90	0.90	0.90	0.90	0.90	0.90
Actuated Green, G (s)	16.0	679	152	671	946	0	0	0	0	0	0	928	1900	1900	1900	1900	1900	1900
Effective Green, g (s)	16.8	14.0	34.8	14.0	34.8	0	0	0	0	0	0	1	49	1900	1900	1900	1900	1900
Actuated g/C Ratio	0.26	0.22	0.35	0.22	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.33	0.33	0.33	0.33	0.33	0.33
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	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	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)	906	753	1930	1930	753	906	753	1930	1930	753	906	753	1930	1930	753	906	753	1930
vs Ratio Prot	0.23	0.20	0.27	0.20	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.20	0.27	0.20	0.27	0.20	0.27
ws Ratio Perm	0.85	0.89	0.49	0.89	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.87	0.49	0.87	0.49	0.87	0.49
Uniform Delay, d1	22.6	24.2	9.0	24.2	9.0	0.00	0.00	0.00	0.00	0.00	0.00	20.0	20.1	14	20.0	20.1	14	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.3	12.8	0.2	12.8	0.2	0.00	0.00	0.00	0.00	0.00	0.00	12.3	14.6	0	12.3	14.6	0	12.3
Delay (s)	32.8	36.9	9.2	36.9	9.2	0.00	0.00	0.00	0.00	0.00	0.00	32.3	34.8	14	32.3	34.8	14	32.3
Level of Service	C	D	A	D	A	C	D	A	D	A	C	C	C	C	C	C	C	C
Approach Delay (s)	32.8	20.7	20.7	20.7	20.7	0.0	0.0	0.0	0.0	0.0	0.0	37.2	37.2	14	37.2	37.2	14	37.2
Approach LOS	C	C	C	C	C	A	A	A	A	A	A	C	C	C	C	C	C	C
Intersection Summary																		
HCM Average Control Delay	27.0			27.0			27.0			27.0			27.0			27.0		
HCM Volume to Capacity ratio	0.68			0.68			0.68			0.68			0.68			0.68		
Actuated Cycle Length (s)	63.8			63.8			63.8			63.8			63.8			63.8		
Intersection Capacity Utilization	80.9%			80.9%			80.9%			80.9%			80.9%			80.9%		
Analysis Period (min)	15			15			15			15			15			15		
g: Critical Lane Group																		

HCM Signalized Intersection Capacity Analysis

26: Carmel Valley Road & I-5 NB Ramps

Existing PM
12/1/2010

0107/1671

[illegible]

HCM Signalized Intersection Capacity Analysis

Existing PM
12/12/2010

HCM Signalized Intersection Capacity Analysis

Existing PM
12/12/2010

27: Valley Centre Drive & El Camino Real

28: Carmel Valley Road & El Camino Real

Lane Configurations	30	30	28	476	22	92	75	874	214	453	1301	25
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.95	0.91	0.95	0.95	0.91	0.95	1.00	0.91	1.00	0.91	1.00	0.91
Lane Util. Factor	1.00	0.99	0.98	1.00	0.98	0.95	1.00	0.97	1.00	0.95	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	0.96	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1681	1668	1604	1681	1615	1604	1770	1695	1770	1695	1770	1695
Satd. Flow (perm)	1681	1668	1604	1681	1615	1604	1770	1695	1770	1695	1770	1695
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
Adj. Flow (vphpl)	42	33	31	529	24	102	83	971	238	170	1446	28
RTOR Reduction (vph)	0	3	26	0	2	70	0	46	0	0	0	2
Lane Group Flow (vph)	38	37	2	280	281	22	83	1163	0	170	1472	0
Turn Type	Split	Split	Split	Prot	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	5.5	5.5	5.5	15.7	15.7	15.7	3.0	33.0	25.4	25.4	25.4	6
Actuated Green, G (s)	5.5	5.5	5.5	15.7	15.7	15.7	3.0	33.0	25.4	25.4	25.4	6
Effective Green, g (s)	0.06	0.06	0.06	0.24	0.24	0.24	0.06	0.60	0.95	0.95	0.95	0.30
Actuated g/C Ratio	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	140	139	125	399	383	357	96	2460	679	1946	679	1946
Lane Grp Cap (vph)	60.02	60.02	60.02	0.17	0.17	0.17	0.08	0.24	0.10	0.10	0.29	0.29
W/S Ratio Prot	0.27	0.27	0.27	0.70	0.73	0.66	0.66	0.47	0.25	0.25	0.73	0.73
W/S Ratio Perm	28.5	28.5	27.9	23.1	23.3	19.5	31.1	10.9	13.9	13.9	17.7	17.7
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	1.1	1.0	0.1	5.5	7.2	0.1	50.7	0.1	0.2	0.2	1.7	1.7
Incremental Delay, d2	28.5	29.5	27.9	26.6	30.5	19.6	81.8	11.0	7.0	7.0	9.4	9.4
Delay (s)	C	C	C	C	C	C	B	F	B	B	B	B
Level of Service	C	C	C	C	C	C	B	F	B	B	B	B
Approach Delay (s)	20.1	20.1	20.1	28.2	28.2	28.2	15.6	18.9	18.9	18.9	18.9	18.9
Approach LOS	C	C	C	C	C	C	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	19.7											
HCM Volume to Capacity ratio	0.70											
Actuated Cycle Length (s)	66.2											
Intersection Capacity Utilization	61.5%											
Analysis Period (min)	15											
L: Phase conflict between lane groups	15											
C: Critical Lane Group	C											

Baseline

Synchro 7 - Report
Page 25

Lane Configurations	0	0	0	166	1807	170	341	964	0	0	591	744
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.91	1.00	0.95
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	1681	1668	1604	1681	1615	1604	1770	1695	1770	1695	1770	1695
Satd. Flow (perm)	1681	1668	1604	1681	1615	1604	1770	1695	1770	1695	1770	1695
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
Adj. Flow (vphpl)	0	0	0	184	857	185	379	1071	0	0	657	827
RTOR Reduction (vph)	0	0	0	0	0	0	71	0	0	0	11	11
Lane Group Flow (vph)	0	0	0	184	857	185	379	1071	0	0	1060	402
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	3	8	8	8	5	2	6	6	6	6	6	6
Actuated Green, G (s)	15.8	15.8	15.8	15.8	8.3	34.2	21.9	21.9	21.9	21.9	21.9	21.9
Effective g/C Ratio	0.27	0.27	0.27	0.27	0.14	0.59	0.38	0.38	0.38	0.38	0.38	0.38
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	4.0
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	3.0
Lane Grp Cap (vph)	895	1385	431	491	2087	1	151	514	0.26	0.26	0.30	0.30
W/S Ratio Prot	0.05	0.10	0.07	0.11	0.30	0.30	0.26	0.30	0.26	0.26	0.30	0.30
W/S Ratio Perm	0.20	0.65	0.27	0.77	0.51	0.51	0.60	0.76	0.60	0.60	0.76	0.76
Uniform Delay, d1	16.2	18.6	16.6	23.9	7.0	7.0	15.1	15.9	15.1	15.1	15.9	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.1	0.3	7.4	0.2	0.2	1.2	1.2	1.2	1.2	1.2	1.2
Delay (s)	16.3	19.7	16.9	31.3	7.2	7.2	16.3	23.0	16.3	16.3	23.0	23.0
Level of Service	B	B	B	C	A	A	B	C	B	B	C	C
Approach Delay (s)	0.0	18.8	18.8	13.5	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3
Approach LOS	A	B	B	B	B	B	B	B	B	B	B	B
Intersection Summary												
HCM Average Control Delay	16.0											
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	58.0											
Intersection Capacity Utilization	104.6%											
Analysis Period (min)	15											
L: Phase conflict between lane groups	15											
C: Critical Lane Group	C											

Baseline

Synchro 7 - Report
Page 26

Volume (vph)	492	369	92	0	0	0	792	365	193	550	0
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
Adj. Flow (vph)	547	409	102	0	0	0	880	426	214	611	0
RTOR Reduction (vph)	0	1	65	0	0	0	51	0	0	0	0
Lane Group Flow (vph)	492	1163	37	0	0	0	1257	0	214	611	0
Turn Type	Split	Split	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Actuated Green, G (s)	28.0	28.0	28.0	19.0	19.0	19.0	10.6	10.6	33.6	33.6	33.6
Effective Green, g (s)	28.0	28.0	28.0	19.0	19.0	19.0	10.6	10.6	33.6	33.6	33.6
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.15	0.15	0.46	0.46	0.46
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	618	1284	590	1853	1853	1853	270	2455	1012	1012	1012
Vs Ratio Prot	0.31	0.36	0.03	0.24	0.24	0.24	0.12	0.12	0.12	0.12	0.12
Vs Ratio Perm	0.76	0.61	0.06	0.86	0.86	0.86	0.79	0.26	0.79	0.26	0.26
Uniform Delay, d1	17.9	19.6	12.8	23.2	23.2	23.2	28.4	10.6	28.4	10.6	10.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	9.3	0.0	2.0	2.0	2.0	14.7	0.1	14.7	0.1	0.1
Delay (s)	23.0	28.9	12.8	25.2	25.2	25.2	43.1	10.6	43.1	10.6	10.6
Level of Service	C	C	B	C	C	C	D	B	D	B	B
Approach Delay (s)	26.4	26.4	0.0	25.2	25.2	25.2	19.7	19.7	19.7	19.7	19.7
Approach LOS	C	C	A	C	C	C	B	B	B	B	B

Volume (vph)	166	379	0	347	94	30	46	30	46	30	46
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
Adj. Flow (vph)	184	421	0	386	104	33	51	33	51	33	51
RTOR Reduction (vph)	0	0	0	46	0	0	0	0	0	0	0
Lane Group Flow (vph)	184	421	0	444	0	33	4	33	4	33	4
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot	Prot
Permitted Phases	7	7	7	7	7	7	7	7	7	7	7
Actuated Green, G (s)	12	13.8	8.6	8.6	17.7	17.7	17.7	17.7	17.7	17.7	17.7
Effective Green, g (s)	12	13.8	8.6	8.6	17.7	17.7	17.7	17.7	17.7	17.7	17.7
Actuated g/C Ratio	0.05	0.59	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	90	2078	1254	1254	1254	1254	1254	1254	1254	1254	1254
Vs Ratio Prot	0.04	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Vs Ratio Perm	0.81	0.20	0.35	0.35	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Uniform Delay, d1	11.0	2.3	5.4	5.4	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.5	0.0	0.2	0.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Delay (s)	51.5	2.3	5.6	5.6	11.4	11.4	11.4	11.4	11.4	11.4	11.4
Level of Service	D	A	A	A	B	B	B	B	B	B	B
Approach Delay (s)	9.6	5.6	5.6	5.6	10.7	10.7	10.7	10.7	10.7	10.7	10.7
Approach LOS	A	A	A	A	B	B	B	B	B	B	B

HCM Signalized Intersection Capacity Analysis 32nd SR-56 EB Ramps & Carmel Creek Road	Existing PM 12/11/2010
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[illegible]

HCM Signalized Intersection Capacity Analysis
31: Valley Centre Drive & Carmel Creek Road

[illegible]

[illegible]

Methodology: WB											
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11

ALL-WAY STOP CONTROL ANALYSIS

General Information				Site Information			
Analyst	Jacob Swin			Intersection	Carmel Creek Rd/Del Mar Trail		
Agency/Co.	USA			Jurisdiction	City of San Diego		
Date Performed	9/12/2009			Analysis Year	2009		
Analysis Time Period	30 Existing Pkts						
Project: ID 002402 - San Diego Corporate Center Lots							
East/West Street: Del Mar Trail				North/South Street: Carmel Creek Road			
Volume Adjustments and Site Characteristics							
Approach		Eastbound		Westbound		Southbound	
Movement	L	T	R	L	T	R	
Volume (veh/h)	5	5	4	55	12	10	
% Thus Left Lane							
Approach	Northbound		Southbound		Northbound		
Movement	L	T	R	L	T	R	
Volume (veh/h)	12	733	100	15	389	10	
% Thus Left Lane	50		50				
Eastbound		Westbound		Northbound		Southbound	
L1	L2	L1	L2	L1	L2	L1	L2
LTR	LTR	LTR	LTR	LTR	LTR	LTR	LTR
0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
14	85	419	518	231	227		
Flow Rate (veh/h)	2	2	2	2	2	2	2
% Heavy Vehicles	1	1	1	1	1	1	1
No. Lanes	2	2	2	2	2	2	2
Geometry Group	0.25						
Duration, T	0.25						
Saturation Headway Adjustment Worksheet							
Prop. Left-Turns	0.4	0.7		0.0		0.0	
Prop. Right-Turns	0.3	0.1		0.0		0.2	
Prop. Heavy Vehicle	0.0	0.0		0.0		0.0	
hLT-adj	0.2	0.2		0.2		0.5	
hRT-adj	-0.6	-0.6		-0.6		-0.7	
hV-A-adj	1.7	1.7		1.7		1.7	
hadj, computed	-0.1	0.1		0.0		-0.1	
Departure Headway and Service Time							
hadj, initial value (s)	3.20	3.20		3.20		3.20	
hadj, initial	0.01	0.08		0.37		0.46	
hadj, final value (s)	6.60	6.51		5.44		5.27	
hadj, final value	0.03	0.15		0.63		0.76	
Move-up time, m (s)	2.0	2.0		2.3		2.3	
Service Time, ts (s)	4.6	4.5		3.1		3.0	
Capacity and Level of Service							
Eastbound		Westbound		Northbound		Southbound	
L1	L2	L1	L2	L1	L2	L1	L2
254	335	657	679	481	477		
Capacity (veh/h)	9.78	10.69	22.53	12.37	12.09		
Delay (s/veh)	A	B	C	B	B		
LOS	A	B	C	B	B		
Approach: Delay (s/veh)	9.78	10.69	20.06	12.23	12.09		
LOS	A	B	C	B	B		
Intersection Delay (s/veh)	17.03						