



## Memorandum

**Date:** September 26, 2017

**Project:** RCI006

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**From:** Smadar Boardman  
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**Subject:** Redwood City El Camino Real Complete Streets Corridor Plan Traffic Analysis

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As requested, W-Trans has prepared a traffic analysis for the El Camino Real Complete Street Corridor Study. The segment of El Camino Real runs from Edgewood Avenue in the north to Oakwood Drive-Dumbarton Avenue in the south. This study explores opportunities to improve mobility along the corridor for all users, with specific attention focused on vehicle traffic circulation, and vehicle interaction with bicycles and pedestrians.

### Existing Traffic Operation

Following is a summary of existing operation with the current geometric configuration of El Camino Real along the corridor. The performance measures shown for the existing condition analysis are Level of Service, travel time, and corridor delay.

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Transportation data, including intersection traffic volumes, pedestrian volumes, and bicycle volumes, were conducted in March 2016 at the intersections of El Camino Real/Jefferson Avenue and El Camino Real/Maple Street, and in February 2015 at El Camino Real/Roosevelt Avenue. The remaining counts at the study intersections were conducted in May 2016.

A summary of the intersection level of service calculations is contained in Table 1, and copies of the Level of Service calculations are attached. The intersections are currently operating acceptably, at LOS D or better overall during both peak hours. The eastbound and westbound stop controlled approaches at El Camino Real/Hazel Avenue-Laurel Avenue operate deficiently at LOS F, though the intersection is operating acceptably overall during the a.m. and p.m. peak hours due to the free flow conditions on El Camino Real.

**Table 1 – Existing Peak Hour Intersection Levels of Service**

Study Intersection <i>Approach</i>	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. El Camino Real/Whipple Avenue	39.7	D	47.5	D
2. El Camino Real/Brewster Avenue	13.5	B	11.3	B
3. El Camino Real/James Avenue	15.3	B	20.1	C
4. El Camino Real/Jefferson Avenue	44.8	D	43.1	D
5. El Camino Real/Maple Street	10.1	B	4.3	A
6. El Camino Real/Roosevelt Avenue	21.9	C	8.7	A
7. El Camino Real/Oak Avenue	9.3	A	9.3	A
8. El Camino Real/Redwood Avenue-Main Street	0.0	A	0.1	A
<i>Southwestbound (Main Street) Approach</i>	<i>12.7</i>	<i>B</i>	<i>16.9</i>	<i>C</i>
9. El Camino Real/Hazel Avenue-Laurel Street	26.6	D	15.8	C
<i>Eastbound (Hazel Avenue) Approach</i>	<b>**</b>	<b>F</b>	<b>**</b>	<b>F</b>
<i>Westbound (Laurel Street) Approach</i>	<b>51.8</b>	<b>F</b>	<b>**</b>	<b>F</b>
10. El Camino Real/Oakwood Drive-Dumbarton Ave	32.9	C	18.2	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; \*\* = delay greater than 120 seconds; **Bold** text = deficient operation

Travel time and corridor delay with the existing lane configuration along the segment of El Camino Real were evaluated. The northbound and southbound travel time and delay measured are summarized in Table 2.

**Table 2 – Existing Travel Time and Delay**

Lane Configuration <i>Performance Measure</i>	AM Peak		PM Peak	
	NB	SB	NB	SB
Existing Configuration				
Travel Time	344.4	365.8	402.3	352.5
Delay	132.5	162.0	182.6	151.9

Notes: NB = Northbound; SB = Southbound; Travel time is measured in average seconds per vehicle; Delay is measured in average seconds per vehicle

The delay at the side street approaches of the study intersections was determined based on the reported delay for those movements as determined in the intersection Level of Service analysis. Table 3 summarizes the side-street approach delay at the study intersections.

**Table 3 – Existing Intersection Side-Street Approach Delay**

Study Intersection		Existing			
		AM Peak		PM Peak	
		EB	WB	EB	WB
1.	El Camino Real/Whipple Avenue	55.5	42.6	88.8	47.1
2.	El Camino Real/Brewster Avenue	37.7	37.1	36.8	41.6
3.	El Camino Real/James Avenue	41.3	37.4	86.8	42.9
4.	El Camino Real/Jefferson Avenue	40.7	39.3	41.1	47.9
5.	El Camino Real/Maple Street	--	30.5	--	40.2
6.	El Camino Real/Roosevelt Avenue	54.0	--	51.6	--
7.	El Camino Real/Oak Avenue	56.0	--	49.1	--
8.	El Camino Real/Redwood Avenue-Main Street	--	12.7	--	16.9
9.	El Camino Real/Hazel Avenue-Laurel Street	311.6	51.8	125.6	138.4
10.	El Camino Real/Oakwood Drive-Dumbarton Ave	26	31.8	40.7	43.5
<b>Total Side-Street Delay</b>		<b>622.8</b>	<b>283.2</b>	<b>520.5</b>	<b>418.5</b>

Notes: EB = Eastbound; WB = Westbound; Results are shown as Delay; Delay is measured in average seconds per vehicle

## Traffic Signal Optimization

The existing conditions analysis shown above was completed using existing signal timing provided by Caltrans. Currently, the traffic signals along the corridor operate in coordination. The new Oak Street signal and the adjacent signals at Lakeville Street and East Washington Street. Traffic signal coordination allows traffic signals at adjacent intersections to work together, resulting in vehicles being able to pass through multiple intersections with the fewest number of stops needed, and thereby improving traffic flow. Along El Camino Real, traffic signal coordination improves flow and reduces the potential for queues to exceed available storage.

## Offset Intersections

The intersections of El Camino Real/Cedar Street, El Camino Real/Roosevelt Avenue, and El Camino Real/Chestnut Street are closely spaced. The El Camino Real/Roosevelt Avenue and El Camino Real/Chestnut Street intersections are both signalized, while the El Camino Real/Cedar Street intersection is stop controlled on the westbound Cedar Street approach. Currently, the traffic signals at the signalized intersections employ a coordinated timing system during the a.m. and p.m. peak hours. Generally, the vehicle platoons progress through the system in a fairly efficient manner given congested conditions on the corridor. To provide an additional cross-town connector and access to Main Street/Downtown area, Cedar Street could be realigned such that it becomes the fourth leg of the El Camino Real/Franklin Street intersection. Additional data would be needed in order to determine if the close spacing of the Roosevelt Avenue and Chestnut Street signalized intersections result in excess delays for vehicles along El Camino Real and along the side-streets. Additional data collection required would include: traffic, pedestrian, and bicycle volumes at the intersections of El Camino Real/Chestnut Street and El Camino Real/Cedar Street; traffic volumes at the existing BevMo driveway located on the east side of El Camino Real approximately 45 feet south of the El Camino Real/Roosevelt Avenue intersection; traffic volumes at the existing Aaron Brothers driveway located on the west side of El Camino Real approximately 80 feet north of the El Camino Real/Roosevelt Avenue intersection; and coordination with SamTrans to determine the need for or feasibility of relocation of the existing northbound bus stop located between El Camino Real/Roosevelt Avenue and El Camino Real/Cedar Street.

## Right Turn Lanes

Currently, many of the northbound and southbound approaches along El Camino Real at both signalized and unsignalized intersections have dedicated right turn lanes. The recommended alternative for the El Camino Real Corridor Plan is to provide one-way Class IV protected bikeways along the corridor. A common bicycle-vehicle conflict involves right-turning vehicles and through bicycles at an intersection (or a driveway). Shifting bicycles from a protected bikeway to the left of a right-turn lane, while feasible, requires specific geometry applications. Where capacity is not needed at an intersection, right-turn lanes could be removed in favor of providing space for a Class IV protected bikeway.

An evaluation was performed to determine suitable locations where a right-turn lane could be removed and replaced with the Class IV bicycle facility. At intersections where data was available, right-turn lanes were determined to be a viable location for removal if they had a.m. and p.m. peak hour turn volumes of less than 100 vehicles. The following right-turn lanes at study intersections were determined to meet this criteria:

2. El Camino Real/Brewster Avenue (Northbound and Southbound)
3. El Camino Real/James Avenue (Southbound)
4. El Camino Real/Jefferson Avenue (Northbound)
5. El Camino Real/Maple Street (Northbound)
6. El Camino Real/Roosevelt Avenue (Southbound)

In addition to those analyzed, the following right turn lanes on El Camino Real should be considered for removal, though vehicle, pedestrian, and bicycle volume data for the weekday peak periods would be needed in order to ensure that removal of a right-turn lane at this location would not result in substantial delays along El Camino Real:

- Hopkins Avenue (Southbound)
- Wilson Street (Northbound)
- Diller Street (Northbound)
- Vera Avenue (Southbound)
- Lincoln Avenue (Southbound)

## Traffic Signal Phasing Modification

The intersection of El Camino Real/James Avenue is a signalized four-legged intersection with protected left-turn phasing on the northbound and southbound El Camino Real approaches, and permitted left-turn phasing on the eastbound and westbound James Avenue approaches. Currently, buses access the Redwood City Transit Center (which serves as a transfer point between SamTrans buses and Caltrain) via the intersection of El Camino Real/James Avenue. Buses departing from the transit center and headed to the south do so currently by making the westbound left-turn maneuver from James Avenue onto southbound El Camino Real. With the bus turning movements and with Sequoia High School in close proximity to the intersection, consideration was given to the need to modify the left-turn phasing from permitted to protected on the westbound and eastbound James Avenue approaches of the intersection.

## Street Conversion Opportunities

El Camino Real cuts through the grid pattern of the City streets at a slightly offset angle, especially those to the east of El Camino Real. These street segments intersect the corridor at acute angles, and result in broad swaths of pavement that are not part of the travelway, short and redundant street segments (approximately 50 feet in length), and small triangular shaped islands. These streets and intersections are non-standard with awkward geometrics and consist of underutilized pavement that could opportunistically be converted into landscaped

areas that provide a traffic calming effect on El Camino Real and simplify circulation for drivers. Following are recommendations for the street conversion opportunities.

- El Camino Real Southbound from Edgewood Road to Claremont Avenue (See Figure 1)
  - Move the existing lane merge from three through lanes to two through lanes to a segment to the north, preferably between St. Francis Way and Eaton Avenue
  - Remove frontage road with diagonal parking and existing floating island bus stop
  - Reconstruct this area to provide a large plaza area and a new bus stop
  - The number of existing driveways could be reduced but still allow for full access to the businesses, and would result in fewer conflicts with the one-way protected bike facility

Figure 1: New Configuration for El Camino Real/Edgewood Road/Claremont Road Intersection



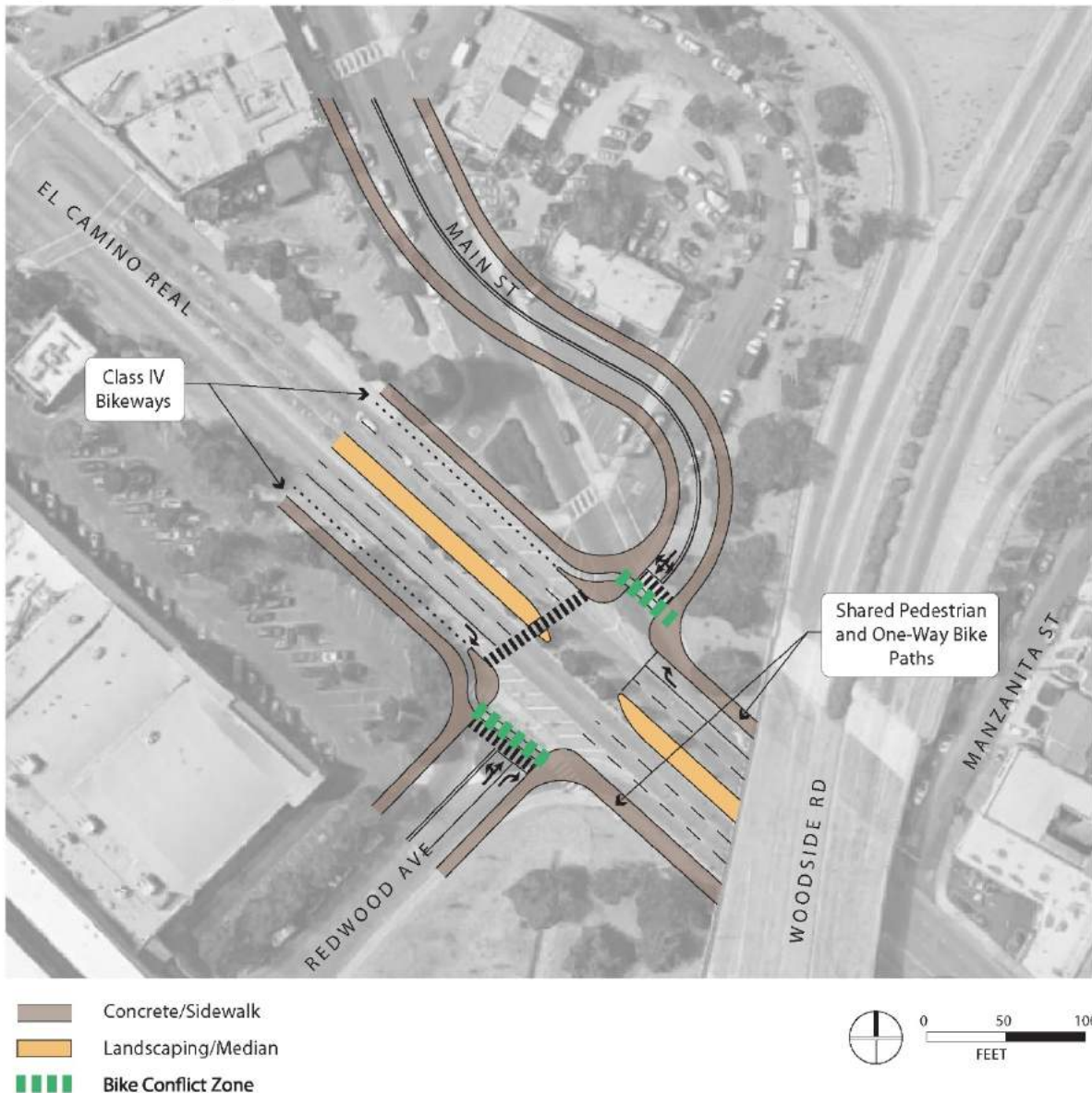
Concrete Bus Pad/Sidewalk  
Crossing at-Grade from Bus Island to Sidewalk over Class IV Bikeway

Plaza/Landscaping  
Bike Conflict Zone



- El Camino Real at Redwood Avenue-Main Street (See Figure 2)
  - Reconstruct the intersection by relocating the Main Street leg to align with the existing Redwood Avenue leg
  - Close access to and from Spruce Street at Main Street to vehicle traffic
  - Rededicate the remaining right-of-way as a result of reconfiguring this area to construct a plaza, which could be used for gateway treatments, including trees and signs
  - The turn radii would be reduced to reduce vehicle turning speeds into and out of the side streets
  - Install protected intersection treatments and provide cross-bikes along El Camino Real
  - Install a traffic signal
- El Camino Real – Woodside Road Overcrossing (See Figure 2)
  - Due to the constraints of the existing Woodside Road bridge, bicycles would need to be conveyed through this area via shared wide sidewalks that would accommodate one-way bike traffic and pedestrians.

Figure 2: New Configuration for El Camino Real/Redwood Avenue/Main Street Intersection



- Lathrop Street from El Camino Real to Chestnut Street (See Figure 3)
  - The existing northbound El Camino Real right-turn onto Lathrop has a large radius, which results in faster turns, less visibility of pedestrians, and longer crossing distances for pedestrians
  - Close this roadway segment, and reconstruct the existing triangular island and closed roadway segment into a plaza

Figure 3: New Configuration for El Camino Real/Chestnut Street Intersection



### Turn Restrictions

The existing median along El Camino Real currently prohibits drivers from completing through and left-turn movements at many of the unsignalized intersections along the segment. The need for turn restrictions at intersections during the a.m. and p.m. peak hours where a physical barrier does not prevent these movements from being made was explored.

- El Camino Real/Whipple Avenue – Drivers currently make the eastbound left turn from Whipple Avenue onto El Camino Real from a shared through/left turn lane. Left turn volumes are 78 vehicles during the a.m. peak hour and 141 vehicles during the p.m. peak hour. The restriction of this movement would likely result in vehicles diverting onto neighborhood streets, and as such a turn restriction at this location is not advisable.
- El Camino Real/Lincoln Avenue – while data is not currently available at this location, the presence of the “Keep Clear” legends indicate that left-turn movements may be more frequent during the peak hours.

The eastbound left-turns could be restricted during peak hours, though additional data would be needed in order to determine if this location does contribute to delays along the corridor.

- El Camino Real/Northumberland Avenue – while data is not currently available at this location, eastbound left-turns could be restricted during peak hours, though additional data would be needed in order to determine if this location does contribute to delays along the corridor.
- The following roadways intersect El Camino Real and the minor approaches at El Camino Real allow for left-turn movements onto El Camino Real. Due to an absence of data (traffic volume data for vehicles, pedestrians, and bicycles during the weekday a.m. and p.m. peak periods), the assumptions are qualitative and based on a general understanding of the corridor. During congested conditions (a.m. and p.m. peak hours), left-turning vehicles are unlikely to be able to find sizable gaps in traffic on El Camino Real to be able to execute the left-turn maneuver. It is likely that drivers already divert to nearby signalized intersections; therefore, turn restrictions at these intersections would not likely have a large impact on travel time for vehicles along the corridor.
  - Finger Avenue
  - Avondale Avenue
  - Edgewood Road
  - Madison Avenue

### **Traffic Control at El Camino Real/Redwood Avenue-Main Street**

A traffic control evaluation was completed that analyzed a modified intersection at El Camino Real/Redwood Avenue-Main Street. Currently, the eastbound Redwood Avenue approach and westbound Main Street approaches are stop-controlled tee intersections with El Camino Real. Vehicle turning movements at both intersections are restricted to right-in/right-out movements only. An analysis was performed to investigate whether a different intersection configuration that allowed for through and left-turn movements from the eastbound and westbound approaches would be feasible at this location from an operational perspective in order to provide additional access for those who wish to travel cross-town.

Under either of the intersection control and configuration schemes, vehicle access to Spruce Street would be prohibited, as discussed under the Street Conversion Opportunities section. Following describes the intersection configuration and control schemes evaluated:

- Signalized intersection – Main Street would be reconfigured to intersect El Camino Real such that it is directly aligned with Redwood Avenue at its intersection with El Camino Real. Left turns from northbound and southbound El Camino Real onto the Redwood Avenue-Main Street legs would be prohibited. Vehicles travelling along eastbound Redwood Avenue and westbound Main Street would have full access.
- Roundabout – A two-lane roundabout would be installed that provides full access for all turning movements from the approaches, except that the southbound Main Street channelized right turn would remain.

As summarized in Table 4, the intersection would operate acceptably with a traffic signal, while operation with the roundabout would result in deficient operation during the a.m. peak hour and acceptable operation during the p.m. peak hour.



**Table 4 – Existing and Alternative Control Intersection Peak Hour Intersection Levels of Service**

<b>Control Scheme</b> <i>El Camino Real/Redwood Avenue-Main Street</i>	<b>AM Peak Hour</b>		<b>PM Peak Hour</b>	
	<b>Delay</b>	<b>LOS</b>	<b>Delay</b>	<b>LOS</b>
<u>Existing Configuration</u>				
El Camino Real/Redwood Avenue-Main Street	0.0	A	0.1	A
<i>Southwestbound (Main Street) Approach</i>	<i>12.7</i>	<i>B</i>	<i>16.8</i>	<i>C</i>
<u>Signalized</u>				
El Camino Real/Redwood Avenue-Main Street	50.9	D	31.6	C
<u>Roundabout</u>				
El Camino Real/Redwood Avenue-Main Street	<b>59.5</b>	<b>E</b>	42.1	D

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; **Bold** text indicates deficient operation

### Preferred Alternative Traffic Operation

A preferred alternative was developed that would balance mobility for all users of El Camino Real. The following summarizes the recommended improvements that were incorporated into the analysis of the Preferred Alternative.

- The network was analyzed with an optimized coordination scheme.
- The following right-turn lanes were removed from the El Camino Real approaches:
  - El Camino Real/Brewster Avenue (Northbound and Southbound)
  - El Camino Real/James Avenue (Southbound)
  - El Camino Real/Jefferson Avenue (Northbound)
  - El Camino Real/Maple Street (Northbound)
  - El Camino Real/Roosevelt Avenue (Southbound)
- The left-turn phasing on the westbound and eastbound James Avenue approaches at El Camino Real/James Avenue was modified from permitted phasing to protected phasing.
- The El Camino Real/Redwood Avenue-Main Street was analyzed as a four-legged signalized intersection, with left turns prohibited on northbound and southbound El Camino Real.

The following Level of Service, travel time, and corridor delay summaries evaluated the effects of the recommended improvements as described above. As summarized in Table 5, the intersections would operate acceptably at similar Levels of Service as under existing conditions with the implementation of the preferred alternative.

**Table 5 – Existing and Preferred Alternative Intersection Peak Hour Intersection Levels of Service**

Study Intersection		Existing		Preferred Alternative	
		AM	PM	AM	PM
1.	El Camino Real/Whipple Avenue	39.7/D	47.5/D	38.8/D	47.1/D
2.	El Camino Real/Brewster Avenue	13.5/B	11.3/B	11.3/B	11.4/B
3.	El Camino Real/James Avenue	15.3/B	20.1/C	28.5/C	23.8/C
4.	El Camino Real/Jefferson Avenue	44.8/D	43.1/D	44.4/D	46.9/D
5.	El Camino Real/Maple Street	10.1/B	4.3/A	4.5/A	7.0/A
6.	El Camino Real/Roosevelt Avenue	21.9/C	8.7/A	11.8/B	9.2/A
7.	El Camino Real/Oak Avenue	9.3/A	9.3/A	7.2/A	9.9/A
8.	El Camino Real/Redwood Avenue-Main Street	0.0/A	0.1/A	50.9/D	31.6/C
	<i>Southwestbound (Main Street) Approach</i>	12.7/B	16.9/C	--	--
9.	El Camino Real/Hazel Avenue-Laurel Street	26.6/D	15.8/C	26.6/D	25.8/D
	<i>Eastbound (Hazel Avenue) Approach</i>	**/F	**/F	**/F	**/F
	<i>Westbound (Laurel Street) Approach</i>	<b>51.8/F</b>	**/F	<b>51.8/F</b>	**/F
10.	El Camino Real/Oakwood Drive-Dumbarton Ave	32.9/C	18.2/B	33.9/C	18.1/B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results are shown as Delay/Level of Service

Travel time and delay along the El Camino Real corridor with the preferred alternative configuration at the study intersections were analyzed. Under the preferred alternative configuration, travel time would increase during the a.m. and p.m. peak hours in both directions. Delay would increase during both peak hours and in both directions. The northbound and southbound travel time and corridor delay measured are summarized in Table 6.

**Table 6 – Existing and Preferred Alternative El Camino Real Corridor Travel Time and Delay**

Configuration <i>Performance Measure</i>	AM Peak		PM Peak	
	NB	SB	NB	SB
Existing Configuration				
Travel Time	344.4	365.8	402.3	352.5
Delay	132.5	162.0	182.6	151.9
Preferred Alternative				
Travel Time	361.4	422.2	404.5	375.2
Delay	149.5	214	188.8	174.0
<b>Difference</b>				
<b>Travel Time</b>	<b>+17.0</b>	<b>+56.4</b>	<b>+2.2</b>	<b>+22.7</b>
<b>Delay</b>	<b>+17.0</b>	<b>+52.0</b>	<b>+6.2</b>	<b>+22.1</b>

Notes: NB = Northbound; SB = Southbound; Travel time is measured in average seconds per vehicle; Delay is measured in average seconds per vehicle

Delay at the cross-street approaches with El Camino Real is reported for the study intersections. Under the preferred alternative configuration, cross-street approach delay would increase overall by 19 percent as compared to existing conditions. The cross-street approach delay is summarized in Table 7.

**Table 7 – Existing and Preferred Alternative Intersection Side-Street Approach Delay**

Study Intersection	Existing				Preferred Alternative			
	AM Peak		PM Peak		AM Peak		PM Peak	
	EB	WB	EB	WB	EB	WB	EB	WB
1. El Camino Real/Whipple Avenue	55.5	42.6	88.8	47.1	55.6	39.6	85.7	52
2. El Camino Real/Brewster Avenue	37.7	37.1	36.8	41.6	35.9	35.3	35.8	40.3
3. El Camino Real/James Avenue	41.3	37.4	86.8	42.9	42.9	49.2	52.1	53.3
4. El Camino Real/Jefferson Avenue	40.7	39.3	41.1	47.9	40.3	36.4	45.1	54.9
5. El Camino Real/Maple Street	--	30.5	--	40.2	--	35.8	--	39.0
6. El Camino Real/Roosevelt Avenue	54.0	--	51.6	--	50.7	--	50.1	--
7. El Camino Real/Oak Avenue	56.0	--	49.1	--	53.8	--	48.1	--
8. El Camino Real/Redwood Avenue-Main Street	--	12.7	--	16.9	108.3	14.5	57.7	16.3
9. El Camino Real/Hazel Avenue-Laurel Street	311.6	51.8	125.6	138.4	311.6	51.8	327	138.4
10. El Camino Real/Oakwood Drive-Dumbarton Ave	26	31.8	40.7	43.5	24.3	29.3	39.8	42.4
<b>Total Side-Street Delay</b>	<b>622.8</b>	<b>283.2</b>	<b>520.5</b>	<b>418.5</b>	<b>723.4</b>	<b>291.9</b>	<b>741.4</b>	<b>436.6</b>
<b>Change in Side-Street Delay</b>	--	--	--	--	100.6	8.7	220.9	18.1
<b>Percent Change in Side-Street Delay</b>	--	--	--	--	<b>16%</b>	<b>3%</b>	<b>42%</b>	<b>4%</b>
<b>Overall Percent Change</b>					<b>19%</b>			

Notes: WB = Westbound; EB = Eastbound; Results are shown as Delay; Delay is measured in average seconds per vehicle

SAB/RCI006.M2

Attachments: Operational Analysis Output

HCM 2010 Signalized Intersection Summary  
 1: El Camino Real & Whipple Ave

9/18/2017

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	78	408	40	264	285	256	59	850	446	273	982	76	
Future Volume (veh/h)	78	408	40	264	285	256	59	850	446	273	982	76	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	2	0	1	4	0	6	10	1	1	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.99	1.00		0.97	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1845	1792	1827	1845	1845	1863	1828	1900	
Adj Flow Rate, veh/h	80	421	41	272	294	105	61	876	336	281	1012	71	
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0	
Peak Hour 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	
Percent Heavy Veh, %	1	1	1	3	3	6	4	3	3	2	4	4	
Cap, veh/h	88	523	50	465	483	192	95	1467	658	352	1564	110	
Arrive On Green	0.18	0.18	0.18	0.14	0.14	0.14	0.01	0.14	0.14	0.10	0.48	0.48	
Sat Flow, veh/h	520	2867	292	3408	3505	1379	1740	3505	1550	3442	3286	230	
Grp Volume(v), veh/h	286	0	256	272	294	105	61	876	336	281	535	548	
Grp Sat Flow(s), veh/h/ln	1859	0	1819	1704	1752	1379	1740	1752	1550	1721	1737	1779	
Q Serve(g_s), s	15.0	0.0	13.5	7.5	7.9	7.1	3.5	23.4	20.1	8.0	23.0	23.0	
Cycle Q Clear(g_c), s	15.0	0.0	13.5	7.5	7.9	7.1	3.5	23.4	20.1	8.0	23.0	23.0	
Prop In Lane	0.28		0.16	1.00		1.00	1.00		1.00		1.00	0.13	
Lane Grp Cap(c), veh/h	330	0	323	465	483	192	95	1467	658	352	827	847	
V/C Ratio(X)	0.87	0.00	0.79	0.59	0.61	0.55	0.64	0.60	0.51	0.80	0.65	0.65	
Avail Cap(c_a), veh/h	353	0	346	579	596	234	122	1491	660	413	838	858	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	
Uniform Delay (d), s/veh	40.1	0.0	39.5	40.6	40.8	40.1	48.8	35.7	33.5	43.9	19.9	19.9	
Incr Delay (d2), s/veh	18.9	0.0	11.2	1.2	1.2	2.4	5.8	1.5	2.3	9.1	3.9	3.8	
Initial Q Delay(d3),s/veh	0.5	0.0	0.3	0.1	1.3	0.0	78.9	0.8	0.0	0.3	0.0	0.0	
%ile BackOfQ(50%) veh/ln	9.6	0.0	7.9	3.7	4.2	2.8	4.6	12.5	9.2	4.3	12.0	12.3	
LnGrp Delay(d),s/veh	59.5	0.0	51.0	41.8	43.3	42.5	133.5	38.0	35.9	53.3	23.8	23.7	
LnGrp LOS	E		D	D	D	D	F	D	D	D	C	C	
Approach Vol, veh/h	542			671				1273			1364		
Approach Delay, s/veh	55.5			42.6				42.1			29.8		
Approach LOS	E			D				D			C		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	14.2	46.5		21.7	8.5	52.2		17.6					
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0					
Max Green Setting (Gmax), s	12.0	36.0		19.0	7.0	41.0		17.0					
Max Q Clear Time (g_c+I1), s	10.0	25.4		17.0	5.5	25.0		9.9					
Green Ext Time (p_c), s	0.2	8.5		0.7	0.0	11.9		2.0					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay	39.7												
HCM 2010 LOS	D												

El Camino Real Corridor Plan  
 AM Peak Hour Existing Conditions

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HCM 2010 Signalized Intersection Summary  
 1: El Camino Real & Whipple Ave

9/18/2017

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	141	211	47	305	448	470	69	1313	278	198	983	114	
Future Volume (veh/h)	141	211	47	305	448	470	69	1313	278	198	983	114	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	20	0	5	10	4	0	0	0	1	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.98	1.00		0.97	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1886	1900	1881	1900	1900	1863	1881	1845	1863	1881	1900	
Adj Flow Rate, veh/h	142	213	42	308	453	271	70	1326	180	200	993	99	
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Percent Heavy Veh, %	1	1	1	1	0	0	2	1	3	2	1	1	
Cap, veh/h	106	368	38	702	732	314	90	1539	664	206	1440	144	
Arrive On Green	0.14	0.14	0.14	0.20	0.20	0.20	0.02	0.15	0.15	0.06	0.45	0.45	
Sat Flow, veh/h	1239	1976	400	3476	3610	1535	1774	3574	1541	3442	3274	326	
Grp Volume(v), veh/h	209	0	188	308	453	271	70	1326	180	200	542	550	
Grp Sat Flow(s), veh/h/ln	1824	0	1791	1738	1805	1535	1774	1787	1541	1721	1787	1814	
Q Serve(g_s), s	11.2	0.0	10.1	7.8	11.5	17.1	3.9	36.1	10.4	5.8	24.0	24.0	
Cycle Q Clear(g_c), s	11.2	0.0	10.1	7.8	11.5	17.1	3.9	36.1	10.4	5.8	24.0	24.0	
Prop In Lane	0.68		0.22	1.00		1.00	1.00		1.00		1.00	0.18	
Lane Grp Cap(c), veh/h	273	0	266	702	732	314	90	1539	664	206	786	798	
V/C Ratio(X)	0.76	0.00	0.71	0.44	0.62	0.86	0.78	0.86	0.27	0.97	0.69	0.69	
Avail Cap(c_a), veh/h	292	0	287	730	758	322	106	1573	678	206	803	815	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	1.00	1.00	1.00	
Uniform Delay (d), s/veh	42.0	0.0	41.7	35.2	36.8	39.0	48.6	40.0	28.9	47.0	22.5	22.5	
Incr Delay (d2), s/veh	10.8	0.0	7.1	0.4	1.5	20.5	19.1	4.8	0.7	53.4	4.9	4.8	
Initial Q Delay(d3),s/veh	41.0	0.0	34.5	0.7	3.5	8.6	0.0	0.0	0.0	5.4	0.0	0.0	
%ile BackOfQ(50%) veh/ln	10.7	0.0	9.2	4.1	6.8	10.3	2.4	19.0	4.6	4.5	13.0	13.2	
LnGrp Delay(d),s/veh	93.8	0.0	83.2	36.3	41.8	68.1	67.6	44.8	29.6	105.8	27.4	27.4	
LnGrp LOS	F		F	D	D	E	E	D	C	F	C	C	
Approach Vol, veh/h	397			1032				1576			1292		
Approach Delay, s/veh	88.8			47.1				44.0			39.5		
Approach LOS	F			D				D			D		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>					
Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	10.0	48.0		17.8	9.1	48.9		24.2					
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0					
Max Green Setting (Gmax), s	6.0	41.0		16.0	6.0	41.0		21.0					
Max Q Clear Time (g_c+I1), s	7.8	38.1		13.2	5.9	26.0		19.1					
Green Ext Time (p_c), s	0.0	2.7		0.7	0.0	12.6		1.0					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay	47.5												
HCM 2010 LOS	D												

El Camino Real Corridor Plan 9/18/2017 PM Peak Hour Existing Conditions  
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HCM 2010 Signalized Intersection Summary  
2: El Camino Real & Brewster Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘			
Traffic Volume (veh/h)	89	342	10	66	190	37	1	1025	132	115	1007	105			
Future Volume (veh/h)	89	342	10	66	190	37	1	1025	132	115	1007	105			
Number	7	4	14	3	8	18	5	2	12	1	6	16			
Initial Q (Ob), veh	0	0	0	0	0	0	0	3	0	2	1	2			
Ped-Bike Adj(A_pbT)	0.97		0.94	0.98	0.94	1.00		0.98	1.00		0.97				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1882	1900	1743	1869	1900	1900	1793	1863	1863	1827	1900			
Adj Flow Rate, veh/h	91	349	9	67	194	30	1	1046	123	117	1028	89			
Adj No. of Lanes	1	2	0	1	2	0	0	2	1	1	2	1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	1	1	9	2	2	6	6	2	2	4	0			
Cap, veh/h	233	699	18	174	602	91	36	2002	928	153	2511	1134			
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	1.00	1.00	1.00	0.08	0.72	0.72			
Sat Flow, veh/h	1142	3554	91	939	3062	463	0	3341	1548	1774	3471	1567			
Grp Volume(v), veh/h	91	175	183	67	111	113	561	486	123	117	1028	89			
Grp Sat Flow(s), veh/h/ln	142	1788	1858	939	1775	1749	1792	1550	1548	1774	1736	1567			
Q Serve(g_s), s	7.4	8.7	8.8	6.8	5.3	5.6	0.0	0.0	0.0	6.5	11.6	1.7			
Cycle Q Clear(g_c), s	13.0	8.7	8.8	15.6	5.3	5.6	0.0	0.0	0.0	6.5	11.6	1.7			
Prop In Lane	1.00		0.05	1.00		0.26	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	233	352	365	174	349	344	1109	929	928	153	2511	1134			
V/C Ratio(X)	0.39	0.50	0.50	0.38	0.32	0.33	0.51	0.52	0.13	0.77	0.41	0.08			
Avail Cap(c_a), veh/h	271	411	427	206	408	402	1112	931	930	248	2511	1134			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	0.70	0.70	0.70			
Uniform Delay (d), s/veh	40.1	35.8	35.8	42.7	34.4	34.5	0.1	0.0	0.0	44.9	5.5	4.1			
Incr Delay (d2), s/veh	1.1	1.1	1.1	1.4	0.5	0.6	1.4	1.8	0.3	5.5	0.3	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.4	4.4	4.6	1.8	2.7	2.7	0.7	0.5	0.1	3.9	5.6	1.0			
LnGrp Delay(d),s/veh	41.2	36.9	36.9	44.1	34.9	35.1	1.5	1.8	0.3	55.7	5.8	4.3			
LnGrp LOS	D	D	D	D	C	D	A	A	A	E	A	A			
Approach Vol, veh/h	449			291				1170			1234				
Approach Delay, s/veh	37.7			37.1				1.5			10.4				
Approach LOS	D			D				A			B				
Timer	1	2	3	4	5	6	7	8							
Assigned Phs	1	2		4		6		8							
Phs Duration (G+Y+Rc), s	2.3	64.1		23.7		76.3		23.7							
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0							
Max Green Setting (Gmax), s	51.0			23.0		69.0		23.0							
Max Q Clear Time (g_c+1/8), s	2.0			15.0		13.6		17.6							
Green Ext Time (p_c), s	0.1	25.2		2.7		26.6		2.0							

Intersection Summary

HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

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El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions

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HCM 2010 Signalized Intersection Summary  
2: El Camino Real & Brewster Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘			
Traffic Volume (veh/h)	47	97	25	147	339	144	1	1375	96	89	1144	92			
Future Volume (veh/h)	47	97	25	147	339	144	1	1375	96	89	1144	92			
Number	7	4	14	3	8	18	5	2	12	1	6	16			
Initial Q (Ob), veh	0	0	0	2	0	0	0	10	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.99		0.94	0.97	0.90	1.00		0.96	1.00		0.97				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1881	1900	1900	1863	1792	1881	1881	1900			
Adj Flow Rate, veh/h	47	98	13	148	342	137	1	1389	84	90	1156	79			
Adj No. of Lanes	1	2	0	1	2	0	0	2	1	1	2	1			
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99			
Percent Heavy Veh, %	0	1	1	3	1	1	2	2	6	1	1	0			
Cap, veh/h	139	656	85	295	504	196	36	2115	895	114	2547	1119			
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	1.00	1.00	1.00	0.13	1.00	1.00			
Sat Flow, veh/h	919	3162	409	1227	2430	945	0	3472	1469	1792	3574	1570			
Grp Volume(v), veh/h	47	54	57	148	249	230	745	645	84	90	1156	79			
Grp Sat Flow(s), veh/h/ln	919	1791	1781	1227	1787	1587	1862	1610	1469	1792	1787	1570			
Q Serve(g_s), s	5.0	2.5	2.6	11.2	12.8	13.4	0.0	0.0	0.0	4.9	0.0	0.0			
Cycle Q Clear(g_c), s	18.4	2.5	2.6	13.8	12.8	13.4	0.0	0.0	0.0	4.9	0.0	0.0			
Prop In Lane	1.00		0.23	1.00		0.60	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	139	371	369	295	371	329	1170	981	895	114	2547	1119			
V/C Ratio(X)	0.34	0.15	0.15	0.50	0.67	0.70	0.64	0.66	0.09	0.79	0.45	0.07			
Avail Cap(c_a), veh/h	141	376	374	298	375	333	1170	981	895	119	2548	1119			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00			
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.71	0.71	0.70	0.70	0.70			
Uniform Delay (d), s/veh	45.3	32.4	32.4	38.4	36.5	36.7	0.0	0.0	0.0	43.0	0.0	0.0			
Incr Delay (d2), s/veh	1.4	0.2	0.2	1.3	4.5	6.3	1.9	2.4	0.1	8.4	0.4	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.7	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3	1.2	1.3	4.2	6.8	6.5	1.4	0.8	0.0	2.7	0.1	0.0			
LnGrp Delay(d),s/veh	46.7	32.6	32.6	40.4	41.0	43.0	2.3	3.0	0.1	51.4	0.4	0.1			
LnGrp LOS	D	C	C	D	D	D	A	A	A	D	A	A			
Approach Vol, veh/h	158			627				1474			1325				
Approach Delay, s/veh	36.8			41.6				2.5			3.9				
Approach LOS	D			D				A			A				
Timer	1	2	3	4	5	6	7	8							
Assigned Phs	1	2		4		6		8							
Phs Duration (G+Y+Rc), s	2.3	64.9		24.7		75.3		24.7							
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0							
Max Green Setting (Gmax), s	57.0			21.0		71.0		21.0							
Max Q Clear Time (g_c+1/8), s	2.0			20.4		2.0		15.8							
Green Ext Time (p_c), s	0.0	35.6		0.3		40.7		2.1							

Intersection Summary

HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

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HCM 2010 Signalized Intersection Summary  
 3: El Camino Real & James Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↘	↘	↙	↙	↔	↑	↘	↘	↑	↘
Traffic Volume (veh/h)	108	87	153	42	59	57	208	1097	65	72	1069	105
Future Volume (veh/h)	108	87	153	42	59	57	208	1097	65	72	1069	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.83	0.91		0.77	1.00		0.90	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1881	1508	1720	1900	1881	1827	1545	1681	1845	1900
Adj Flow Rate, veh/h	111	90	155	43	61	52	214	1131	52	74	1102	99
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95
Percent Heavy Veh, %	1	2	1	26	7	7	1	4	23	13	3	0
Cap, veh/h	203	353	253	196	141	120	251	2198	748	91	1929	760
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.14	0.63	0.63	0.11	1.00	1.00
Sat Flow, veh/h	1119	1863	1333	833	745	635	1792	3471	1181	1601	3505	1380
Grp Volume(v), veh/h	111	90	155	43	0	113	214	1131	52	74	1102	99
Grp Sat Flow(s),veh/h/ln	1119	1863	1333	833	0	1380	1792	1736	1181	1601	1752	1380
Q Serve(g_s), s	9.7	4.1	10.7	4.6	0.0	7.2	11.7	17.7	1.7	4.5	0.0	0.0
Cycle Q Clear(g_c), s	16.9	4.1	10.7	8.7	0.0	7.2	11.7	17.7	1.7	4.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	353	253	196	0	262	251	2198	748	91	1929	760
V/C Ratio(X)	0.55	0.25	0.61	0.22	0.00	0.43	0.85	0.51	0.07	0.81	0.57	0.13
Avail Cap(c_a), veh/h	204	354	253	196	0	262	394	2198	748	160	1929	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.65	0.65	0.65	0.92	0.92	0.92
Uniform Delay (d), s/veh	43.2	34.5	37.2	38.2	0.0	35.8	42.0	10.0	7.0	43.8	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.4	4.3	0.6	0.0	1.1	7.0	0.6	0.1	14.2	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%)veh/lr	2.2	2.2	4.2	1.1	0.0	2.8	6.3	8.5	0.6	2.3	0.3	0.1
LnGrp Delay(d),s/veh	46.2	34.9	41.5	38.8	0.0	36.9	49.0	10.5	7.2	57.9	1.1	0.3
LnGrp LOS	D	C	D	D		D	D	B	A	E	A	A
Approach Vol, veh/h	356			156			1397			1275		
Approach Delay, s/veh	41.3			37.4			16.3			4.4		
Approach LOS	D			D			B			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	67.3		23.0	18.0	59.0	23.0						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (Gmax), s	59.0	19.0	22.0	47.0	19.0							
Max Q Clear Time (g_c+I), s	19.7	18.9	13.7	2.0	10.7							
Green Ext Time (p_c), s	0.0	25.4	0.0	0.4	27.6	1.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	15.3											
HCM 2010 LOS	B											
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
 3: El Camino Real & James Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↘	↘	↙	↙	↔	↑	↘	↘	↑	↘
Traffic Volume (veh/h)	62	47	78	113	72	97	89	1379	46	118	1254	75
Future Volume (veh/h)	62	47	78	113	72	97	89	1379	46	118	1254	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	3	0	0	0	1	0	3	6	2	4	4	1
Ped-Bike Adj(A_pbT)	0.96		0.90	0.94		0.87	1.00		0.93	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1696	1795	1900	1900	1881	1557	1776	1881	1900
Adj Flow Rate, veh/h	65	49	77	119	76	100	94	1452	35	124	1320	73
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	0	12	3	3	0	1	22	7	1	0
Cap, veh/h	72	329	261	242	148	149	128	2171	751	165	2264	951
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.13	1.00	1.00	0.06	0.42	0.42
Sat Flow, veh/h	1176	1827	1447	1078	647	852	1810	3574	1234	1691	3574	1500
Grp Volume(v), veh/h	65	49	77	119	0	176	94	1452	35	124	1320	73
Grp Sat Flow(s),veh/h/ln	1176	1827	1447	1078	0	1499	1810	1787	1234	1691	1787	1500
Q Serve(g_s), s	5.4	2.3	4.6	10.5	0.0	10.9	5.0	0.0	0.0	7.2	28.2	2.9
Cycle Q Clear(g_c), s	16.3	2.3	4.6	12.7	0.0	10.9	5.0	0.0	0.0	7.2	28.2	2.9
Prop In Lane	1.00	1.00	1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	329	261	242	0	271	128	2171	751	165	2264	951
V/C Ratio(X)	0.90	0.15	0.30	0.49	0.00	0.65	0.73	0.67	0.05	0.75	0.58	0.08
Avail Cap(c_a), veh/h	155	329	261	242	0	270	199	2178	752	237	2267	952
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.48	0.48	0.48	0.88	0.88	0.88
Uniform Delay (d), s/veh	50.0	34.5	35.5	39.9	0.0	38.2	42.3	0.0	0.0	46.0	18.9	11.4
Incr Delay (d2), s/veh	29.8	0.2	0.6	1.5	0.0	5.4	3.8	0.8	0.1	6.9	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.3	14.8	0.2	0.1	17.0	0.1	0.0
%ile BackOfQ(50%)veh/lr	7.7	1.2	1.9	3.2	0.0	5.0	3.5	0.3	0.0	4.9	14.5	1.4
LnGrp Delay(d),s/veh	186.1	34.8	36.1	41.5	0.0	43.9	61.0	1.0	0.1	70.0	19.9	11.6
LnGrp LOS	F	C	D	D		D	E	A	A	E	B	B
Approach Vol, veh/h	191			295			1581			1517		
Approach Delay, s/veh	86.8			42.9			4.5			23.6		
Approach LOS	F			D			A			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+Rc), s	64.9		22.0	10.6	67.4	22.0						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (Gmax), s	56.0	18.0	11.0	59.0	18.0							
Max Q Clear Time (g_c+I), s	2.0	18.3	7.0	30.2	14.7							
Green Ext Time (p_c), s	0.1	39.9	0.0	0.1	24.2	0.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	20.1											
HCM 2010 LOS	C											
<b>Notes</b>												

HCM 2010 Signalized Intersection Summary  
4: El Camino Real & Jefferson Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔	
Traffic Volume (veh/h)	269	708	264	74	317	181	222	893	64	185	1054	95	
Future Volume (veh/h)	269	708	264	74	317	181	222	893	64	185	1054	95	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.84	1.00		0.96	1.00		0.93	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1845	1881	1881	1776	1827	1792	1845	1827	1900	1776	1845	1881	
Adj Flow Rate, veh/h	277	730	272	76	327	187	229	921	66	191	1087	98	
Adj No. of Lanes	1	2	1	2	2	1	1	2	1	1	2	1	
Peak Hour 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	
Percent Heavy Veh, %	3	1	1	7	4	6	3	4	0	7	3	1	
Cap, veh/h	307	1044	444	124	538	400	262	1311	646	224	1265	538	
Arrive On Green	0.17	0.29	0.29	0.04	0.16	0.16	0.05	0.12	0.12	0.04	0.12	0.12	
Sat Flow, veh/h	1757	3574	1520	3281	3471	1276	1757	3471	1550	1691	3505	1491	
Grp Volume(v), veh/h	277	730	272	76	327	187	229	921	66	191	1087	98	
Grp Sat Flow(s), veh/h/ln	1757	1787	1520	1640	1736	1276	1757	1736	1550	1691	1752	1491	
Q Serve(g_s), s	15.4	18.2	15.4	2.3	8.8	12.2	12.9	25.5	3.6	11.2	30.4	5.9	
Cycle Q Clear(g_c), s	15.4	18.2	15.4	2.3	8.8	12.2	12.9	25.5	3.6	11.2	30.4	5.9	
Prop In Lane	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 Grp Cap(c), veh/h	307	1044	444	124	538	400	262	1311	646	224	1265	538	
V/C Ratio(X)	0.90	0.70	0.61	0.61	0.61	0.47	0.87	0.70	0.10	0.85	0.86	0.18	
Avail Cap(c_a), veh/h	316	1044	444	164	555	406	264	1311	646	254	1265	538	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83	
Uniform Delay (d), s/veh	40.4	31.5	30.5	47.4	39.4	29.7	46.6	38.4	25.5	46.8	41.6	30.8	
Incr Delay (d2), s/veh	26.9	2.1	2.5	4.9	1.8	0.9	25.8	3.2	0.3	18.4	6.5	0.6	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%), veh/ln	9.8	9.2	6.8	1.1	4.4	4.4	8.2	12.8	1.6	6.4	16.0	2.5	
LnGrp Delay(d), s/veh	67.3	33.6	33.0	52.3	41.2	30.6	72.4	41.5	25.8	65.3	48.1	31.4	
LnGrp LOS	E	C	C	D	D	C	E	D	C	E	D	C	
Approach Vol, veh/h	1279			590				1216			1376		
Approach Delay, s/veh	40.7			39.3				46.5			49.3		
Approach LOS	D			D				D			D		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	41.8	7.8	33.2	18.9	40.1	21.5	19.5						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (Gmax), s	35.0	5.0	29.0	15.0	35.0	18.0	16.0						
Max Q Clear Time (g_c+IIB), s	27.5	4.3	20.2	14.9	32.4	17.4	14.2						
Green Ext Time (p_c), s	0.1	6.3	0.0	5.7	0.0	2.3	0.1	0.9					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay	44.8												
HCM 2010 LOS	D												

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions

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HCM 2010 Signalized Intersection Summary  
4: El Camino Real & Jefferson Ave

9/18/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↕	↔	↔	↕	↔	↔	↕	↔	↔	↕	↔	
Traffic Volume (veh/h)	214	329	137	189	654	183	226	1081	90	200	980	200	
Future Volume (veh/h)	214	329	137	189	654	183	226	1081	90	200	980	200	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.81	1.00		0.94	1.00		0.87	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1845	1900	1863	1863	1827	1881	1881	
Adj Flow Rate, veh/h	218	336	140	193	667	187	231	1103	92	204	1000	204	
Adj No. of Lanes	1	2	1	2	2	1	1	2	1	1	2	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Percent Heavy Veh, %	0	1	0	1	1	3	0	2	2	4	1	1	
Cap, veh/h	251	961	398	262	736	472	267	1279	659	233	1244	487	
Arrive On Green	0.14	0.27	0.27	0.08	0.21	0.21	0.05	0.12	0.12	0.18	0.46	0.46	
Sat Flow, veh/h	1810	3574	1480	3476	3574	1269	1810	3539	1491	1740	3574	1398	
Grp Volume(v), veh/h	218	336	140	193	667	187	231	1103	92	204	1000	204	
Grp Sat Flow(s), veh/h/ln	1810	1787	1480	1738	1787	1269	1810	1770	1491	1740	1787	1398	
Q Serve(g_s), s	11.8	7.6	7.6	5.4	18.2	11.4	12.7	30.6	4.9	11.4	23.9	9.7	
Cycle Q Clear(g_c), s	11.8	7.6	7.6	5.4	18.2	11.4	12.7	30.6	4.9	11.4	23.9	9.7	
Prop In Lane	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 Grp Cap(c), veh/h	251	961	398	262	736	472	267	1279	659	233	1244	487	
V/C Ratio(X)	0.87	0.35	0.35	0.74	0.91	0.40	0.87	0.86	0.14	0.87	0.80	0.42	
Avail Cap(c_a), veh/h	271	961	398	348	751	477	290	1279	659	244	1244	487	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81	
Uniform Delay (d), s/veh	42.2	29.5	29.5	45.2	38.8	25.5	46.6	41.6	23.8	40.3	23.9	20.1	
Incr Delay (d2), s/veh	23.7	0.2	0.5	5.5	14.5	0.5	21.8	7.8	0.4	23.1	4.6	2.1	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%), veh/ln	5.5	3.8	3.2	2.8	10.5	4.1	8.0	16.4	2.1	6.9	12.5	4.0	
LnGrp Delay(d), s/veh	65.9	29.7	30.0	50.8	53.2	26.1	68.4	49.4	24.2	63.4	28.5	22.3	
LnGrp LOS	E	C	C	D	D	C	E	D	C	E	C	C	
Approach Vol, veh/h	694			1047				1426			1408		
Approach Delay, s/veh	41.1			47.9				50.9			32.6		
Approach LOS	D			D				D			C		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	40.2	11.6	30.9	18.7	38.8	17.8	24.6						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (Gmax), s	34.0	10.0	26.0	16.0	32.0	15.0	21.0						
Max Q Clear Time (g_c+IIB), s	32.6	7.4	9.6	14.7	25.9	13.8	20.2						
Green Ext Time (p_c), s	0.0	1.3	0.2	7.9	0.1	5.4	0.1	0.4					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay	43.1												
HCM 2010 LOS	D												

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HCM 2010 Signalized Intersection Summary  
5: El Camino Real & Maple St

9/18/2017

	↙		↑		↘				
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations	↙	↘	↑	↘	↙	↘			
Traffic Volume (veh/h)	61	70	1290	75	70	1481			
Future Volume (veh/h)	61	70	1290	75	70	1481			
Number	1	16	8	18	7	4			
Initial Q (Ob), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1881	1827	1881	1863	1845			
Adj Flow Rate, veh/h	65	74	1372	80	74	1576			
Adj No. of Lanes	1	1	2	1	1	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	1	4	1	2	3			
Cap, veh/h	438	394	2013	916	95	2360			
Arrive On Green	0.25	0.25	0.58	0.58	0.11	1.00			
Sat Flow, veh/h	1774	1599	3563	1580	1774	3597			
Grp Volume(v), veh/h	65	74	1372	80	74	1576			
Grp Sat Flow(s), veh/h/ln	1774	1599	1736	1580	1774	1752			
Q Serve(g_s), s	2.9	3.7	27.5	2.2	4.1	0.0			
Cycle Q Clear(g_c), s	2.9	3.7	27.5	2.2	4.1	0.0			
Prop In Lane	1.00	1.00		1.00	1.00				
Lane Grp Cap(c), veh/h	438	394	2013	916	95	2360			
V/C Ratio(X)	0.15	0.19	0.68	0.09	0.78	0.67			
Avail Cap(c_a), veh/h	438	394	2013	916	195	2559			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00			
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	29.5	29.8	14.6	9.3	44.1	0.0			
Incr Delay (d2), s/veh	0.7	1.1	1.9	0.2	13.0	0.6			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	5	3.7	13.5	1.0	2.3	0.2			
LnGrp Delay(d), s/veh	30.2	30.8	16.5	9.5	57.1	0.6			
LnGrp LOS	C	C	B	A	E	A			
Approach Vol, veh/h	139		1452		1650				
Approach Delay, s/veh	30.5		16.1		3.1				
Approach LOS	C		B		A				
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
Assigned Phs				4		6	7	8	
Phs Duration (G+Y+Rc), s				71.3		28.7	9.3	62.0	
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0	
Max Green Setting (Gmax), s				73.0		19.0	11.0	58.0	
Max Q Clear Time (g_c+I1), s				2.0		5.7	6.1	29.5	
Green Ext Time (p_c), s				52.2		0.3	0.1	24.9	
<b>Intersection Summary</b>									
HCM 2010 Ctrl Delay			10.1						
HCM 2010 LOS			B						

HCM 2010 Signalized Intersection Summary  
5: El Camino Real & Maple St

9/18/2017

	↙		↑		↘				
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations	↙	↘	↑	↘	↙	↘			
Traffic Volume (veh/h)	92	78	1476	69	63	1335			
Future Volume (veh/h)	92	78	1476	69	63	1335			
Number	1	16	8	18	7	4			
Initial Q (Ob), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1900	1863			
Adj Flow Rate, veh/h	94	80	1506	70	64	1362			
Adj No. of Lanes	1	1	2	1	1	2			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	1	0	0	2			
Cap, veh/h	290	258	2410	1084	83	2690			
Arrive On Green	0.16	0.16	1.00	1.00	0.06	1.00			
Sat Flow, veh/h	1810	1615	3668	1608	1810	3632			
Grp Volume(v), veh/h	94	80	1506	70	64	1362			
Grp Sat Flow(s), veh/h/ln	1810	1615	1787	1608	1810	1770			
Q Serve(g_s), s	4.6	4.4	0.0	0.0	3.5	0.0			
Cycle Q Clear(g_c), s	4.6	4.4	0.0	0.0	3.5	0.0			
Prop In Lane	1.00	1.00		1.00	1.00				
Lane Grp Cap(c), veh/h	290	258	2410	1084	83	2690			
V/C Ratio(X)	0.32	0.31	0.62	0.06	0.77	0.51			
Avail Cap(c_a), veh/h	290	258	2410	1084	163	2690			
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.33	1.33			
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	37.2	37.1	0.0	0.0	46.4	0.0			
Incr Delay (d2), s/veh	3.0	3.1	1.2	0.1	14.0	0.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	5	4.3	0.4	0.0	2.1	0.3			
LnGrp Delay(d), s/veh	40.2	40.2	1.2	0.1	60.4	0.7			
LnGrp LOS	D	D	A	A	E	A			
Approach Vol, veh/h	174		1576		1426				
Approach Delay, s/veh	40.2		1.2		3.4				
Approach LOS	D		A		A				
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
Assigned Phs				4		6	7	8	
Phs Duration (G+Y+Rc), s				80.0		20.0	8.6	71.4	
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0	
Max Green Setting (Gmax), s				76.0		16.0	9.0	63.0	
Max Q Clear Time (g_c+I1), s				2.0		6.6	5.5	2.0	
Green Ext Time (p_c), s				51.6		0.3	0.0	45.0	
<b>Intersection Summary</b>									
HCM 2010 Ctrl Delay			4.3						
HCM 2010 LOS			A						



HCM 2010 Signalized Intersection Summary  
6: El Camino Real & Roosevelt Ave

9/18/2017

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations	↔		↔	↔	↕		↔	↕	↔		
Traffic Volume (veh/h)	173	0	264	143	1099	0	3	1362	34	0	0
Future Volume (veh/h)	173	0	264	143	1099	0	3	1362	34	0	0
Number	7	7	14	5	2	12	1	6	16		
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00		1.00	1.00		0.98		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	0	1863	1863	1863		
Adj Flow Rate, veh/h	184	184	281	152	1169	0	3	1449	36		
Adj No. of Lanes	1	1	1	1	2	0	1	2	1		
Peak Hour Factor	0.94	0.92	0.94	0.94	0.94	0.92	0.92	0.94	0.94		
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2		
Cap, veh/h	349	349	311	181	2408	0	6	2058	902		
Arrive On Green	0.20	0.20	0.20	0.20	1.00	0.00	0.00	0.39	0.39		
Sat Flow, veh/h	1774	1774	1583	1774	3632	0	1774	3539	1552		
Grp Volume(v), veh/h	184	184	281	152	1169	0	3	1449	36		
Grp Sat Flow(s),veh/h/ln	1774	1774	1583	1774	1770	0	1774	1770	1552		
Q Serve(g_s), s	9.3	9.3	17.3	8.2	0.0	0.0	0.2	34.4	1.4		
Cycle Q Clear(g_c), s	9.3	9.3	17.3	8.2	0.0	0.0	0.2	34.4	1.4		
Prop In Lane	1.00	1.00	1.00	1.00		0.00	1.00		1.00		
Lane Grp Cap(c), veh/h	349	349	311	181	2408	0	6	2058	902		
V/C Ratio(X)	0.53	0.53	0.90	0.84	0.49	0.00	0.53	0.70	0.04		
Avail Cap(c_a), veh/h	373	373	332	248	2408	0	71	2058	902		
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00	0.67	0.67	0.67		
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	36.0	36.0	39.2	39.0	0.0	0.0	49.8	23.3	13.2		
Incr Delay (d2), s/veh	1.2	1.2	25.7	15.1	0.6	0.0	60.0	2.0	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.7	4.7	16.2	4.7	0.2	0.0	0.2	17.3	0.6		
LnGrp Delay(d),s/veh	37.3	37.3	64.9	54.1	0.6	0.0	109.8	25.3	13.3		
LnGrp LOS	D	D	E	D	A		F	C	B		
Approach Vol, veh/h	465	465			1321			1488			
Approach Delay, s/veh	54.0	54.0			6.8			25.2			
Approach LOS	D	D			A			C			
Timer	1	2	3	4	5	6	7	8			
Assigned Phs	1	2		4	5	6					
Phs Duration (G+Y+Rc), s	72.0			23.7	14.2	62.1					
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	63.0			21.0	14.0	53.0					
Max Q Clear Time (g_c+1), s	2.0			19.3	10.2	36.4					
Green Ext Time (p_c), s	0.0	39.8		0.3	0.1	14.4					
Intersection Summary											
HCM 2010 Ctrl Delay	21.9										
HCM 2010 LOS	C										
Notes											

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions

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HCM 2010 Signalized Intersection Summary  
6: El Camino Real & Roosevelt Ave

9/18/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR	
Lane Configurations	↔	↔	↔	↕	↕	↕	↕	
Traffic Volume (veh/h)	137	168	213	1382	14	1218	100	
Future Volume (veh/h)	137	168	213	1382	14	1218	100	
Number	7	14	5	2		6	16	
Initial Q (Ob), veh	0	0	0	0		0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				0.92	
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00	
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1863	
Adj Flow Rate, veh/h	140	171	217	1410		1243	102	
Adj No. of Lanes	1	1	1	2		2	1	
Peak Hour Factor	0.98	0.98	0.98	0.98		0.98	0.98	
Percent Heavy Veh, %	2	2	2	2		2	2	
Cap, veh/h	230	205	248	2797		2161	890	
Arrive On Green	0.13	0.13	0.28	1.00		1.00	1.00	
Sat Flow, veh/h	1774	1583	1774	3632		3632	1458	
Grp Volume(v), veh/h	140	171	217	1410		1243	102	
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770		1770	1458	
Q Serve(g_s), s	7.5	10.5	11.7	0.0		0.0	0.0	
Cycle Q Clear(g_c), s	7.5	10.5	11.7	0.0		0.0	0.0	
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	230	205	248	2797		2161	890	
V/C Ratio(X)	0.61	0.83	0.88	0.50		0.58	0.11	
Avail Cap(c_a), veh/h	302	269	373	2797		2161	890	
HCM Platoon Ratio	1.00	1.00	2.00	2.00		2.00	2.00	
Upstream Filter(I)	1.00	1.00	0.85	0.85		1.00	1.00	
Uniform Delay (d), s/veh	41.1	42.5	35.2	0.0		0.0	0.0	
Incr Delay (d2), s/veh	2.6	15.6	12.2	0.6		1.1	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0	
%ile BackOfQ(50%),veh/ln	8.8	9.7	6.5	0.2		0.3	0.1	
LnGrp Delay(d),s/veh	43.7	58.0	47.4	0.6		1.1	0.3	
LnGrp LOS	D	E	D	A		A	A	
Approach Vol, veh/h	311			1627		1345		
Approach Delay, s/veh	51.6			6.8		1.1		
Approach LOS	D			A		A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		83.0		17.0	18.0	65.1		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		67.0		17.0	21.0	50.0		
Max Q Clear Time (g_c+1), s		2.0		12.5	13.7	2.0		
Green Ext Time (p_c), s		42.9		0.4	0.3	34.9		
Intersection Summary								
HCM 2010 Ctrl Delay	8.7							
HCM 2010 LOS	A							
Notes								

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HCM 2010 Signalized Intersection Summary  
7: El Camino Real & Oak Ave

9/18/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR	
Lane Configurations	↔		↔		↔			
Traffic Volume (veh/h)	153	89	153	913	9	1693	49	
Future Volume (veh/h)	153	89	153	913	9	1693	49	
Number	7	14	5	2		6	16	
Initial Q (Ob), veh	0	0	0	0		0	0	
Ped-Bike Adj(A_pbT)	1.00	0.88	1.00				0.94	
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	0.99	
Adj Sat Flow, veh/h/ln	1886	1900	1900	1863		1863	1900	
Adj Flow Rate, veh/h	159	92	159	951		1764	42	
Adj No. of Lanes	0	0	1	2		3	0	
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96	
Percent Heavy Veh, %	0	0	0	2		2	2	
Cap, veh/h	180	104	193	2637		3045	72	
Arrive On Green	0.17	0.17	0.11	0.75		1.00	1.00	
Sat Flow, veh/h	1032	597	1810	3632		5254	121	
Grp Volume(v), veh/h	252	0	159	951		1175	631	
Grp Sat Flow(s), veh/h/ln	1636	0	1810	1770		1695	1817	
Q Serve(g_s), s	15.0	0.0	8.6	9.4		0.0	0.0	
Cycle Q Clear(g_c), s	15.0	0.0	8.6	9.4		0.0	0.0	
Prop In Lane	0.63	0.37	1.00			0.07		
Lane Grp Cap(c), veh/h	286	0	193	2637		2029	1088	
V/C Ratio(X)	0.88	0.00	0.82	0.36		0.58	0.58	
Avail Cap(c_a), veh/h	393	0	290	2637		2029	1088	
HCM Platoon Ratio	1.00	1.00	1.00	1.00		2.00	2.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00		0.65	0.65	
Uniform Delay (d), s/veh	40.2	0.0	43.8	4.4		0.0	0.0	
Incr Delay (d2), s/veh	15.8	0.0	11.3	0.4		0.8	1.5	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0		0.0	0.0	
%ile BackOfQ(50%), veh/ln	0.0	0.0	4.9	4.6		0.2	0.4	
LnGrp Delay(d), s/veh	56.0	0.0	55.0	4.8		0.8	1.5	
LnGrp LOS	E		E	A		A	A	
Approach Vol, veh/h	252		1110		1806			
Approach Delay, s/veh	56.0		12.0		1.0			
Approach LOS	E		B		A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	2		4		5		6	
Phs Duration (G+Y+Rc), s	78.5		21.5		14.7		63.9	
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		24.0		16.0		48.0	
Max Q Clear Time (g_c+I1), s	11.4		17.0		10.6		2.0	
Green Ext Time (p_c), s	38.2		0.5		0.2		33.1	
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			9.3					
HCM 2010 LOS			A					
<b>Notes</b>								

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AM Peak Hour Existing Conditions

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HCM 2010 Signalized Intersection Summary  
7: El Camino Real & Oak Ave

9/18/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR	
Lane Configurations	↔		↔		↔			
Traffic Volume (veh/h)	126	75	224	1293	20	1555	92	
Future Volume (veh/h)	126	75	224	1293	20	1555	92	
Number	7	14	5	2		6	16	
Initial Q (Ob), veh	0	0	5	0		0	0	
Ped-Bike Adj(A_pbT)	1.00	0.81	1.00				0.93	
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	0.99	
Adj Sat Flow, veh/h/ln	1893	1900	1900	1863		1882	1900	
Adj Flow Rate, veh/h	127	65	226	1306		1571	72	
Adj No. of Lanes	0	0	1	2		3	0	
Peak Hour Factor	0.99	0.99	0.99	0.99		0.99	0.99	
Percent Heavy Veh, %	0	0	0	2		1	1	
Cap, veh/h	161	83	280	2713		2860	131	
Arrive On Green	0.15	0.15	0.15	0.77		1.00	1.00	
Sat Flow, veh/h	1051	538	1810	3632		5172	229	
Grp Volume(v), veh/h	193	0	226	1306		1076	567	
Grp Sat Flow(s), veh/h/ln	1597	0	1810	1770		1713	1806	
Q Serve(g_s), s	11.6	0.0	12.2	13.7		0.0	0.0	
Cycle Q Clear(g_c), s	11.6	0.0	12.2	13.7		0.0	0.0	
Prop In Lane	0.66	0.34	1.00			0.13		
Lane Grp Cap(c), veh/h	245	0	280	2713		1959	1032	
V/C Ratio(X)	0.79	0.00	0.81	0.48		0.55	0.55	
Avail Cap(c_a), veh/h	335	0	416	2713		1989	1049	
HCM Platoon Ratio	1.00	1.00	1.00	1.00		2.00	2.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00		0.77	0.77	
Uniform Delay (d), s/veh	40.7	0.0	41.4	4.3		0.0	0.0	
Incr Delay (d2), s/veh	8.3	0.0	7.1	0.6		0.9	1.6	
Initial Q Delay(d3), s/veh	0.0	0.0	12.0	0.0		0.0	0.0	
%ile BackOfQ(50%), veh/ln	0.0	0.0	8.1	6.8		0.2	0.5	
LnGrp Delay(d), s/veh	49.1	0.0	60.4	4.9		0.9	1.6	
LnGrp LOS	D		E	A		A	A	
Approach Vol, veh/h	193		1532		1643			
Approach Delay, s/veh	49.1		13.1		1.1			
Approach LOS	D		B		A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	2		4		5		6	
Phs Duration (G+Y+Rc), s	80.6		19.4		18.6		62.1	
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0	
Max Green Setting (Gmax), s	71.0		21.0		23.0		44.0	
Max Q Clear Time (g_c+I1), s	15.7		13.6		14.2		2.0	
Green Ext Time (p_c), s	40.9		0.3		0.4		33.1	
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			9.3					
HCM 2010 LOS			A					
<b>Notes</b>								

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HCM 2010 TWSC  
8: El Camino Real & Redwood Ave & Main St

9/18/2017

Intersection											
Int Delay, s/veh	0										
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	
Lane Configurations		↗		↗↗	↗		↗↗	↗			
Traffic Vol, veh/h	0	792	0	1042	442	0	1646	180	0	0	
Future Vol, veh/h	0	792	0	1042	442	0	1646	180	0	0	
Conflicting Peds, #/hr	0	7	0	0	0	0	0	7	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	Free	-	-	None	-	-	Free	-	-	
Storage Length	-	0	-	-	0	-	-	0	-	-	
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	
Grade, %	0	-	-	0	-	-	0	-	0	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	6	0	4	3	0	2	6	0	0	
Mvmt Flow	0	825	0	1085	460	0	1715	188	0	0	

Major/Minor	Minor2	Major1	Major2	Minor1	
Conflicting Flow All	-	-	0	0	555
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	0	480
Stage 1	0	0	0	0	-
Stage 2	0	0	0	0	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	475
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB	SW
HCM Control Delay, s	0	0	0	12.7
HCM LOS	A			B

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBTSWLn1
Capacity (veh/h)	-	-	-	475
HCM Lane V/C Ratio	-	-	-	0.02
HCM Control Delay (s)	-	-	0	12.7
HCM Lane LOS	-	-	A	B
HCM 95th %tile Q(veh)	-	-	-	0.1

HCM 2010 TWSC  
8: El Camino Real & Redwood Ave & Main St

9/18/2017

Intersection											
Int Delay, s/veh	0.1										
Movement	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	
Lane Configurations		↗		↗↗	↗		↗↗	↗			
Traffic Vol, veh/h	0	679	0	1520	687	0	1433	268	0	0	
Future Vol, veh/h	0	679	0	1520	687	0	1433	268	0	0	
Conflicting Peds, #/hr	0	14	0	0	2	0	0	14	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	Free	-	-	None	-	-	Free	-	-	
Storage Length	-	0	-	-	0	-	-	0	-	-	
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-	
Grade, %	0	-	-	0	-	-	0	-	0	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	1	0	1	1	0	1	1	0	0	
Mvmt Flow	0	707	0	1583	716	0	1493	279	0	0	

Major/Minor	Minor2	Major1	Major2	Minor1	
Conflicting Flow All	-	-	0	0	809
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	0	328
Stage 1	0	0	0	0	-
Stage 2	0	0	0	0	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	323
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	NB	SB	SW
HCM Control Delay, s	0	0	0	16.9
HCM LOS	A			C

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBTSWLn1
Capacity (veh/h)	-	-	-	323
HCM Lane V/C Ratio	-	-	-	0.064
HCM Control Delay (s)	-	-	0	16.9
HCM Lane LOS	-	-	A	C
HCM 95th %tile Q(veh)	-	-	-	0.2

HCM 2010 TWSC  
9: El Camino Real & Hazel Ave/Laurel St

9/18/2017

Intersection												
Int Delay, s/veh 26.6												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕		↕↕↕			↕↕↕	
Traffic Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Future Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Conflicting Peds, #/hr	0	0	10	0	0	1	0	0	1	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4	0	3	10	0	3	2
Mvmt Flow	0	0	280	0	0	328	0	1187	263	0	2132	527

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	-	-	1076	-	-	594	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	-185	0	0	380	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-183	-	-	380	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 311.6	51.8	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	183	380	-
HCM Lane V/C Ratio	-	1.532	0.864	-
HCM Control Delay (s)	-	\$ 311.6	51.8	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	18	8.3	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 TWSC  
9: El Camino Real & Hazel Ave/Laurel St

9/18/2017

Intersection												
Int Delay, s/veh 15.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕		↕↕↕			↕↕↕	
Traffic Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Future Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Conflicting Peds, #/hr	0	0	18	0	0	0	0	0	0	0	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	3	0	1	2	0	1	1
Mvmt Flow	0	0	263	0	0	237	0	1945	340	0	1734	424

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	-	-	885	-	-	972	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.16	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.93	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	-247	0	0	215	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-243	-	-	215	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	125.6	138.4	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	243	215	-
HCM Lane V/C Ratio	-	1.083	1.101	-
HCM Control Delay (s)	-	125.6	138.4	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	11.3	10.9	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 Signalized Intersection Summary  
10: El Camino Real & Oakwood Dr/Dumbarton Ave

9/18/2017

Table with columns for Movement (EBL, EBT, EBR, WBL, WBT, WBR, NBL, NBT, NBR, SBL, SBT, SBR) and rows for Lane Configurations, Traffic Volume, Future Volume, Number, Initial Q, Ped-Bike Adj, Parking Bus, Adj Sat Flow, Adj Flow Rate, Adj No. of Lanes, Peak Hour Factor, Percent Heavy Veh, Cap, Arrive On Green, Sat Flow, Grp Volume, Grp Sat Flow, Q Serve, Cycle Q Clear, Prop In Lane, Lane Grp Cap, V/C Ratio, Avail Cap, HCM Platoon Ratio, Upstream Filter, Uniform Delay, Incr Delay, Initial Q Delay, %ile BackOfQ, LnGrp Delay, LnGrp LOS, Approach Vol, Approach Delay, Approach LOS, Timer, Assigned Phs, Phs Duration, Change Period, Max Green Setting, Max Q Clear Time, Green Ext Time, Intersection Summary.

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions

Synchro 8 Report  
W-Trans

HCM 2010 Signalized Intersection Summary  
10: El Camino Real & Oakwood Dr/Dumbarton Ave

9/18/2017

Table with columns for Movement (EBL, EBT, EBR, WBL, WBT, WBR, NBL, NBT, NBR, SBL, SBT, SBR) and rows for Lane Configurations, Traffic Volume, Future Volume, Number, Initial Q, Ped-Bike Adj, Parking Bus, Adj Sat Flow, Adj Flow Rate, Adj No. of Lanes, Peak Hour Factor, Percent Heavy Veh, Cap, Arrive On Green, Sat Flow, Grp Volume, Grp Sat Flow, Q Serve, Cycle Q Clear, Prop In Lane, Lane Grp Cap, V/C Ratio, Avail Cap, HCM Platoon Ratio, Upstream Filter, Uniform Delay, Incr Delay, Initial Q Delay, %ile BackOfQ, LnGrp Delay, LnGrp LOS, Approach Vol, Approach Delay, Approach LOS, Timer, Assigned Phs, Phs Duration, Change Period, Max Green Setting, Max Q Clear Time, Green Ext Time, Intersection Summary.

El Camino Real Corridor Plan 9/18/2017 PM Peak Hour Existing Conditions  
W-Trans

Synchro 9 Report  
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Arterial Level of Service  
AM Peak Hour Existing Conditions

9/18/2017

Arterial Level of Service: NB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Dumbarton Ave	10	15.1	25.9	0.2	30
Laurel St	9	6.5	59.9	0.5	33
Main St	8	1.6	11.2	0.1	32
Oak Ave	7	7.5	15.4	0.1	19
	6	7.2	21.9	0.2	26
Beech St	92	6.9	15.4	0.1	19
Maple St	5	9.7	13.6	0.0	9
	98	6.2	25.1	0.2	27
Jefferson Ave	4	21.3	27.2	0.1	9
James Ave	3	21.7	40.2	0.2	16
Brewster Ave	2	8.4	32.3	0.2	28
Whipple Ave	1	17.7	46.4	0.3	24
Claremont Ave	121	2.7	10.0	0.1	24
Total		132.5	344.4	2.3	24

Arterial Level of Service: SB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Whipple Ave	1	22.8	29.1	0.1	8
Brewster Ave	2	10.5	41.0	0.3	27
James Ave	3	14.5	38.1	0.2	23
Jefferson Ave	4	28.9	46.8	0.2	14
	98	5.1	12.4	0.1	19
Maple St	5	5.8	23.4	0.2	29
Lincoln Ave	92	2.0	6.2	0.0	20
Roosevelt Ave	6	25.9	34.3	0.1	9
Oak Ave	7	18.1	33.5	0.2	17
Redwood Ave	8	4.1	12.3	0.1	23
Hazel Ave	9	2.8	13.5	0.1	26
Oakwood Dr	10	21.5	75.1	0.5	26
Total		162.0	365.8	2.1	20

Arterial Level of Service  
PM Peak Hour Existing Conditions

9/18/2017

Arterial Level of Service: NB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Dumbarton Ave	10	17.4	28.3	0.2	28
Laurel St	9	12.3	64.7	0.5	29
Main St	8	2.7	14.4	0.1	30
Oak Ave	7	3.7	11.9	0.1	24
Roosevelt Ave	6	8.1	23.1	0.2	24
Beech St	92	2.1	10.8	0.1	28
Maple St	5	4.3	8.0	0.0	16
	98	15.8	34.6	0.2	19
Jefferson Ave	4	31.2	37.1	0.1	6
James Ave	3	6.7	25.3	0.2	26
Brewster Ave	2	11.8	36.2	0.2	25
Whipple Ave	1	62.8	96.9	0.3	12
Claremont Ave	121	3.8	11.0	0.1	22
Total		182.6	402.3	2.3	21

Arterial Level of Service: SB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Whipple Ave	1	24.3	30.4	0.1	8
Brewster Ave	2	10.1	41.4	0.3	27
James Ave	3	14.5	38.9	0.2	23
Jefferson Ave	4	40.4	58.0	0.2	11
	98	4.4	11.7	0.1	20
Maple St	5	4.6	22.7	0.2	29
Lincoln Ave	92	1.4	5.7	0.0	22
Roosevelt Ave	6	8.0	16.3	0.1	18
Oak Ave	7	28.2	42.9	0.2	13
Redwood Ave	8	3.8	11.9	0.1	24
Hazel Ave	9	2.6	15.4	0.1	28
Oakwood Dr	10	9.6	57.2	0.5	33
Total		151.9	352.5	2.1	21

HCM 2010 Signalized Intersection Summary  
 1: El Camino Real & Whipple Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	408	40	264	285	256	59	850	446	273	982	76
Future Volume (veh/h)	78	408	40	264	285	256	59	850	446	273	982	76
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	2	0	1	4	0	6	10	1	1	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1845	1792	1827	1845	1845	1863	1828	1900
Adj Flow Rate, veh/h	80	421	41	272	294	105	61	876	336	281	1012	71
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0
Peak Hour 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
Percent Heavy Veh, %	1	1	1	3	3	6	4	3	3	2	4	4
Cap, veh/h	85	517	49	478	496	198	94	1436	640	351	1526	107
Arrive On Green	0.17	0.17	0.17	0.14	0.14	0.14	0.01	0.14	0.14	0.10	0.47	0.47
Sat Flow, veh/h	520	2867	292	3408	3505	1383	1740	3505	1550	3442	3285	230
Grp Volume(v), veh/h	286	0	256	272	294	105	61	876	336	281	535	548
Grp Sat Flow(s), veh/h/ln	1859	0	1819	1704	1752	1383	1740	1752	1550	1721	1737	1779
Q Serve(g_s), s	14.1	0.0	12.7	7.0	7.4	6.6	3.3	22.1	19.0	7.5	22.2	22.2
Cycle Q Clear(g_c), s	14.1	0.0	12.7	7.0	7.4	6.6	3.3	22.1	19.0	7.5	22.2	22.2
Prop In Lane	0.28		0.16	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	326	0	319	478	496	198	94	1436	640	351	807	826
V/C Ratio(X)	0.88	0.00	0.80	0.57	0.59	0.53	0.65	0.61	0.53	0.80	0.66	0.66
Avail Cap(c_a), veh/h	336	0	329	580	597	235	111	1449	641	366	817	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	37.3	37.8	38.0	37.4	45.9	34.1	32.1	41.3	19.5	19.5
Incr Delay (d2), s/veh	21.7	0.0	13.0	1.1	1.1	2.2	7.5	1.5	2.3	11.7	4.3	4.2
Initial Q Delay(d3),s/veh	0.6	0.0	0.4	0.1	1.2	0.0	84.0	0.9	0.0	0.3	0.0	0.0
%ile BackOfQ(50%)veh/ln	9.4	0.0	7.7	3.4	4.0	2.6	4.6	11.8	8.7	4.2	11.6	11.9
LnGrp Delay(d),s/veh	60.1	0.0	50.6	38.9	40.3	39.5	137.5	36.5	34.5	53.3	23.8	23.7
LnGrp LOS	E		D	D	D	D	F	D	D	C	D	C
Approach Vol, veh/h	542			671			1273			1364		
Approach Delay, s/veh	55.6			39.6			40.8			29.8		
Approach LOS	E			D			D			C		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	13.6	42.9	20.4		8.2	48.2	17.2					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	10.0	35.0	17.0		6.0	39.0	16.0					
Max Q Clear Time (g_c+I1), s	9.5	24.1	16.1		5.3	24.2	9.4					
Green Ext Time (p_c), s	0.1	8.7	0.3		0.0	11.2	1.9					
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	38.8											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary  
 1: El Camino Real & Whipple Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	211	47	305	448	470	69	1313	278	198	983	114
Future Volume (veh/h)	141	211	47	305	448	470	69	1313	278	198	983	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	20	0	5	10	4	0	0	0	0	1	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1886	1900	1881	1900	1900	1863	1881	1845	1863	1881	1900
Adj Flow Rate, veh/h	142	213	42	308	453	271	70	1326	180	200	993	99
Adj No. of Lanes	0	2	0	2	2	1	1	2	1	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	0	0	2	1	3	2	1	1
Cap, veh/h	111	375	39	673	700	297	90	1554	670	211	1457	145
Arrive On Green	0.14	0.14	0.14	0.19	0.19	0.19	0.02	0.15	0.15	0.06	0.45	0.45
Sat Flow, veh/h	1239	1976	400	3476	3610	1533	1774	3574	1541	3442	3274	326
Grp Volume(v), veh/h	209	0	188	308	453	271	70	1326	180	200	542	550
Grp Sat Flow(s), veh/h/ln	1824	0	1792	1738	1805	1533	1774	1787	1541	1721	1787	1814
Q Serve(g_s), s	10.9	0.0	9.9	7.7	11.3	17.0	3.9	35.4	10.2	5.7	23.3	23.3
Cycle Q Clear(g_c), s	10.9	0.0	9.9	7.7	11.3	17.0	3.9	35.4	10.2	5.7	23.3	23.3
Prop In Lane	0.68		0.22	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	275	0	269	673	700	297	90	1554	670	211	795	807
V/C Ratio(X)	0.76	0.00	0.70	0.46	0.65	0.91	0.78	0.85	0.27	0.95	0.68	0.68
Avail Cap(c_a), veh/h	298	0	293	674	700	297	109	1582	682	211	810	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	0.0	40.7	35.2	36.9	39.2	47.6	38.9	28.1	45.9	21.7	21.7
Incr Delay (d2), s/veh	10.0	0.0	6.6	0.5	2.1	30.6	16.6	4.0	0.6	47.6	4.7	4.6
Initial Q Delay(d3),s/veh	39.3	0.0	33.3	0.7	4.2	14.8	0.0	0.0	0.0	3.2	0.0	0.0
%ile BackOfQ(50%)veh/ln	10.4	0.0	9.0	4.1	6.9	11.4	2.3	18.4	4.5	4.2	12.6	12.8
LnGrp Delay(d),s/veh	90.4	0.0	80.6	36.4	43.2	84.6	64.2	42.9	28.7	96.7	26.3	26.3
LnGrp LOS	F		F	D	D	F	E	D	C	F	C	C
Approach Vol, veh/h	397			1032			1576			1292		
Approach Delay, s/veh	85.7			52.0			42.3			37.2		
Approach LOS	F			D			D			D		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	10.0	47.4	17.6		9.0	48.4	23.0					
Change Period (Y+Rc), s	4.0	4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	6.0	41.0	16.0		6.0	41.0	19.0					
Max Q Clear Time (g_c+I1), s	7.7	37.4	12.9		5.9	25.3	19.0					
Green Ext Time (p_c), s	0.0	3.4	0.7		0.0	13.1	0.0					
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay	47.1											
HCM 2010 LOS	D											

HCM 2010 Signalized Intersection Summary  
2: El Camino Real & Brewster Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↕ ↕		↕ ↕	↕ ↕		↕ ↕		↕ ↕		↕ ↕					
Traffic Volume (veh/h)	89	342	10	66	190	37	1	1025	132	115	1007	105			
Future Volume (veh/h)	89	342	10	66	190	37	1	1025	132	115	1007	105			
Number	7	4	14	3	8	18	5	2	12	1	6	16			
Initial Q (Ob), veh	0	0	0	0	0	0	0	3	0	2	1	2			
Ped-Bike Adj(A_pbT)	0.97	0.94		0.98		0.93		1.00		0.98		1.00		0.97	
Parking Bus, Adj	1.00		1.00		1.00		1.00		1.00		1.00		1.00		
Adj Sat Flow, veh/h/ln	1900	1882	1900	1743	1869	1900	1900	1800	1900	1863	1834	1900			
Adj Flow Rate, veh/h	91	349	9	67	194	30	1	1046	123	117	1028	89			
Adj No. of Lanes	1	2	0	1	2	0	0	2	0	1	2	0			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	1	1	9	2	2	6	6	6	2	4	4			
Cap, veh/h	232	685	18	175	590	89	39	1802	209	150	2337	202			
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	1.00	1.00	1.00	0.16	1.00	1.00			
Sat Flow, veh/h	1139	3554	91	937	3061	463	0	3012	354	1774	3236	280			
Grp Volume(v), veh/h	91	175	183	67	111	113	625	0	545	117	553	564			
Grp Sat Flow(s),veh/h/ln	139	1788	1858	937	1775	1749	1800	0	1566	1774	1742	1774			
Q Serve(g_s), s	7.0	8.2	8.3	6.5	5.0	5.3	0.0	0.0	0.0	6.0	0.0	0.0			
Cycle Q Clear(g_c), s	12.3	8.2	8.3	14.8	5.0	5.3	0.0	0.0	0.0	6.0	0.0	0.0			
Prop In Lane	1.00		0.05		1.00		0.26		0.00		0.23		1.00		
Lane Grp Cap(c), veh/h	232	345	358	175	342	337	1113	0	936	150	1258	1281			
V/C Ratio(X)	0.39	0.51	0.51	0.38	0.32	0.34	0.56	0.00	0.58	0.78	0.44	0.44			
Avail Cap(c_a), veh/h	255	380	395	193	378	372	1114	0	937	208	1258	1281			
HCM Platoon Ratio	1.00		1.00		1.00		2.00		2.00		2.00		2.00		
Upstream Filter(I)	1.00		1.00		1.00		0.77		0.77		0.70		0.70		
Uniform Delay (d), s/veh	38.1	34.0	34.0	40.6	32.7	32.7	0.0	0.0	0.0	38.4	0.0	0.0			
Incr Delay (d2), s/veh	1.1	1.2	1.1	1.4	0.5	0.6	1.6	0.0	2.0	8.6	0.8	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0			
%ile BackOfQ(50%)veh/ln	3	4.2	4.4	1.7	2.5	2.6	0.5	0.0	0.5	3.7	0.3	0.3			
LnGrp Delay(d),s/veh	39.1	35.1	35.1	42.0	33.2	33.3	1.6	0.0	2.1	52.7	0.8	0.8			
LnGrp LOS	D		D		D		C		A		A		A		
Approach Vol, veh/h	449			291			1170			1234					
Approach Delay, s/veh	35.9			35.3			1.8			5.7					
Approach LOS	D			D			A			A					
Timer	1	2	3	4	5	6	7	8							
Assigned Phs	1	2	4		6		8								
Phs Duration (G+Y+Rc), s	7.1	60.2	22.1		71.9		22.1								
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0								
Max Green Setting (Gmax), s	51.0		20.0		66.0		20.0								
Max Q Clear Time (g_c+1), s	2.0		14.3		2.0		16.8								
Green Ext Time (p_c), s	0.1	26.1	2.1		29.4		1.4								
Intersection Summary															
HCM 2010 Ctrl Delay	11.3														
HCM 2010 LOS	B														
Notes															

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
W-Trans

HCM 2010 Signalized Intersection Summary  
2: El Camino Real & Brewster Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↕ ↕		↕ ↕	↕ ↕		↕ ↕		↕ ↕		↕ ↕					
Traffic Volume (veh/h)	47	97	25	147	339	144	1	1375	96	89	1144	92			
Future Volume (veh/h)	47	97	25	147	339	144	1	1375	96	89	1144	92			
Number	7	4	14	3	8	18	5	2	12	1	6	16			
Initial Q (Ob), veh	0	0	0	2	0	0	0	10	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.99	0.94		0.97		0.90		1.00		0.96		1.00		0.97	
Parking Bus, Adj	1.00		1.00		1.00		1.00		1.00		1.00		1.00		
Adj Sat Flow, veh/h/ln	1900	1885	1900	1845	1881	1900	1900	1858	1900	1881	1883	1900			
Adj Flow Rate, veh/h	47	98	13	148	342	137	1	1389	84	90	1156	79			
Adj No. of Lanes	1	2	0	1	2	0	0	2	0	1	2	0			
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99			
Percent Heavy Veh, %	0	1	1	3	1	1	2	2	2	1	1	1			
Cap, veh/h	143	663	86	299	509	198	37	2003	116	114	2403	164			
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	1.00	1.00	1.00	0.13	1.00	1.00			
Sat Flow, veh/h	918	3163	409	1227	2431	945	0	3305	199	1792	3391	232			
Grp Volume(v), veh/h	47	54	57	148	249	230	779	0	695	90	609	626			
Grp Sat Flow(s),veh/h/ln	918	1791	1781	1227	1787	1588	1857	0	1647	1792	1788	1834			
Q Serve(g_s), s	4.9	2.4	2.5	11.0	12.5	13.1	0.0	0.0	0.0	4.8	0.0	0.0			
Cycle Q Clear(g_c), s	18.0	2.4	2.5	13.5	12.5	13.1	0.0	0.0	0.0	4.8	0.0	0.0			
Prop In Lane	1.00		0.23		1.00		0.59		0.00		0.12		1.00		
Lane Grp Cap(c), veh/h	143	375	373	299	375	333	1160	0	997	114	1268	1300			
V/C Ratio(X)	0.33	0.15	0.15	0.50	0.66	0.69	0.67	0.00	0.70	0.79	0.48	0.48			
Avail Cap(c_a), veh/h	147	384	382	305	383	340	1160	0	996	165	1268	1300			
HCM Platoon Ratio	1.00		1.00		1.00		2.00		2.00		2.00		2.00		
Upstream Filter(I)	1.00		1.00		1.00		0.58		0.58		0.71		0.71		
Uniform Delay (d), s/veh	44.1	31.6	31.6	37.4	35.6	35.8	0.1	0.0	0.0	42.1	0.0	0.0			
Incr Delay (d2), s/veh	1.3	0.2	0.2	1.3	4.2	5.7	1.8	0.0	2.4	11.0	0.9	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.6	0.0	0.0	0.0			
%ile BackOfQ(50%)veh/ln	3	1.2	1.3	4.1	6.6	6.3	1.5	0.0	0.8	2.7	0.3	0.3			
LnGrp Delay(d),s/veh	45.5	31.8	31.8	39.3	39.7	41.5	2.3	0.0	3.0	53.1	0.9	0.9			
LnGrp LOS	D		C		D		D		A		A		A		
Approach Vol, veh/h	158			627			1474			1325					
Approach Delay, s/veh	35.8			40.3			2.6			4.5					
Approach LOS	D			D			A			A					
Timer	1	2	3	4	5	6	7	8							
Assigned Phs	1	2	4		6		8								
Phs Duration (G+Y+Rc), s	7.0	63.3	24.5		73.5		24.5								
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0								
Max Green Setting (Gmax), s	56.0		21.0		69.0		21.0								
Max Q Clear Time (g_c+1), s	2.0		20.0		2.0		15.5								
Green Ext Time (p_c), s	0.0	35.7	0.5		40.7		2.2								
Intersection Summary															
HCM 2010 Ctrl Delay	11.4														
HCM 2010 LOS	B														
Notes															

El Camino Real Corridor Plan  
PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
W-Trans



HCM 2010 Signalized Intersection Summary  
 3: El Camino Real & James Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	108	87	153	42	59	57	208	1097	65	72	1069	105
Future Volume (veh/h)	108	87	153	42	59	57	208	1097	65	72	1069	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84	1.00		0.72	1.00		0.88	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1881	1508	1720	1900	1881	1827	1545	1681	1849	1900
Adj Flow Rate, veh/h	111	90	155	43	61	52	214	1131	52	74	1102	99
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	0
Peak Hour 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
Percent Heavy Veh, %	1	2	1	26	7	7	1	4	23	13	3	3
Cap, veh/h	140	379	274	50	115	98	250	1855	621	92	1447	130
Arrive On Green	0.08	0.20	0.20	0.03	0.16	0.16	0.09	0.36	0.36	0.08	0.60	0.60
Sat Flow, veh/h	1792	1863	1350	1436	722	615	1792	3471	1161	1601	3199	287
Grp Volume(v), veh/h	111	90	155	43	0	113	214	1131	52	74	604	597
Grp Sat Flow(s),veh/h/ln	1792	1863	1350	1436	0	1337	1792	1736	1161	1601	1757	1728
Q Serve(g_s), s	5.7	3.8	9.7	2.8	0.0	7.3	11.1	25.2	2.8	4.3	23.7	23.9
Cycle Q Clear(g_c), s	5.7	3.8	9.7	2.8	0.0	7.3	11.1	25.2	2.8	4.3	23.7	23.9
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	140	379	274	50	0	214	250	1855	621	92	795	782
V/C Ratio(X)	0.79	0.24	0.56	0.87	0.00	0.53	0.86	0.61	0.08	0.80	0.76	0.76
Avail Cap(c_a), veh/h	172	379	274	107	0	228	286	1855	621	170	795	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.56	0.56	0.89	0.89	0.89	0.89
Uniform Delay (d), s/veh	42.6	31.3	33.7	45.2	0.0	36.2	41.7	22.1	14.9	42.9	15.0	15.0
Incr Delay (d2), s/veh	18.6	0.3	2.7	33.0	0.0	2.0	12.1	0.8	0.1	13.4	6.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6	2.0	3.8	1.6	0.0	2.8	6.3	12.3	0.9	2.2	12.7	12.5
LnGrp Delay(d),s/veh	61.2	31.7	36.4	78.1	0.0	38.3	53.8	23.0	15.1	56.3	21.0	21.3
LnGrp LOS	E	C	D	E		D	D	C	B	E	C	C
Approach Vol, veh/h	356			156			1397			1275		
Approach Delay, s/veh	42.9			49.2			27.4			23.2		
Approach LOS	D			D			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	54.2	7.2	23.1	17.1	46.5	11.3	19.0					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	43.0	7.0	18.0	15.0	38.0	9.0	16.0					
Max Q Clear Time (g_c+I), s	27.2	4.8	11.7	13.1	25.9	7.7	9.3					
Green Ext Time (p_c), s	0.0	12.8	0.0	1.0	0.1	10.1	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				28.5								
HCM 2010 LOS				C								
Notes												

El Camino Real Corridor Plan  
 AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
 W-Trans

HCM 2010 Signalized Intersection Summary  
 3: El Camino Real & James Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	62	47	78	113	72	97	89	1379	46	118	1254	75
Future Volume (veh/h)	62	47	78	113	72	97	89	1379	46	118	1254	75
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	3	0	0	0	1	0	3	6	2	4	4	1
Ped-Bike Adj(A_pbT)	1.00		0.87	1.00		0.87	1.00		0.92	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1696	1795	1900	1900	1881	1557	1776	1882	1900
Adj Flow Rate, veh/h	65	49	77	119	76	100	94	1452	35	124	1320	73
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	4	0	12	3	3	0	1	22	7	1	1
Cap, veh/h	94	260	201	144	137	150	125	1836	634	159	1858	101
Arrive On Green	0.05	0.14	0.14	0.09	0.18	0.18	0.13	1.00	1.00	0.06	0.36	0.36
Sat Flow, veh/h	1810	1827	1404	1616	647	852	1810	3574	1223	1691	3429	189
Grp Volume(v), veh/h	65	49	77	119	0	176	94	1452	35	124	687	706
Grp Sat Flow(s),veh/h/ln	1810	1827	1404	1616	0	1499	1810	1787	1223	1691	1788	1830
Q Serve(g_s), s	3.5	2.3	4.9	7.1	0.0	10.7	4.9	0.0	0.0	7.1	32.2	32.4
Cycle Q Clear(g_c), s	3.5	2.3	4.9	7.1	0.0	10.7	4.9	0.0	0.0	7.1	32.2	32.4
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	94	260	201	144	0	273	125	1836	634	159	968	991
V/C Ratio(X)	0.69	0.19	0.38	0.82	0.00	0.65	0.75	0.79	0.06	0.78	0.71	0.71
Avail Cap(c_a), veh/h	166	298	229	165	0	271	148	1855	635	173	972	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.42	0.42	0.42	0.86	0.86	0.86
Uniform Delay (d), s/veh	46.0	37.0	38.1	43.9	0.0	37.3	41.7	0.3	0.0	45.4	24.8	24.9
Incr Delay (d2), s/veh	8.7	0.3	1.2	25.0	0.0	5.2	7.3	1.5	0.1	16.5	3.8	3.7
Initial Q Delay(d3),s/veh	23.6	0.0	0.0	0.0	0.0	0.3	16.7	0.4	0.1	20.8	0.1	0.1
%ile BackOfQ(50%),veh/ln	9	1.2	1.9	4.2	0.0	4.9	3.6	2.1	0.2	5.4	17.3	17.7
LnGrp Delay(d),s/veh	78.3	37.4	39.3	68.8	0.0	42.8	65.8	2.2	0.2	82.7	28.7	28.7
LnGrp LOS	E	D	D	E		D	E	A	A	F	C	C
Approach Vol, veh/h	191			295			1581			1517		
Approach Delay, s/veh	52.1			53.3			5.9			33.1		
Approach LOS	D			D			A			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	54.9	12.8	17.6	10.4	57.3	8.6	21.7					
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0					
Max Green Setting (Gmax), s	46.0	10.0	16.0	8.0	48.0	9.0	17.0					
Max Q Clear Time (g_c+I), s	2.0	9.1	6.9	6.9	34.4	5.5	12.7					
Green Ext Time (p_c), s	0.0	33.9	0.0	0.5	0.0	12.3	0.0	0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				23.8								
HCM 2010 LOS				C								
Notes												

El Camino Real Corridor Plan  
 PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
 W-Trans

HCM 2010 Signalized Intersection Summary  
4: El Camino Real & Jefferson Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↑	↘	↔	↑	↘	↔	↑	↘	↔	↑	↘	
Traffic Volume (veh/h)	269	708	264	74	317	181	222	893	64	185	1054	95	
Future Volume (veh/h)	269	708	264	74	317	181	222	893	64	185	1054	95	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.84	1.00		0.96	1.00		0.93	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1845	1881	1881	1776	1827	1792	1845	1832	1900	1776	1845	1881	
Adj Flow Rate, veh/h	277	730	272	76	327	187	229	921	66	191	1087	98	
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	1	2	1	
Peak Hour 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	
Percent Heavy Veh, %	3	1	1	7	4	6	3	4	4	7	3	1	
Cap, veh/h	299	1043	444	125	555	408	262	1203	86	225	1230	522	
Arrive On Green	0.17	0.29	0.29	0.04	0.16	0.16	0.05	0.12	0.12	0.04	0.12	0.12	
Sat Flow, veh/h	1757	3574	1520	3281	3471	1283	1757	3283	235	1691	3505	1488	
Grp Volume(v), veh/h	277	730	272	76	327	187	229	488	499	191	1087	98	
Grp Sat Flow(s),veh/h/ln	1757	1787	1520	1640	1736	1283	1757	1740	1778	1691	1752	1488	
Q Serve(g_s), s	14.6	17.1	14.5	2.1	8.2	11.3	12.2	25.5	25.5	10.5	28.7	5.6	
Cycle Q Clear(g_c), s	14.6	17.1	14.5	2.1	8.2	11.3	12.2	25.5	25.5	10.5	28.7	5.6	
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.13	1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	299	1043	444	125	555	408	262	638	652	225	1230	522	
V/C Ratio(X)	0.93	0.70	0.61	0.61	0.59	0.46	0.88	0.77	0.77	0.85	0.88	0.19	
Avail Cap(c_a), veh/h	299	1043	444	175	591	422	262	638	652	252	1230	522	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61	
Uniform Delay (d), s/veh	38.4	29.6	28.7	44.5	36.6	27.5	43.8	37.4	37.4	44.0	39.7	29.5	
Incr Delay (d2), s/veh	33.4	2.1	2.5	4.7	1.4	0.8	26.4	8.5	8.4	14.0	6.1	0.5	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	9	8.7	6.4	1.1	4.1	4.1	7.9	13.9	14.1	5.8	15.0	2.4	
LnGrp Delay(d),s/veh	71.8	31.7	31.2	49.2	38.0	28.3	70.2	45.9	45.8	58.0	45.8	29.9	
LnGrp LOS	E	C	C	D	D	C	E	D	D	E	D	C	
Approach Vol, veh/h	1279			590				1216			1376		
Approach Delay, s/veh	40.3			36.4				50.4			46.3		
Approach LOS	D			D				D			D		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	38.4	7.6	31.4	18.0	37.0	20.0	19.0						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (G_max), s	32.0	5.0	27.0	14.0	32.0	16.0	16.0						
Max Q Clear Time (g_c+I+2), s	27.5	4.1	19.1	14.2	30.7	16.6	13.3						
Green Ext Time (p_c), s	0.1	3.9	0.0	5.2	0.0	1.2	0.0	1.1					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay				44.4									
HCM 2010 LOS				D									

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
4: El Camino Real & Jefferson Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↑	↘	↔	↑	↘	↔	↑	↘	↔	↑	↘	
Traffic Volume (veh/h)	214	329	137	189	654	183	226	1081	90	200	980	200	
Future Volume (veh/h)	214	329	137	189	654	183	226	1081	90	200	980	200	
Number	7	4	14	3	8	18	5	2	12	1	6	16	
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.80	1.00		0.94	1.00		0.88	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1845	1900	1863	1900	1827	1881	1881	
Adj Flow Rate, veh/h	218	336	140	193	667	187	231	1103	92	204	1000	204	
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	1	2	1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Percent Heavy Veh, %	0	1	0	1	1	3	0	2	2	4	1	1	
Cap, veh/h	240	896	369	264	693	451	267	1242	104	231	1297	510	
Arrive On Green	0.13	0.25	0.25	0.08	0.19	0.19	0.05	0.12	0.12	0.18	0.48	0.48	
Sat Flow, veh/h	1810	3574	1471	3476	3574	1252	1810	3291	274	1740	3574	1405	
Grp Volume(v), veh/h	218	336	140	193	667	187	231	593	602	204	1000	204	
Grp Sat Flow(s),veh/h/ln	1810	1787	1471	1738	1787	1252	1810	1770	1795	1740	1787	1405	
Q Serve(g_s), s	11.6	7.6	7.7	5.3	18.1	11.6	12.4	32.3	32.4	11.2	22.6	9.1	
Cycle Q Clear(g_c), s	11.6	7.6	7.7	5.3	18.1	11.6	12.4	32.3	32.4	11.2	22.6	9.1	
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.15	1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	240	896	369	264	693	451	267	668	678	231	1297	510	
V/C Ratio(X)	0.91	0.38	0.38	0.73	0.96	0.41	0.87	0.89	0.89	0.88	0.77	0.40	
Avail Cap(c_a), veh/h	240	896	369	355	693	451	277	668	678	231	1297	510	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.33	1.33	1.33	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.68	0.68	
Uniform Delay (d), s/veh	41.9	30.4	30.4	44.3	39.1	26.1	45.7	40.8	40.9	39.6	22.0	18.5	
Incr Delay (d2), s/veh	34.6	0.3	0.6	5.1	25.2	0.6	23.3	16.1	16.1	22.9	3.1	1.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	8.1	3.8	3.2	2.7	11.3	4.1	8.0	18.8	19.1	6.9	11.6	3.7	
LnGrp Delay(d),s/veh	76.5	30.6	31.1	49.4	64.3	26.7	69.0	56.9	56.9	62.6	25.1	20.1	
LnGrp LOS	E	C	C	D	E	C	E	E	E	E	C	C	
Approach Vol, veh/h	694			1047				1426			1408		
Approach Delay, s/veh	45.1			54.9				58.9			29.8		
Approach LOS	D			D				E			C		
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	40.0	11.4	28.6	18.4	39.6	17.0	23.0						
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0						
Max Green Setting (G_max), s	37.0	10.0	22.0	15.0	35.0	13.0	19.0						
Max Q Clear Time (g_c+I+2), s	34.4	7.3	9.7	14.4	24.6	13.6	20.1						
Green Ext Time (p_c), s	0.0	2.4	0.2	6.6	0.0	8.8	0.0	0.0					
<b>Intersection Summary</b>													
HCM 2010 Ctrl Delay				46.9									
HCM 2010 LOS				D									

El Camino Real Corridor Plan  
PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
W-Trans

HCM 2010 Signalized Intersection Summary  
5: El Camino Real & Maple St

9/15/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↖	↗	↑	↘	↖	↗		
Traffic Volume (veh/h)	61	70	1290	75	70	1481		
Future Volume (veh/h)	61	70	1290	75	70	1481		
Number	1	16	8	18	7	4		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		0.99	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1881	1830	1900	1863	1845		
Adj Flow Rate, veh/h	65	74	1372	80	74	1576		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	2	1	4	4	2	3		
Cap, veh/h	302	272	2165	126	95	2610		
Arrive On Green	0.17	0.17	1.00	1.00	0.11	1.00		
Sat Flow, veh/h	1774	1599	3429	194	1774	3597		
Grp Volume(v), veh/h	65	74	713	739	74	1576		
Grp Sat Flow(s), veh/h/ln	1774	1599	1738	1793	1774	1752		
Q Serve(g_s), s	3.0	3.8	0.0	0.0	3.8	0.0		
Cycle Q Clear(g_c), s	3.0	3.8	0.0	0.0	3.8	0.0		
Prop In Lane	1.00	1.00		0.11	1.00			
Lane Grp Cap(c), veh/h	302	272	1128	1163	95	2610		
V/C Ratio(X)	0.22	0.27	0.63	0.64	0.78	0.60		
Avail Cap(c_a), veh/h	302	272	1128	1163	170	2610		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	33.6	33.9	0.0	0.0	41.5	0.0		
Incr Delay (d2), s/veh	1.6	2.5	2.7	2.7	13.1	1.0		
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%), veh/ln	6	3.7	0.8	0.9	2.2	0.4		
LnGrp Delay(d), s/veh	35.2	36.4	2.7	2.7	54.5	1.0		
LnGrp LOS	D	D	A	A	D	A		
Approach Vol, veh/h	139	1452			1650			
Approach Delay, s/veh	35.8	2.7			3.4			
Approach LOS	D	A			A			
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				74.0		20.0	9.0	65.0
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				70.0		16.0	9.0	57.0
Max Q Clear Time (g_c+I1), s				2.0		5.8	5.8	2.0
Green Ext Time (p_c), s				50.1		0.3	0.0	42.8
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay				4.5				
HCM 2010 LOS				A				

HCM 2010 Signalized Intersection Summary  
5: El Camino Real & Maple St

9/15/2017

Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	↖	↗	↑	↘	↖	↗		
Traffic Volume (veh/h)	92	78	1476	69	63	1335		
Future Volume (veh/h)	92	78	1476	69	63	1335		
Number	1	16	8	18	7	4		
Initial Q (Ob), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1900	1882	1900	1900	1863		
Adj Flow Rate, veh/h	94	80	1506	70	64	1362		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		
Percent Heavy Veh, %	0	0	1	1	0	2		
Cap, veh/h	295	264	2325	108	83	2672		
Arrive On Green	0.16	0.16	1.00	1.00	0.05	0.76		
Sat Flow, veh/h	1810	1615	3573	161	1810	3632		
Grp Volume(v), veh/h	94	80	772	804	64	1362		
Grp Sat Flow(s), veh/h/ln	1810	1615	1788	1853	1810	1770		
Q Serve(g_s), s	4.5	4.3	0.0	0.0	3.4	15.0		
Cycle Q Clear(g_c), s	4.5	4.3	0.0	0.0	3.4	15.0		
Prop In Lane	1.00	1.00		0.09	1.00			
Lane Grp Cap(c), veh/h	295	264	1195	1238	83	2672		
V/C Ratio(X)	0.32	0.30	0.65	0.65	0.77	0.51		
Avail Cap(c_a), veh/h	295	264	1195	1238	166	2672		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	36.2	36.1	0.0	0.0	46.2	4.8		
Incr Delay (d2), s/veh	2.8	2.9	2.7	2.7	13.8	0.7		
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%), veh/ln	5	4.2	0.9	0.9	2.0	7.4		
LnGrp Delay(d), s/veh	39.0	39.0	2.7	2.7	60.0	5.5		
LnGrp LOS	D	D	A	A	E	A		
Approach Vol, veh/h	174	1576			1426			
Approach Delay, s/veh	39.0	2.7			7.9			
Approach LOS	D	A			A			
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				78.0		20.0	8.5	69.5
Change Period (Y+Rc), s				4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s				74.0		16.0	9.0	61.0
Max Q Clear Time (g_c+I1), s				17.0		6.5	5.4	2.0
Green Ext Time (p_c), s				42.4		0.3	0.0	43.5
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay				7.0				
HCM 2010 LOS				A				

HCM 2010 Signalized Intersection Summary  
6: El Camino Real & Roosevelt Ave

9/15/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖
Traffic Volume (veh/h)	173	264	143	1099	3	1362	34
Future Volume (veh/h)	173	264	143	1099	3	1362	34
Number	7	14	5	2		6	16
Initial Q (Ob), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1900
Adj Flow Rate, veh/h	184	281	152	1169		1449	36
Adj No. of Lanes	1	1	1	2		2	0
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	351	313	182	2538		2017	50
Arrive On Green	0.20	0.20	0.21	1.00		1.00	1.00
Sat Flow, veh/h	1774	1583	1774	3632		3620	88
Grp Volume(v), veh/h	184	281	152	1169		726	759
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770		1770	1845
Q Serve(g_s), s	8.7	16.3	7.7	0.0		0.0	0.0
Cycle Q Clear(g_c), s	8.7	16.3	7.7	0.0		0.0	0.0
Prop In Lane	1.00	1.00	1.00				0.05
Lane Grp Cap(c), veh/h	351	313	182	2538		1012	1055
V/C Ratio(X)	0.52	0.90	0.83	0.46		0.72	0.72
Avail Cap(c_a), veh/h	377	337	245	2538		1012	1055
HCM Platoon Ratio	1.00	1.00	2.00	2.00		2.00	2.00
Upstream Filter(I)	1.00	1.00	0.89	0.89		1.00	1.00
Uniform Delay (d), s/veh	33.7	36.8	36.6	0.0		0.0	0.0
Incr Delay (d2), s/veh	1.2	24.3	15.0	0.5		4.4	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	4	15.3	4.5	0.2		1.2	1.2
LnGrp Delay(d),s/veh	35.0	61.1	51.6	0.5		4.4	4.2
LnGrp LOS	C	E	D	A		A	A
Approach Vol, veh/h	465			1321		1485	
Approach Delay, s/veh	50.7			6.4		4.3	
Approach LOS	D			A		A	
Timer	1	2	3	4	5	6	7
Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		71.4		22.6	13.6	57.8	
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0	
Max Green Setting (Gmax), s		58.0		20.0	13.0	49.0	
Max Q Clear Time (g_c+I1), s		2.0		18.3	9.7	2.0	
Green Ext Time (p_c), s		36.7		0.3	0.1	32.7	
Intersection Summary							
HCM 2010 Ctrl Delay				11.8			
HCM 2010 LOS				B			
Notes							

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
6: El Camino Real & Roosevelt Ave

9/15/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↖
Traffic Volume (veh/h)	137	168	213	1382	14	1218	100
Future Volume (veh/h)	137	168	213	1382	14	1218	100
Number	7	14	5	2		6	16
Initial Q (Ob), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00				0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863		1863	1900
Adj Flow Rate, veh/h	140	171	217	1410		1243	102
Adj No. of Lanes	1	1	1	2		2	0
Peak Hour Factor	0.98	0.98	0.98	0.98		0.98	0.98
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	231	206	248	2790		1998	163
Arrive On Green	0.13	0.13	0.28	1.00		1.00	1.00
Sat Flow, veh/h	1774	1583	1774	3632		3382	269
Grp Volume(v), veh/h	140	171	217	1410		667	678
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770		1770	1788
Q Serve(g_s), s	7.3	10.3	11.4	0.0		0.0	0.0
Cycle Q Clear(g_c), s	7.3	10.3	11.4	0.0		0.0	0.0
Prop In Lane	1.00	1.00	1.00				0.15
Lane Grp Cap(c), veh/h	231	206	248	2790		1075	1086
V/C Ratio(X)	0.61	0.83	0.87	0.51		0.62	0.62
Avail Cap(c_a), veh/h	308	275	362	2790		1075	1086
HCM Platoon Ratio	1.00	1.00	2.00	2.00		2.00	2.00
Upstream Filter(I)	1.00	1.00	0.85	0.85		1.00	1.00
Uniform Delay (d), s/veh	40.2	41.6	34.5	0.0		0.0	0.0
Incr Delay (d2), s/veh	2.6	14.6	12.9	0.6		2.7	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln	7	9.5	6.4	0.2		0.8	0.8
LnGrp Delay(d),s/veh	42.8	56.2	47.4	0.6		2.7	2.7
LnGrp LOS	D	E	D	A		A	A
Approach Vol, veh/h	311			1627		1345	
Approach Delay, s/veh	50.1			6.8		2.7	
Approach LOS	D			A		A	
Timer	1	2	3	4	5	6	7
Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		81.2		16.8	17.7	63.5	
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0	
Max Green Setting (Gmax), s		73.0		17.0	20.0	49.0	
Max Q Clear Time (g_c+I1), s		2.0		12.3	13.4	2.0	
Green Ext Time (p_c), s		45.0		0.4	0.3	34.2	
Intersection Summary							
HCM 2010 Ctrl Delay				9.2			
HCM 2010 LOS				A			
Notes							

El Camino Real Corridor Plan  
PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
7: El Camino Real & Oak Ave

9/15/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR	
Lane Configurations	↔		↔		↔			
Traffic Volume (veh/h)	153	89	153	913	9	1693	49	
Future Volume (veh/h)	153	89	153	913	9	1693	49	
Number	7	14	5	2		6	16	
Initial Q (Ob), veh	0	0	0	0		0	0	
Ped-Bike Adj(A_pbT)	1.00	0.88	1.00				0.94	
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	0.99	
Adj Sat Flow, veh/h/ln	1886	1900	1900	1863		1863	1900	
Adj Flow Rate, veh/h	159	92	159	951		1764	42	
Adj No. of Lanes	0	0	1	2		3	0	
Peak Hour Factor	0.96	0.96	0.96	0.96		0.96	0.96	
Percent Heavy Veh, %	0	0	0	2		2	2	
Cap, veh/h	181	105	191	2616		3007	72	
Arrive On Green	0.18	0.18	0.21	1.00		1.00	1.00	
Sat Flow, veh/h	1032	597	1810	3632		5254	121	
Grp Volume(v), veh/h	252	0	159	951		1175	631	
Grp Sat Flow(s), veh/h/ln	1636	0	1810	1770		1695	1817	
Q Serve(g_s), s	14.1	0.0	7.9	0.0		0.0	0.0	
Cycle Q Clear(g_c), s	14.1	0.0	7.9	0.0		0.0	0.0	
Prop In Lane	0.63	0.37	1.00				0.07	
Lane Grp Cap(c), veh/h	287	0	191	2616		2004	1074	
V/C Ratio(X)	0.88	0.00	0.83	0.36		0.59	0.59	
Avail Cap(c_a), veh/h	383	0	289	2616		2004	1074	
HCM Platoon Ratio	1.00	1.00	2.00	2.00		2.00	2.00	
Upstream Filter(I)	1.00	0.00	0.65	0.65		0.61	0.61	
Uniform Delay (d), s/veh	37.8	0.0	36.3	0.0		0.0	0.0	
Incr Delay (d2), s/veh	16.0	0.0	8.1	0.3		0.8	1.4	
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0		0.0	0.0	
%ile BackOfQ(50%), veh/ln	7.7	0.0	4.3	0.1		0.2	0.4	
LnGrp Delay(d), s/veh	53.8	0.0	44.4	0.3		0.8	1.4	
LnGrp LOS	D		D	A		A	A	
Approach Vol, veh/h	252		1110			1806		
Approach Delay, s/veh	53.8		6.6			1.0		
Approach LOS	D		A			A		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		73.5		20.5	13.9	59.6		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		64.0		22.0	15.0	45.0		
Max Q Clear Time (g_c+I1), s		2.0		16.1	9.9	2.0		
Green Ext Time (p_c), s		40.5		0.4	0.2	31.5		
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			7.2					
HCM 2010 LOS			A					
<b>Notes</b>								

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
7: El Camino Real & Oak Ave

9/15/2017

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR	
Lane Configurations	↔		↔		↔			
Traffic Volume (veh/h)	126	75	224	1293	20	1555	92	
Future Volume (veh/h)	126	75	224	1293	20	1555	92	
Number	7	14	5	2		6	16	
Initial Q (Ob), veh	0	0	5	0		0	0	
Ped-Bike Adj(A_pbT)	1.00	0.81	1.00				0.93	
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	0.99	
Adj Sat Flow, veh/h/ln	1893	1900	1900	1863		1882	1900	
Adj Flow Rate, veh/h	127	65	226	1306		1571	72	
Adj No. of Lanes	0	0	1	2		3	0	
Peak Hour Factor	0.99	0.99	0.99	0.99		0.99	0.99	
Percent Heavy Veh, %	0	0	0	2		1	1	
Cap, veh/h	164	84	274	2700		2853	131	
Arrive On Green	0.16	0.16	0.29	1.00		0.77	0.77	
Sat Flow, veh/h	1052	538	1810	3632		5171	229	
Grp Volume(v), veh/h	193	0	226	1306		1076	567	
Grp Sat Flow(s), veh/h/ln	1599	0	1810	1770		1713	1806	
Q Serve(g_s), s	11.4	0.0	11.7	0.0		12.1	12.1	
Cycle Q Clear(g_c), s	11.4	0.0	11.7	0.0		12.1	12.1	
Prop In Lane	0.66	0.34	1.00				0.13	
Lane Grp Cap(c), veh/h	249	0	274	2700		1954	1030	
V/C Ratio(X)	0.78	0.00	0.82	0.48		0.55	0.55	
Avail Cap(c_a), veh/h	326	0	388	2700		1984	1046	
HCM Platoon Ratio	1.00	1.00	2.00	2.00		1.33	1.33	
Upstream Filter(I)	1.00	0.00	0.22	0.22		0.70	0.70	
Uniform Delay (d), s/veh	39.7	0.0	33.4	0.0		6.7	6.7	
Incr Delay (d2), s/veh	8.3	0.0	2.3	0.1		0.8	1.5	
Initial Q Delay(d3), s/veh	0.0	0.0	13.6	0.0		0.0	0.0	
%ile BackOfQ(50%), veh/ln	6.6	0.0	7.5	0.1		6.0	6.5	
LnGrp Delay(d), s/veh	48.1	0.0	49.3	0.1		7.5	8.2	
LnGrp LOS	D		D	A		A	A	
Approach Vol, veh/h	193		1532			1643		
Approach Delay, s/veh	48.1		7.4			7.7		
Approach LOS	D		A			A		
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		78.8		19.2	18.0	60.8		
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		
Max Green Setting (Gmax), s		70.0		20.0	21.0	45.0		
Max Q Clear Time (g_c+I1), s		2.0		13.4	13.7	14.1		
Green Ext Time (p_c), s		47.2		0.3	0.4	25.7		
<b>Intersection Summary</b>								
HCM 2010 Ctrl Delay			9.9					
HCM 2010 LOS			A					
<b>Notes</b>								

El Camino Real Corridor Plan  
PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
8: El Camino Real & Redwood Ave/Main St

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↕	↗	↕	↖	↕
Traffic Volume (veh/h)	50	50	792	50	50	9	0	1042	442	0	1646	180
Future Volume (veh/h)	50	50	792	50	50	9	0	1042	442	0	1646	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1792	1900	1900	1900	0	1827	1845	0	1863	1792
Adj Flow Rate, veh/h	52	52	825	52	52	9	0	1085	460	0	1715	188
Adj No. of Lanes	0	1	1	0	1	0	0	2	1	0	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	6	0	0	0	0	4	3	0	2	6
Cap, veh/h	415	398	699	255	242	38	0	1551	684	0	1581	657
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.00	0.45	0.45	0.00	0.89	0.89
Sat Flow, veh/h	764	850	1494	426	517	82	0	3563	1531	0	3632	1471
Grp Volume(v), veh/h	104	0	825	113	0	0	0	1085	460	0	1715	188
Grp Sat Flow(s), veh/h/ln	1614	0	1494	1024	0	0	0	1736	1531	0	1770	1471
Q Serve(g_s), s	0.0	0.0	44.0	1.8	0.0	0.0	0.0	23.6	22.3	0.0	42.0	1.7
Cycle Q Clear(g_c), s	2.9	0.0	44.0	4.7	0.0	0.0	0.0	23.6	22.3	0.0	42.0	1.7
Prop In Lane	0.50		1.00	0.46		0.08	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	813	0	699	535	0	0	0	1551	684	0	1581	657
V/C Ratio(X)	0.13	0.00	1.18	0.21	0.00	0.00	0.00	0.70	0.67	0.00	1.08	0.29
Avail Cap(c_a), veh/h	813	0	699	535	0	0	0	1551	684	0	1581	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.71	0.71	
Uniform Delay (d), s/veh	14.1	0.0	25.0	14.3	0.0	0.0	0.0	20.9	20.6	0.0	5.0	2.9
Incr Delay (d2), s/veh	0.1	0.0	95.1	0.2	0.0	0.0	0.0	2.7	5.2	0.0	46.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%)veh/ln	5	0.0	36.6	1.7	0.0	0.0	0.0	11.9	10.3	0.0	26.9	0.8
LnGrp Delay(d),s/veh	14.1	0.0	120.1	14.5	0.0	0.0	0.0	23.6	25.8	0.0	51.5	3.6
LnGrp LOS	B		F	B				C	C		F	A
Approach Vol, veh/h		929			113			1545			1903	
Approach Delay, s/veh		108.3			14.5			24.2			46.8	
Approach LOS		F			B			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.0		48.0		46.0		48.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		42.0		44.0		42.0		44.0				
Max Q Clear Time (g_c+I1), s		25.6		46.0		44.0		6.7				
Green Ext Time (p_c), s		15.3		0.0		0.0		6.5				
Intersection Summary												
HCM 2010 Ctrl Delay						50.9						
HCM 2010 LOS						D						

El Camino Real Corridor Plan  
AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
8: El Camino Real & Redwood Ave/Main St

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔		↕	↗	↕	↖	↕
Traffic Volume (veh/h)	50	50	679	50	50	20	0	1520	687	0	1433	268
Future Volume (veh/h)	50	50	679	50	50	20	0	1520	687	0	1433	268
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Ob), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.98	1.00		0.98	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1881	1900	1900	1900	0	1881	1881	0	1881	1881
Adj Flow Rate, veh/h	52	52	707	52	52	21	0	1583	716	0	1493	279
Adj No. of Lanes	0	1	1	0	1	0	0	2	1	0	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	1	0	0	0	0	1	1	0	1	1
Cap, veh/h	396	380	699	243	235	86	0	1678	733	0	1678	720
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.00	0.47	0.47	0.00	0.94	0.94
Sat Flow, veh/h	760	847	1557	426	523	192	0	3668	1562	0	3668	1534
Grp Volume(v), veh/h	104	0	707	125	0	0	0	1583	716	0	1493	279
Grp Sat Flow(s), veh/h/ln	1607	0	1557	1141	0	0	0	1787	1562	0	1787	1534
Q Serve(g_s), s	0.0	0.0	44.0	2.0	0.0	0.0	0.0	41.3	44.0	0.0	15.2	1.7
Cycle Q Clear(g_c), s	3.2	0.0	44.0	5.2	0.0	0.0	0.0	41.3	44.0	0.0	15.2	1.7
Prop In Lane	0.50		1.00	0.42		0.17	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	776	0	699	564	0	0	0	1678	733	0	1678	720
V/C Ratio(X)	0.13	0.00	1.01	0.22	0.00	0.00	0.00	0.94	0.98	0.00	0.89	0.39
Avail Cap(c_a), veh/h	776	0	699	564	0	0	0	1678	733	0	1678	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.76	0.76	
Uniform Delay (d), s/veh	15.7	0.0	27.0	16.1	0.0	0.0	0.0	24.8	25.5	0.0	2.1	1.6
Incr Delay (d2), s/veh	0.1	0.0	36.8	0.2	0.0	0.0	0.0	12.1	27.9	0.0	5.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%)veh/ln	7	0.0	26.0	2.0	0.0	0.0	0.0	23.1	24.6	0.0	6.8	0.9
LnGrp Delay(d),s/veh	15.8	0.0	63.8	16.3	0.0	0.0	0.0	36.9	53.4	0.0	8.0	2.8
LnGrp LOS	B		F	B				D	D		A	A
Approach Vol, veh/h		811			125			2299			1772	
Approach Delay, s/veh		57.7			16.3			42.0			7.2	
Approach LOS		E			B			D			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		50.0		48.0		50.0		48.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		46.0		44.0		46.0		44.0				
Max Q Clear Time (g_c+I1), s		46.0		46.0		17.2		7.2				
Green Ext Time (p_c), s		0.0		0.0		27.3		5.5				
Intersection Summary												
HCM 2010 Ctrl Delay						31.6						
HCM 2010 LOS						C						

El Camino Real Corridor Plan  
PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 TWSC  
9: El Camino Real & Hazel Ave/Laurel St

9/15/2017

Intersection												
Int Delay, s/veh 26.6												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕	↕↕↕	↕↕↕		↕↕↕		
Traffic Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Future Vol, veh/h	0	0	258	0	0	302	0	1092	242	0	1961	485
Conflicting Peds, #/hr	0	0	10	0	0	1	0	0	1	0	0	10
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Yield	-	-	Free	-	-	Free
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4	0	3	10	0	3	2
Mvmt Flow	0	0	280	0	0	328	0	1187	263	0	2132	527

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	-	-	1076	-	-	594	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.18	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.94	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	-185	0	0	380	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-183	-	-	380	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 311.6	51.8	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT
Capacity (veh/h)	-	183	380	-
HCM Lane V/C Ratio	-	1.532	0.864	-
HCM Control Delay (s)	-	\$ 311.6	51.8	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	18	8.3	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 TWSC  
9: El Camino Real & Hazel Ave/Laurel St

9/15/2017

Intersection												
Int Delay, s/veh 25.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕	↕↕↕	↕↕↕		↕↕↕		
Traffic Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Future Vol, veh/h	0	0	258	0	0	232	0	1906	333	0	1699	416
Conflicting Peds, #/hr	0	0	18	0	0	0	0	0	0	0	0	18
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Signal	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	2	0	0	3	0	1	2	0	1	1
Mvmt Flow	0	0	263	0	0	237	0	1945	340	0	1734	424

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	-	-	1115	-	-	972	-	0	-	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.16	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.93	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	-174	0	0	215	0	-	0	0	-	0
Stage 1	0	0	-	0	0	-	0	-	0	0	-	0
Stage 2	0	0	-	0	0	-	0	-	0	0	-	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-169	-	-	215	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 327	138.4	0	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBT	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	169	215	-	-
HCM Lane V/C Ratio	-	1.558	1.101	-	-
HCM Control Delay (s)	-	\$ 327	138.4	-	-
HCM Lane LOS	-	F	F	-	-
HCM 95th %tile Q(veh)	-	17.4	10.9	-	-

Notes  
 -: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 2010 Signalized Intersection Summary  
 10: El Camino Real & Oakwood Dr/Dumbarton Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑↑↑	↑↑↑		↑↑↑	↑↑↑	
Traffic Volume (veh/h)	100	35	125	211	18	61	112	1051	35	74	2000	17
Future Volume (veh/h)	100	35	125	211	18	61	112	1051	35	74	2000	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Ob), veh	0	0	0	0	0	0	0	1	0	1	4	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.96	1.00		0.96	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1878	1900	1863	1827	1900	1759	1845	1900
Adj Flow Rate, veh/h	104	36	115	220	19	48	117	1095	32	77	2083	15
Adj No. of Lanes	0	1	0	0	1	0	1	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.99
Percent Heavy Veh, %	0	0	0	0	0	0	2	4	4	8	3	3
Cap, veh/h	270	104	263	407	39	76	146	2243	65	101	2209	15
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.08	0.45	0.45	0.06	0.43	0.43
Sat Flow, veh/h	596	287	726	935	106	209	1774	4976	145	1675	5157	37
Grp Volume(v), veh/h	255	0	0	287	0	0	117	732	395	77	1356	742
Grp Sat Flow(s), veh/h/ln	1609	0	0	1250	0	0	1774	1663	1795	1675	1679	1836
Q Serve(g_s), s	0.0	0.0	0.0	8.0	0.0	0.0	6.1	14.6	14.6	4.3	36.5	36.5
Cycle Q Clear(g_c), s	10.5	0.0	0.0	18.6	0.0	0.0	6.1	14.6	14.6	4.3	36.5	36.5
Prop In Lane	0.41		0.45	0.77			0.17	1.00		0.08	1.00	0.02
Lane Grp Cap(c), veh/h	638	0	0	521	0	0	146	1499	809	101	1438	786
V/C Ratio(X)	0.40	0.00	0.00	0.55	0.00	0.00	0.80	0.49	0.49	0.77	0.94	0.94
Avail Cap(c_a), veh/h	639	0	0	522	0	0	151	1500	810	178	1465	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	0.0	0.0	25.2	0.0	0.0	42.4	18.2	18.2	43.6	25.9	25.9
Incr Delay (d2), s/veh	1.9	0.0	0.0	4.1	0.0	0.0	25.5	0.2	0.5	11.4	12.4	19.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.4	0.4
%ile BackOfQ(50%) veh/ln	5.3	0.0	0.0	6.8	0.0	0.0	4.0	6.7	7.4	2.5	19.5	22.9
LnGrp Delay(d), s/veh	24.3	0.0	0.0	29.3	0.0	0.0	67.9	18.5	18.7	58.1	38.7	45.6
LnGrp LOS	C			C			E	B	B	E	D	D
Approach Vol, veh/h	255			287			1244			2175		
Approach Delay, s/veh	24.3			29.3			23.2			41.8		
Approach LOS	C			C			C			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		38.1	11.7	44.1		38.1	9.5	46.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		33.0	8.0	41.0		33.0	10.0	39.0				
Max Q Clear Time (g_c+I1), s		12.5	8.1	38.5		20.6	6.3	16.6				
Green Ext Time (p_c), s		3.8	0.0	1.6		3.0	0.0	20.2				
Intersection Summary												
HCM 2010 Ctrl Delay				33.9								
HCM 2010 LOS	C			C			C			D		

El Camino Real Corridor Plan  
 AM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
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HCM 2010 Signalized Intersection Summary  
 10: El Camino Real & Oakwood Dr/Dumbarton Ave

9/15/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↑↑↑	↑↑↑		↑↑↑	↑↑↑	
Traffic Volume (veh/h)	64	20	65	99	14	52	137	1957	49	166	1469	23
Future Volume (veh/h)	64	20	65	99	14	52	137	1957	49	166	1469	23
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Ob), veh	0	1	0	0	2	0	0	0	0	1	0	0
Ped-Bike Adj(A_pbT)	0.96		0.93	0.97		0.91	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1888	1900	1900	1889	1900	1900	1882	1900	1759	1845	1900
Adj Flow Rate, veh/h	65	20	56	100	14	52	138	1977	31	168	1484	3
Adj No. of Lanes	0	1	0	0	1	0	1	3	0	1	3	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	5	5	5	0	0	0	0	1	1	8	3	3
Cap, veh/h	142	61	91	175	38	67	171	3127	49	202	3252	7
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.09	0.60	0.60	0.12	0.63	0.63
Sat Flow, veh/h	581	336	604	780	189	442	1810	5207	82	1675	5191	10
Grp Volume(v), veh/h	141	0	0	166	0	0	138	1300	708	168	960	527
Grp Sat Flow(s), veh/h/ln	1520	0	0	1411	0	0	1810	1712	1864	1675	1679	1843
Q Serve(g_s), s	0.0	0.0	0.0	2.7	0.0	0.0	7.3	23.8	23.8	9.6	14.6	14.6
Cycle Q Clear(g_c), s	8.2	0.0	0.0	10.9	0.0	0.0	7.3	23.8	23.8	9.6	14.6	14.6
Prop In Lane	0.46		0.40	0.60			0.31	1.00		0.04	1.00	0.01
Lane Grp Cap(c), veh/h	291	0	0	281	0	0	171	2057	1119	202	2104	1155
V/C Ratio(X)	0.48	0.00	0.00	0.59	0.00	0.00	0.81	0.63	0.63	0.83	0.46	0.46
Avail Cap(c_a), veh/h	374	0	0	359	0	0	277	2067	1125	274	2110	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	0.0	39.5	0.0	0.0	43.5	12.6	12.6	42.2	9.6	9.6
Incr Delay (d2), s/veh	1.3	0.0	0.0	2.0	0.0	0.0	8.7	1.5	2.7	14.5	0.7	1.3
Initial Q Delay(d3), s/veh	0.2	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
%ile BackOfQ(50%) veh/ln	3.8	0.0	0.0	4.7	0.0	0.0	4.1	11.7	13.1	5.4	6.9	7.8
LnGrp Delay(d), s/veh	39.8	0.0	0.0	42.4	0.0	0.0	52.2	14.1	15.4	57.8	10.3	10.9
LnGrp LOS	D			D			D	B	B	E	B	B
Approach Vol, veh/h	141			166			2146			1655		
Approach Delay, s/veh	39.8			42.4			17.0			15.3		
Approach LOS	D			D			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.2	13.3	65.6		19.2	15.7	63.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	15.0	50.0		21.0	16.0	49.0				
Max Q Clear Time (g_c+I1), s		10.2	9.3	16.6		12.9	11.6	25.8				
Green Ext Time (p_c), s		1.4	0.1	30.0		1.2	0.2	21.5				
Intersection Summary												
HCM 2010 Ctrl Delay				18.1								
HCM 2010 LOS	B			B			B			B		

El Camino Real Corridor Plan  
 PM Peak Hour Existing Conditions Preferred Alternative

Synchro 9 Report  
 W-Trans



## MOVEMENT SUMMARY

### Site: 1 [AM Existing]

El Camino Real/Redwood Avenue-Main Street  
AM Peak Hour Existing Conditions  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total Veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB El Camino Real											
3	L2	52	2.0	0.697	13.6	LOS B	5.6	145.2	0.40	0.20	15.0
8	T1	1085	5.0	0.697	13.5	LOS B	5.8	148.3	0.40	0.20	14.5
18	R2	460	2.0	0.697	13.4	LOS B	5.8	148.3	0.41	0.20	11.6
Approach		1598	4.0	0.697	13.5	LOS B	5.8	148.3	0.40	0.20	13.8
North: SB El Camino Real											
7	L2	20	2.0	0.797	18.0	LOS B	8.0	207.0	0.42	0.19	11.7
4	T1	1646	5.0	0.797	18.0	LOS B	8.1	209.0	0.42	0.19	12.8
14	R2	180	2.0	0.797	18.0	LOS B	8.1	209.0	0.43	0.19	13.3
Approach		1846	4.7	0.797	18.0	LOS B	8.1	209.0	0.42	0.19	12.8
West: EB Redwood Avenue											
5	L2	50	2.0	1.406	237.7	LOS F	43.5	1104.3	1.00	4.03	2.0
2	T1	20	2.0	1.406	237.7	LOS F	43.5	1104.3	1.00	4.03	1.6
12	R2	792	2.0	1.406	233.4	LOS F	50.2	1275.8	1.00	4.33	1.6
Approach		862	2.0	1.406	233.8	LOS F	50.2	1275.8	1.00	4.30	1.6
All Vehicles		4306	3.9	1.406	59.5	LOS E	50.2	1275.8	0.53	1.02	5.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\AAAS\SMX\IRC\1006\Roundabout\ECR-Redwood.sip7

## MOVEMENT SUMMARY

### Site: 1 [PM Existing]

El Camino Real/Redwood Avenue-Main Street  
PM Peak Hour Existing Conditions  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total Veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NB El Camino Real											
3	L2	50	2.0	1.003	47.2	LOS F	50.0	1298.7	1.00	0.74	7.0
8	T1	1520	5.0	1.003	47.1	LOS F	50.8	1303.4	1.00	0.74	6.9
18	R2	687	2.0	1.003	46.8	LOS F	50.8	1303.4	1.00	0.72	5.2
Approach		2257	4.0	1.003	47.0	LOS D	50.8	1303.4	1.00	0.73	6.4
North: SB El Camino Real											
7	L2	20	2.0	0.740	15.1	LOS B	6.6	171.2	0.37	0.16	12.7
4	T1	1433	5.0	0.740	15.0	LOS B	6.7	173.6	0.37	0.16	13.9
14	R2	268	2.0	0.740	15.0	LOS B	6.7	173.6	0.37	0.16	14.3
Approach		1721	4.5	0.740	15.0	LOS B	6.7	173.6	0.37	0.16	14.0
West: EB Redwood Avenue											
5	L2	52	2.0	1.030	91.5	LOS F	15.2	387.2	1.00	2.30	4.7
2	T1	21	2.0	1.030	91.5	LOS F	15.2	387.2	1.00	2.30	3.9
12	R2	707	2.0	1.030	87.6	LOS F	16.1	409.5	1.00	2.34	3.9
Approach		780	2.0	1.030	88.0	LOS F	16.1	409.5	1.00	2.34	3.9
All Vehicles		4758	3.9	1.030	42.1	LOS D	50.8	1303.4	0.77	0.79	7.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: N:\AAAS\SMX\IRC\1006\Roundabout\ECR-Redwood.sip7

Arterial Level of Service  
AM Peak Hour Existing Conditions Preferred Alternative

9/18/2017

Arterial Level of Service: NB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Dumbarton Ave	10	14.5	25.2	0.2	31
Laurel St	9	6.5	59.9	0.5	33
Main St	8	19.0	28.5	0.1	13
Oak Ave	7	2.8	11.1	0.1	26
Roosevelt Ave	6	11.6	26.1	0.2	22
Beech St	92	5.1	13.7	0.1	22
Maple St	5	6.7	10.5	0.0	12
	98	6.2	25.3	0.2	26
Jefferson Ave	4	21.7	27.4	0.1	9
James Ave	3	21.0	39.7	0.2	17
Brewster Ave	2	12.5	36.4	0.2	24
Whipple Ave	1	19.4	47.9	0.3	23
Claremont Ave	121	2.6	9.8	0.1	25
Total		149.5	361.4	2.3	23

Arterial Level of Service: SB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Whipple Ave	1	20.8	26.9	0.1	9
Brewster Ave	2	11.3	42.4	0.3	26
James Ave	3	35.4	59.0	0.2	15
Jefferson Ave	4	28.5	46.1	0.2	14
	98	5.2	12.5	0.1	19
Maple St	5	5.4	23.1	0.2	29
Lincoln Ave	92	1.3	5.5	0.0	23
Roosevelt Ave	6	12.3	20.6	0.1	14
Oak Ave	7	31.0	48.8	0.2	12
Redwood Ave	8	32.5	43.4	0.1	7
Hazel Ave	9	4.4	15.1	0.1	24
Oakwood Dr	10	25.9	78.8	0.5	25
Total		214.0	422.2	2.1	18

Arterial Level of Service  
PM Peak Hour Existing Conditions Preferred Alternative

9/18/2017

Arterial Level of Service: NB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Dumbarton Ave	10	16.6	27.4	0.2	28
Laurel St	9	12.2	64.3	0.5	30
Main St	8	18.1	29.6	0.1	14
Oak Ave	7	4.2	12.4	0.1	23
Roosevelt Ave	6	11.8	26.8	0.2	21
Beech St	92	4.8	13.4	0.1	22
Maple St	5	5.7	9.4	0.0	13
	98	17.3	36.2	0.2	18
Jefferson Ave	4	32.5	38.9	0.1	6
James Ave	3	14.7	33.4	0.2	20
Brewster Ave	2	12.5	36.8	0.2	24
Whipple Ave	1	34.6	64.9	0.3	17
Claremont Ave	121	3.6	10.9	0.1	22
Total		188.8	404.5	2.3	20

Arterial Level of Service: SB El Camino Real #1

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Whipple Ave	1	22.5	28.5	0.1	8
Brewster Ave	2	11.9	44.0	0.3	25
James Ave	3	28.8	53.0	0.2	17
Jefferson Ave	4	40.7	58.3	0.2	11
	98	4.2	11.5	0.1	21
Maple St	5	5.9	23.8	0.2	28
Lincoln Ave	92	1.6	5.8	0.0	22
Roosevelt Ave	6	9.0	17.3	0.1	17
Oak Ave	7	15.5	30.1	0.2	19
Redwood Ave	8	14.4	22.7	0.1	13
Hazel Ave	9	3.1	13.3	0.1	32
Oakwood Dr	10	16.5	66.8	0.5	28
Total		174.0	375.2	2.1	20

