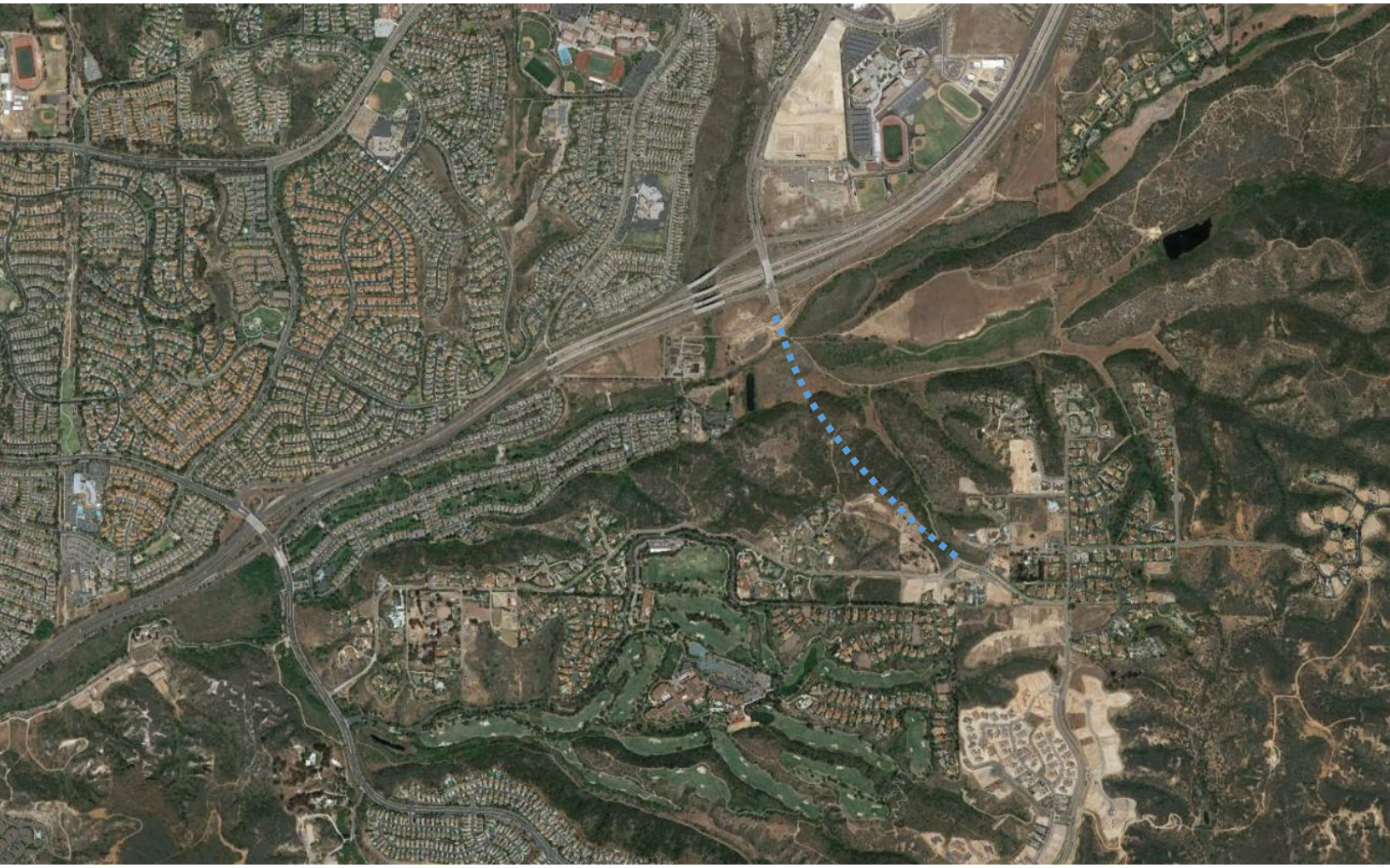
Little McGonigle Ranch Road

Transportation Impact Analysis Report



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December 2016

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1 INTRODUCTION

Little McGonigle Ranch Road is located in the Del Mar Mesa Community, south of SR-56 and west of Del Vino Court-Carmel Mountain Road. The existing section is approximately 1,500 feet long extending from Del Mar Mesa Road to the west and Del Vino Court-Carmel Mountain Road to the east. This study evaluates the potential transportation related benefits associated with extending Little McGonigle Ranch Road north from the existing terminus at Del Mar Mesa Road to the southern terminus of Carmel Valley Road, as shown in **Figure 1-1**.

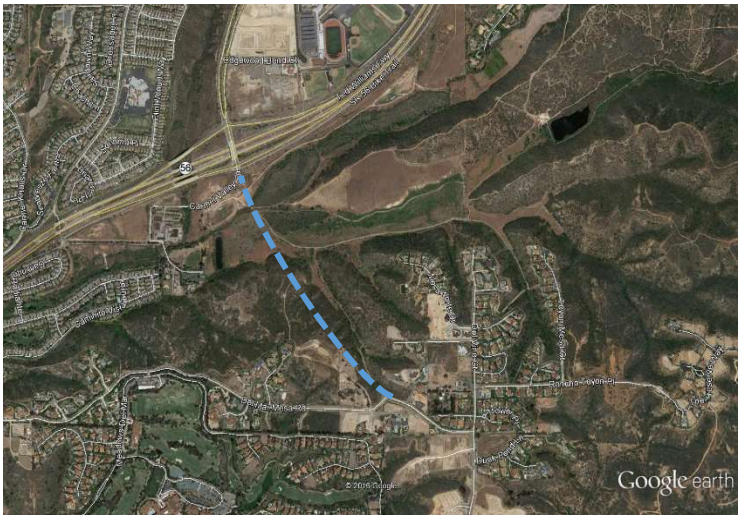

Figure 1-1: Little McGonigle Ranch Road Extension (SHOWN WITH BLUE DASH)

The extension of Little McGonigle Ranch Road is included in the Del Mar Mesa Community Public Facilities Financing Plan (PFFP). At the time this report was being prepared, the PFFP was in the process of being updated. Due to the amount of time that passed between the prior update to the PFFP and the current PFFP update, the cost to construct Little McGonigle Ranch Road has increased from approximately $7.1M to over $33M. The Del Mar Specific Plan area is a residential community that is largely built out. The remaining undeveloped land includes approximately 107 new homes. The cost to construct the road is imbalanced with the remaining development and would therefore place a large burden on either the city or future developments. Therefore, the findings of this study will feed into the decision making process for the PFFP.

The key Evaluation Criteria used to determine the benefit and need are as follows:

- Does the future year volume along the roadway extension result in a shift in traffic that is consistent with the planned capacity of the roadway?
- Will the shift in traffic to the new road extension reduce traffic on critically congested routes such that deficient intersections or roadway segments are forecast to operate at acceptable operating conditions with the construction of the new roadway?
- Does the road extension result in changes in operating conditions along SR-56 or access ramps to SR-56?
- Does the road extension result in deficient operating conditions at intersections or along roadway segments within the community plan study area that would not be deficient without the connection?

- Does the road extension result in reduced response time such that Fire Stations provide for an average travel time of 5 minutes or less with the roadway extension?
- Does the road extension improve access for pedestrians and bicycles within the community?
- Does the road extension result in the completion of a regionally significant bicycle route identified in the regional, city or Specific Plan identified bicycle network?
- Does the road extension improve access to transit?
- Does the road extension result in a reduction in VMT for the Del Mar Mesa, Del Mar Heights or Carmel Valley Community Planning Areas?
- Will the road extension result in an increase in cut through or regionally serving traffic that may adversely affect the local community?

Chapter 2 of this report summarizes the methodology used to conduct the technical analysis necessary to respond to the above listed Evaluation Criteria. Chapters 3 and 4 of this report present the findings of the technical analysis that identify the operational characteristics of the roadway network and transportation system under existing and future conditions, respectively. Responses to the Evaluation Criteria listed above are summarized in detail in Chapter 5 of this report. The report concludes in Chapter 6 with the findings and recommendations.

2 ANALYSIS APPROACH AND METHODOLOGY

The purpose of this study is to identify the benefits associated with the extension of Little McGonigle Ranch Road. To assess these benefits, the following analysis was conducted:

- Intersection Operational Analysis
- Roadway Segment Operational Analysis
- Freeway Mainline Analysis
- Travel Time Analysis
- VMT Analysis
- Emergency Response Time Assessment

This chapter summarizes the analysis approach and methodology for each of these analysis criteria.

2.1 Intersection Operational Analysis

The operations of intersections are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

Vehicular LOS were determined at the study area intersections for the morning (AM) and evening (PM) peak hours on a typical weekday. The AM intersection analysis evaluates LOS during the hour with the highest vehicular traffic between 7:00 AM and 9:00 AM. The PM intersection analysis evaluates LOS during the hour with the highest vehicular traffic between 4:00 PM and 6:00 PM.

Signalized and unsignalized intersection operations were analyzed based upon the *Highway Capacity Manual (HCM)* 2000 methodology, which relates the intersection LOS to intersection control delay, in terms of seconds per vehicle (sec/veh). This methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the base (or ideal) saturation flow rate at signalized intersections, which is based on the minimum headway that can be sustained between departing vehicles at a signalized intersection. Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the *HCM 2000* (Section 10) analysis methodology. All intersections were analyzed in the Synchro 8 software program, which uses the methodologies outlined in the *HCM 2000* to determine intersection operating conditions.

Signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. were obtained from the current signal timing sheets provided by the City of San Diego and calibrated into the Synchro model. Synchro reports delays, which correspond to a particular LOS, to describe the overall operation of an intersection.

The criteria for the LOS grade designations are provided in **Table 2-1**. LOS provides a quick overview of how well an intersection is performing. Within the City of San Diego, all signalized and unsignalized intersections are expected to operate at LOS D or better.

Table 2-1: LOS Criteria for Intersections

LOS	Control Delay (sec/veh)		Description
	Signalized Intersections	Unsignalized Intersections	
A	≤10	≤10	Operations with very low delay and most vehicles do not stop.
B	>10 and ≤20	>10 and ≤15	Operations with good progression but with some restricted movements.
C	>20 and ≤35	>15 and ≤25	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35 and ≤55	>25 and ≤35	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines.
E	>55 and ≤80	>35 and ≤50	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80	>50	Operations that are unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Source: 2000 Highway Capacity Manual, Transportation Research Board Special Report 209

2.2 Roadway Segment Capacity Analysis

The basis for analysis of roadway segment performance is provided by LOS standards and thresholds. The LOS analysis considerations include the functional classification of the roadway, maximum capacity, roadway geometrics, and Average Daily Traffic (ADT) volumes. The analysis results provide a quick overview of whether a segment is under, approaching, or over capacity. **Table 2-2** presents the roadway segment daily capacity and LOS standards utilized by the City of San Diego.

Table 2-2: Roadway Segment Daily Capacity and LOS Standards

Street Classification	Level of Service (LOS)				
	A	B	C	D	E
Expressway (6-lane)	< 30,000	< 42,000	< 60,000	< 70,000	< 80,000
Prime Arterial (6-lane)	< 25,000	< 35,000	< 50,000	< 55,000	< 60,000
Major Arterial (6-lane, divided)	< 20,000	< 28,000	< 40,000	< 45,000	< 50,000
Major Arterial (4-lane, divided)	< 15,000	< 21,000	< 30,000	< 35,000	< 40,000
Collector (4-lane)	< 10,000	< 14,000	< 20,000	< 25,000	< 30,000
Collector (4-lane, no center lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane, continuous left-turn lane)	< 5,000	< 7,000	< 10,000	< 13,000	< 15,000
Collector (2-lane, no fronting property)	< 4,000	< 5,500	< 7,500	< 9,000	< 10,000
Collector (2-lane, commercial/industrial fronting property)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane, multi-family)	< 2,500	< 3,500	< 5,000	< 6,500	< 8,000
Collector (2-lane, single family)	--	--	< 2,200	--	--

Source: *City of San Diego Traffic Impact Study Manual, Table 2, Page 8, July 1998.*

Notes: The volumes and the average daily level of service listed above are only intended as a general planning guideline. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

2.3 Caltrans Analysis

Caltrans facilities were evaluated based on *HCM 2000* methodology for basic freeway segments. The LOS analysis considerations include the number of lanes, peak hour traffic volume and mix of vehicles on the roadway, peak hour factor, and highway geometrics. The analysis results describe the operational characteristics of the roadway including speed and density. In accordance with the *HCM 2000* methodology, **Table 2-5** presents the freeway segment LOS criteria, which is based on density.

Table 2-3: HCM 2000 Freeway Segment LOS Criteria

LOS	Density Range (pc/mi/ln)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	>45

Source: Highway Capacity Manual 2000, Chapter 23, Page 23-3

2.4 Emergency Response Evaluation

This evaluation was used to determine the potential reduction in emergency response time associated with the extension of Little McGonigle Ranch Road. To make this determination, a multi-step evaluation process was conducted:

- Assess existing conditions response times based on information provided by City of San Diego Fire Department
- Forecast future year response times using the SANDAG model for the existing roadway network
- Forecast future year response times using the SANDAG model for the "with Little McGonigle Ranch Road" extension

Existing incidents were mapped using GIS software to determine the location of the incident, responding fire station and response time. The existing incidents were overlaid with the traffic analysis zones (TAZ's) as defined in the SANDAG model to determine the average response time per TAZ. The existing average response time was compared to the future response time by TAZ to determine if the model accurately represents response times without the connection. The future year response times without and with the road extension were then compared to determine if the extension of Little McGonigle Ranch Road reduces the response time for each of the Fire Stations included within the study area.

The Fire Department uses the 90th percentile response time to measure their effectiveness of responding to emergencies. The goal is to achieve a response time to emergencies of 7.5 minutes, 90% of the time. This 7.5-minute goal includes a 1-minute dispatch time, 1.5-minute company turn-out time and 5-minute travel time. When estimating future year travel times, an average travel time is identified but it is not possible to quantify a 90th percentile. For the purpose of this analysis, the citywide target travel time of 5 minutes was used as a threshold for determining the potential benefit of the roadway extension to emergency response times by comparing existing average travel time with future average travel time.

2.5 Vehicle Miles Traveled (VMT) Analysis

The Bureau of Transportation Statistics defines VMT as a unit to measure vehicular travel made by individual vehicles. Each mile traveled is counted as one vehicle mile regardless of the number of persons in the vehicle. Total vehicle miles is the aggregated total mileage traveled by all individual vehicles. Recent State of California legislation (SB743) requires that alternative measures to LOS be used to assess transportation related impacts for the purpose of CEQA analysis. In 2016, the Office of Planning and Research released revised guidelines outlining the new methodology for evaluating transportation impacts under this new law. In addition to safety and other factors, VMT is the recommended analysis tool to assess transportation impacts under CEQA. At the time this report was prepared, CEQA guidelines had not yet been revised to include the change in analysis methodology. Therefore, the VMT analysis presented in this study is for informational purposes only and may be used in the analysis of Air Quality or Green House Gases in future CEQA documents.

In 2013, SANDAG released a white paper in conjunction with the ITE Mobility Task Force that outlines the methodology for using the regional transportation demand forecasting model to calculate VMT. As this study evaluates the local and regional benefits of a roadway extension, the regional traffic model was used to assess VMT for the without and with Little McGonigle Ranch Road extension conditions. For the purpose of this analysis, the study area includes the Carmel Valley, Del Mar Mesa and Pacific Highlands Ranch Community Planning Areas, as shown in **Figure 2-1**.

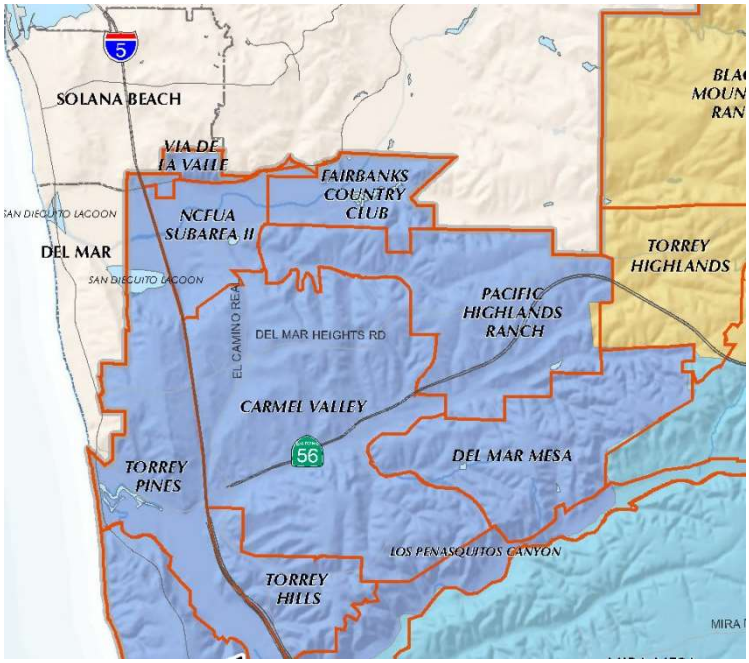

Figure 2-1: Community Planning Area Boundaries

As outlined, the VMT calculation process is a six step process, which involves the use of the regional travel demand forecasting model, GIS and spreadsheet calculations. The output from the process is a report for VMT by person, household, lane miles and acre. The reports for this project were generated and reported by SANDAG for the study area described above.

As stated previously, regional thresholds for VMT were not established or adopted at the time this report was prepared. Therefore, the VMT comparison is for informational purposes only.

3 EXISTING CONDITIONS

This section describes the existing conditions roadway network, pedestrian facilities and bicycle facilities within the study area. Also provided are the peak hour and daily traffic volumes and summary of operating conditions at the study intersections, along study roadway segments and along the SR-56 freeway.

3.1 Existing Roadway Network

Carmel Valley Road functions as a 4-lane Major arterial with a raised median that runs in the north-south direction within the study area. Parking is prohibited on both sides of the roadway. The posted speed limit is 45 mph southbound towards Edgewood Bend Court and 55 mph northbound towards Del Mar Heights Road. Speed is reduced to 35 mph south of Edgewood Bend Court. Class II bicycle lanes and pedestrian sidewalks are provided on either side of the street.

Little McGonigle Ranch Road functions as a 2-lane Collector that runs in the east-west direction from Del Mar Mesa Road to Del Vino Court. There is a raised median along portions of the 1,400-foot section of roadway, parking is prohibited on both sides of the road and there is a decomposed granite (DG) trail on the southwestern side of the street. Class II bicycle lanes are also provided on both sides of the street. The posted speed limit is 25 mph.

Carmel Mountain Road currently functions as a 4-lane Major arterial with a raised median between Carmel Country Road and Timber Brook Lane and as a 2-lane Collector arterial between Timber Brook Lane and Little McGonigle Ranch Road. Parking is prohibited on both sides of the roadway and the posted speed limit is 35 mph. Class II bicycle lanes are also provided on both sides of the street. North of Little McGonigle Ranch Road, Carmel Mountain Road changes names to Del Vino Court, which terminates at a residential cul-de-sac approximately 4,000 feet north of Little McGonigle Ranch Road.

Carmel Country Road connects Del Mar Heights Road to Carmel Mountain Road and has a grade separated interchange with SR-56. Starting from the South, Carmel Country Road functions as a 4-lane Major arterial with a raised median between Carmel Mountain Road and Cloverhurst Way. Between Cloverhurst Way and Del Mar Mesa Road, the road transitions to a 2-lane Collector with a raised median, although there is sufficient width to provide four lanes. North of Del Mar Mesa, Carmel Country Road transitions back to a 4-lane major further north through the interchange at SR-56 to Del Mar Heights Road. Parking is prohibited on both sides of the roadway and the posted speed limit is 40 mph north of Cloverhurst Way and 35 mph south of Cloverhurst Way. Class II bicycle lanes and pedestrian sidewalks are provided on either side of the street.

Carmel Canyon Road currently functions as a 4-lane Major arterial with a raised median that runs in the north-south direction between Carmel Country Road and Del Mar Heights Road on the north side of SR-56. Parking is generally prohibited on both sides of the roadway and the posted speed limit is 40 mph. Class II bicycle lanes and pedestrian sidewalks are provided on either side of the street.

Del Mar Heights Road extends west from Coast Highway to Carmel Valley Road, where it terminates in a T-intersection. Del Mar Heights Road has a grade separated interchange with I-5 to the west of the study area. Through the study area, Del Mar Heights Road functions as a 6-lane Prime arterial with a raised median between Carmel Canyon Road and Seagrove Street, narrows to a 5-lane Prime arterial with a raised median between Seagrove Street and Old Carmel Valley Road, and as a 4-lane Major arterial with a raised median between Old Carmel Valley Road and Carmel Valley Road. Parking is prohibited on both sides of the roadway and the posted speed limit is 45 mph. Class II bicycle lanes and pedestrian sidewalks are provided on either side of the street.

Figure 3-1 illustrates the existing geometrics at the intersections within the study area.

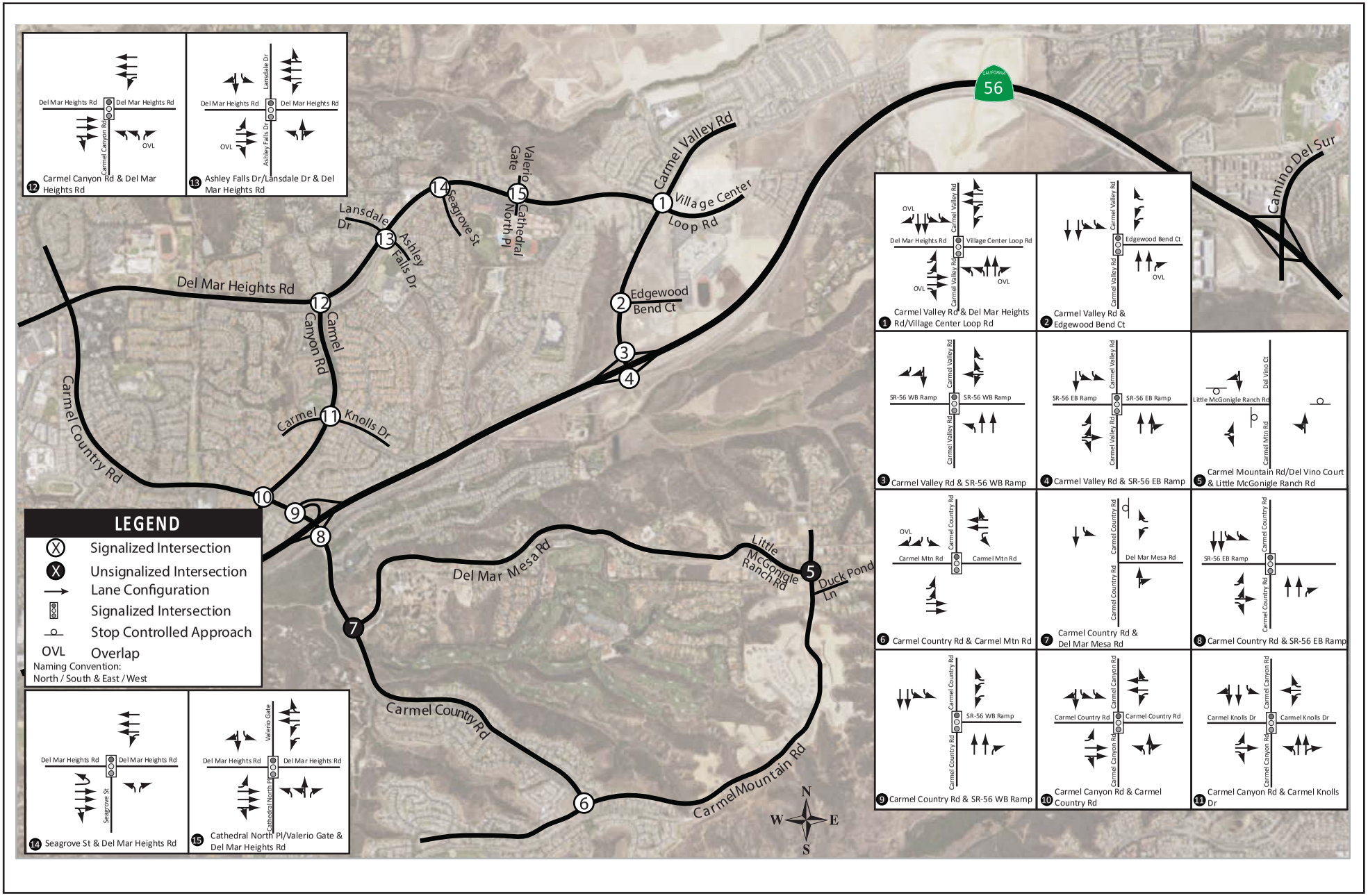

Figure 3-1
Existing Intersection Geometrics

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3.2 Pedestrian, Bicycle and Transit Connections

3.2.1 Transit Service

Bus service in the San Diego region is generally provided by MTS, with commuter rail service provided by Amtrak and NCTD. There is currently no transit service provided within the study area. The nearest transit facilities are located to the west at the Sorrento Valley Station, which provides connections to rail and bus routes and to the east at SR-56 / Rancho Penasquitos Boulevard interchange where Route 20 has stops. Route 20 connects from Rancho Penasquitos to downtown San Diego.

3.2.2 Pedestrian Access

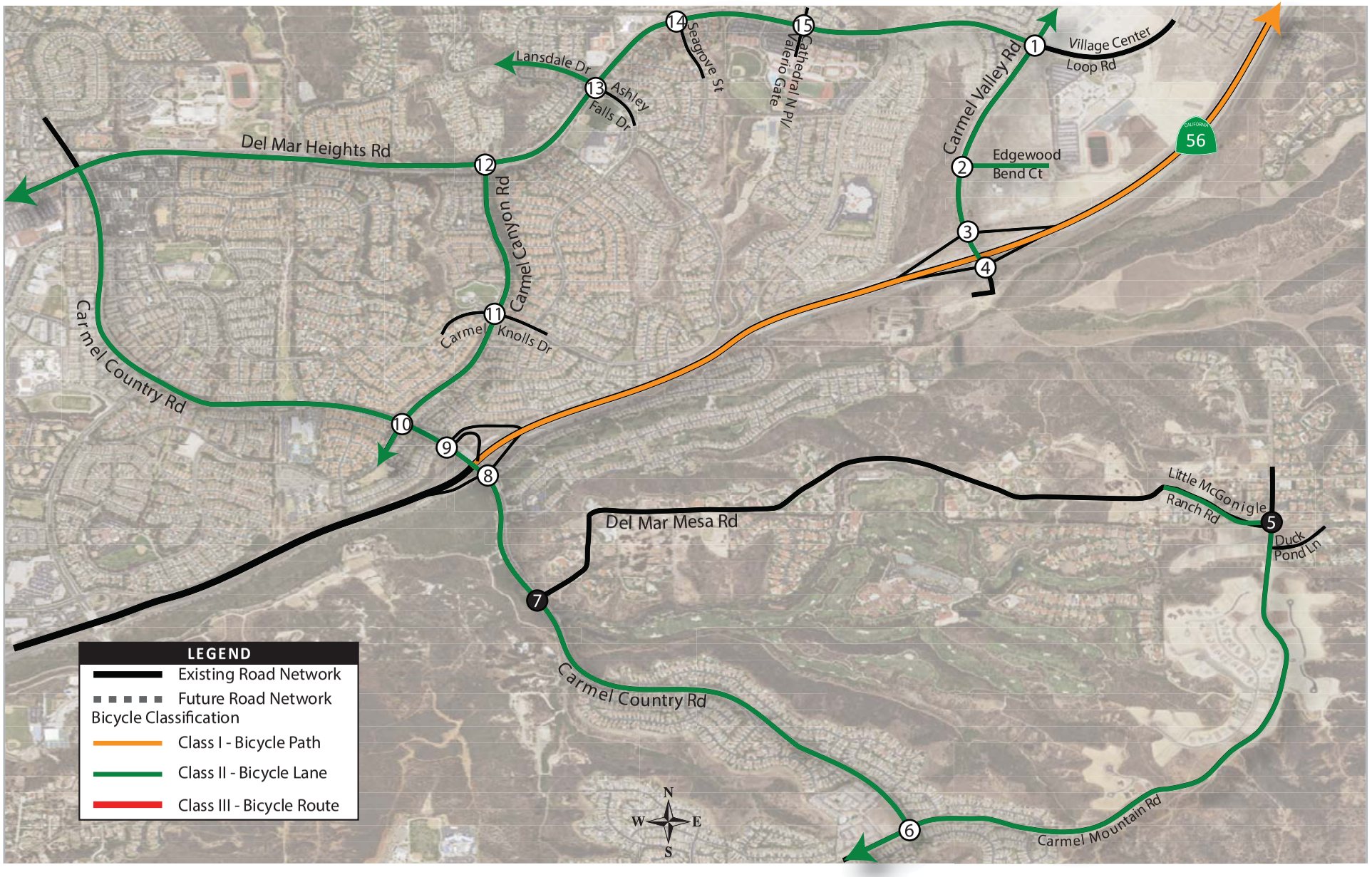
Little McGonigle Ranch Road currently facilitates pedestrian access by way of a multiuse decomposed granite (DG) trail, which provides access for pedestrians, bicyclists and equestrians. The trail continues northwest onto Del Mar Mesa Road at the northern terminus of Little McGonigle Ranch Road. At the southern terminus of Little McGonigle Ranch Road, the trail crosses to the east side of Del Vino Court, where it extends both north and south of Little McGonigle Ranch Road. Within the community at large, pedestrian access is provided along major corridors by way of sidewalks, along with the pedestrian-bike path alongside the SR-56 freeway.

3.2.3 Bicycle Access

Class I bicycle paths are provided as part of the SR-56 Bike Trail that shadows the extent of the SR-56 freeway as well as a path that connects Carmel Country Road with Del Mar Heights Road through Carmel Creek Park.

Class II bicycle lanes are provided frequently within the study area along the extents of Little McGonigle Ranch Road, Carmel Mountain Road, Carmel Country Road, Carmel Canyon Road, Lansdale Drive, Del Mar Heights Road, Carmel Valley Road, and Edgewood Bend Court. Class III bicycle routes are not currently provided.

In addition, there are numerous unpaved roads and dirt paths throughout the study area to the south of SR-56 that provide routes for recreational, off-road bicyclists. **Figure 3-2** illustrates the existing bicycle facilities in the study area.



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TRAFFIC

Figure 3-2
Existing Bicycle Facilities

3.3 Operational Analysis

Traffic volumes at the study area intersections and along the roadway segments were obtained on January 12, 2016 during typical weekday conditions. Daily traffic volumes (24-hour volume counts) were collected for major roadway segments in the study area. Peak hour volumes were collected during the morning (7:00 to 9:00am) and evening (4:00 to 6:00pm) peak periods. **Figure 3-3** illustrates peak hour turning movement volumes at studied intersections and daily traffic volumes along studied roadway segments. **Appendix A** contains a copy of the traffic volume data sheets.

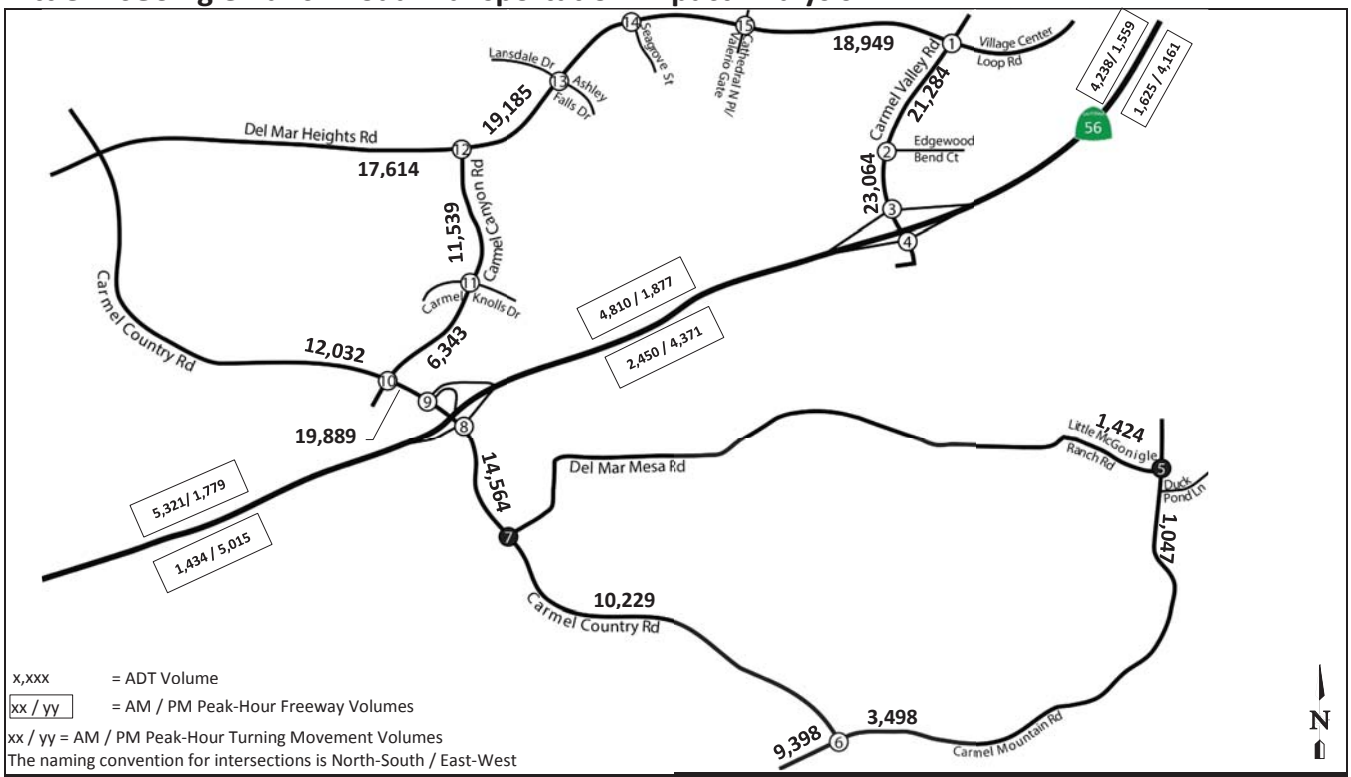
Table 3-1 displays the Existing Conditions intersection LOS analysis results based upon the existing peak hour traffic volumes. As described previously in Chapter 2 of this report, the analysis of intersections is based on the HCM *2000* methodology. **Appendix B** contains the intersection LOS worksheets. As shown in the tables, the study intersections operate at an acceptable LOS (LOS D or better) except for the following location:

- Carmel Valley Road & Del Mar Heights Road/Village Center Loop Road (LOS F, AM Peak)

Table 3-2 summarizes the Existing Conditions roadway segment analysis. Roadway segment levels of service are based on the ratio of volume to capacity, where capacity is determined based on the functional classification of the roadway and number of existing travel lanes. As shown in the table, all segments operate at an acceptable LOS D or better.

Figure 3-4 illustrates the intersection and roadway segment operating conditions, respectively.

Little McGonigle Ranch Road Transportation Impact Analysis



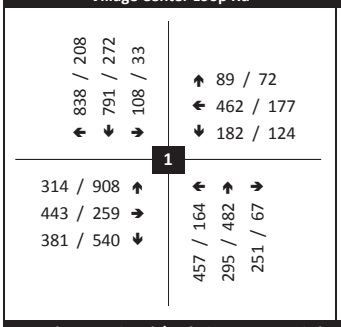
x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

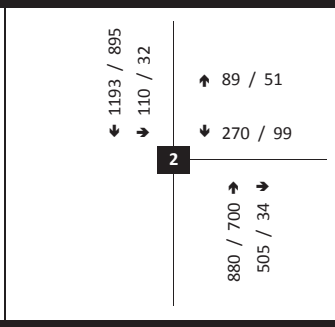
xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

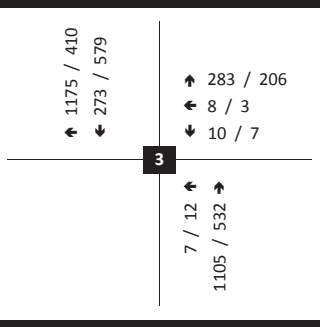
Carmel Valley Rd @ Del Mar Heights Rd / Village Center Loop Rd



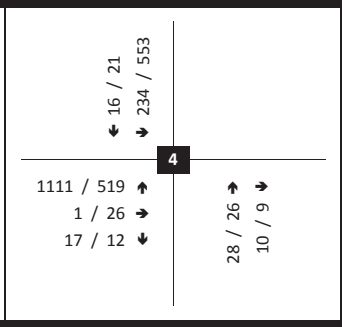
Carmel Valley Rd @ Edgewood Bend Ct



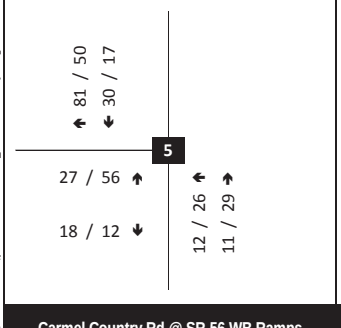
Carmel Valley Rd @ SR-56 WB Ramps



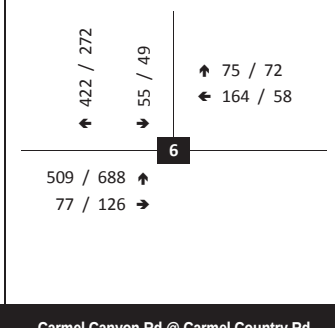
Carmel Valley Rd @ SR-56 EB Ramps



Carmel Mountain Rd / Del Vino Court @ Little McGonigle Ranch Rd



Carmel Country Rd @ Carmel Mountain Rd



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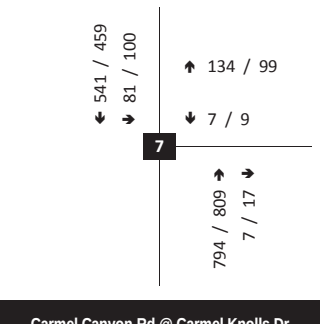
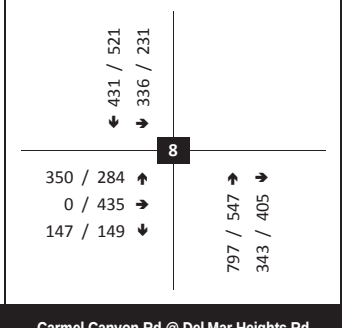


Carmel Country Rd @ SR-56 EB Ramps



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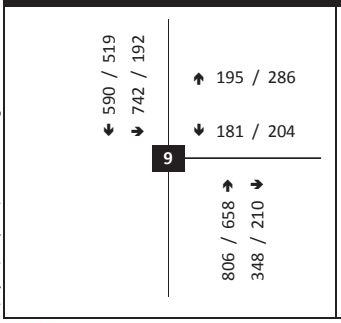
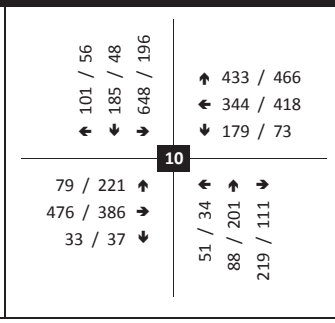
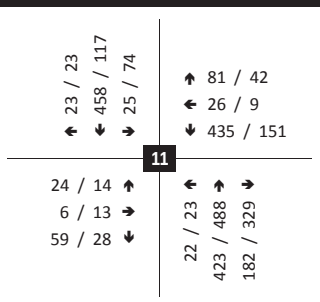


Carmel Canyon Rd @ Carmel Country Rd



Carmel Canyon Rd @ Carmel Knolls Dr



Carmel Canyon Rd @ Del Mar Heights Rd

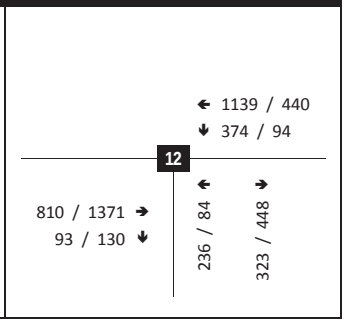


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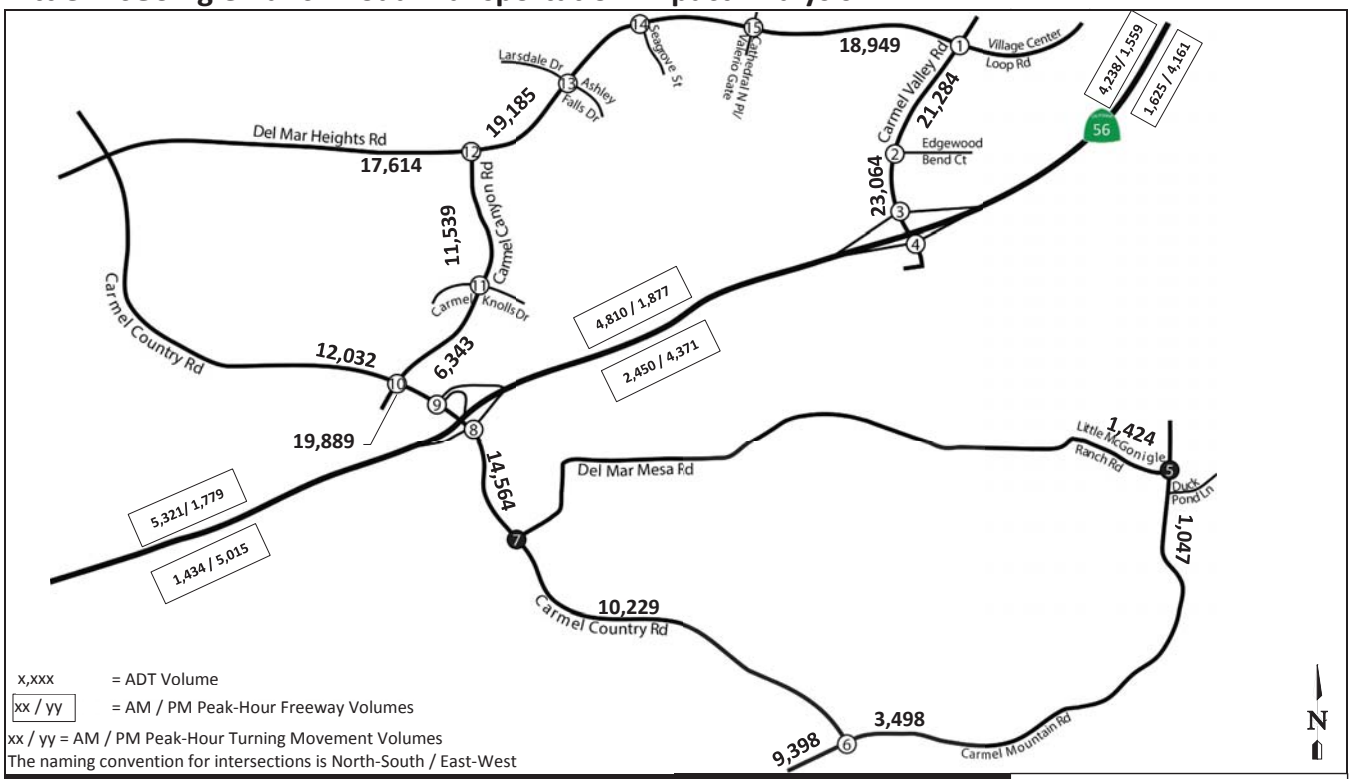
Figure 3-3a

Existing Peak-Hour and Daily Traffic Volumes



Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd	Seagrove St @ Del Mar Heights Rd	Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd
← 79 / 35 ↓ 10 / 4 → 75 / 51 ↑ 67 / 49 ← 1314 / 461 ↓ 100 / 58	← 1451 / 535 ↓ 49 / 40	← 44 / 14 ↓ 1 / 0 → 37 / 18 ↑ 24 / 15 ← 1409 / 514 ↓ 191 / 59
13	14	15
28 / 64 ↑ 1015 / 1663 → 109 / 106 ↓ ← 118 / 50 ↑ 22 / 5 → 130 / 70	8 / 17 ↑ 1209 / 1755 → 14 / 23 ↓ ← 32 / 11 → 93 / 24	8 / 39 ↑ 893 / 1636 → 92 / 79 ↓ ← 164 / 54 ↑ 1 / 1 → 107 / 110

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Figure 3-3b

Existing Peak-Hour and Daily Traffic Volumes

Table 3-1: Existing Peak Hour Intersection LOS Summary

#	Intersection	Traffic Control	Peak Hour	Existing Conditions	
				Delay [a]	LOS [b]
1	Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd	Signal	AM	94.6	F
			PM	34.1	C
2	Carmel Valley Rd & Edgewood Bend Ct	Signal	AM	13.1	B
			PM	10.6	B
3	Carmel Valley Rd & SR-56 WB Ramps	Signal	AM	17.6	B
			PM	12.3	B
4	Carmel Valley Rd & SR-56 EB Ramps	Signal	AM	24.3	C
			PM	34.7	C
5	Del Vino Ct & Little McGonigle Ranch Rd	AWSC	AM	7.4	A
			PM	7.5	A
6	Carmel Country Rd & Carmel Mountain Rd	Signal	AM	10.2	B
			PM	8.1	A
7	Carmel Country Rd & Del Mar Mesa Rd	OWSC	AM	32.3	D
			PM	22.0	C
8	Carmel Country Rd & SR-56 EB Ramps	Signal	AM	24.1	C
			PM	24.7	C
9	Carmel Country Rd & SR-56 WB Ramps	Signal	AM	36.9	D
			PM	17.0	B
10	Carmel Country Rd & Carmel Canyon Rd	Signal	AM	49.1	D
			PM	39.1	D
11	Carmel Knolls Rd & Carmel Canyon Rd	Signal	AM	17.9	B
			PM	16.9	B
12	Carmel Canyon Rd & Del Mar Heights Rd	Signal	AM	16.0	B
			PM	20.5	C
13	Ashley Falls Dr/Lansdale Dr & Del Mar Heights Rd	Signal	AM	22.7	C
			PM	18.3	B
14	Seagrove St & Del Mar Heights Rd	Signal	AM	7.7	A
			PM	6.7	A
15	Cathedral North Pl/Valerio Gate & Del Mar Heights Rd	Signal	AM	25.9	C
			PM	15.3	B

Signal: Traffic signal, OWSC: One-way stopped control, AWSC: All-way stopped control
Bold values indicate intersections operating at LOS E or F.

Notes:
[a] Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.
[b] LOS calculations are based on the methodology outlined in the *2000 Highway Capacity Manual* (HCM) and performed using Synchro 8.

Table 3-2: Existing Roadway Segment Analysis Summary

Roadway Segment	Functional Classification [a]	LOS E Capacity	ADT [b]	V/C Ratio [c]	LOS
Carmel Valley Rd					
Del Mar Heights Rd to Edgewood Bend Ct	4 Lane Major Arterial	40,000	21,284	0.53	C
Edgewood Bend Ct to SR-56 Ramps	4 Lane Major Arterial	40,000	23,064	0.58	C
Little McGonigle Ranch Rd					
West of Carmel Mountain Rd to Del Mar Mesa Rd	2 Lane Collector	10,000	1,424	0.14	A
Carmel Mountain Rd					
South of Little McGonigle Ranch Rd to Timber Brook Ln	2 Lane Collector	10,000	1,047	0.11	A
East of Carmel Country Rd to Timber Brook Ln	4 Lane Major Arterial	40,000	3,498	0.09	A
West of Carmel Country Rd to Amberglades Ln	4 Lane Major Arterial	40,000	9,398	0.24	A
Carmel Country Rd					
Carmel Mission Rd to Carmel Canyon Rd/Del Mar Trails Rd	4 Lane Major Arterial	40,000	12,032	0.30	A
Carmel Canyon Rd/Del Mar Trails Rd to SR-56 WB Ramps	4 Lane Major Arterial	40,000	19,889	0.50	B
SR-56 Ramps to Del Mar Mesa Rd	3 Lane Major Arterial	35,000	14,564	0.42	B
South of Del Mar Mesa Rd to Sagamore Way	2 Lane Collector	15,000	10,229	0.68	D
Carmel Canyon Rd					
Carmel Country Rd to Carmel Knolls Dr	4 Lane Major Arterial	40,000	11,539	0.29	A
Carmel Knolls Rd to Del Mar Heights Rd	4 Lane Major Arterial	40,000	6,343	0.16	A
Del Mar Heights Rd					
West of Carmel Canyon Rd to Lansdale Dr	6 Lane Prime Arterial	60,000	17,614	0.29	A
Carmel Canyon Rd to Lansdale Dr/Ashley Falls Dr	6 Lane Prime Arterial	60,000	19,185	0.32	A
West of Carmel Valley Rd to Old Carmel Valley Rd	4 Lane Major Arterial	40,000	18,949	0.47	B

Notes:
(a) Existing functional street classification is based on field observations.
(b) Average Daily Traffic (ADT) volumes were obtained by NDS in January 2016.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

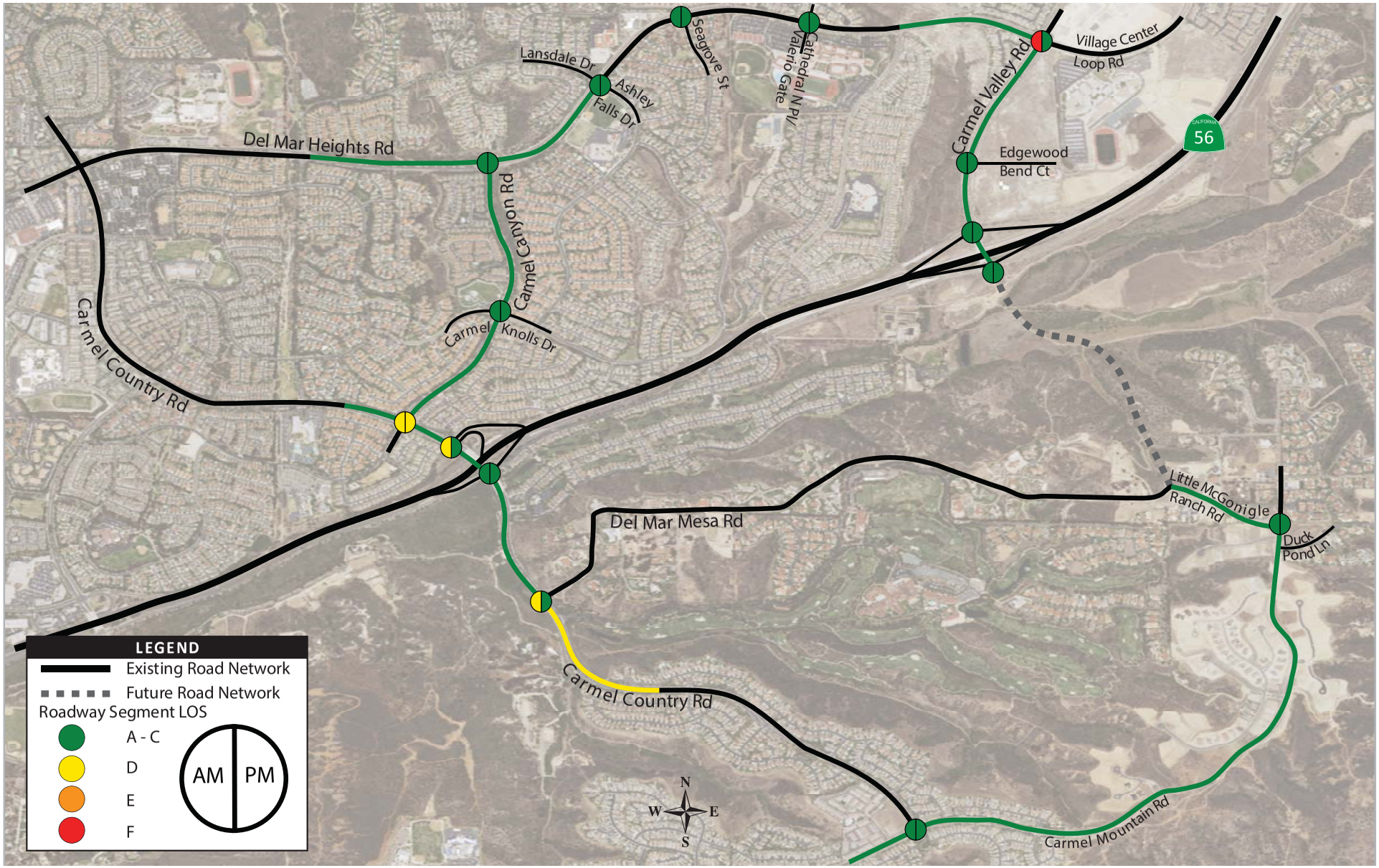

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Figure 3-4
Existing Intersection & Roadway Segment LOS

3.4 Freeway Analysis

The SR-56 freeway runs east-west through the study area. At the time this report was prepared, there were two eastbound lanes and two westbound lanes. Grade separated interchanges provide access to the study area at Carmel Country Road and Carmel Valley Road.

Daily freeway volumes were determined based on information available from Caltrans. Operations along the freeway mainline was conducted in compliance with the HCM 2000 methodology for Basic Freeway segments (Chapter 23). As outlined in Chapter 2 of this report, the key evaluating factors in determine operating conditions along a freeway segment include speed, density and flow rates. The results of the freeway mainline analysis are summarized in **Table 3-3**.

Table 3-3: Existing Freeway Mainline Analysis Summary

Freeway Segment		Dir	Number of Lanes	Peak-Hour Volume [a]		Speed (mph) [b]		Density (pc/mi/ln)		LOS [c]	
				AM	PM	AM	PM	AM	PM	AM	PM
SR-56	Carmel Creek Rd to Carmel Country Rd	WB	2	5,321	1,779	58	58	51.0	27.8	**F**	D
		EB	2	1,434	5,015	58	58	27.8	48.0	D	**F**
	Carmel Country Rd to Carmel Valley Rd	WB	2	4,810	1,877	59	59	45.1	27.3	**F**	D
		EB	2	2,450	4,371	59	59	27.3	41.0	D	**E**
	Carmel Valley Rd to Camino Del Sur	WB	2	4,238	1,559	61	60	38.9	26.7	**E**	D
		EB	2	1,625	4,161	60	61	26.7	38.2	D	**E**

Notes:
(a) Peak-hour volumes were estimated by applying the K and D factors to the published 2013 Caltrans AADT volumes.
(b) The speed was calculated from a base free-flow speed (BFFS) of 65 mph.
(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 23 of the *2000 Highway Capacity Manual.*

As shown in the table, segments of SR-56 in both the eastbound and westbound direction operate at LOS E or LOS F. In the morning peak, the predominant movement is westbound toward the I-5 corridor. As shown in Table 3-3, the level of service analysis reflects the congested conditions observed in the field during the morning commute. In the evening peak, eastbound direction is the predominant movement, which is also reflected in the operating conditions reported above.

It should be noted that the peak hour volumes on the eastbound off-ramp at Carmel Country Road show 435 eastbound through vehicles in the p.m. peak hour (Figure 3-3, Intersection 8). These 435 vehicles are exiting the freeway and using the off-ramp and on-ramp as a by-pass to the freeway mainline to avoid congestions on SR-56. Field observations by the traffic count consultant hired to collect the data confirmed this behavior.

The results of the freeway mainline level of service analysis are illustrated in **Figures 3-5 and 3-6.**

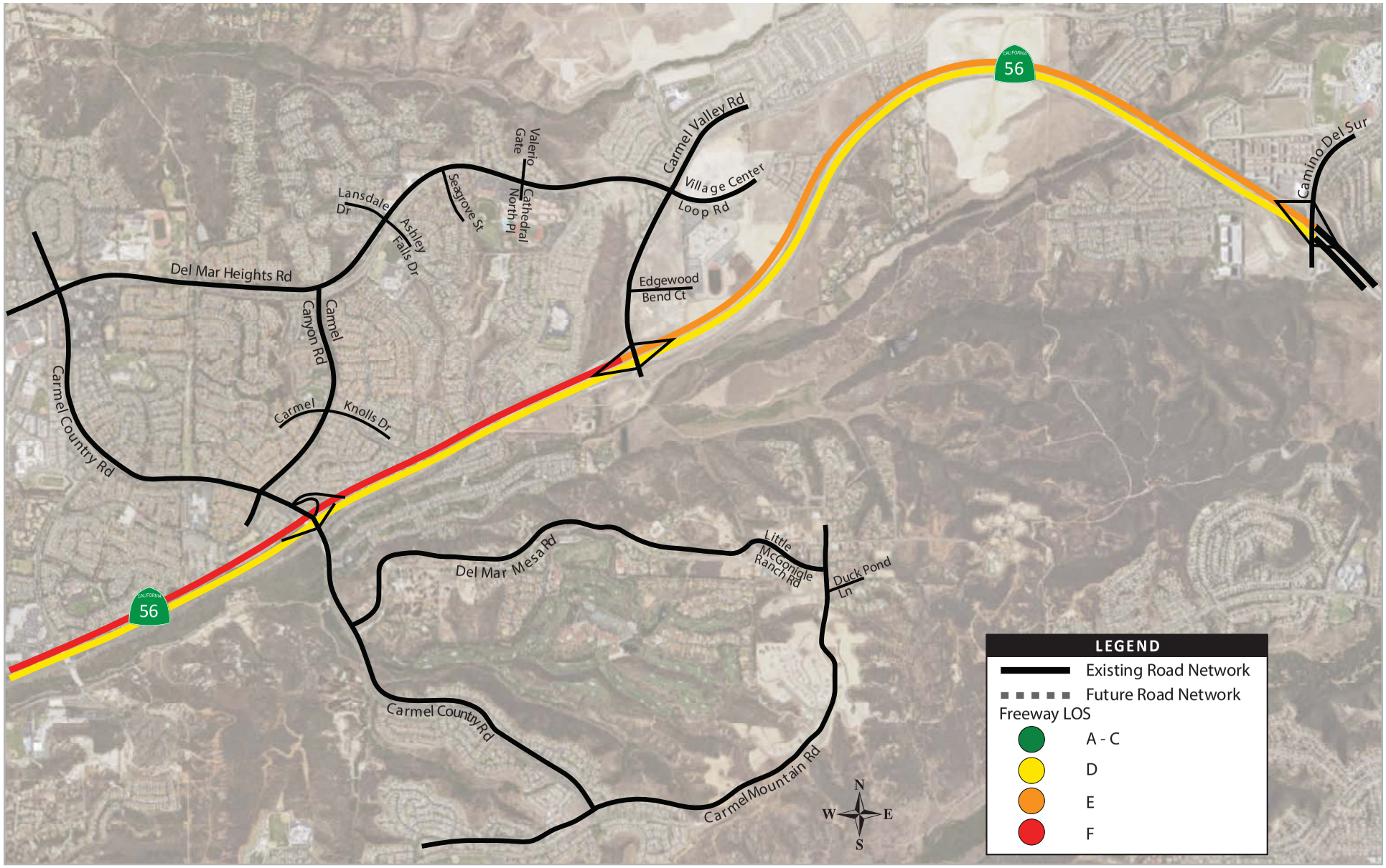

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Figure 3-5
Existing Freeway Mainline LOS (AM Peak Hour)

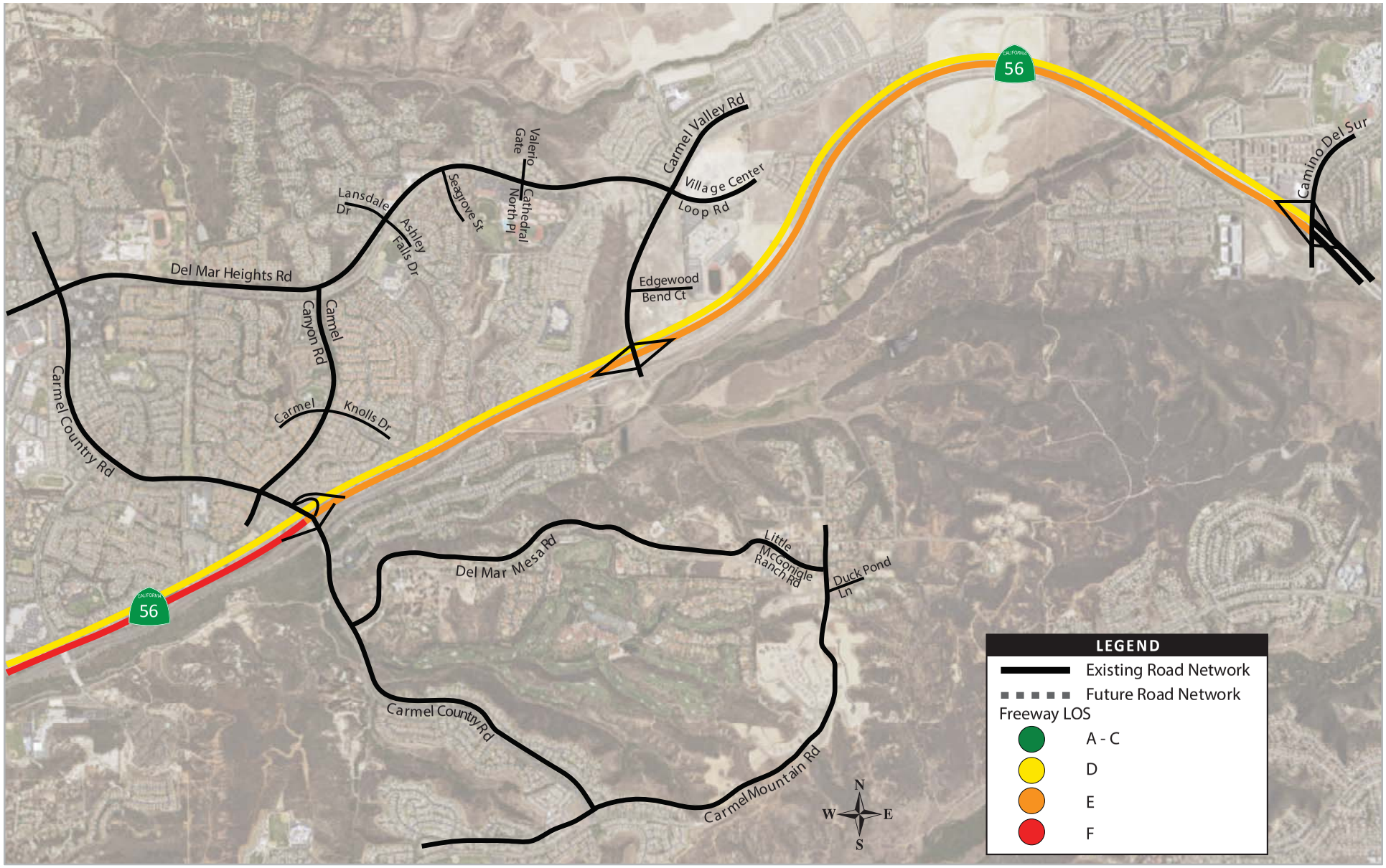

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Figure 3-6
Existing Freeway Mainline LOS (PM Peak Hour)

3.5 Emergency Response

City of San Diego Fire Department provided current emergency response times for incidents within the project study area. For calendar years 2014 and 2015, there were a total of 170 responses within the project study area. A total of seven fire stations responded to the majority of the incidents as described below:

- Fire Station 24 (115 incidents)
- Fire Station 47 (40 incidents)
- Fire Station 46 (1 incident)
- Fire Station 124 (7 incidents)
- Fire Station 35 (2 incidents)
- Fire Station 40 (2 incidents)
- Fire Station 41 (3 incidents)
- Other Fire Stations (15 incidents)

The average response time for incidents in the study area is 8 minutes 35 seconds, with the shortest average response time reported for Fire Station 47 (8 minutes 21 seconds) and the longest from Fire Station 35 (12 minutes 13 seconds).

Figure 3-7 illustrates the average and 90th percentile response times for all incidents over the two-year period.

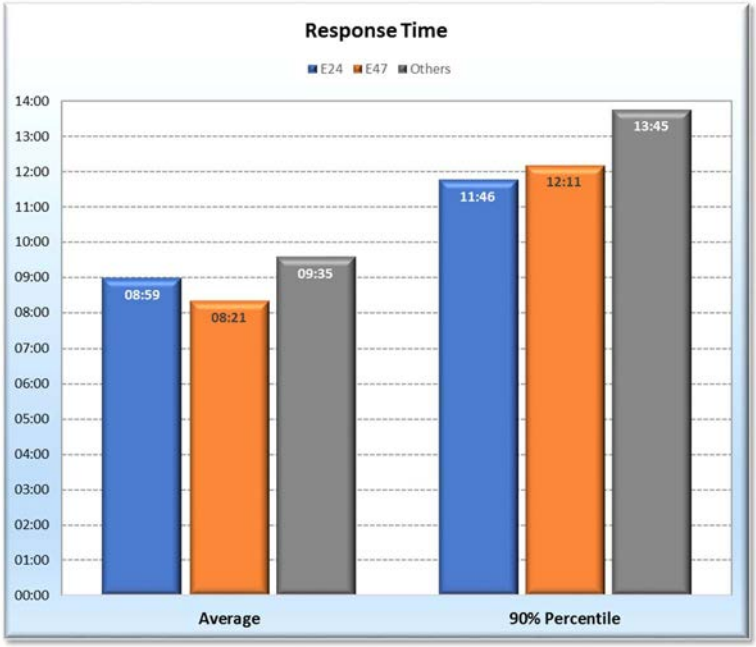

Figure 3-7: Response Times for Project Study Area
(Source: City of San Diego Fire Department)

Figure 3-8 illustrates the location of all incidents, emergency response time and responding Fire Station for all data points received from the Fire Department. As described above, Fire Station 24 (annotated as E24 in Figure 3-7) is located on the northeast corner of Hartfield Avenue and Del Mar Heights Road. Fire Station 47 (annotated as E47 in Figure 3-7) is located on Edgewood Bend Court, immediately north of SR-56 along Carmel Valley Road. Even though Fire Station E47 is geographically closer to Del Mar Mesa, it is not getting selected because the route of response without the bridge takes a significantly longer time. As conditions are presently, E24 is the primary unit that responds into the area. The raw data is provided in **Appendix C.**

The average citywide response time is 9 minutes and 13 seconds according to the data provided by the Fire Department. Although the average emergency response time from the most adjacent Fire Stations is below the citywide average, the 90th percentile Response time is 12 minutes or longer. This indicates that 10% of the time the response time is far longer than the citywide average. The citywide goal for both average and 90th percentile response time is to be within 7 minutes and 30 seconds, which is not met by the existing average or 90th percentile response times for these areas.

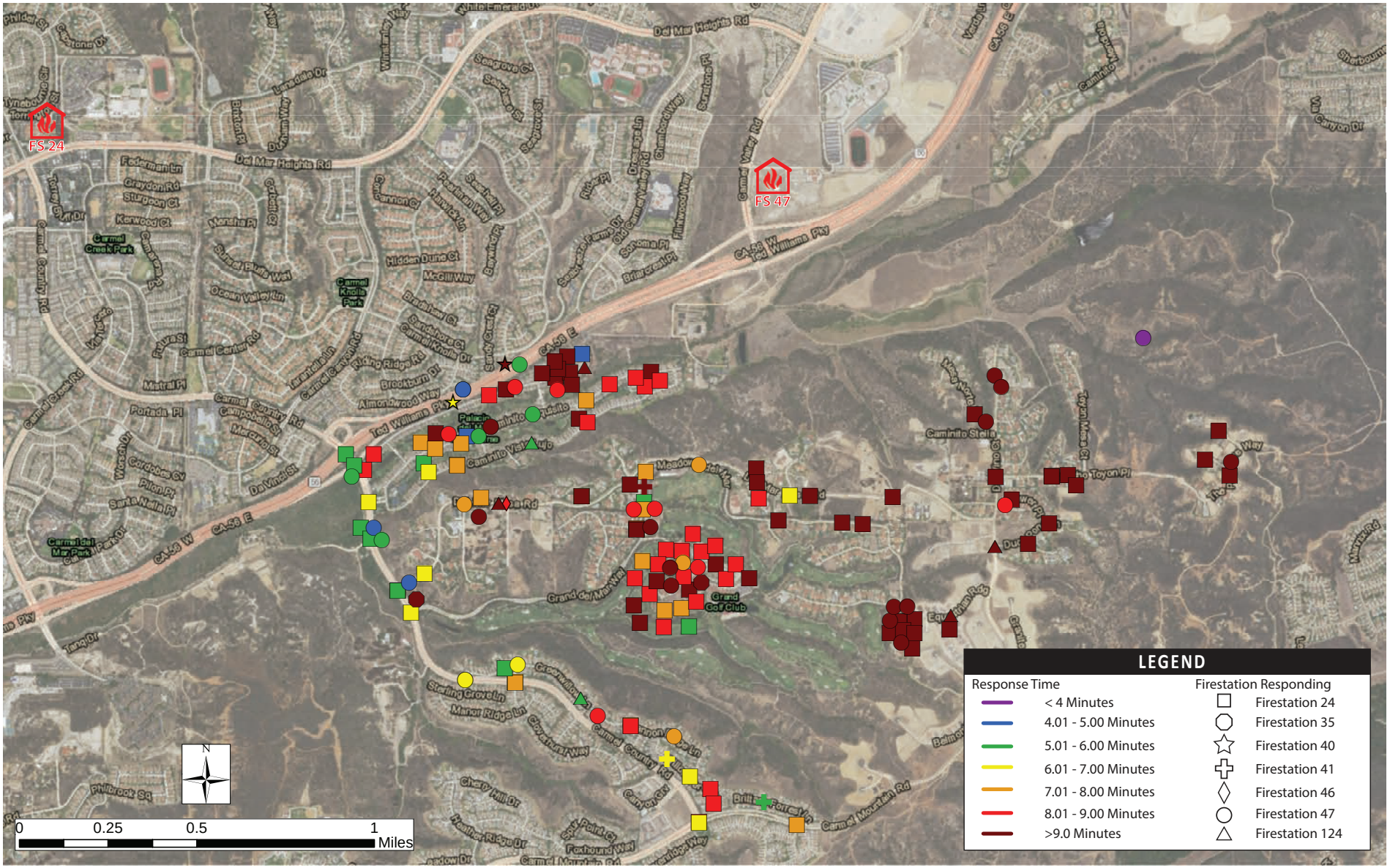

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Figure 3-8
Incidents and Response Times for Project Study Area

4 HORIZON YEAR CONDITIONS

Horizon Year 2035 conditions reflect the buildout conditions included in the City of San Diego Community Plans and surrounding City General Plans for the SANDAG region. Horizon year volumes are forecast through the compilation of existing and planned land uses throughout the County. The land uses in turn generate trips that are added to the existing and future planned roadways in the region through the use of the SANDAG developed regional travel demand model.

For the purpose of this study, the SANDAG Series 12 regional travel demand model was used to forecast the Horizon Year 2035 traffic volumes for the baseline (without) and with Little McGonigle Ranch Road extension scenarios. Key regional roadway assumptions included in the SANDAG Series 12 model include:

- Widening Interstate 5 (I-5) according to the North Coast Corridor EIR, which includes eight (8) through lanes and four (4) HOV lanes as well as Direct Access Ramps (DAR) and interchange improvements from Oceanside to La Jolla.

- SR-56 / I-5 Interchange Completion, which includes the missing southbound I-5 to eastbound SR-56 connector and the westbound SR-56 to northbound I-5 connector.

4.1 Model Refinement Methodology

The horizon year roadway network was reviewed prior to initiating model runs for this project. The following information was reviewed for the baseline model (without Little McGonigle Ranch Road extension):

- Number of lanes of roadways and approach lane coding at signalized intersections
- Traffic control type (i.e. traffic signals, all-way stop control, two-way stop control, one-way stop control)
- Street classifications
- Traffic volumes
- Roadway speed limits

In addition, City of San Diego Development Services was contacted to identify pending project applications or approved projects that should be considered in the traffic model. Overall, the Series 12 model reflected the most current land use information from the City. Intersections and roadway segments reflect the existing and planned roadway conditions according to the Community Plan, I-5 North Coast Corridor Plan and information provided by City staff.

One modification to the baseline traffic model was made prior to running Horizon Year 2035 model forecast. A new centroid connector was added to TAZ 4705, which connected this centroid directly to Carmel Country Road at the existing signalized intersection, as shown in **Figure 4-1.**

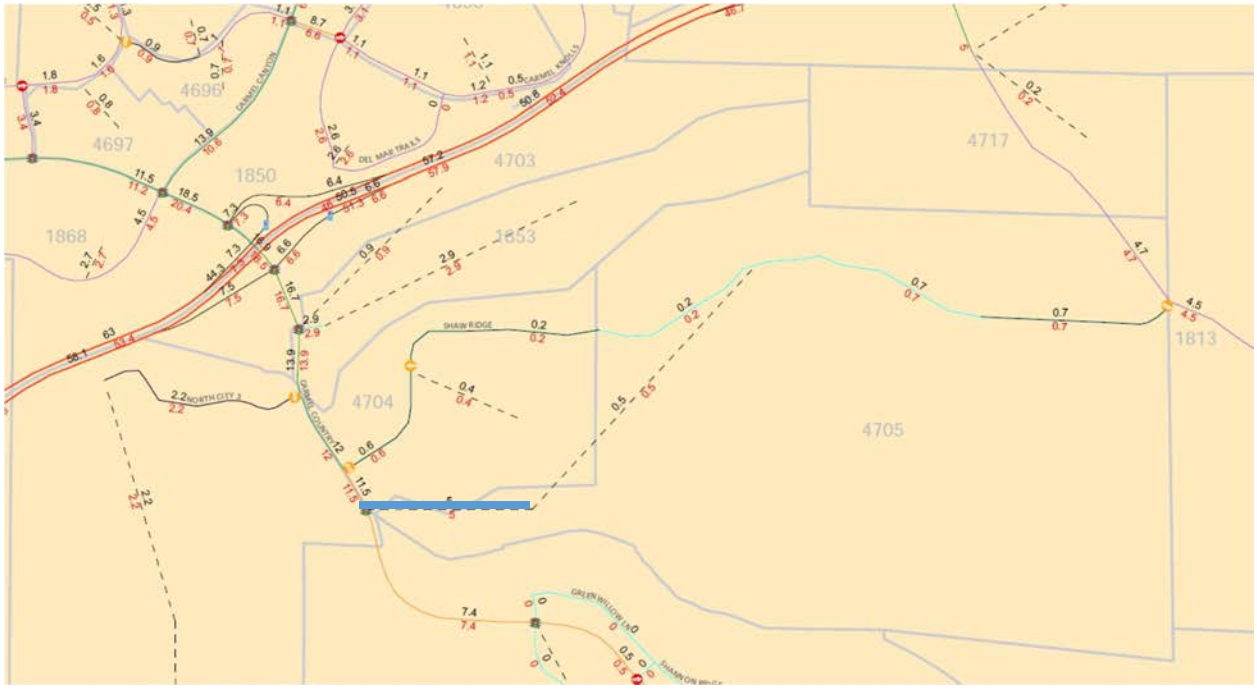


Figure 4-1: New Centroid Connector Added to TAZ 4705 (shown by blue line) Connecting to Existing Signalized Intersection

4.2 Forecast Change in Traffic Patterns with Little McGonigle Ranch Road

Daily traffic volumes for the project study area were forecast using the SANDAG regional traffic model for the without and with Little McGonigle Ranch Road extension. Excerpts from the SANDAG model plots showing the forecast Horizon Year 2035 daily traffic volumes without and with Little McGonigle Ranch Road extension are provided in **Appendix D**. As shown in the SANDAG model plot, the roadway extension is forecast to carry approximately 4,700 vehicles per day.

Comparing the without and with Little McGonigle Ranch Road daily traffic volumes, shifts in traffic volumes were calculated to identify the change in traffic patterns with the new extension. **Appendix E** provides maps showing the changes in traffic patterns that are forecast to occur with the extension of Little McGonigle Ranch Road. The following summarizes the observed changes in traffic patterns:

- The extension of Little McGonigle Ranch Road results in an increase in traffic volume along Carmel Mountain Road and Carmel Valley Road within the study area. Approximately 63% of the volume forecast along the Little McGonigle Ranch Road extension is attributed to regionally generated trips that use Little McGonigle Ranch Road in place of other regionally serving facilities.
- Approximately 12% of the volume on Little McGonigle Ranch Road is attributed to the existing residences that take access from Del Vino Court and Duck Pond. Trips to and from this community are forecast to shift from Del Mar Mesa Road to Little McGonigle Ranch Road.
- Approximately 20% of the volume on Little McGonigle Ranch Road is attributed to the planned residential units under construction or planned for construction at the time this report was

prepared. Trips to and from the planned residential areas are forecast to shift from Carmel Country Road and Carmel Mountain Road to Carmel Valley Road and the Little McGonigle Ranch Road extension.

- Approximately 5% of the volume on the Little McGonigle Ranch Road extension is attributed to changes in traffic patterns for existing residences along Del Mar Mesa Road. These trips, which head north toward SR-56, shift from Carmel Country Road to the new roadway extension.

The shift in traffic patterns to Little McGonigle Ranch Road result in reduction in traffic volumes along other routes. Roads that are forecast to result in a reduction in daily traffic volume include:

- Carmel Country Road from SR-56 to Carmel Mountain Road
- Del Mar Mesa Road from Carmel Country Drive to Little McGonigle Ranch Road
- Carmel Canyon Road from Del Mar Heights Road to Carmel Country Road
- Del Mar Heights Road from Carmel Country Road to Carmel Valley Road

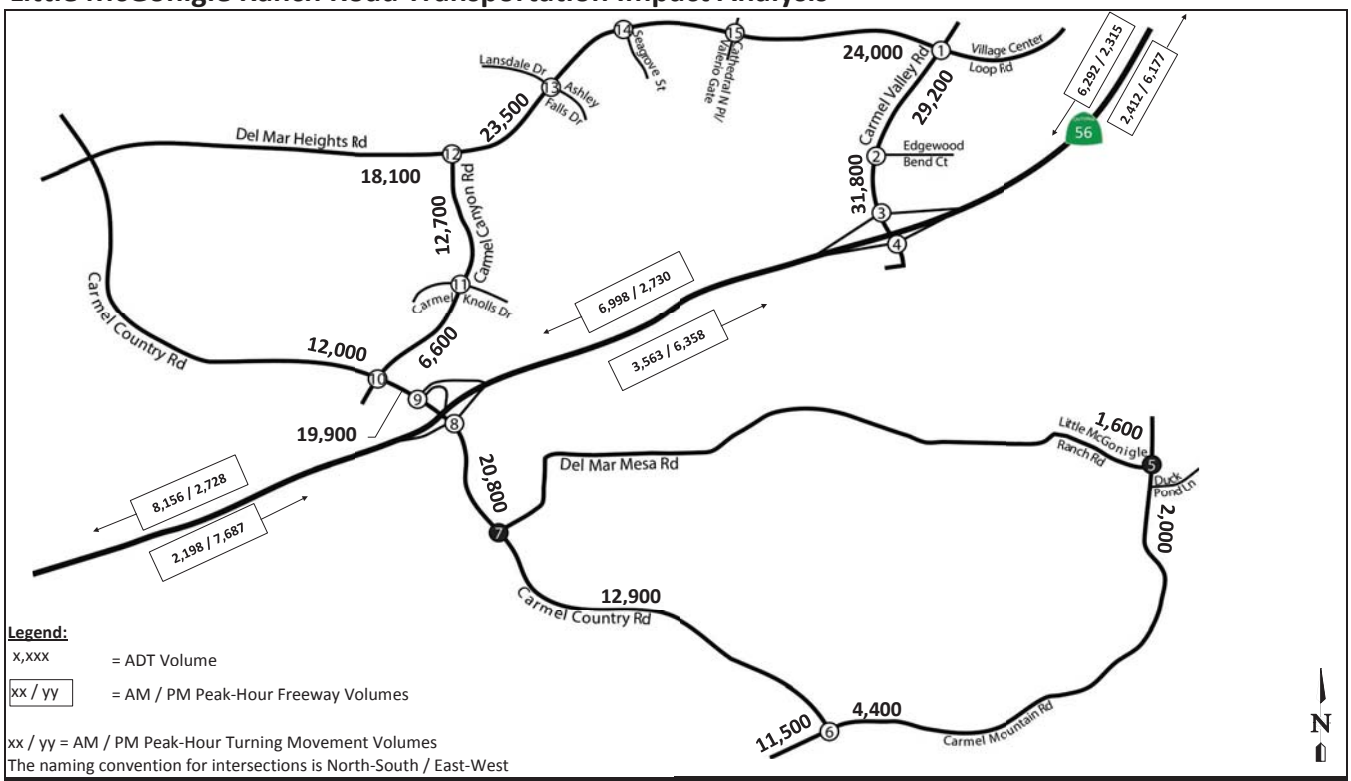
4.3 Post Processing Peak Hour Volumes

The SANDAG traffic model produces daily traffic volumes for the roadway segments in the study area. To determine the peak hour volumes, a two-step process was followed:

Baseline Conditions (Without Little McGonigle Ranch Road Extension). Process peak hour volumes without Little McGonigle Ranch Road extension. The volumes without the extension were post-processed based on National Cooperative Highway Research Program Report 765 (NCHRP Report 765) methodology for calculating intersection turning movement volumes. Existing traffic patterns including peak directional percentages and turning movement volumes were used to forecast future year directional traffic patterns and turning movement volumes. Post-processed volumes were further refined to reflect a minimum 10% growth on all turning movement volumes when 2035 volumes without Little McGonigle Ranch Road were compared to the existing condition. **Figure 4-2** illustrates the daily volumes and peak hour intersection volumes for the Horizon Year without Little McGonigle Ranch Road condition.

With Extension Conditions (With Little McGonigle Ranch Road Extension). Adjust peak hour volumes for with Little McGonigle Ranch Road Extension scenario. Using the traffic volume adjustments previously described and provided in Appendix D, the daily traffic volumes were adjusted to reflect AM and PM peak hour flows both northbound and southbound on the new extension. The traffic patterns provided in Appendix D were used to add and remove peak hour volumes from the roadway network. The adjusted peak hour volumes were then applied to the forecast Horizon Year 2035 without Little McGonigle Ranch Road volumes. Peak hour volume shifts applied to the baseline condition are illustrated in **Figure 4-3.** Daily and peak hour volumes for the Horizon Year 2035 with Little McGonigle Ranch Road are illustrated in **Figure 4-4**.

Little McGonigle Ranch Road Transportation Impact Analysis



Legend:

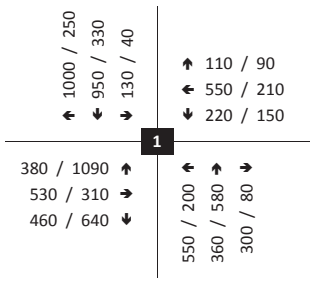
x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

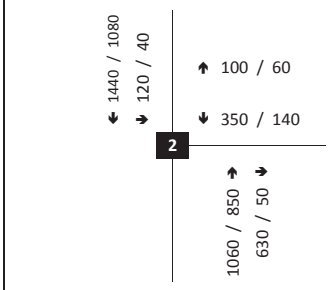
xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

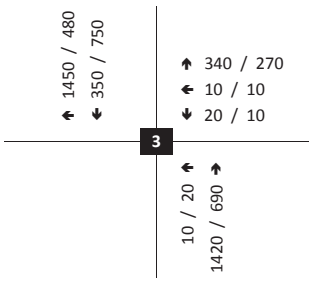
Carmel Valley Rd @ Del Mar Heights Rd / Village Center Loop Rd



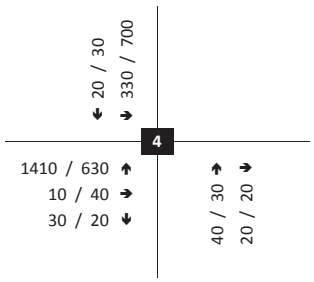
Carmel Valley Rd @ Edgewood Bend Ct



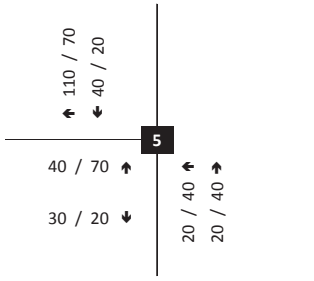
Carmel Valley Rd @ SR-56 WB Ramps



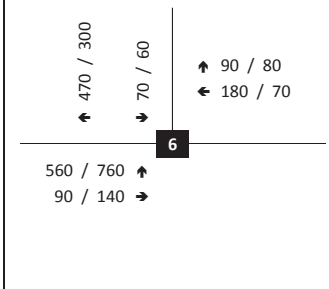
Carmel Valley Rd @ SR-56 EB Ramps



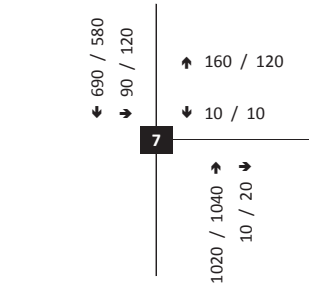
Carmel Mountain Rd / Del Vino Court @ Little McGonigle Ranch Rd



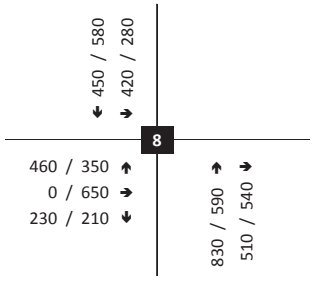
Carmel Country Rd @ Carmel Mountain Rd



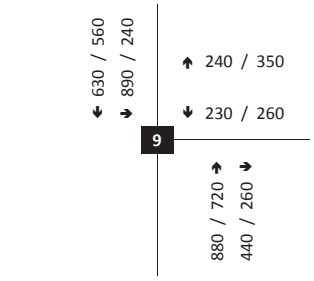
Carmel Country Rd @ Del Mar Mesa Rd



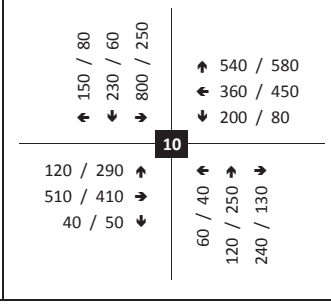
Carmel Country Rd @ SR-56 EB Ramps



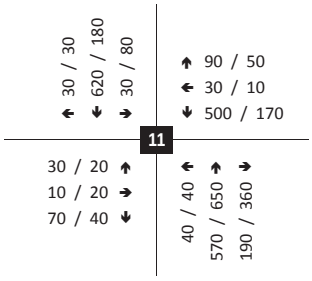
Carmel Country Rd @ SR-56 WB Ramps



Carmel Canyon Rd @ Carmel Country Rd



Carmel Canyon Rd @ Carmel Knolls Dr



Carmel Canyon Rd @ Del Mar Heights Rd

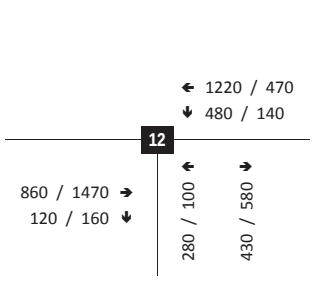


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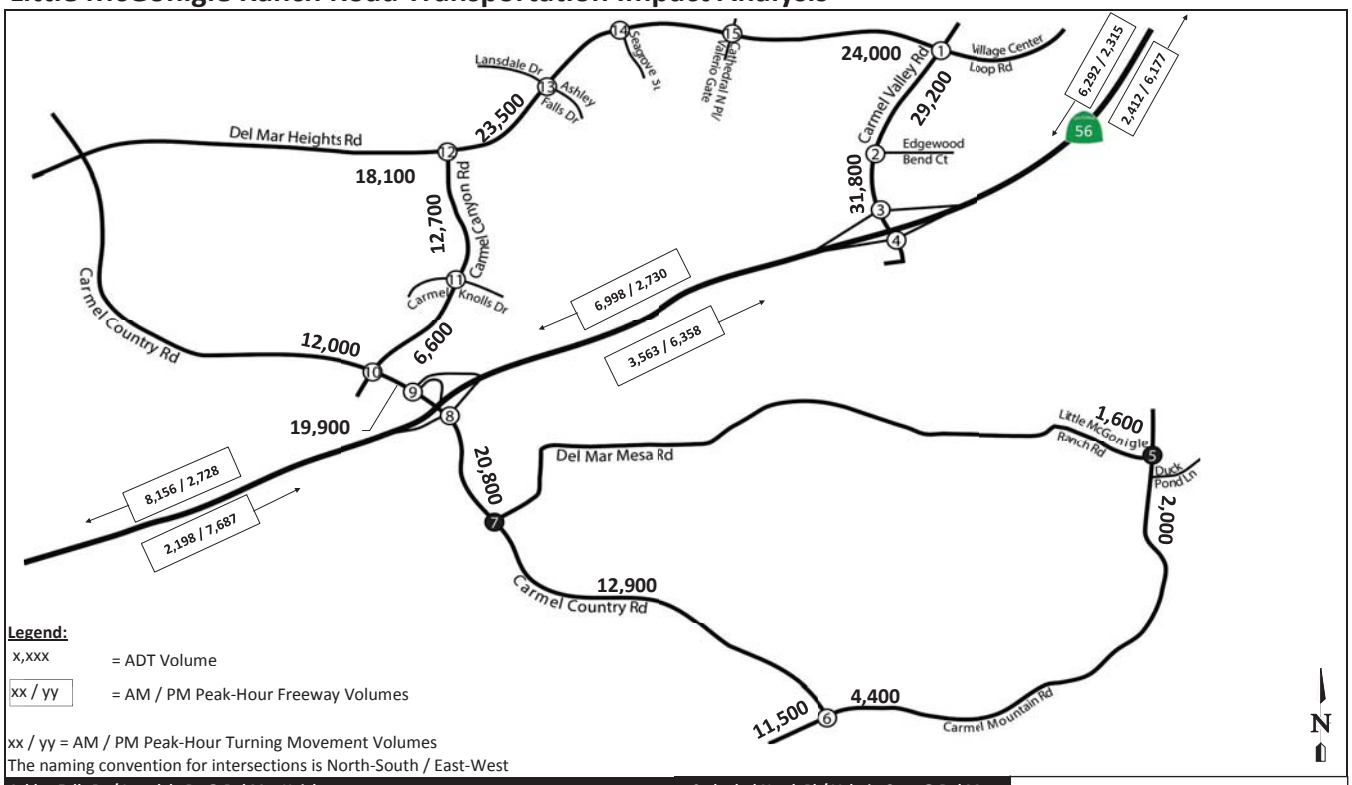
Figure 4-2a

Horizon Year 2035 Baseline Conditions Peak-Hour Intersection Volumes (Without Little McGonigle Ranch Road Extension)



Legend:

x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd

← 100 / 40	↓ 20 / 10	→ 120 / 80
↑ 100 / 80	← 1510 / 530	↓ 130 / 80

13

← 40 / 80 ↑	↑ 140 / 60	→ 170 / 90
1160 / 1910 →	30 / 10	
130 / 120 ↓		

Seagrove St @ Del Mar Heights Rd

		← 1680 / 630
		↓ 60 / 50

14

← 10 / 20 ↑	↑ 60 / 30	→ 110 / 30
1380 / 2010 →	60 / 53	
30 / 40 ↓		

Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd

← 60 / 20	↓ 10 / 10	→ 50 / 30
↑ 30 / 20	← 1680 / 620	↓ 220 / 70

15

← 20 / 50 ↑	↑ 210 / 90	→ 120 / 130
1060 / 1940 →	10 / 10	
140 / 110 ↓		

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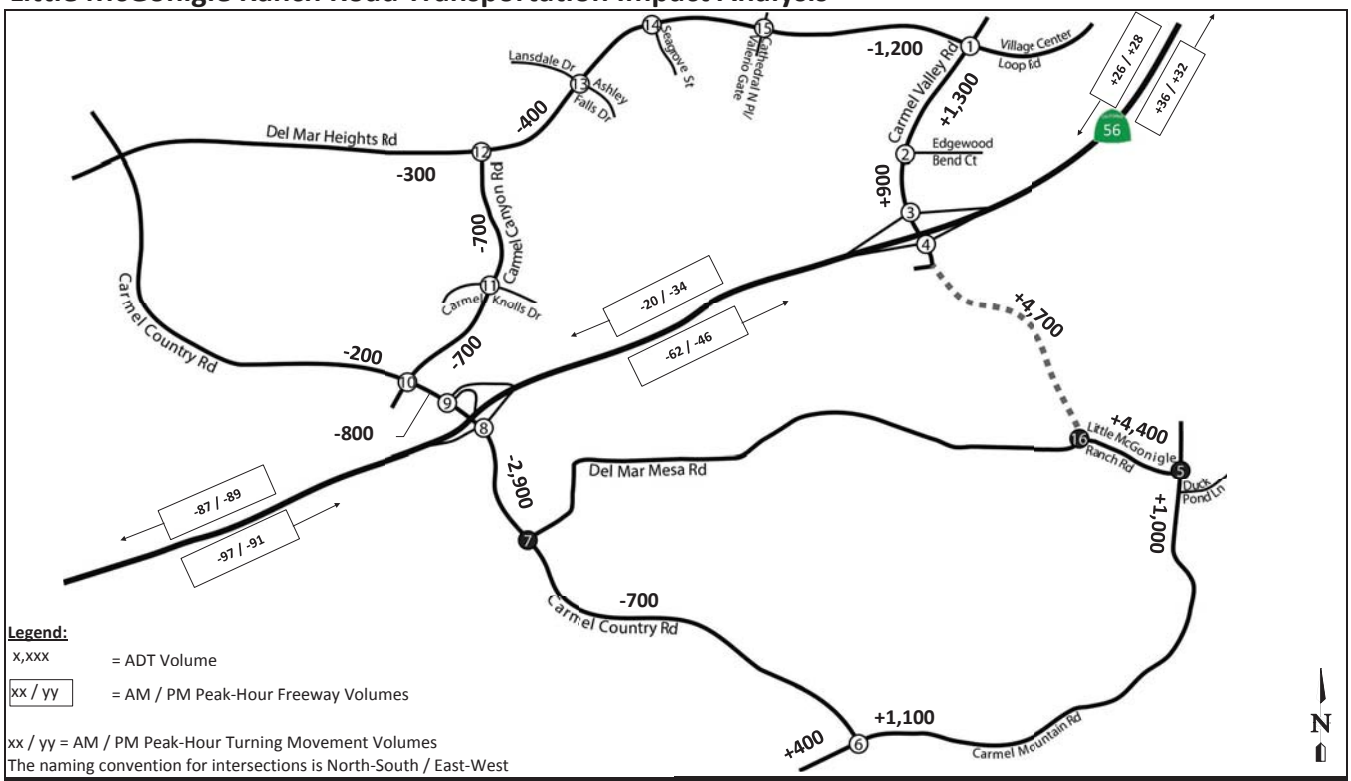
Figure 4-2b

Horizon Year 2035 Baseline Conditions Peak-Hour Intersection Volumes (Without Little McGonigle Ranch Road Extension)



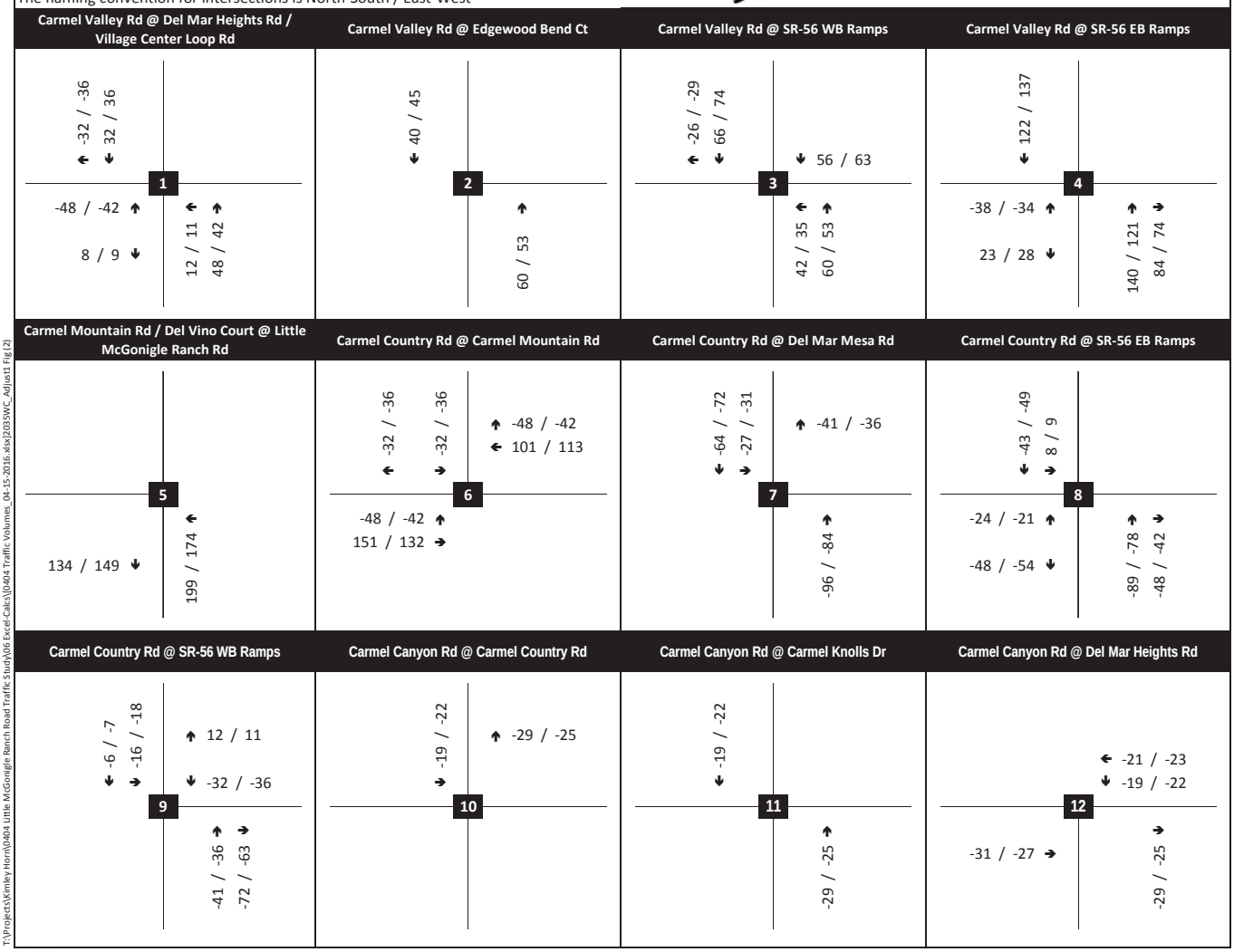


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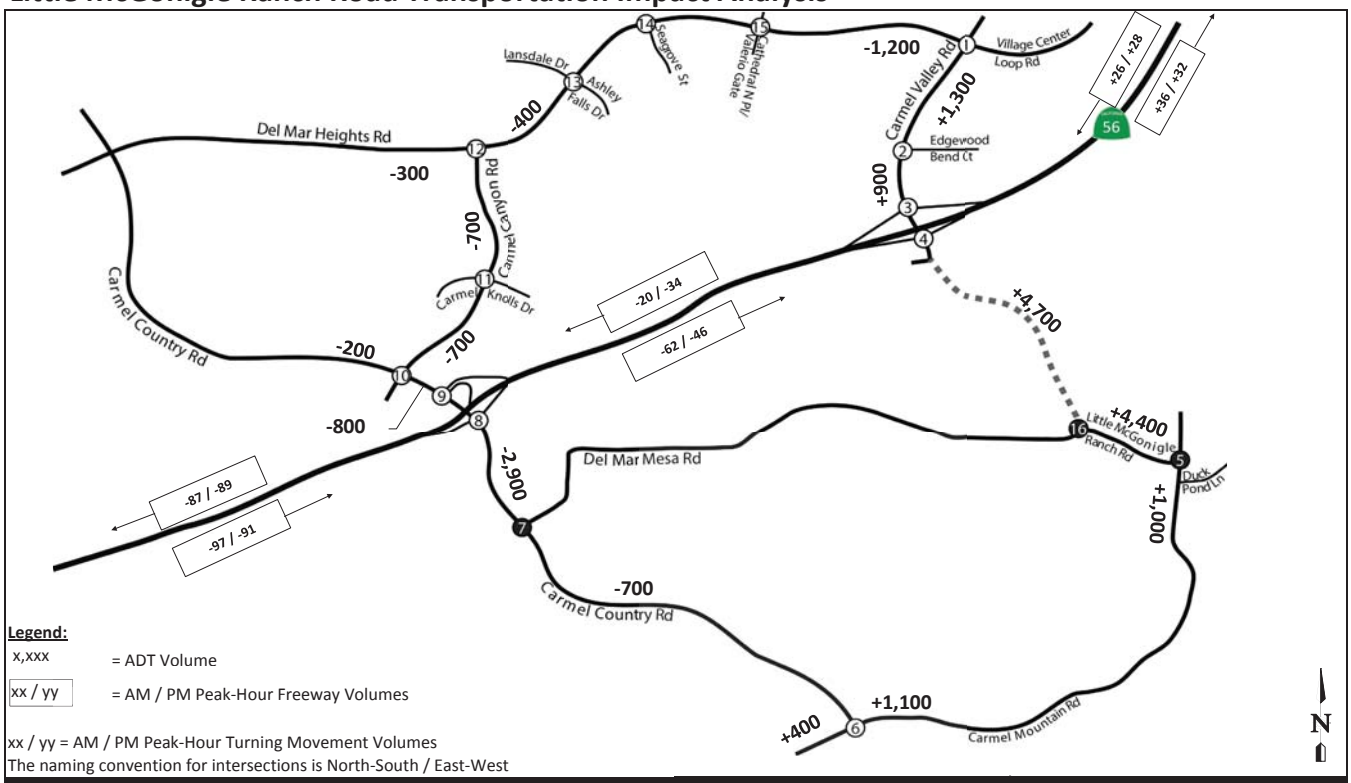
Figure 4-3a

Peak Hour Volumes Shifts to Horizon Year 2035 Baseline Conditions



Legend:

x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd	Seagrove St @ Del Mar Heights Rd	Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd	Little McGonigle Ranch Rd @ Del Mar Mesa Rd
← -40 / -45	← -40 / -45	← -32 / -36 ↓ 12 / 11	↑ 228 / 200 ← -29 / -25
13	14	15	16
-60 / -53 →	-60 / -53 →	← -8 / -9 → 8 / 9 -48 / -42 → -12 / -11 ↓	← 8 / 9 → 153 / 171 12 / 11 ↑ -19 / -22 →

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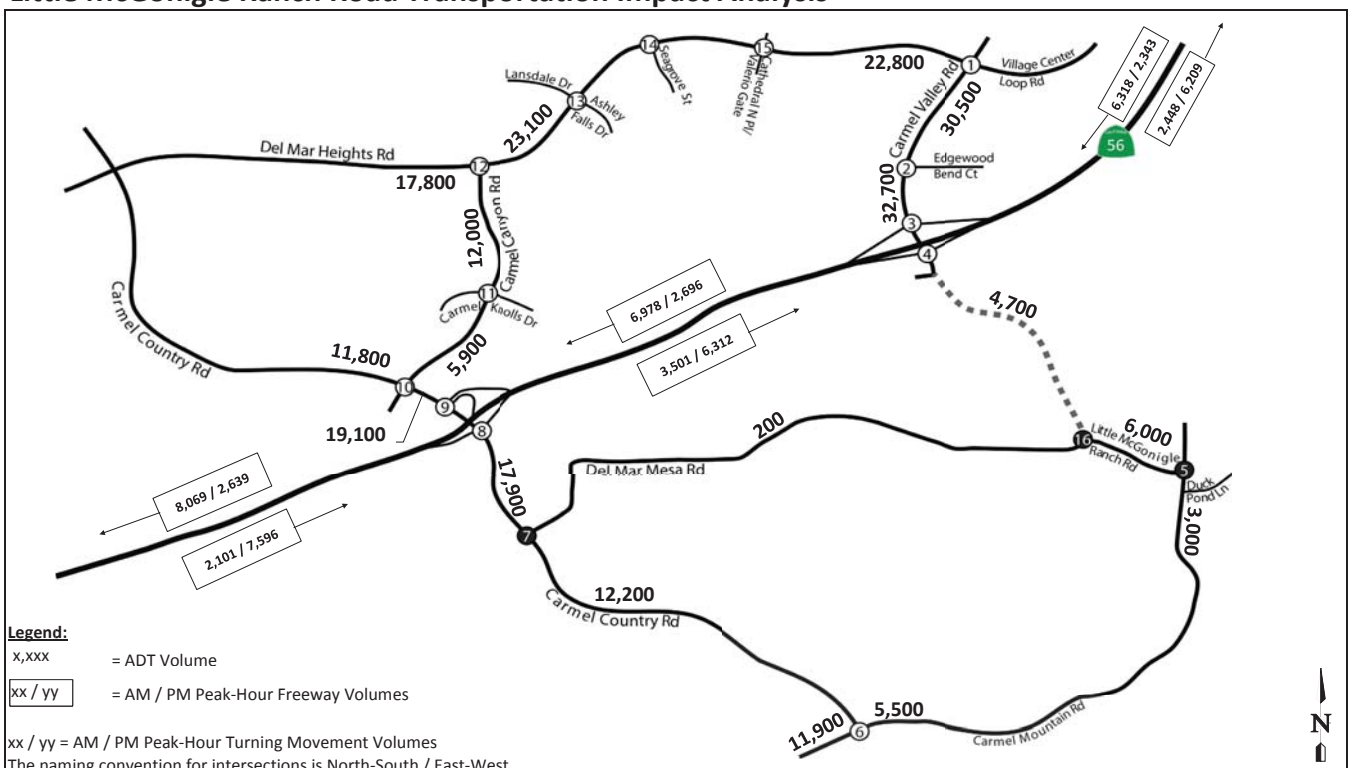
Figure 4-3b

Peak Hour Volumes Shifts to Horizon Year 2035 Baseline Conditions

Little McGonigle Ranch Road Transportation Impact Analysis



Legend:

x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

Carmel Valley Rd @ Del Mar Heights Rd / Village Center Loop Rd

968 / 214 ← 982 / 366 ↓ 130 / 40 →

↑ 110 / 90
← 550 / 210
↓ 220 / 150

1

332 / 1048 ↑
530 / 310 →
468 / 649 ↓

← 562 / 211 ↑ 408 / 622 →
300 / 80

Carmel Valley Rd @ Edgewood Bend Ct

1480 / 1125 ↓ 120 / 40 →

↑ 100 / 60
↓ 350 / 140

2

↑ 1120 / 903 →
630 / 50

Carmel Valley Rd @ SR-56 WB Ramps

1424 / 451 ← 416 / 824 ↓

↑ 340 / 270
← 10 / 10
↓ 76 / 73

3

← 52 / 55 ↑
1480 / 743

Carmel Valley Rd @ SR-56 EB Ramps

142 / 167 ↓ 330 / 700 →

4

1372 / 596 ↑
10 / 40 →
53 / 48 ↓

↑ 180 / 151 →
104 / 94

Carmel Mountain Rd / Del Vino Court @ Little McGonigle Ranch Rd

110 / 70 ← 40 / 20 ↓

5

40 / 70 ↑

164 / 169 ↓

← 219 / 214 ↑
20 / 40

Carmel Country Rd @ Carmel Mountain Rd

438 / 264 ← 38 / 24 →

↑ 42 / 38
← 281 / 183

6

512 / 718 ↑
241 / 272 →

Carmel Country Rd @ Del Mar Mesa Rd

626 / 508 ↓ 63 / 89 →

↑ 119 / 84

↓ 10 / 10

7

↑ 924 / 956 →
10 / 20

Carmel Country Rd @ SR-56 EB Ramps

407 / 531 ↓ 428 / 289 →

8

436 / 329 ↑
0 / 650 →
182 / 156 ↓

↑ 741 / 512 →
462 / 498

Carmel Country Rd @ SR-56 WB Ramps

624 / 553 ↓ 874 / 222 →

↑ 252 / 361

↓ 198 / 224

9

↑ 839 / 684 →
368 / 197

Carmel Canyon Rd @ Carmel Country Rd

150 / 80 ← 230 / 60 ↓ 781 / 228 →

↑ 511 / 555
← 360 / 450
↓ 200 / 80

10

120 / 290 ↑
510 / 410 →
40 / 50 ↓

← 60 / 40 ↑ 120 / 250 →
240 / 130

Carmel Canyon Rd @ Carmel Knolls Dr

30 / 30 ← 601 / 158 ↓ 30 / 80 →

↑ 90 / 50
← 30 / 10
↓ 500 / 170

11

30 / 20 ↑
10 / 20 →
70 / 40 ↓

← 40 / 40 ↑ 541 / 625 →
190 / 360

Carmel Canyon Rd @ Del Mar Heights Rd

← 1199 / 447
↓ 461 / 118

12

829 / 1443 →
120 / 160 ↓

← 280 / 100
→ 401 / 555

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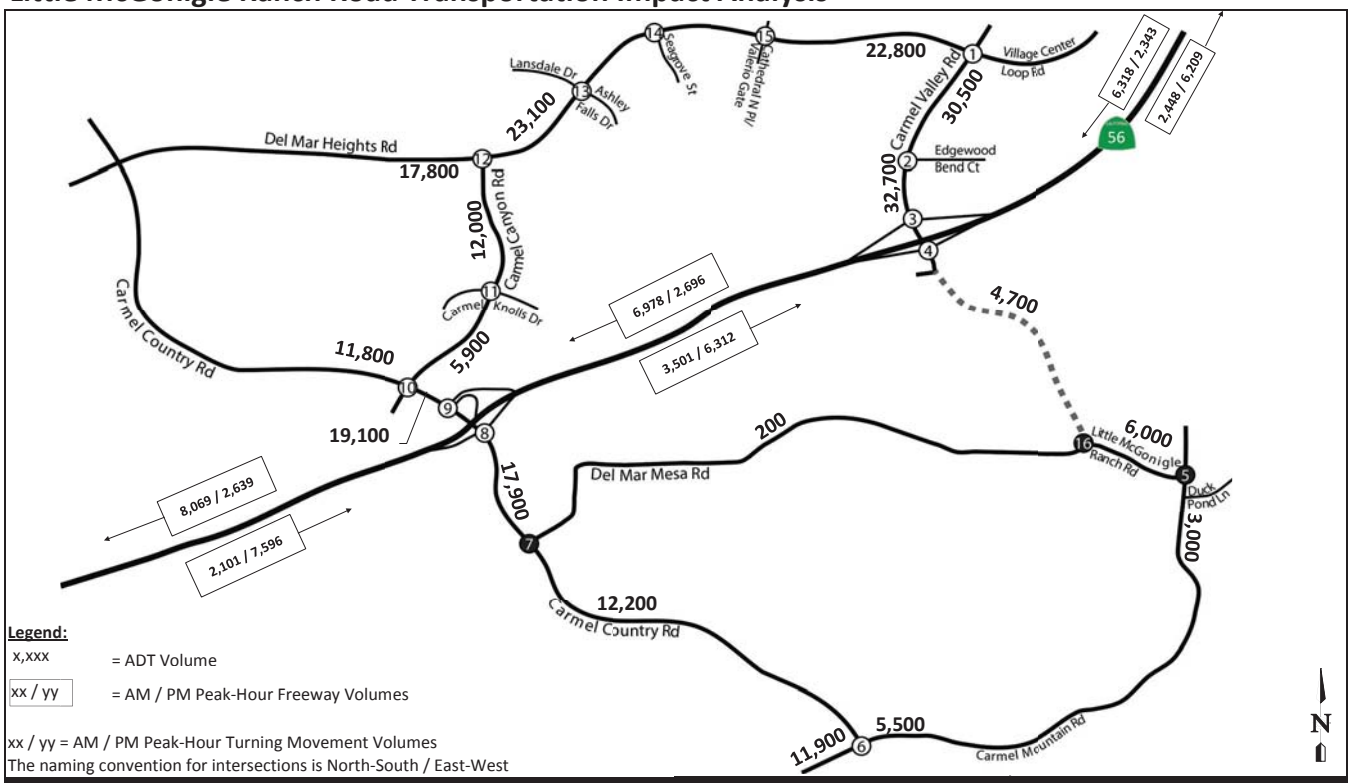
Figure 4-4a

Horizon Year 2035 Peak Hour Intersection Volumes with Little McGonigle Ranch Road Extension



Legend:

x,xxx = ADT Volume

xx / yy = AM / PM Peak-Hour Freeway Volumes

xx / yy = AM / PM Peak-Hour Turning Movement Volumes

The naming convention for intersections is North-South / East-West

Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd	Seagrove St @ Del Mar Heights Rd	Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd	Little McGonigle Ranch Rd @ Del Mar Mesa Rd
← 100 / 40 ↓ 20 / 10 → 120 / 80		← 60 / 20 ↓ 10 / 10 → 50 / 30	← 9 / 10 → 161 / 180
↑ 100 / 80 ← 1470 / 485 ↓ 130 / 80	← 1640 / 585 ↓ 60 / 50	↑ 30 / 20 ← 1648 / 584 ↓ 232 / 81	↑ 228 / 199 ← 101 / 85
13	**14**	**15**	**16**
40 / 80 ↑ 1100 / 1857 → 130 / 120 ↓	10 / 20 ↑ 1320 / 1957 → 30 / 40 ↓	20 / 50 ↑ 1012 / 1898 → 128 / 99 ↓	12 / 11 ↑ 50 / 68 →
← 140 / 60 ↑ 30 / 10 → 170 / 90	← 60 / 30 ↑ 60 / 53 → 110 / 30	← 202 / 81 ↑ 10 / 10 → 128 / 139	

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Figure 4-4b

Horizon Year 2035 Peak Hour Intersection Volumes with Little McGonigle Ranch Road Extension

4.4 Intersection Operational Analysis

Table 4-1 summarizes the results of the intersection operations analysis for the Horizon Year 2035 Baseline (without extension) and with Little McGonigle Ranch Road extension. LOS worksheets are provided in **Appendix F** and **Appendix G** for the baseline and with Little McGonigle Ranch Road extension, respectively. As shown in Table 4-1 and illustrated in **Figures 4-5 and 4-6**, most intersections operate at acceptable levels of service within the study area through 2035. However, four intersections are forecast to operate at deficient levels of service by the horizon year 2035 for the baseline and the with the Little McGonigle Ranch Road extension scenarios. The following list summarizes the locations forecast to operate at LOS E or F during the peak hour and the affect the Little McGonigle Ranch Road extension has on the overall delay at the intersection:

- **Carmel Valley Road / Del Mar Heights Road – Village Center Loop Road:** This intersection is forecast to operate at LOS F in the morning peak and LOS E in the PM peak under the baseline condition. The extension of Little McGonigle Ranch Road results in a slight increase in peak hour volume through this intersection. With the extension, the morning peak conditions continue to operate at LOS F and the evening peak conditions continue to operate at LOS E.

- **Carmel Country Road / Del Mar Mesa Road:** This intersection is forecast to operate at LOS F in the AM peak and LOS E in the PM peak under the baseline condition. The intersection is currently one-way stop controlled, with the stop control on Del Mar Mesa Road. The extension of Little McGonigle Ranch Road is forecast to result in traffic volume reduction through the intersection and consequently a reduction in intersection delay. With the Little McGonigle Ranch Road extension, the level of service improves from LOS F to LOS E during the AM peak, and improves from LOS E to LOS D during the PM peak. The greatest benefit to this intersection occurs in the AM peak when the intersection delay is forecast to be reduced by as much as 37.6 seconds.

- **Carmel Country Road / Carmel Canyon Road:** Under baseline conditions, this intersection is forecast to operate at LOS E in the PM peak period. The Little McGonigle Ranch Road extension is forecast to result in a slight traffic volume reduction along Carmel Canyon Road. As a result, the delay in the evening peak is reduced, but the intersection is forecast to continue operating at LOS E.

- **Carmel Canyon Road / Del Mar Heights Road:** This intersection is forecast to operate at LOS E in the evening peak period under the baseline conditions (without Little McGonigle Ranch Road). Changes in traffic patterns forecast show that with the Little McGonigle Ranch Road extension, volumes along Carmel Canyon Road and Del Mar Heights Road are forecast to decrease. As a result, the delay during the PM peak period is reduced through this intersection with the road extension, but the intersection is forecast to continue operating at LOS E.

Table 4-1: Horizon Year 2035 Intersection Operational Analysis

#	Intersection	Traffic Control	Peak Hour	Horizon Year Baseline Condition		Horizon Year with Road Extension		Change in Delay
				Delay [(a)]	LOS [(b)]	Delay [(a)]	LOS [(b)]	
1	Carmel Valley Rd & Del Mar Heights Rd	Signal	AM	**127.7**	**F**	**124.2**	**F**	-3.5
			PM	**56.0**	**E**	**56.9**	**E**	0.9
2	Carmel Valley Rd & Edgewood Bend Ct	Signal	AM	21.6	C	22.2	C	0.6
			PM	8.7	A	8.7	A	0.0
3	Carmel Valley Rd & SR-56 WB Ramps	Signal	AM	32.4	C	43.7	D	11.3
			PM	10.7	B	14.8	B	4.1
4	Carmel Valley Rd & SR-56 EB Ramps	Signal	AM	36.1	D	43.3	D	7.2
			PM	30.1	C	28.5	C	-1.6
5	Del Vino Ct & Little McGonigle Ranch Rd	AWSC	AM	7.8	A	10.8	B	3.0
			PM	7.7	A	10.0	A	2.3
6	Carmel Country Rd & Carmel Mountain Rd	Signal	AM	12.4	B	11.3	B	-1.1
			PM	9.4	A	8.2	A	-1.2
7	Carmel Country Rd & Del Mar Mesa Rd	OWSC	AM	**75.0**	**F**	**37.4**	**E**	-37.6
			PM	**36.3**	**E**	26.5	D	-9.8
8	Carmel Country Rd & SR-56 EB Ramps	Signal	AM	28.1	C	27.2	C	-0.9
			PM	40.7	D	38.7	D	-2.0
9	Carmel Country Rd & SR-56 WB Ramps	Signal	AM	24.2	C	23.6	C	-0.6
			PM	19.1	B	19.3	B	0.2
10	Carmel Country Rd & Carmel Canyon Rd	Signal	AM	51.7	D	50.5	D	-1.2
			PM	**63.1**	**E**	**61.0**	**E**	-2.1
11	Carmel Knolls Rd & Carmel Canyon Rd	Signal	AM	23.4	C	23.0	C	-0.4
			PM	17.5	B	17.4	B	-0.1
12	Carmel Canyon Rd & Del Mar Heights Rd	Signal	AM	20.5	C	18.3	B	-2.2
			PM	**63.1**	**E**	**56.7**	**E**	-6.4
13	Ashley Falls Dr/Lansdale Dr & Del Mar Heights Rd	Signal	AM	38.3	D	35.4	D	-2.9
			PM	26.1	C	28.5	C	2.4
14	Seagrove St & Del Mar Heights Rd	Signal	AM	8.9	A	8.7	A	-0.2
			PM	7.6	A	7.6	A	0.0
15	Cathedral North Pl/Valerio Gate & Del Mar Heights Rd	Signal	AM	45.6	D	42.4	D	-3.2
			PM	18.1	B	18.3	B	0.2
16	Del Mar Mesa Rd & Little McGonigle Ranch Rd	OWSC	AM	DNE		11.7	B	NA
			PM			11.0	B	

Note: **Bold** indicates deficient (LOS E or F) operating conditions
DNE = Does not exist
NA = Not Applicable

4.5 Roadway Segment Capacity Analysis

Table 4-2 summarizes the results of the roadway segment analysis for the Horizon Year baseline (without) and with Little McGonigle Ranch Road extension scenarios. As shown in Table 4-2, all study roadway segments are forecast to operate at acceptable levels of service (LOS D or better) for the Horizon Year 2035 baseline and with the proposed Little McGonigle Ranch Road extension conditions.

The road extension would result in an increase in daily traffic along Carmel Valley Road, Carmel Mountain Road, and the existing segment of Little McGonigle Ranch Road. The road extension would also result in a decrease in daily traffic on Carmel Country Road, Carmel Canyon Road, and Del Mar Heights Road.

Figure 4-5 and **Figure 4-6** illustrate the Horizon Year 2035 intersection and roadway segment operating conditions without and with the Little McGonigle Ranch Road extension, respectively.

4.6 Freeway Analysis

As indicated earlier in this report, the SANDAG Series 12 model for Horizon Year 2035 includes the widening of I-5 for the North Coast Corridor Project and the completion of the SR-56 / I-5 Interchange to include a direct southbound to eastbound extension and a direct westbound to northbound extension. The freeway analysis for SR-56 assumes the existing number of lanes (two lanes eastbound and two lanes westbound), which is consistent with the SANDAG Series 12 model as no capacity improvements are planned for the SR-56 corridor.

The forecast Horizon Year 2035 baseline conditions daily freeway volumes for the study segments of SR-56 were post-processed to derive AM and PM peak hour directional (eastbound and westbound) volumes. The peak hour traffic volume adjustments described earlier in this report (provided in Appendix D) include volume shifts on the study segments of SR-56, which were applied to the Horizon Year 2035 baseline conditions freeway volumes to derive the Horizon Year 2035 freeway volumes with the Little McGonigle Ranch Road extension.

The results of the Horizon Year 2035 freeway mainline analysis without and with the Little McGonigle Ranch Road extension are presented in **Table 4-3 and Table 4-4**, respectively.

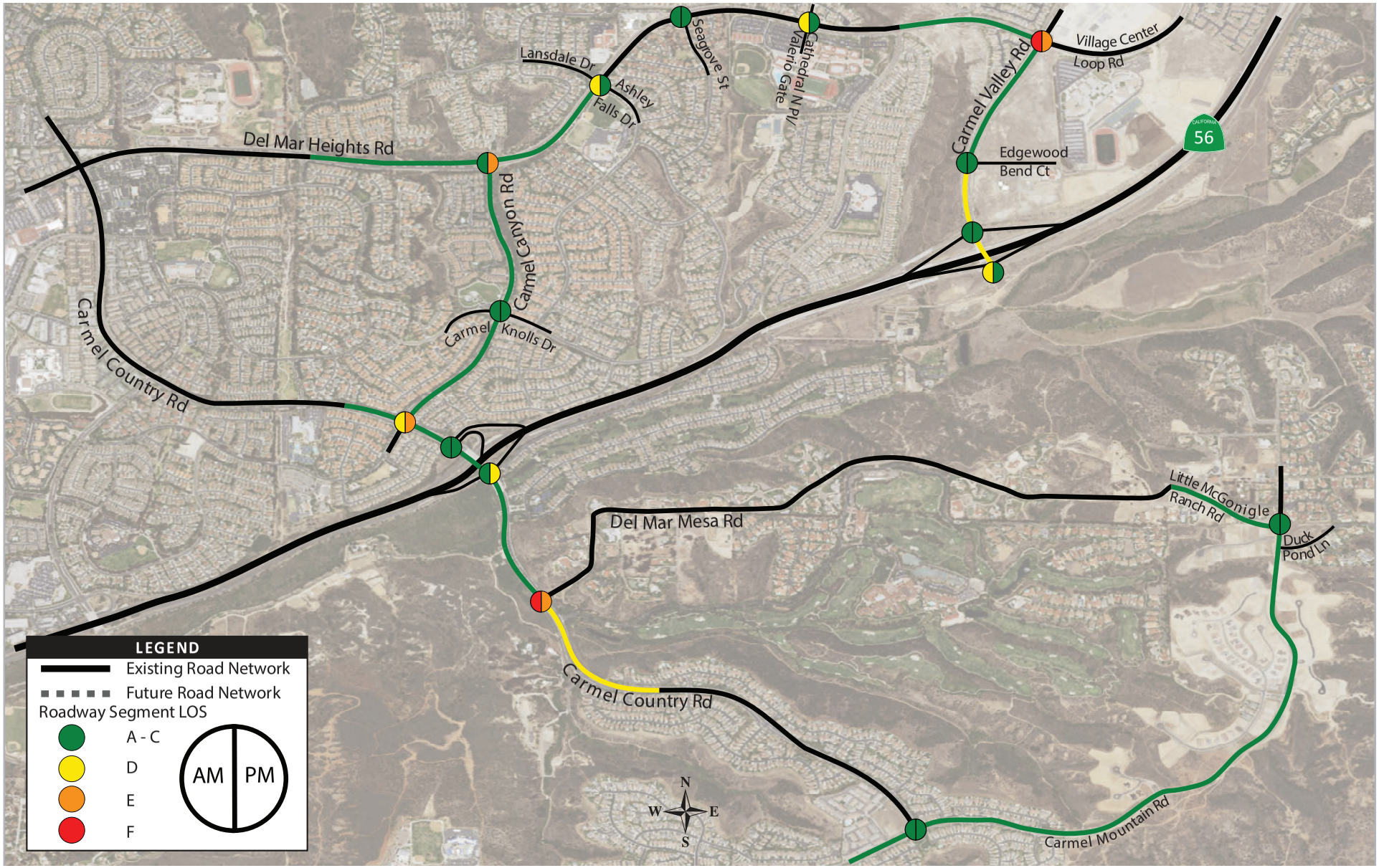

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Figure 4-5
Horizon Year 2035 Baseline Conditions Intersection & Roadway Segment Level of Service (Without Little McGonigle Road Extension)

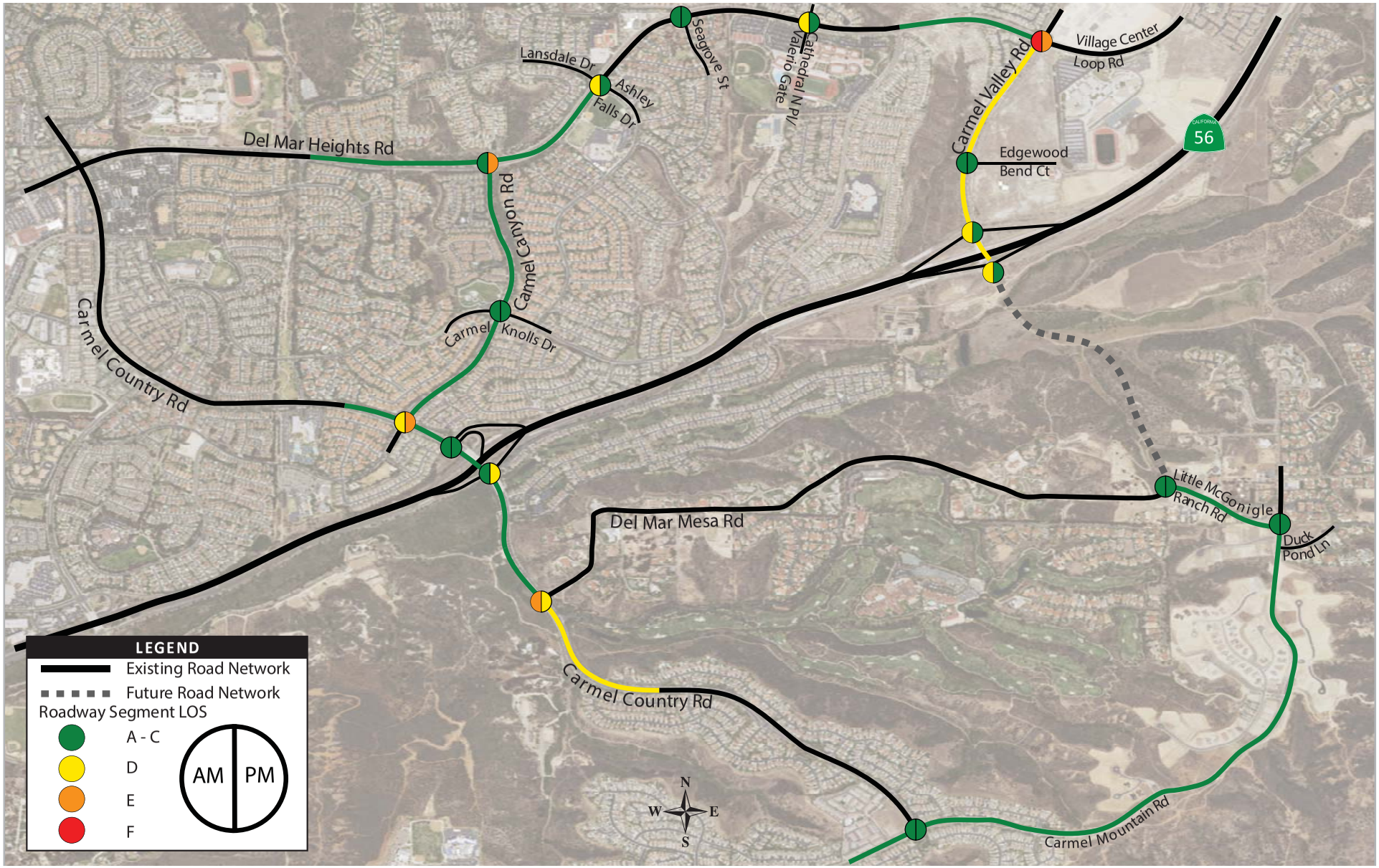

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Figure 4-6
Horizon Year 2035 Intersection & Roadway Segment Level of Service (With Little McGonigle Road Extension)

Table 4-2: Horizon Year 2035 Roadway Segment Analysis

Roadway Segment	Community Plan Buildout Classification [a]	LOS E Capacity	Horizon Year 2035 Baseline Conditions			Horizon Year 2035 With Little McGonigle Ranch Road Extension			Change in V/C Ratio
			ADT [b]	v/c Ratio [c]	LOS	ADT [b]	v/c Ratio [c]	LOS	
Carmel Valley Rd									
Del Mar Heights Rd to Edgewood Bend Ct	4 Lane Major Arterial	40,000	29,200	0.73	C	30,500	0.76	D	0.03
Edgewood Bend Ct to SR-56 Ramps	4 Lane Major Arterial	40,000	31,800	0.80	D	32,700	0.82	D	0.02
Little McGonigle Ranch Rd									
West of Carmel Mountain Rd to Del Mar Mesa Rd	2 Lane Collector	10,000	1,600	0.16	A	6,000	0.60	C	0.44
Carmel Mountain Rd									
South of Little McGonigle Ranch Rd to Timberbrook Ln	2 Lane Collector	10,000	2,000	0.20	A	3,000	0.30	A	0.10
East of Carmel Country Rd to Timberbrook Ln	4 Lane Major Arterial	40,000	4,400	0.11	A	5,500	0.14	A	0.03
West of Carmel Country Rd to Amberglades Ln	4 Lane Major Arterial	40,000	11,500	0.29	A	11,900	0.30	A	0.01
Carmel Country Rd									
Carmel Mission Rd to Carmel Canyon Rd/ Del Mar Trails Rd	4 Lane Major Arterial	40,000	12,000	0.30	A	11,800	0.30	A	-0.01
Carmel Canyon Rd/Del Mar Trails Rd to SR-56 WB Ramps	4 Lane Major Arterial	40,000	19,900	0.50	B	19,100	0.48	B	-0.02
SR-56 Ramps to Del Mar Mesa Rd	4 Lane Major Arterial	40,000	20,800	0.59	B	17,900	0.51	B	-0.08
South of Del Mar Mesa Rd to Sagamore Way	2 Lane Collector	15,000	12,900	0.86	D	12,200	0.81	D	-0.05
Carmel Canyon Rd									
Carmel Country Rd to Carmel Knolls Dr	4 Lane Major Arterial	40,000	6,600	0.17	A	5,900	0.15	A	-0.02
Carmel Knolls Rd to Del Mar Heights Rd	4 Lane Major Arterial	40,000	12,700	0.32	A	12,000	0.30	A	-0.02
Del Mar Heights Rd									
West of Carmel Canyon Rd to Lansdale Dr	6 Lane Prime Arterial	60,000	18,100	0.30	A	17,800	0.30	A	-0.01
Carmel Canyon Rd to Lansdale Dr/Ashley Falls Dr	6 Lane Prime Arterial	60,000	23,500	0.39	A	23,100	0.39	A	-0.01
West of Carmel Valley Rd to Old Carmel Valley Rd	4 Lane Major Arterial	40,000	24,000	0.60	C	22,800	0.57	C	-0.03

Notes: (a) Buildout roadway classification based on Community Plan, which is consistent with street classifications used in SANDAG model.
(b) Forecast Horizon Year ADTs are obtained from SANDAG Series 12 model run conducted for this study, and post processed. Worksheets provided in Appendix D.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

Table 4-3: Horizon Year 2035 Baseline Condition Freeway Mainline Analysis Summary

Freeway Segment		Dir	Number of Lanes	Peak-Hour Volume		Speed (mph)		Density (pc/mi/ln)		LOS	
				AM	PM	AM	PM	AM	PM	AM	PM
SR-56	Carmel Creek Rd to Carmel Country Rd	WB	2	8,156	2,728	58.0	58.0	78.1	27.8	**F**	D
		EB	2	2,198	7,687	58.0	58.0	27.8	73.6	D	**F**
	Carmel Country Rd to Carmel Valley Rd	WB	2	6,998	2,730	59.2	59.2	65.7	27.3	**F**	D
		EB	2	3,563	6,358	57.6	59.2	34.4	59.7	D	**F**
	Carmel Valley Rd to Camino Del Sur	WB	2	6,292	2,315	60.5	60.5	57.8	26.7	**F**	D
		EB	2	2,412	6,177	60.5	60.5	26.7	56.7	D	**F**

Table 4-4: Horizon Year 2035 With Little McGonigle Ranch Road Extension Freeway Mainline Analysis Summary

Freeway Segment		Dir	Number of Lanes	Volume Shifts With Road Extension		Horizon Year 2035 With Road Extension								Change in Speed (mph)		Sig?	
						Peak-Hour Volume		Speed (mph)		Density (pc/mi/ln)		LOS					
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR-56	Carmel Creek Rd to Carmel Country Rd	WB	2	-87	-89	8,069	2,639	58.0	58.0	77.3	27.8	**F**	D	0.0	0.0	No	No
		EB	2	-98	-92	2,101	7,596	58.0	58.0	27.8	72.8	D	**F**	0.0	0.0	No	No
	Carmel Country Rd to Carmel Valley Rd	WB	2	-20	-34	6,978	2,696	59.2	59.2	65.5	27.3	**F**	D	0.0	0.0	No	No
		EB	2	-62	-46	3,501	6,312	58.0	59.2	33.6	59.2	D	**F**	0.4	0.0	No	No
	Carmel Valley Rd to Camino Del Sur	WB	2	26	29	6,318	2,343	60.5	60.5	58.0	26.7	**F**	D	0.0	0.0	No	No
		EB	2	36	32	2,448	6,209	60.5	60.5	26.7	57.0	D	**F**	0.0	0.0	No	No

Notes:
(a) Peak-hour volumes were estimated by applying the K and D factors to the published 2013 Caltrans AADT volumes.
(b) The speed was calculated from a base free-flow speed (BFFS) of 65 mph.
(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 23 of the *2000 Highway Capacity Manual.*

As shown in Tables 4-3 and 4-4, segments of SR-56 in both the eastbound and westbound direction are forecast to operate at LOS F under Horizon Year 2035 conditions for both without and with the Little McGonigle Ranch Road extension scenarios. The tables show that the predominant westbound and eastbound movements during their respective morning and evening peak periods are forecast to operate at LOS F, consistent with existing conditions.

Table 4-4 shows that under Horizon Year 2035 conditions with the Little McGonigle Ranch Road extension, the change in traffic patterns on the study freeway segments would result in a slight decrease in traffic to the west of Carmel Valley Road, and a slight increase in traffic to the east of Carmel Valley Road. These changes in freeway volumes during the peak hours would have a negligible effect on the forecast freeway speeds and would not be noticeable to drivers on SR-56.

The results of the freeway mainline level of service analysis under Horizon Year 2035 baseline conditions are illustrated in **Figures 4-7 and 4-8** for the AM and PM peak hours, respectively. **Figures 4-9 and 4-10** illustrate the results of the freeway mainline level of service analysis under Horizon Year 2035 conditions with the Little McGonigle Ranch Road extension for the AM and PM peak hours, respectively.

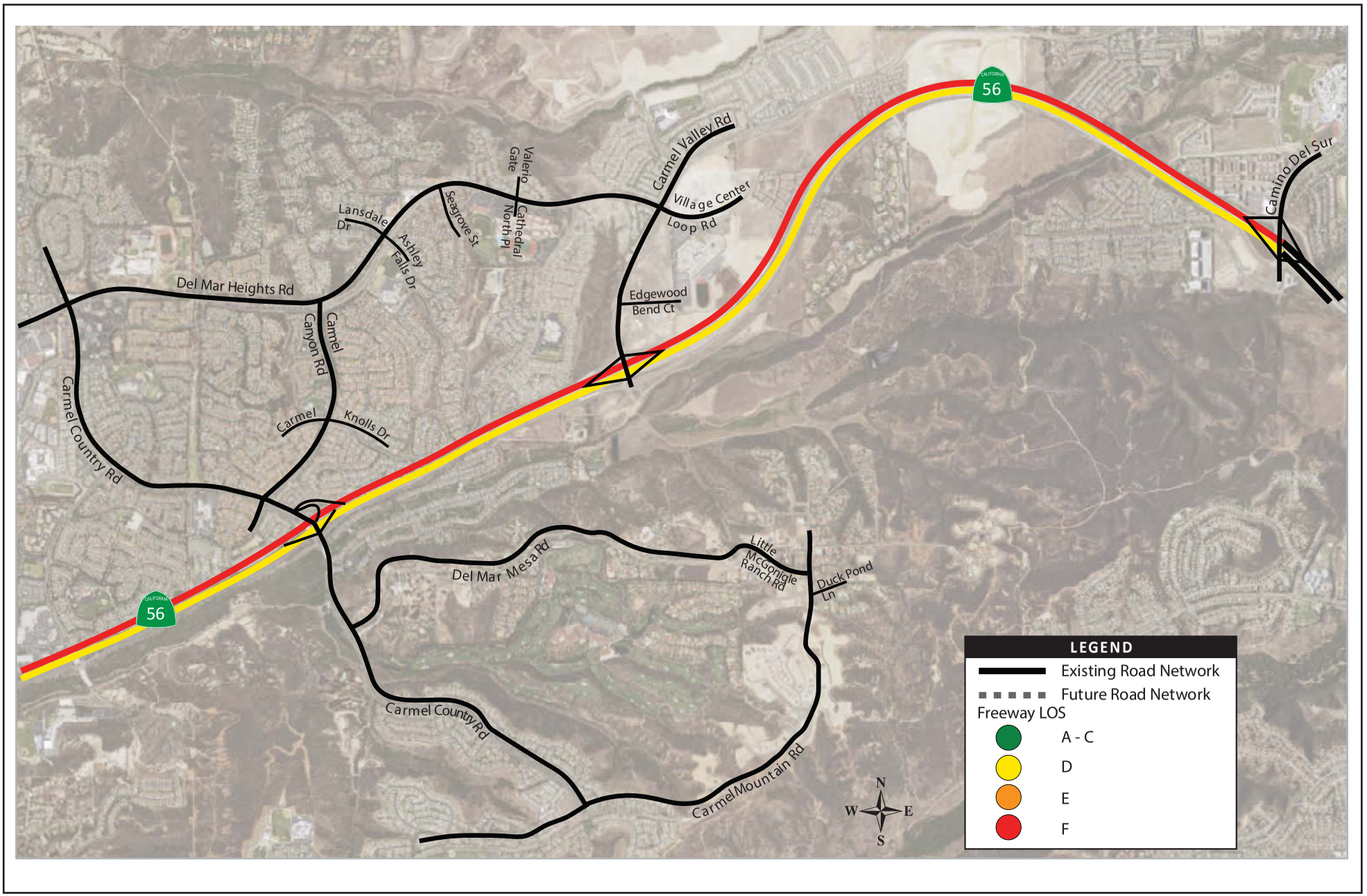

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Figure 4-7
Horizon Year 2035 AM Peak Hour Freeway
Level of Service - Baseline Condition

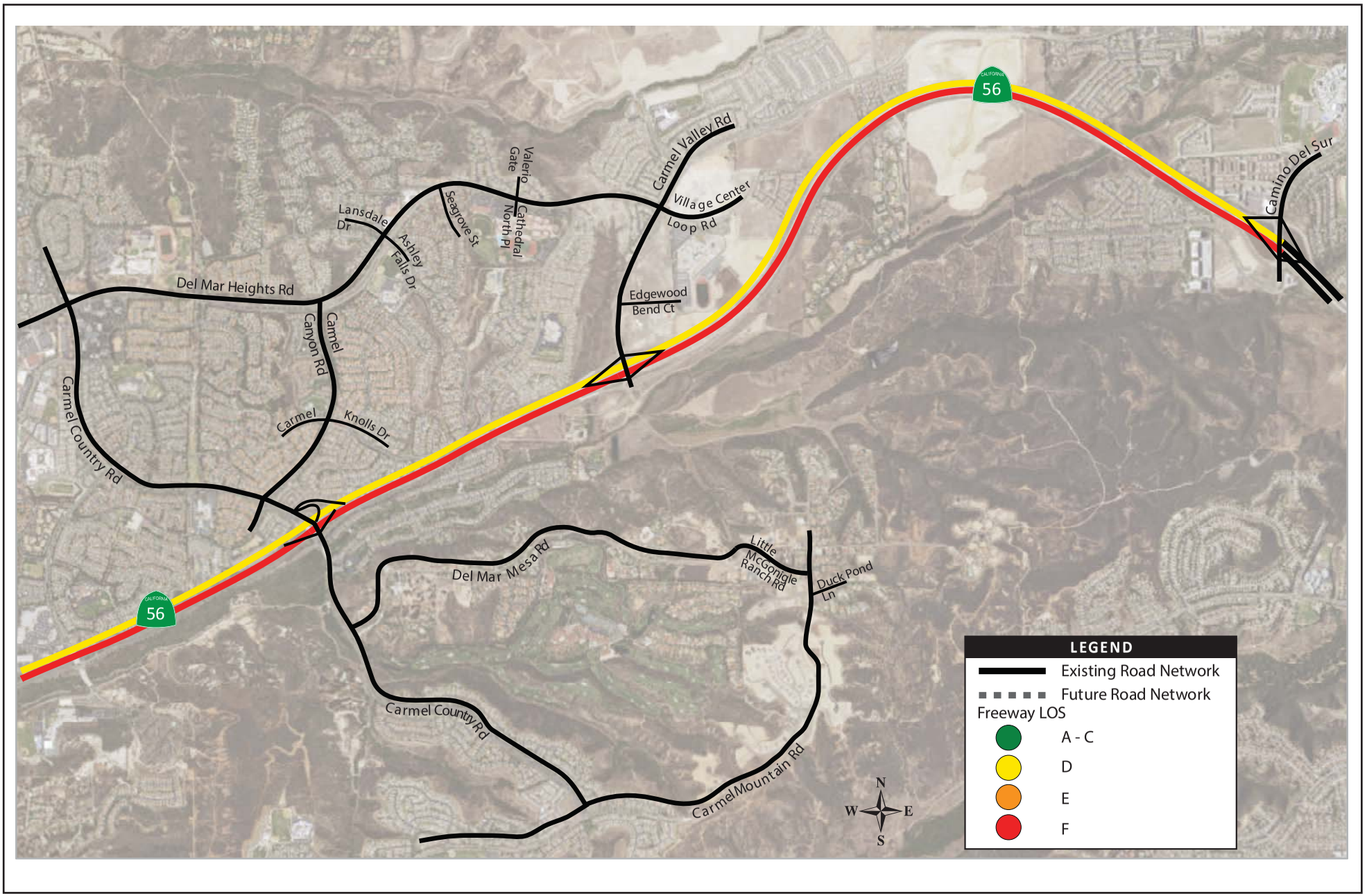

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Figure 4-8
Horizon Year 2035 PM Peak Hour Freeway
Level of Service - Baseline Condition

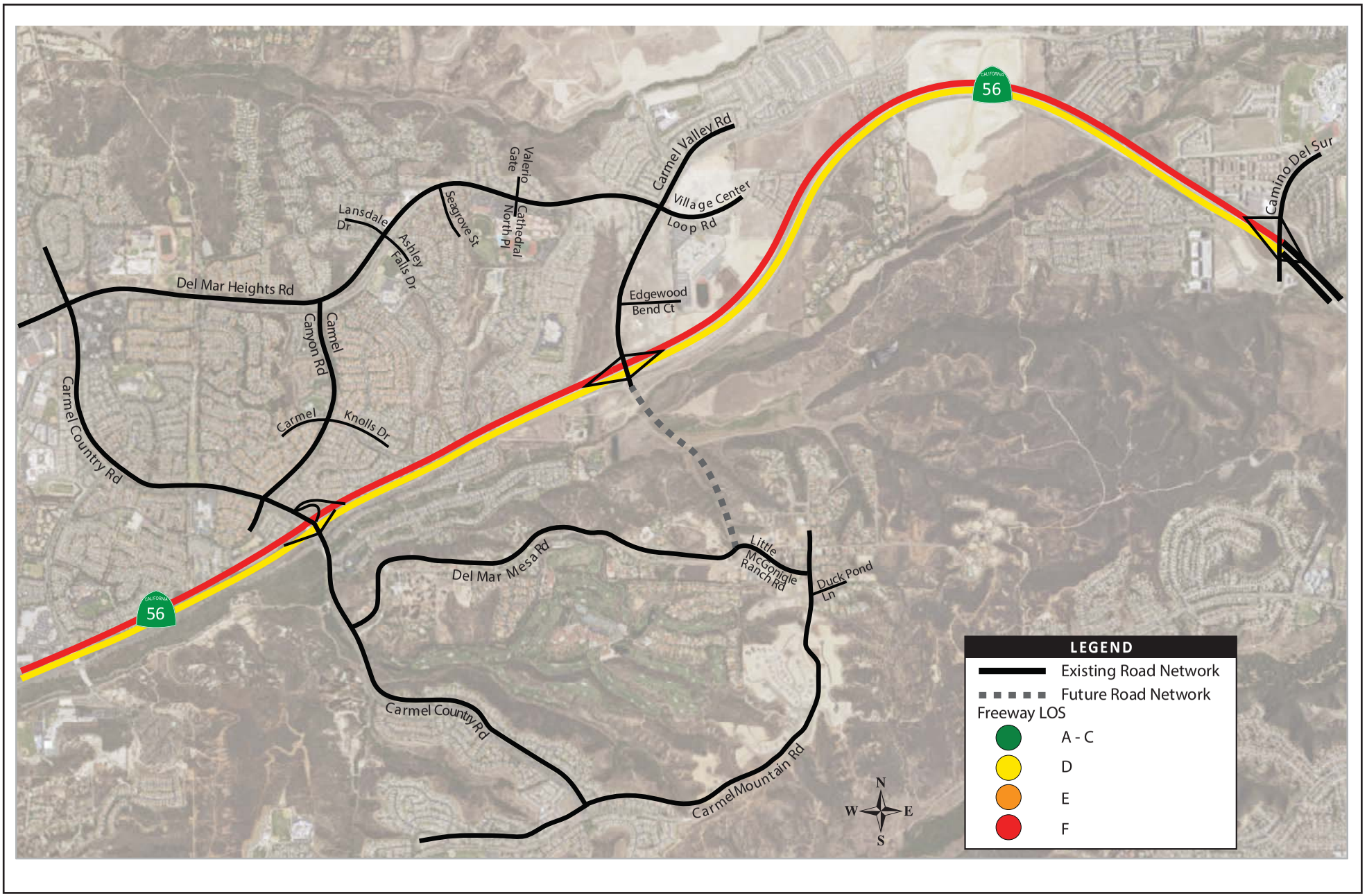

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Figure 4-9
Horizon Year 2035 AM Peak Hour Freeway Level of Service - With Little McGonigle Ranch Road Extension

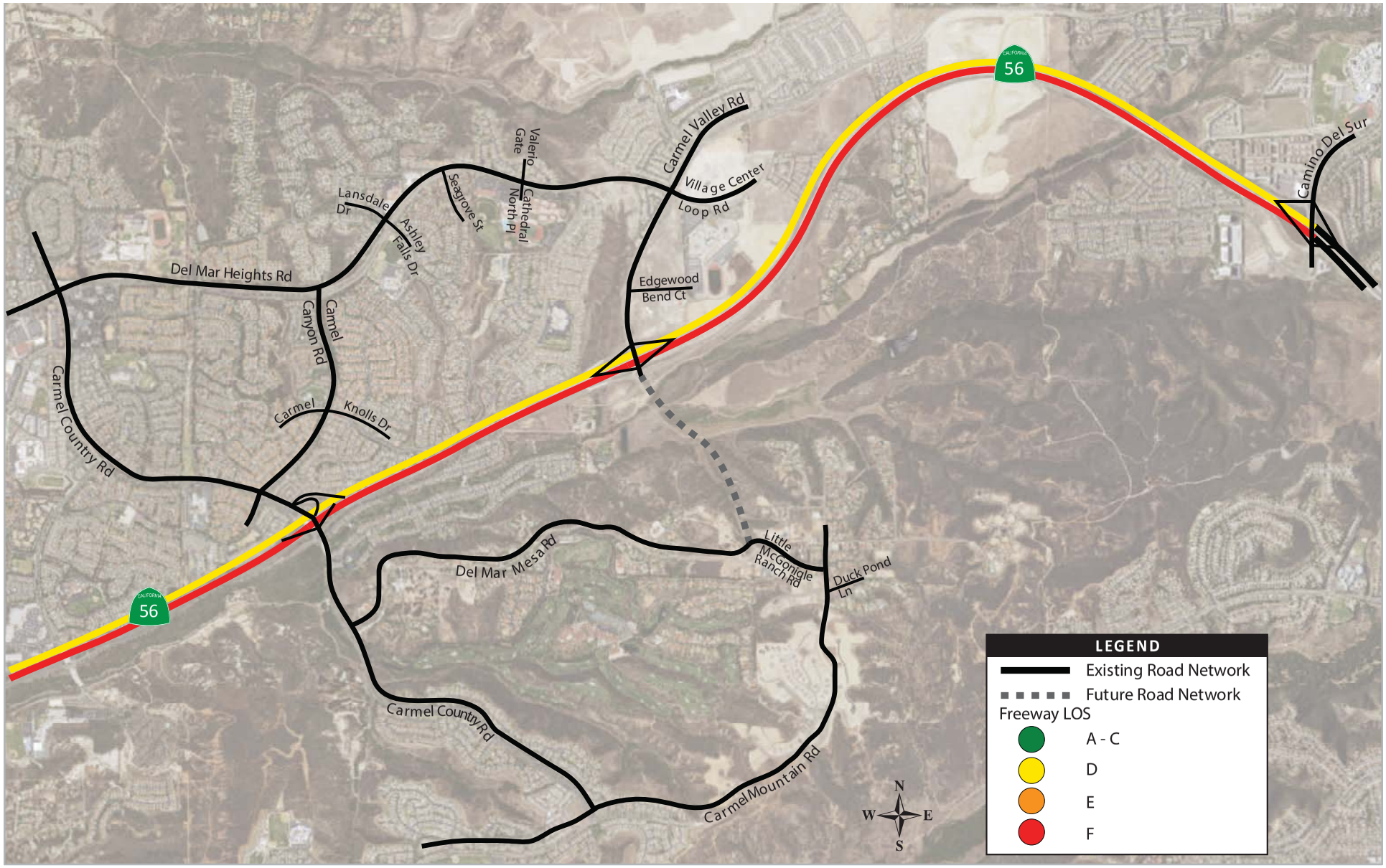

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Figure 4-10
Horizon Year 2035 PM Peak Hour Freeway Level of Service - With Little McGonigle Ranch Road Extension

4.7 Emergency Response Time Assessment

The SANDAG Series 12 model was used to forecast travel times between traffic analysis zones (TAZ) to determine the emergency response times from Fire Station 24 and Fire Station 47 to the TAZ's within close proximity of the Little McGonigle Ranch Road extension. **Figure 4-11** illustrates the boundaries and current response times of the ten (10) TAZs located within the study area. Also illustrated in the figure are the locations of the two fire stations that are expected to result in the most improved emergency response times within the study area due to their location and proximity to Little McGonigle Ranch Road.

As shown in Figure 4-11, Fire Station 24 is located near the intersection of Del Mar Heights Road and Carmel Country Road. To access the communities most adjacent to the Little McGonigle Ranch Road, the emergency response vehicles would travel along Carmel Country Road to Del Mar Mesa or to Carmel Mountain Road. The existing average response time for this station is 8 minutes and 59 seconds.

Fire Station 47 is located north of SR-56 on the west side of Carmel Valley Road. Although this is the closest fire station to the study area, the lack of connection south of SR-56 requires emergency response vehicles to travel along either SR-56 or Del Mar Heights Road to access Carmel County Road to head the communities most adjacent to Little McGonigle Ranch Road. The existing average response time for this station is 8 minutes and 21 seconds.

Table 4-5 summarizes the comparison of reported travel times for each of the TAZ's within the study area. Travel time in this table is measured from the TAZ in which the fire station is located to the TAZ's within the study area, illustrated in Figure 4-11. The Little McGonigle Ranch Road extension crosses through the TAZs highlighted in gray in the table. The baseline condition average travel time for Fire Station 47 is approximately 10 minutes in the morning and evening peaks and 8 minutes during the off peak period. With the Little McGonigle Ranch Road extension, the average travel time for Fire Station 47 is approximately 7 minutes in the morning and evening peaks and 6 minutes during the off-peak. Therefore, the roadway extension is forecast to reduce the average travel time by as much as 3 minutes by the year 2035.

The benefits are not as pronounced for Fire Station 24. The baseline conditions for Fire Station 24 is 8 minutes in the morning and evening peak periods as well as off-peak. With the Little McGonigle Ranch Road extension, the response time is forecast to remain relatively the same with less than a 30 second difference in response time across all study periods.

As shown in the table, the TAZ's located south of SR-56 and east of Carmel County Road, particularly the new communities planned within TAZ 4726 and TAZ 1813 will receive the greatest reduction in emergency response time from Fire Station 47. The extension of Little McGonigle Ranch Road is forecast to reduce travel time from Fire Station 47 to TAZ 1813 by 8 minutes in the morning and evening peak periods and 6 minutes during the off-peak. Similarly, the travel time from Fire Station 47 to TAZ 4705 is forecast to result in an 8-minute travel time reduction in the morning and evening and 6 minutes in the off-peak, whereas TAZ 4726 travel time reductions are 6 minutes during peak hours and 4 minutes off-peak.

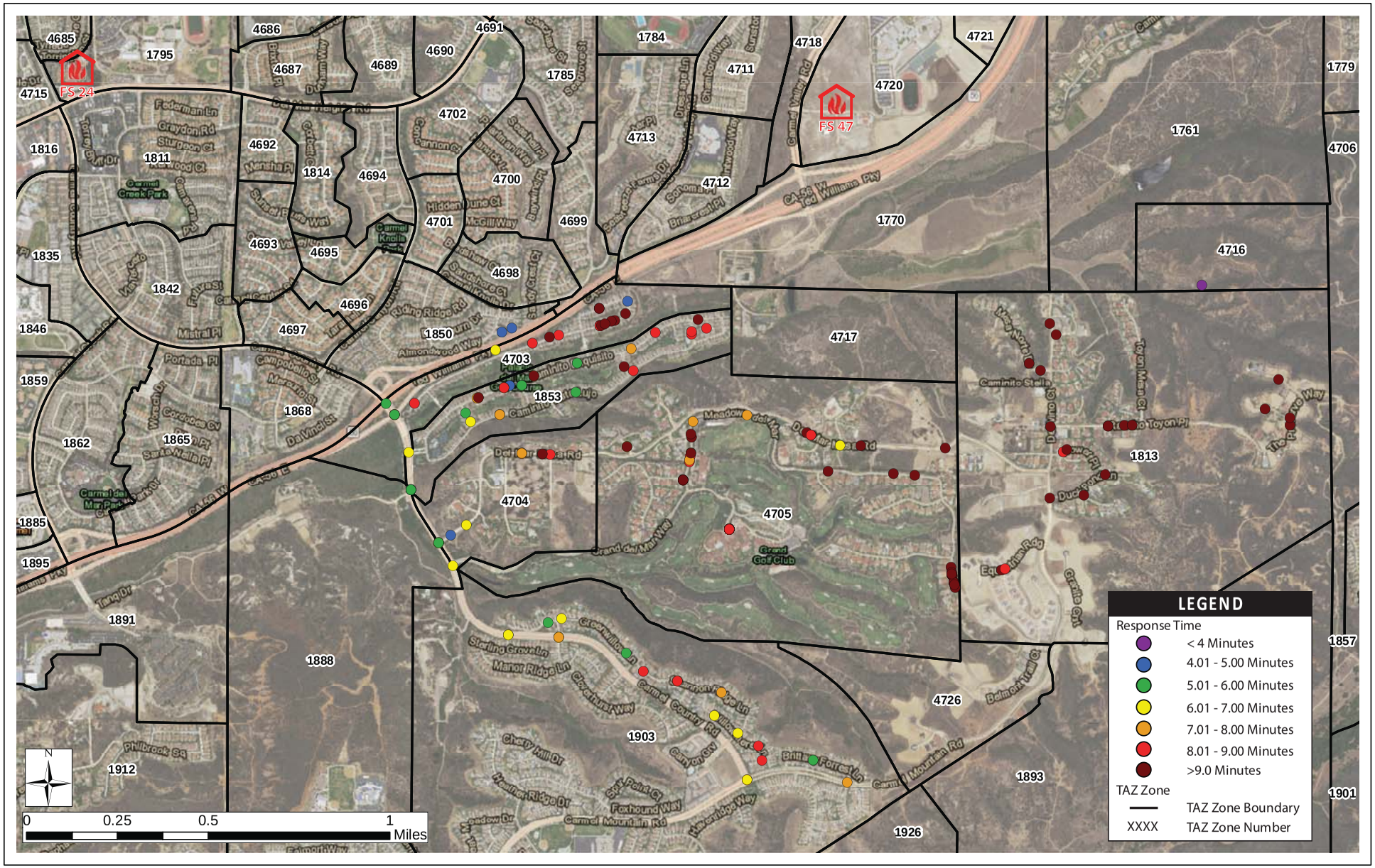


Figure 4-11
TAZ Boundaries within Study Area

Table 4-5: Summary of Forecast Emergency Response Time by Traffic Analysis Zone and Station

TAZ	Station	Station TAZ	2035 Modeled Response, DRIVE TIME ONLY (minutes)						Comparison of Model Results		
			No Connection			With Connection					
			AM	Off-Peak	PM	AM	Off-Peak	PM	AM	Off-Peak	PM
1813	24	1795	11	11	11	10	10	10	-1	-1	-1
	47	4720	14	12	14	6	6	6	-8	-6	-8
1850	24	1795	4	4	4	4	4	4	0	0	0
	47	4720	6	6	7	6	6	7	0	0	0
1853	24	1795	6	6	6	6	6	6	0	0	0
	47	4720	9	7	9	9	7	9	0	0	0
1903	24	1795	7	7	7	7	7	7	0	0	0
	47	4720	10	8	10	8	8	8	-2	0	-2
4703	24	1795	6	6	6	6	6	6	0	0	0
	47	4720	8	6	8	8	6	8	0	0	0
4704	24	1795	7	7	7	7	7	7	0	0	0
	47	4720	9	7	9	7	7	7	-2	0	-2
4705	24	1795	10	10	10	9	9	9	-1	-1	-1
	47	4720	12	10	12	4	4	4	-8	-6	-8
4716	24	1795	13	13	13	12	12	12	-1	-1	-1
	47	4720	15	13	15	7	7	7	-8	-6	-8
4717	24	1795	8	8	8	8	8	8	0	0	0
	47	4720	3	3	3	3	3	3	0	0	0
4726	24	1795	11	10	10	10	10	10	-1	0	0
	47	4720	13	11	13	7	7	7	-6	-4	-6
Study Area	**24**	**Average**	**8.3**	**8.2**	**8.2**	**7.9**	**7.9**	**7.9**	**-0.4**	**-0.3**	**-0.3**
	47	**Average**	**9.8**	**8.2**	**9.9**	**6.6**	**6**	**6.7**	**-3.2**	**-2.2**	**-3.2**

The City of San Diego Fire Department does not rely on average travel time as a measure of adequate response. Rather, they rely on the 90th Percentile response time. Future year modeling cannot provide reliable 90th Percentile information, so average travel time is used as a comparison. That said, the average travel times forecast for the horizon year conditions without and with the Little McGonigle Ranch Road extension exceed the Fire Departments goal travel time of 5 minutes.

4.8 Vehicle Miles Traveled Analysis

The SANDAG model was used to forecast the total change in vehicle miles traveled within the study area. The study area for the VMT analysis included the Community Planning Areas of Carmel Valley, Pacific Highlands Ranch and Del Mar Mesa. The baseline forecast VMT (without Little McGonigle Ranch Road) for the study area was reported to be 1,765,415, with a total lane mile VMT of 7,421. **Table 4-6** summarizes the VMT by trip end type for the baseline and with Little McGonigle Ranch Road scenarios. VMT is reported for four categories:

- **Total VMT and VMT per Lane Mile** – this metric accounts for all trips that travel within, to and from the study area. The Total VMT is the sum of the Two Trip Ends and One Trip End VMT, as described below. The Total VMT is divided by the lane miles to determine the VMT per Lane Mile value.

- **Two Trip Ends within the Study Area VMT and VMT per Lane Mile** – this metric accounts for trips that travel between zones within the study area, but do not leave the study area. The lane miles for this metric are consistent with the total VMT calculation

- **One Trip End within the Study Area VMT and VMT per Lane Mile** – this metric accounts for trips that begin or end within the study area. However, the opposing origin or destination is located outside the study area. Once again, the lane miles for this metric are consistent with the Total VMT calculation.

- **Non Study Area VMT and VMT per Lane Mile** – this metric accounts for trips that pass through the study area, but do not have an origin or a destination within the study area. The lane miles for this metric are consistent with the Total VMT calculation.

- **Intrazonal VMT and VMT per Lane Mile** – this metric accounts for trips that remain within a TAZ boundary within the study area. These trips to not enter the roadway network. Therefore, the lane mile metric for this calculation is limited to the lane miles within the specific zones, and not the network between zones.

As shown in Table 4-6, the greatest portion of the Total VMT is attributed to trips where one trip end, either the origin or destination, is located within the study area, but the other end of the trip is located outside the study area. The Little McGonigle Ranch Road extension is forecast to result in a 0.20% reduction in VMT within the study area. **Tables 4-7 and 4-8** summarize the regional VMT associated with the baseline and with the Little McGonigle Ranch Road extension conditions. As shown, the road extension is forecast to result in a decrease in regional VMT by over 10,000 vehicles miles traveled per day, which equates to a 0.01% reduction.

Table 4-6: Horizon Year VMT and VMT per Lane Mile Analysis

Scenario	LANE MILES	TOTAL		Two Trip Ends within Study Area		One Trip End within Study Area		No Trip Ends within Study Area		Intrazonal VMT (Trips within Study Area)		
		VMT	VMT per Lane Mile	VMT	VMT per Lane Mile	VMT	VMT per Lane Mile	VMT	VMT per Lane Mile	VMT	Lane Miles	VMT per Lane Mile
Without Little McGonigle Ranch Road	236.80	1,768,948	7,470	423,058	1,787	1,345,890	5,684	45,238,610	191,041	2,353	26.8	88
With Little McGonigle Ranch Road	237.90	1,765,415	7,421	422,213	1,775	1,343,202	5,646	45,239,431	190,162	2,353	26.8	88
Difference	***1.10***	***-3,533***	***-49***	***-845***	***-12***	***-2,688***	***-38***	***821***	***-880***	**-**	**-**	**-**
Percent Change (Difference / without VMT)		***0.20%***	***0.66%***									

Table 4-7: Regional VMT Summary – Baseline Condition

JURISDICTION	TOTAL VMT	TOTAL Study Area VMT	Two Trip End VMT	One Trip End VMT	NON-Study Area VMT
Carlsbad Total	4,278,932	78,911	-	78,911	4,200,021
Chula Vista Total	5,476,328	16,679	-	16,679	5,459,649
Coronado Total	472,194	1,817	-	1,817	470,377
Del Mar Total	100,502	9,682	-	9,682	90,820
El Cajon Total	2,455,257	5,510	-	5,510	2,449,747
Encinitas Total	2,548,409	106,884	-	106,884	2,441,525
Escondido Total	3,535,041	34,161	-	34,161	3,500,880
External TOTAL	526,183	2,142	-	2,142	524,041
Imperial Beach Total	132,255	66	-	66	132,189
La Mesa Total	2,108,525	4,632	-	4,632	2,103,893
Lemon Grove Total	971,442	1,235	-	1,235	970,207
National City Total	1,917,843	9,872	-	9,872	1,907,971
Oceanside Total	4,050,450	24,736	-	24,736	4,025,714
Poway Total	1,295,670	20,274	-	20,274	1,275,396
San Diego Total	47,007,558	1,768,948	423,058	1,345,890	45,238,610
San Marcos Total	2,729,083	7,501	-	-	2,721,582
Santee Total	1,338,709	12,067	-	12,067	1,326,642
Solana Beach Total	715,001	45,017	-	45,017	669,984
Unincorporated TOTAL	23,592,359	178,885	-	178,885	23,413,474
Vista Total	2,174,720	4,728	-	4,728	2,169,992
Regionwide Total	**107,426,461**	**2,333,747**	**423,058**	**1,903,188**	**105,092,714**

Table 4-8: Regional VMT Summary – With Little McGonigle Ranch Road

JURISDICTION	TOTAL VMT	TOTAL Study Area VMT	Two Trip End VMT	One Trip End VMT	NON-Study Area VMT
Carlsbad Total	4,278,160	78,862	-	78,862	4,199,298
Chula Vista Total	5,477,644	16,733	-	16,733	5,460,911
Coronado Total	472,312	1,814	-	1,814	470,498
Del Mar Total	100,325	9,721	-	9,721	90,604
El Cajon Total	2,454,872	5,515	-	5,515	2,449,357
Encinitas Total	2,548,251	106,891	-	106,891	2,441,360
Escondido Total	3,535,339	34,195	-	34,195	3,501,144
External TOTAL	526,179	2,142	-	2,142	524,037
Imperial Beach Total	132,385	67	-	67	132,318
La Mesa Total	2,107,619	4,621	-	4,621	2,102,998
Lemon Grove Total	971,954	1,240	-	1,240	970,714
National City Total	1,917,681	9,857	-	9,857	1,907,824
Oceanside Total	4,048,565	24,726	-	24,726	4,023,839
Poway Total	1,294,965	20,299	-	20,299	1,274,666
San Diego Total	47,004,846	1,765,415	422,213	1,343,202	45,239,431
San Marcos Total	2,729,469	7,519	-	-	2,721,950
Santee Total	1,338,171	12,022	-	12,022	1,326,149
Solana Beach Total	714,842	45,021	-	45,021	669,821
Unincorporated TOTAL	23,587,433	179,024	-	179,024	23,408,409
Vista Total	2,175,386	4,721	-	4,721	2,170,665
REGIONWIDE TOTAL	**107,416,398**	**2,330,405**	**422,213**	**1,900,673**	**105,085,993**
Net Change in VMT (With – Baseline)	***(10,063)***	***(3,342)***	***(845)***	***(2,515)***	***(6,721)***

5 FINDINGS AND RECOMMENDATIONS

The purpose of this study was to evaluate the transportation related benefits associated with the extension of Little McGonigle Ranch Road. To measure the benefits, a series of key Evaluation Criteria were established, as described in Chapter 1 of this report. This section evaluates the findings of the technical analysis against the Key Evaluation Criteria as well as overall recommendations.

5.1 Benefits Assessment

Does the future year volume along the roadway extension result in a shift in traffic that is consistent with the planned capacity of the roadway?

The forecast daily traffic volume along the extension of Little McGonigle Ranch Road is approximately 4,700 vehicles per day. According to the Del Mar Mesa Community Plan, Little McGonigle Ranch Road is classified as a two-lane Collector Roadway and includes a multi-use trail. The current approved Public Facilities Financing Plan estimated the cost of the Little McGonigle Ranch Road extension to be approximately $7.1 million (Project 43-4). Funding for the project was assumed to be collected through FBA fees. The schedule provided in the PFFP state that land acquisition, design and construction were expected to be completed in 2008. Economic conditions in the region resulted in the anticipated funding for this project to become unavailable as expected in 2008.

The City is in the process of updating the PFFP, which includes the Little McGonigle Ranch Road extension. Recent estimates for this construction exceed the PFFP estimated cost and are estimated to be approximately over $33 million. The justification for the road extension in the PFFP stated "this project is required to accommodate additional traffic in Del Mar Mesa and will provide access from Del Mar Mesa to adjoining communities". The volume forecast for the year 2035 shows that less than 5,000 vehicles per day are forecast to use the Little McGonigle Ranch Road extension. Of that volume, less than 37% are attributed to the residences within the Del Mar Mesa Community (17% from the existing residential areas and 20% from the planned residential areas).

The capacity of a two-lane Collector is 10,000 vehicles per day. The forecast volume is expected to consume less than 50% of the total available capacity. Based on this assessment, the traffic conditions along Little McGonigle Ranch Road will be maintained at LOS A conditions. The lack of friction that can occur along roadways operating at LOS A or LOS B often results in speeds that exceed the posted speed limit along the corridor.

The low volume and high cost result in an imbalance in the overall direct benefit to the community. As stated previously, approximately 37% of the total volume on the roadway extension is generated by the surrounding community. The remaining 63% of trips are trips diverted from other routes such as SR-56, Del Mar Heights and Carmel Country Road. Therefore, the anticipated benefit of providing access to the

Del Mar Mesa Community, as stated in the PFFP, is not directly evident based on the volume of daily traffic forecast and the analysis conducted for this report.

Will the shift in traffic to the new road reduce traffic on critically congested routes such that deficient intersections or roadway segments are forecast to operate at acceptable operating conditions with the construction of the new roadway?

The roadway extension will result in a reduction in peak hour traffic volumes that would reduce peak hour intersection delays. As shown in Table 4-1, a total of four intersections are forecast to operate at LOS E or F by the Horizon Year 2035. Of those, four are forecast to result in a reduction in delay during the AM or PM peak hour as a result of the Little McGonigle Ranch Road extension:

Intersection 1: Carmel Valley Road / Del Mar Heights Road
Intersection 7: Carmel Country Road / Del Mar Mesa Road
Intersection 10: Carmel Country Road / Carmel Canyon Road
Intersection 12: Carmel Canyon Road / Del Mar Heights Road

Of these four intersections, the intersection of Carmel County Road / Del Mar Mesa Road is forecast to result in improved operating conditions in the PM peak period such that level of service improves from LOS E to LOS D, thereby removing the deficient operations at this location during the PM peak period.

There will be no improvement in roadway segment conditions with the Little McGonigle Ranch Road extension. As shown in Table 4-2, the Little McGonigle Ranch Road extension does not result in a change in roadway segment operating conditions through the Horizon Year 2035. All roadway segments within the study area are forecast to operate at LOS D or better without or with the roadway extension.

Does the road extension result in changes in operating conditions along SR-56 or at the ramp intersections?

No, the roadway extension does not result in a change in the operating conditions along SR-56 or at the ramp intersections. As shown in Table 4-4, SR-56 is forecast to operate at deficient levels of service in the westbound direction in the AM peak and deficient levels of service in the eastbound direction in the PM peak. The extension of Little McGonigle Ranch Road did not result in the forecast change in the freeway mainline speed. One segment is forecast to result in an improved speed of 0.4 mph, which is negligible for drivers.

The results of the intersection operational analysis presented in Table 4-1 demonstrates that the change in traffic volumes does not result in a change in level of service at any of the four ramp intersections studied that would result in a significant impact. All but one intersection is forecast to remain at the same LOS without and with the roadway extension. The ramp intersection of Carmel Valley Road / SR-56 WB is forecast to change from LOS C to LOS D with the roadway extension. LOS D is considered acceptable

based on City and Caltrans thresholds of significance and LOS standards. Therefore, the roadway extension has no impacts on the intersection operating conditions in the study area.

Does the road extension result in deficient operating conditions at intersections or along roadway segments within the study area that would not be deficient without the connection?

No. The roadway extension does not result in change in operating condition from acceptable to deficient at any intersection or roadway segment within the study area.

Does the road extension result in reduced response time such that Fire Stations provide for an average travel time of 5 minutes or less with the roadway extension?

No, the forecast average travel time for emergency response vehicles does not fall below the City's threshold of 5 minutes. As shown in Table 4-5, the forecast Horizon Year 2035 emergency response travel time for the two Fire Stations within the study area do not fall below the 5 minute threshold. Fire Station 24, which is located near the intersection of Del Mar Heights / Carmel Country Road is forecast to have a nominal change of less than one minute with the extension of Little McGonigle Ranch Road. The baseline travel time is forecast to be 8.2 minutes without the extension and approximately 7.9 minutes with the extension.

Fire Station 47 is forecast to have a significantly improved travel time with the Little McGonigle Road extension. Without the roadway extension, the average response travel time is approximately 10 minutes. The average response time is reduced by as much as three (3) minutes with the extension of Little McGonigle Ranch Road to 7 minutes. However, the reduced emergency response time for this fire station does not fall below the City's 5-minute threshold.

Does the road extension improve access for pedestrians and bicycles within the community?

Yes, the extension improves access for residents in Del Mar Mesa to activity centers north of SR-56. Current pedestrian and bicycle access from the Del Mar Mesa Community south of SR-56 to Carmel Mountain Road is provided along Del Mar Mesa Road and Carmel Mountain Road, both of which connect with Carmel Country Road. To access activity centers on the north side of SR-56, including Torrey Pines High School, Canyon Crest Academy, Cathedral Catholic High School, retail centers and the Community Center, pedestrians and bicyclists would cross SR-56 at Carmel Country Road.

With the extension, a multi-use path, sidewalks and bicycle lanes would be provided along Little McGonigle Ranch Road from its existing terminus at Del Mar Mesa Road to the SR-56 ramps. This would provide for a more direct connection from the residential communities within the Del Mar Mesa community center to the activity centers on the north side of SR-56. A comparison of distances from the intersection of Little McGonigle Ranch Road / Del Mar Mesa Road to specific destinations is provided in Table 5-1 below.

Due to the remote location of the proposed roadway extension, all activity centers are currently three to five miles from the residences near Little McGonigle Ranch Road. A typical acceptable walking distance from a residential area to an activity center is 0.25 to 0.50 miles in order for the destination to be considered "within walking distance". The Little McGonigle Ranch Road extension would not reduce the walking distance to less than 0.5 miles but significantly reduces the walking distance from the community to activity centers along Carmel Valley Road including Canyon Crest Academy and The Village at Pacific Highlands retail center.

According to the City of San Diego Bicycle Master Plan, the City has identified three citywide goals for improving bicycle transportation in the region:

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation, and mobility benefits through increased bicycling

The Little McGonigle Ranch Road extension would improve accessibility to activity centers within the five-mile travel distance identified in the City's Bicycle Master Plan. In addition, the roadway extension would meet the goal of completing a link of the local bikeway network as described in the Specific Plan Circulation Element.

As shown in **Table 5-1**, the Little McGonigle Ranch Road extension results in very little change in the distance or travel time to the Community Center, Torrey Pines High School or other activity centers to the west of Carmel Canyon Road.

Table 5-1: Comparison of Distances and Travel Times to Local Activity Centers

Activity Center	Baseline Conditions			With Little McGonigle Ranch Road Extension Conditions		
	Distance (miles)	Travel Time (Minutes)		Distance (miles)	Travel Time (minutes)	
		Pedestrian(1)	Bicycle(2)		Pedestrian(1)	Bicycle(2)
The Village at Pacific Highlands	4.5	113	18	1.5	38	6
Canyon Crest Academy	4.5	113	18	1.5	38	6
Cathedral Catholic High School	4.0	101	16	2.0	50	8
Torrey Pines High School	3.5	88	14	3.5	88	14
Torrey Highlands Park	3.5	88	14	3.5	88	14
Del Mar Highlands Town Center	3.5	88	14	4.0	101	16
Carmel Valley Community	4.0	101	16	4.5	113	18

Note: (1) Pedestrian travel time assumes a 3.5 feet per second walking speed
(2) Bicycle travel time assumes a 15mph travel speed

Does the road extension result in the completion of a regionally significant bicycle route identified in the regional, city or Specific Plan identified bicycle network?

Yes, the multiuse trail and bicycle lanes planned for Little McGonigle Ranch Road are included in the Specific Plan Circulation Element. Figure 22 of the Del Mar Mesa Specific Plan Circulation Element identifies Class II bicycle lanes along Little McGonigle Ranch Road from Del Mar Mesa to SR-56. In addition, the Circulation Element references the construction of a multiuse trail along Little McGonigle Ranch Road (referred to as Camino Santa Fe, on page 59 and Figure 20 of the Specific Plan Circulation Element).

Does the road extension improve access to transit?

No. There is currently no transit service in this area. The extension of Little McGonigle Ranch Road would not result a change in this condition.

Does the road extension result in a reduction in VMT for the Del Mar Mesa, Del Mar Heights or Carmel Valley Community Planning Areas?

Yes, the extension of Little McGonigle Ranch Road results in a nominal reduction in VMT both within the study area and regionally. Tables 4-6 through 4-8 summarized the local and regional VMT without and with the roadway extension. As shown, the study area VMT is forecast to be reduced by approximately 0.2% while the regional VMT is forecast to be reduced by 0.1%. This change is considered nominal and not significant.

Will the road extension result in an increase in cut through or regionally serving traffic that may adversely affect the local community?

Yes, the road extension is forecast to result in a shift in regionally serving traffic. As stated previously, approximately 37% of the traffic along Little McGonigle Ranch Road is forecast to be generated from existing and planned residential communities within the Del Mar Mesa Specific Plan area. The remaining 63% of the trips are anticipated to be attributed to a shift in traffic patterns from Carmel Country Road, SR-56, and Del Mar Heights Road.

5.2 Recommendations

The construction of Little McGonigle Ranch Road is forecast to cost over $33 million. The majority of the Del Mar Mesa Community is developed with the remaining undeveloped areas accounting for approximately 118 new single family homes. Based on the forecast travel patterns generated by the SANDAG model, 4,000 new trips per day are forecast to use Little McGonigle Ranch Road of which less than 40% are destined for the existing and planned new developments within the Del Mar Mesa Community. The remaining trips are forecast to be diverted trips using the corridor as a by-pass to congested routes such as I-5, SR-56, Del Mar Heights Road and Carmel Valley Road.

The roadway extension project is included in the PFFP and is only partially funded through DIF fees imposed on new development. The 107 new homes planned for the Del Mar Mesa Community would only be responsible for their proportional share of cost to construct the new roadway. The current cost per new household is over $118,819 per unit. With the DIF contributions for this project being equivalent to the percentage of remaining development, an additional funding source would have to be identified.

The benefits to the community and to region are marginal. There are no forecast significant improvements in delay or operations along existing facilities and nominal improvements to travel time, VMT and community-wide emergency response times. The greatest benefit in the community is improved connectivity for bicycles, where a two-thirds reduction in travel time is expected for activity centers along the Carmel Valley Road corridor.

Table 5-2 summarizes the benefits and challenges for all modes of travel. Based on this assessment, the cost to construct the road – not only financial, but also community impacts – outweigh the local benefits. Based on the data evaluated in this report, the construction of Little McGonigle Ranch Road as a two-lane Collector is not recommended. In lieu of constructing the two-lane Collector, several alternatives should be considered to address the anticipated benefits that would have resulted from the roadway connection:

- Construct a pedestrian/bicycle connection between Little McGonigle Ranch Road and Carmel Valley Road. This connection would meet the local and regional bicycle planning objectives of providing regional connectivity and improving bicycle travel distances to activity centers to less than 5 miles.

- Construct a new fire station within the Del Mar Mesa Community (south of SR-56) to serve the areas where the desired 5-minute response time is currently not being met.

It is anticipated that the construction of the recommended alternatives to the roadway extension would cost less than the estimated $33 million and would provide similar benefits to those identified with the roadway extension without the potential community impacts associated with diverted traffic and noise that may be associated with the extension of Little McGonigle Ranch Road.

Table 5-2: Summary of Benefits & Issues

Analysis Criteria	Benefit	Potential Issues
Is the volume consistent with planned capacity of the new roadway?	No. The volume on the roadway is well below the capacity of the roadway.	Excess capacity can lead to speeding and diversion.
Would congestion be reduced on critically congested routes?	Yes. The new road results in a reduction in delay at four intersections currently operating at deficient LOS.	One of four intersection is forecast to result in a change in LOS from deficient to acceptable. All other deficient intersections are forecast to remain deficient with the road extension.
Does the roadway result in a change in freeway or freeway ramp operations?	No. Changes in travel time, speed and delay along the state-operated facilities is negligible.	
Are there new impacts forecast with road extension?	No. The road extension does not result in a change in delay that results in LOS E or F operations at intersection or roadway segments.	Although operating conditions are within an acceptable range, the new road is forecast to create a new route between I-5 and SR-56 that may lead to a high level of diversion that does not currently exist. Approximately 63% of trips on the new road are pass through trips as a result of diversion from SR-56, I-5, Carmel Country Road and Del Mar Heights Road
Would emergency response times improve with the roadway extension?	Yes. Fire station 47, which is located most adjacent to the roadway extension is forecast to have a reduction in response time from 10 minutes to 7 minutes.	Overall, the emergency response times for fire stations within the community does not fall below the City's 5-minute threshold.
Does pedestrian & bicycle access improve?	Yes. The roadway extension improves bicycle access from the communities south of SR-56 to activity centers within the community. Travel distances to activity centers along Carmel Valley Road are reduced by as much as 3 miles, making them more accessible by bicycle than the existing condition.	Although pedestrian linkages are improved, activity centers within the community are too far to be considered walkable without or with the road extension (0.5 miles).
Does transit access improve?	No. There is no transit in the area.	
Does the road result in a reduction in VMT?	Yes. The regional VMT and local VMT are both forecast to decline with the roadway extension.	The reduction in VMT is nominal with a local reduction of 0.2% and regional reduction of 0.1%.
Will the roadway have an adverse impact on the community?	Yes. The roadway is forecast to shift 4,700 new trips to Little McGonigle Ranch Road. Of those trips 63% do not originate or are not destined for the residential communities located along or take access from Little McGonigle Ranch Road.	Increased noise and traffic will result from the construction of the new road. The local demand for the roadway does not support the need based on the ratio of the local volume to the overall capacity of the road.

Traffic Count Data

APPENDIX A

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-001 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	2	1	2	2	1	2	2	1	
7:00 AM	58	74	31	9	176	119	41	34	38	27	30	6	643
7:15 AM	99	59	44	26	242	118	51	73	85	27	58	19	901
7:30 AM	170	75	112	39	153	325	76	159	139	52	145	15	1460
7:45 AM	137	90	68	24	194	177	102	144	112	65	174	34	1321
8:00 AM	51	71	27	19	202	218	85	67	45	38	85	21	929
8:15 AM	45	71	12	3	214	210	87	16	36	18	24	5	741
8:30 AM	29	64	9	6	281	207	65	9	34	21	19	2	746
8:45 AM	34	60	16	4	236	202	44	13	35	17	16	0	677
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	623	564	319	130	1698	1576	551	515	524	265	551	102	7418
APPROACH %'s :	41.37%	37.45%	21.18%	3.82%	49.88%	46.30%	34.65%	32.39%	32.96%	28.87%	60.02%	11.11%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	457	295	251	108	791	838	314	443	381	182	462	89	4611
PEAK HR FACTOR :		0.702			0.840			0.761			0.671		0.790

UTURNS

	NB	SB	EB	WB
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	1	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-001 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	2	1	2	2	1	2	2	1	2	2	1	
4:00 PM	26	106	25	2	75	46	167	37	90	31	38	7	650
4:15 PM	23	100	21	4	60	55	190	41	77	17	24	8	620
4:30 PM	27	110	20	12	67	51	181	46	95	35	22	19	685
4:45 PM	43	83	22	9	51	76	205	65	114	21	32	5	726
5:00 PM	44	129	22	6	74	47	231	57	146	22	51	12	841
5:15 PM	37	96	19	6	68	67	213	84	149	41	57	23	860
5:30 PM	43	128	12	10	65	41	239	73	135	31	48	23	848
5:45 PM	40	129	14	11	65	53	225	45	110	30	21	14	757
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	283	881	155	60	525	436	1651	448	916	228	293	111	5987
APPROACH %'s :	21.46%	66.79%	11.75%	5.88%	51.42%	42.70%	54.76%	14.86%	30.38%	36.08%	46.36%	17.56%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	164	482	67	33	272	208	908	259	540	124	177	72	3306
PEAK HR FACTOR :		0.914			0.910			0.955			0.771		0.961

UTURNS			
NB	SB	EB	WB
0	0	0	0
2	0	0	0
0	2	0	0
1	1	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	1	0	0
NB	SB	EB	WB
3	5	0	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Valley Rd and Del Mar Heights Rd , Del Mar

Date:	1/12/2016
Day:	Tuesday

Project #:	16-4003-001
City:	Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Valley Rd)

Lanes	1	2	2		
AM	838	791	108	698	AM
NOON	0	0	0	0	NOON
PM	208	272	33	1462	PM

Eastbound Approach (Del Mar Heights Rd)

	AM	NOON	PM
	1757	0	549
2	314	0	908
2	443	0	259
1	381	0	540
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
89	0	72	1
462	0	177	2
182	0	124	2
802	0	359	
AM	NOON	PM	

CONTROL: Signalized

Northbound Approach

AM	1354	457	295	251	AM
NOON	0	0	0	0	NOON
PM	936	164	482	67	PM
		2	2	1	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	1737	698	AM
	0	0	NOON
	513	1462	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
1757	0	549	733	0	373
1138	0	1707	802	0	359

	South Leg	
AM	1354	1003
NOON	0	0
PM	936	713

Total Volume Per Leg

	North Leg
AM	2435
NOON	0
PM	1975

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
2895	0	2256	1535	0	732

	South Leg
AM	2357
NOON	0
PM	1649

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-002 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			Edgewood Bend Ct			Edgewood Bend Ct			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	2	2	0	0	0	0	2	0	1	
7:00 AM	0	170	33	7	206	0	0	0	0	4	0	3	423
7:15 AM	0	210	115	19	317	0	0	0	0	26	0	6	693
7:30 AM	0	325	244	54	314	0	0	0	0	103	0	19	1059
7:45 AM	0	225	136	29	265	0	0	0	0	119	0	55	829
8:00 AM	0	120	10	8	297	0	0	0	0	22	0	9	466
8:15 AM	0	128	6	3	251	0	0	0	0	7	0	2	397
8:30 AM	0	107	3	5	322	0	0	0	0	1	0	2	440
8:45 AM	0	111	6	4	277	0	0	0	0	2	0	1	401
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1396	553	129	2249	0	0	0	0	284	0	97	4708
APPROACH %'s :	0.00%	71.63%	28.37%	5.42%	94.58%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	74.54%	0.00%	25.46%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	880	505	110	1193	0	0	0	0	270	0	89	3047
PEAK HR FACTOR :		0.609			0.885			0.000			0.516		0.719

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	1	0	0
0	0	0	0
NB	SB	EB	WB
0	3	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-002 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			Edgewood Bend Ct			Edgewood Bend Ct				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	2	1	2	2	0	0	0	0	2	0	1					
4:00 PM	0	168	3	1	183	0	0	0	0	11	0	3	369	0	0	0	0
4:15 PM	0	134	8	4	162	0	0	0	0	5	0	3	316	0	1	0	0
4:30 PM	0	160	11	6	185	0	0	0	0	12	0	7	381	0	1	0	0
4:45 PM	0	159	11	13	169	0	0	0	0	18	0	10	380	0	0	0	1
5:00 PM	0	161	13	12	214	0	0	0	0	17	0	13	430	0	0	0	0
5:15 PM	0	162	13	15	263	0	0	0	0	43	0	16	512	0	0	0	0
5:30 PM	0	191	5	4	204	0	0	0	0	26	0	20	450	0	0	0	0
5:45 PM	0	186	3	1	214	0	0	0	0	13	0	2	419	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	1321	67	56	1594	0	0	0	0	145	0	74	3257	0	2	0	1
APPROACH %'s :	0.00%	95.17%	4.83%	3.39%	96.61%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	66.21%	0.00%	33.79%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	0	700	34	32	895	0	0	0	0	99	0	51	1811				
PEAK HR FACTOR :		0.936			0.834			0.000			0.636		0.884				

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Valley Rd and Edgewood Bend Ct , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-002

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Valley Rd)

	Lanes 0	2	2		
AM	0	1193	110	969	AM
NOON	0	0	0	0	NOON
PM	0	895	32	751	PM

Eastbound Approach (Edgewood Bend Ct)

Lanes	AM	NOON	PM
	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Westbound Approach

AM	NOON	PM	Lanes
89	0	51	1
0	0	0	0
270	0	99	2
615	0	66	

CONTROL: Signalized

Northbound Approach

AM	1463	0	880	505	AM
NOON	0	0	0	0	NOON
PM	994	0	700	34	PM
		0	2	1	Lanes

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
AM	1303	969	AM
NOON	0	0	NOON
PM	927	751	PM

West Leg AM	NOON	PM	East Leg AM	NOON	PM
0	0	0	359	0	150
0	0	0	615	0	66

	South Leg	
AM	1463	1385
NOON	0	0
PM	994	734

Total Volume Per Leg

	North Leg
AM	2272
NOON	0
PM	1678

West Leg AM	NOON	PM	East Leg AM	NOON	PM
0	0	0	974	0	216

	South Leg
AM	2848
NOON	0
PM	1728

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-003 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			SR-56 WB Ramps			SR-56 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	0.5	1.5	0	0	0	0.5	0.5	2	
7:00 AM	14	133	0	0	30	184	0	0	0	2	0	86	449
7:15 AM	3	283	0	0	53	308	0	0	0	1	1	72	721
7:30 AM	1	468	0	0	62	345	0	0	0	1	1	121	999
7:45 AM	2	254	0	0	84	280	0	0	0	4	4	56	684
8:00 AM	1	100	0	0	74	242	0	0	0	4	2	34	457
8:15 AM	3	81	0	0	62	215	0	0	0	3	3	43	410
8:30 AM	4	63	0	0	42	276	0	0	0	3	5	38	431
8:45 AM	1	62	0	0	39	226	0	0	0	2	4	50	384
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	29	1444	0	0	446	2076	0	0	0	20	20	500	4535
APPROACH %'s :	1.97%	98.03%	0.00%	0.00%	17.68%	82.32%	#DIV/0!	#DIV/0!	#DIV/0!	3.70%	3.70%	92.59%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	7	1105	0	0	273	1175	0	0	0	10	8	283	2861
PEAK HR FACTOR :		0.593			0.889			0.000			0.612		0.716

UTURNS

NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-003 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			SR-56 WB Ramps			SR-56 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	0	0.5	1.5	0	0	0	0.5	0.5	2	
4:00 PM	5	127	0	0	97	96	0	0	0	1	0	48	374
4:15 PM	6	109	0	0	91	80	0	0	0	2	0	40	328
4:30 PM	3	106	0	0	112	80	0	0	0	4	0	51	356
4:45 PM	3	115	0	0	104	83	0	0	0	3	0	58	366
5:00 PM	2	129	0	0	135	99	0	0	0	1	0	43	409
5:15 PM	2	118	0	0	169	134	0	0	0	3	2	57	485
5:30 PM	2	142	0	0	148	91	0	0	0	2	0	54	439
5:45 PM	6	143	0	0	127	86	0	0	1	1	1	52	417
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	29	989	0	0	983	749	0	0	1	17	3	403	3174
APPROACH %'s :	2.85%	97.15%	0.00%	0.00%	56.76%	43.24%	0.00%	0.00%	100.00%	4.02%	0.71%	95.27%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	12	532	0	0	579	410	0	0	1	7	3	206	1750
PEAK HR FACTOR :		0.913			0.816			0.250			0.871		0.902

UTURNS

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Valley Rd and SR-56 WB Ramps , Del Mar

Date:	1/12/2016
Day:	Tuesday

Project #:	16-4003-003
City:	Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Valley Rd)

	Lanes 1.5	0.5	0		
AM	1175	273	0	1388	AM
NOON	0	0	0	0	NOON
PM	410	579	0	738	PM

Eastbound Approach (SR-56 WB Ramps)

Lanes	AM	NOON	PM
	1190	0	425
0	0	0	0
0	0	0	0
0	0	0	1

Westbound Approach

AM	NOON	PM	Lanes
283	0	206	2
8	0	3	0.5
10	0	7	0.5
0	0	0	

Northbound Approach

AM	283	7	1105	0	AM
NOON	0	0	0	0	NOON
PM	587	12	532	0	PM
		1	2	0	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	1448	1388	AM
	0	0	NOON
	989	738	PM

West Leg AM	NOON	PM	East Leg AM	NOON	PM
1190	0	425	301	0	216
0	0	1	0	0	0

	South Leg	
AM	283	1112
NOON	0	0
PM	587	544

Total Volume Per Leg

	North Leg
AM	2836
NOON	0
PM	1727

West Leg AM	NOON	PM	East Leg AM	NOON	PM
1190	0	426	301	0	216

	South Leg
AM	1395
NOON	0
PM	1131

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-004 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			SR-56 EB Ramps			SR-56 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	2	1	0	1.5	0.5	1	0	0	0	
7:00 AM	0	16	5	27	2	0	148	0	2	0	0	0	200
7:15 AM	0	5	1	51	4	0	379	0	2	0	0	0	442
7:30 AM	0	6	1	80	4	0	458	1	10	0	0	0	560
7:45 AM	0	1	3	76	6	0	126	0	3	0	0	0	215
8:00 AM	0	12	5	54	8	0	98	0	10	0	0	0	187
8:15 AM	0	8	3	59	5	0	73	0	4	0	0	0	152
8:30 AM	0	8	0	35	7	0	60	2	3	0	0	0	115
8:45 AM	0	7	0	38	5	0	65	0	3	0	0	0	118
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	63	18	420	41	0	1407	3	37	0	0	0	1989
APPROACH %'s :	0.00%	77.78%	22.22%	91.11%	8.89%	0.00%	97.24%	0.21%	2.56%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	28	10	234	16	0	1111	1	17	0	0	0	1417
PEAK HR FACTOR :		0.452			0.744			0.602			0.000		0.633

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-004 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Valley Rd			Carmel Valley Rd			SR-56 EB Ramps			SR-56 EB Ramps				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	2	0	2	1	0	1.5	0.5	1	0	0	0					
4:00 PM	0	5	1	91	3	0	123	1	0	0	0	0	224	0	0	0	0
4:15 PM	0	10	3	90	7	0	106	2	2	0	0	0	220	0	1	0	0
4:30 PM	0	4	4	114	5	0	106	0	2	0	0	0	235	0	0	0	0
4:45 PM	0	8	2	110	3	0	115	2	4	0	0	0	244	0	0	0	0
5:00 PM	0	3	3	138	4	0	133	2	2	0	0	0	285	0	0	0	0
5:15 PM	0	4	3	160	5	0	122	6	3	0	0	0	303	0	0	0	0
5:30 PM	0	9	2	140	7	0	137	9	4	0	0	0	308	0	0	0	0
5:45 PM	0	10	1	115	5	0	127	9	3	0	0	0	270	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	53	19	958	39	0	969	31	20	0	0	0	2089	0	1	0	0
APPROACH %'s :	0.00%	73.61%	26.39%	96.09%	3.91%	0.00%	95.00%	3.04%	1.96%	#DIV/0!	#DIV/0!	#DIV/0!					

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	26	9	553	21	0	519	26	12	0	0	0	1166
PEAK HR FACTOR :		0.795			0.870			0.928			0.000		0.946

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Valley Rd and SR-56 EB Ramps , Del Mar

Date:	1/12/2016
Day:	Tuesday

Project #:	16-4003-004
City:	Del Mar

AM Peak Hour	700 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach

Carmel Valley Rd

Lanes	0	1	2		
AM	0	16	234	1139	AM
NOON	0	0	0	0	NOON
PM	0	21	553	545	PM

Eastbound Approach

SR-56 EB Ramps

Lanes	AM	NOON	PM
	0	0	0
1.5	1111	0	519
0.5	1	0	26
1	17	0	12

Westbound Approach

Lanes	AM	NOON	PM
0	0	0	0
0	0	0	0
0	0	0	0
	245	0	588

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Northbound Approach

AM	33	0	28	10	AM
NOON	0	0	0	0	NOON
PM	33	0	26	9	PM
		0	2	0	Lanes

Total Ins & Outs

	AM	NOON	PM
North Leg	250	0	574
	1139	0	545
East Leg	0	0	0
	245	0	588
South Leg	33	0	33
	38	0	35
West Leg	0	0	0
	1129	0	557

Total Volume Per Leg

	AM	NOON	PM
North Leg	1389	0	1119
East Leg	245	0	588
South Leg	71	0	68
West Leg	1129	0	557

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-005 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Del Vino Ct/Carmel Mtn Rd			Del Vino Ct/Carmel Mtn Rd			Little McGonicle Ranch Rd			Little McGonicle Ranch Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
7:00 AM	4	5	0	0	8	12	6	0	2	0	0	0	37
7:15 AM	1	2	0	0	6	18	7	0	4	0	0	0	38
7:30 AM	3	2	0	0	12	35	5	0	6	0	0	0	63
7:45 AM	4	6	0	0	8	15	4	0	3	0	0	0	40
8:00 AM	4	1	0	0	4	13	11	0	5	0	0	0	38
8:15 AM	0	2	0	0	6	10	5	0	2	0	0	0	25
8:30 AM	1	3	0	0	5	6	4	0	2	0	0	0	21
8:45 AM	2	4	0	0	2	8	12	0	3	0	0	0	31
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	19	25	0	0	51	117	54	0	27	0	0	0	293
APPROACH %'s :	43.18%	56.82%	0.00%	0.00%	30.36%	69.64%	66.67%	0.00%	33.33%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	12	11	0	0	30	81	27	0	18	0	0	0	179
PEAK HR FACTOR :	0.575			0.590			0.703			0.000			0.710

UTURNS

NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 3-Way Stop (NB/SB/EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-005 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Del Vino Ct/Carmel Mtn Rd			Del Vino Ct/Carmel Mtn Rd			Little McGonicle Ranch Rd			Little McGonicle Ranch Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	0	0	
4:00 PM	8	3	0	0	5	12	6	0	2	0	0	0	36
4:15 PM	4	8	0	0	8	11	13	0	2	0	0	0	46
4:30 PM	7	7	0	0	2	11	10	0	3	0	0	0	40
4:45 PM	7	7	0	0	2	17	20	0	3	0	0	0	56
5:00 PM	8	7	0	0	5	11	13	0	4	0	0	0	48
5:15 PM	4	8	0	0	3	9	17	0	3	0	0	0	44
5:30 PM	4	3	0	0	0	7	8	0	3	0	0	0	25
5:45 PM	5	9	0	0	3	0	5	0	5	0	0	0	27
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	47	52	0	0	28	78	92	0	25	0	0	0	322
APPROACH %'s :	47.47%	52.53%	0.00%	0.00%	26.42%	73.58%	78.63%	0.00%	21.37%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	26	29	0	0	17	50	56	0	12	0	0	0	190
PEAK HR FACTOR :	0.917			0.882			0.739			0.000			0.848

UTURNS

NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 3-Way Stop (NB/SB/EB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Del Vino Ct/Carmel Mtn Rd and Little McGonicle Ranch Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-005

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	415 PM

Peak Hour Summary

Southbound Approach

Del Vino Ct/Carmel Mtn Rd

Lanes	0	1	0		
AM	81	30	0	38	AM
NOON	0	0	0	0	NOON
PM	50	17	0	85	PM

Eastbound Approach

Little McGonicle Ranch Rd

	AM	NOON	PM
	93	0	76
0	27	0	56
1	0	0	0
0	18	0	12
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	
AM	NOON	PM	

CONTROL

3-Way Stop (NB/SB/EB)

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Northbound Approach

AM	48	12	11	0	AM
NOON	0	0	0	0	NOON
PM	29	26	29	0	PM
		0	1	0	Lanes

Total Ins & Outs

North Leg	
111	38
0	0
67	85

AM NOON PM

West Leg		
93	0	76
45	0	68

AM NOON PM

East Leg		
0	0	0
0	0	0

AM NOON PM

South Leg	
48	23
0	0
29	55

AM NOON PM

Total Volume Per Leg

North Leg
149
0
152

AM NOON PM

West Leg		
138	0	144

AM NOON PM

East Leg		
0	0	0

AM NOON PM

South Leg
71
0
84

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-006 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			Carmel Mountain Rd			Carmel Mountain Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	1	0	2	2	2	0	1	2	0	
7:00 AM	0	0	0	26	0	47	59	26	0	0	26	11	195
7:15 AM	0	0	0	17	0	54	132	17	0	0	16	17	253
7:30 AM	0	0	0	17	0	100	116	8	0	0	44	34	319
7:45 AM	0	0	0	6	0	195	139	30	0	0	86	12	468
8:00 AM	0	0	0	15	0	73	122	22	0	0	18	12	262
8:15 AM	0	0	0	14	0	75	52	14	0	0	22	13	190
8:30 AM	0	0	0	12	0	59	48	12	0	0	22	6	159
8:45 AM	0	0	0	10	0	48	33	11	0	0	22	9	133
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	117	0	651	701	140	0	0	256	114	1979
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	15.23%	0.00%	84.77%	83.35%	16.65%	0.00%	0.00%	69.19%	30.81%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	55	0	422	509	77	0	0	164	75	1302
PEAK HR FACTOR :	0.000			0.593			0.867			0.610			0.696

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
NB	SB	EB	WB
0	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-006 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			Carmel Mountain Rd			Carmel Mountain Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	1	0	2	2	2	0	1	2	0	
4:00 PM	0	0	0	14	0	50	78	22	0	0	13	31	208
4:15 PM	0	0	0	7	0	52	108	23	0	0	18	16	224
4:30 PM	0	0	0	15	0	59	100	17	0	0	11	14	216
4:45 PM	0	0	0	11	0	60	145	19	0	0	10	15	260
5:00 PM	0	0	0	12	0	63	150	35	0	0	16	27	303
5:15 PM	0	0	0	10	0	97	180	22	0	0	20	19	348
5:30 PM	0	0	0	16	0	64	184	28	0	0	13	10	315
5:45 PM	0	0	0	11	0	48	174	41	0	0	9	16	299
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	96	0	493	1119	207	0	0	110	148	2173
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	16.30%	0.00%	83.70%	84.39%	15.61%	0.00%	0.00%	42.64%	57.36%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	0	49	0	272	688	126	0	0	58	72	1265
PEAK HR FACTOR :	0.000			0.750			0.947			0.756			0.909

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	2	0	0
0	0	0	0
0	1	0	0
0	0	0	0
NB	SB	EB	WB
0	3	0	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Country Rd and Carmel Mountain Rd , Del Mar

Date:	1/12/2016
Day:	Tuesday

Project #:	16-4003-006
City:	Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach

Carmel Country Rd

Lanes	2	0	1		
AM	422	0	55	584	AM
NOON	0	0	0	0	NOON
PM	272	0	49	760	PM

Eastbound Approach

Carmel Mountain Rd

	AM	NOON	PM
	586	0	330
2	509	0	688
2	77	0	126
0	0	0	0
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
75	0	72	0
164	0	58	2
0	0	0	1
132	0	175	
AM	NOON	PM	

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Northbound Approach

AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM
		0	0	0	Lanes

Total Ins & Outs

North Leg	
477	584
0	0
321	760

AM NOON PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
586	0	330	239	0	130
586	0	814	132	0	175

South Leg	
0	0
0	0
0	0

AM NOON PM

Total Volume Per Leg

North Leg
1061
0
1081

AM NOON PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
1172	0	1144	371	0	305

South Leg
0
0
0

AM NOON PM

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-007 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			Del Mar Mesa Rd			Del Mar Mesa Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	0	1	0	1	1	0	0	0	0	1	0	1					
7:00 AM	0	144	0	15	61	0	0	0	0	2	0	21	243	0	1	0	0
7:15 AM	0	209	2	21	102	0	0	0	0	0	0	28	362	0	4	0	0
7:30 AM	0	246	1	9	176	0	0	0	0	2	0	52	486	0	0	0	0
7:45 AM	0	195	1	24	138	0	0	0	0	4	0	26	388	0	9	0	0
8:00 AM	0	144	3	27	125	0	0	0	0	1	0	28	328	0	3	0	0
8:15 AM	0	94	1	20	113	0	0	0	0	2	0	15	245	0	1	0	0
8:30 AM	0	85	1	18	87	0	0	0	0	0	0	12	203	0	0	0	0
8:45 AM	0	80	1	26	88	0	0	0	0	2	0	14	211	0	3	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	0	1197	10	160	890	0	0	0	0	13	0	196	2466	0	21	0	0
APPROACH %'s :	0.00%	99.17%	0.83%	15.24%	84.76%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	6.22%	0.00%	93.78%					
PEAK HR START TIME :	715 AM												TOTAL				
PEAK HR VOL :	0	794	7	81	541	0	0	0	0	7	0	134	1564				
PEAK HR FACTOR :		0.811			0.841			0.000			0.653		0.805				

CONTROL : 1-Way Stop (WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-007 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			Del Mar Mesa Rd			Del Mar Mesa Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	0	0	0	1	0	1	
4:00 PM	0	130	1	24	79	0	0	0	0	2	0	20	256
4:15 PM	0	135	3	24	108	0	0	0	0	4	0	26	300
4:30 PM	0	161	1	20	100	0	0	0	0	0	0	22	304
4:45 PM	0	174	6	30	86	0	0	0	0	3	0	30	329
5:00 PM	0	212	4	32	124	0	0	0	0	4	0	25	401
5:15 PM	0	207	3	20	141	0	0	0	0	0	0	20	391
5:30 PM	0	216	4	18	108	0	0	0	0	2	0	24	372
5:45 PM	0	161	1	16	83	0	0	0	0	0	0	15	276
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1396	23	184	829	0	0	0	0	15	0	182	2629
APPROACH %'s :	0.00%	98.38%	1.62%	18.16%	81.84%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	7.61%	0.00%	92.39%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	809	17	100	459	0	0	0	0	9	0	99	1493
PEAK HR FACTOR :		0.939			0.868			0.000			0.818		0.931

	UTURNS			
	NB	SB	EB	WB
4:00 PM	0	9	0	0
4:15 PM	0	5	0	0
4:30 PM	0	2	0	0
4:45 PM	0	6	0	0
5:00 PM	0	4	0	0
5:15 PM	0	5	0	0
5:30 PM	0	3	0	0
5:45 PM	0	6	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	40	0	0

CONTROL : 1-Way Stop (WB)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Country Rd and Del Mar Mesa Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-007

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach (Carmel Country Rd)

Lanes	0	1	1		
AM	0	541	81	928	AM
NOON	0	0	0	0	NOON
PM	0	459	100	908	PM

Eastbound Approach (Del Mar Mesa Rd)

Lanes	AM	NOON	PM
	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Westbound Approach

AM	NOON	PM	Lanes
134	0	99	1
0	0	0	0
7	0	9	1
88	0	117	

Northbound Approach

AM	548	0	794	7	AM
NOON	0	0	0	0	NOON
PM	468	0	809	17	PM
		0	1	0	Lanes

CONTROL

1-Way Stop (WB)

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	622	928	AM
	0	0	NOON
	559	908	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	0	141	0	108
0	0	0	88	0	117

	South Leg	
AM	548	801
NOON	0	0
PM	468	826

Total Volume Per Leg

	North Leg
AM	1550
NOON	0
PM	1467

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
0	0	0	229	0	225

	South Leg
AM	1349
NOON	0
PM	1294

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-008 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			SR-56 WB Ramps			SR-56 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	2	2	0	0	0	0	2	0	1	
7:00 AM	0	117	41	119	66	0	0	0	0	41	0	37	421
7:15 AM	0	255	63	130	105	0	0	0	0	43	0	43	639
7:30 AM	0	200	102	193	183	0	0	0	0	49	0	58	785
7:45 AM	0	212	80	206	145	0	0	0	0	48	0	58	749
8:00 AM	0	139	103	213	157	0	0	0	0	41	0	36	689
8:15 AM	0	116	52	196	129	0	0	0	0	48	0	34	575
8:30 AM	0	67	74	183	104	0	0	0	0	49	0	33	510
8:45 AM	0	75	67	151	78	0	0	0	0	43	0	34	448
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1181	582	1391	967	0	0	0	0	362	0	333	4816
APPROACH %'s :	0.00%	66.99%	33.01%	58.99%	41.01%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	52.09%	0.00%	47.91%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	806	348	742	590	0	0	0	0	181	0	195	2862
PEAK HR FACTOR :		0.907			0.886			0.000			0.879		0.911

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
0	1	0	1

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-008 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			SR-56 WB Ramps			SR-56 WB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	2	2	0	0	0	0	2	0	1	
4:00 PM	0	145	56	72	100	0	0	0	0	33	0	41	447
4:15 PM	0	118	55	52	100	0	0	0	0	38	0	58	421
4:30 PM	1	126	41	59	120	0	0	0	0	35	0	48	430
4:45 PM	0	142	51	46	129	0	0	0	0	34	0	57	459
5:00 PM	0	149	66	39	135	0	0	0	0	52	0	71	512
5:15 PM	0	158	52	52	169	0	0	0	0	67	0	77	575
5:30 PM	0	166	52	54	116	0	0	0	0	47	0	70	505
5:45 PM	0	185	40	47	99	0	0	0	0	38	0	68	477
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	1	1189	413	421	968	0	0	0	0	344	0	490	3826
APPROACH %'s :	0.06%	74.17%	25.76%	30.31%	69.69%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	41.25%	0.00%	58.75%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	658	210	192	519	0	0	0	0	204	0	286	2069
PEAK HR FACTOR :		0.964			0.804			0.000			0.851		0.900

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
NB	SB	EB	WB
1	0	0	2

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Country Rd and SR-56 WB Ramps , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-008

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Country Rd)

	Lanes 0	2	2		
AM	0	590	742	1001	AM
NOON	0	0	0	0	NOON
PM	0	519	192	944	PM

Eastbound Approach (SR-56 WB Ramps)

Lanes	AM	NOON	PM
	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Westbound Approach

AM	NOON	PM	Lanes
195	0	286	1
0	0	0	0
181	0	204	2
1090	0	402	

Northbound Approach

AM	771	0	806	348	AM
NOON	0	0	0	0	NOON
PM	723	0	658	210	PM
		0	2	1	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	1332	1001	AM
	0	0	NOON
	711	944	PM

West Leg AM	NOON	PM		East Leg AM	NOON	PM
0	0	0		376	0	490
0	0	0		1090	0	402

	South Leg	
AM	771	1154
NOON	0	0
PM	723	868

Total Volume Per Leg

	North Leg
AM	2333
NOON	0
PM	1655

West Leg AM	NOON	PM		East Leg AM	NOON	PM
0	0	0		1466	0	892

	South Leg
AM	1925
NOON	0
PM	1591

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-009 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			SR-56 EB Ramps			SR-56 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	2	2	0	1.5	0.5	1	0	0	0	
7:00 AM	0	106	29	40	61	0	44	3	23	0	0	0	306
7:15 AM	0	228	46	69	82	0	77	0	27	0	0	0	529
7:30 AM	0	204	137	104	120	0	113	0	29	0	0	0	707
7:45 AM	0	190	113	81	110	0	102	0	42	0	0	0	638
8:00 AM	0	175	47	82	119	0	58	0	49	0	0	0	530
8:15 AM	0	121	40	77	108	0	52	0	41	0	0	0	439
8:30 AM	0	93	41	54	91	0	51	1	38	0	0	0	369
8:45 AM	0	94	28	49	80	0	49	0	48	0	0	0	348
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1211	481	556	771	0	546	4	297	0	0	0	3866
APPROACH %'s :	0.00%	71.57%	28.43%	41.90%	58.10%	0.00%	64.46%	0.47%	35.06%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	797	343	336	431	0	350	0	147	0	0	0	2404
PEAK HR FACTOR :		0.836			0.856			0.863			0.000		0.850

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	1	0	0
NB	SB	EB	WB
0	3	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-009 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Country Rd			Carmel Country Rd			SR-56 EB Ramps			SR-56 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	1	2	2	0	1.5	0.5	1	0	0	0	
4:00 PM	0	100	68	49	80	0	100	105	35	0	0	0	537
4:15 PM	0	104	83	41	103	0	65	139	43	0	0	0	578
4:30 PM	0	102	73	43	100	0	65	124	38	0	0	0	545
4:45 PM	0	113	103	67	107	0	71	121	27	0	0	0	609
5:00 PM	0	152	110	45	133	0	79	106	43	0	0	0	668
5:15 PM	0	131	90	75	158	0	59	92	45	0	0	0	650
5:30 PM	0	151	102	44	123	0	75	116	34	0	0	0	645
5:45 PM	0	129	78	46	100	0	91	124	25	0	0	0	593
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	982	707	410	904	0	605	927	290	0	0	0	4825
APPROACH %'s :	0.00%	58.14%	41.86%	31.20%	68.80%	0.00%	33.21%	50.88%	15.92%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	547	405	231	521	0	284	435	149	0	0	0	2572
PEAK HR FACTOR :		0.908			0.807			0.952			0.000		0.963

UTURNS			
NB	SB	EB	WB
0	1	0	0
0	3	0	0
0	2	0	0
0	2	0	0
0	3	0	0
0	3	0	0
0	0	0	0
0	3	0	0
NB	SB	EB	WB
0	17	0	0

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Country Rd and SR-56 EB Ramps , Del Mar

Date:	1/12/2016
Day:	Tuesday

Project #:	16-4003-009
City:	Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach (Carmel Country Rd)

Lanes	0	2	2		
AM	0	431	336	1147	AM
NOON	0	0	0	0	NOON
PM	0	521	231	831	PM

Eastbound Approach (SR-56 EB Ramps)

Lanes	AM	NOON	PM
	0	0	0
1.5	350	0	284
0.5	0	0	435
1	147	0	149

Westbound Approach

AM	NOON	PM	Lanes
0	0	0	0
0	0	0	0
0	0	0	0
679	0	1071	

Northbound Approach

AM	578	0	797	343	AM
NOON	0	0	0	0	NOON
PM	670	0	547	405	PM
		0	2	1	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	767	1147	AM
	0	0	NOON
	752	831	PM

West Leg			East Leg		
AM	NOON	PM			
0	0	0	0	0	0
497	0	868	679	0	1071
			AM	NOON	PM

	South Leg	
AM	578	1140
NOON	0	0
PM	670	952

Total Volume Per Leg

	North Leg
AM	1914
NOON	0
PM	1583

West Leg			East Leg		
AM	NOON	PM			
497	0	868	679	0	1071
			AM	NOON	PM

	South Leg
AM	1718
NOON	0
PM	1622

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-010 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Canyon Rd/Del Mar Trails Rd			Carmel Canyon Rd/Del Mar Trails Rd			Carmel Country Rd			Carmel Country Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	1	0	2	1	0	1	2	0	1	2	0					
7:00 AM	4	8	27	94	11	21	11	91	7	18	92	71	455	0	0	0	1
7:15 AM	7	15	28	126	28	12	16	111	6	33	97	153	632	0	0	0	0
7:30 AM	18	26	64	145	49	14	14	151	16	59	58	163	777	0	0	0	1
7:45 AM	16	29	80	170	54	41	29	110	5	60	98	88	780	0	0	1	0
8:00 AM	10	18	47	207	54	34	20	104	6	27	91	29	647	0	0	0	1
8:15 AM	10	19	36	144	19	30	21	137	6	16	83	40	561	0	0	1	0
8:30 AM	5	13	24	135	15	25	13	114	5	8	65	41	463	0	0	0	0
8:45 AM	3	7	16	127	17	24	10	75	6	8	67	45	405	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	73	135	322	1148	247	201	134	893	57	229	651	630	4720	0	0	2	3
APPROACH %'s :	13.77%	25.47%	60.75%	71.93%	15.48%	12.59%	12.36%	82.38%	5.26%	15.17%	43.11%	41.72%					
PEAK HR START TIME :	715 AM												TOTAL				
PEAK HR VOL :	51	88	219	648	185	101	79	476	33	179	344	433	2836				
PEAK HR FACTOR :		0.716			0.792			0.812			0.845		0.909				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-010 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Canyon Rd/Del Mar Trails Rd			Carmel Canyon Rd/Del Mar Trails Rd			Carmel Country Rd			Carmel Country Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	1	0	2	1	0	1	2	0	1	2	0					
4:00 PM	9	19	27	67	6	20	26	83	8	23	70	84	442	0	0	0	1
4:15 PM	18	43	33	39	18	12	29	88	8	20	75	76	459	0	0	0	1
4:30 PM	9	46	33	62	13	11	44	97	1	16	90	64	486	0	0	0	0
4:45 PM	6	35	25	49	11	14	60	85	8	12	107	89	501	0	0	0	0
5:00 PM	11	55	37	63	15	17	59	99	9	19	96	110	590	0	0	0	0
5:15 PM	11	52	45	52	8	16	56	99	6	15	103	125	588	0	0	0	0
5:30 PM	7	42	18	45	14	11	55	98	9	18	108	118	543	0	0	0	0
5:45 PM	5	52	11	36	11	12	51	90	13	21	111	113	526	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	76	344	229	413	96	113	380	739	62	144	760	779	4135	0	0	0	2
APPROACH %'s :	11.71%	53.00%	35.29%	66.40%	15.43%	18.17%	32.18%	62.57%	5.25%	8.56%	45.16%	46.29%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	34	201	111	196	48	56	221	386	37	73	418	466	2247				
PEAK HR FACTOR :		0.801			0.789			0.964			0.977		0.952				

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Canyon Rd/Del Mar Trails Rd and Carmel Country Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-010

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach

Carmel Canyon Rd/Del Mar Trails Rd

Lanes	0	1	2		
AM	101	185	648	600	AM
NOON	0	0	0	0	NOON
PM	56	48	196	888	PM

Eastbound Approach

Carmel Country Rd

Lanes	AM	NOON	PM
	496	0	508
1	79	0	221
2	476	0	386
0	33	0	37

Westbound Approach

Lanes	AM	NOON	PM
0	433	0	466
2	344	0	418
1	179	0	73
	1343	0	693

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Northbound Approach

AM	397	51	88	219	AM
NOON	0	0	0	0	NOON
PM	158	34	201	111	PM
		1	1	0	Lanes

Total Ins & Outs

	AM	NOON	PM
North Leg	934	0	300
	600	0	888
West Leg	496	0	508
	588	0	644
East Leg	956	0	957
	1343	0	693
South Leg	397	0	158
	358	0	346

Total Volume Per Leg

	AM	NOON	PM
North Leg	1534	0	1188
West Leg	1084	0	1152
East Leg	2299	0	1650
South Leg	755	0	504

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-011 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Canyon Rd			Carmel Canyon Rd			Carmel Knolls Dr			Carmel Knolls Dr				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	1	1	1	1	1					
7:00 AM	4	64	19	1	42	5	3	2	13	76	4	18	251	0	0	0	0
7:15 AM	8	156	32	5	78	3	11	3	17	88	9	35	445	0	0	0	0
7:30 AM	0	143	58	12	103	4	8	1	18	104	5	19	475	0	0	0	0
7:45 AM	7	98	56	3	129	6	3	1	11	120	6	14	454	0	0	0	0
8:00 AM	7	26	36	5	148	10	2	1	13	123	6	13	390	2	0	0	0
8:15 AM	8	33	45	5	82	13	2	5	13	95	2	14	317	0	0	0	0
8:30 AM	4	24	33	8	73	1	5	3	15	79	4	13	262	0	0	0	0
8:45 AM	4	30	20	6	71	5	4	2	16	83	2	11	254	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	42	574	299	45	726	47	38	18	116	768	38	137	2848	2	0	0	0
APPROACH %'s :	4.59%	62.73%	32.68%	5.50%	88.75%	5.75%	22.09%	10.47%	67.44%	81.44%	4.03%	14.53%					

PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	22	423	182	25	458	23	24	6	59	435	26	81	1764
PEAK HR FACTOR :		0.780			0.776			0.718			0.954		0.928

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-011 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Canyon Rd			Carmel Canyon Rd			Carmel Knolls Dr			Carmel Knolls Dr				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	1	2	0	1	2	0	1	1	1	1	1	1					
4:00 PM	8	63	50	10	26	4	3	2	4	58	2	8	238	1	0	1	0
4:15 PM	5	86	55	19	27	3	3	2	2	41	1	17	261	0	0	0	0
4:30 PM	3	98	53	12	25	4	2	4	5	48	2	8	264	0	0	0	0
4:45 PM	8	114	51	14	24	7	5	5	5	39	3	8	283	0	0	0	0
5:00 PM	4	137	73	14	37	3	4	3	8	41	2	13	339	0	0	0	0
5:15 PM	5	124	87	18	29	6	3	6	10	39	3	11	341	0	0	0	0
5:30 PM	7	118	77	29	27	4	3	2	4	44	2	10	327	0	1	0	0
5:45 PM	7	109	92	13	24	10	4	2	6	27	2	8	304	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	47	849	538	129	219	41	27	26	44	337	17	83	2357	1	1	1	0
APPROACH %'s :	3.28%	59.21%	37.52%	33.16%	56.30%	10.54%	27.84%	26.80%	45.36%	77.12%	3.89%	18.99%					

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	23	488	329	74	117	23	14	13	28	151	9	42	1311
PEAK HR FACTOR :		0.972			0.892			0.724			0.902		0.961

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Canyon Rd and Carmel Knolls Dr , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-011

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Canyon Rd)

Lanes	0	2	1		
AM	23	458	25	528	AM
NOON	0	0	0	0	NOON
PM	23	117	74	544	PM

Eastbound Approach (Carmel Knolls Dr)

	AM	NOON	PM
	71	0	55
1	24	0	14
1	6	0	13
1	59	0	28
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
81	0	42	1
26	0	9	1
435	0	151	1
213	0	416	
AM	NOON	PM	

Northbound Approach

AM	952	22	423	182	AM
NOON	0	0	0	0	NOON
PM	296	23	488	329	PM
		1	2	0	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	506	528	AM
	0	0	NOON
	214	544	PM

West Leg			East Leg		
AM	NOON	PM			
71	0	55	542	0	202
89	0	55	213	0	416
			AM	NOON	PM

	South Leg	
AM	952	627
NOON	0	0
PM	296	840

Total Volume Per Leg

	North Leg
AM	1034
NOON	0
PM	758

West Leg			East Leg		
AM	NOON	PM			
160	0	110	755	0	618
			AM	NOON	PM

	South Leg
AM	1579
NOON	0
PM	1136

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-012 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Carmel Canyon Rd			Carmel Canyon Rd			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	0	1	0	0	0	0	3	0	1	3	0	
7:00 AM	49	0	24	0	0	0	0	84	4	32	141	0	334
7:15 AM	134	0	58	0	0	0	0	174	33	44	230	0	673
7:30 AM	55	0	122	0	0	0	0	343	39	63	196	0	818
7:45 AM	23	0	115	0	0	0	0	217	9	138	332	0	834
8:00 AM	24	0	28	0	0	0	0	76	12	129	381	0	650
8:15 AM	16	0	26	0	0	0	0	83	10	70	245	0	450
8:30 AM	31	0	25	0	0	0	0	84	16	64	233	0	453
8:45 AM	15	0	24	0	0	0	0	67	14	58	209	0	387
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	347	0	422	0	0	0	0	1128	137	598	1967	0	4599
APPROACH %'s :	45.12%	0.00%	54.88%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	89.17%	10.83%	23.31%	76.69%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	236	0	323	0	0	0	0	810	93	374	1139	0	2975
PEAK HR FACTOR :		0.728			0.000			0.591			0.742		0.892

UTURNS

	NB	SB	EB	WB
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	1	0	0	0
	NB	SB	EB	WB
	1	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-012 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Carmel Canyon Rd			Carmel Canyon Rd			Del Mar Heights Rd			Del Mar Heights Rd				UTURNS			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
LANES:	2	0	1	0	0	0	0	3	0	1	3	0					
4:00 PM	25	0	53	0	0	0	0	217	25	18	107	0	445	0	0	0	0
4:15 PM	25	0	79	0	0	0	0	235	28	20	94	0	481	0	0	0	0
4:30 PM	20	0	85	0	0	0	0	300	24	12	96	0	537	0	0	0	0
4:45 PM	14	0	89	0	0	0	0	257	27	20	126	0	533	0	0	0	0
5:00 PM	18	0	118	0	0	0	0	333	34	27	105	0	635	0	0	0	1
5:15 PM	23	0	115	0	0	0	0	350	23	26	136	0	673	0	0	0	1
5:30 PM	20	0	110	0	0	0	0	366	49	20	105	0	670	0	0	0	0
5:45 PM	23	0	105	0	0	0	0	322	24	21	94	0	589	0	0	0	0
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB	SB	EB	WB
TOTAL VOLUMES :	168	0	754	0	0	0	0	2380	234	164	863	0	4563	0	0	0	2
APPROACH %'s :	18.22%	0.00%	81.78%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	91.05%	8.95%	15.97%	84.03%	0.00%					
PEAK HR START TIME :	500 PM												TOTAL				
PEAK HR VOL :	84	0	448	0	0	0	0	1371	130	94	440	0	2567				
PEAK HR FACTOR :		0.964			0.000			0.904			0.824		0.954				

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Carmel Canyon Rd and Del Mar Heights Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-012

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Carmel Canyon Rd)

	Lanes	0	0	0		
AM		0	0	0	0	AM
NOON		0	0	0	0	NOON
PM		0	0	0	0	PM

Eastbound Approach (Del Mar Heights Rd)

	AM	NOON	PM
	1375	0	524
0	0	0	0
3	810	0	1371
0	93	0	130
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
0	0	0	0
1139	0	440	3
374	0	94	1
1133	0	1819	
AM	NOON	PM	

Northbound Approach

AM	467	236	0	323	AM
NOON	0	0	0	0	NOON
PM	224	84	0	448	PM
		2	0	1	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	0	0	AM
	0	0	NOON
	0	0	PM

West Leg	AM	NOON	PM
	1375	0	524
	903	0	1501

East Leg	AM	NOON	PM
	1513	0	534
	1133	0	1819

	South Leg	
AM	467	559
NOON	0	0
PM	224	532

Total Volume Per Leg

	North Leg
AM	0
NOON	0
PM	0

West Leg	AM	NOON	PM
	2278	0	2025

East Leg	AM	NOON	PM
	2646	0	2353

	South Leg
AM	1026
NOON	0
PM	756

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-013 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Lansdale Dr			Lansdale Dr			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	1	1	3	0	
7:00 AM	12	1	10	8	1	17	3	104	14	15	143	8	336
7:15 AM	38	14	14	16	6	14	3	181	26	12	209	13	546
7:30 AM	22	7	48	34	1	14	4	381	34	27	247	23	842
7:45 AM	25	0	42	17	1	23	10	360	42	34	404	18	976
8:00 AM	33	1	26	8	2	28	11	93	7	27	454	13	703
8:15 AM	14	2	9	11	1	20	8	92	6	16	277	8	464
8:30 AM	12	3	5	11	0	18	22	82	7	15	269	16	460
8:45 AM	8	2	10	10	3	24	14	65	7	12	243	17	415
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	164	30	164	115	15	158	75	1358	143	158	2246	116	4742
APPROACH %'s :	45.81%	8.38%	45.81%	39.93%	5.21%	54.86%	4.76%	86.17%	9.07%	6.27%	89.13%	4.60%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	118	22	130	75	10	79	28	1015	109	100	1314	67	3067
PEAK HR FACTOR :		0.877			0.837			0.687			0.749		0.786

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	1
NB	SB	EB	WB
0	0	1	2

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-013 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Lansdale Dr			Lansdale Dr			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	1	0	1	1	0	1	2	1	1	3	0	
4:00 PM	17	1	21	5	2	9	8	234	24	10	90	12	433
4:15 PM	17	4	9	6	2	6	7	297	19	5	82	10	464
4:30 PM	19	2	17	13	3	11	8	340	16	6	86	8	529
4:45 PM	20	1	13	8	3	6	13	324	21	19	123	9	560
5:00 PM	14	2	22	13	2	11	17	402	23	18	110	11	645
5:15 PM	17	1	18	13	0	10	17	445	23	15	139	13	711
5:30 PM	9	2	17	13	2	7	20	432	32	19	107	15	675
5:45 PM	10	0	13	12	0	7	10	384	28	6	105	10	585
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	123	13	130	83	14	67	100	2858	186	98	842	88	4602
APPROACH %'s :	46.24%	4.89%	48.87%	50.61%	8.54%	40.85%	3.18%	90.90%	5.92%	9.53%	81.91%	8.56%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	50	5	70	51	4	35	64	1663	106	58	461	49	2616
PEAK HR FACTOR :		0.822			0.865			0.945			0.850		0.920

	UTURNS			
	NB	SB	EB	WB
4:00 PM	0	0	0	2
4:15 PM	0	0	0	2
4:30 PM	0	0	0	1
4:45 PM	0	0	0	3
5:00 PM	0	0	0	4
5:15 PM	0	0	0	4
5:30 PM	0	0	0	1
5:45 PM	0	0	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	17

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Lansdale Dr and Del Mar Heights Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-013

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Lansdale Dr)

Lanes	0	1	1		
AM	79	10	75	117	AM
NOON	0	0	0	0	NOON
PM	35	4	51	118	PM

Eastbound Approach (Del Mar Heights Rd)

	AM	NOON	PM
	1511	0	546
1	28	0	64
2	1015	0	1663
1	109	0	106
Lanes	AM	NOON	PM

Westbound Approach

AM	NOON	PM	Lanes
67	0	49	0
1314	0	461	3
100	0	58	1
1220	0	1784	
AM	NOON	PM	

Northbound Approach

AM	219	118	22	130	AM
NOON	0	0	0	0	NOON
PM	168	50	5	70	PM
		1	1	0	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	164	117	AM
	0	0	NOON
	90	118	PM

West Leg			East Leg		
AM	NOON	PM			
1511	0	546	1481	0	568
1152	0	1833	1220	0	1784
			AM	NOON	PM

South Leg		
AM	219	270
NOON	0	0
PM	168	125

Total Volume Per Leg

North Leg		
AM	281	
NOON	0	
PM	208	

West Leg			East Leg		
AM	NOON	PM			
2663	0	2379	2701	0	2352
			AM	NOON	PM

South Leg	
AM	489
NOON	0
PM	293

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-014 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Seagrove St			Seagrove St			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	1	3	0	1	3	0	
7:00 AM	5	0	6	0	0	0	0	108	1	8	171	0	299
7:15 AM	10	0	11	0	0	0	2	214	3	5	239	0	484
7:30 AM	4	0	37	0	0	0	0	490	3	8	304	0	846
7:45 AM	9	0	26	0	0	0	3	392	5	20	467	0	922
8:00 AM	9	0	19	0	0	0	3	113	3	16	441	0	604
8:15 AM	6	0	5	0	0	0	3	101	7	5	313	0	440
8:30 AM	10	0	7	0	0	0	8	82	5	5	270	0	387
8:45 AM	5	0	12	0	0	0	19	68	4	6	275	0	389
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	58	0	123	0	0	0	38	1568	31	73	2480	0	4371
APPROACH %'s :	32.04%	0.00%	67.96%	#DIV/0!	#DIV/0!	#DIV/0!	2.32%	95.78%	1.89%	2.86%	97.14%	0.00%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	32	0	93	0	0	0	8	1209	14	49	1451	0	2856
PEAK HR FACTOR :		0.762			0.000			0.624			0.770		0.774

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	2	1
0	0	0	2
0	0	3	3
0	0	3	0
0	0	3	1
0	0	8	0
0	0	19	1
NB	SB	EB	WB
0	0	38	8

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-014 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Seagrove St			Seagrove St			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	0	0	1	3	0	1	3	0	
4:00 PM	6	0	13	0	0	0	2	266	7	3	103	0	400
4:15 PM	5	0	5	0	0	0	1	298	5	10	93	0	417
4:30 PM	3	0	3	0	0	0	4	362	1	6	115	0	494
4:45 PM	4	0	11	0	0	0	2	342	8	7	133	0	507
5:00 PM	3	0	8	0	0	0	5	446	4	7	146	0	619
5:15 PM	3	0	3	0	0	0	3	453	5	11	140	0	618
5:30 PM	3	0	5	0	0	0	1	460	11	9	133	0	622
5:45 PM	2	0	8	0	0	0	8	396	3	13	116	0	546
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	29	0	56	0	0	0	26	3023	44	66	979	0	4223
APPROACH %'s :	34.12%	0.00%	65.88%	#DIV/0!	#DIV/0!	#DIV/0!	0.84%	97.74%	1.42%	6.32%	93.68%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	11	0	24	0	0	0	17	1755	23	40	535	0	2405
PEAK HR FACTOR :		0.795			0.000			0.951			0.940		0.967

UTURNS			
NB	SB	EB	WB
0	0	2	1
0	0	1	0
0	0	4	0
0	0	2	1
0	0	5	0
0	0	3	1
0	0	1	0
0	0	8	0
NB	SB	EB	WB
0	0	26	3

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Seagrove St and Del Mar Heights Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-014

City: Del Mar

AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach (Seagrove St)

	Lanes 0	Lanes 0	Lanes 0		
AM	0	0	0	8	AM
NOON	0	0	0	0	NOON
PM	0	0	0	17	PM

Eastbound Approach (Del Mar Heights Rd)

Lanes	AM	NOON	PM
	1483	0	546
1	8	0	17
3	1209	0	1755
0	14	0	23

Westbound Approach

AM	NOON	PM	Lanes
0	0	0	0
1451	0	535	3
49	0	40	1
1302	0	1779	

Northbound Approach

AM	63	32	0	93	AM
NOON	0	0	0	0	NOON
PM	63	11	0	24	PM
		0	1	0	Lanes

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
AM	0	8	AM
NOON	0	0	NOON
PM	0	17	PM

West Leg AM	West Leg NOON	West Leg PM		East Leg AM	East Leg NOON	East Leg PM
1483	0	546		1500	0	575
1231	0	1795		1302	0	1779

	South Leg	
AM	63	125
NOON	0	0
PM	63	35

Total Volume Per Leg

	North Leg
AM	8
NOON	0
PM	17

West Leg AM	West Leg NOON	West Leg PM		East Leg AM	East Leg NOON	East Leg PM
2714	0	2341		2802	0	2354

	South Leg
AM	188
NOON	0
PM	98

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-015 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

AM

NS/EW Streets:	Valerio Gate/Cathedral North Pl			Valerio Gate/Cathedral North Pl			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0.5	1	1	0.5	0.5	1	3	0	2	2	0	
7:00 AM	8	0	9	2	0	1	1	65	5	43	118	1	253
7:15 AM	12	0	22	8	0	15	1	105	10	60	199	4	436
7:30 AM	43	0	37	11	1	6	2	305	14	79	282	8	788
7:45 AM	75	1	52	8	0	13	2	340	62	91	341	6	991
8:00 AM	44	0	18	4	0	9	3	129	10	18	473	5	713
8:15 AM	2	0	0	14	0	16	1	119	6	3	313	5	479
8:30 AM	2	0	2	12	0	8	5	102	0	2	284	9	426
8:45 AM	6	0	3	9	0	10	2	85	2	2	277	3	399
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	192	1	143	68	1	78	17	1250	109	298	2287	41	4485
APPROACH %'s :	57.14%	0.30%	42.56%	46.26%	0.68%	53.06%	1.24%	90.84%	7.92%	11.35%	87.09%	1.56%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	164	1	107	37	1	44	8	893	92	191	1409	24	2971
PEAK HR FACTOR :		0.531			0.683			0.614			0.819		0.749

UTURNS	NB	SB	EB	WB
7:00 AM	0	0	0	6
7:15 AM	0	0	0	3
7:30 AM	0	0	0	6
7:45 AM	0	0	1	3
8:00 AM	0	0	2	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	1
8:45 AM	0	0	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	3	19

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-4003-015 **Day:** Tuesday

City: Del Mar **Date:** 1/12/2016

PM

NS/EW Streets:	Valerio Gate/Cathedral North Pl			Valerio Gate/Cathedral North Pl			Del Mar Heights Rd			Del Mar Heights Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1.5	0.5	1	1	0.5	0.5	1	3	0	2	2	0	
4:00 PM	10	0	24	6	0	1	3	243	21	18	90	2	418
4:15 PM	13	0	25	4	0	3	4	289	22	14	96	2	472
4:30 PM	13	0	21	2	0	6	7	316	24	18	93	2	502
4:45 PM	23	0	22	5	0	1	10	327	19	11	116	8	542
5:00 PM	12	0	38	3	0	4	11	351	20	17	128	2	586
5:15 PM	32	0	45	3	0	2	10	485	19	13	132	4	745
5:30 PM	4	0	15	7	0	3	9	411	17	17	129	3	615
5:45 PM	6	1	12	5	0	5	9	389	23	12	125	6	593
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	113	1	202	35	0	25	63	2811	165	120	909	29	4473
APPROACH %'s :	35.76%	0.32%	63.92%	58.33%	0.00%	41.67%	2.07%	92.50%	5.43%	11.34%	85.92%	2.74%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	54	1	110	18	0	14	39	1636	79	59	514	15	2539
PEAK HR FACTOR :		0.536			0.800			0.853			0.987		0.852

UTURNS	NB	SB	EB	WB
4:00 PM	0	0	0	1
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	1	1	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	1	1	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	2	2	1

CONTROL : Signalized

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Valerio Gate/Cathedral North Pl and Del Mar Heights Rd , Del Mar

Date: 1/12/2016

Day: Tuesday

Project #: 16-4003-015

City: Del Mar

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Peak Hour Summary

Southbound Approach

Valerio Gate/Cathedral North Pl

Lanes	0.5	0.5	1		
AM	44	1	37	33	AM
NOON	0	0	0	0	NOON
PM	14	0	18	55	PM

Eastbound Approach

Del Mar Heights Rd

Lanes	AM	NOON	PM
	1617	0	582
1	8	0	39
3	893	0	1636
0	92	0	79

Westbound Approach

AM	NOON	PM	Lanes
24	0	15	0
1409	0	514	2
191	0	59	2
1037	0	1764	

CONTROL

Signalized

Northbound Approach

AM	284	164	1	107
NOON	0	0	0	0
PM	138	54	1	110
Lanes		1.5	0.5	1

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	AM	NOON	PM
North Leg	82	0	32
	33	0	55
West Leg	1617	0	582
	993	0	1754
East Leg	1624	0	588
	1037	0	1764
South Leg	284	0	138
	272	0	165

Total Volume Per Leg

	AM	NOON	PM
North Leg	115	0	87
West Leg	2610	0	2336
East Leg	2661	0	2352
South Leg	556	0	303

Prepared by NDS/ATD

VOLUME

Carmel Valley Rd Bet. Del Mar Heights Rd & Edgewood Bend Ct

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_001

DAILY TOTALS	NB	SB	EB	WB	Total
	9,681	11,603	0	0	21,284

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	14		11						25		12:00	125		114						239	
00:15	11		7						18		12:15	116		128						244	
00:30	5		4						9		12:30	100		127						227	
00:45	8	38	2	24					10	62	12:45	122	463	112	481					234	944
01:00	5		2						7		13:00	119		114						233	
01:15	7		3						10		13:15	155		123						278	
01:30	2		1						3		13:30	160		150						310	
01:45	6	20	3	9					9	29	13:45	157	591	128	515					285	1106
02:00	2		1						3		14:00	187		144						331	
02:15	3		2						5		14:15	213		270						483	
02:30	2		3						5		14:30	217		337						554	
02:45	4	11	2	8					6	19	14:45	243	860	223	974					466	1834
03:00	4		2						6		15:00	248		315						563	
03:15	0		1						1		15:15	213		282						495	
03:30	2		1						3		15:30	203		236						439	
03:45	6	12	1	5					7	17	15:45	170	834	185	1018					355	1852
04:00	2		2						4		16:00	165		179						344	
04:15	8		4						12		16:15	162		205						367	
04:30	6		10						16		16:30	148		195						343	
04:45	14	30	17	33					31	63	16:45	164	639	225	804					389	1443
05:00	7		19						26		17:00	175		244						419	
05:15	10		29						39		17:15	163		231						394	
05:30	30		34						64		17:30	189		236						425	
05:45	51	98	54	136					105	234	17:45	191	718	205	916					396	1634
06:00	42		66						108		18:00	195		237						432	
06:15	69		79						148		18:15	217		182						399	
06:30	104		121						225		18:30	213		132						345	
06:45	140	355	160	426					300	781	18:45	228	853	146	697					374	1550
07:00	159		216						375		19:00	175		105						280	
07:15	205		297						502		19:15	140		124						264	
07:30	296		381						677		19:30	141		98						239	
07:45	316	976	392	1286					708	2262	19:45	100	556	71	398					171	954
08:00	170		319						489		20:00	108		138						246	
08:15	133		250						383		20:15	112		80						192	
08:30	111		294						405		20:30	87		71						158	
08:45	125	539	278	1141					403	1680	20:45	78	385	68	357					146	742
09:00	116		251						367		21:00	59		45						104	
09:15	130		247						377		21:15	70		48						118	
09:30	118		199						317		21:30	41		37						78	
09:45	108	472	187	884					295	1356	21:45	24	194	26	156					50	350
10:00	82		194						276		22:00	31		27						58	
10:15	101		125						226		22:15	35		23						58	
10:30	122		148						270		22:30	21		21						42	
10:45	91	396	131	598					222	994	22:45	27	114	19	90					46	204
11:00	100		135						235		23:00	12		20						32	
11:15	132		157						289		23:15	11		18						29	
11:30	111		163						274		23:30	11		10						21	
11:45	144	487	137	592					281	1079	23:45	6	40	7	55					13	95
TOTALS		3434		5142						8576	TOTALS		6247		6461						12708
SPLIT %		40.0%		60.0%						40.3%	SPLIT %		49.2%		50.8%						59.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	9,681	11,603	0	0	21,284

AM Peak Hour	07:15	07:15			07:15	PM Peak Hour	14:15	14:30			14:30
AM Pk Volume	987	1389			2376	PM Pk Volume	921	1157			2078
Pk Hr Factor	0.781	0.886			0.839	Pk Hr Factor	0.928	0.858			0.923
7 - 9 Volume	1515	2427	0	0	3942	4 - 6 Volume	1357	1720	0	0	3077
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	17:00	16:45			17:00
7 - 9 Pk Volume	987	1389	0	0	2376	4 - 6 Pk Volume	718	936	0	0	1634
Pk Hr Factor	0.781	0.886	0.000	0.000	0.839	Pk Hr Factor	0.940	0.959	0.000	0.000	0.961

Prepared by NDS/ATD

VOLUME

Carmel Valley Rd Bet. Edgewood Bend Ct & SR-56

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_002

DAILY TOTALS	NB	SB	EB	WB	Total
	10,733	12,331	0	0	23,064

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	12		9						21		12:00	120		123						243	
00:15	10		8						18		12:15	148		133						281	
00:30	8		4						12		12:30	125		130						255	
00:45	4	34	2	23					6	57	12:45	144	537	111	497					255	1034
01:00	5		2						7		13:00	134		121						255	
01:15	4		3						7		13:15	168		162						330	
01:30	2		1						3		13:30	137		198						335	
01:45	4	15	2	8					6	23	13:45	167	606	145	626					312	1232
02:00	5		1						6		14:00	195		156						351	
02:15	2		2						4		14:15	204		267						471	
02:30	5		3						8		14:30	225		348						573	
02:45	3	15	3	9					6	24	14:45	286	910	256	1027					542	1937
03:00	2		2						4		15:00	250		465						715	
03:15	5		0						5		15:15	219		326						545	
03:30	3		1						4		15:30	174		262						436	
03:45	7	17	1	4					8	21	15:45	181	824	191	1244					372	2068
04:00	3		2						5		16:00	163		176						339	
04:15	5		4						9		16:15	152		213						365	
04:30	7		10						17		16:30	160		201						361	
04:45	15	30	15	31					30	61	16:45	168	643	223	813					391	1456
05:00	6		21						27		17:00	183		242						425	
05:15	20		27						47		17:15	205		250						455	
05:30	35		33						68		17:30	195		261						456	
05:45	65	126	48	129					113	255	17:45	212	795	196	949					408	1744
06:00	64		58						122		18:00	204		242						446	
06:15	117		67						184		18:15	205		182						387	
06:30	156		107						263		18:30	192		127						319	
06:45	185	522	152	384					337	906	18:45	227	828	133	684					360	1512
07:00	232		194						426		19:00	191		101						292	
07:15	292		271						563		19:15	132		146						278	
07:30	500		399						899		19:30	139		108						247	
07:45	352	1376	459	1323					811	2699	19:45	133	595	80	435					213	1030
08:00	176		405						581		20:00	113		175						288	
08:15	153		230						383		20:15	99		92						191	
08:30	122		275						397		20:30	81		66						147	
08:45	128	579	288	1198					416	1777	20:45	78	371	67	400					145	771
09:00	97		254						351		21:00	69		59						128	
09:15	134		260						394		21:15	77		53						130	
09:30	106		224						330		21:30	60		28						88	
09:45	96	433	200	938					296	1371	21:45	45	251	31	171					76	422
10:00	92		198						290		22:00	44		20						64	
10:15	109		122						231		22:15	39		30						69	
10:30	118		153						271		22:30	33		26						59	
10:45	132	451	143	616					275	1067	22:45	25	141	29	105					54	246
11:00	132		142						274		23:00	23		24						47	
11:15	126		207						333		23:15	27		18						45	
11:30	162		153						315		23:30	10		13						23	
11:45	137	557	153	655					290	1212	23:45	17	77	7	62					24	139
TOTALS		4155		5318						9473	TOTALS		6578		7013						13591
SPLIT %		43.9%		56.1%						41.1%	SPLIT %		48.4%		51.6%						58.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,733	12,331	0	0	23,064

AM Peak Hour	07:00	07:15			07:15	PM Peak Hour	14:30	14:30			14:30
AM Pk Volume	1376	1534			2854	PM Pk Volume	980	1395			2375
Pk Hr Factor	0.688	0.836			0.794	Pk Hr Factor	0.857	0.750			0.830
7 - 9 Volume	1955	2521	0	0	4476	4 - 6 Volume	1438	1762	0	0	3200
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	17:00	16:45			17:00
7 - 9 Pk Volume	1376	1534	0	0	2854	4 - 6 Pk Volume	795	976	0	0	1744
Pk Hr Factor	0.688	0.836	0.000	0.000	0.794	Pk Hr Factor	0.938	0.935	0.000	0.000	0.956

Prepared by NDS/ATD

VOLUME

Little McGonicle Ranch Rd W/O Carmel Mountain Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	652	772	1,424

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			15		22		37	
00:15			0		0		0		12:15			15		13		28	
00:30			0		1		1		12:30			15		10		25	
00:45			0		1	2	1	2	12:45			6	51	20	65	26	116
01:00			0		0		0		13:00			10		15		25	
01:15			0		0		0		13:15			14		15		29	
01:30			0		0		0		13:30			14		12		26	
01:45			0		1	1	1	1	13:45			6	44	14	56	20	100
02:00			0		1		1		14:00			5		13		18	
02:15			0		1		1		14:15			8		10		18	
02:30			0		0		0		14:30			13		12		25	
02:45			0		0	2	0	2	14:45			18	44	17	52	35	96
03:00			0		0		0		15:00			10		26		36	
03:15			1		0		1		15:15			15		15		30	
03:30			0		0		0		15:30			14		18		32	
03:45			0	1	0		0	1	15:45			12	51	11	70	23	121
04:00			0		0		0		16:00			8		15		23	
04:15			0		1		1		16:15			10		22		32	
04:30			0		0		0		16:30			13		14		27	
04:45			0		0	1	0	1	16:45			23	54	27	78	50	132
05:00			2		1		3		17:00			16		18		34	
05:15			1		3		4		17:15			22		16		38	
05:30			0		2		2		17:30			10		10		20	
05:45			1	4	2	8	3	12	17:45			10	58	5	49	15	107
06:00			4		4		8		18:00			5		13		18	
06:15			1		7		8		18:15			4		3		7	
06:30			7		6		13		18:30			9		10		19	
06:45			13	25	6	23	19	48	18:45			8	26	5	31	13	57
07:00			7		14		21		19:00			15		13		28	
07:15			12		21		33		19:15			5		5		10	
07:30			9		34		43		19:30			8		8		16	
07:45			9	37	21	90	30	127	19:45			5	33	7	33	12	66
08:00			12		18		30		20:00			8		2		10	
08:15			11		10		21		20:15			4		5		9	
08:30			4		9		13		20:30			10		1		11	
08:45			17	44	10	47	27	91	20:45			3	25	5	13	8	38
09:00			11		9		20		21:00			3		1		4	
09:15			17		8		25		21:15			4		4		8	
09:30			10		10		20		21:30			4		0		4	
09:45			7	45	11	38	18	83	21:45			3	14	1	6	4	20
10:00			15		13		28		22:00			3		4		7	
10:15			15		13		28		22:15			1		2		3	
10:30			7		17		24		22:30			2		1		3	
10:45			12	49	13	56	25	105	22:45			0	6	1	8	1	14
11:00			6		7		13		23:00			1		0		1	
11:15			15		16		31		23:15			3		0		3	
11:30			5		8		13		23:30			0		0		0	
11:45			11	37	11	42	22	79	23:45			0	4	1	1	1	5
TOTALS				242		310		552	TOTALS				410		462		872
SPLIT %				43.8%		56.2%		38.8%	SPLIT %				47.0%		53.0%		61.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	652	772	1,424

AM Peak Hour			11:45	07:15	07:15	PM Peak Hour			16:30	16:15	16:30
AM Pk Volume			56	94	136	PM Pk Volume			74	81	149
Pk Hr Factor			0.933	0.691	0.791	Pk Hr Factor			0.804	0.750	0.745
7 - 9 Volume	0	0	81	137	218	4 - 6 Volume	0	0	112	127	239
7 - 9 Peak Hour			08:00	07:15	07:15	4 - 6 Peak Hour			16:30	16:15	16:30
7 - 9 Pk Volume	0	0	44	94	136	4 - 6 Pk Volume	0	0	74	81	149
Pk Hr Factor	0.000	0.000	0.647	0.691	0.791	Pk Hr Factor	0.000	0.000	0.804	0.750	0.745

Prepared by NDS/ATD

VOLUME

Carmel Mountain Rd Bet. Little McGonicle Ranch Rd & Duck Pond Ln

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_004

DAILY TOTALS	NB	SB	EB	WB	Total
	591	456	0	0	1,047

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	1		0						1		12:00	11		11						22	
00:15	0		1						1		12:15	8		5						13	
00:30	1		0						1		12:30	11		20						31	
00:45	0	2	0	1					0	3	12:45	10	40	4	40					14	80
01:00	0		0						0		13:00	19		13						32	
01:15	0		0						0		13:15	12		11						23	
01:30	0		0						0		13:30	4		10						14	
01:45	2	2	0						2	2	13:45	15	50	10	44					25	94
02:00	0		0						0		14:00	6		8						14	
02:15	1		0						1		14:15	3		13						16	
02:30	0		0						0		14:30	8		9						17	
02:45	0	1	0						0	1	14:45	14	31	4	34					18	65
03:00	0		0						0		15:00	12		10						22	
03:15	0		0						0		15:15	14		15						29	
03:30	0		1						1		15:30	10		11						21	
03:45	0		0	1					0	1	15:45	14	50	12	48					26	98
04:00	0		0						0		16:00	10		7						17	
04:15	0		0						0		16:15	12		9						21	
04:30	0		0						0		16:30	14		4						18	
04:45	0		0						0		16:45	13	49	6	26					19	75
05:00	0		0						0		17:00	14		11						25	
05:15	0		0						0		17:15	10		8						18	
05:30	1		1						2		17:30	8		5						13	
05:45	3	4	1	2					4	6	17:45	15	47	6	30					21	77
06:00	4		1						5		18:00	9		2						11	
06:15	10		3						13		18:15	9		3						12	
06:30	23		5						28		18:30	14		3						17	
06:45	21	58	4	13					25	71	18:45	7	39	4	12					11	51
07:00	9		12						21		19:00	7		5						12	
07:15	3		11						14		19:15	7		2						9	
07:30	3		14						17		19:30	6		6						12	
07:45	10	25	12	49					22	74	19:45	4	24	2	15					6	39
08:00	5		9						14		20:00	4		2						6	
08:15	2		10						12		20:15	1		1						2	
08:30	6		9						15		20:30	2		1						3	
08:45	3	16	6	34					9	50	20:45	6	13	2	6					8	19
09:00	14		6						20		21:00	3		1						4	
09:15	8		11						19		21:15	4		1						5	
09:30	6		11						17		21:30	4		1						5	
09:45	13	41	6	34					19	75	21:45	1	12	4	7					5	19
10:00	6		9						15		22:00	3		1						4	
10:15	12		5						17		22:15	1		1						2	
10:30	12		5						17		22:30	2		0						2	
10:45	12	42	10	29					22	71	22:45	2	8	0	2					2	10
11:00	8		8						16		23:00	2		1						3	
11:15	9		7						16		23:15	0		0						0	
11:30	8		6						14		23:30	1		1						2	
11:45	9	34	6	27					15	61	23:45	0	3	0	2					0	5
TOTALS		225		190						415	TOTALS		366		266						632
SPLIT %		54.2%		45.8%						39.6%	SPLIT %		57.9%		42.1%						60.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	591	456	0	0	1,047

AM Peak Hour	06:15	07:00			06:30	PM Peak Hour	16:15	12:30			12:30
AM Pk Volume	63	49			88	PM Pk Volume	53	48			100
Pk Hr Factor	0.685	0.875			0.786	Pk Hr Factor	0.946	0.600			0.781
7 - 9 Volume	41	83	0	0	124	4 - 6 Volume	96	56	0	0	152
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	16:15	16:15			16:15
7 - 9 Pk Volume	25	49	0	0	74	4 - 6 Pk Volume	53	30	0	0	83
Pk Hr Factor	0.625	0.875	0.000	0.000	0.841	Pk Hr Factor	0.946	0.682	0.000	0.000	0.830

Prepared by NDS/ATD

VOLUME

Carmel Mountain Rd E/O Carmel Country Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,799	1,699	3,498

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			28		18		46	
00:15			0		1		1		12:15			19		25		44	
00:30			1		0		1		12:30			27		24		51	
00:45			0	1	0	1	0	2	12:45			30	104	35	102	65	206
01:00			2		0		2		13:00			28		20		48	
01:15			0		0		0		13:15			33		28		61	
01:30			2		0		2		13:30			16		26		42	
01:45			0	4	0		0	4	13:45			20	97	19	93	39	190
02:00			1		1		2		14:00			20		32		52	
02:15			1		1		2		14:15			23		44		67	
02:30			0		0		0		14:30			39		34		73	
02:45			0	2	0	2	0	4	14:45			51	133	50	160	101	293
03:00			0		0		0		15:00			38		58		96	
03:15			0		0		0		15:15			48		47		95	
03:30			1		2		3		15:30			35		56		91	
03:45			1	2	1	3	2	5	15:45			17	138	29	190	46	328
04:00			0		0		0		16:00			36		48		84	
04:15			0		0		0		16:15			27		32		59	
04:30			1		0		1		16:30			34		27		61	
04:45			2	3	7	7	9	10	16:45			30	127	25	132	55	259
05:00			0		1		1		17:00			49		43		92	
05:15			0		1		1		17:15			35		37		72	
05:30			1		3		4		17:30			37		23		60	
05:45			8	9	7	12	15	21	17:45			52	173	21	124	73	297
06:00			12		5		17		18:00			43		12		55	
06:15			19		10		29		18:15			32		20		52	
06:30			44		10		54		18:30			45		21		66	
06:45			47	122	11	36	58	158	18:45			23	143	16	69	39	212
07:00			49		42		91		19:00			32		14		46	
07:15			35		37		72		19:15			23		11		34	
07:30			18		89		107		19:30			16		11		27	
07:45			45	147	79	247	124	394	19:45			14	85	7	43	21	128
08:00			35		31		66		20:00			17		9		26	
08:15			26		36		62		20:15			15		11		26	
08:30			23		24		47		20:30			11		5		16	
08:45			23	107	32	123	55	230	20:45			13	56	6	31	19	87
09:00			25		30		55		21:00			12		2		14	
09:15			27		23		50		21:15			8		4		12	
09:30			28		23		51		21:30			10		2		12	
09:45			30	110	24	100	54	210	21:45			5	35	5	13	10	48
10:00			25		20		45		22:00			7		6		13	
10:15			18		28		46		22:15			6		0		6	
10:30			25		22		47		22:30			4		2		6	
10:45			22	90	27	97	49	187	22:45			4	21	2	10	6	31
11:00			13		27		40		23:00			1		1		2	
11:15			14		23		37		23:15			0		2		2	
11:30			28		32		60		23:30			2		1		3	
11:45			32	87	18	100	50	187	23:45			0	3	0	4	0	7
TOTALS				684		728		1412	TOTALS				1115		971		2086
SPLIT %				48.4%		51.6%		40.4%	SPLIT %				53.5%		46.5%		59.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,799	1,699	3,498

AM Peak Hour			06:30	07:00	07:00	PM Peak Hour			14:30	14:45	14:45
AM Pk Volume			175	247	394	PM Pk Volume			176	211	383
Pk Hr Factor			0.893	0.694	0.794	Pk Hr Factor			0.863	0.909	0.948
7 - 9 Volume	0	0	254	370	624	4 - 6 Volume	0	0	300	256	556
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour			17:00	16:00	17:00
7 - 9 Pk Volume	0	0	147	247	394	4 - 6 Pk Volume	0	0	173	132	297
Pk Hr Factor	0.000	0.000	0.750	0.694	0.794	Pk Hr Factor	0.000	0.000	0.832	0.688	0.807

Prepared by NDS/ATD

VOLUME

Carmel Mountain Rd W/O Carmel Country Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,186	4,212	9,398

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			3		1		4		12:00			44		37		81	
00:15			0		3		3		12:15			45		52		97	
00:30			3		1		4		12:30			53		42		95	
00:45			1	7	1	6	2	13	12:45			52	194	52	183	104	377
01:00			1		0		1		13:00			56		47		103	
01:15			2		0		2		13:15			54		51		105	
01:30			2		0		2		13:30			29		70		99	
01:45			1	6	0		1	6	13:45			44	183	58	226	102	409
02:00			1		2		3		14:00			43		81		124	
02:15			2		1		3		14:15			57		141		198	
02:30			0		0		0		14:30			200		90		290	
02:45			0	3	0	3	0	6	14:45			173	473	85	397	258	870
03:00			1		0		1		15:00			90		80		170	
03:15			0		1		1		15:15			75		141		216	
03:30			0		0		0		15:30			95		106		201	
03:45			1	2	3	4	4	6	15:45			92	352	77	404	169	756
04:00			0		3		3		16:00			99		62		161	
04:15			1		1		2		16:15			125		75		200	
04:30			3		4		7		16:30			126		73		199	
04:45			2	6	11	19	13	25	16:45			161	511	63	273	224	784
05:00			2		1		3		17:00			196		91		287	
05:15			6		4		10		17:15			202		115		317	
05:30			11		8		19		17:30			233		81		314	
05:45			12	31	16	29	28	60	17:45			180	811	60	347	240	1158
06:00			19		11		30		18:00			193		52		245	
06:15			18		19		37		18:15			160		49		209	
06:30			45		32		77		18:30			147		52		199	
06:45			40	122	40	102	80	224	18:45			99	599	53	206	152	805
07:00			107		90		197		19:00			81		55		136	
07:15			139		74		213		19:15			86		37		123	
07:30			131		193		324		19:30			61		35		96	
07:45			179	556	272	629	451	1185	19:45			46	274	34	161	80	435
08:00			123		95		218		20:00			34		40		74	
08:15			61		113		174		20:15			31		36		67	
08:30			57		89		146		20:30			38		35		73	
08:45			44	285	89	386	133	671	20:45			56	159	28	139	84	298
09:00			40		76		116		21:00			33		8		41	
09:15			49		72		121		21:15			15		18		33	
09:30			40		66		106		21:30			11		13		24	
09:45			38	167	56	270	94	437	21:45			8	67	15	54	23	121
10:00			49		52		101		22:00			15		5		20	
10:15			33		42		75		22:15			10		6		16	
10:30			48		32		80		22:30			9		2		11	
10:45			42	172	40	166	82	338	22:45			4	38	4	17	8	55
11:00			44		46		90		23:00			4		1		5	
11:15			26		34		60		23:15			1		4		5	
11:30			39		53		92		23:30			5		1		6	
11:45			48	157	51	184	99	341	23:45			1	11	1	7	2	18
TOTALS				1514		1798		3312	TOTALS				3672		2414		6086
SPLIT %				45.7%		54.3%		35.2%	SPLIT %				60.3%		39.7%		64.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,186	4,212	9,398

AM Peak Hour			07:15	07:30	07:15	PM Peak Hour			17:00	14:45	17:00
AM Pk Volume			572	673	1206	PM Pk Volume			811	412	1158
Pk Hr Factor			0.799	0.619	0.669	Pk Hr Factor			0.870	0.730	0.913
7 - 9 Volume	0	0	841	1015	1856	4 - 6 Volume	0	0	1322	620	1942
7 - 9 Peak Hour			07:15	07:30	07:15	4 - 6 Peak Hour			17:00	16:45	17:00
7 - 9 Pk Volume	0	0	572	673	1206	4 - 6 Pk Volume	0	0	811	350	1158
Pk Hr Factor	0.000	0.000	0.799	0.619	0.669	Pk Hr Factor	0.000	0.000	0.870	0.761	0.913

Prepared by NDS/ATD

VOLUME

Carmel Country Rd S/O Grand Del Mar Way

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_007

DAILY TOTALS	NB	SB	EB	WB	Total
	5,577	4,652	0	0	10,229

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	2		3						5		12:00	57		63						120	
00:15	0		3						3		12:15	62		57						119	
00:30	1		2						3		12:30	71		63						134	
00:45	2	5	2	10					4	15	12:45	57	247	67	250					124	497
01:00	1		1						2		13:00	64		55						119	
01:15	1		0						1		13:15	70		59						129	
01:30	1		1						2		13:30	49		84						133	
01:45	0	3	1	3					1	6	13:45	63	246	70	268					133	514
02:00	0		2						2		14:00	56		78						134	
02:15	2		2						4		14:15	86		96						182	
02:30	0		1						1		14:30	163		77						240	
02:45	0	2	0	5					0	7	14:45	203	508	116	367					319	875
03:00	1		0						1		15:00	138		118						256	
03:15	0		1						1		15:15	103		183						286	
03:30	0		1						1		15:30	119		114						233	
03:45	2	3	2	4					4	7	15:45	121	481	100	515					221	996
04:00	1		2						3		16:00	113		67						180	
04:15	1		0						1		16:15	119		90						209	
04:30	3		4						7		16:30	125		83						208	
04:45	4	9	4	10					8	19	16:45	159	516	78	318					237	834
05:00	7		1						8		17:00	175		105						280	
05:15	8		3						11		17:15	182		144						326	
05:30	22		6						28		17:30	193		95						288	
05:45	9	46	17	27					26	73	17:45	157	707	78	422					235	1129
06:00	27		16						43		18:00	146		74						220	
06:15	10		23						33		18:15	142		66						208	
06:30	37		49						86		18:30	109		73						182	
06:45	43	117	70	158					113	275	18:45	84	481	76	289					160	770
07:00	95		69						164		19:00	72		88						160	
07:15	201		73						274		19:15	73		58						131	
07:30	214		143						357		19:30	58		57						115	
07:45	184	694	143	428					327	1122	19:45	46	249	53	256					99	505
08:00	146		106						252		20:00	45		66						111	
08:15	90		81						171		20:15	22		52						74	
08:30	68		72						140		20:30	22		43						65	
08:45	67	371	62	321					129	692	20:45	35	124	41	202					76	326
09:00	61		73						134		21:00	31		29						60	
09:15	71		68						139		21:15	14		26						40	
09:30	55		69						124		21:30	6		24						30	
09:45	51	238	61	271					112	509	21:45	3	54	15	94					18	148
10:00	58		47						105		22:00	11		8						19	
10:15	60		54						114		22:15	8		7						15	
10:30	52		34						86		22:30	8		3						11	
10:45	57	227	49	184					106	411	22:45	3	30	4	22					7	52
11:00	50		41						91		23:00	4		3						7	
11:15	55		50						105		23:15	2		5						7	
11:30	54		55						109		23:30	1		1						2	
11:45	50	209	71	217					121	426	23:45	3	10	2	11					5	21
TOTALS		1924		1638						3562	TOTALS		3653		3014						6667
SPLIT %		54.0%		46.0%						34.8%	SPLIT %		54.8%		45.2%						65.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	5,577	4,652	0	0	10,229

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	16:45	14:45			16:45
AM Pk Volume	745	473			1210	PM Pk Volume	709	531			1131
Pk Hr Factor	0.870	0.827			0.847	Pk Hr Factor	0.918	0.725			0.867
7 - 9 Volume	1065	749	0	0	1814	4 - 6 Volume	1223	740	0	0	1963
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	16:45	16:45			16:45
7 - 9 Pk Volume	745	473	0	0	1210	4 - 6 Pk Volume	709	422	0	0	1131
Pk Hr Factor	0.870	0.827	0.000	0.000	0.847	Pk Hr Factor	0.918	0.733	0.000	0.000	0.867

Prepared by NDS/ATD

VOLUME

Carmel Country Rd N/O Clews Ranch Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_008

DAILY TOTALS	NB	SB	EB	WB	Total
	7,700	6,864	0	0	14,564

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	5		5						10		12:00	95		103						198	
00:15	1		3						4		12:15	103		104						207	
00:30	3		3						6		12:30	108		100						208	
00:45	5	14	2	13					7	27	12:45	97	403	98	405					195	808
01:00	1		2						3		13:00	102		88						190	
01:15	1		0						1		13:15	106		102						208	
01:30	2		2						4		13:30	84		120						204	
01:45	1	5	3	7					4	12	13:45	94	386	100	410					194	796
02:00	2		4						6		14:00	106		96						202	
02:15	5		3						8		14:15	120		118						238	
02:30	0		2						2		14:30	193		123						316	
02:45	0	7	1	10					1	17	14:45	228	647	169	506					397	1153
03:00	1		1						2		15:00	204		148						352	
03:15	0		0						0		15:15	148		242						390	
03:30	0		1						1		15:30	178		166						344	
03:45	1	2	3	5					4	7	15:45	165	695	137	693					302	1388
04:00	3		5						8		16:00	154		91						245	
04:15	5		0						5		16:15	172		132						304	
04:30	4		8						12		16:30	165		132						297	
04:45	6	18	12	25					18	43	16:45	217	708	109	464					326	1172
05:00	15		7						22		17:00	214		153						367	
05:15	14		19						33		17:15	222		165						387	
05:30	28		14						42		17:30	227		126						353	
05:45	12	69	49	89					61	158	17:45	203	866	103	547					306	1413
06:00	31		24						55		18:00	158		91						249	
06:15	25		36						61		18:15	173		109						282	
06:30	53		85						138		18:30	130		100						230	
06:45	64	173	103	248					167	421	18:45	102	563	113	413					215	976
07:00	116		97						213		19:00	91		126						217	
07:15	235		108						343		19:15	97		76						173	
07:30	271		172						443		19:30	76		83						159	
07:45	249	871	185	562					434	1433	19:45	59	323	78	363					137	686
08:00	194		156						350		20:00	61		83						144	
08:15	106		129						235		20:15	34		73						107	
08:30	103		119						222		20:30	44		67						111	
08:45	96	499	118	522					214	1021	20:45	43	182	55	278					98	460
09:00	85		119						204		21:00	42		38						80	
09:15	87		92						179		21:15	34		40						74	
09:30	87		108						195		21:30	20		36						56	
09:45	84	343	96	415					180	758	21:45	15	111	22	136					37	247
10:00	86		83						169		22:00	16		18						34	
10:15	93		99						192		22:15	21		18						39	
10:30	88		75						163		22:30	17		8						25	
10:45	103	370	68	325					171	695	22:45	13	67	9	53					22	120
11:00	84		69						153		23:00	13		17						30	
11:15	85		80						165		23:15	7		8						15	
11:30	84		84						168		23:30	7		5						12	
11:45	93	346	108	341					201	687	23:45	5	32	4	34					9	66
TOTALS		2717		2562						5279	TOTALS		4983		4302						9285
SPLIT %		51.5%		48.5%						36.2%	SPLIT %		53.7%		46.3%						63.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,700	6,864	0	0	14,564

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	16:45	14:45			14:45
AM Pk Volume	949	642			1570	PM Pk Volume	880	725			1483
Pk Hr Factor	0.875	0.868			0.886	Pk Hr Factor	0.969	0.749			0.934
7 - 9 Volume	1370	1084	0	0	2454	4 - 6 Volume	1574	1011	0	0	2585
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	16:45	16:30			16:45
7 - 9 Pk Volume	949	642	0	0	1570	4 - 6 Pk Volume	880	559	0	0	1433
Pk Hr Factor	0.875	0.868	0.000	0.000	0.886	Pk Hr Factor	0.969	0.847	0.000	0.000	0.926

Prepared by NDS/ATD

VOLUME

Carmel Country Rd Bet. Del Mar Trails Rd & SR-56 WB Ramps

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_009

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,347	9,542	19,889

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		6		12		12:00			146		119		265	
00:15			3		5		8		12:15			137		131		268	
00:30			5		3		8		12:30			151		108		259	
00:45			2	16	5	19	7	35	12:45			141	575	128	486	269	1061
01:00			1		1		2		13:00			123		98		221	
01:15			3		2		5		13:15			128		110		238	
01:30			3		2		5		13:30			123		139		262	
01:45			0	7	8	13	8	20	13:45			114	488	151	498	265	986
02:00			3		6		9		14:00			155		160		315	
02:15			3		2		5		14:15			142		184		326	
02:30			2		1		3		14:30			195		215		410	
02:45			3	11	2	11	5	22	14:45			271	763	243	802	514	1565
03:00			1		2		3		15:00			273		226		499	
03:15			3		1		4		15:15			249		206		455	
03:30			3		1		4		15:30			183		217		400	
03:45			2	9	1	5	3	14	15:45			185	890	200	849	385	1739
04:00			2		3		5		16:00			174		185		359	
04:15			3		8		11		16:15			151		183		334	
04:30			14		7		21		16:30			175		173		348	
04:45			17	36	9	27	26	63	16:45			171	671	208	749	379	1420
05:00			23		2		25		17:00			173		224		397	
05:15			25		30		55		17:15			222		226		448	
05:30			32		43		75		17:30			158		233		391	
05:45			34	114	26	101	60	215	17:45			140	693	248	931	388	1624
06:00			38		40		78		18:00			134		206		340	
06:15			55		52		107		18:15			125		204		329	
06:30			105		52		157		18:30			114		177		291	
06:45			118	316	92	236	210	552	18:45			148	521	198	785	346	1306
07:00			211		177		388		19:00			149		160		309	
07:15			261		280		541		19:15			104		158		262	
07:30			367		277		644		19:30			88		111		199	
07:45			355	1194	246	980	601	2174	19:45			102	443	114	543	216	986
08:00			348		156		504		20:00			113		96		209	
08:15			313		141		454		20:15			87		97		184	
08:30			274		108		382		20:30			68		71		139	
08:45			220	1155	117	522	337	1677	20:45			49	317	77	341	126	658
09:00			204		111		315		21:00			41		86		127	
09:15			173		109		282		21:15			57		65		122	
09:30			171		102		273		21:30			40		42		82	
09:45			163	711	107	429	270	1140	21:45			35	173	36	229	71	402
10:00			150		106		256		22:00			27		36		63	
10:15			141		112		253		22:15			23		28		51	
10:30			140		96		236		22:30			14		17		31	
10:45			142	573	87	401	229	974	22:45			18	82	12	93	30	175
11:00			137		98		235		23:00			13		16		29	
11:15			115		119		234		23:15			10		10		20	
11:30			146		103		249		23:30			15		5		20	
11:45			148	546	130	450	278	996	23:45			5	43	11	42	16	85
TOTALS				4688		3194		7882	TOTALS				5659		6348		12007
SPLIT %				59.5%		40.5%		39.6%	SPLIT %				47.1%		52.9%		60.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,347	9,542	19,889

AM Peak Hour			07:30	07:00	07:15	PM Peak Hour			14:30	17:00	14:30
AM Pk Volume			1383	980	2290	PM Pk Volume			988	931	1878
Pk Hr Factor			0.942	0.875	0.889	Pk Hr Factor			0.905	0.939	0.913
7 - 9 Volume	0	0	2349	1502	3851	4 - 6 Volume	0	0	1364	1680	3044
7 - 9 Peak Hour			07:30	07:00	07:15	4 - 6 Peak Hour			16:30	17:00	17:00
7 - 9 Pk Volume	0	0	1383	980	2290	4 - 6 Pk Volume	0	0	741	931	1624
Pk Hr Factor	0.000	0.000	0.942	0.875	0.889	Pk Hr Factor	0.000	0.000	0.834	0.939	0.906

Prepared by NDS/ATD

VOLUME

Carmel Country Rd Bet. Del Mar Trails Rd & Carmel Mission Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_010

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,536	5,496	12,032

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			6		2		8		12:00			110		77		187	
00:15			3		2		5		12:15			98		80		178	
00:30			4		0		4		12:30			88		68		156	
00:45			1	14	1	5	2	19	12:45			91	387	75	300	166	687
01:00			0		2		2		13:00			78		61		139	
01:15			4		0		4		13:15			72		62		134	
01:30			1		1		2		13:30			84		78		162	
01:45			1	6	4	7	5	13	13:45			80	314	75	276	155	590
02:00			2		2		4		14:00			107		80		187	
02:15			3		2		5		14:15			90		86		176	
02:30			2		0		2		14:30			99		118		217	
02:45			3	10	2	6	5	16	14:45			156	452	138	422	294	874
03:00			2		2		4		15:00			151		130		281	
03:15			2		1		3		15:15			187		132		319	
03:30			2		1		3		15:30			128		105		233	
03:45			0	6	0	4	0	10	15:45			96	562	107	474	203	1036
04:00			1		3		4		16:00			120		102		222	
04:15			1		4		5		16:15			114		107		221	
04:30			7		5		12		16:30			141		108		249	
04:45			9	18	9	21	18	39	16:45			132	507	128	445	260	952
05:00			7		2		9		17:00			174		96		270	
05:15			4		35		39		17:15			164		133		297	
05:30			12		48		60		17:30			144		127		271	
05:45			18	41	28	113	46	154	17:45			164	646	127	483	291	1129
06:00			12		31		43		18:00			135		90		225	
06:15			31		44		75		18:15			104		105		209	
06:30			62		43		105		18:30			117		88		205	
06:45			56	161	48	166	104	327	18:45			118	474	90	373	208	847
07:00			96		95		191		19:00			123		89		212	
07:15			128		150		278		19:15			86		78		164	
07:30			173		79		252		19:30			76		63		139	
07:45			139	536	141	465	280	1001	19:45			87	372	58	288	145	660
08:00			134		138		272		20:00			85		54		139	
08:15			151		137		288		20:15			51		46		97	
08:30			135		82		217		20:30			52		29		81	
08:45			90	510	86	443	176	953	20:45			46	234	30	159	76	393
09:00			92		83		175		21:00			30		40		70	
09:15			83		88		171		21:15			47		30		77	
09:30			96		74		170		21:30			29		22		51	
09:45			97	368	77	322	174	690	21:45			35	141	11	103	46	244
10:00			88		72		160		22:00			29		18		47	
10:15			75		84		159		22:15			21		8		29	
10:30			89		72		161		22:30			7		4		11	
10:45			83	335	76	304	159	639	22:45			11	68	7	37	18	105
11:00			86		54		140		23:00			11		6		17	
11:15			78		68		146		23:15			8		4		12	
11:30			80		58		138		23:30			12		1		13	
11:45			96	340	82	262	178	602	23:45			3	34	7	18	10	52
TOTALS				2345		2118		**4463**	**TOTALS**				4191		3378		**7569**
SPLIT %				52.5%		47.5%		**37.1%**	**SPLIT %**				55.4%		44.6%		**62.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	6,536	5,496	12,032

AM Peak Hour			07:30	07:15	**07:30**	**PM Peak Hour**			17:00	14:30	**17:00**
AM Pk Volume			597	508	**1092**	**PM Pk Volume**			646	518	**1129**
Pk Hr Factor			0.863	0.847	**0.948**	**Pk Hr Factor**			0.928	0.938	**0.950**
7 - 9 Volume	0	0	1046	908	**1954**	**4 - 6 Volume**	0	0	1153	928	**2081**
7 - 9 Peak Hour			07:30	07:15	**07:30**	**4 - 6 Peak Hour**			17:00	16:45	**17:00**
7 - 9 Pk Volume	0	0	597	508	**1092**	**4 - 6 Pk Volume**	0	0	646	484	**1129**
Pk Hr Factor	0.000	0.000	0.863	0.847	**0.948**	**Pk Hr Factor**	0.000	0.000	0.928	0.910	**0.950**

Prepared by NDS/ATD

VOLUME

Carmel Canyon Rd Bet. Carmel Knolls Dr & Carmel Country Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_011

DAILY TOTALS	NB	SB	EB	WB	Total
	6,123	5,416	0	0	11,539

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	5		2						7		12:00	72		74						146	
00:15	3		3						6		12:15	71		52						123	
00:30	3		1						4		12:30	55		69						124	
00:45	2	13	2	8					4	21	12:45	65	263	66	261					131	524
01:00	0		0						0		13:00	57		73						130	
01:15	1		0						1		13:15	67		64						131	
01:30	2		2						4		13:30	72		59						131	
01:45	5	8	0	2					5	10	13:45	98	294	40	236					138	530
02:00	3		0						3		14:00	86		80						166	
02:15	0		0						0		14:15	117		66						183	
02:30	1		0						1		14:30	109		154						263	
02:45	0	4	0						0	4	14:45	107	419	160	460					267	879
03:00	0		0						0		15:00	131		95						226	
03:15	0		1						1		15:15	143		95						238	
03:30	0		1						1		15:30	131		95						226	
03:45	1	1	2	4					3	5	15:45	134	539	96	381					230	920
04:00	1		1						2		16:00	128		86						214	
04:15	4		2						6		16:15	145		70						215	
04:30	2		6						8		16:30	142		77						219	
04:45	3	10	7	16					10	26	16:45	156	571	70	303					226	874
05:00	1		13						14		17:00	214		68						282	
05:15	4		23						27		17:15	205		91						296	
05:30	3		28						31		17:30	189		74						263	
05:45	4	12	19	83					23	95	17:45	215	823	60	293					275	1116
06:00	12		32						44		18:00	179		51						230	
06:15	17		27						44		18:15	183		54						237	
06:30	26		48						74		18:30	153		52						205	
06:45	51	106	67	174					118	280	18:45	136	651	74	231					210	882
07:00	67		119						186		19:00	117		53						170	
07:15	172		153						325		19:15	90		44						134	
07:30	192		220						412		19:30	67		30						97	
07:45	184	615	249	741					433	1356	19:45	89	363	35	162					124	525
08:00	74		275						349		20:00	66		44						110	
08:15	83		205						288		20:15	57		34						91	
08:30	69		173						242		20:30	60		26						86	
08:45	55	281	164	817					219	1098	20:45	61	244	16	120					77	364
09:00	54		127						181		21:00	52		13						65	
09:15	54		109						163		21:15	47		22						69	
09:30	52		99						151		21:30	24		18						42	
09:45	51	211	86	421					137	632	21:45	36	159	15	68					51	227
10:00	54		96						150		22:00	25		7						32	
10:15	52		79						131		22:15	23		8						31	
10:30	41		85						126		22:30	15		9						24	
10:45	43	190	74	334					117	524	22:45	4	67	6	30					10	97
11:00	52		55						107		23:00	11		4						15	
11:15	67		56						123		23:15	7		4						11	
11:30	54		75						129		23:30	4		2						6	
11:45	79	252	73	259					152	511	23:45	5	27	2	12					7	39
TOTALS		1703		2859						4562	TOTALS		4420		2557						6977
SPLIT %		37.3%		62.7%						39.5%	SPLIT %		63.4%		36.6%						60.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	6,123	5,416	0	0	11,539

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	17:00	14:30			17:00
AM Pk Volume	622	949			1519	PM Pk Volume	823	504			1116
Pk Hr Factor	0.810	0.863			0.877	Pk Hr Factor	0.957	0.788			0.943
7 - 9 Volume	896	1558	0	0	2454	4 - 6 Volume	1394	596	0	0	1990
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	17:00	16:30			17:00
7 - 9 Pk Volume	622	949	0	0	1519	4 - 6 Pk Volume	823	306	0	0	1116
Pk Hr Factor	0.810	0.863	0.000	0.000	0.877	Pk Hr Factor	0.957	0.841	0.000	0.000	0.943

Prepared by NDS/ATD

VOLUME

Carmel Canyon Rd Bet. Del Mar Heights Rd & Caminito Campaneo

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_012

DAILY TOTALS	NB	SB	EB	WB	Total
	3,606	2,737	0	0	6,343

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	1		2						3		12:00	28		45						73	
00:15	1		2						3		12:15	37		28						65	
00:30	0		0						0		12:30	37		39						76	
00:45	0	2	2	6					2	8	12:45	30	132	24	136					54	268
01:00	0		2						2		13:00	28		35						63	
01:15	2		0						2		13:15	30		28						58	
01:30	0		0						0		13:30	23		32						55	
01:45	1	3	0	2					1	5	13:45	46	127	31	126					77	253
02:00	3		0						3		14:00	56		39						95	
02:15	0		0						0		14:15	61		45						106	
02:30	0		0						0		14:30	77		100						177	
02:45	0	3	0						0	3	14:45	66	260	75	259					141	519
03:00	0		0						0		15:00	65		67						132	
03:15	0		0						0		15:15	74		62						136	
03:30	0		0						0		15:30	76		49						125	
03:45	1	1	0						1	1	15:45	68	283	46	224					114	507
04:00	2		1						3		16:00	77		45						122	
04:15	5		0						5		16:15	99		48						147	
04:30	5		1						6		16:30	101		34						135	
04:45	2	14	5	7					7	21	16:45	99	376	38	165					137	541
05:00	1		1						2		17:00	143		55						198	
05:15	3		6						9		17:15	126		59						185	
05:30	3		4						7		17:30	130		63						193	
05:45	8	15	6	17					14	32	17:45	130	529	52	229					182	758
06:00	6		10						16		18:00	93		37						130	
06:15	7		6						13		18:15	98		39						137	
06:30	22		13						35		18:30	78		34						112	
06:45	33	68	21	50					54	118	18:45	61	330	40	150					101	480
07:00	66		34						100		19:00	50		33						83	
07:15	162		55						217		19:15	31		29						60	
07:30	183		117						300		19:30	32		21						53	
07:45	160	571	126	332					286	903	19:45	41	154	23	106					64	260
08:00	62		150						212		20:00	23		29						52	
08:15	40		83						123		20:15	14		33						47	
08:30	55		80						135		20:30	21		20						41	
08:45	39	196	72	385					111	581	20:45	17	75	14	96					31	171
09:00	49		55						104		21:00	8		17						25	
09:15	31		40						71		21:15	16		8						24	
09:30	28		36						64		21:30	12		19						31	
09:45	25	133	27	158					52	291	21:45	15	51	6	50					21	101
10:00	23		28						51		22:00	8		4						12	
10:15	19		26						45		22:15	9		7						16	
10:30	36		24						60		22:30	7		5						12	
10:45	24	102	35	113					59	215	22:45	3	27	7	23					10	50
11:00	32		19						51		23:00	9		2						11	
11:15	26		18						44		23:15	1		3						4	
11:30	30		25						55		23:30	1		6						7	
11:45	51	139	28	90					79	229	23:45	4	15	2	13					6	28
TOTALS		1247		1160						2407	TOTALS		2359		1577						3936
SPLIT %		51.8%		48.2%						37.9%	SPLIT %		59.9%		40.1%						62.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	3,606	2,737	0	0	6,343

AM Peak Hour	07:00	07:30			07:15	PM Peak Hour	17:00	14:30			17:00
AM Pk Volume	571	476			1015	PM Pk Volume	529	304			758
Pk Hr Factor	0.780	0.793			0.846	Pk Hr Factor	0.925	0.760			0.957
7 - 9 Volume	767	717	0	0	1484	4 - 6 Volume	905	394	0	0	1299
7 - 9 Peak Hour	07:00	07:30			07:15	4 - 6 Peak Hour	17:00	17:00			17:00
7 - 9 Pk Volume	571	476	0	0	1015	4 - 6 Pk Volume	529	229	0	0	758
Pk Hr Factor	0.780	0.793	0.000	0.000	0.846	Pk Hr Factor	0.925	0.909	0.000	0.000	0.957

Prepared by NDS/ATD

VOLUME

Del Mar Heights Rd W/O Carmel Canyon Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_013

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,473	8,141	17,614

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			15		3		18		12:00			102		100		202	
00:15			3		3		6		12:15			101		111		212	
00:30			7		1		8		12:30			100		107		207	
00:45			4	29	1	8	5	37	12:45			91	394	72	390	163	784
01:00			3		1		4		13:00			97		74		171	
01:15			5		1		6		13:15			87		82		169	
01:30			3		1		4		13:30			81		127		208	
01:45			1	12	2	5	3	17	13:45			116	381	94	377	210	758
02:00			0		1		1		14:00			149		108		257	
02:15			0		0		0		14:15			151		219		370	
02:30			0		0		0		14:30			181		244		425	
02:45			1	1	1	2	2	3	14:45			257	738	156	727	413	1465
03:00			0		2		2		15:00			201		216		417	
03:15			2		0		2		15:15			241		179		420	
03:30			0		0		0		15:30			208		158		366	
03:45			0	2	2	4	2	6	15:45			156	806	123	676	279	1482
04:00			2		4		6		16:00			218		115		333	
04:15			3		6		9		16:15			267		117		384	
04:30			2		5		7		16:30			276		114		390	
04:45			7	14	6	21	13	35	16:45			364	1125	130	476	494	1601
05:00			3		5		8		17:00			343		142		485	
05:15			6		9		15		17:15			380		152		532	
05:30			12		12		24		17:30			375		121		496	
05:45			23	44	22	48	45	92	17:45			404	1502	122	537	526	2039
06:00			24		24		48		18:00			353		107		460	
06:15			21		32		53		18:15			292		101		393	
06:30			32		49		81		18:30			268		76		344	
06:45			51	128	62	167	113	295	18:45			150	1063	90	374	240	1437
07:00			90		191		281		19:00			120		79		199	
07:15			206		360		566		19:15			109		66		175	
07:30			393		254		647		19:30			98		63		161	
07:45			249	938	352	1157	601	2095	19:45			96	423	69	277	165	700
08:00			75		405		480		20:00			53		83		136	
08:15			95		245		340		20:15			82		68		150	
08:30			88		257		345		20:30			46		43		89	
08:45			88	346	214	1121	302	1467	20:45			57	238	56	250	113	488
09:00			69		208		277		21:00			67		28		95	
09:15			73		169		242		21:15			59		33		92	
09:30			83		128		211		21:30			48		33		81	
09:45			79	304	96	601	175	905	21:45			38	212	14	108	52	320
10:00			67		98		165		22:00			28		13		41	
10:15			65		77		142		22:15			28		14		42	
10:30			64		79		143		22:30			24		15		39	
10:45			70	266	77	331	147	597	22:45			12	92	8	50	20	142
11:00			72		72		144		23:00			14		13		27	
11:15			86		110		196		23:15			13		3		16	
11:30			115		105		220		23:30			11		7		18	
11:45			94	367	121	408	215	775	23:45			10	48	3	26	13	74
TOTALS				2451		3873		6324	TOTALS				7022		4268		11290
SPLIT %				38.8%		61.2%		35.9%	SPLIT %				62.2%		37.8%		64.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,473	8,141	17,614

AM Peak Hour			07:00	07:15	07:15	PM Peak Hour			17:15	14:15	17:00
AM Pk Volume			938	1371	2294	PM Pk Volume			1512	835	2039
Pk Hr Factor			0.597	0.846	0.886	Pk Hr Factor			0.936	0.856	0.958
7 - 9 Volume	0	0	1284	2278	3562	4 - 6 Volume	0	0	2627	1013	3640
7 - 9 Peak Hour			07:00	07:15	07:15	4 - 6 Peak Hour			17:00	16:45	17:00
7 - 9 Pk Volume	0	0	938	1371	2294	4 - 6 Pk Volume	0	0	1502	545	2039
Pk Hr Factor	0.000	0.000	0.597	0.846	0.886	Pk Hr Factor	0.000	0.000	0.929	0.896	0.958

Prepared by NDS/ATD

VOLUME

Del Mar Heights Rd E/O Carmel Canyon Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_014

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,679	8,506	19,185

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			13		2		15		12:00			104		96		200	
00:15			2		2		4		12:15			97		102		199	
00:30			7		2		9		12:30			101		108		209	
00:45			5	27	2	8	7	35	12:45			90	392	67	373	157	765
01:00			3		2		5		13:00			98		92		190	
01:15			3		0		3		13:15			90		85		175	
01:30			3		1		4		13:30			95		127		222	
01:45			2	11	2	5	4	16	13:45			115	398	118	422	233	820
02:00			0		1		1		14:00			171		112		283	
02:15			0		0		0		14:15			166		219		385	
02:30			0		0		0		14:30			185		272		457	
02:45			2	2	1	2	3	4	14:45			241	763	149	752	390	1515
03:00			0		2		2		15:00			212		236		448	
03:15			3		0		3		15:15			265		193		458	
03:30			0		0		0		15:30			205		159		364	
03:45			0	3	1	3	1	6	15:45			200	882	109	697	309	1579
04:00			2		4		6		16:00			221		115		336	
04:15			3		3		6		16:15			285		113		398	
04:30			1		2		3		16:30			318		106		424	
04:45			6	12	9	18	15	30	16:45			444	1268	130	464	574	1732
05:00			4		6		10		17:00			418		149		567	
05:15			6		13		19		17:15			484		154		638	
05:30			16		15		31		17:30			484		127		611	
05:45			27	53	23	57	50	110	17:45			515	1901	114	544	629	2445
06:00			23		27		50		18:00			428		109		537	
06:15			22		31		53		18:15			368		102		470	
06:30			36		46		82		18:30			312		82		394	
06:45			63	144	72	176	135	320	18:45			183	1291	104	397	287	1688
07:00			115		171		286		19:00			128		81		209	
07:15			231		269		500		19:15			110		63		173	
07:30			443		264		707		19:30			97		68		165	
07:45			331	1120	464	1168	795	2288	19:45			100	435	56	268	156	703
08:00			104		504		608		20:00			68		94		162	
08:15			111		317		428		20:15			69		71		140	
08:30			102		293		395		20:30			51		47		98	
08:45			108	425	263	1377	371	1802	20:45			54	242	52	264	106	506
09:00			88		210		298		21:00			61		34		95	
09:15			73		176		249		21:15			48		28		76	
09:30			88		129		217		21:30			41		30		71	
09:45			78	327	96	611	174	938	21:45			45	195	15	107	60	302
10:00			70		98		168		22:00			30		7		37	
10:15			61		90		151		22:15			23		15		38	
10:30			68		78		146		22:30			25		13		38	
10:45			71	270	79	345	150	615	22:45			11	89	6	41	17	130
11:00			82		65		147		23:00			12		9		21	
11:15			83		112		195		23:15			10		4		14	
11:30			124		95		219		23:30			15		5		20	
11:45			96	385	116	388	212	773	23:45			7	44	1	19	8	63
TOTALS				2779		4158		6937	TOTALS				7900		4348		12248
SPLIT %				40.1%		59.9%		36.2%	SPLIT %				64.5%		35.5%		63.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,679	8,506	19,185

AM Peak Hour			07:00	07:45	07:15	PM Peak Hour			17:15	14:15	17:00
AM Pk Volume			1120	1578	2610	PM Pk Volume			1911	876	2445
Pk Hr Factor			0.632	0.783	0.821	Pk Hr Factor			0.928	0.805	0.958
7 - 9 Volume	0	0	1545	2545	4090	4 - 6 Volume	0	0	3169	1008	4177
7 - 9 Peak Hour			07:00	07:45	07:15	4 - 6 Peak Hour			17:00	16:45	17:00
7 - 9 Pk Volume	0	0	1120	1578	2610	4 - 6 Pk Volume	0	0	1901	560	2445
Pk Hr Factor	0.000	0.000	0.632	0.783	0.821	Pk Hr Factor	0.000	0.000	0.923	0.909	0.958

Prepared by NDS/ATD

VOLUME

Del Mar Heights Rd Bet. Old Carmel Valley Rd & Carmel Valley Rd

Day: Tuesday
Date: 1/12/2016

City: Del Mar
Project #: CA16_4004_015

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,977	7,972	18,949

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			5		13		18		12:00			97		97		194	
00:15			6		4		10		12:15			98		85		183	
00:30			1		6		7		12:30			78		98		176	
00:45			3	15	3	26	6	41	12:45			104	377	86	366	190	743
01:00			3		1		4		13:00			102		99		201	
01:15			6		4		10		13:15			118		116		234	
01:30			0		3		3		13:30			103		99		202	
01:45			1	10	3	11	4	21	13:45			89	412	82	396	171	808
02:00			0		0		0		14:00			96		91		187	
02:15			1		0		1		14:15			322		90		412	
02:30			1		0		1		14:30			416		127		543	
02:45			2	4	1	1	3	5	14:45			317	1151	122	430	439	1581
03:00			4		0		4		15:00			279		99		378	
03:15			1		2		3		15:15			254		98		352	
03:30			1		0		1		15:30			250		85		335	
03:45			0	6	0	2	0	8	15:45			226	1009	76	358	302	1367
04:00			3		2		5		16:00			284		100		384	
04:15			5		3		8		16:15			305		91		396	
04:30			5		4		9		16:30			323		113		436	
04:45			12	25	8	17	20	42	16:45			382	1294	135	439	517	1733
05:00			11		19		30		17:00			431		146		577	
05:15			15		32		47		17:15			454		140		594	
05:30			15		17		32		17:30			427		148		575	
05:45			34	75	58	126	92	201	17:45			374	1686	114	548	488	2234
06:00			28		67		95		18:00			355		108		463	
06:15			24		54		78		18:15			300		118		418	
06:30			43		75		118		18:30			244		92		336	
06:45			82	177	101	297	183	474	18:45			240	1139	68	386	308	1525
07:00			112		198		310		19:00			142		50		192	
07:15			209		268		477		19:15			82		86		168	
07:30			351		624		975		19:30			82		73		155	
07:45			381	1053	495	1585	876	2638	19:45			78	384	85	294	163	678
08:00			218		344		562		20:00			87		65		152	
08:15			136		273		409		20:15			85		56		141	
08:30			112		247		359		20:30			71		64		135	
08:45			89	555	234	1098	323	1653	20:45			66	309	58	243	124	552
09:00			96		144		240		21:00			52		43		95	
09:15			110		95		205		21:15			34		48		82	
09:30			99		90		189		21:30			32		24		56	
09:45			86	391	92	421	178	812	21:45			25	143	30	145	55	288
10:00			71		79		150		22:00			20		26		46	
10:15			83		68		151		22:15			15		13		28	
10:30			59		64		123		22:30			20		27		47	
10:45			75	288	86	297	161	585	22:45			17	72	10	76	27	148
11:00			99		84		183		23:00			19		12		31	
11:15			84		84		168		23:15			12		11		23	
11:30			93		114		207		23:30			4		7		11	
11:45			86	362	90	372	176	734	23:45			5	40	8	38	13	78
TOTALS				2961		4253		7214	TOTALS				8016		3719		11735
SPLIT %				41.0%		59.0%		38.1%	SPLIT %				68.3%		31.7%		61.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	10,977	7,972	18,949

AM Peak Hour			07:15	07:30	07:15	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			1159	1736	2890	PM Pk Volume			1694	569	2263
Pk Hr Factor			0.760	0.696	0.741	Pk Hr Factor			0.933	0.961	0.952
7 - 9 Volume	0	0	1608	2683	4291	4 - 6 Volume	0	0	2980	987	3967
7 - 9 Peak Hour			07:15	07:30	07:15	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	1159	1736	2890	4 - 6 Pk Volume	0	0	1694	569	2263
Pk Hr Factor	0.000	0.000	0.760	0.696	0.741	Pk Hr Factor	0.000	0.000	0.933	0.961	0.952

Existing Conditions
LOS Worksheets

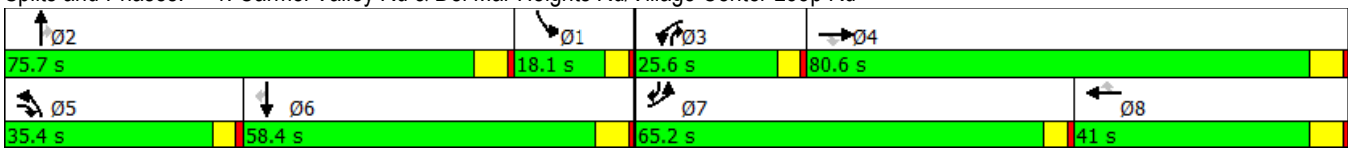
APPENDIX B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	443	381	182	462	89	457	295	251	108	791	838
Future Volume (vph)	314	443	381	182	462	89	457	295	251	108	791	838
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.4	49.0	8.4	8.4	41.0	41.0	8.4	44.0	8.4	8.4	42.0	8.4
Total Split (s)	65.2	80.6	35.4	25.6	41.0	41.0	35.4	75.7	25.6	18.1	58.4	65.2
Total Split (%)	32.6%	40.3%	17.7%	12.8%	20.5%	20.5%	17.7%	37.9%	12.8%	9.1%	29.2%	32.6%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Natural Cycle: 150
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	443	381	182	462	89	457	295	251	108	791	838
Future Volume (vph)	314	443	381	182	462	89	457	295	251	108	791	838
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	397	561	482	230	585	113	578	373	318	137	1001	1061
RTOR Reduction (vph)	0	0	34	0	0	93	0	0	76	0	0	17
Lane Group Flow (vph)	397	561	448	230	585	20	578	373	242	137	1001	1044
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	60.8	74.6	105.6	21.2	35.0	35.0	31.0	69.7	90.9	13.7	52.4	113.2
Effective Green, g (s)	60.8	74.6	105.6	21.2	35.0	35.0	31.0	69.7	90.9	13.7	52.4	113.2
Actuated g/C Ratio	0.30	0.37	0.53	0.11	0.18	0.18	0.16	0.35	0.45	0.07	0.26	0.57
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	1043	1320	835	363	619	277	532	1233	719	235	927	895
v/s Ratio Prot	0.12	0.16	0.08	0.07	c0.17		c0.17	0.11	0.04	0.04	0.28	c0.35
v/s Ratio Perm			0.20			0.01			0.12			0.31
v/c Ratio	0.38	0.42	0.54	0.63	0.95	0.07	1.09	0.30	0.34	0.58	1.08	1.17
Uniform Delay, d1	54.8	46.7	31.1	85.7	81.5	68.9	84.5	47.4	35.1	90.4	73.8	43.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.0	2.5	8.2	24.9	0.5	64.5	0.6	1.3	10.2	53.5	86.9
Delay (s)	55.8	47.7	33.5	93.8	106.5	69.4	149.0	48.1	36.4	100.5	127.3	130.3
Level of Service	E	D	C	F	F	E	F	D	D	F	F	F
Approach Delay (s)		45.2			98.8			91.1			127.1	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	94.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

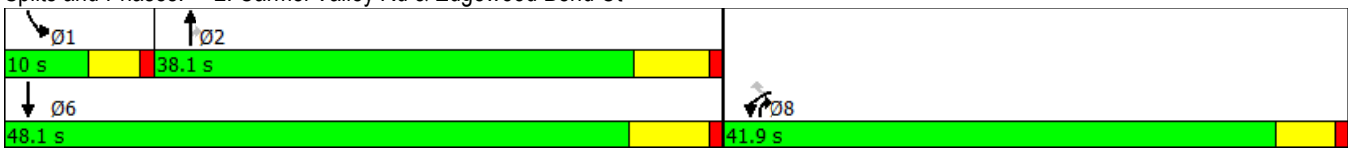
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	270	89	880	505	110	1193
Future Volume (vph)	270	89	880	505	110	1193
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	41.9	41.9	38.1	41.9	10.0	48.1
Total Split (%)	46.6%	46.6%	42.3%	46.6%	11.1%	53.4%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 65.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	270	89	880	505	110	1193
Future Volume (vph)	270	89	880	505	110	1193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	375	124	1222	701	153	1657
RTOR Reduction (vph)	0	101	0	12	0	0
Lane Group Flow (vph)	375	23	1222	689	153	1657
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	12.2	12.2	32.2	44.4	5.6	41.9
Effective Green, g (s)	12.2	12.2	32.2	44.4	5.6	41.9
Actuated g/C Ratio	0.19	0.19	0.49	0.68	0.09	0.64
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	641	295	1745	1076	294	2270
v/s Ratio Prot	0.11		0.35	c0.12	0.04	c0.47
v/s Ratio Perm		0.01		0.32		
v/c Ratio	0.59	0.08	0.70	0.64	0.52	0.73
Uniform Delay, d1	24.2	21.9	12.8	5.9	28.6	7.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.0	1.8	0.9	0.8	1.8
Delay (s)	25.1	22.0	14.6	6.8	29.3	9.7
Level of Service	C	C	B	A	C	A
Approach Delay (s)	24.3		11.8			11.4
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	15.3
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	8	283	7	1105	273	1175	
Future Volume (vph)	8	283	7	1105	273	1175	
Turn Type	NA	Perm	Prot	NA	NA	Prot	
Protected Phases	8		5	2	6	6	3
Permitted Phases		8					
Detector Phase	8	8	5	2	6	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	5.0	11.0	13.0	13.0	5.0
Minimum Split (s)	20.0	20.0	9.7	34.0	37.0	37.0	20.0
Total Split (s)	20.0	20.0	9.8	70.0	60.2	60.2	20.0
Total Split (%)	22.2%	22.2%	10.9%	77.8%	66.9%	66.9%	22%
Yellow Time (s)	3.5	3.5	3.7	4.5	4.5	4.5	4.1
All-Red Time (s)	0.5	0.5	1.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.7	6.5	6.5	6.5	
Lead/Lag			Lead		Lag	Lag	
Lead-Lag Optimize?			Yes		Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	C-Min	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	8	283	7	1105	0	0	273	1175
Future Volume (vph)	0	0	0	10	8	283	7	1105	0	0	273	1175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor					1.00	0.88	1.00	0.95			0.95	0.95
Frt					1.00	0.85	1.00	1.00			0.91	0.85
Flt Protected					0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1812	2787	1770	3539			1602	1504
Flt Permitted					0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1812	2787	1770	3539			1602	1504
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	14	11	393	10	1535	0	0	379	1632
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	0	0	59	334
Lane Group Flow (vph)	0	0	0	0	25	305	10	1535	0	0	973	645
Turn Type				Prot	NA	Perm	Prot	NA			NA	Prot
Protected Phases				3	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)					14.7	14.7	1.0	64.8			59.1	59.1
Effective Green, g (s)					14.7	14.7	1.0	64.8			59.1	59.1
Actuated g/C Ratio					0.16	0.16	0.01	0.72			0.66	0.66
Clearance Time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					295	455	19	2548			1051	987
v/s Ratio Prot							0.01	c0.43			c0.61	0.43
v/s Ratio Perm					0.01	c0.11						
v/c Ratio					0.08	0.67	0.53	0.60			0.93	0.65
Uniform Delay, d1					31.9	35.4	44.3	6.2			13.5	9.3
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	3.9	23.9	1.1			14.8	3.4
Delay (s)					32.1	39.2	68.1	7.3			28.4	12.7
Level of Service					C	D	E	A			C	B
Approach Delay (s)		0.0			38.8			7.7			20.7	
Approach LOS		A			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

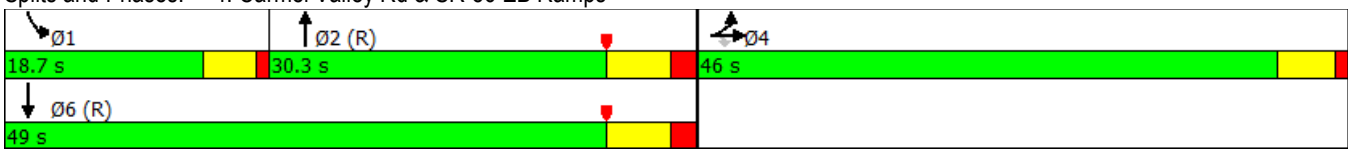
c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1111	1	17	28	234	16
Future Volume (vph)	1111	1	17	28	234	16
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.5	14.0	11.0
Minimum Split (s)	39.1	39.1	39.1	29.5	18.7	29.5
Total Split (s)	46.0	46.0	46.0	30.3	18.7	49.0
Total Split (%)	48.4%	48.4%	48.4%	31.9%	19.7%	51.6%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	6.5	4.7	6.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 4: Carmel Valley Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1111	1	17	0	0	0	0	28	10	234	16	0
Future Volume (vph)	1111	1	17	0	0	0	0	28	10	234	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1685	1583					3397		3433	1863	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1685	1583					3397		3433	1863	
Peak-hour factor, PHF	0.63	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.92	0.92
Adj. Flow (vph)	1763	1	18	0	0	0	0	30	11	316	17	0
RTOR Reduction (vph)	0	0	7	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	881	883	11	0	0	0	0	31	0	316	17	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	58.3	58.3	58.3					6.4		14.0	25.1	
Effective Green, g (s)	58.3	58.3	58.3					6.4		14.0	25.1	
Actuated g/C Ratio	0.61	0.61	0.61					0.07		0.15	0.26	
Clearance Time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	1031	1034	971					228		505	492	
v/s Ratio Prot	c0.52	0.52						c0.01		c0.09	0.01	
v/s Ratio Perm			0.01									
v/c Ratio	0.85	0.85	0.01					0.13		0.63	0.03	
Uniform Delay, d1	14.9	14.9	7.1					41.7		38.0	26.0	
Progression Factor	1.00	1.00	1.00					1.00		1.00	1.00	
Incremental Delay, d2	7.0	7.0	0.0					1.2		2.4	0.1	
Delay (s)	21.9	21.9	7.1					42.9		40.5	26.1	
Level of Service	C	C	A					D		D	C	
Approach Delay (s)		21.8			0.0			42.9			39.7	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	27	18	12	11	30	81
Future Volume (vph)	27	18	12	11	30	81
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	38	25	17	15	42	114

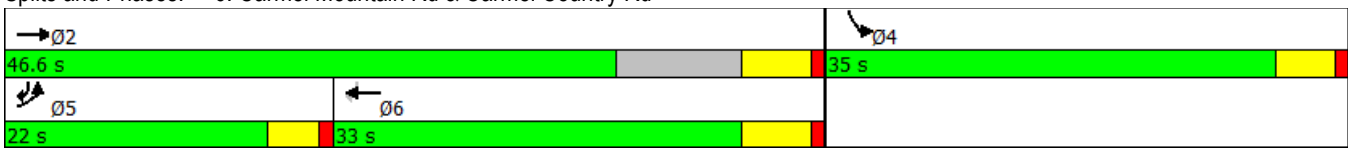
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	63	32	156
Volume Left (vph)	38	17	0
Volume Right (vph)	25	0	114
Hadj (s)	-0.08	0.14	-0.40
Departure Headway (s)	4.2	4.3	3.7
Degree Utilization, x	0.07	0.04	0.16
Capacity (veh/h)	820	806	960
Control Delay (s)	7.5	7.5	7.4
Approach Delay (s)	7.5	7.5	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.4		
Level of Service	A		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	509	77	164	55	422
Future Volume (vph)	509	77	164	55	422
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					6
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	46.6	33.0	35.0	22.0
Total Split (%)	24.4%	51.8%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 45.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	509	77	164	75	55	422
Future Volume (vph)	509	77	164	75	55	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3373		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3373		1770	2787
Peak-hour factor, PHF	0.70	0.70	0.70	0.70	0.70	0.70
Adj. Flow (vph)	727	110	234	107	79	603
RTOR Reduction (vph)	0	0	66	0	0	242
Lane Group Flow (vph)	727	110	275	0	79	361
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						6
Actuated Green, G (s)	18.2	33.1	10.5		4.2	28.7
Effective Green, g (s)	18.2	33.1	10.5		4.2	28.7
Actuated g/C Ratio	0.38	0.69	0.22		0.09	0.60
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1304	2445	739		155	1925
v/s Ratio Prot	c0.21	0.03	c0.08		c0.04	0.07
v/s Ratio Perm						0.06
v/c Ratio	0.56	0.04	0.37		0.51	0.19
Uniform Delay, d1	11.7	2.4	15.9		20.9	4.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.0	0.4		1.0	0.0
Delay (s)	12.0	2.4	16.3		21.8	4.4
Level of Service	B	A	B		C	A
Approach Delay (s)		10.7	16.3		6.4	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	134	794	7	81	541
Future Volume (Veh/h)	7	134	794	7	81	541
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	9	165	980	9	100	668
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1852	984			989	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1852	984			989	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	45			86	
cM capacity (veh/h)	70	301			699	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	9	165	989	100	668
Volume Left	9	0	0	100	0
Volume Right	0	165	9	0	0
cSH	70	301	1700	699	1700
Volume to Capacity	0.13	0.55	0.58	0.14	0.39
Queue Length 95th (ft)	11	77	0	12	0
Control Delay (s)	64.1	30.5	0.0	11.0	0.0
Lane LOS	F	D		B	
Approach Delay (s)	32.3		0.0	1.4	
Approach LOS	D				

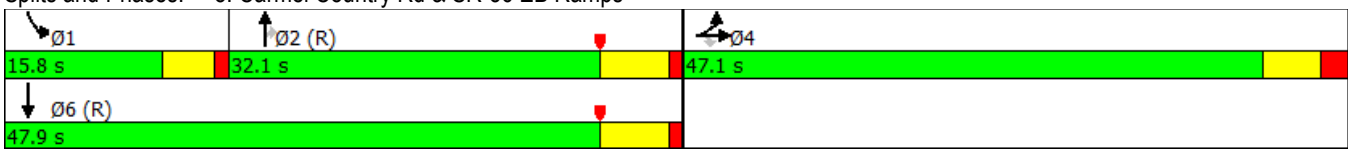
Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	350	0	147	797	343	336	431
Future Volume (vph)	350	0	147	797	343	336	431
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	47.1	47.1	47.1	32.1	32.1	15.8	47.9
Total Split (%)	49.6%	49.6%	49.6%	33.8%	33.8%	16.6%	50.4%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 42.1 (44%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	0	147	0	0	0	0	797	343	336	431	0
Future Volume (vph)	350	0	147	0	0	0	0	797	343	336	431	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3539	1583	3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	412	0	173	0	0	0	0	938	404	395	507	0
RTOR Reduction (vph)	0	0	139	0	0	0	0	0	133	0	0	0
Lane Group Flow (vph)	206	206	34	0	0	0	0	938	271	395	507	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	18.4	18.4	18.4					42.2	42.2	17.8	64.7	
Effective Green, g (s)	18.4	18.4	18.4					42.2	42.2	17.8	64.7	
Actuated g/C Ratio	0.19	0.19	0.19					0.44	0.44	0.19	0.68	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	325	325	306					1572	703	643	2410	
v/s Ratio Prot	c0.12	0.12						c0.27		c0.12	0.14	
v/s Ratio Perm			0.02						0.17			
v/c Ratio	0.63	0.63	0.11					0.60	0.38	0.61	0.21	
Uniform Delay, d1	35.2	35.2	31.6					20.0	17.7	35.4	5.6	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.08	0.84	
Incremental Delay, d2	4.0	4.0	0.2					1.7	1.6	1.7	0.2	
Delay (s)	39.2	39.2	31.7					21.6	19.3	40.1	4.9	
Level of Service	D	D	C					C	B	D	A	
Approach Delay (s)		37.0			0.0			20.9			20.3	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	195	806	348	742	590
Future Volume (vph)	181	195	806	348	742	590
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	20.0	20.0	51.0	51.0	24.0	75.0
Total Split (%)	21.1%	21.1%	53.7%	53.7%	25.3%	78.9%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	181	195	806	348	742	590
Future Volume (vph)	181	195	806	348	742	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	199	214	886	382	815	648
RTOR Reduction (vph)	0	190	0	200	0	0
Lane Group Flow (vph)	199	24	886	182	815	648
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	10.8	10.8	45.2	45.2	23.4	73.3
Effective Green, g (s)	10.8	10.8	45.2	45.2	23.4	73.3
Actuated g/C Ratio	0.11	0.11	0.48	0.48	0.25	0.77
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	179	1683	753	845	2730
v/s Ratio Prot	c0.06		c0.25		c0.24	0.18
v/s Ratio Perm		0.02		0.11		
v/c Ratio	0.51	0.14	0.53	0.24	0.96	0.24
Uniform Delay, d1	39.6	37.9	17.4	14.7	35.4	3.0
Progression Factor	1.00	1.00	1.27	5.27	1.00	1.00
Incremental Delay, d2	1.1	0.3	1.0	0.7	22.5	0.2
Delay (s)	40.7	38.2	23.1	78.4	57.9	3.2
Level of Service	D	D	C	E	E	A
Approach Delay (s)	39.4		39.8			33.7
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

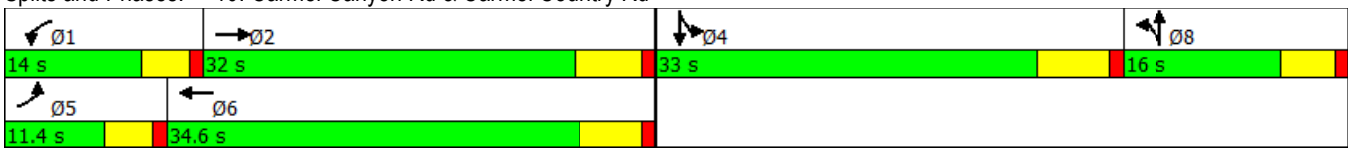
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	476	179	344	51	88	648	185
Future Volume (vph)	79	476	179	344	51	88	648	185
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	11.4	32.0	14.0	34.6	16.0	16.0	33.0	33.0
Total Split (%)	12.0%	33.7%	14.7%	36.4%	16.8%	16.8%	34.7%	34.7%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 86.8
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	476	33	179	344	433	51	88	219	648	185	101
Future Volume (vph)	79	476	33	179	344	433	51	88	219	648	185	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.92		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505		1770	3243		1770	1664		3433	1764	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3505		1770	3243		1770	1664		3433	1764	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	87	523	36	197	378	476	56	97	241	712	203	111
RTOR Reduction (vph)	0	5	0	0	247	0	0	93	0	0	21	0
Lane Group Flow (vph)	87	554	0	197	607	0	56	245	0	712	293	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	5.4	20.7		9.7	25.3		11.2	11.2		25.0	25.0	
Effective Green, g (s)	5.4	20.7		9.7	25.3		11.2	11.2		25.0	25.0	
Actuated g/C Ratio	0.06	0.24		0.11	0.29		0.13	0.13		0.29	0.29	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	109	828		195	936		226	212		979	503	
v/s Ratio Prot	0.05	0.16		c0.11	c0.19		0.03	c0.15		c0.21	0.17	
v/s Ratio Perm												
v/c Ratio	0.80	0.67		1.01	0.65		0.25	1.15		0.73	0.58	
Uniform Delay, d1	40.6	30.3		38.9	27.3		34.4	38.2		28.2	26.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.3	2.1		67.1	1.6		0.2	109.6		2.9	2.0	
Delay (s)	70.9	32.4		106.1	28.8		34.6	147.8		31.1	28.9	
Level of Service	E	C		F	C		C	F		C	C	
Approach Delay (s)		37.6			43.3			131.7			30.4	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	21.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

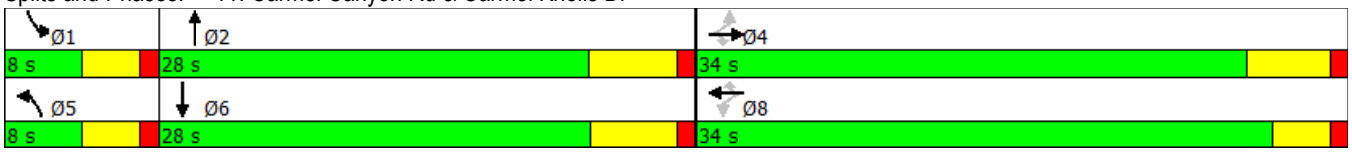
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	24	6	59	435	26	81	22	423	25	458
Future Volume (vph)	24	6	59	435	26	81	22	423	25	458
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	8.0	28.0	8.0	28.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	11.4%	40.0%	11.4%	40.0%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 52.3
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	6	59	435	26	81	22	423	182	25	458	23
Future Volume (vph)	24	6	59	435	26	81	22	423	182	25	458	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3379		1770	3514	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1377	1863	1583	1404	1863	1583	1770	3379		1770	3514	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	6	63	468	28	87	24	455	196	27	492	25
RTOR Reduction (vph)	0	0	39	0	0	52	0	68	0	0	5	0
Lane Group Flow (vph)	26	6	24	468	28	35	24	583	0	27	512	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	20.4	20.4	20.4	21.7	21.7	21.7	1.2	17.7		1.2	17.8	
Effective Green, g (s)	20.4	20.4	20.4	21.7	21.7	21.7	1.2	17.7		1.2	17.8	
Actuated g/C Ratio	0.38	0.38	0.38	0.40	0.40	0.40	0.02	0.33		0.02	0.33	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	518	701	595	562	745	633	39	1103		39	1154	
v/s Ratio Prot		0.00			0.02		0.01	c0.17		c0.02	0.15	
v/s Ratio Perm	0.02		0.01	c0.33		0.02						
v/c Ratio	0.05	0.01	0.04	0.83	0.04	0.06	0.62	0.53		0.69	0.44	
Uniform Delay, d1	10.7	10.6	10.7	14.6	9.9	10.0	26.3	14.9		26.3	14.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0	0.0	9.8	0.0	0.0	18.5	0.6		35.0	0.4	
Delay (s)	10.8	10.6	10.7	24.4	9.9	10.0	44.8	15.5		61.3	14.7	
Level of Service	B	B	B	C	A	A	D	B		E	B	
Approach Delay (s)		10.7			21.6			16.5			17.0	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	14.9
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	810	374	1139	236	323
Future Volume (vph)	810	374	1139	236	323
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	32.3	12.4	15.6	40.3	12.4
Total Split (s)	72.7	32.0	104.7	40.3	32.0
Total Split (%)	50.1%	22.1%	72.2%	27.8%	22.1%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None

Intersection Summary

Cycle Length: 145
Actuated Cycle Length: 77.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 12: Carmel Canyon Rd & DMHR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	810	93	374	1139	236	323
Future Volume (vph)	810	93	374	1139	236	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5007		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5007		1770	5085	3433	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	910	104	420	1280	265	363
RTOR Reduction (vph)	13	0	0	0	0	39
Lane Group Flow (vph)	1001	0	420	1280	265	324
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	23.0		27.7	55.8	10.6	38.3
Effective Green, g (s)	23.0		27.7	55.8	10.6	38.3
Actuated g/C Ratio	0.30		0.36	0.72	0.14	0.50
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	1489		634	3670	470	784
v/s Ratio Prot	c0.20		c0.24	0.25	c0.08	0.15
v/s Ratio Perm						0.06
v/c Ratio	0.67		0.66	0.35	0.56	0.41
Uniform Delay, d1	23.8		20.9	4.0	31.2	12.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3		2.0	0.1	0.9	0.1
Delay (s)	25.1		22.9	4.1	32.1	12.5
Level of Service	C		C	A	C	B
Approach Delay (s)	25.1			8.7	20.8	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

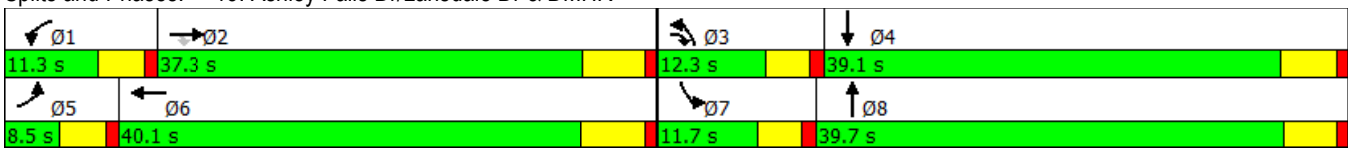
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	28	1015	109	100	1314	118	22	75	10
Future Volume (vph)	28	1015	109	100	1314	118	22	75	10
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	8.5	37.3	12.3	11.3	40.1	12.3	39.7	11.7	39.1
Total Split (%)	8.5%	37.3%	12.3%	11.3%	40.1%	12.3%	39.7%	11.7%	39.1%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 74.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1015	109	100	1314	67	118	22	130	75	10	79
Future Volume (vph)	28	1015	109	100	1314	67	118	22	130	75	10	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5048		1770	1624		1770	1615	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	5048		1770	1624		1770	1615	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	35	1285	138	127	1663	85	149	28	165	95	13	100
RTOR Reduction (vph)	0	0	60	0	4	0	0	122	0	0	91	0
Lane Group Flow (vph)	35	1285	78	127	1744	0	149	71	0	95	22	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	2.4	33.6	43.4	6.9	37.9		9.8	10.2		7.0	7.2	
Effective Green, g (s)	2.4	33.6	43.4	6.9	37.9		9.8	10.2		7.0	7.2	
Actuated g/C Ratio	0.03	0.44	0.56	0.09	0.49		0.13	0.13		0.09	0.09	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	55	1544	892	158	2484		225	215		160	151	
v/s Ratio Prot	0.02	c0.36	0.01	c0.07	0.35		c0.08	c0.04		0.05	0.01	
v/s Ratio Perm			0.04									
v/c Ratio	0.64	0.83	0.09	0.80	0.70		0.66	0.33		0.59	0.15	
Uniform Delay, d1	36.9	19.2	7.7	34.4	15.2		32.0	30.3		33.6	32.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.3	4.0	0.0	23.6	1.4		5.6	1.1		3.9	0.5	
Delay (s)	53.2	23.2	7.7	58.0	16.6		37.6	31.4		37.5	32.6	
Level of Service	D	C	A	E	B		D	C		D	C	
Approach Delay (s)		22.5			19.4			34.1			34.8	
Approach LOS		C			B			C			C	

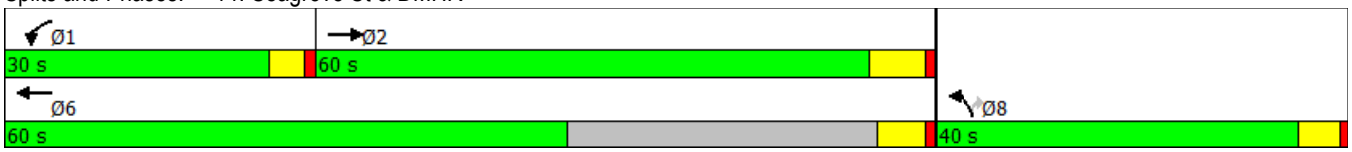
Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1209	49	1451	32	93
Future Volume (vph)	1209	49	1451	32	93
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	60.0	30.0	60.0	40.0	40.0
Total Split (%)	46.2%	23.1%	46.2%	30.8%	30.8%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 75.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 14: Seagrove St & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1209	14	49	1451	32	93
Future Volume (vph)	1209	14	49	1451	32	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5077		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5077		1770	5085	1770	1583
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	1570	18	64	1884	42	121
RTOR Reduction (vph)	1	0	0	0	0	109
Lane Group Flow (vph)	1587	0	64	1884	42	12
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	46.0		6.6	57.8	7.5	7.5
Effective Green, g (s)	46.0		6.6	57.8	7.5	7.5
Actuated g/C Ratio	0.61		0.09	0.76	0.10	0.10
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3076		153	3872	174	156
v/s Ratio Prot	0.31		0.04	c0.37	c0.02	
v/s Ratio Perm						0.01
v/c Ratio	0.52		0.42	0.49	0.24	0.08
Uniform Delay, d1	8.6		32.8	3.4	31.6	31.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		0.7	0.3	0.3	0.1
Delay (s)	8.9		33.5	3.7	31.8	31.1
Level of Service	A		C	A	C	C
Approach Delay (s)	8.9			4.7	31.3	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	15.8
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

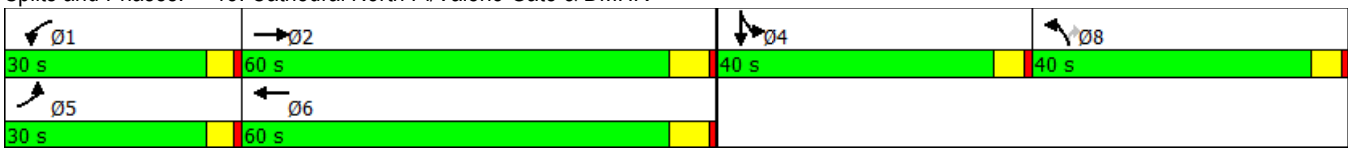
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	893	191	1409	165	107	37	1
Future Volume (vph)	8	893	191	1409	165	107	37	1
Turn Type	Prot	NA	Prot	NA	Prot	Perm	Split	NA
Protected Phases	5	2	1	6	8		4	4
Permitted Phases						8		
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0
Total Split (s)	30.0	60.0	30.0	60.0	40.0	40.0	40.0	40.0
Total Split (%)	17.6%	35.3%	17.6%	35.3%	23.5%	23.5%	23.5%	23.5%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?								
Recall Mode	None	Min	None	Min	None	None	None	None

Intersection Summary

Cycle Length: 170
Actuated Cycle Length: 89.1
Natural Cycle: 145
Control Type: Actuated-Uncoordinated

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	893	92	191	1409	24	165	0	107	37	1	44
Future Volume (vph)	8	893	92	191	1409	24	165	0	107	37	1	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9		4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.97		1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1770	5014		3433	3530		3433		1583	1770	1588	
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)	1770	5014		3433	3530		3433		1583	1770	1588	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	11	1191	123	255	1879	32	220	0	143	49	1	59
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	126	0	55	0
Lane Group Flow (vph)	11	1308	0	255	1911	0	220	0	17	49	5	0
Turn Type	Prot	NA		Prot	NA		Prot		Perm	Split	NA	
Protected Phases	5	2		1	6		8			4	4	
Permitted Phases									8			
Actuated Green, G (s)	1.1	43.8		12.1	54.8		11.1		11.1	6.4	6.4	
Effective Green, g (s)	1.1	43.8		12.1	54.8		11.1		11.1	6.4	6.4	
Actuated g/C Ratio	0.01	0.47		0.13	0.59		0.12		0.12	0.07	0.07	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9		4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	20	2346		443	2066		407		187	121	108	
v/s Ratio Prot	0.01	0.26		c0.07	c0.54		c0.06			c0.03	0.00	
v/s Ratio Perm									0.01			
v/c Ratio	0.55	0.56		0.58	0.92		0.54		0.09	0.40	0.05	
Uniform Delay, d1	46.0	17.9		38.3	17.5		38.8		36.8	41.8	40.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2	17.2	0.5		1.1	8.1		0.8		0.1	0.8	0.1	
Delay (s)	63.2	18.5		39.5	25.6		39.6		36.8	42.6	40.8	
Level of Service	E	B		D	C		D		D	D	D	
Approach Delay (s)		18.8			27.2			38.5			41.6	
Approach LOS		B			C			D			D	

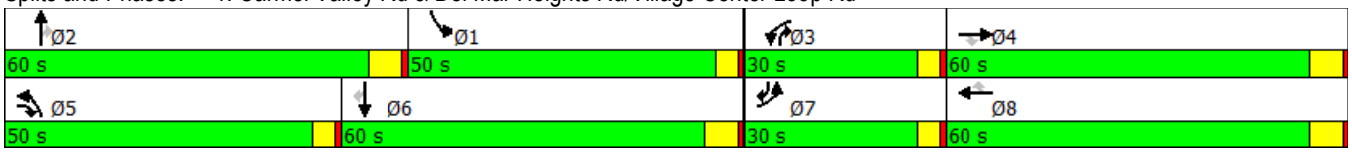
Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	20.2
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	908	259	540	124	177	72	164	482	67	33	272	208
Future Volume (vph)	908	259	540	124	177	72	164	482	67	33	272	208
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.5	49.0	8.5	8.5	45.0	45.0	8.5	48.0	8.5	50.0	56.0	8.5
Total Split (s)	30.0	60.0	50.0	30.0	60.0	60.0	50.0	60.0	30.0	50.0	60.0	30.0
Total Split (%)	15.0%	30.0%	25.0%	15.0%	30.0%	30.0%	25.0%	30.0%	15.0%	25.0%	30.0%	15.0%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min	None
Act Effct Green (s)	25.7	30.5	45.9	8.1	13.0	13.0	9.4	27.2	38.8	6.4	20.3	52.0
Actuated g/C Ratio	0.29	0.34	0.51	0.09	0.15	0.15	0.11	0.30	0.43	0.07	0.23	0.58
v/c Ratio	0.96	0.22	0.59	0.41	0.36	0.24	0.47	0.47	0.10	0.14	0.35	0.21
Control Delay	53.2	22.2	10.0	42.9	36.7	6.7	42.6	28.3	3.2	41.5	31.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	22.2	10.0	42.9	36.7	6.7	42.6	28.3	3.2	41.5	31.0	2.0
LOS	D	C	A	D	D	A	D	C	A	D	C	A
Approach Delay		34.8			33.0			29.2			19.9	
Approach LOS		C			C			C			B	

Intersection Summary	
Cycle Length: 200	
Actuated Cycle Length: 89.2	
Natural Cycle: 160	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 72.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	908	259	540	124	177	72	164	482	67	33	272	208
Future Volume (vph)	908	259	540	124	177	72	164	482	67	33	272	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	946	270	562	129	184	75	171	502	70	34	283	217
RTOR Reduction (vph)	0	0	159	0	0	64	0	0	43	0	0	103
Lane Group Flow (vph)	946	270	404	129	184	11	171	502	27	34	283	114
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	25.7	30.6	40.0	8.1	13.0	13.0	9.4	27.2	35.3	4.4	22.2	47.9
Effective Green, g (s)	25.7	30.6	40.0	8.1	13.0	13.0	9.4	27.2	35.3	4.4	22.2	47.9
Actuated g/C Ratio	0.28	0.34	0.44	0.09	0.14	0.14	0.10	0.30	0.39	0.05	0.24	0.53
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	968	1188	695	305	505	225	354	1056	613	165	862	832
v/s Ratio Prot	c0.28	0.08	c0.06	0.04	0.05		0.05	c0.14	0.00	0.01	c0.08	0.04
v/s Ratio Perm			0.20			0.01			0.01			0.03
v/c Ratio	0.98	0.23	0.58	0.42	0.36	0.05	0.48	0.48	0.04	0.21	0.33	0.14
Uniform Delay, d1	32.4	21.7	19.2	39.3	35.3	33.7	38.6	26.1	17.4	41.7	28.3	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.2	0.0	0.8	0.3	1.1	0.2	0.4	0.8	0.0	0.2	0.1	0.0
Delay (s)	55.6	21.8	20.0	39.6	36.4	33.9	38.9	26.9	17.4	41.9	28.4	11.1
Level of Service	E	C	C	D	D	C	D	C	B	D	C	B
Approach Delay (s)		39.2			37.0			28.8			22.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	20.8
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	99	51	700	34	32	895
Future Volume (vph)	99	51	700	34	32	895
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	42.0	42.0	43.0	42.0	10.0	53.0
Total Split (%)	44.2%	44.2%	45.3%	44.2%	10.5%	55.8%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	7.5	7.5	70.3	85.8	5.5	76.3
Actuated g/C Ratio	0.08	0.08	0.74	0.90	0.06	0.80
v/c Ratio	0.42	0.33	0.30	0.03	0.18	0.36
Control Delay	45.8	16.4	13.3	0.0	44.3	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	16.4	13.3	0.0	44.3	3.1
LOS	D	B	B	A	D	A
Approach Delay	35.8		12.7			4.5
Approach LOS	D		B			A

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 36.7 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 37.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	99	51	700	34	32	895
Future Volume (vph)	99	51	700	34	32	895
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	112	58	795	39	36	1017
RTOR Reduction (vph)	0	53	0	8	0	0
Lane Group Flow (vph)	113	5	795	31	36	1017
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	7.5	7.5	68.6	76.1	3.6	76.3
Effective Green, g (s)	7.5	7.5	68.6	76.1	3.6	76.3
Actuated g/C Ratio	0.08	0.08	0.72	0.80	0.04	0.80
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	271	124	2555	1268	130	2842
v/s Ratio Prot	c0.03		0.22	0.00	0.01	c0.29
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.42	0.04	0.31	0.02	0.28	0.36
Uniform Delay, d1	41.7	40.4	4.7	1.9	44.4	2.6
Progression Factor	1.00	1.00	2.62	0.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.3	0.0	0.4	0.4
Delay (s)	42.0	40.5	12.7	0.0	44.9	2.9
Level of Service	D	D	B	A	D	A
Approach Delay (s)	41.5		12.1			4.4
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	0	7	3	206	12	532	579	410
Future Volume (vph)	0	7	3	206	12	532	579	410
Turn Type		Split	NA	Perm	Prot	NA	NA	Perm
Protected Phases		8	8		5	2	6	
Permitted Phases				8				6
Detector Phase		8	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)		4.0	4.0	4.0	5.0	11.0	13.0	13.0
Minimum Split (s)		20.0	20.0	20.0	9.7	34.0	37.0	37.0
Total Split (s)		20.0	20.0	20.0	10.0	75.0	65.0	65.0
Total Split (%)		21.1%	21.1%	21.1%	10.5%	78.9%	68.4%	68.4%
Yellow Time (s)		3.5	3.5	3.5	3.7	4.5	4.5	4.5
All-Red Time (s)		0.5	0.5	0.5	1.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0	4.0	4.7	6.5	6.5	6.5
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode		None	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	0.0	6.7	6.7	6.7	6.3	77.8	75.3	75.3
Actuated g/C Ratio	0.00	0.07	0.07	0.07	0.07	0.82	0.79	0.79
v/c Ratio	0.01	0.04	0.05	0.56	0.11	0.20	0.50	0.32
Control Delay	0.0	40.5	40.6	11.3	46.5	2.5	9.0	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	40.5	40.6	11.3	46.5	2.5	9.0	2.5
LOS	A	D	D	B	D	A	A	A
Approach Delay			12.7			3.5	6.6	
Approach LOS			B			A	A	

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 6.4	Intersection LOS: A
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	7	3	206	12	532	0	0	579	410
Future Volume (vph)	0	0	1	7	3	206	12	532	0	0	579	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor		1.00		0.95	0.95	0.88	1.00	0.95			0.95	0.95
Frt		0.85		1.00	1.00	0.85	1.00	1.00			0.99	0.85
Flt Protected		1.00		0.95	0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		0		1681	1726	2787	1770	3539			1752	1504
Flt Permitted		1.00		0.95	0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)		0		1681	1726	2787	1770	3539			1752	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	1	8	3	229	13	591	0	0	643	456
RTOR Reduction (vph)	0	1	0	0	0	213	0	0	0	0	2	101
Lane Group Flow (vph)	0	0	0	5	6	16	13	591	0	0	687	309
Turn Type				Split	NA	Perm	Prot	NA			NA	Perm
Protected Phases				8	8		5	2			6	
Permitted Phases						8						6
Actuated Green, G (s)		0.0		6.7	6.7	6.7	1.5	77.8			71.6	71.6
Effective Green, g (s)		0.0		6.7	6.7	6.7	1.5	77.8			71.6	71.6
Actuated g/C Ratio		0.00		0.07	0.07	0.07	0.02	0.82			0.75	0.75
Clearance Time (s)				4.0	4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		0		118	121	196	27	2898			1320	1133
v/s Ratio Prot				0.00	0.00		0.01	c0.17			c0.39	
v/s Ratio Perm						c0.01						0.21
v/c Ratio		0.00		0.04	0.05	0.08	0.48	0.20			0.52	0.27
Uniform Delay, d1		47.5		41.2	41.2	41.3	46.4	1.9			4.7	3.6
Progression Factor		1.00		1.00	1.00	1.00	1.08	1.19			1.67	3.37
Incremental Delay, d2		0.0		0.1	0.2	0.2	11.9	0.1			1.4	0.6
Delay (s)		47.5		41.3	41.4	41.5	62.0	2.4			9.3	12.8
Level of Service		D		D	D	D	E	A			A	B
Approach Delay (s)		47.5			41.5			3.6			10.6	
Approach LOS		D			D			A			B	

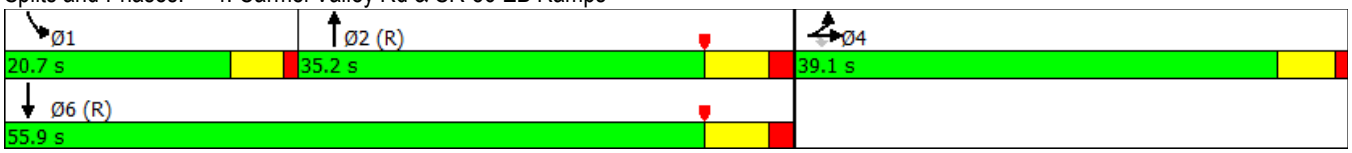
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	26	12	26	553	21
Future Volume (vph)	519	26	12	26	553	21
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	12.0	14.0	11.0
Minimum Split (s)	39.1	39.1	39.1	35.0	18.7	34.0
Total Split (s)	39.1	39.1	39.1	35.2	20.7	55.9
Total Split (%)	41.2%	41.2%	41.2%	37.1%	21.8%	58.8%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	6.5	4.7	6.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	22.5	22.5	22.5	32.7	23.5	60.9
Actuated g/C Ratio	0.24	0.24	0.24	0.34	0.25	0.64
v/c Ratio	0.71	0.72	0.03	0.03	0.69	0.02
Control Delay	42.7	43.0	0.1	20.6	34.1	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	43.0	0.1	20.6	34.1	7.2
LOS	D	D	A	C	C	A
Approach Delay		41.9		20.6		33.1
Approach LOS		D		C		C

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Carmel Valley Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	519	26	12	0	0	0	0	26	9	553	21	0
Future Volume (vph)	519	26	12	0	0	0	0	26	9	553	21	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1693	1583					3406		3433	1863	
Flt Permitted	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1693	1583					3406		3433	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	546	27	13	0	0	0	0	27	9	582	22	0
RTOR Reduction (vph)	0	0	10	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	284	289	3	0	0	0	0	30	0	582	22	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	22.5	22.5	22.5					32.7		23.5	60.9	
Effective Green, g (s)	22.5	22.5	22.5					32.7		23.5	60.9	
Actuated g/C Ratio	0.24	0.24	0.24					0.34		0.25	0.64	
Clearance Time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	398	400	374					1172		849	1194	
v/s Ratio Prot	0.17	c0.17						c0.01		c0.17	0.01	
v/s Ratio Perm			0.00									
v/c Ratio	0.71	0.72	0.01					0.03		0.69	0.02	
Uniform Delay, d1	33.3	33.4	27.7					20.6		32.4	6.2	
Progression Factor	1.00	1.00	1.00					1.00		0.93	0.87	
Incremental Delay, d2	6.0	6.3	0.0					0.0		2.1	0.0	
Delay (s)	39.3	39.7	27.7					20.7		32.1	5.4	
Level of Service	D	D	C					C		C	A	
Approach Delay (s)		39.2			0.0			20.7			31.1	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	56	12	26	29	17	50
Future Volume (vph)	56	12	26	29	17	50
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	66	14	31	34	20	59

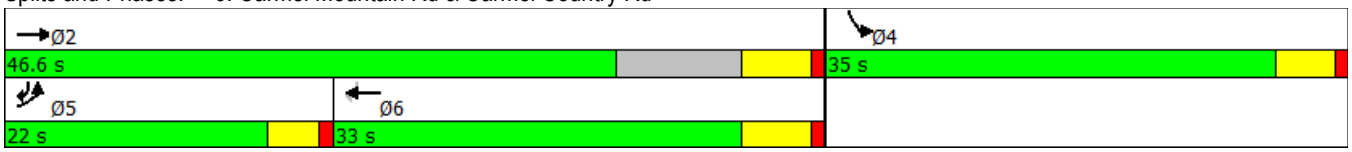
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	80	65	79
Volume Left (vph)	66	31	0
Volume Right (vph)	14	0	59
Hadj (s)	0.09	0.13	-0.41
Departure Headway (s)	4.3	4.3	3.7
Degree Utilization, x	0.10	0.08	0.08
Capacity (veh/h)	809	813	937
Control Delay (s)	7.7	7.6	7.1
Approach Delay (s)	7.7	7.6	7.1
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
Level of Service	A		
Intersection Capacity Utilization	20.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	688	126	58	49	272
Future Volume (vph)	688	126	58	49	272
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					6
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	46.6	33.0	35.0	22.0
Total Split (%)	24.4%	51.8%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min
Act Effct Green (s)	23.5	35.6	7.7	7.2	36.1
Actuated g/C Ratio	0.56	0.85	0.18	0.17	0.86
v/c Ratio	0.39	0.05	0.22	0.18	0.12
Control Delay	9.5	2.4	9.7	18.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	2.4	9.7	18.3	0.7
LOS	A	A	A	B	A
Approach Delay		8.4	9.7	3.4	
Approach LOS		A	A	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 41.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	688	126	58	72	49	272
Future Volume (vph)	688	126	58	72	49	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3246		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3246		1770	2787
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	756	138	64	79	54	299
RTOR Reduction (vph)	0	0	69	0	0	114
Lane Group Flow (vph)	756	138	74	0	54	185
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						6
Actuated Green, G (s)	22.5	33.0	6.1		2.5	28.6
Effective Green, g (s)	22.5	33.0	6.1		2.5	28.6
Actuated g/C Ratio	0.49	0.72	0.13		0.05	0.62
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1675	2533	429		95	1995
v/s Ratio Prot	c0.22	0.04	c0.02		c0.03	0.05
v/s Ratio Perm						0.02
v/c Ratio	0.45	0.05	0.17		0.57	0.09
Uniform Delay, d1	7.7	1.9	17.8		21.3	3.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.0	0.3		4.6	0.0
Delay (s)	7.8	1.9	18.0		25.9	3.5
Level of Service	A	A	B		C	A
Approach Delay (s)		6.9	18.0		6.9	
Approach LOS		A	B		A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	99	809	17	100	459
Future Volume (Veh/h)	9	99	809	17	100	459
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	10	106	870	18	108	494
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1589	879			888	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1589	879			888	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	69			86	
cM capacity (veh/h)	102	347			763	

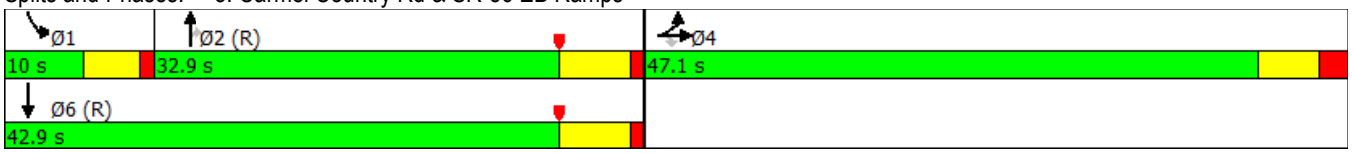
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	10	106	888	108	494
Volume Left	10	0	0	108	0
Volume Right	0	106	18	0	0
cSH	102	347	1700	763	1700
Volume to Capacity	0.10	0.31	0.52	0.14	0.29
Queue Length 95th (ft)	8	32	0	12	0
Control Delay (s)	44.2	19.9	0.0	10.5	0.0
Lane LOS	E	C		B	
Approach Delay (s)	22.0		0.0	1.9	
Approach LOS	C				

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	284	435	149	547	405	231	521
Future Volume (vph)	284	435	149	547	405	231	521
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	47.1	47.1	47.1	32.9	32.9	10.0	42.9
Total Split (%)	52.3%	52.3%	52.3%	36.6%	36.6%	11.1%	47.7%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	32.5	32.5	32.5	29.5	29.5	11.4	45.6
Actuated g/C Ratio	0.36	0.36	0.36	0.33	0.33	0.13	0.51
v/c Ratio	0.44	0.76	0.23	0.49	0.61	0.56	0.30
Control Delay	23.0	32.7	3.5	26.7	13.8	40.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	32.7	3.5	26.7	13.8	40.9	17.0
LOS	C	C	A	C	B	D	B
Approach Delay		24.9		21.2			24.4
Approach LOS		C		C			C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 23.4	Intersection LOS: C
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	435	149	0	0	0	0	547	405	231	521	0
Future Volume (vph)	284	435	149	0	0	0	0	547	405	231	521	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1764	1583					3539	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1764	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	296	453	155	0	0	0	0	570	422	241	543	0
RTOR Reduction (vph)	0	0	99	0	0	0	0	0	179	0	0	0
Lane Group Flow (vph)	266	483	56	0	0	0	0	570	243	241	543	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	32.5	32.5	32.5					29.5	29.5	11.4	45.6	
Effective Green, g (s)	32.5	32.5	32.5					29.5	29.5	11.4	45.6	
Actuated g/C Ratio	0.36	0.36	0.36					0.33	0.33	0.13	0.51	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	607	637	571					1160	518	434	1793	
v/s Ratio Prot	0.16	c0.27						c0.16		c0.07	0.15	
v/s Ratio Perm			0.04						0.15			
v/c Ratio	0.44	0.76	0.10					0.49	0.47	0.56	0.30	
Uniform Delay, d1	21.8	25.3	19.0					24.2	24.0	36.9	12.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.86	1.15	
Incremental Delay, d2	0.5	5.2	0.1					1.5	3.0	1.5	0.4	
Delay (s)	22.3	30.5	19.1					25.7	27.1	33.3	15.3	
Level of Service	C	C	B					C	C	C	B	
Approach Delay (s)		26.1			0.0			26.3			20.9	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	204	286	658	210	192	519
Future Volume (vph)	204	286	658	210	192	519
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	22.0	22.0	53.0	53.0	15.0	68.0
Total Split (%)	24.4%	24.4%	58.9%	58.9%	16.7%	75.6%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	11.6	11.6	52.5	52.5	10.3	67.5
Actuated g/C Ratio	0.13	0.13	0.58	0.58	0.11	0.75
v/c Ratio	0.51	0.66	0.35	0.23	0.54	0.22
Control Delay	40.2	11.4	9.5	2.4	43.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	11.4	9.5	2.4	43.0	3.9
LOS	D	B	A	A	D	A
Approach Delay	23.4		7.8			14.4
Approach LOS	C		A			B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 45.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	204	286	658	210	192	519
Future Volume (vph)	204	286	658	210	192	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	318	731	233	213	577
RTOR Reduction (vph)	0	277	0	97	0	0
Lane Group Flow (vph)	227	41	731	136	213	577
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	11.6	11.6	52.5	52.5	10.3	67.5
Effective Green, g (s)	11.6	11.6	52.5	52.5	10.3	67.5
Actuated g/C Ratio	0.13	0.13	0.58	0.58	0.11	0.75
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	442	204	2064	923	392	2654
v/s Ratio Prot	c0.07		c0.21		c0.06	0.16
v/s Ratio Perm		0.03		0.09		
v/c Ratio	0.51	0.20	0.35	0.15	0.54	0.22
Uniform Delay, d1	36.6	35.1	9.8	8.5	37.6	3.4
Progression Factor	1.00	1.00	0.85	1.22	1.00	1.00
Incremental Delay, d2	1.0	0.5	0.4	0.3	1.5	0.2
Delay (s)	37.6	35.5	8.8	10.7	39.2	3.5
Level of Service	D	D	A	B	D	A
Approach Delay (s)	36.4		9.3			13.2
Approach LOS	D		A			B

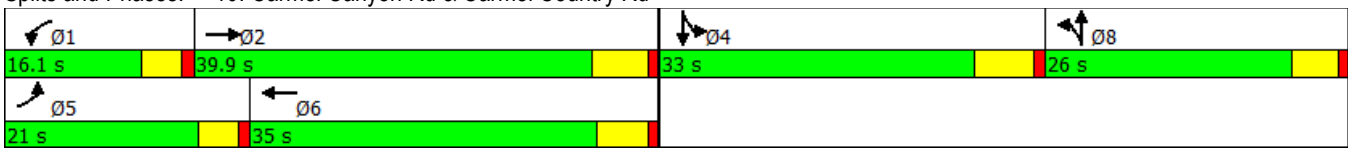
Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	221	386	73	418	34	201	196	48
Future Volume (vph)	221	386	73	418	34	201	196	48
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	21.0	39.9	16.1	35.0	26.0	26.0	33.0	33.0
Total Split (%)	18.3%	34.7%	14.0%	30.4%	22.6%	22.6%	28.7%	28.7%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	16.0	37.1	8.5	27.7	20.7	20.7	12.3	12.3
Actuated g/C Ratio	0.16	0.38	0.09	0.28	0.21	0.21	0.13	0.13
v/c Ratio	0.81	0.33	0.50	0.85	0.10	0.84	0.48	0.43
Control Delay	62.3	23.5	55.1	33.4	33.7	55.8	44.0	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	23.5	55.1	33.4	33.7	55.8	44.0	29.8
LOS	E	C	E	C	C	E	D	C
Approach Delay		36.8		35.1		53.6		39.1
Approach LOS		D		D		D		D

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 97.6	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 39.0	Intersection LOS: D
Intersection Capacity Utilization 79.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	386	37	73	418	466	34	201	111	196	48	56
Future Volume (vph)	221	386	37	73	418	466	34	201	111	196	48	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.92		1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3493		1770	3259		1770	1763		3433	1713	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3493		1770	3259		1770	1763		3433	1713	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	233	406	39	77	440	491	36	212	117	206	51	59
RTOR Reduction (vph)	0	6	0	0	166	0	0	17	0	0	41	0
Lane Group Flow (vph)	233	439	0	77	765	0	36	312	0	206	69	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	16.0	37.2		7.3	28.8		20.8	20.8		12.3	12.3	
Effective Green, g (s)	16.0	37.2		7.3	28.8		20.8	20.8		12.3	12.3	
Actuated g/C Ratio	0.16	0.38		0.07	0.29		0.21	0.21		0.12	0.12	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	287	1317		131	951		373	371		428	213	
v/s Ratio Prot	c0.13	0.13		0.04	c0.23		0.02	c0.18		c0.06	0.04	
v/s Ratio Perm												
v/c Ratio	0.81	0.33		0.59	0.80		0.10	0.84		0.48	0.32	
Uniform Delay, d1	39.8	21.9		44.2	32.3		31.3	37.3		40.2	39.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.1	0.2		4.3	5.0		0.0	15.2		1.2	1.2	
Delay (s)	55.0	22.0		48.5	37.3		31.4	52.5		41.3	40.6	
Level of Service	D	C		D	D		C	D		D	D	
Approach Delay (s)		33.3			38.1			50.4			41.1	
Approach LOS		C			D			D			D	

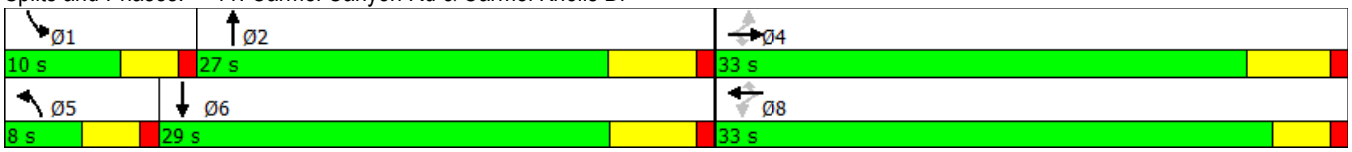
Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	98.6	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	13	28	151	9	42	23	488	74	117
Future Volume (vph)	14	13	28	151	9	42	23	488	74	117
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	8.0	27.0	10.0	29.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	11.4%	38.6%	14.3%	41.4%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	8.6	8.6	8.6	9.8	9.8	9.8	4.2	24.7	5.8	28.7
Actuated g/C Ratio	0.19	0.19	0.19	0.22	0.22	0.22	0.09	0.55	0.13	0.63
v/c Ratio	0.06	0.04	0.08	0.52	0.02	0.10	0.15	0.44	0.34	0.07
Control Delay	17.2	16.9	0.4	24.0	15.7	1.1	25.7	8.3	26.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	16.9	0.4	24.0	15.7	1.1	25.7	8.3	26.2	5.8
LOS	B	B	A	C	B	A	C	A	C	A
Approach Delay		8.7			18.9			8.8		12.8
Approach LOS		A			B			A		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 45.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 54.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	13	28	151	9	42	23	488	329	74	117	23
Future Volume (vph)	14	13	28	151	9	42	23	488	329	74	117	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3325		1770	3452	
Flt Permitted	0.75	1.00	1.00	0.75	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1400	1863	1583	1394	1863	1583	1770	3325		1770	3452	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	15	14	29	157	9	44	24	508	343	77	122	24
RTOR Reduction (vph)	0	0	25	0	0	36	0	123	0	0	11	0
Lane Group Flow (vph)	15	14	4	157	9	8	24	728	0	77	135	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	7.2	7.2	7.2	8.5	8.5	8.5	0.6	24.4		3.1	27.0	
Effective Green, g (s)	7.2	7.2	7.2	8.5	8.5	8.5	0.6	24.4		3.1	27.0	
Actuated g/C Ratio	0.15	0.15	0.15	0.17	0.17	0.17	0.01	0.49		0.06	0.54	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	203	270	229	238	319	271	21	1635		110	1879	
v/s Ratio Prot		0.01			0.00		0.01	c0.22		c0.04	0.04	
v/s Ratio Perm	0.01		0.00	c0.11		0.00						
v/c Ratio	0.07	0.05	0.02	0.66	0.03	0.03	1.14	0.45		0.70	0.07	
Uniform Delay, d1	18.3	18.3	18.2	19.2	17.1	17.1	24.5	8.2		22.8	5.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0	0.0	5.0	0.0	0.0	244.5	0.3		14.5	0.0	
Delay (s)	18.4	18.3	18.2	24.2	17.1	17.1	269.0	8.5		37.3	5.4	
Level of Service	B	B	B	C	B	B	F	A		D	A	
Approach Delay (s)		18.3			22.4			15.6			16.4	
Approach LOS		B			C			B			B	

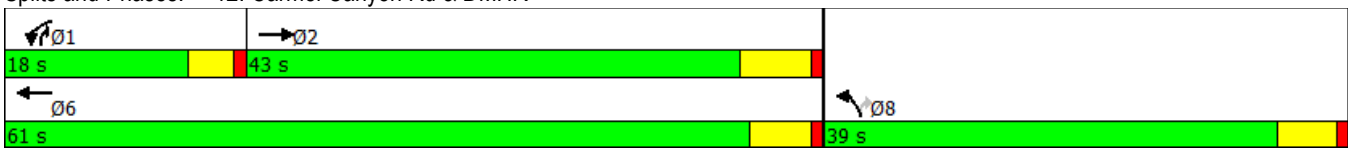
Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	49.6	Sum of lost time (s)	14.9
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1371	94	440	84	448
Future Volume (vph)	1371	94	440	84	448
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	36.0	12.4	15.6	39.0	12.4
Total Split (s)	43.0	18.0	61.0	39.0	18.0
Total Split (%)	43.0%	18.0%	61.0%	39.0%	18.0%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	26.6	13.9	47.3	6.2	22.8
Actuated g/C Ratio	0.44	0.23	0.78	0.10	0.38
v/c Ratio	0.71	0.24	0.12	0.25	0.79
Control Delay	16.2	23.6	2.5	28.8	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	23.6	2.5	28.8	28.0
LOS	B	C	A	C	C
Approach Delay	16.2		6.2	28.1	
Approach LOS	B		A	C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 60.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 16.6	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: Carmel Canyon Rd & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1371	130	94	440	84	448
Future Volume (vph)	1371	130	94	440	84	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5019		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5019		1770	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1443	137	99	463	88	472
RTOR Reduction (vph)	10	0	0	0	0	3
Lane Group Flow (vph)	1570	0	99	463	88	469
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	26.8		13.9	45.8	4.9	18.8
Effective Green, g (s)	26.8		13.9	45.8	4.9	18.8
Actuated g/C Ratio	0.44		0.23	0.74	0.08	0.31
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	2183		399	3780	273	483
v/s Ratio Prot	c0.31		0.06	0.09	0.03	c0.22
v/s Ratio Perm						0.08
v/c Ratio	0.72		0.25	0.12	0.32	0.97
Uniform Delay, d1	14.3		19.6	2.2	26.8	21.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2		0.1	0.0	0.3	33.1
Delay (s)	15.5		19.7	2.2	27.0	54.2
Level of Service	B		B	A	C	D
Approach Delay (s)	15.5			5.3	49.9	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	64	1663	106	58	461	50	5	51	4
Future Volume (vph)	64	1663	106	58	461	50	5	51	4
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	16.0	71.9	9.2	9.8	65.7	9.2	39.0	9.3	39.1
Total Split (%)	12.3%	55.3%	7.1%	7.5%	50.5%	7.1%	30.0%	7.2%	30.1%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None
Act Effct Green (s)	8.3	64.7	77.4	5.5	64.0	7.1	7.5	4.9	7.2
Actuated g/C Ratio	0.08	0.65	0.78	0.06	0.64	0.07	0.08	0.05	0.07
v/c Ratio	0.48	0.78	0.09	0.66	0.17	0.43	0.43	0.62	0.28
Control Delay	55.9	16.4	1.5	79.7	8.5	59.8	19.4	79.8	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	16.4	1.5	79.7	8.5	59.8	19.4	79.8	21.1
LOS	E	B	A	E	A	E	B	E	C
Approach Delay		16.9			15.7		35.6		54.4
Approach LOS		B			B		D		D

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 99.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	1663	106	58	461	49	50	5	70	51	4	35
Future Volume (vph)	64	1663	106	58	461	49	50	5	70	51	4	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5012		1770	1601		1770	1610	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	5012		1770	1601		1770	1610	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	1808	115	63	501	53	54	5	76	55	4	38
RTOR Reduction (vph)	0	0	26	0	7	0	0	71	0	0	36	0
Lane Group Flow (vph)	70	1808	89	63	547	0	54	10	0	55	6	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	7.0	65.8	72.9	5.4	64.0		7.1	7.1		4.9	4.7	
Effective Green, g (s)	7.0	65.8	72.9	5.4	64.0		7.1	7.1		4.9	4.7	
Actuated g/C Ratio	0.07	0.64	0.71	0.05	0.62		0.07	0.07		0.05	0.05	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	120	2271	1125	93	3129		122	110		84	73	
v/s Ratio Prot	c0.04	c0.51	0.01	0.04	0.11		0.03	c0.01		c0.03	0.00	
v/s Ratio Perm			0.05									
v/c Ratio	0.58	0.80	0.08	0.68	0.17		0.44	0.09		0.65	0.08	
Uniform Delay, d1	46.3	13.4	4.5	47.7	8.1		45.8	44.7		48.0	46.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	2.0	0.0	14.3	0.1		0.9	0.5		13.1	0.5	
Delay (s)	50.9	15.5	4.5	62.0	8.2		46.7	45.1		61.1	47.3	
Level of Service	D	B	A	E	A		D	D		E	D	
Approach Delay (s)		16.1			13.7			45.8			55.1	
Approach LOS		B			B			D			E	

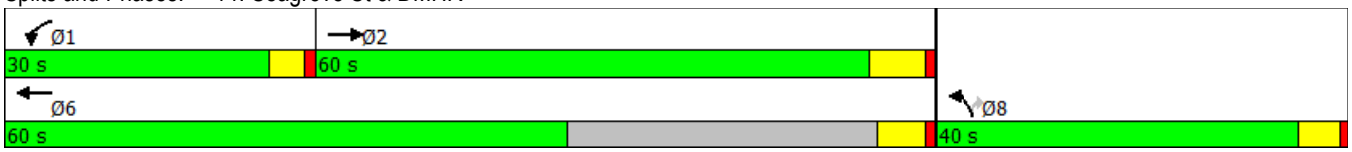
Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	102.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1755	40	535	11	24
Future Volume (vph)	1755	40	535	11	24
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	60.0	30.0	60.0	40.0	40.0
Total Split (%)	46.2%	23.1%	46.2%	30.8%	30.8%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	49.1	6.5	56.8	7.1	7.1
Actuated g/C Ratio	0.73	0.10	0.84	0.11	0.11
v/c Ratio	0.50	0.24	0.13	0.06	0.13
Control Delay	8.2	30.5	2.0	27.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	30.5	2.0	27.0	13.2
LOS	A	C	A	C	B
Approach Delay	8.2		4.0	17.4	
Approach LOS	A		A	B	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 67.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 49.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 14: Seagrove St & DMHR



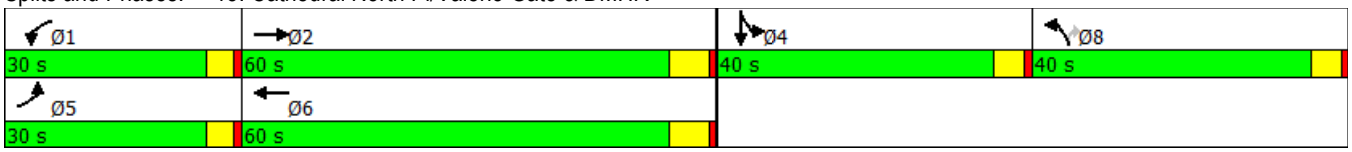
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1755	23	40	535	11	24
Future Volume (vph)	1755	23	40	535	11	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5075		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5075		1770	5085	1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	1809	24	41	552	11	25
RTOR Reduction (vph)	1	0	0	0	0	23
Lane Group Flow (vph)	1832	0	41	552	11	2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	46.5		4.6	56.3	4.3	4.3
Effective Green, g (s)	46.5		4.6	56.3	4.3	4.3
Actuated g/C Ratio	0.65		0.06	0.79	0.06	0.06
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3314		114	4020	106	95
v/s Ratio Prot	c0.36		c0.02	0.11	c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.55		0.36	0.14	0.10	0.02
Uniform Delay, d1	6.7		31.9	1.7	31.6	31.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.7	0.0	0.2	0.0
Delay (s)	7.1		32.6	1.8	31.8	31.5
Level of Service	A		C	A	C	C
Approach Delay (s)	7.1			3.9	31.6	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	15.8
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	39	1636	59	514	55	110	18	0
Future Volume (vph)	39	1636	59	514	55	110	18	0
Turn Type	Prot	NA	Prot	NA	Prot	Perm	Split	NA
Protected Phases	5	2	1	6	8		4	4
Permitted Phases						8		
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0
Total Split (s)	30.0	60.0	30.0	60.0	40.0	40.0	40.0	40.0
Total Split (%)	17.6%	35.3%	17.6%	35.3%	23.5%	23.5%	23.5%	23.5%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?								
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	6.8	55.8	6.3	57.5	7.4	7.4	7.1	7.1
Actuated g/C Ratio	0.08	0.62	0.07	0.64	0.08	0.08	0.08	0.08
v/c Ratio	0.34	0.64	0.29	0.28	0.23	0.52	0.15	0.03
Control Delay	47.9	13.7	44.2	9.5	42.3	15.9	43.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	13.7	44.2	9.5	42.3	15.9	43.7	0.1
LOS	D	B	D	A	D	B	D	A
Approach Delay		14.4		13.0				24.8
Approach LOS		B		B				C

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 89.6	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	1636	79	59	514	15	55	0	110	18	0	14
Future Volume (vph)	39	1636	79	59	514	15	55	0	110	18	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9		4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.97		1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00		0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)	1770	5050		3433	3524		3433		1583	1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)	1770	5050		3433	3524		3433		1583	1770	1583	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	46	1925	93	69	605	18	65	0	129	21	0	16
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	119	0	15	0
Lane Group Flow (vph)	46	2016	0	69	622	0	65	0	10	21	1	0
Turn Type	Prot	NA		Prot	NA		Prot		Perm	Split	NA	
Protected Phases	5	2		1	6		8			4	4	
Permitted Phases									8			
Actuated Green, G (s)	4.5	56.7		5.2	57.4		7.4		7.4	4.0	4.0	
Effective Green, g (s)	4.5	56.7		5.2	57.4		7.4		7.4	4.0	4.0	
Actuated g/C Ratio	0.05	0.61		0.06	0.61		0.08		0.08	0.04	0.04	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9		4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	85	3062		190	2163		271		125	75	67	
v/s Ratio Prot	c0.03	c0.40		0.02	0.18		c0.02			c0.01	0.00	
v/s Ratio Perm									0.01			
v/c Ratio	0.54	0.66		0.36	0.29		0.24		0.08	0.28	0.01	
Uniform Delay, d1	43.5	12.1		42.6	8.5		40.4		39.9	43.4	42.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2	3.7	0.8		0.4	0.2		0.2		0.1	0.7	0.0	
Delay (s)	47.2	12.8		43.0	8.6		40.6		40.0	44.1	42.9	
Level of Service	D	B		D	A		D		D	D	D	
Approach Delay (s)		13.6			12.1			40.2			43.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

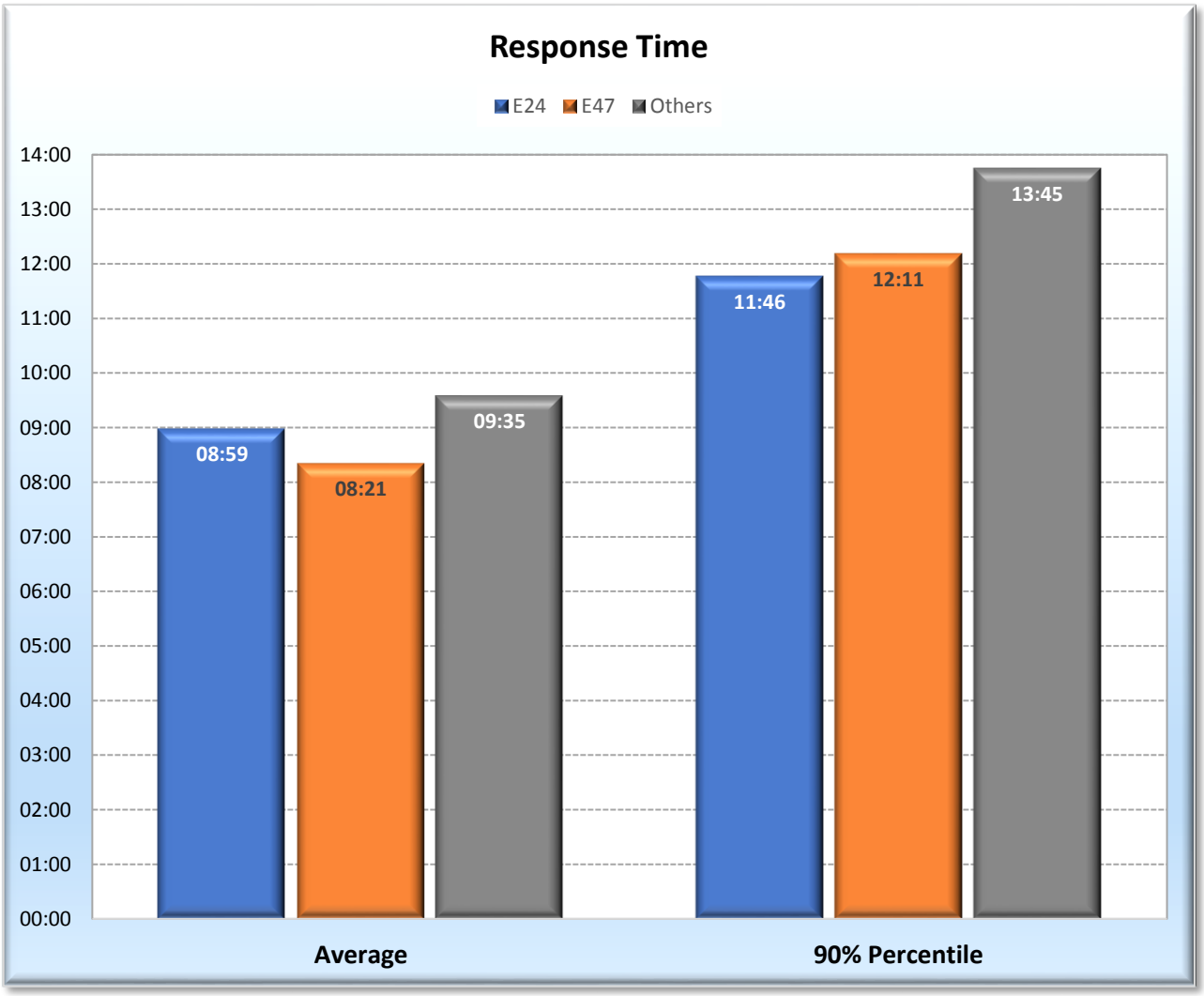
Fire Response Data

APPENDIX C

Response Time
Del Mar Heights
2-year data (CY2014 and 2015)

Units		Number of Responses	Response Time Average	Response Time 90% Percentile	Percentage at 6:30
E24		115	08:59	11:46	13%
E47		40	08:21	12:11	25%
Others	E46	1	08:21	08:21	
	E124	7	09:16	12:25	20%
	E35	2	12:13	12:29	
	E40	2	09:51	12:52	6%
	E41	3	08:49	12:53	51%
	Others	15	09:35	13:45	29%
Overall		170	08:53	12:19	18%

Response Time = From time unit assigned to unit arrival
Excludes Call Categories: Service & Others



Little McGonicle Ranch Road Bridges Project- Incident Concentration Study

Legend

Potential FS Locations

Incident Concentration

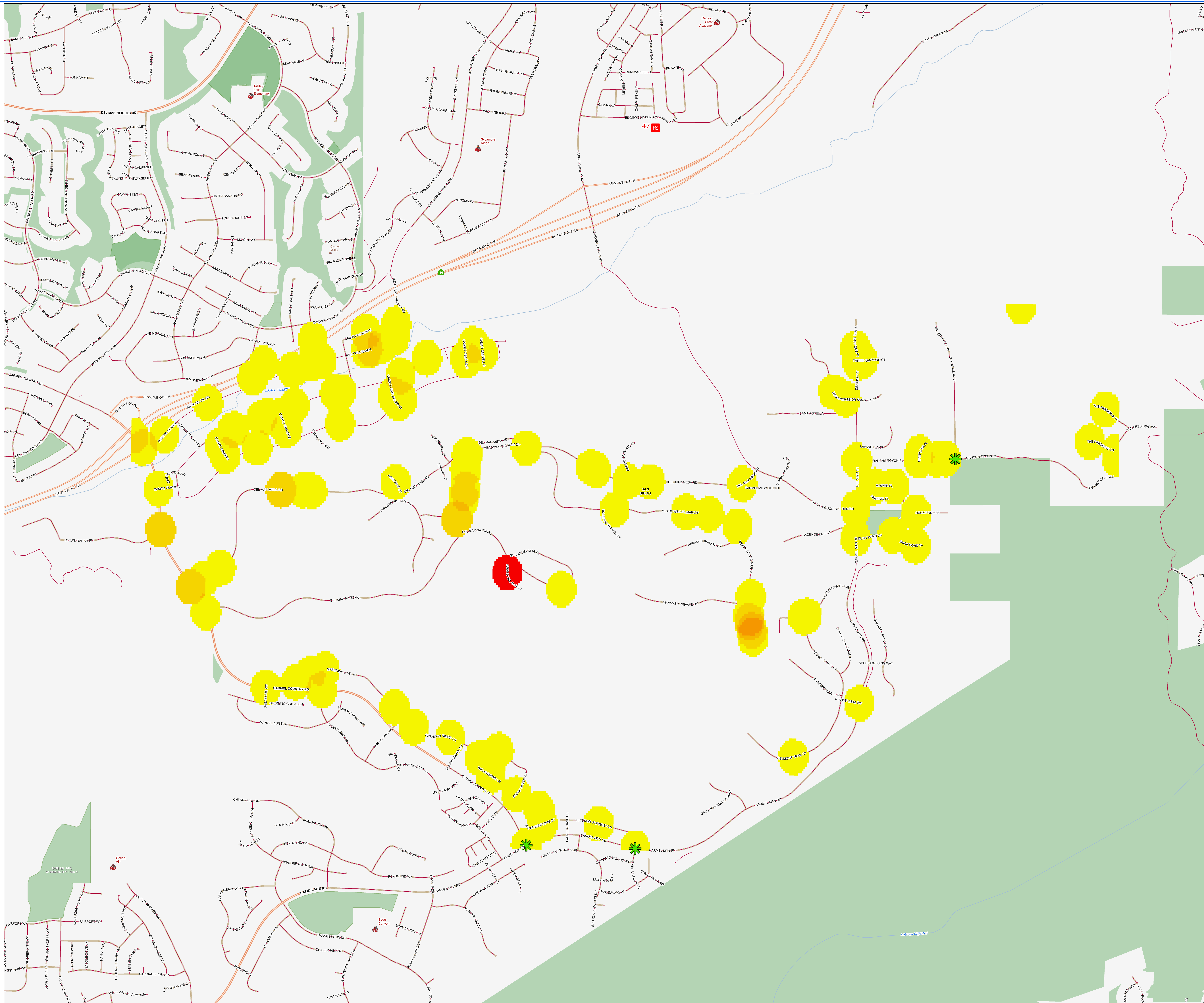
Low

High

N

Scale:

Miles



Created by:
San Diego Fire-Rescue
Response Planning

February 8th, 2016

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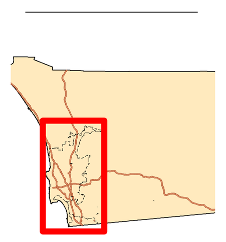
Vicinity



City	Long	Lat	Any First Unit Respons	Unit Name	Unit Time Assigned	Unit Time Arrived	Unit Response Time
SAN DIEGO	-117.193968	32.942676	0:09:41	E24	1/1/14 12:33:46	1/1/14 12:43:27	0:09:41
SAN DIEGO	-117.203998	32.946982	0:10:10	E24	1/5/14 2:43:58	1/5/14 2:54:08	0:10:10
SAN DIEGO	-117.180007	32.941217	0:11:08	E24	1/9/14 19:31:15	1/9/14 19:41:58	0:10:43
SAN DIEGO	-117.199366	32.94726	0:09:44	E24	1/12/14 9:05:26	1/12/14 9:15:10	0:09:44
SAN DIEGO	-117.203998	32.946982	0:08:33	E24	1/21/14 7:29:54	1/21/14 7:39:15	0:09:21
SAN DIEGO	-117.200197	32.932805	0:07:15	E24	1/23/14 13:23:43	1/23/14 13:30:58	0:07:15
SAN DIEGO	-117.213709	32.943342	0:06:12	E47	1/26/14 9:14:44	1/26/14 9:20:05	0:05:21
SAN DIEGO	-117.187593	32.942217	0:10:23	E24	1/29/14 15:17:23	1/29/14 15:27:46	0:10:23
SAN DIEGO	-117.2	32.940833	0:07:57	E24	2/6/14 16:50:34	2/6/14 16:58:31	0:07:57
SAN DIEGO	-117.182708	32.947229	0:10:42	E47	2/13/14 12:26:20	2/13/14 12:37:02	0:10:42
SAN DIEGO	-117.199645	32.941919	0:12:04	E24	2/22/14 13:11:32	2/22/14 13:23:38	0:12:06
SAN DIEGO	-117.203292	32.947202	0:09:40	E24	3/2/14 2:00:09	3/2/14 2:09:49	0:09:40
SAN DIEGO	-117.210341	32.943437	0:05:46	E24	3/2/14 16:42:19	3/2/14 16:48:15	0:05:56
SAN DIEGO	-117.189035	32.941105	0:10:51	E24	3/7/14 7:28:31	3/7/14 7:39:25	0:10:54
SAN DIEGO	-117.202715	32.947965	0:07:50	E24	3/11/14 18:36:14	3/11/14 18:41:08	0:04:54
SAN DIEGO	-117.179115	32.943185	0:10:15	E24	3/28/14 8:22:50	3/28/14 8:33:05	0:10:15
SAN DIEGO	-117.194174	32.942778	0:09:39	E24	3/29/14 5:19:54	3/29/14 5:29:33	0:09:39
SAN DIEGO	-117.203998	32.946982	0:08:24	E47	4/1/14 11:15:39	4/1/14 11:24:03	0:08:24
SAN DIEGO	-117.207118	32.944943	0:07:53	E47	4/9/14 10:59:32	4/9/14 11:07:25	0:07:53
SAN DIEGO	-117.183661	32.945633	0:11:13	E24	4/9/14 21:48:52	4/9/14 22:00:05	0:11:13
SAN DIEGO	-117.197006	32.943463	0:07:39	E47	4/12/14 10:32:55	4/12/14 10:40:34	0:07:39
	-117.175519	32.948824	0:03:42	E47	4/12/14 11:26:58	4/12/14 11:30:40	0:03:42
SAN DIEGO	-117.205817	32.934515	0:07:29	E24	4/23/14 7:42:41	4/23/14 7:50:10	0:07:29
SAN DIEGO	-117.204039	32.947674	0:14:22	E24	4/30/14 2:23:24	4/30/14 2:37:46	0:14:22
SAN DIEGO	-117.197778	32.938889	0:11:18	E24	5/2/14 17:41:47	5/2/14 17:53:05	0:11:18
SAN DIEGO	-117.187115	32.936846	0:10:18	E24	5/13/14 9:51:59	5/13/14 10:02:17	0:10:18
SAN DIEGO	-117.205079	32.945475	0:05:23	E47	5/19/14 18:53:20	5/19/14 18:58:43	0:05:23
SAN DIEGO	-117.205817	32.934515	0:06:57	E24	5/23/14 8:25:41	5/23/14 8:32:37	0:06:56
SAN DIEGO	-117.214123	32.943781	0:05:31	E24	5/25/14 19:30:06	5/25/14 19:35:36	0:05:30
SAN DIEGO	-117.212886	32.940344	0:05:19	E24	5/27/14 14:28:11	5/27/14 14:33:30	0:05:19
SAN DIEGO	-117.187206	32.937117	0:11:47	E47	5/30/14 11:45:24	5/30/14 11:57:11	0:11:47
SAN DIEGO	-117.187258	32.937447	0:14:17	E47	6/8/14 3:59:20	6/8/14 4:13:37	0:14:17
SAN DIEGO	-117.199716	32.941567	0:08:26	E47	6/12/14 13:09:23	6/12/14 13:17:49	0:08:26
SAN DIEGO	-117.208721	32.943385	0:07:09	E24	6/16/14 21:21:16	6/16/14 21:28:25	0:07:09
SAN DIEGO	-117.197778	32.938889	0:09:22	E24	6/18/14 2:03:06	6/18/14 2:12:28	0:09:22
SAN DIEGO	-117.205954	32.946589	0:08:44	E47	6/20/14 8:26:51	6/20/14 8:35:35	0:08:44
SAN DIEGO	-117.206319	32.941805	0:08:46	E46	6/21/14 11:19:44	6/21/14 11:28:05	0:08:21
SAN DIEGO	-117.178741	32.943198	0:13:15	E24	6/22/14 4:17:20	6/22/14 4:30:35	0:13:15
SAN DIEGO	-117.208466	32.946467	0:04:45	E47	6/22/14 18:19:23	6/22/14 18:24:08	0:04:45
SAN DIEGO	-117.197778	32.938889	0:08:20	E24	7/18/14 6:09:34	7/18/14 6:18:12	0:08:38
SAN DIEGO	-117.179903	32.943152	0:12:30	E24	7/22/14 2:55:11	7/22/14 3:07:41	0:12:30
SAN DIEGO	-117.208235	32.934584	0:06:38	E47	8/9/14 8:55:32	8/9/14 9:02:10	0:06:38
SAN DIEGO	-117.201365	32.946729	0:08:56	E24	8/10/14 8:44:24	8/10/14 8:53:20	0:08:56
SAN DIEGO	-117.19842	32.931426	0:06:18	E41	8/19/14 12:25:43	8/19/14 12:32:01	0:06:18
SAN DIEGO	-117.197778	32.938889	0:09:22	E47	8/22/14 7:46:10	8/22/14 7:55:32	0:09:22
SAN DIEGO	-117.208276	32.944553	0:04:51	E24	8/22/14 12:00:17	8/22/14 12:05:08	0:04:51
SAN DIEGO	-117.209736	32.944059	0:07:31	E24	8/29/14 4:04:30	8/29/14 4:12:01	0:07:31
SAN DIEGO	-117.187221	32.937159	0:12:30	E24	9/7/14 17:16:50	9/7/14 17:29:20	0:12:30
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SAN DIEGO	-117.197778	32.938889	0:08:24	E24	12/3/15 19:21:27	12/3/15 19:29:52	0:08:25
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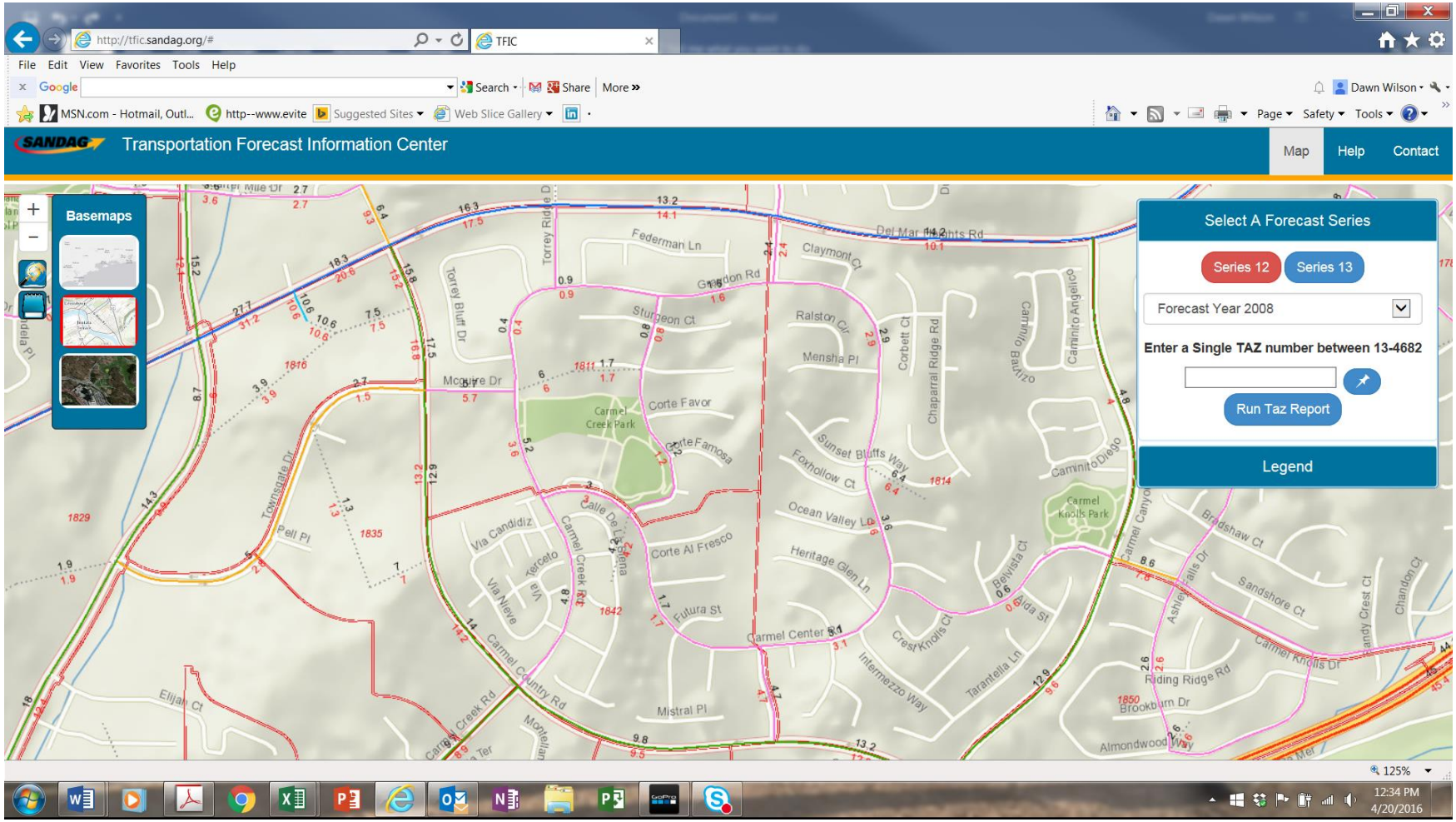
2035 Model Data (SANDAG)

APPENDIX D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Forecast Year 2008
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Claymont Ct
Torrey Ridge Dr
Torrey Bluff Dr
Sturgeon Ct
Ralston Cir
Mensha Pl
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Moquire Dr
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Corte Famosa
Sunset Bluffs Way
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Ocean Valley Ln
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Via Candidiz
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Via Terceto
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Belvista Ct
Ida St
Crest Knolls Ct
Intermezzo Way
Tarantella Ln
Bradshaw Ct
Sandshore Ct
Ashley Falls Dr
Carmel Knolls Dr
Riding Ridge Rd
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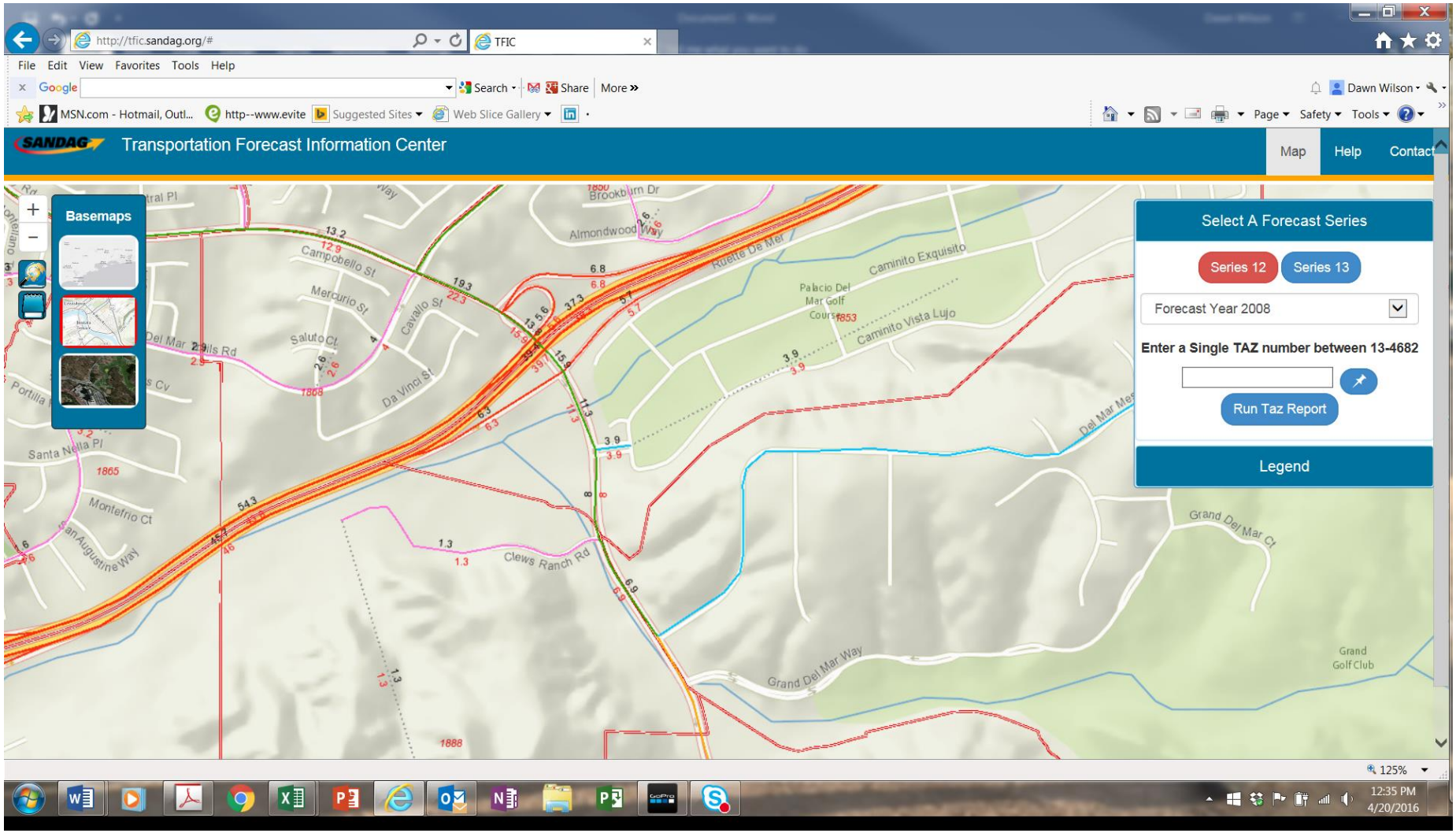
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Cavallo St
Saluto Ct
Da Vinci St
Almondwood Way
Brookburn Dr
Ruelle De Mer
Caminito Exquisito
Palacio Del Mar Golf Course
Caminito Vista Lujo
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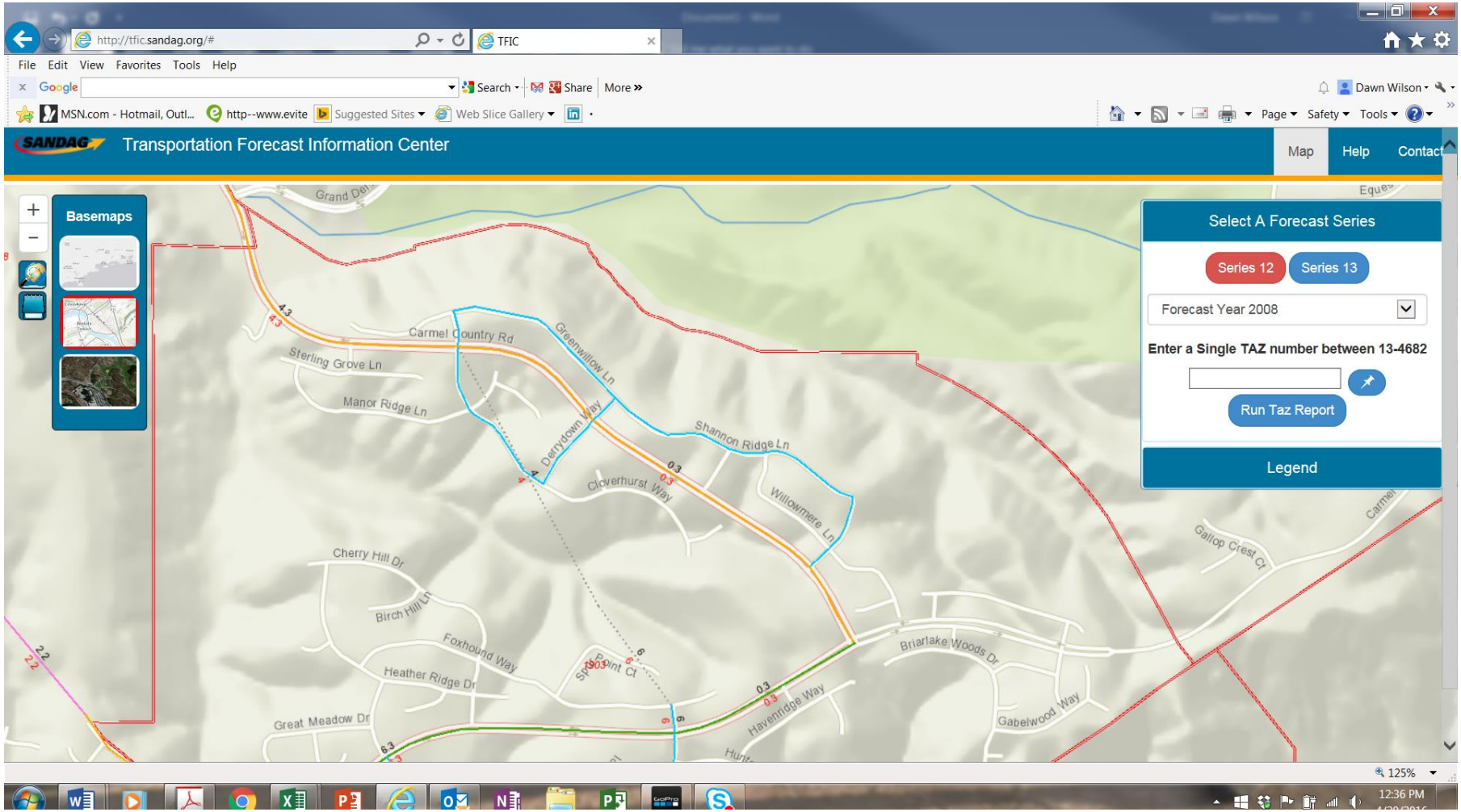
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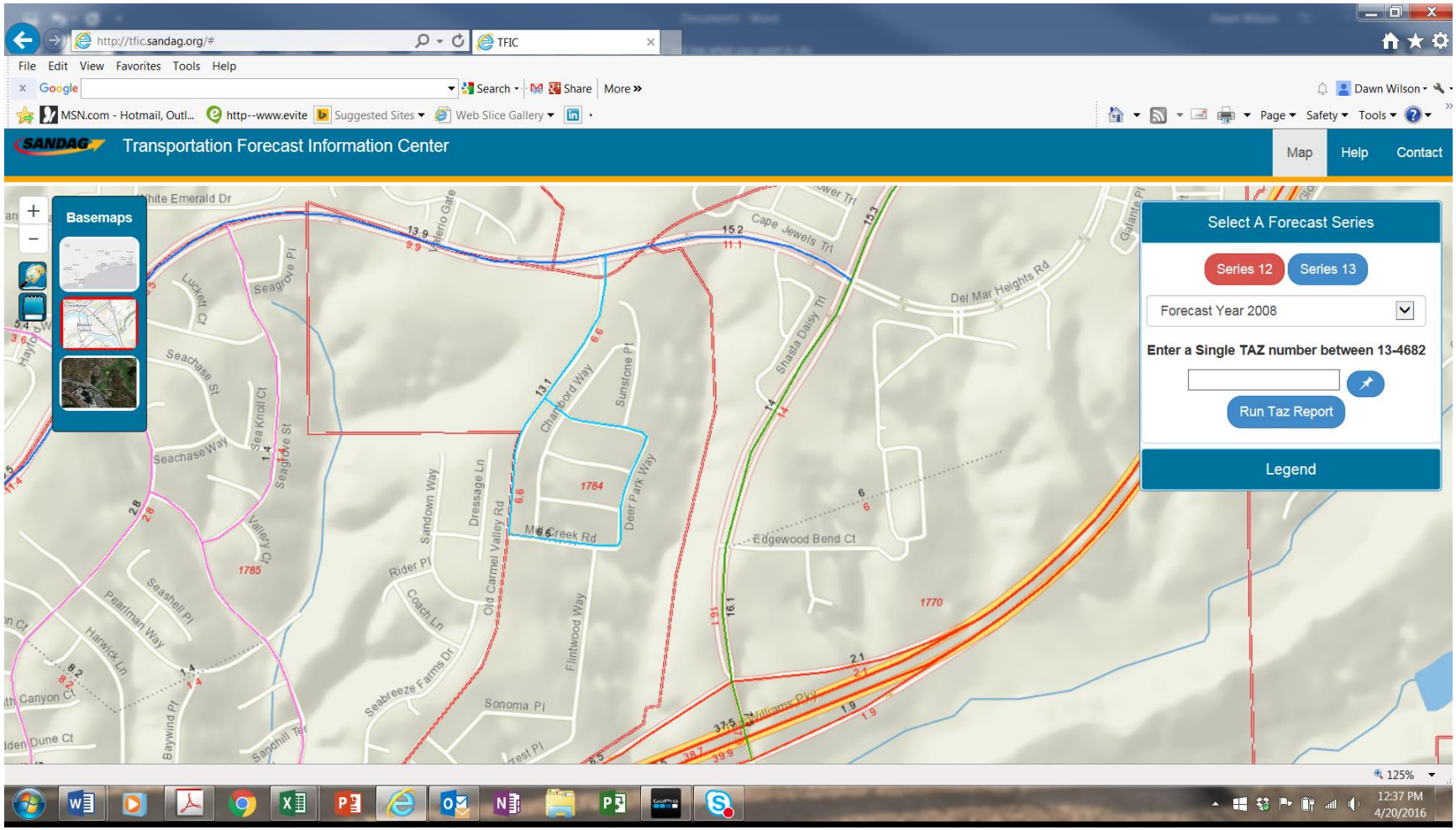
Map
Help
Contact
Basemaps
Select A Forecast Series
Series 12
Series 13
Forecast Year 2008
Enter a Single TAZ number between 13-4682
Run Taz Report
Legend
Carmel Country Rd
Greenwillow Ln
Sterling Grove Ln
Manor Ridge Ln
Derrydown Way
Shannon Ridge Ln
Cloverhurst Way
Willowmere Ln
Cherry Hill Dr
Birch Hill Ln
Foxhound Way
Heather Ridge Dr
Great Meadow Dr
Hayenridge Way
Briarlake Woods Dr
Gabelwood Way
Gallop Crest Ct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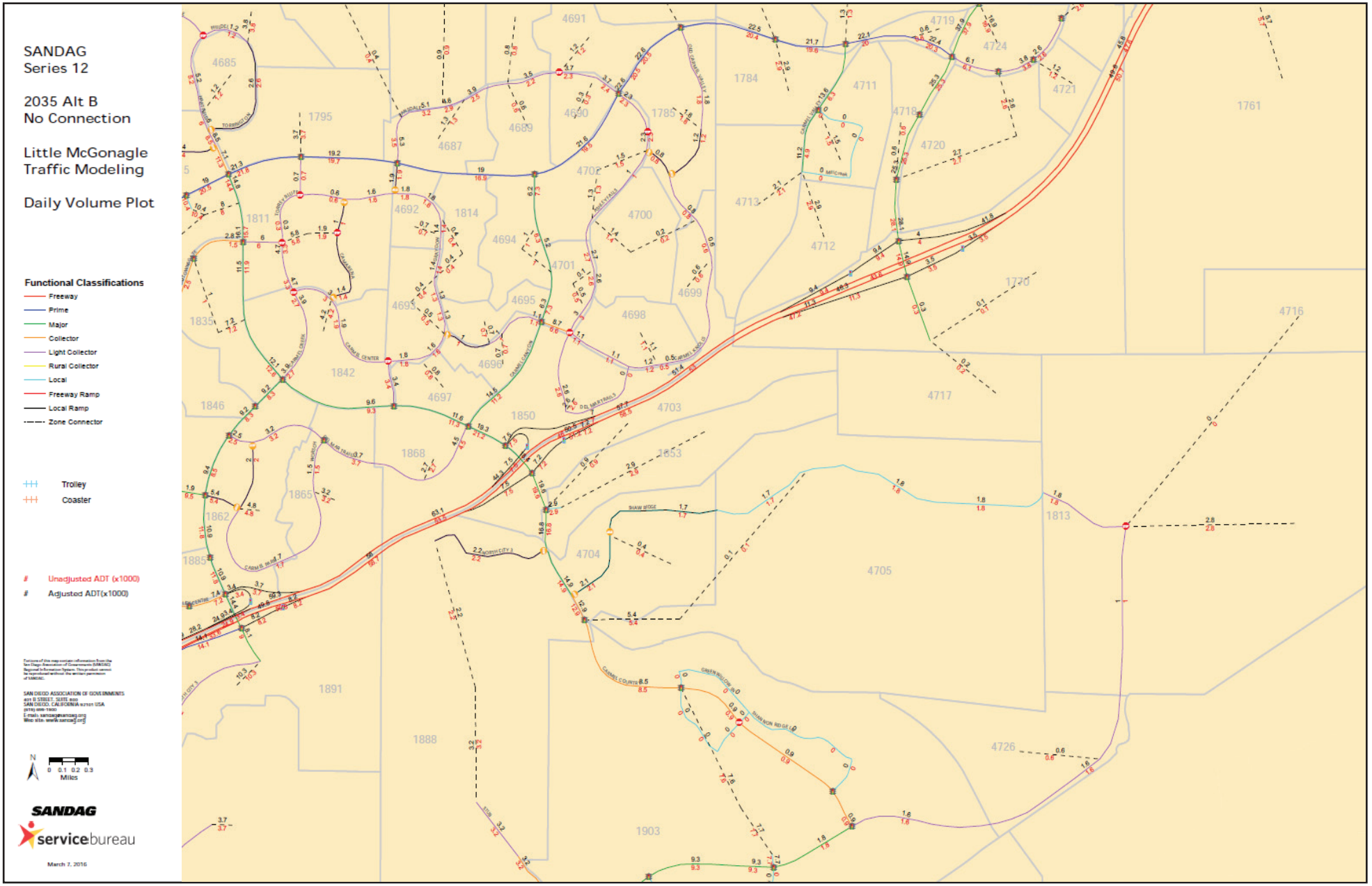
TFIC
File Edit View Favorites Tools Help
Search
Share
More
Dawn Wilson
MSN.com - Hotmail, Outl...
http--www.evite
Suggested Sites
Web Slice Gallery
Page
Safety
Tools
SANDAG
Transportation Forecast Information Center
Map
Help
Contact
Basemaps
Select A Forecast Series
Series 12
Series 13
Forecast Year 2008
Enter a Single TAZ number between 13-4682
Run Taz Report
Legend
White Emerald Dr
Cape Jewels Trl
Del Mar Heights Rd
Seagrove Pl
Luckett Ct
Seachase St
Seachase Way
Sea Knoll Ct
Valley Ct
Chambord Way
Sunstone Pl
Shasta Daisy Trl
Sandown Way
Dressage Ln
Old Carmel Valley Rd
Deer Park Way
Edgewood Bend Ct
Rider Pl
Coach Ln
Seashell Pl
Pearlman Way
Harwick Ln
Flintwood Way
Seabreeze Farms Dr
Sonoma Pl
Baywind Pl
Sandhill Trl
Williams Pkwy
1784
1785
1770
125%
12:37 PM
4/20/2016

Little McGonigle Ranch Road Transportation Impact Analysis



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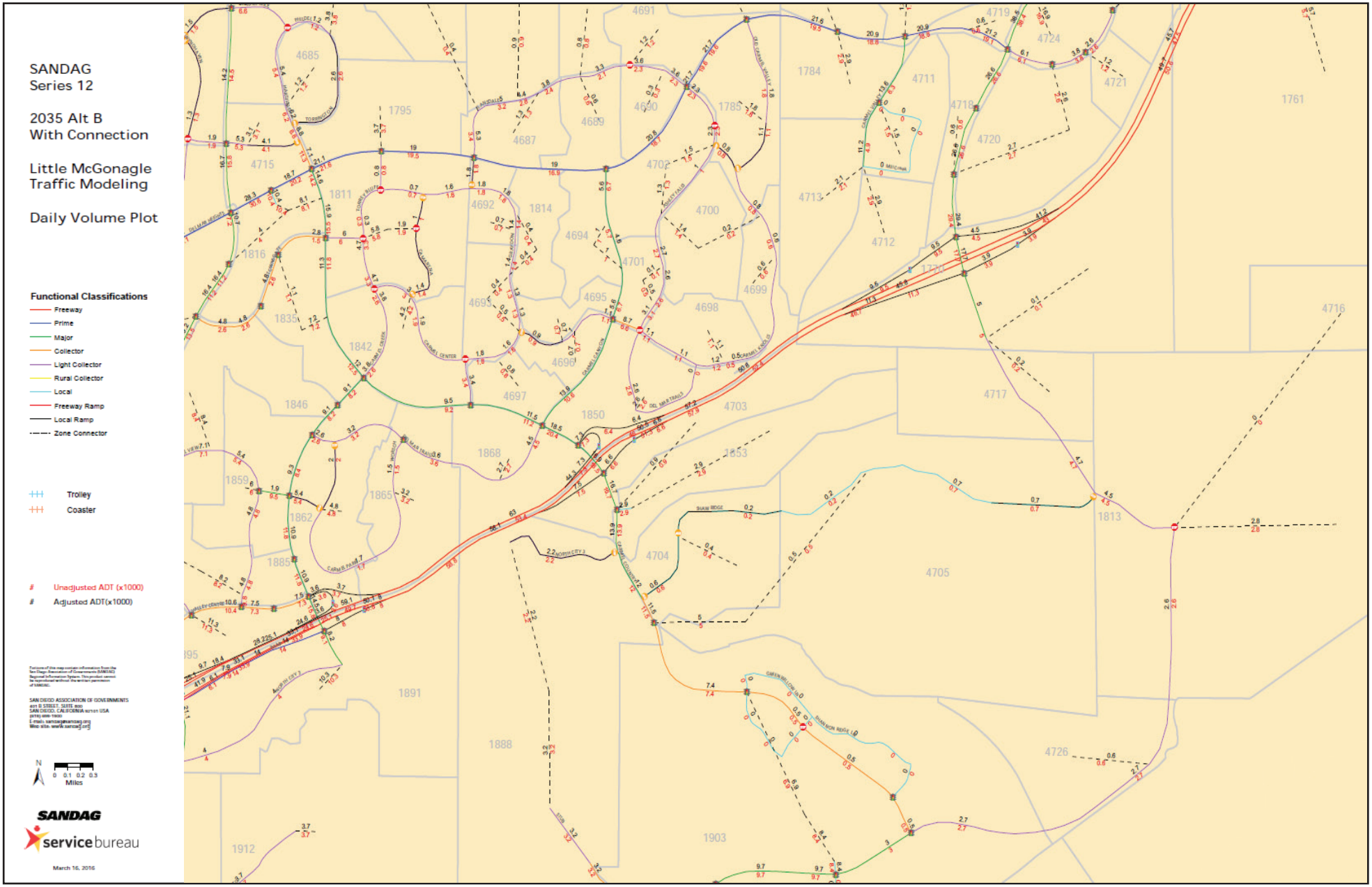
Little McGonigle Ranch Road Transportation Impact Analysis



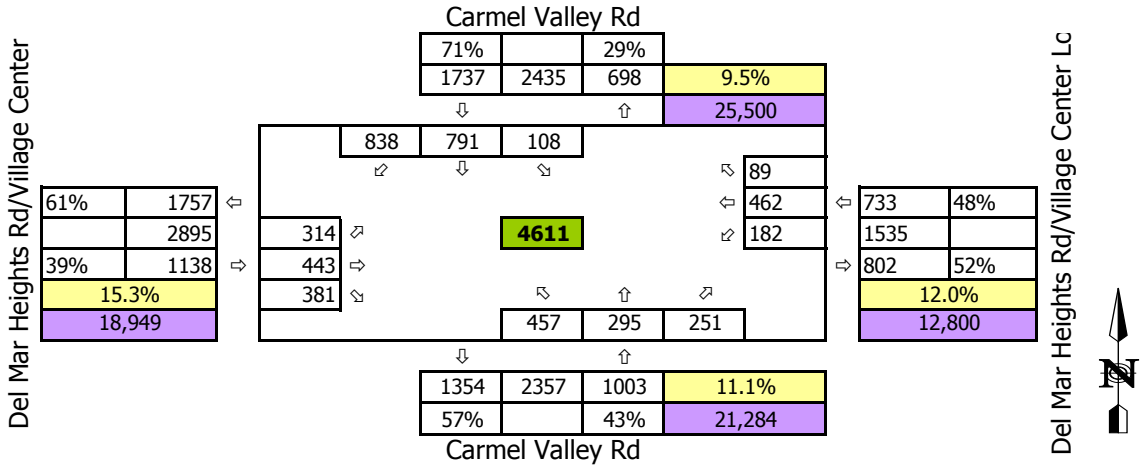
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\04 Design\Illustrator\Project Figures.ai

ADT									
Existing	2008 Model	Model Growth (2008 to 2016)	Adjusted Existing Model (2014)	No Build Model	Diff. 2035-Adj 2014 Model	Forecast 2035 No Project Vol	With Project Model	Diff. With LMRR - Baseline	Adjusted With Project Model
21,284	14,000	3,348	17,348	25,300	7,952	29,200	26,600	1,300	30,500
23,064	16,100	3,674	19,774	28,500	8,726	31,800	29,400	900	32,700
1,424	0	89	89	300	211	1,600	4,700	4,400	6,000
1,047	300	385	685	1,600	915	2,000	2,600	1,000	3,000
3,498	300	385	685	1,600	915	4,400	2,700	1,100	5,500
9,398	6,300	889	7,189	9,300	2,111	11,500	9,700	400	11,900
12,032	13,200	-474	12,726	11,600	0	12,000	11,400	-200	11,800
19,889	19,300	0	19,300	19,300	0	19,900	18,500	-800	19,100
14,564	8,000	2,607	10,607	16,800	6,193	20,800	13,900	-2,900	17,900
10,229	4,300	1,126	5,426	8,100	2,674	12,900	7,400	-700	12,200
6,343	4,800	119	4,919	5,200	281	6,600	4,500	-700	5,900
11,539	12,900	504	13,404	14,600	1,196	12,700	13,900	-700	12,000
17,614	18,300	207	18,507	19,000	493	18,100	18,700	-300	17,800
19,185	13,200	1,837	15,037	19,400	4,363	23,500	19,000	-400	23,100
18,949	15,200	2,133	17,333	22,400	5,067	24,000	21,200	-1,200	22,800

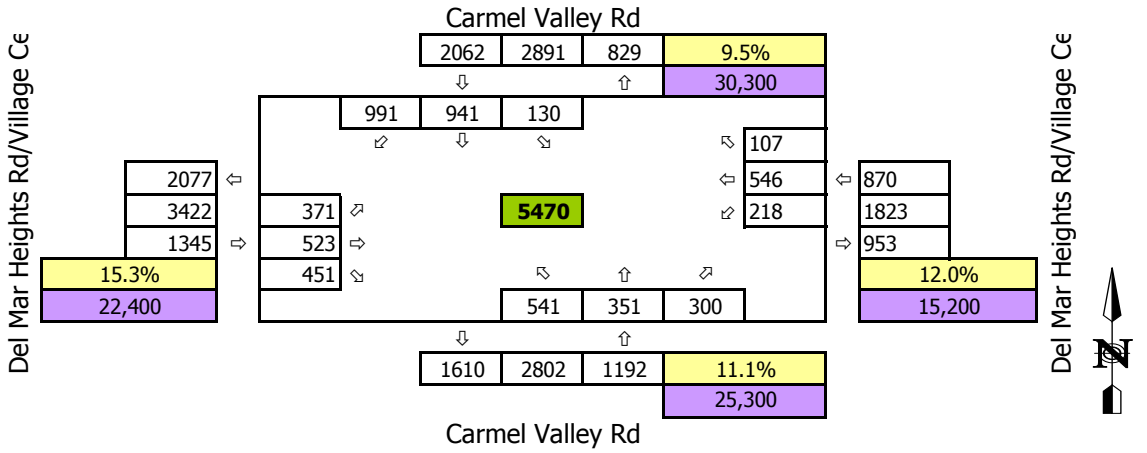
NO connection Post Processing Worksheets

Int 1 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Del Mar Heights Rd/Village Center Loop Rd**
Intersection #:	**1**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Del Mar Heights Rd/Village Center Loop Rd**

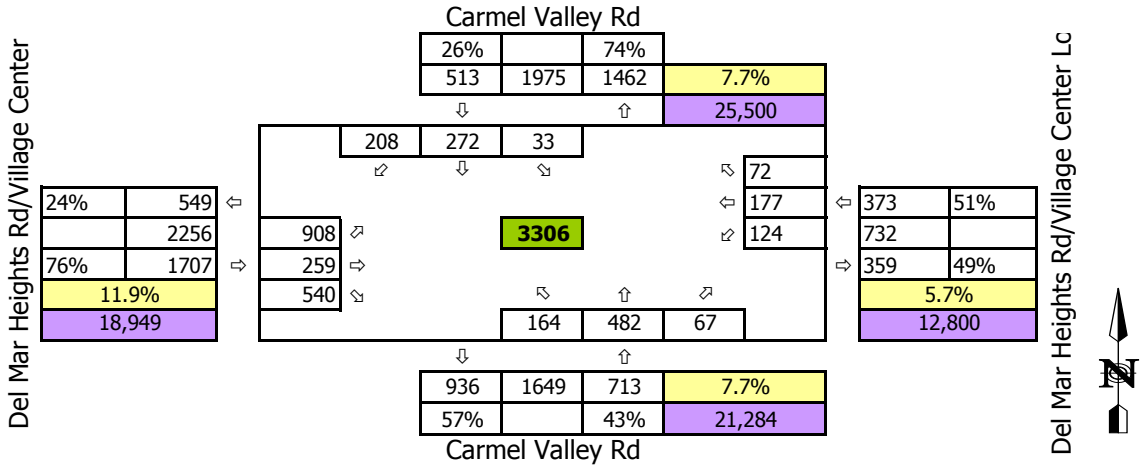


LEGEND

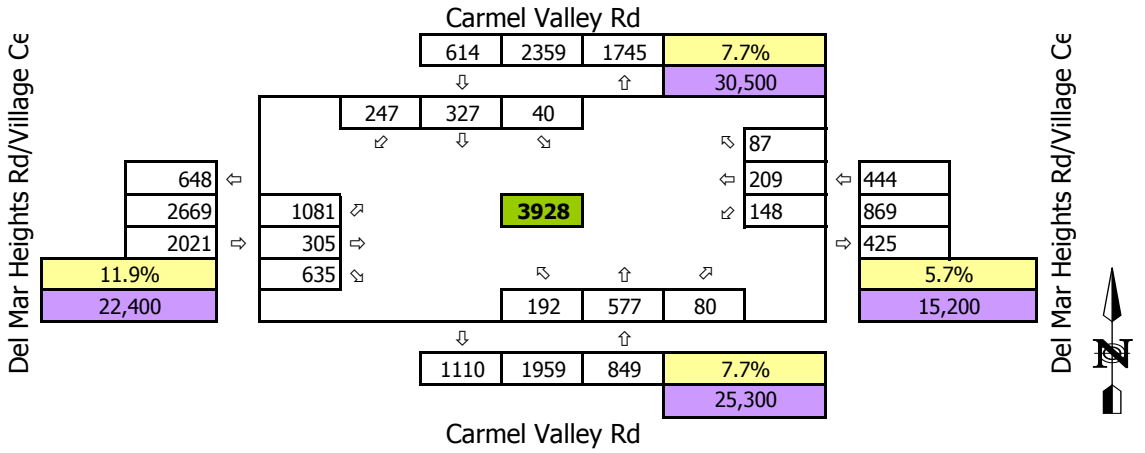
Existing K-Factor	xx%
ADT Volume	xx

Int 1 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Del Mar Heights Rd/Village Center Loop Rd**
Intersection #:	**1**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Del Mar Heights Rd/Village Center Loop Rd**



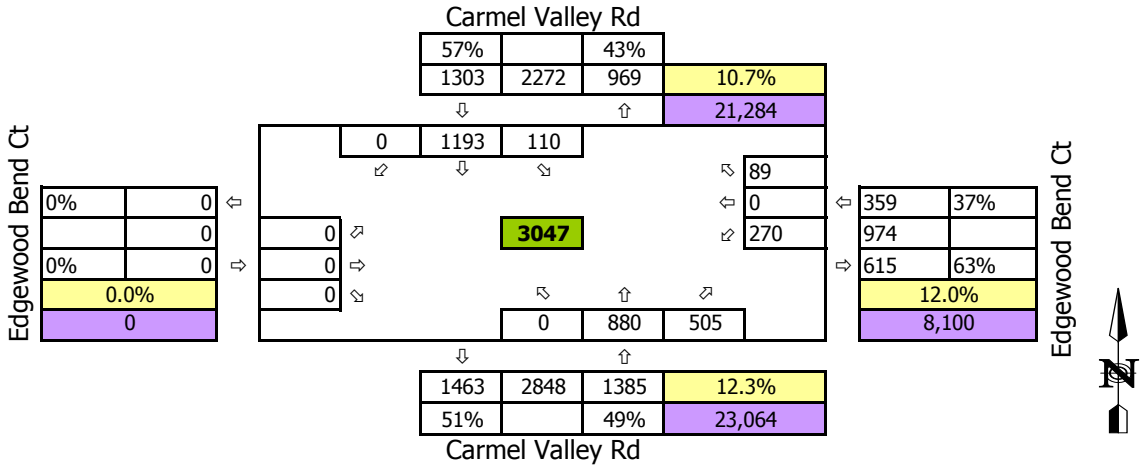
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

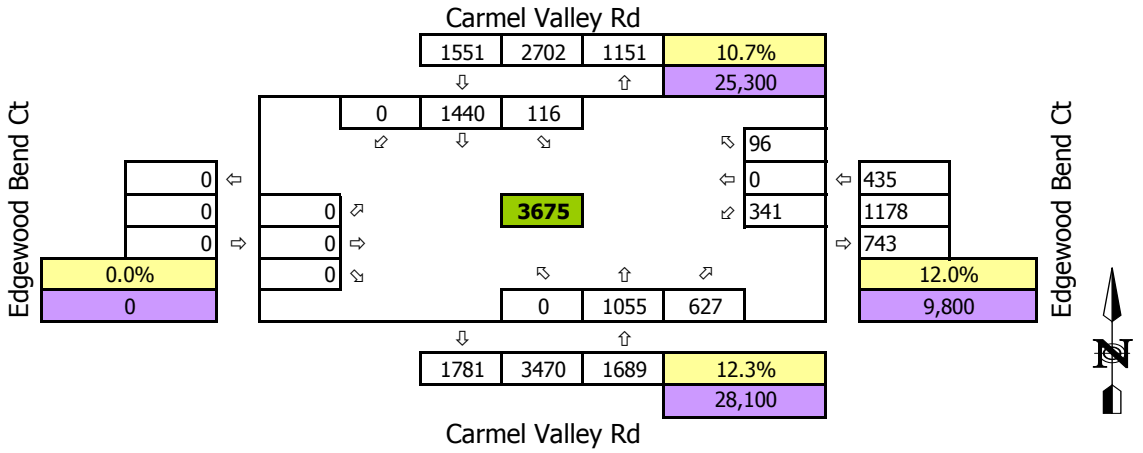
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\0404 Future Year TMV Summary- No Connection_REFINED **Int 1 PM**

Int 2 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Edgewood Bend Ct**
Intersection #:	**2**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Edgewood Bend Ct**

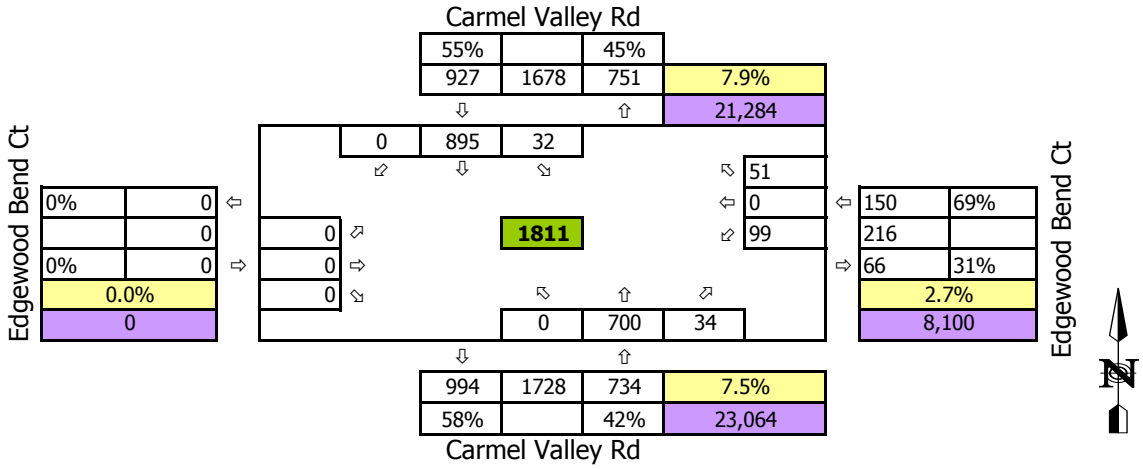


LEGEND

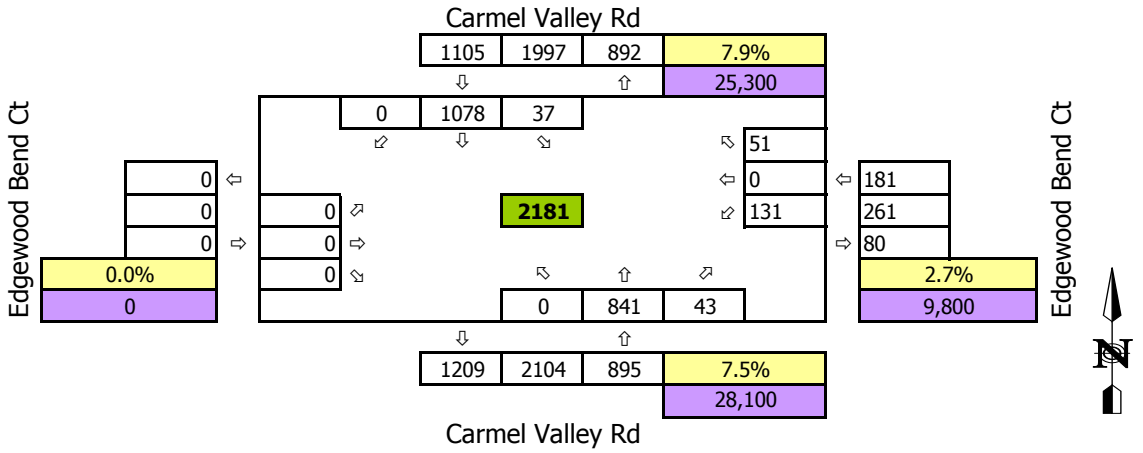
Existing K-Factor	xx%
ADT Volume	xx

Int 2 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Edgewood Bend Ct**
Intersection #:	**2**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**Edgewood Bend Ct**

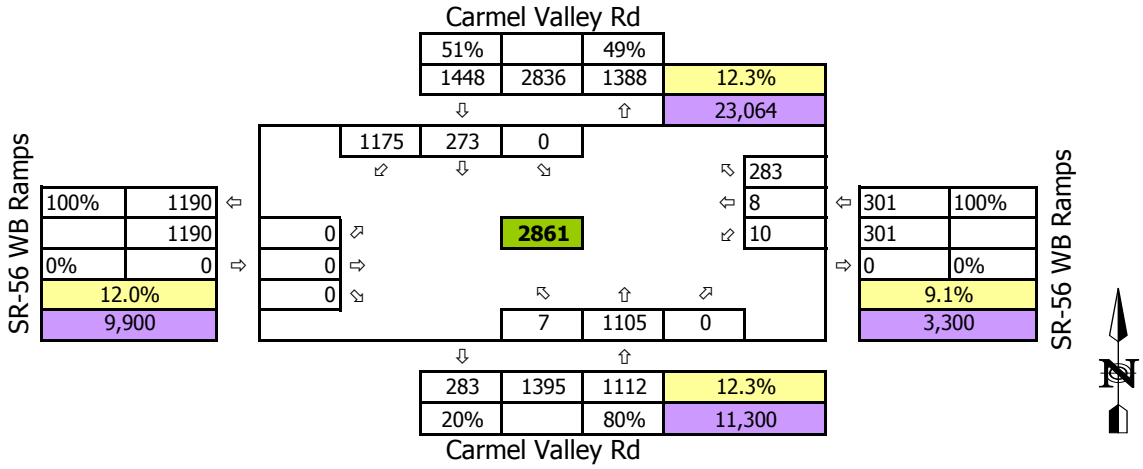


LEGEND

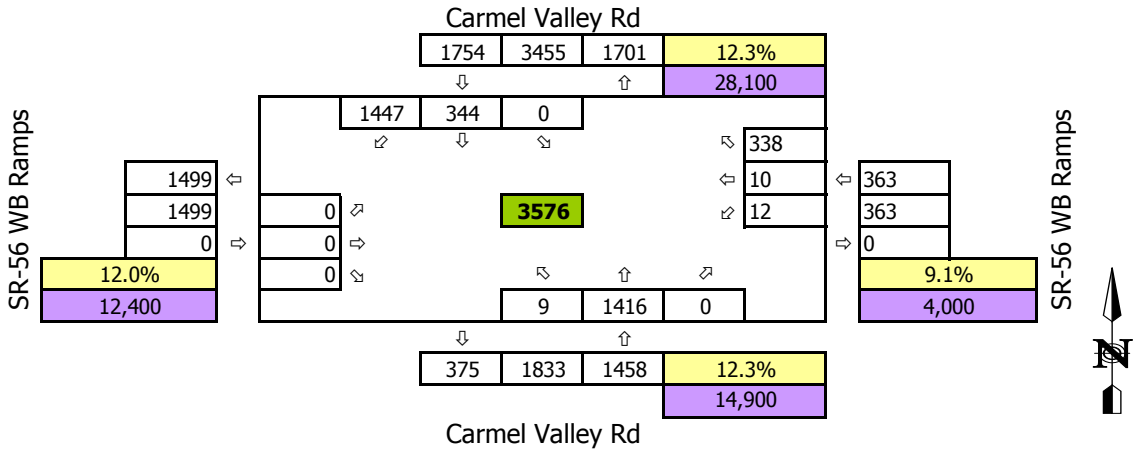
Existing K-Factor	xx%
ADT Volume	xx

Int 3 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 WB Ramps**
Intersection #:	**3**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 WB Ramps**

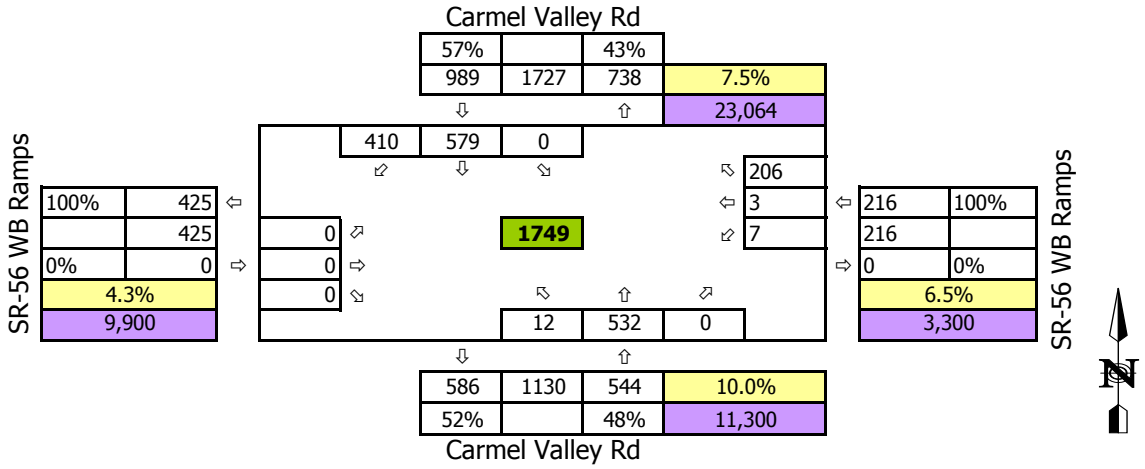


LEGEND

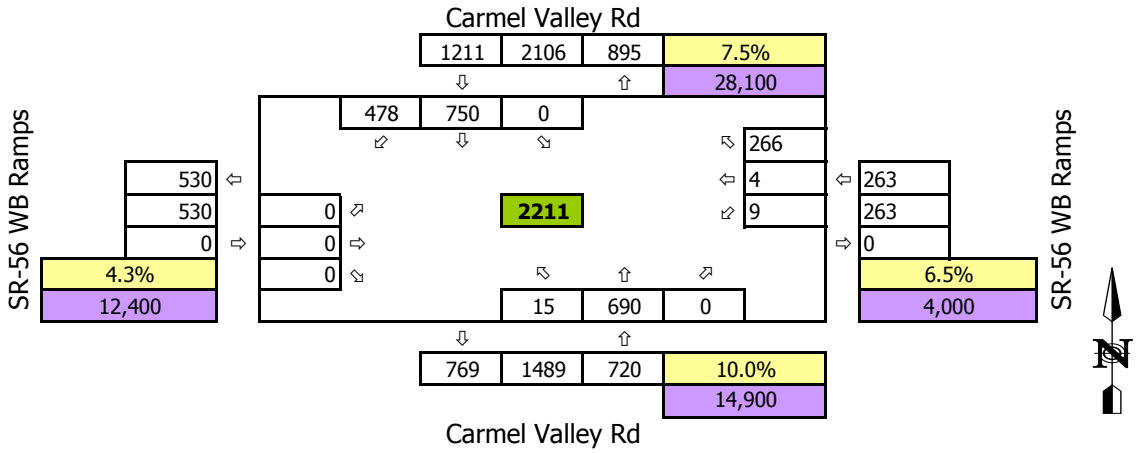
Existing K-Factor	xx%
ADT Volume	xx

Int 3 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 WB Ramps**
Intersection #:	**3**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 WB Ramps**



LEGEND

Existing K-Factor	xx%
ADT Volume	xx

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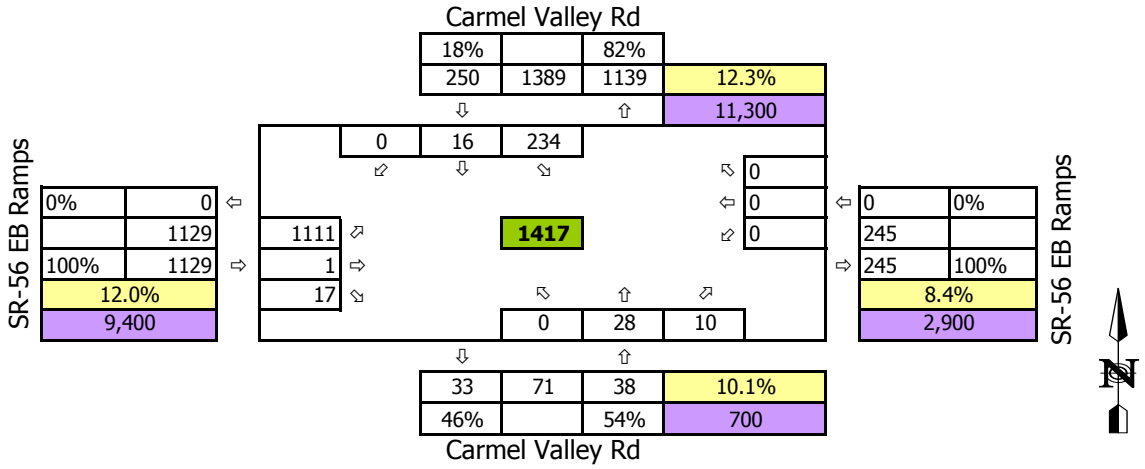
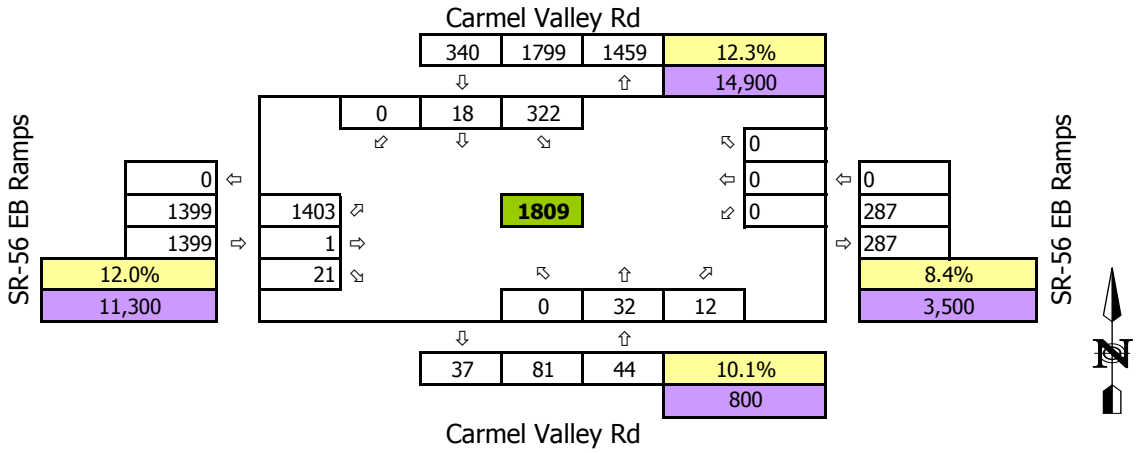
Int 4 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 EB Ramps**
Intersection #:	**4**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 EB Ramps**

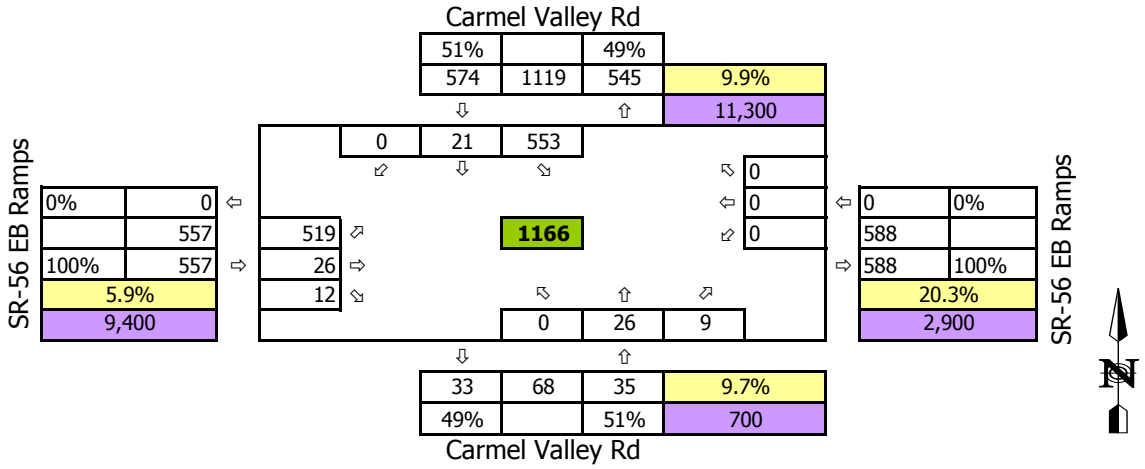


LEGEND

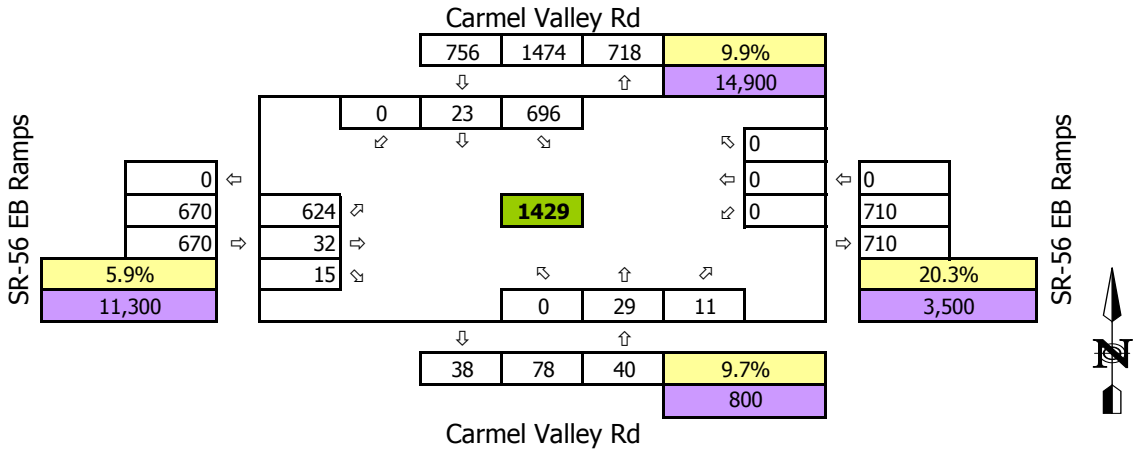
Existing K-Factor	xx%
ADT Volume	xx

Int 4 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 EB Ramps**
Intersection #:	**4**



Scenario:	**Year 2035**
N/S Street:	**Carmel Valley Rd**
E/W Street:	**SR-56 EB Ramps**

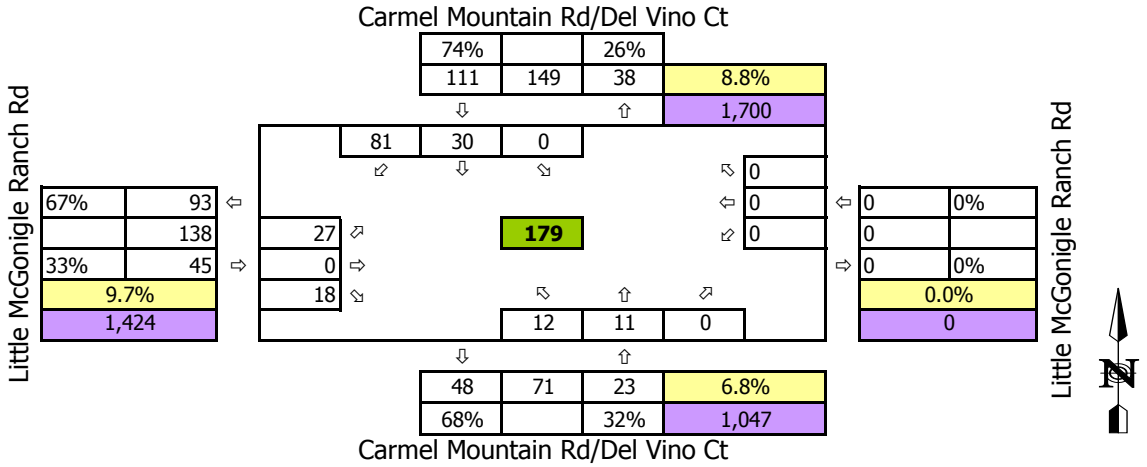


LEGEND

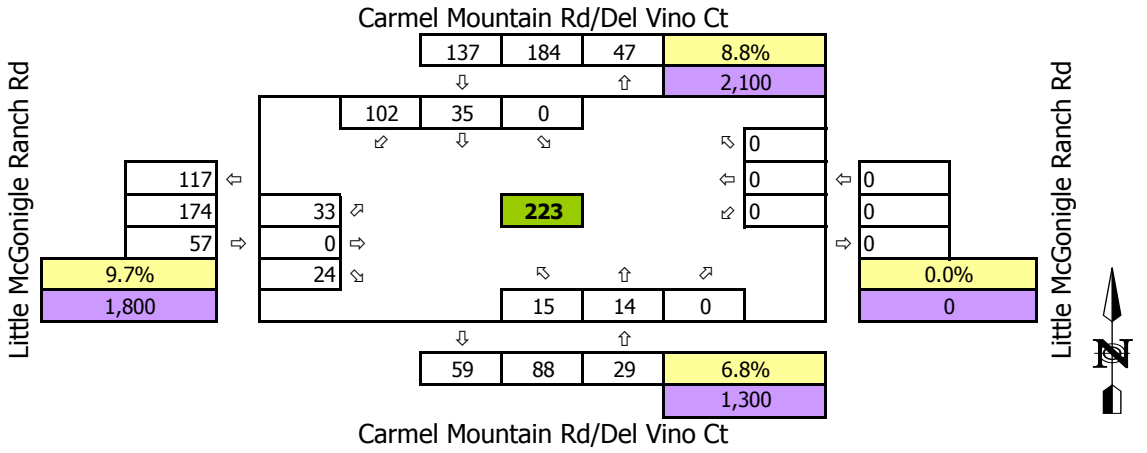
Existing K-Factor	xx%
ADT Volume	xx

Int 5 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Mountain Rd/Del Vino Ct**
E/W Street:	**Little McGonigle Ranch Rd**
Intersection #:	**5**



Scenario:	**Year 2035**
N/S Street:	**Carmel Mountain Rd/Del Vino Ct**
E/W Street:	**Little McGonigle Ranch Rd**

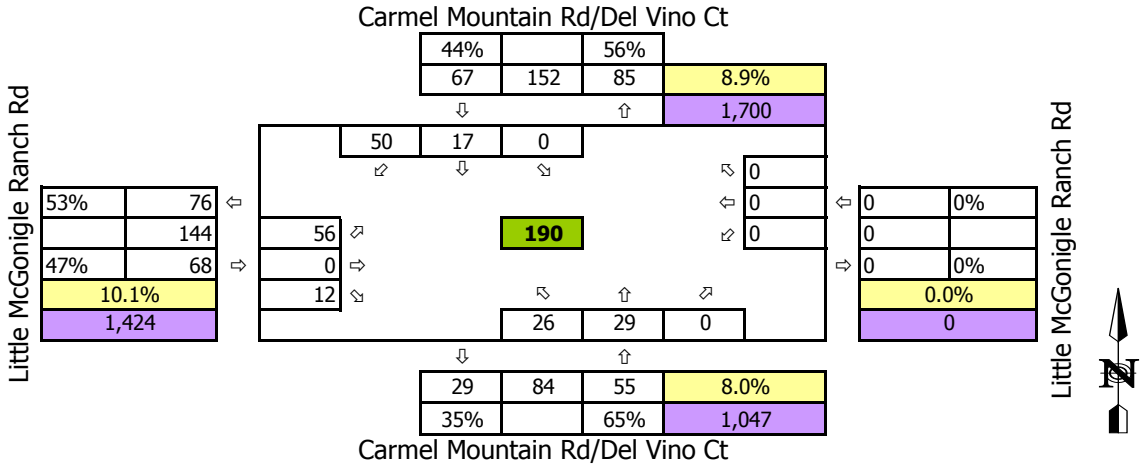


LEGEND

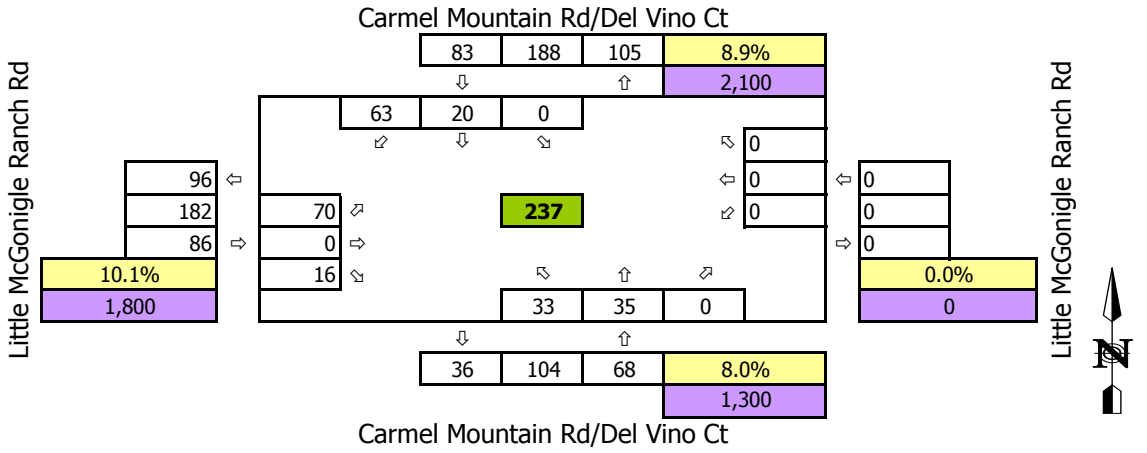
Existing K-Factor	xx%
ADT Volume	xx

Int 5 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Mountain Rd/Del Vino Ct**
E/W Street:	**Little McGonigle Ranch Rd**
Intersection #:	**5**



Scenario:	**Year 2035**
N/S Street:	**Carmel Mountain Rd/Del Vino Ct**
E/W Street:	**Little McGonigle Ranch Rd**

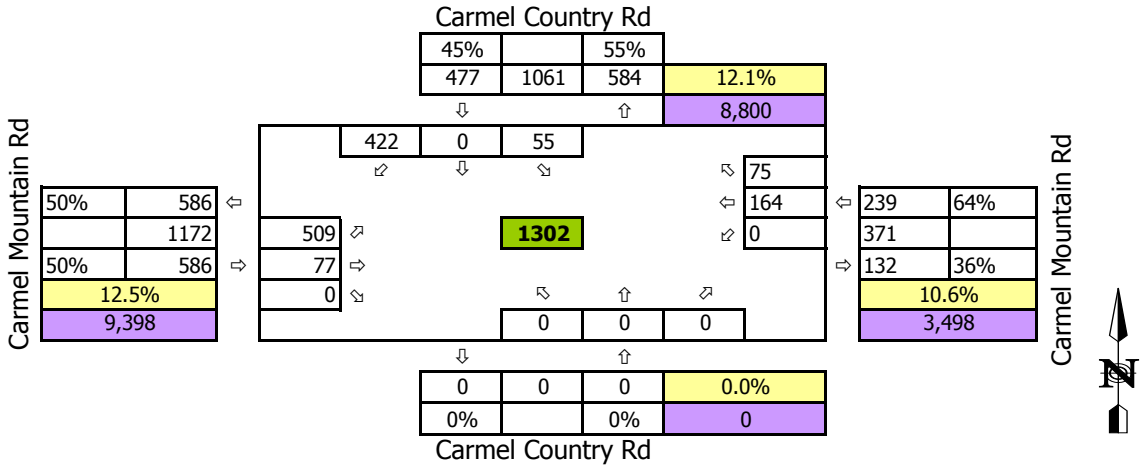


LEGEND

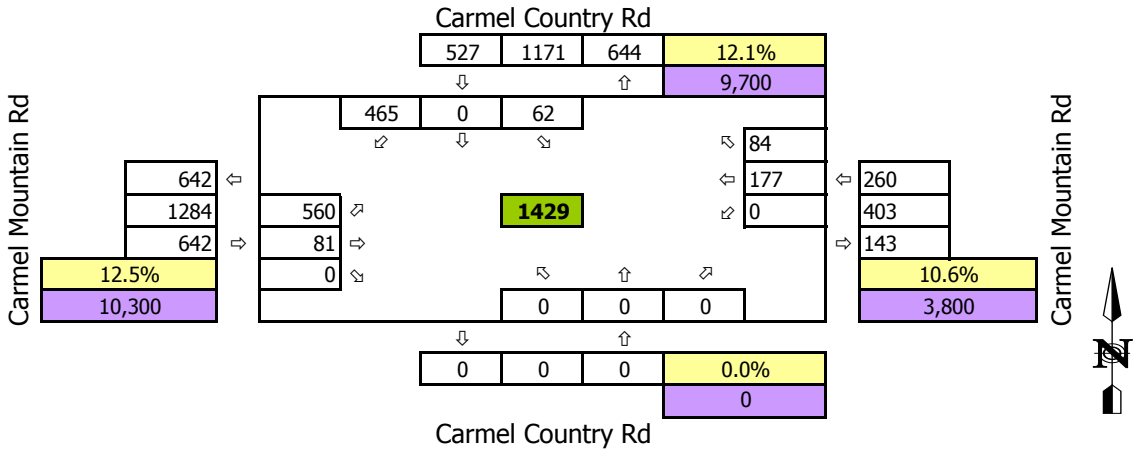
Existing K-Factor	xx%
ADT Volume	xx

Int 6 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Carmel Mountain Rd**
Intersection #:	**6**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Carmel Mountain Rd**

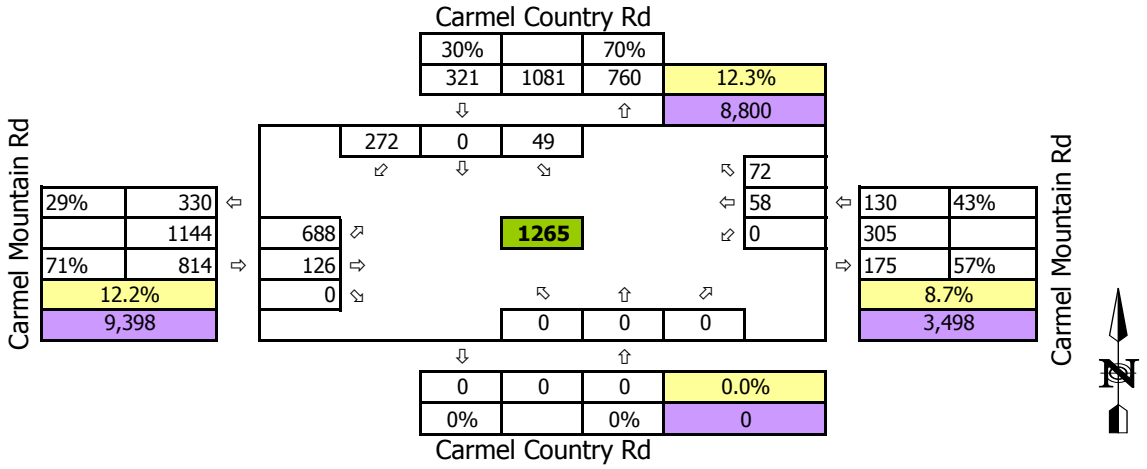


LEGEND

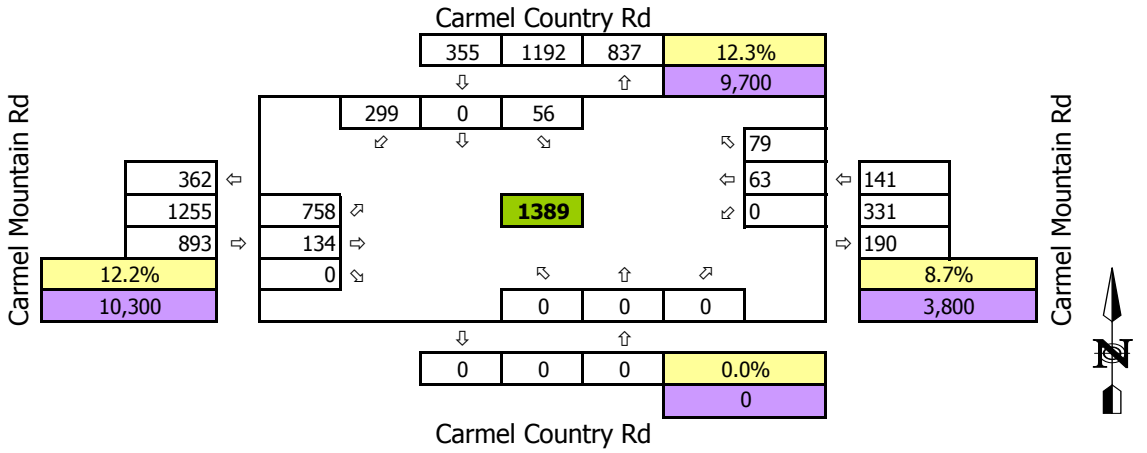
Existing K-Factor	xx%
ADT Volume	xx

Int 6 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Carmel Mountain Rd**
Intersection #:	**6**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Carmel Mountain Rd**

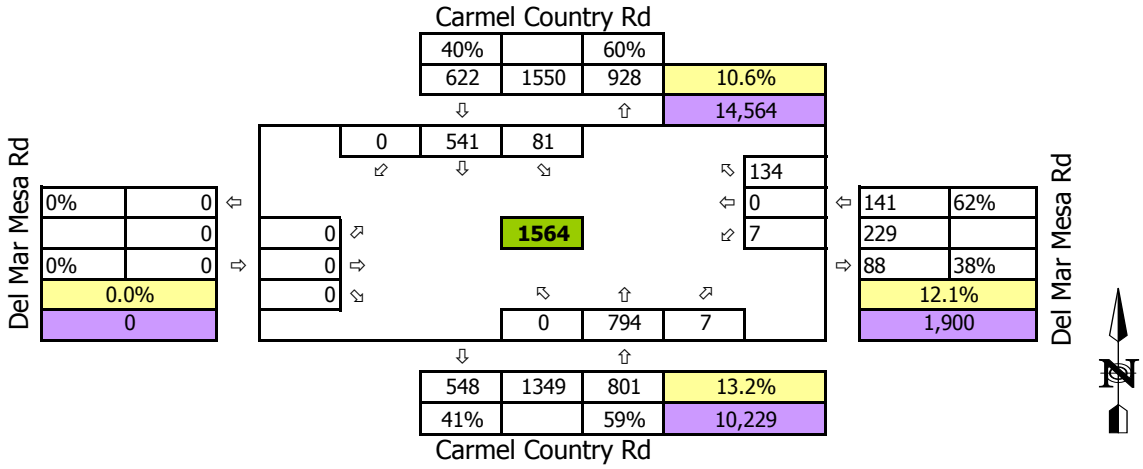


LEGEND

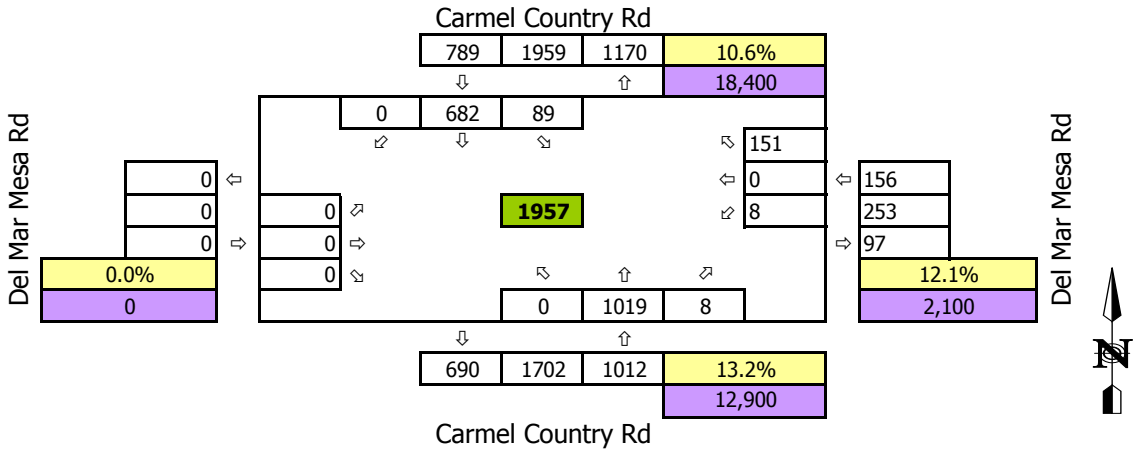
Existing K-Factor	xx%
ADT Volume	xx

Int 7 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Del Mar Mesa Rd**
Intersection #:	**7**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Del Mar Mesa Rd**



LEGEND

Existing K-Factor	xx%
ADT Volume	xx

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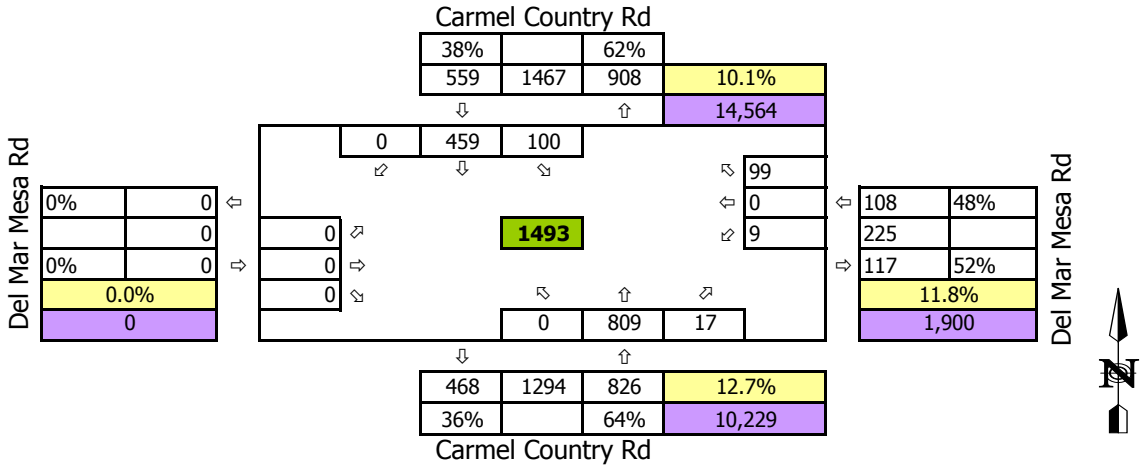
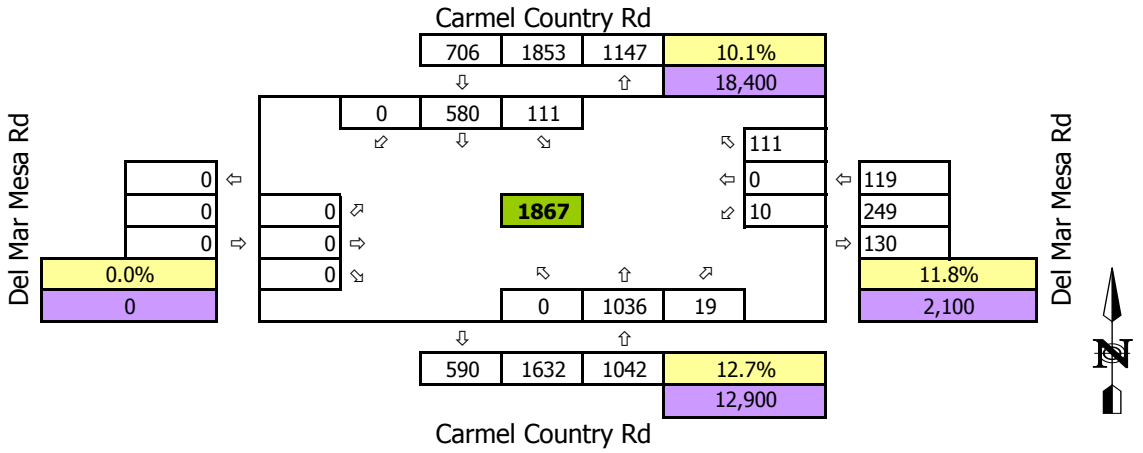
Int 7 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Del Mar Mesa Rd**
Intersection #:	**7**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**Del Mar Mesa Rd**

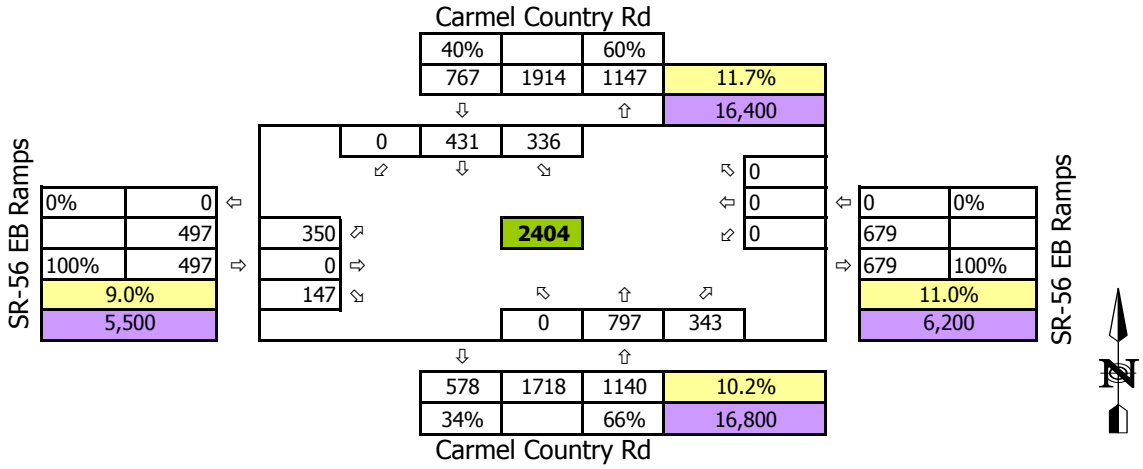


LEGEND

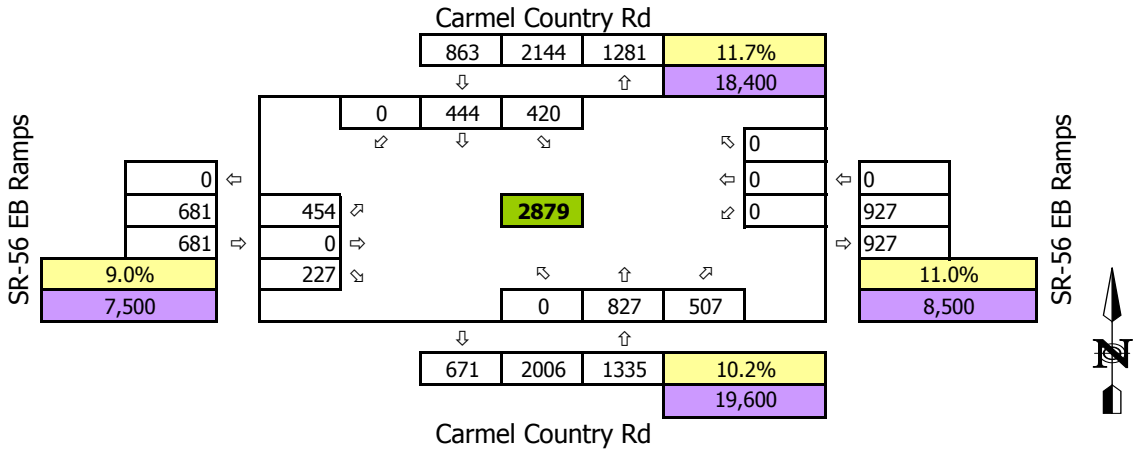
Existing K-Factor	xx%
ADT Volume	xx

Int 8 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 EB Ramps**
Intersection #:	**8**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 EB Ramps**

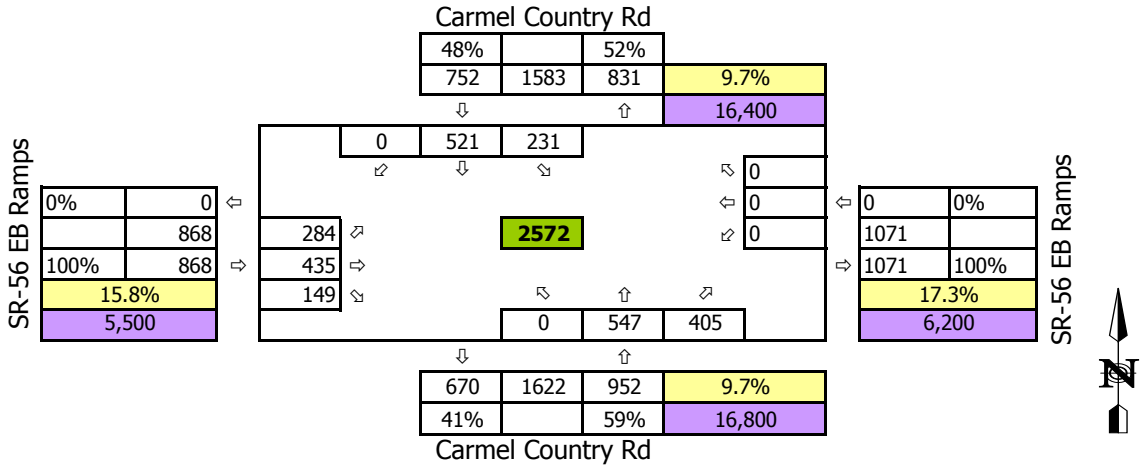


LEGEND

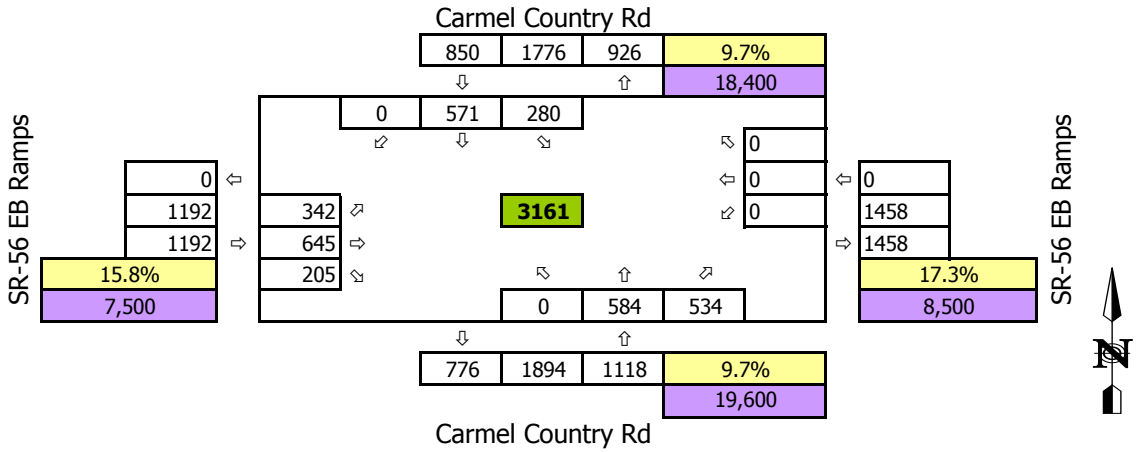
Existing K-Factor	xx%
ADT Volume	xx

Int 8 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 EB Ramps**
Intersection #:	**8**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 EB Ramps**

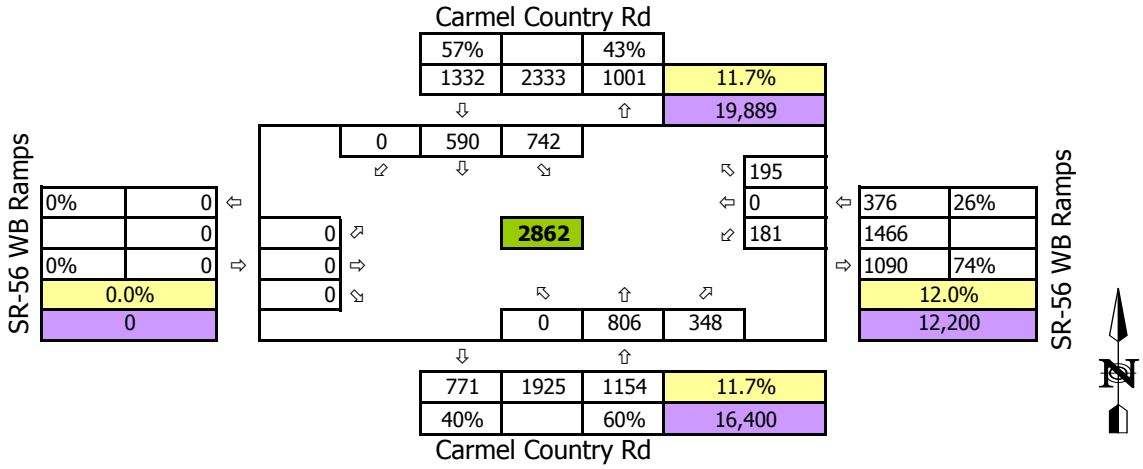


LEGEND

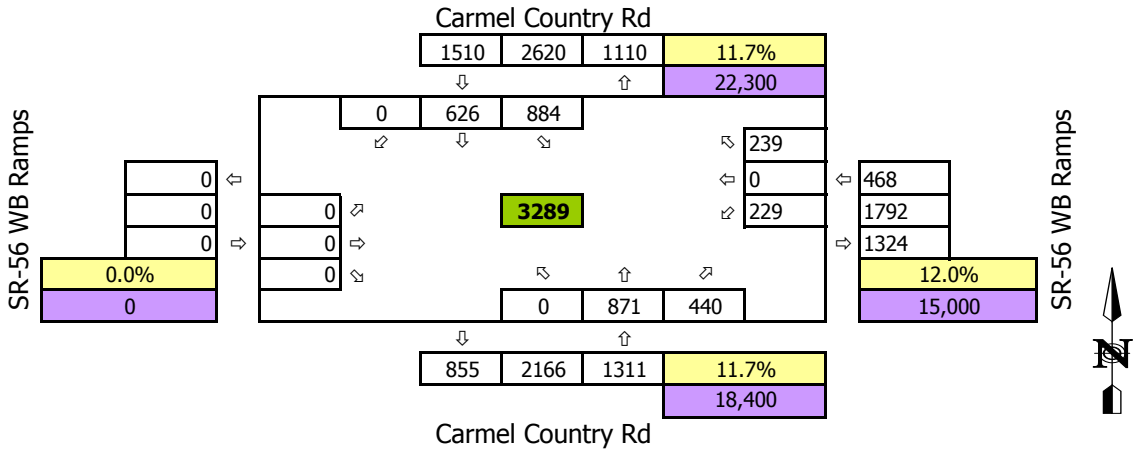
Existing K-Factor	xx%
ADT Volume	xx

Int 9 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 WB Ramps**
Intersection #:	**9**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 WB Ramps**

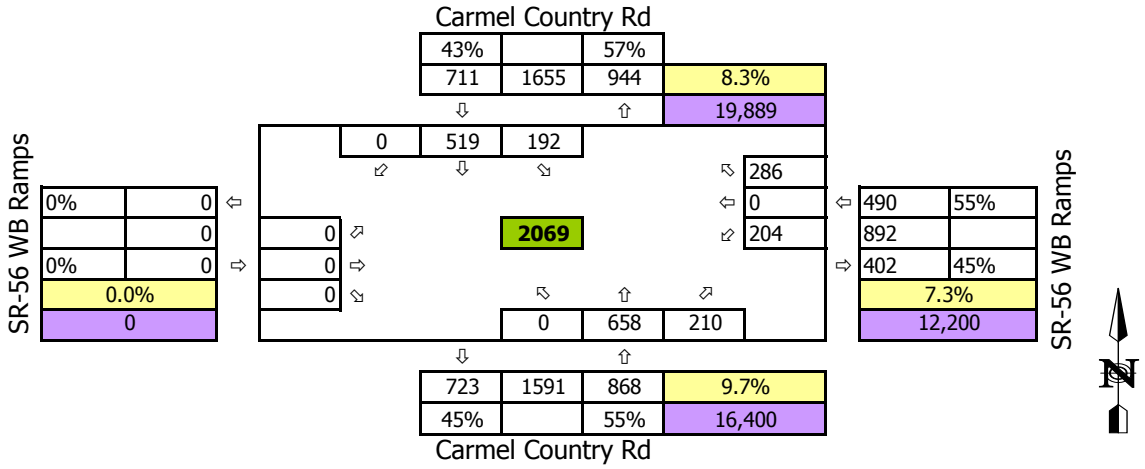


LEGEND

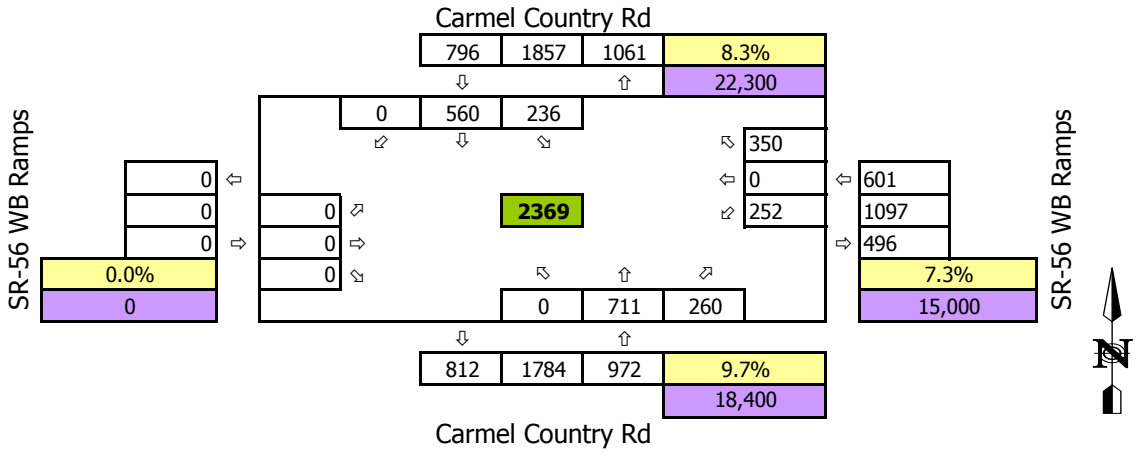
Existing K-Factor	xx%
ADT Volume	xx

Int 9 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 WB Ramps**
Intersection #:	**9**



Scenario:	**Year 2035**
N/S Street:	**Carmel Country Rd**
E/W Street:	**SR-56 WB Ramps**

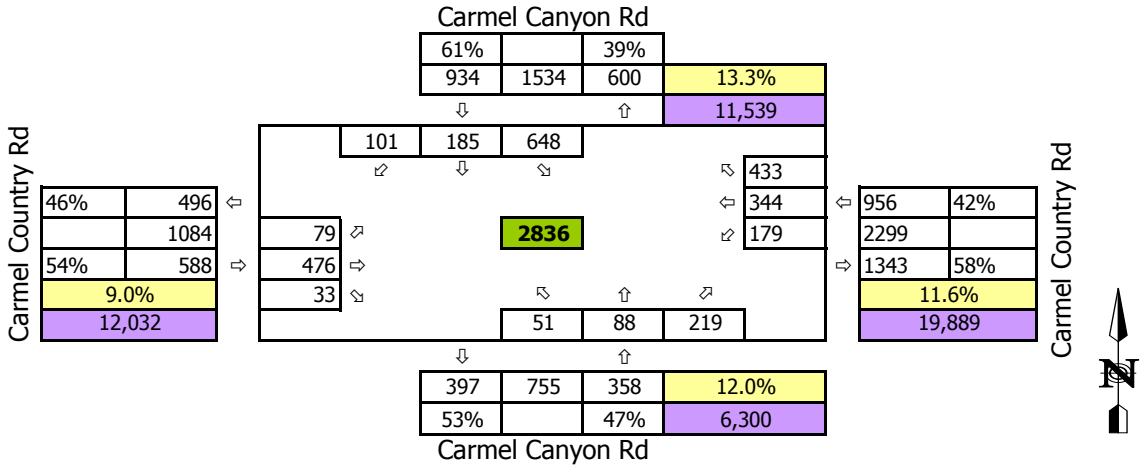


LEGEND

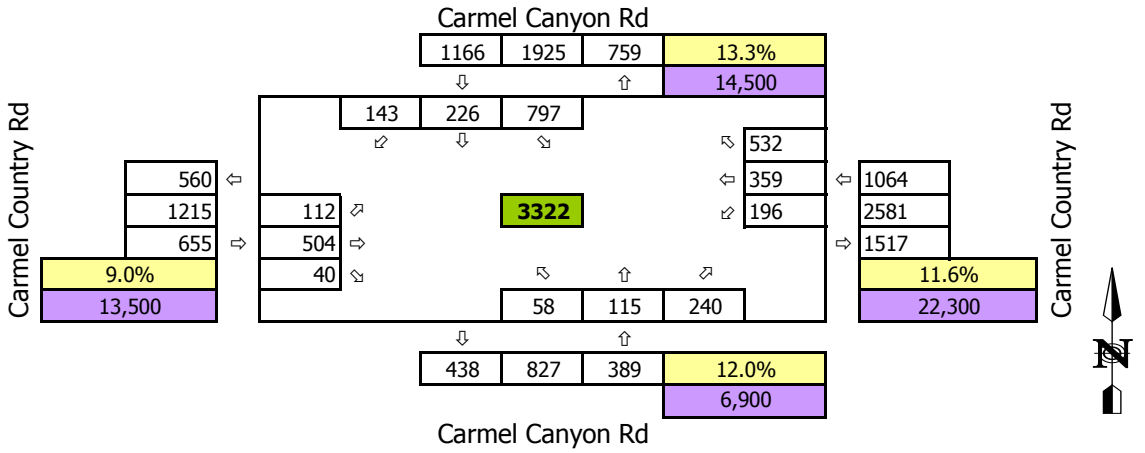
Existing K-Factor	xx%
ADT Volume	xx

Int 10 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Country Rd**
Intersection #:	**10**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Country Rd**



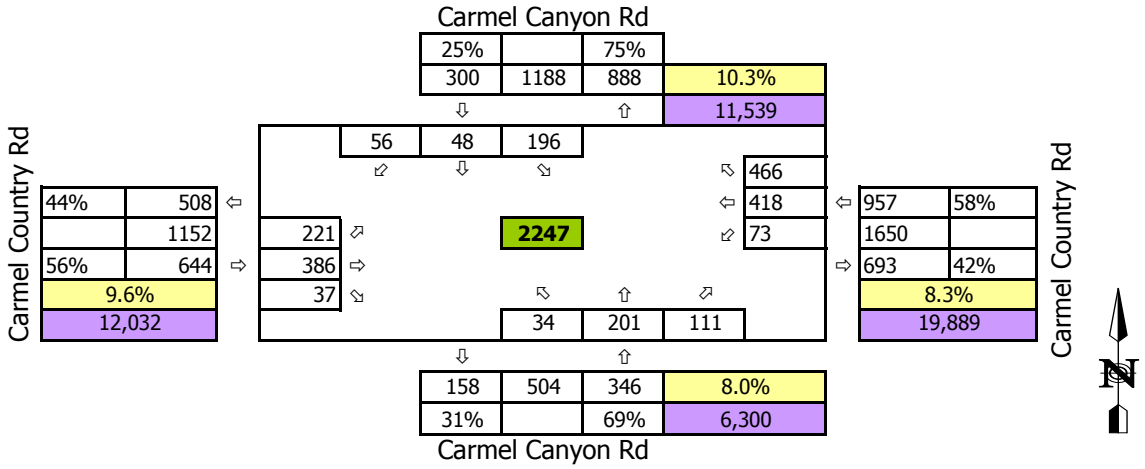
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

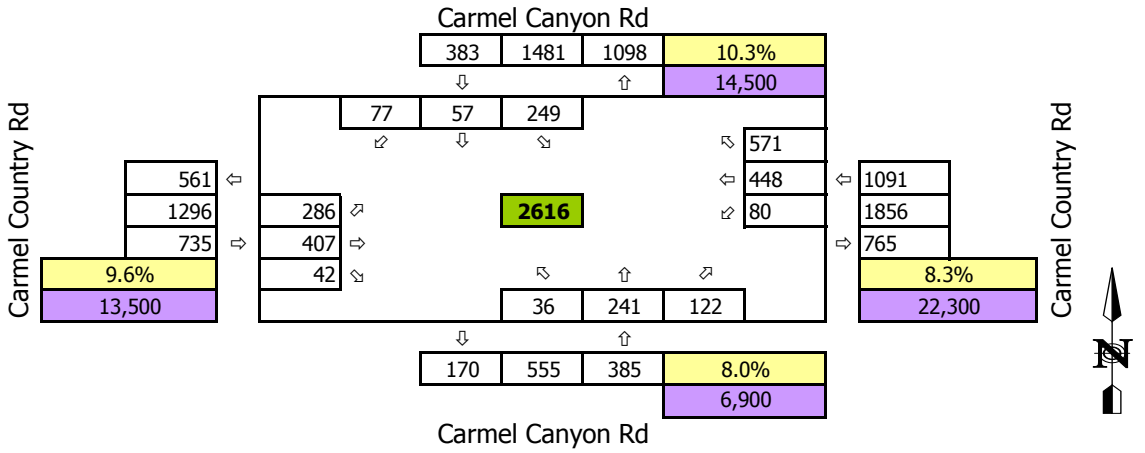
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\0404 Future Year TMV Summary- No Connection_REFINED **Int 10 AM**

Int 10 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Country Rd**
Intersection #:	**10**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Country Rd**



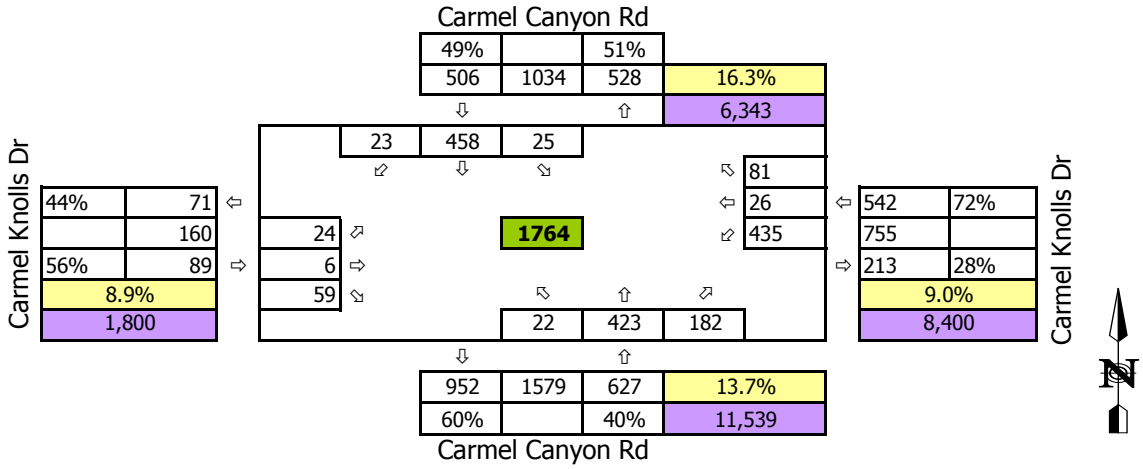
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

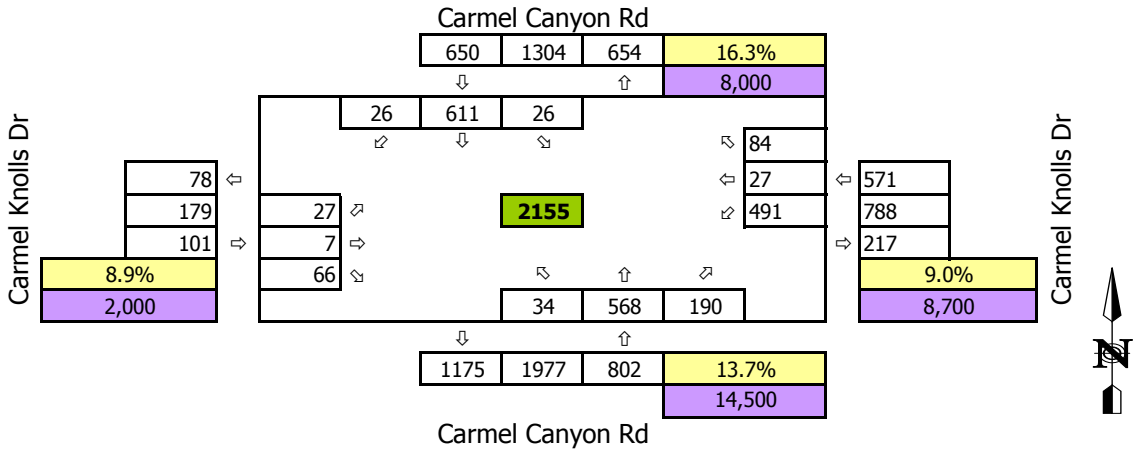
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\0404 Future Year TMV Summary- No Connection_REFINED **Int 10 PM**

Int 11 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Knolls Dr**
Intersection #:	**11**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Knolls Dr**



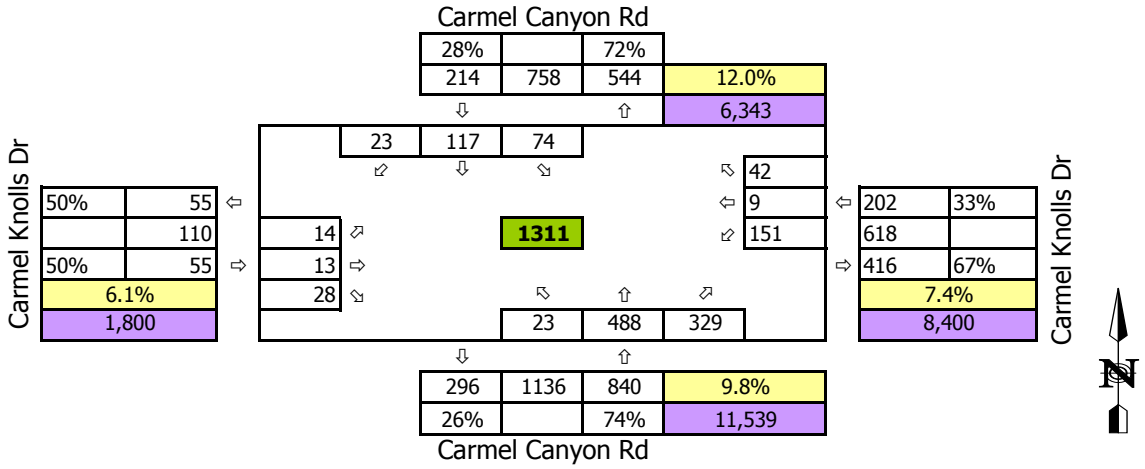
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

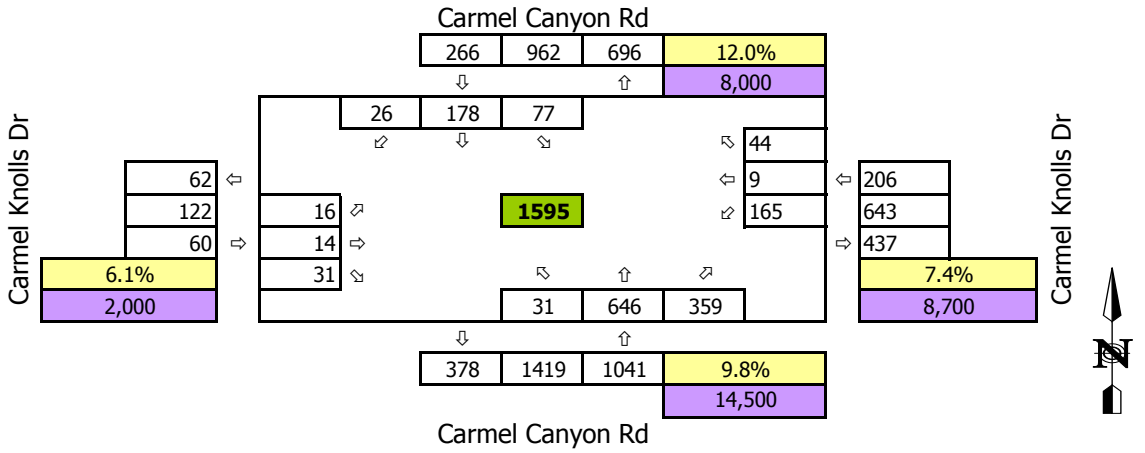
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\0404 Future Year TMV Summary- No Connection_REFINED **Int 11 AM**

Int 11 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Knolls Dr**
Intersection #:	**11**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Carmel Knolls Dr**

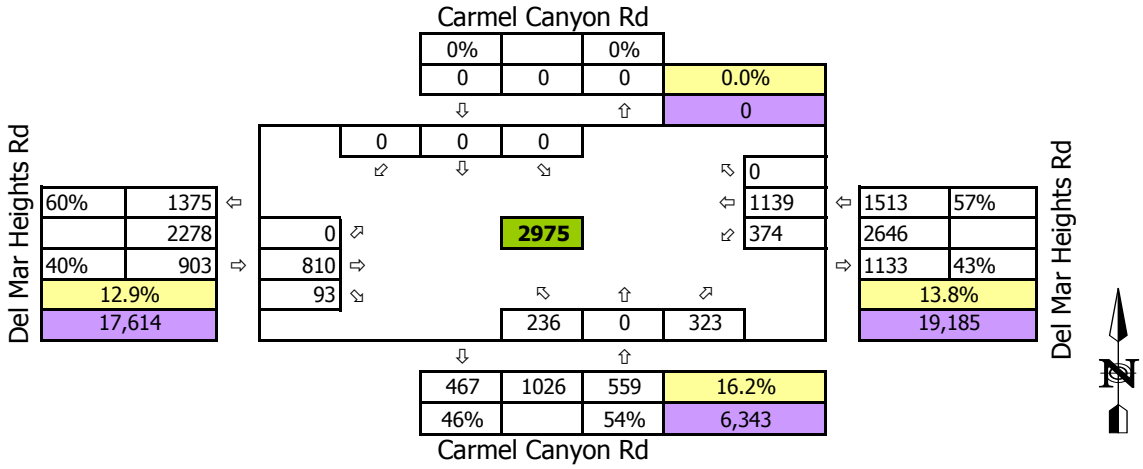


LEGEND

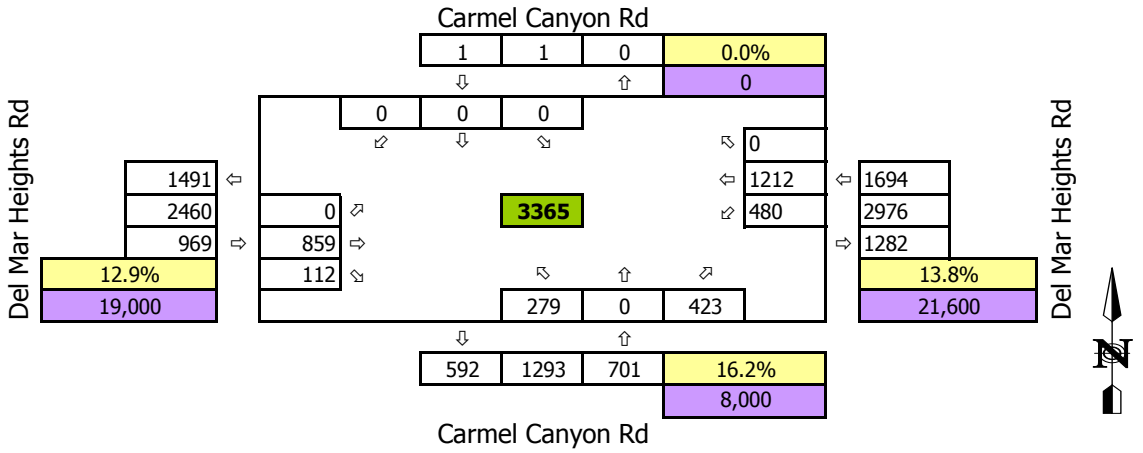
Existing K-Factor	xx%
ADT Volume	xx

Int 12 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**12**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Del Mar Heights Rd**



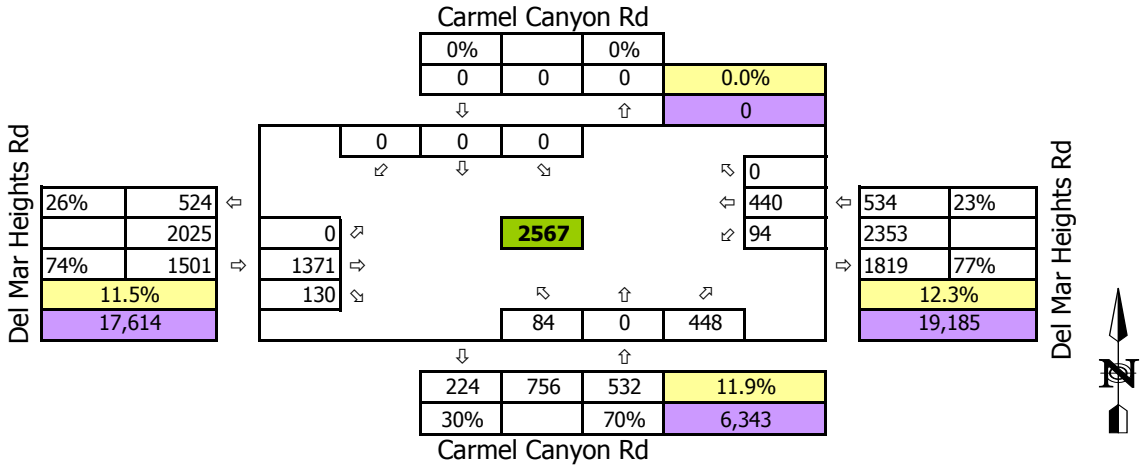
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

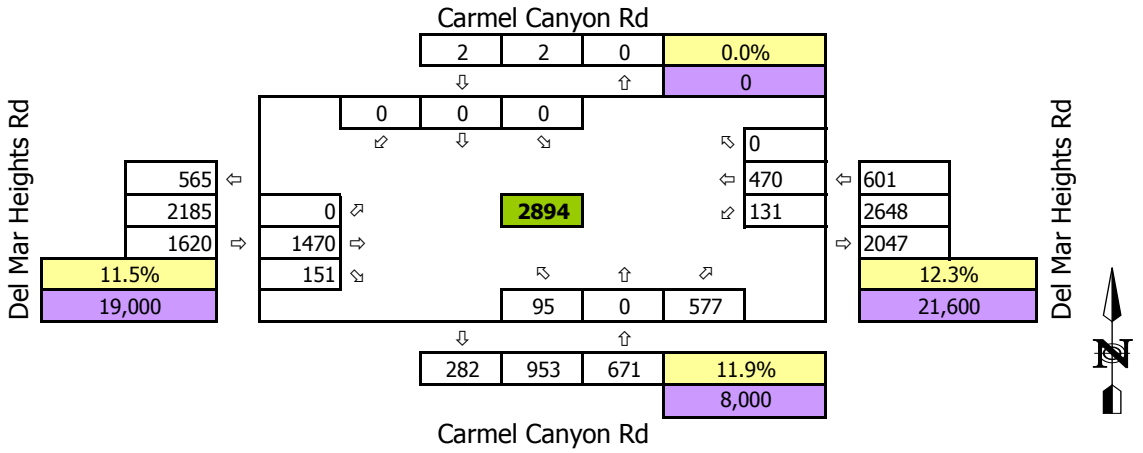
T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\0404 Future Year TMV Summary- No Connection_REFINED **Int 12 AM**

Int 12 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**12**



Scenario:	**Year 2035**
N/S Street:	**Carmel Canyon Rd**
E/W Street:	**Del Mar Heights Rd**

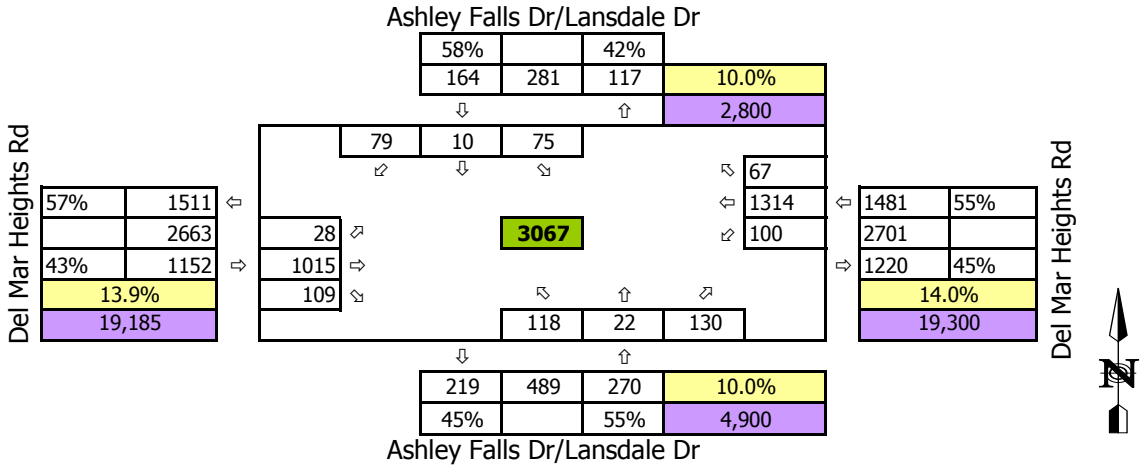


LEGEND

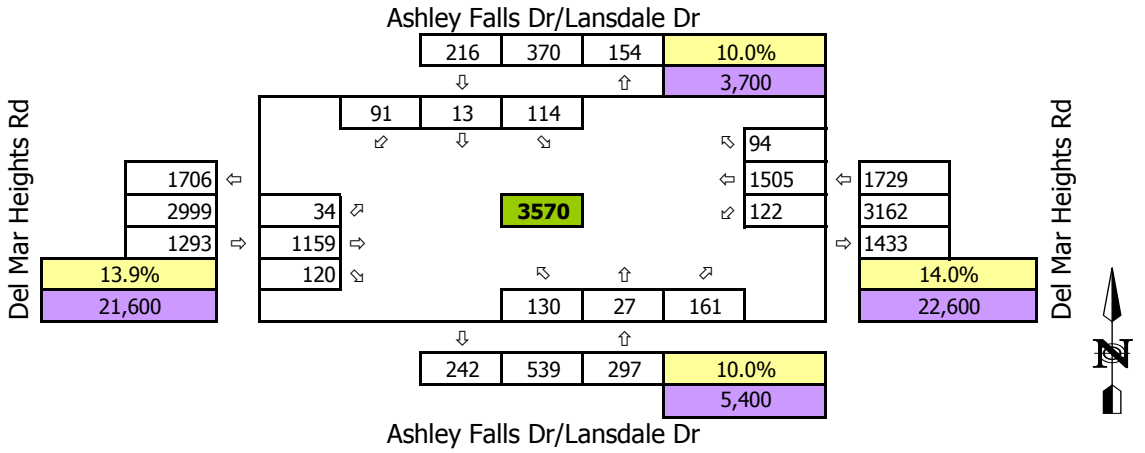
Existing K-Factor	xx%
ADT Volume	xx

Int 13 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Ashley Falls Dr/Lansdale Dr**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**13**



Scenario:	**Year 2035**
N/S Street:	**Ashley Falls Dr/Lansdale Dr**
E/W Street:	**Del Mar Heights Rd**

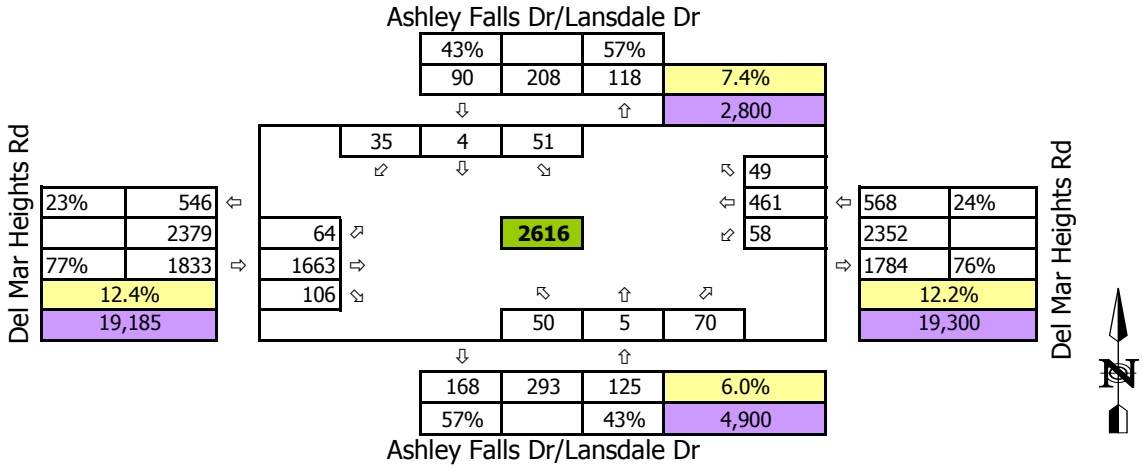


LEGEND

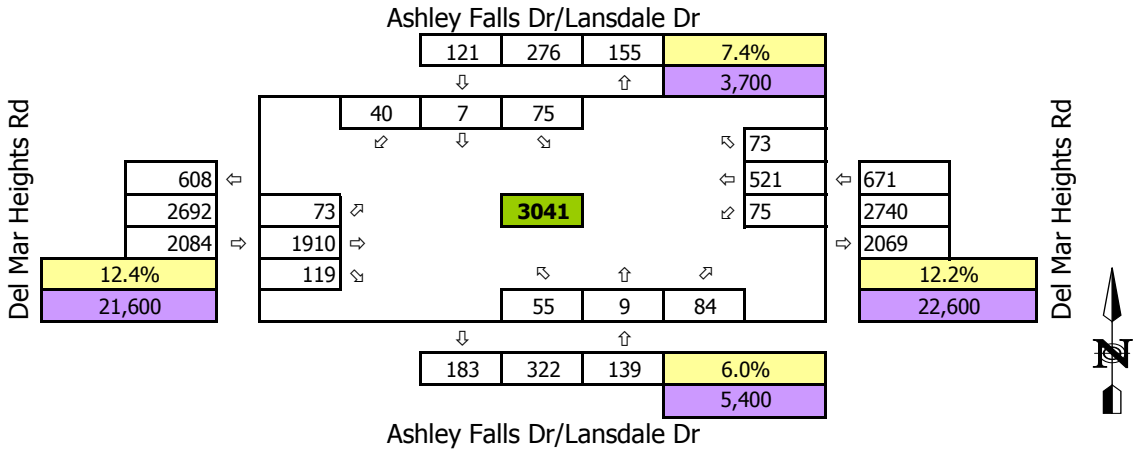
Existing K-Factor	xx%
ADT Volume	xx

Int 13 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Ashley Falls Dr/Lansdale Dr**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**13**



Scenario:	**Year 2035**
N/S Street:	**Ashley Falls Dr/Lansdale Dr**
E/W Street:	**Del Mar Heights Rd**

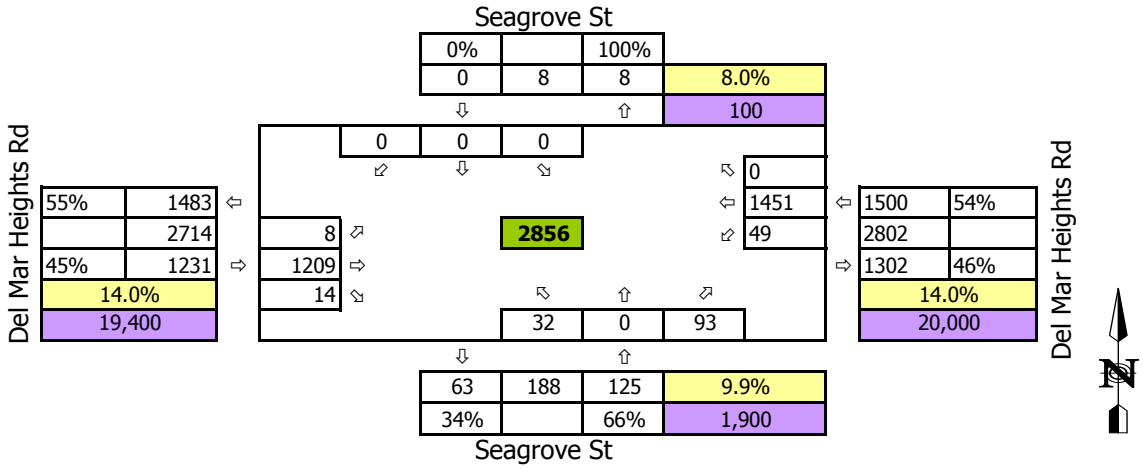


LEGEND

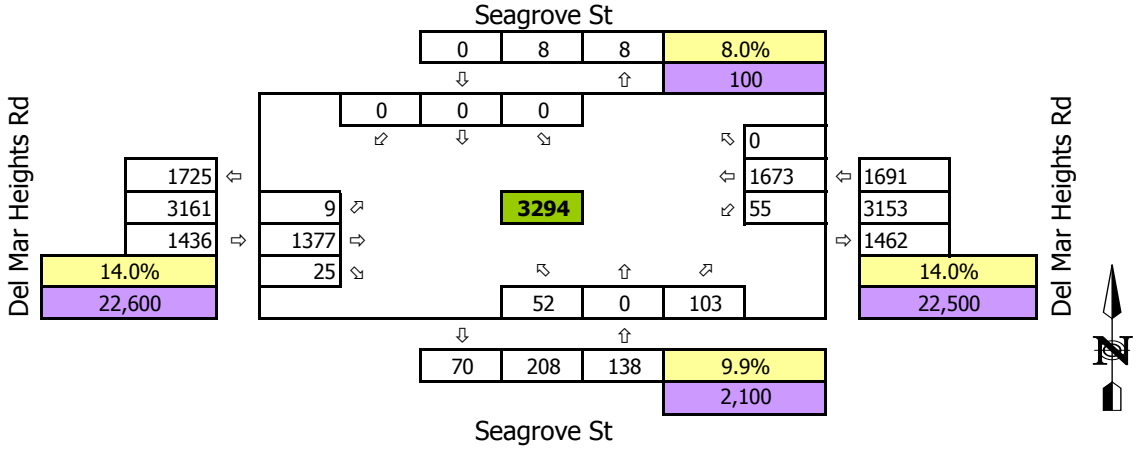
Existing K-Factor	xx%
ADT Volume	xx

Int 14 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Seagrove St**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**14**



Scenario:	**Year 2035**
N/S Street:	**Seagrove St**
E/W Street:	**Del Mar Heights Rd**

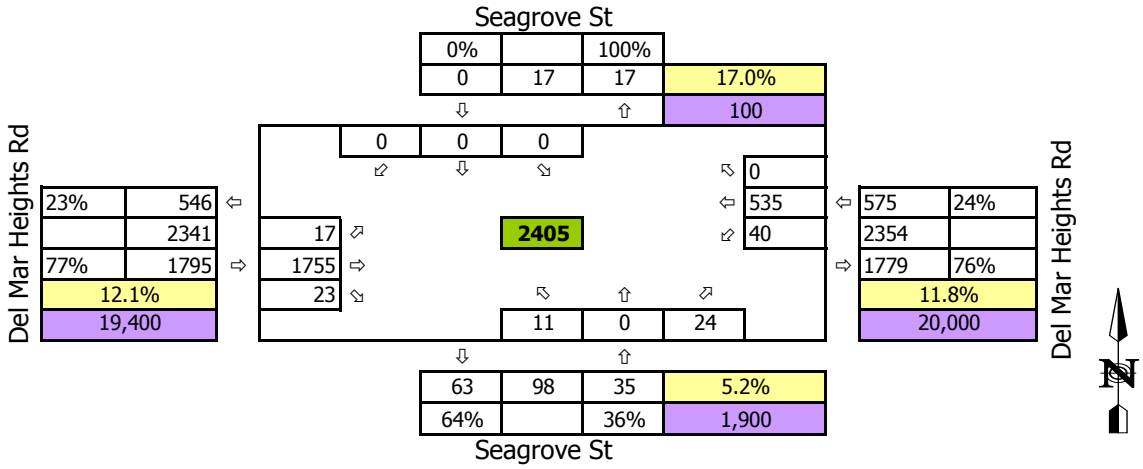


LEGEND

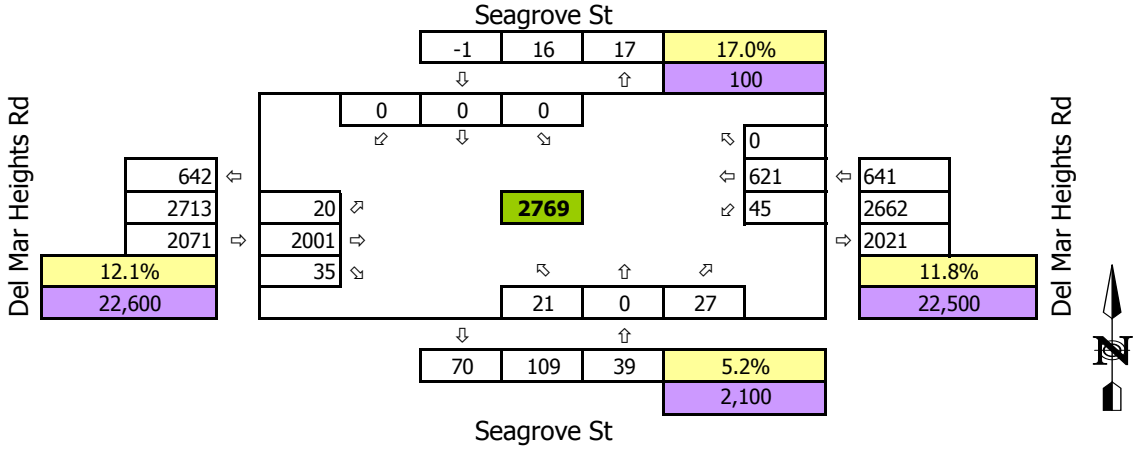
Existing K-Factor	xx%
ADT Volume	xx

Int 14 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Seagrove St**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**14**



Scenario:	**Year 2035**
N/S Street:	**Seagrove St**
E/W Street:	**Del Mar Heights Rd**

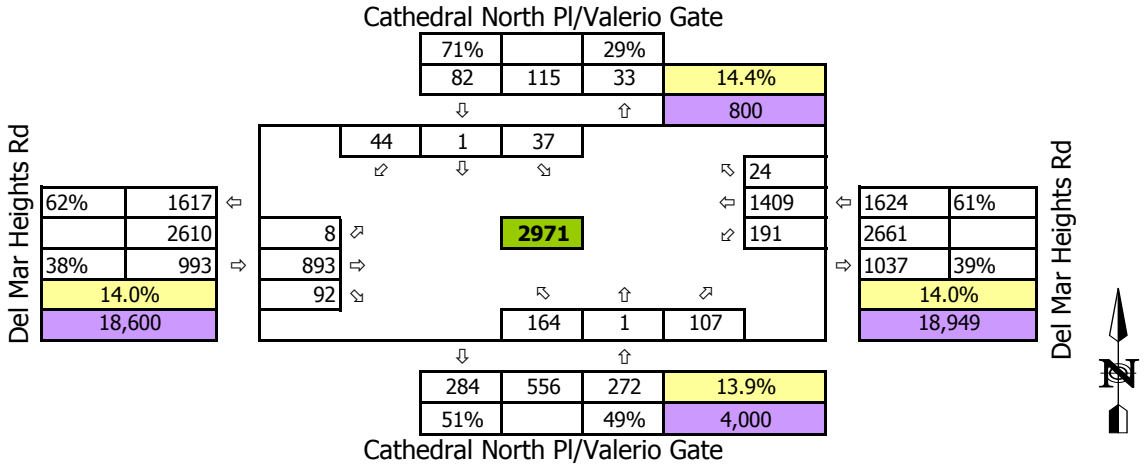


LEGEND

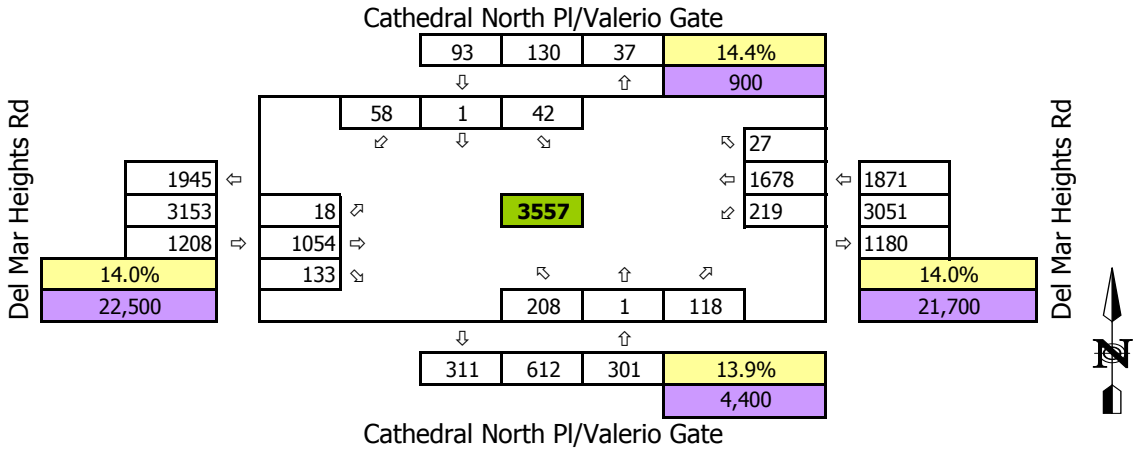
Existing K-Factor	xx%
ADT Volume	xx

Int 15 AM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Cathedral North Pl/Valerio Gate**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**15**



Scenario:	**Year 2035**
N/S Street:	**Cathedral North Pl/Valerio Gate**
E/W Street:	**Del Mar Heights Rd**

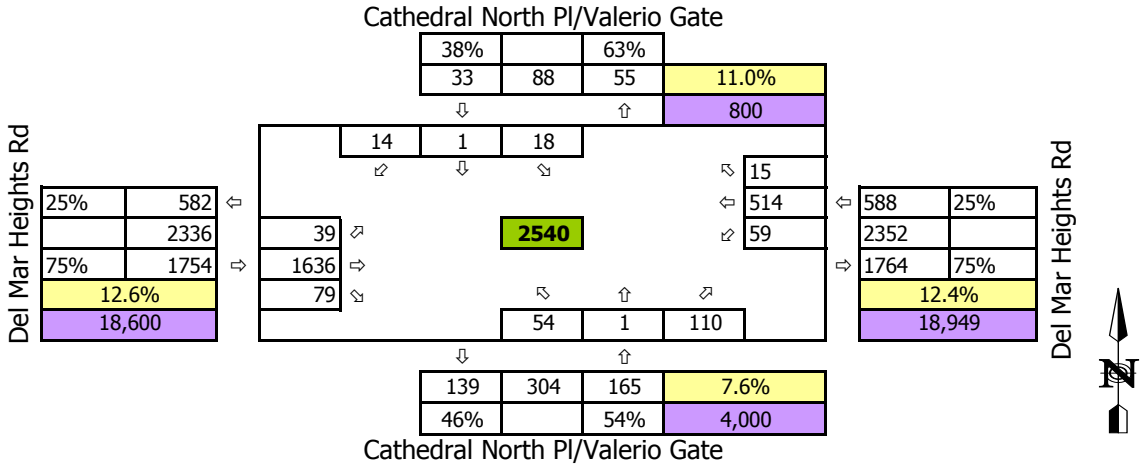


LEGEND

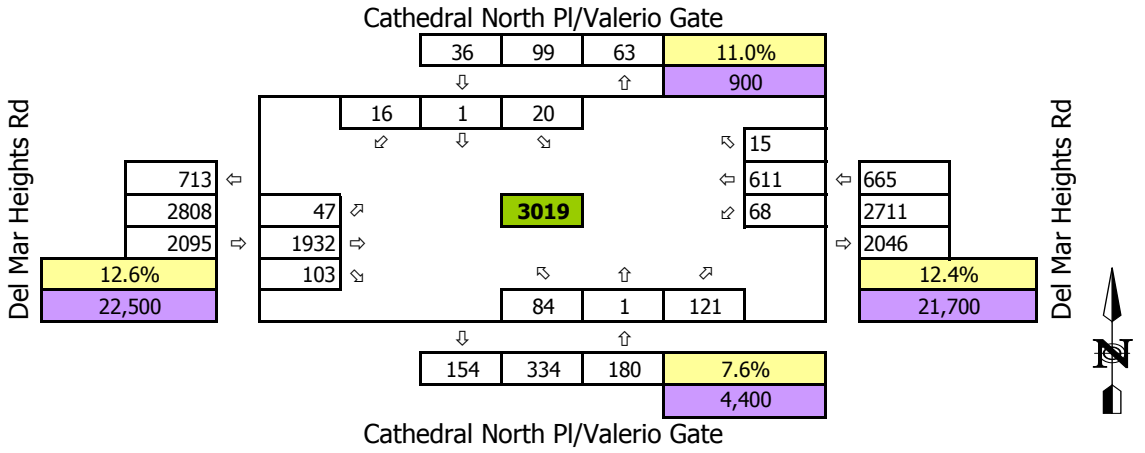
Existing K-Factor	xx%
ADT Volume	xx

Int 15 PM Peak Volumes

Scenario:	**Existing Conditions**
N/S Street:	**Cathedral North Pl/Valerio Gate**
E/W Street:	**Del Mar Heights Rd**
Intersection #:	**15**



Scenario:	**Year 2035**
N/S Street:	**Cathedral North Pl/Valerio Gate**
E/W Street:	**Del Mar Heights Rd**



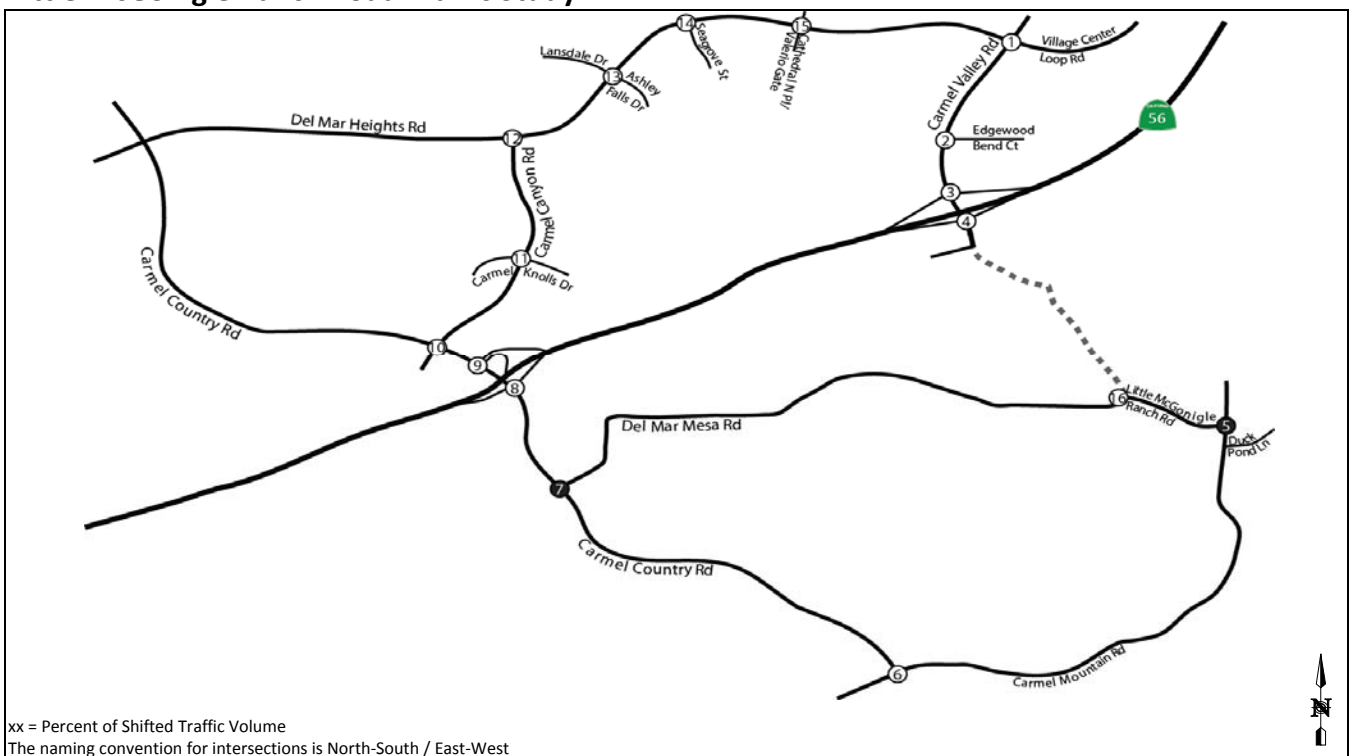
LEGEND

Existing K-Factor	xx%
ADT Volume	xx

Volume Shift Figures

APPENDIX E

Little McGonigle Ranch Road Traffic Study



xx = Percent of Shifted Traffic Volume
The naming convention for intersections is North-South / East-West

Carmel Valley Rd @ Del Mar Heights Rd / Village Center Loop Rd

-20 %	20 %	0 %
1		
-20 %	0 %	5 %
5 %	20 %	0 %
0 %	0 %	0 %

Carmel Valley Rd @ Edgewood Bend Ct

0 %	25 %	0 %
2		
0 %	25 %	0 %
0 %	0 %	0 %

Carmel Valley Rd @ SR-56 WB Ramps

-16 %	41 %	0 %
3		
16 %	25 %	0 %
0 %	0 %	35 %

Carmel Valley Rd @ SR-56 EB Ramps

0 %	76 %	0 %
4		
-16 %	0 %	16 %
0 %	57 %	35 %

Carmel Mountain Rd / Del Vino Court @ Little McGonigle Ranch Rd

0 %	0 %	0 %
5		
0 %	0 %	83 %
83 %	0 %	0 %

Carmel Country Rd % @ Carmel Mountain Rd

-20 %	0 %	-20 %
6		
-20 %	63 %	0 %
-20 %	63 %	0 %

Carmel Country Rd % @ Del Mar Mesa Rd

0 %	-40 %	-17 %
7		
0 %	-40 %	0 %
-17 %	0 %	0 %

Carmel Country Rd % @ SR-56 EB Ramps

0 %	-27 %	5 %
8		
-10 %	0 %	-30 %
0 %	-37 %	-20 %

Carmel Country Rd @ SR-56 WB Ramps

0 %	-4 %	-10 %
9		
0 %	-17 %	-30 %
5 %	0 %	-20 %

Carmel Canyon Rd % @ Carmel Country Rd

0 %	0 %	-12 %
10		
0 %	0 %	0 %
0 %	5 %	0 %

Carmel Canyon Rd % @ Carmel Knolls Dr

0 %	-12 %	0 %
11		
0 %	-12 %	0 %
0 %	0 %	0 %

Carmel Canyon Rd % @ Del Mar Heights Rd

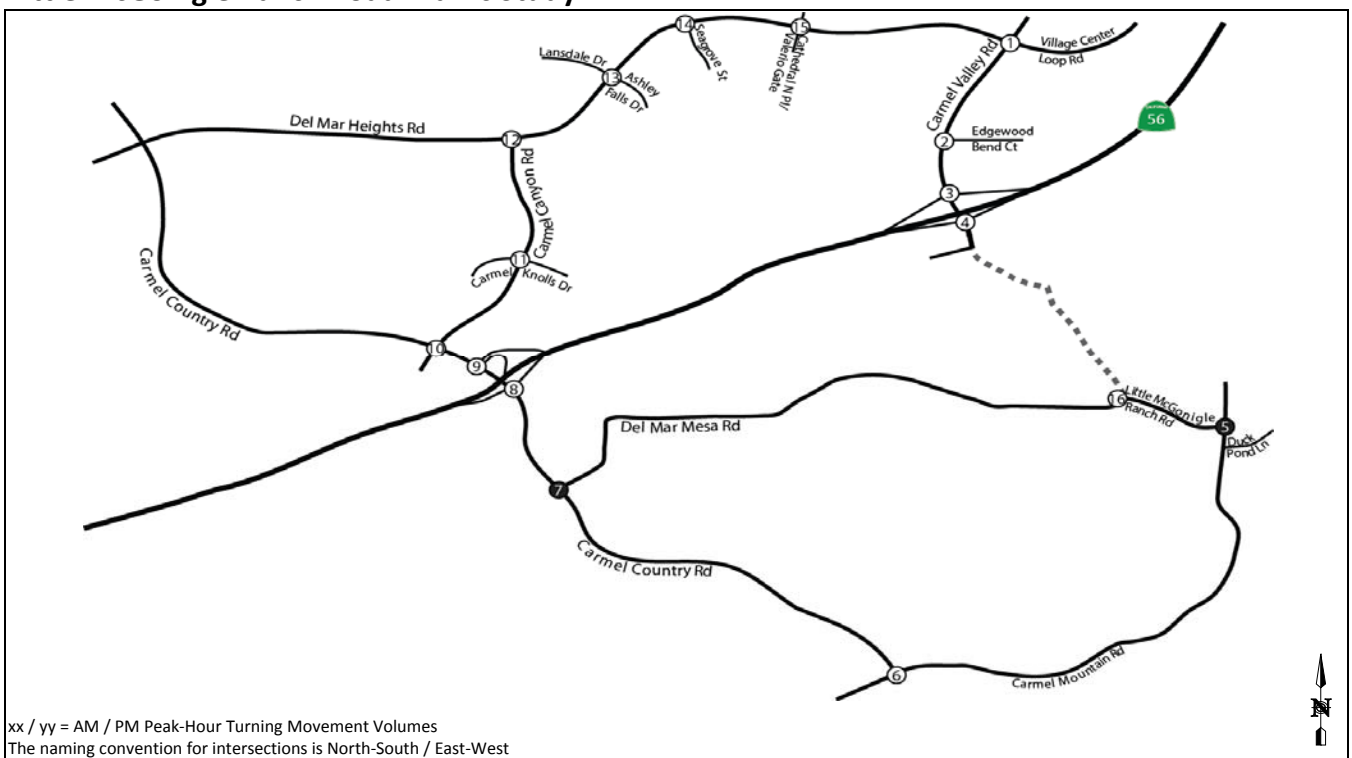
0 %	0 %	0 %
12		
0 %	0 %	-12 %
0 %	-13 %	-12 %

T:\Projects\Kimley-Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\[0404 Traffic Volumes_04-05-2016.xlsx]2035WC_Adjust1 Fig

Figure 2a

Percent Distribution of Shifted Traffic due to Connection

Little McGonigle Ranch Road Traffic Study



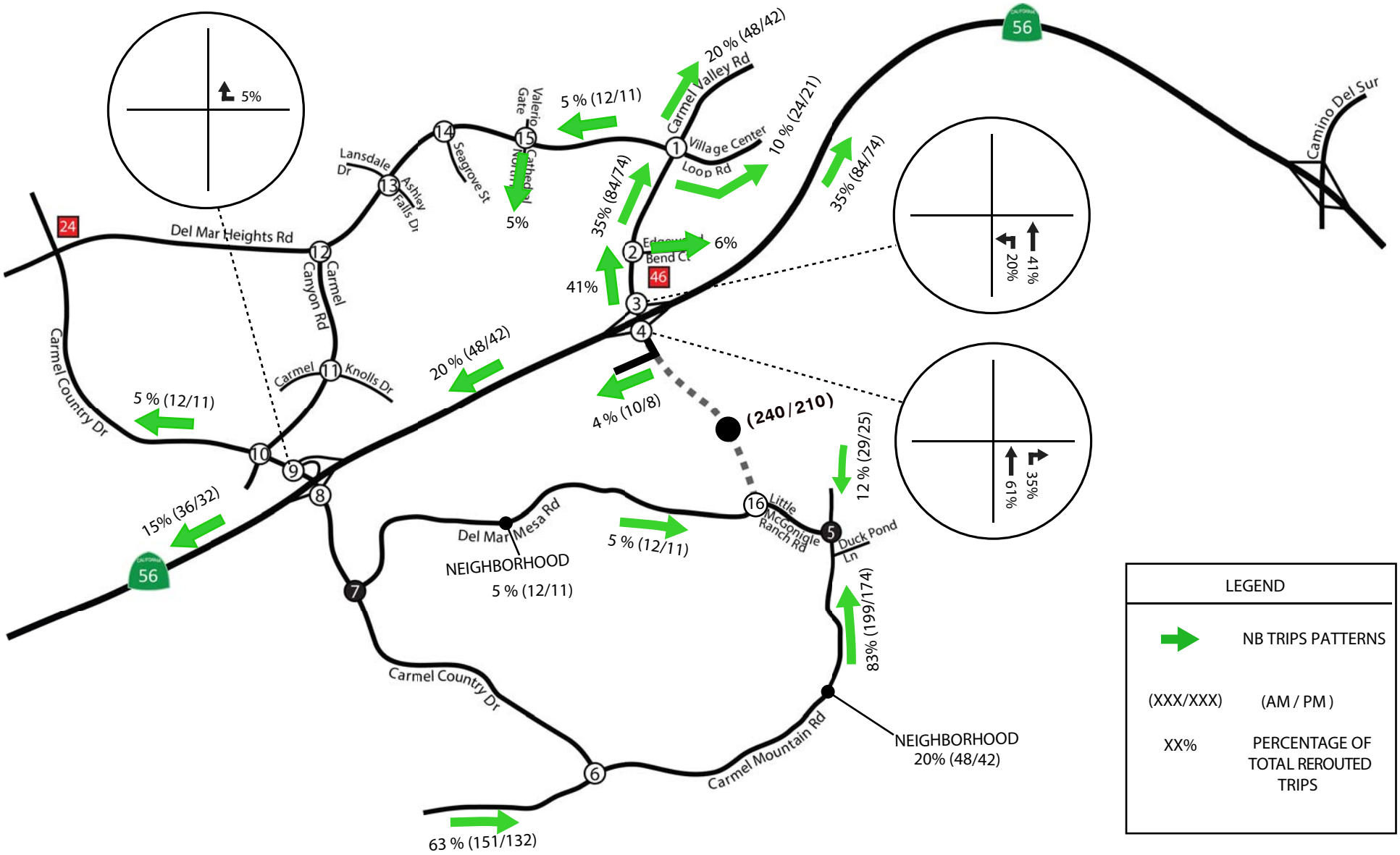
xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North-South / East-West

Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd	Seagrove St @ Del Mar Heights Rd	Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd	Little McDonigle Ranch Rd @ Del Mar Mesa Rd
↑ 0 % ← -25 % ↓ 0 % ← 0 % ↓ 0 % → 0 % **13** 0 % ↑ -25 % → 0 % ↓ ← 0 % ↑ 0 % → 0 %	↑ 0 % ← -25 % ↓ 0 % ← 0 % ↓ 0 % → 0 % **14** 0 % ↑ -25 % → 0 % ↓ ← 0 % ↑ 0 % → 0 %	↑ 0 % ← -20 % ↓ 5 % ← 0 % ↓ 0 % → 0 % **15** 0 % ↑ -20 % → -5 % ↓ ← -5 % ↑ 0 % → 5 %	↑ 95 % ← -12 % ↓ 0 % ← 5 % ↓ 0 % → 95 % **16** 5 % ↑ -12 % → 0 % ↓ ← 0 % ↑ 0 %

T:\Projects\Kimley Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel-Calcs\[0404 Traffic Volumes_04-05-2016.xlsx]2035WC_Adjust2 Fig

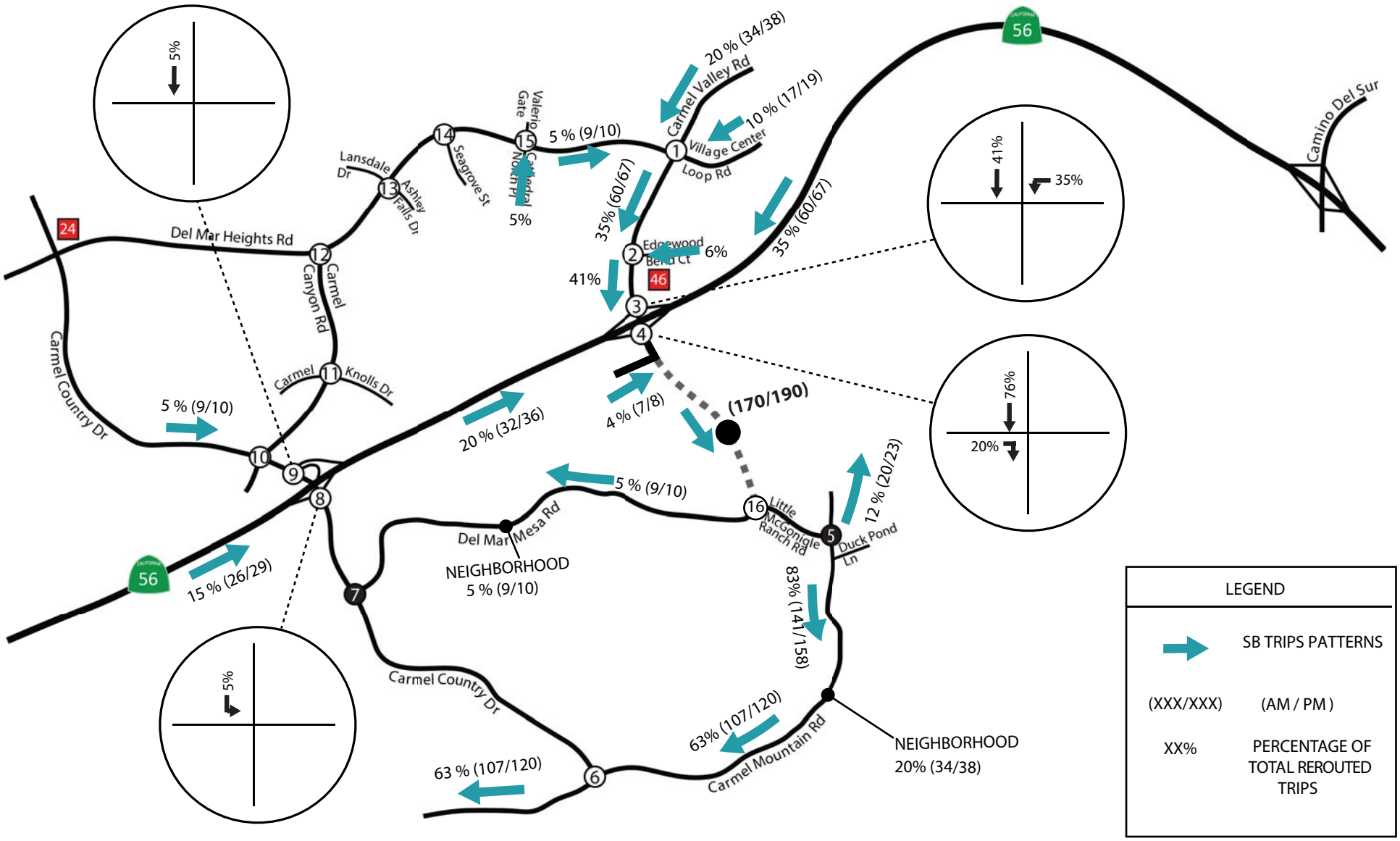
Figure 2b

Percent Distribution of Shifted Traffic due to Connection



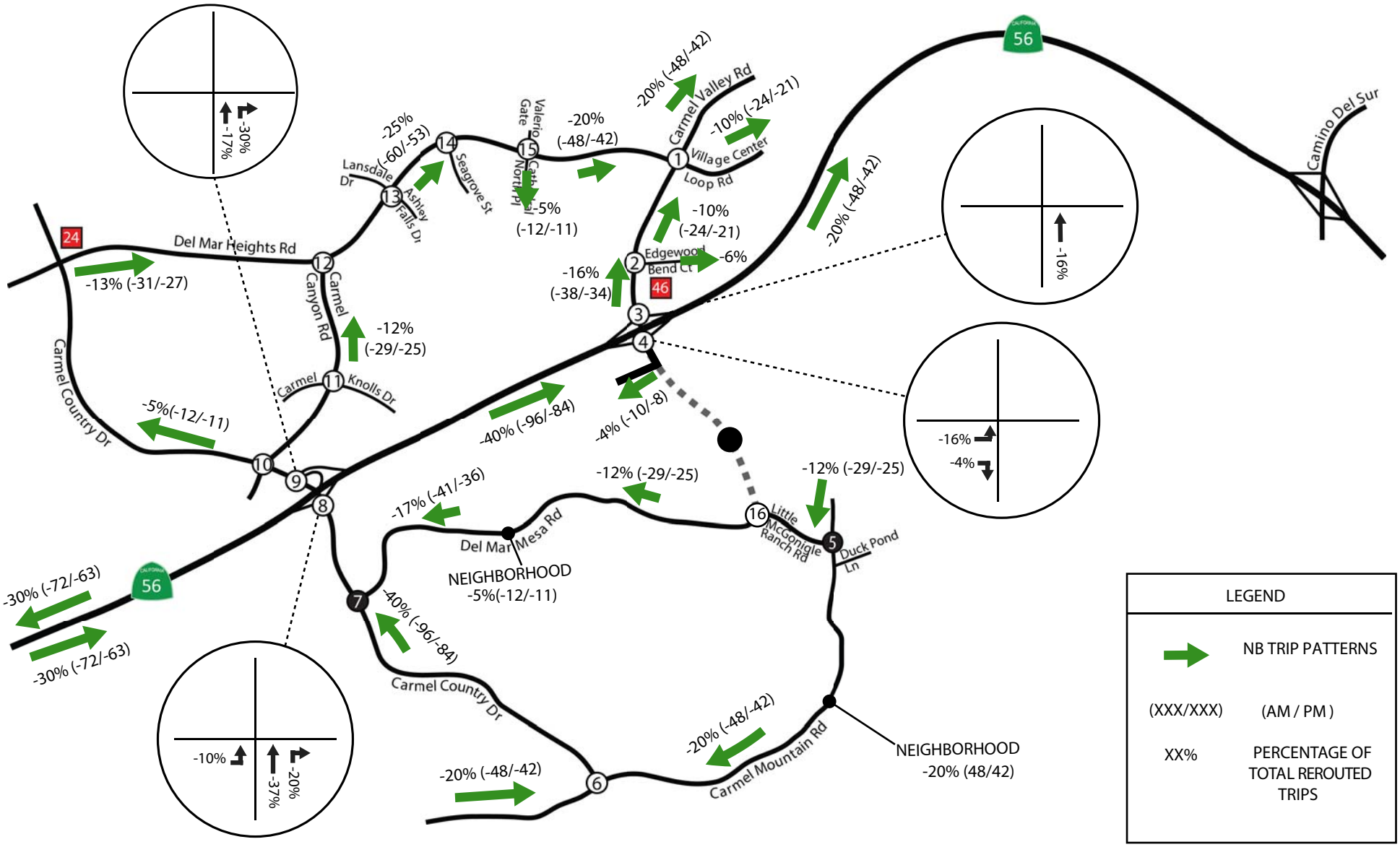
NORTHBOUND TRIPS REASSIGNED

FIGURE 3



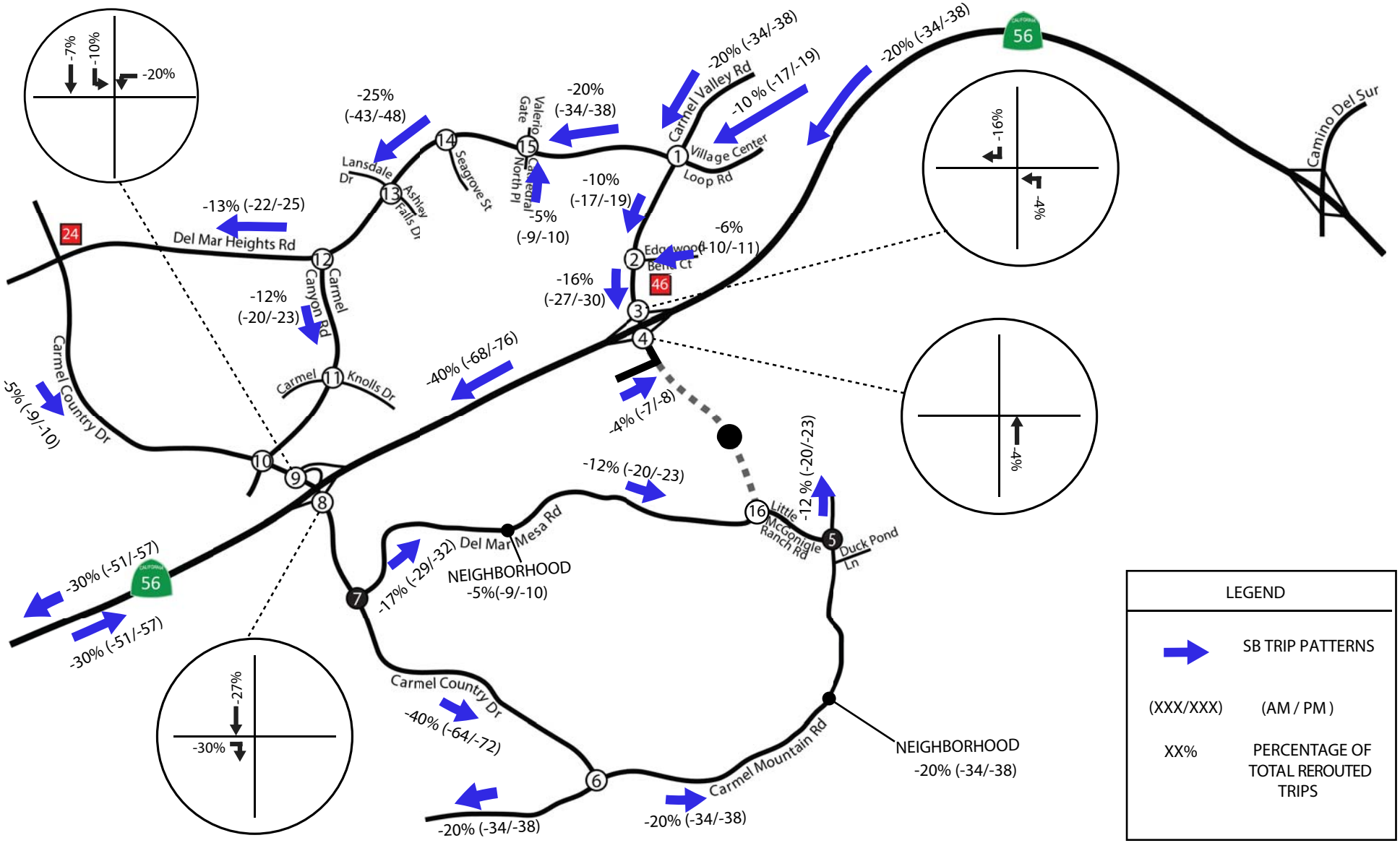
SOUTHBOUND TRIPS REASSIGNED

FIGURE 4



NORTHBOUND TRIPS REMOVED

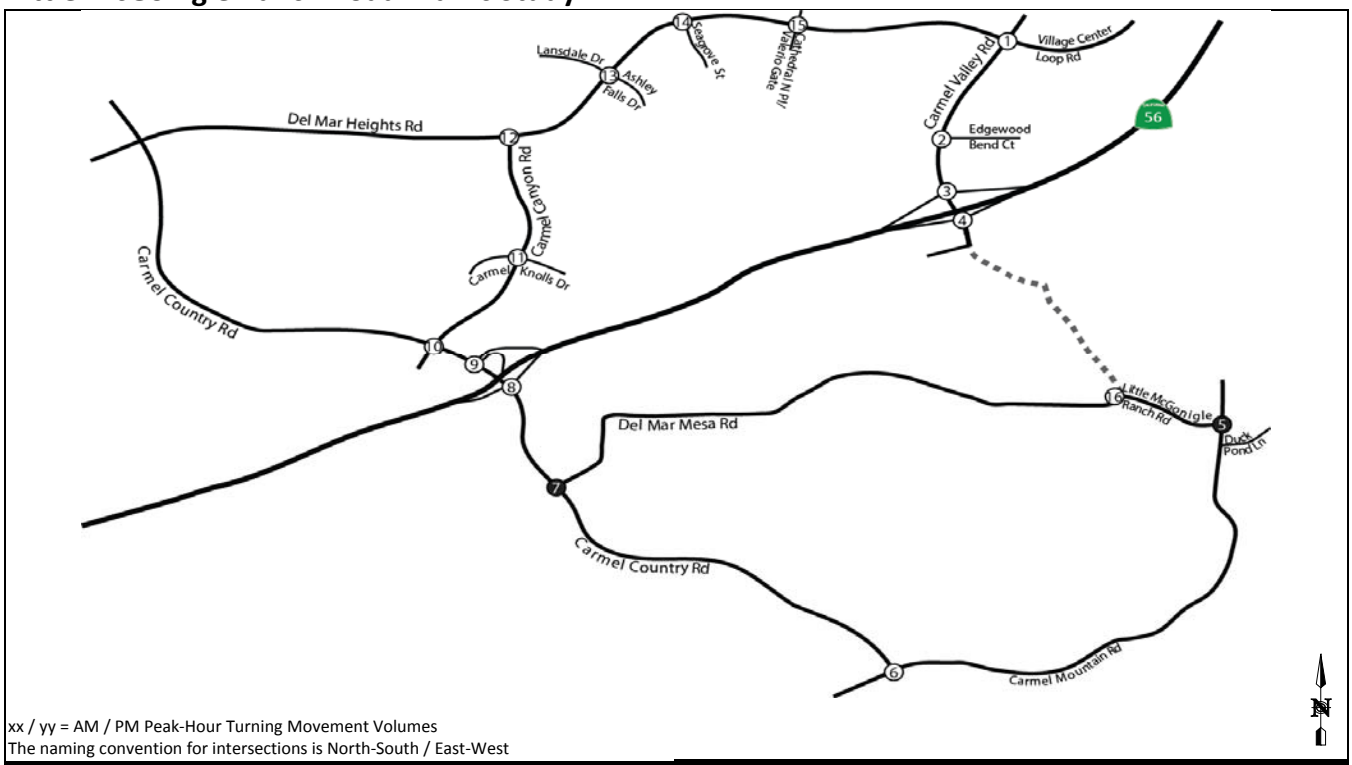
FIGURE 5



SOUTHBOUND TRIPS REMOVED

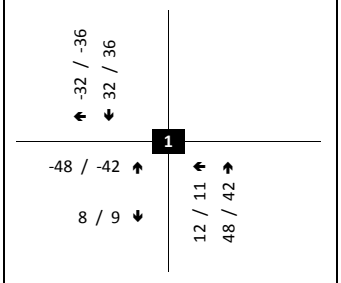
FIGURE 6

Little McGonigle Ranch Road Traffic Study

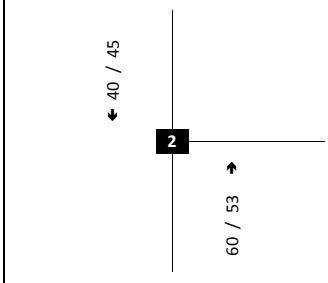


xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North-South / East-West

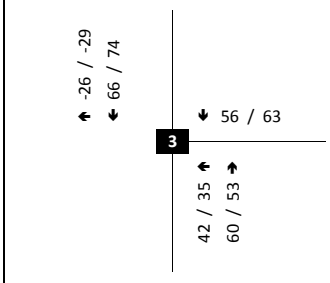
Carmel Valley Rd @ Del Mar Heights Rd / Village Center Loop Rd



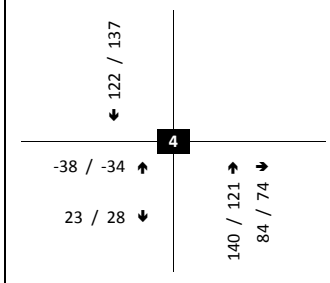
Carmel Valley Rd @ Edgewood Bend Ct



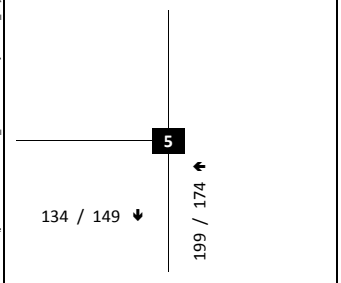
Carmel Valley Rd @ SR-56 WB Ramps



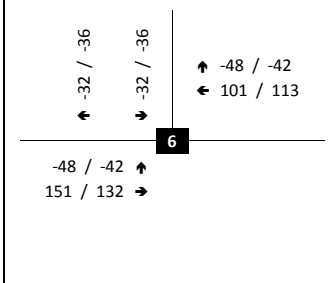
Carmel Valley Rd @ SR-56 EB Ramps



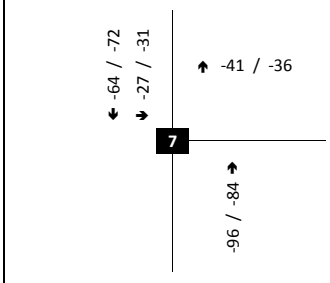
Carmel Mountain Rd / Del Vino Court @ Little McGonigle Ranch Rd



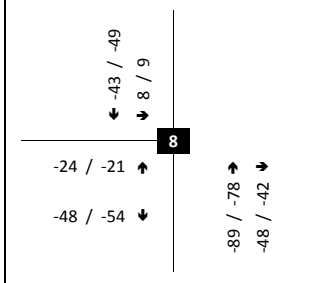
Carmel Country Rd @ Carmel Mountain Rd



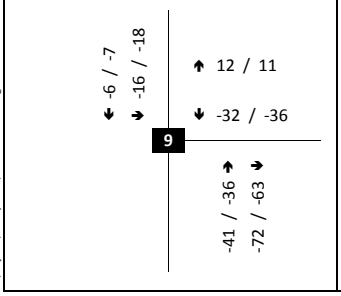
Carmel Country Rd @ Del Mar Mesa Rd



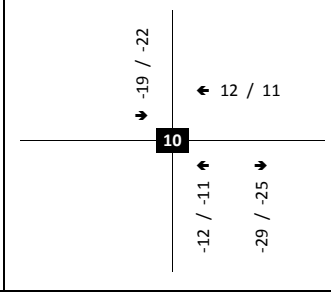
Carmel Country Rd @ SR-56 EB Ramps



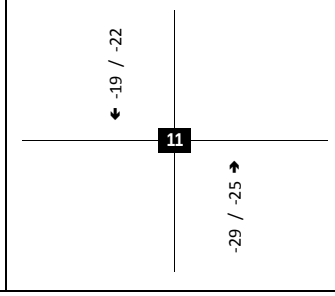
Carmel Country Rd @ SR-56 WB Ramps



Carmel Canyon Rd @ Carmel Country Rd



Carmel Canyon Rd @ Carmel Knolls Dr



Carmel Canyon Rd @ Del Mar Heights Rd

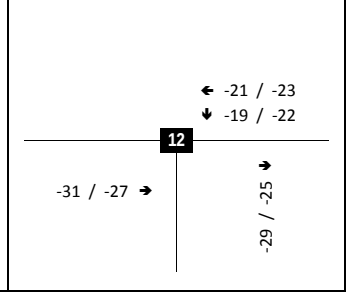


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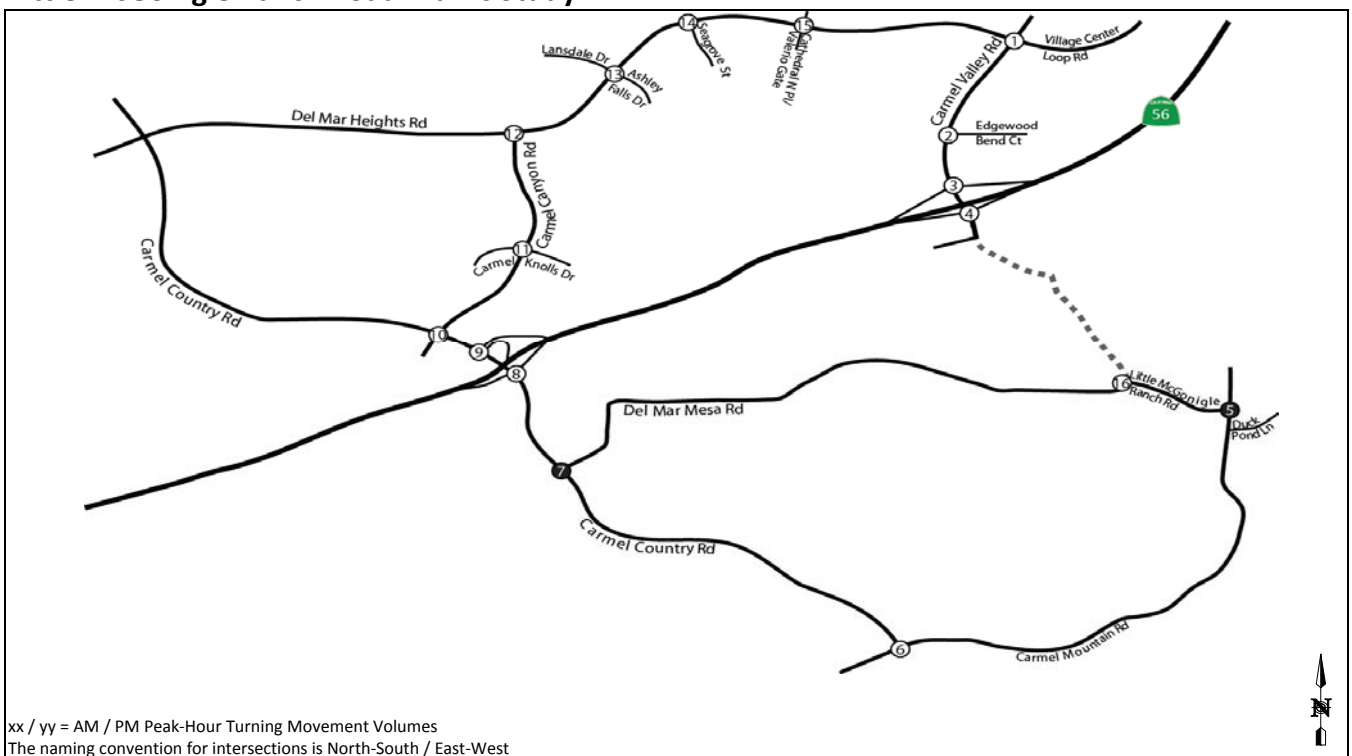
Figure 7a

Peak Hour Shift in Traffic Volumes with Connection

Little McGonigle Ranch Road Traffic Study



xx / yy = AM / PM Peak-Hour Turning Movement Volumes
The naming convention for intersections is North-South / East-West

Ashley Falls Dr / Lansdale Dr @ Del Mar Heights Rd	Seagrove St @ Del Mar Heights Rd	Cathedral North Pl / Valerio Gate @ Del Mar Heights Rd	Little McDonigle Ranch Rd @ Del Mar Mesa Rd
← -40 / -45	← -40 / -45	← -32 / -36 ↓ 12 / 11	↑ 228 / 200 ← -29 / -25
13	14	15	16
-60 / -53 →	-60 / -53 →	← -8 / -9 → 8 / 9 -48 / -42 → -12 / -11 ↓	← 8 / 9 → 153 / 171 12 / 11 ↑ -19 / -22 →

T:\Projects\Kimley-Horn\0404 Little McGonigle Ranch Road Traffic Study\06 Excel Calcs\0404 Traffic Volumes_04-05-2016.xlsx\2035WC_Adjust2 Fig (2

Figure 7b

Peak Hour Shift in Traffic Volumes with Connection

2035 Baseline
LOS Worksheets

APPENDIX F

1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd

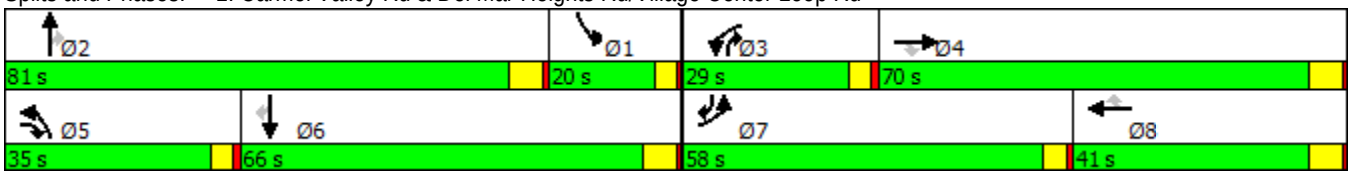
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	530	460	220	550	110	550	360	300	130	950	1000
Future Volume (vph)	380	530	460	220	550	110	550	360	300	130	950	1000
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.4	49.0	8.4	8.4	41.0	41.0	8.4	44.0	8.4	8.4	42.0	8.4
Total Split (s)	58.0	70.0	35.0	29.0	41.0	41.0	35.0	81.0	29.0	20.0	66.0	58.0
Total Split (%)	29.0%	35.0%	17.5%	14.5%	20.5%	20.5%	17.5%	40.5%	14.5%	10.0%	33.0%	29.0%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	53.6	64.0	100.6	24.6	35.0	35.0	30.6	75.0	101.2	15.6	60.0	119.6
Actuated g/C Ratio	0.27	0.32	0.50	0.12	0.18	0.18	0.15	0.38	0.51	0.08	0.30	0.60
v/c Ratio	0.52	0.59	0.69	0.65	1.11	0.37	1.31	0.34	0.45	0.61	1.12	1.30
Control Delay	64.6	59.4	37.7	91.6	142.2	17.3	213.1	45.7	17.4	99.6	127.9	175.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	59.4	37.7	91.6	142.2	17.3	213.1	45.7	17.4	99.6	127.9	175.8
LOS	E	E	D	F	F	B	F	D	B	F	F	F
Approach Delay		53.6			113.9			114.8			149.2	
Approach LOS		D			F			F			F	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 112.4 — Intersection LOS: F
Intersection Capacity Utilization 105.1% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	530	460	220	550	110	550	360	300	130	950	1000
Future Volume (vph)	380	530	460	220	550	110	550	360	300	130	950	1000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	475	662	575	275	688	138	688	450	375	162	1188	1250
RTOR Reduction (vph)	0	0	38	0	0	100	0	0	37	0	0	17
Lane Group Flow (vph)	475	663	537	275	688	38	688	450	338	163	1188	1233
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	53.6	64.0	94.6	24.6	35.0	35.0	30.6	75.0	99.6	15.6	60.0	113.6
Effective Green, g (s)	53.6	64.0	94.6	24.6	35.0	35.0	30.6	75.0	99.6	15.6	60.0	113.6
Actuated g/C Ratio	0.27	0.32	0.47	0.12	0.18	0.18	0.15	0.38	0.50	0.08	0.30	0.57
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	920	1132	748	422	619	277	525	1327	788	267	1061	899
v/s Ratio Prot	0.14	0.19	0.11	0.08	c0.19		c0.20	0.13	0.05	0.05	0.34	c0.37
v/s Ratio Perm			0.23			0.02			0.16			0.41
v/c Ratio	0.52	0.59	0.72	0.65	1.11	0.14	1.31	0.34	0.43	0.61	1.12	1.37
Uniform Delay, d1	62.2	56.9	42.0	83.6	82.5	69.7	84.7	44.8	32.1	89.3	70.0	43.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	2.2	5.8	7.6	70.7	1.0	152.9	0.7	1.7	10.0	66.7	174.1
Delay (s)	64.3	59.1	47.9	91.2	153.2	70.8	237.6	45.4	33.8	99.3	136.7	217.3
Level of Service	E	E	D	F	F	E	F	D	C	F	F	F
Approach Delay (s)		56.8			127.4			129.9			173.1	
Approach LOS		E			F			F			F	

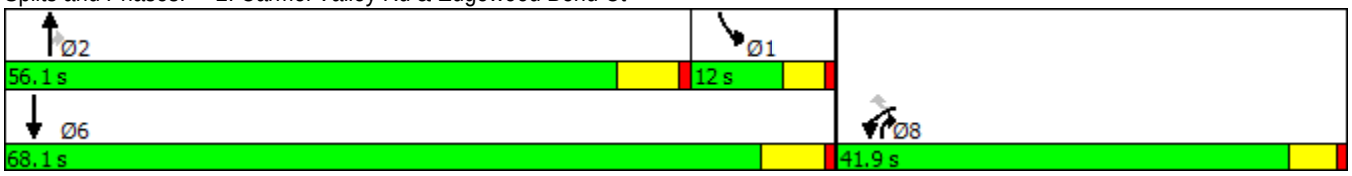
Intersection Summary			
HCM 2000 Control Delay	127.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	350	100	1060	630	120	1440
Future Volume (vph)	350	100	1060	630	120	1440
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	41.9	41.9	56.1	41.9	12.0	68.1
Total Split (%)	38.1%	38.1%	51.0%	38.1%	10.9%	61.9%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max	None	None	Max
Act Effct Green (s)	25.7	25.7	50.4	82.1	7.6	62.1
Actuated g/C Ratio	0.26	0.26	0.51	0.83	0.08	0.63
v/c Ratio	0.54	0.27	0.81	0.65	0.62	0.89
Control Delay	33.4	7.6	26.2	5.6	57.0	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	7.6	26.2	5.6	57.0	23.6
LOS	C	A	C	A	E	C
Approach Delay	27.7		18.5			26.1
Approach LOS	C		B			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 99.1	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 22.8	Intersection LOS: C
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	350	100	1060	630	120	1440
Future Volume (vph)	350	100	1060	630	120	1440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	479	137	1452	863	164	1973
RTOR Reduction (vph)	0	92	0	10	0	0
Lane Group Flow (vph)	479	45	1452	853	164	1973
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	25.7	25.7	50.4	76.1	7.6	62.1
Effective Green, g (s)	25.7	25.7	50.4	76.1	7.6	62.1
Actuated g/C Ratio	0.26	0.26	0.51	0.77	0.08	0.63
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	891	410	1801	1295	263	2219
v/s Ratio Prot	0.14		0.41	c0.17	0.05	c0.56
v/s Ratio Perm		0.03		0.37		
v/c Ratio	0.54	0.11	0.81	0.66	0.62	0.89
Uniform Delay, d1	31.5	27.9	20.2	5.4	44.3	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	4.0	0.9	3.3	5.8
Delay (s)	31.9	28.0	24.2	6.3	47.6	21.4
Level of Service	C	C	C	A	D	C
Approach Delay (s)	31.0		17.5			23.4
Approach LOS	C		B			C

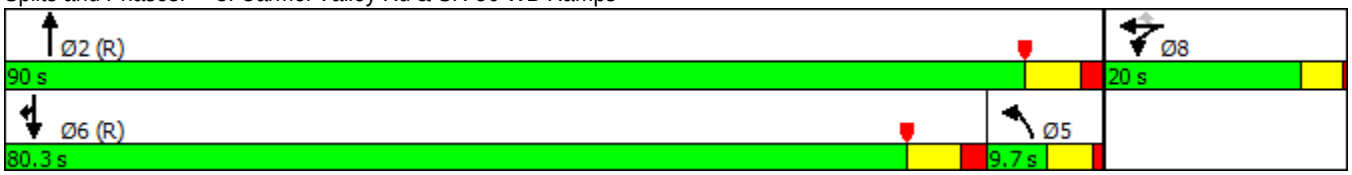
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	340	10	1420	350	1450
Future Volume (vph)	10	340	10	1420	350	1450
Turn Type	NA	Perm	Prot	NA	NA	Prot
Protected Phases	8		5	2	6	6
Permitted Phases		8				
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	5.0	11.0	13.0	13.0
Minimum Split (s)	20.0	20.0	9.7	34.0	37.0	37.0
Total Split (s)	20.0	20.0	9.7	90.0	80.3	80.3
Total Split (%)	18.2%	18.2%	8.8%	81.8%	73.0%	73.0%
Yellow Time (s)	3.5	3.5	3.7	4.5	4.5	4.5
All-Red Time (s)	0.5	0.5	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.7	6.5	6.5	6.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	16.0	16.0	5.0	83.5	79.6	79.6
Actuated g/C Ratio	0.15	0.15	0.05	0.76	0.72	0.72
v/c Ratio	0.16	0.95	0.17	0.72	1.06	0.89
Control Delay	42.9	67.9	40.6	1.2	58.0	12.8
Queue Delay	0.0	0.0	0.0	0.4	3.4	0.0
Total Delay	42.9	67.9	40.6	1.7	61.5	12.8
LOS	D	E	D	A	E	B
Approach Delay	65.9			2.0	38.0	
Approach LOS	E			A	D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 117.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	20	10	340	10	1420	0	0	350	1450
Future Volume (vph)	0	0	0	20	10	340	10	1420	0	0	350	1450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor					1.00	0.88	1.00	0.95			0.95	0.95
Frt					1.00	0.85	1.00	1.00			0.91	0.85
Flt Protected					0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1803	2787	1770	3539			1604	1504
Flt Permitted					0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1803	2787	1770	3539			1604	1504
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	0	0	0	27	14	466	14	1945	0	0	479	1986
RTOR Reduction (vph)	0	0	0	0	0	85	0	0	0	0	50	280
Lane Group Flow (vph)	0	0	0	0	41	381	14	1945	0	0	1223	912
Turn Type				Split	NA	Perm	Prot	NA			NA	Prot
Protected Phases				8	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)					16.0	16.0	2.0	83.5			76.8	76.8
Effective Green, g (s)					16.0	16.0	2.0	83.5			76.8	76.8
Actuated g/C Ratio					0.15	0.15	0.02	0.76			0.70	0.70
Clearance Time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					262	405	32	2686			1119	1050
v/s Ratio Prot					0.02		0.01	c0.55			c0.76	0.61
v/s Ratio Perm						c0.14						
v/c Ratio					0.16	0.94	0.44	0.72			1.09	0.87
Uniform Delay, d1					41.1	46.5	53.4	7.1			16.6	12.7
Progression Factor					1.00	1.00	0.76	0.07			1.00	1.00
Incremental Delay, d2					0.3	30.2	4.0	0.7			56.0	9.7
Delay (s)					41.4	76.7	44.5	1.2			72.6	22.5
Level of Service					D	E	D	A			E	C
Approach Delay (s)		0.0			73.9			1.5			48.4	
Approach LOS		A			E			A			D	

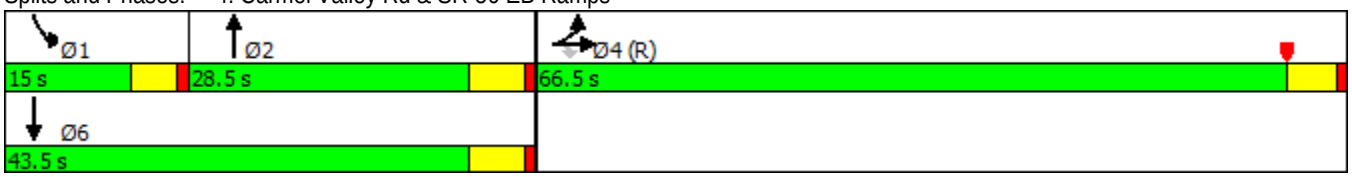
Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	117.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1410	10	30	40	330	20
Future Volume (vph)	1410	10	30	40	330	20
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.1	39.1	39.1	28.5	9.7	29.5
Total Split (s)	66.5	66.5	66.5	28.5	15.0	43.5
Total Split (%)	60.5%	60.5%	60.5%	25.9%	13.6%	39.5%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.5	4.7	5.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	79.7	79.7	79.7	6.9	10.3	12.9
Actuated g/C Ratio	0.72	0.72	0.72	0.06	0.09	0.12
v/c Ratio	0.90	0.91	0.03	0.28	1.12	0.10
Control Delay	26.1	26.8	0.2	37.5	97.5	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	26.8	0.2	37.5	97.5	37.2
LOS	C	C	A	D	F	D
Approach Delay		26.1		37.5		94.0
Approach LOS		C		D		F

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 108 (98%), Referenced to phase 4:EBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 36.0	Intersection LOS: D
Intersection Capacity Utilization 118.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: Carmel Valley Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1410	10	30	0	0	0	0	40	20	330	20	0
Future Volume (vph)	1410	10	30	0	0	0	0	40	20	330	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					5.5		4.7	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					3360		3433	1863	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					3360		3433	1863	
Peak-hour factor, PHF	0.64	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2203	11	33	0	0	0	0	43	22	359	22	0
RTOR Reduction (vph)	0	0	9	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	1101	1113	24	0	0	0	0	44	0	359	22	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	78.6	78.6	78.6					5.8		10.3	20.8	
Effective Green, g (s)	78.6	78.6	78.6					5.8		10.3	20.8	
Actuated g/C Ratio	0.71	0.71	0.71					0.05		0.09	0.19	
Clearance Time (s)	5.1	5.1	5.1					5.5		4.7	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	1201	1204	1131					177		321	352	
v/s Ratio Prot	0.65	c0.66						c0.01		c0.10	0.01	
v/s Ratio Perm			0.01									
v/c Ratio	0.92	0.92	0.02					0.25		1.12	0.06	
Uniform Delay, d1	13.0	13.2	4.5					50.0		49.9	36.6	
Progression Factor	1.00	1.00	1.00					1.00		0.83	0.96	
Incremental Delay, d2	12.4	13.2	0.0					0.7		57.7	0.0	
Delay (s)	25.4	26.4	4.6					50.8		99.2	35.3	
Level of Service	C	C	A					D		F	D	
Approach Delay (s)		25.6			0.0			50.8			95.5	
Approach LOS		C			A			D			F	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	40	30	20	20	40	110
Future Volume (vph)	40	30	20	20	40	110
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	53	40	27	27	53	147

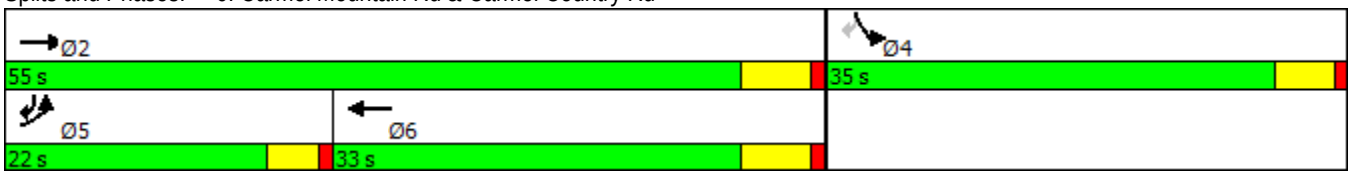
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	93	54	200
Volume Left (vph)	53	27	0
Volume Right (vph)	40	0	147
Hadj (s)	-0.11	0.13	-0.41
Departure Headway (s)	4.3	4.4	3.8
Degree Utilization, x	0.11	0.07	0.21
Capacity (veh/h)	780	780	931
Control Delay (s)	7.8	7.7	7.8
Approach Delay (s)	7.8	7.7	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	560	90	180	70	470
Future Volume (vph)	560	90	180	70	470
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					4
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	55.0	33.0	35.0	22.0
Total Split (%)	24.4%	61.1%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min
Act Effct Green (s)	18.1	35.2	10.9	8.1	28.0
Actuated g/C Ratio	0.37	0.71	0.22	0.16	0.57
v/c Ratio	0.63	0.05	0.46	0.34	0.36
Control Delay	17.6	3.7	14.8	23.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	3.7	14.8	23.9	1.3
LOS	B	A	B	C	A
Approach Delay		15.6	14.8	4.2	
Approach LOS		B	B	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 49.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	560	90	180	90	70	470
Future Volume (vph)	560	90	180	90	70	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3362		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3362		1770	2787
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	789	127	254	127	99	662
RTOR Reduction (vph)	0	0	77	0	0	337
Lane Group Flow (vph)	789	127	304	0	99	325
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Actuated Green, G (s)	18.1	33.6	11.1		6.2	24.3
Effective Green, g (s)	18.1	33.6	11.1		6.2	24.3
Actuated g/C Ratio	0.36	0.67	0.22		0.12	0.48
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1232	2359	740		217	1343
v/s Ratio Prot	c0.23	0.04	c0.09		c0.06	0.09
v/s Ratio Perm						0.03
v/c Ratio	0.64	0.05	0.41		0.46	0.24
Uniform Delay, d1	13.4	2.9	16.8		20.5	7.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.0	0.5		0.6	0.0
Delay (s)	14.3	2.9	17.4		21.1	7.7
Level of Service	B	A	B		C	A
Approach Delay (s)		12.7	17.4		9.4	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	160	1020	10	90	690
Future Volume (Veh/h)	10	160	1020	10	90	690
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	12	188	1200	12	106	812
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2230	1206			1212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2230	1206			1212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	16			82	
cM capacity (veh/h)	38	224			576	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	12	188	1212	106	812
Volume Left	12	0	0	106	0
Volume Right	0	188	12	0	0
cSH	38	224	1700	576	1700
Volume to Capacity	0.31	0.84	0.71	0.18	0.48
Queue Length 95th (ft)	26	161	0	17	0
Control Delay (s)	136.5	71.0	0.0	12.7	0.0
Lane LOS	F	F		B	
Approach Delay (s)	75.0		0.0	1.5	
Approach LOS	F				

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	460	0	230	830	510	420	450
Future Volume (vph)	460	0	230	830	510	420	450
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	47.1	47.1	47.1	39.9	39.9	23.0	62.9
Total Split (%)	42.8%	42.8%	42.8%	36.3%	36.3%	20.9%	57.2%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	24.3	24.3	24.3	48.8	48.8	20.2	73.8
Actuated g/C Ratio	0.22	0.22	0.22	0.44	0.44	0.18	0.67
v/c Ratio	0.69	0.69	0.47	0.59	0.65	0.74	0.21
Control Delay	47.9	48.1	6.6	27.3	16.2	46.4	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	48.1	6.6	27.3	16.2	46.4	2.4
LOS	D	D	A	C	B	D	A
Approach Delay		34.2		23.1			23.7
Approach LOS		C		C			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 93 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 25.9	Intersection LOS: C
Intersection Capacity Utilization 70.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	460	0	230	0	0	0	0	830	510	420	450	0
Future Volume (vph)	460	0	230	0	0	0	0	830	510	420	450	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3539	1583	3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	511	0	256	0	0	0	0	922	567	467	500	0
RTOR Reduction (vph)	0	0	199	0	0	0	0	0	173	0	0	0
Lane Group Flow (vph)	255	256	57	0	0	0	0	922	394	467	500	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	24.3	24.3	24.3					48.9	48.9	20.2	73.8	
Effective Green, g (s)	24.3	24.3	24.3					48.9	48.9	20.2	73.8	
Actuated g/C Ratio	0.22	0.22	0.22					0.44	0.44	0.18	0.67	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	371	371	349					1573	703	630	2374	
v/s Ratio Prot	0.15	c0.15						c0.26		c0.14	0.14	
v/s Ratio Perm			0.04						0.25			
v/c Ratio	0.69	0.69	0.16					0.59	0.56	0.74	0.21	
Uniform Delay, d1	39.4	39.4	34.6					22.9	22.6	42.4	6.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.93	0.28	
Incremental Delay, d2	5.2	5.4	0.2					1.6	3.2	4.5	0.2	
Delay (s)	44.6	44.8	34.8					24.6	25.8	43.9	2.1	
Level of Service	D	D	C					C	C	D	A	
Approach Delay (s)		41.4			0.0			25.0			22.3	
Approach LOS		D			A			C			C	

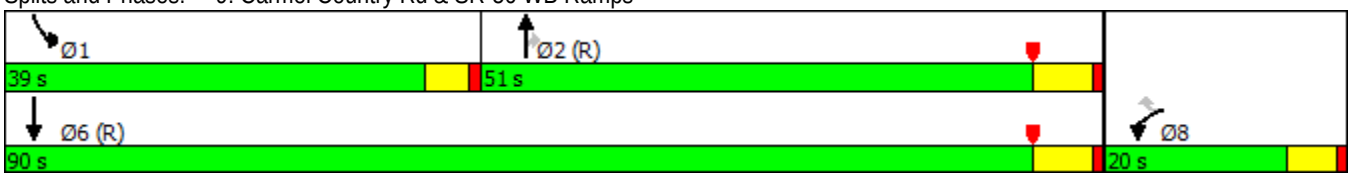
Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	230	240	880	440	890	630
Future Volume (vph)	230	240	880	440	890	630
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	20.0	20.0	51.0	51.0	39.0	90.0
Total Split (%)	18.2%	18.2%	46.4%	46.4%	35.5%	81.8%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	12.9	12.9	47.5	47.5	34.0	86.2
Actuated g/C Ratio	0.12	0.12	0.43	0.43	0.31	0.78
v/c Ratio	0.62	0.63	0.63	0.55	0.91	0.25
Control Delay	53.2	12.7	25.5	9.7	26.0	5.9
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	53.2	12.7	25.5	10.1	26.0	5.9
LOS	D	B	C	B	C	A
Approach Delay	32.5		20.3			17.7
Approach LOS	C		C			B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 106 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	230	240	880	440	890	630
Future Volume (vph)	230	240	880	440	890	630
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	261	957	478	967	685
RTOR Reduction (vph)	0	230	0	194	0	0
Lane Group Flow (vph)	250	31	957	284	967	685
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	12.9	12.9	47.5	47.5	34.0	86.2
Effective Green, g (s)	12.9	12.9	47.5	47.5	34.0	86.2
Actuated g/C Ratio	0.12	0.12	0.43	0.43	0.31	0.78
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	402	185	1528	683	1061	2773
v/s Ratio Prot	c0.07		c0.27		c0.28	0.19
v/s Ratio Perm		0.02		0.18		
v/c Ratio	0.62	0.17	0.63	0.42	0.91	0.25
Uniform Delay, d1	46.2	43.7	24.3	21.6	36.6	3.2
Progression Factor	1.00	1.00	0.94	1.11	0.50	1.74
Incremental Delay, d2	3.0	0.4	1.7	1.6	5.7	0.1
Delay (s)	49.2	44.1	24.7	25.6	24.2	5.7
Level of Service	D	D	C	C	C	A
Approach Delay (s)	46.6		25.0			16.5
Approach LOS	D		C			B

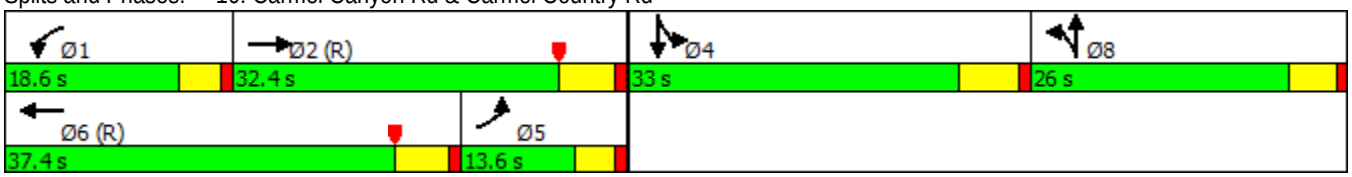
Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	510	200	360	60	120	800	230
Future Volume (vph)	120	510	200	360	60	120	800	230
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	13.6	32.4	18.6	37.4	26.0	26.0	33.0	33.0
Total Split (%)	12.4%	29.5%	16.9%	34.0%	23.6%	23.6%	30.0%	30.0%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lag	Lag	Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	10.0	24.9	14.2	29.4	21.1	21.1	28.8	28.8
Actuated g/C Ratio	0.09	0.23	0.13	0.27	0.19	0.19	0.26	0.26
v/c Ratio	0.81	0.75	0.95	0.88	0.19	1.01	0.97	0.86
Control Delay	84.1	45.4	87.2	13.9	39.1	85.0	64.8	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.1	45.4	87.2	13.9	39.1	85.0	64.8	55.9
LOS	F	D	F	B	D	F	E	E
Approach Delay		52.3		27.2		78.5		61.9
Approach LOS		D		C		E		E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 107 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 50.7	Intersection LOS: D
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	510	40	200	360	540	60	120	240	800	230	150
Future Volume (vph)	120	510	40	200	360	540	60	120	240	800	230	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.91		1.00	0.90		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3501		1770	3221		1770	1676		3433	1752	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3501		1770	3221		1770	1676		3433	1752	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	554	43	217	391	587	65	130	261	870	250	163
RTOR Reduction (vph)	0	5	0	0	254	0	0	65	0	0	21	0
Lane Group Flow (vph)	130	592	0	217	724	0	65	326	0	870	392	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	10.0	24.9		14.2	29.4		21.1	21.1		28.8	28.8	
Effective Green, g (s)	10.0	24.9		14.2	29.4		21.1	21.1		28.8	28.8	
Actuated g/C Ratio	0.09	0.23		0.13	0.27		0.19	0.19		0.26	0.26	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	160	792		228	860		339	321		898	458	
v/s Ratio Prot	0.07	c0.17		0.12	c0.22		0.04	c0.19		c0.25	0.22	
v/s Ratio Perm												
v/c Ratio	0.81	0.75		0.95	0.84		0.19	1.01		0.97	0.86	
Uniform Delay, d1	49.1	39.6		47.6	38.1		37.3	44.4		40.2	38.6	
Progression Factor	1.00	1.00		0.92	0.23		1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.8	6.4		39.5	7.9		0.1	53.9		22.6	15.0	
Delay (s)	73.9	46.0		83.4	16.8		37.4	98.3		62.7	53.7	
Level of Service	E	D		F	B		D	F		E	D	
Approach Delay (s)		51.0			28.9			89.6			59.8	
Approach LOS		D			C			F			E	

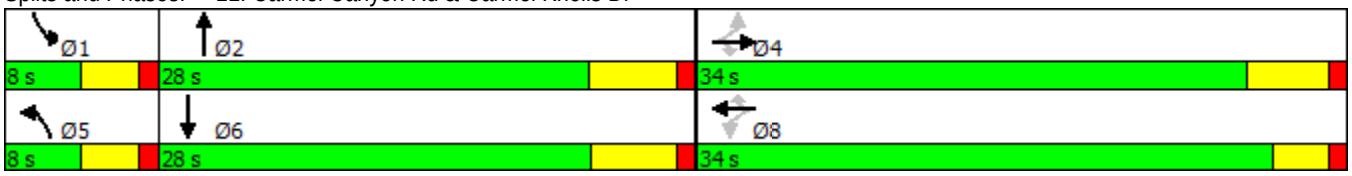
Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	10	70	500	30	90	40	570	30	620
Future Volume (vph)	30	10	70	500	30	90	40	570	30	620
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	8.0	28.0	8.0	28.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	11.4%	40.0%	11.4%	40.0%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	24.8	24.8	24.8	26.1	26.1	26.1	4.2	21.2	4.2	19.9
Actuated g/C Ratio	0.41	0.41	0.41	0.43	0.43	0.43	0.07	0.35	0.07	0.33
v/c Ratio	0.06	0.01	0.10	0.88	0.04	0.13	0.35	0.65	0.26	0.59
Control Delay	12.6	12.3	2.1	35.7	11.6	3.2	39.6	19.0	36.7	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	12.3	2.1	35.7	11.6	3.2	39.6	19.0	36.7	20.5
LOS	B	B	A	D	B	A	D	B	D	C
Approach Delay		5.9			29.8			20.0		21.2
Approach LOS		A			C			C		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 60.2	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	70	500	30	90	40	570	190	30	620	30
Future Volume (vph)	30	10	70	500	30	90	40	570	190	30	620	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3406		1770	3515	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1372	1863	1583	1398	1863	1583	1770	3406		1770	3515	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	32	11	74	532	32	96	43	606	202	32	660	32
RTOR Reduction (vph)	0	0	45	0	0	56	0	46	0	0	5	0
Lane Group Flow (vph)	32	11	29	532	32	40	43	762	0	32	687	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	24.8	24.8	24.8	26.1	26.1	26.1	2.1	21.2		1.4	20.6	
Effective Green, g (s)	24.8	24.8	24.8	26.1	26.1	26.1	2.1	21.2		1.4	20.6	
Actuated g/C Ratio	0.40	0.40	0.40	0.42	0.42	0.42	0.03	0.34		0.02	0.33	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	546	741	630	585	780	663	59	1159		39	1162	
v/s Ratio Prot		0.01			0.02		c0.02	c0.22		0.02	0.20	
v/s Ratio Perm	0.02		0.02	c0.38		0.03						
v/c Ratio	0.06	0.01	0.05	0.91	0.04	0.06	0.73	0.66		0.82	0.59	
Uniform Delay, d1	11.6	11.4	11.5	17.0	10.7	10.8	29.8	17.5		30.3	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0	0.0	17.7	0.0	0.0	31.3	1.5		74.3	0.9	
Delay (s)	11.6	11.4	11.5	34.7	10.7	10.8	61.1	19.0		104.6	18.3	
Level of Service	B	B	B	C	B	B	E	B		F	B	
Approach Delay (s)		11.5			30.0			21.1			22.1	
Approach LOS		B			C			C			C	

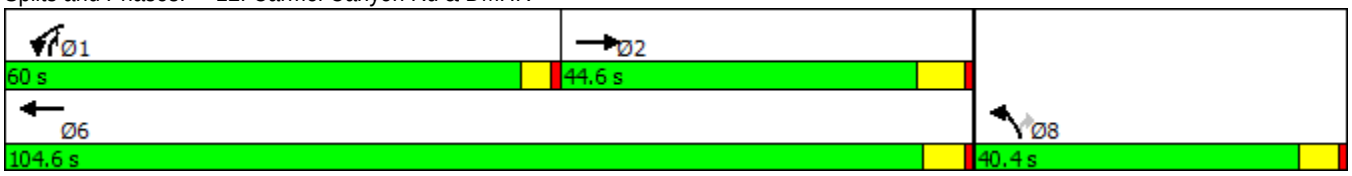
Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	14.9
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	860	480	1220	280	430
Future Volume (vph)	860	480	1220	280	430
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	32.3	12.4	15.6	40.3	12.4
Total Split (s)	44.6	60.0	104.6	40.4	60.0
Total Split (%)	30.8%	41.4%	72.1%	27.9%	41.4%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	28.9	35.3	69.5	14.4	55.2
Actuated g/C Ratio	0.30	0.37	0.73	0.15	0.58
v/c Ratio	0.71	0.81	0.37	0.60	0.52
Control Delay	33.6	38.9	5.0	45.7	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	38.9	5.0	45.7	14.3
LOS	C	D	A	D	B
Approach Delay	33.6		14.6	26.7	
Approach LOS	C		B	C	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 95.4	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 22.6	Intersection LOS: C
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: Carmel Canyon Rd & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	860	120	480	1220	280	430
Future Volume (vph)	860	120	480	1220	280	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4992		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4992		1770	5085	3433	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	956	133	533	1356	311	478
RTOR Reduction (vph)	12	0	0	0	0	3
Lane Group Flow (vph)	1077	0	533	1356	311	475
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	29.2		35.3	69.6	14.4	49.7
Effective Green, g (s)	29.2		35.3	69.6	14.4	49.7
Actuated g/C Ratio	0.31		0.37	0.73	0.15	0.52
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	1536		658	3729	520	829
v/s Ratio Prot	c0.22		c0.30	0.27	c0.09	0.21
v/s Ratio Perm						0.09
v/c Ratio	0.70		0.81	0.36	0.60	0.57
Uniform Delay, d1	29.0		26.8	4.6	37.6	15.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5		7.1	0.1	1.2	0.6
Delay (s)	30.5		33.9	4.7	38.8	16.0
Level of Service	C		C	A	D	B
Approach Delay (s)	30.5			12.9	25.0	
Approach LOS	C			B	C	

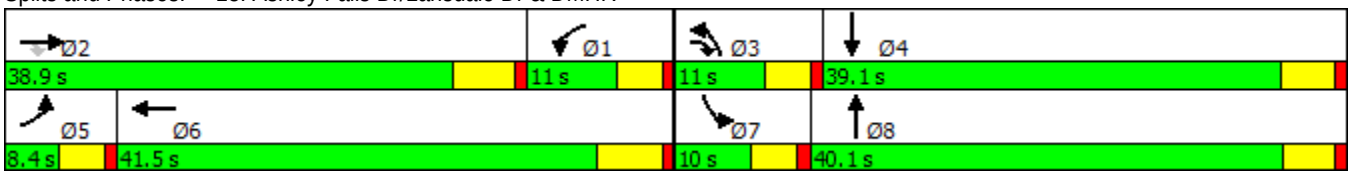
Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	94.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	40	1160	130	130	1510	140	30	120	20
Future Volume (vph)	40	1160	130	130	1510	140	30	120	20
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	8.4	38.9	11.0	11.0	41.5	11.0	40.1	10.0	39.1
Total Split (%)	8.4%	38.9%	11.0%	11.0%	41.5%	11.0%	40.1%	10.0%	39.1%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None
Act Effct Green (s)	4.0	33.4	41.2	6.6	37.6	6.6	11.6	5.6	10.4
Actuated g/C Ratio	0.05	0.44	0.54	0.09	0.49	0.09	0.15	0.07	0.14
v/c Ratio	0.54	0.94	0.18	1.07	0.81	1.15	0.67	1.16	0.47
Control Delay	60.3	35.2	1.9	131.2	21.4	154.9	22.4	165.2	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	35.2	1.9	131.2	21.4	154.9	22.4	165.2	14.7
LOS	E	D	A	F	C	F	C	F	B
Approach Delay		32.7			29.6		76.9		90.0
Approach LOS		C			C		E		F

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 76.5	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 39.1	Intersection LOS: D
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1160	130	130	1510	100	140	30	170	120	20	100
Future Volume (vph)	40	1160	130	130	1510	100	140	30	170	120	20	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5038		1770	1626		1770	1630	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	5038		1770	1626		1770	1630	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	50	1450	162	162	1888	125	175	38	212	150	25	125
RTOR Reduction (vph)	0	0	70	0	6	0	0	127	0	0	100	0
Lane Group Flow (vph)	50	1450	93	163	2007	0	175	124	0	150	50	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	3.2	33.4	40.0	7.6	37.6		6.6	11.6		5.6	10.4	
Effective Green, g (s)	3.2	33.4	40.0	7.6	37.6		6.6	11.6		5.6	10.4	
Actuated g/C Ratio	0.04	0.43	0.52	0.10	0.49		0.09	0.15		0.07	0.13	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	73	1525	817	173	2444		150	243		127	218	
v/s Ratio Prot	0.03	c0.41	0.01	0.09	c0.40		c0.10	c0.08		0.08	0.03	
v/s Ratio Perm			0.05									
v/c Ratio	0.68	0.95	0.11	0.94	0.82		1.17	0.51		1.18	0.23	
Uniform Delay, d1	36.7	21.3	9.6	34.7	17.1		35.5	30.3		36.0	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.1	13.2	0.0	51.1	2.8		125.3	2.2		136.6	0.6	
Delay (s)	55.7	34.4	9.7	85.8	19.9		160.7	32.6		172.6	30.6	
Level of Service	E	C	A	F	B		F	C		F	C	
Approach Delay (s)		32.7			24.8			85.2			101.6	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	19.7
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1380	60	1680	60	110
Future Volume (vph)	1380	60	1680	60	110
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	72.0	18.0	90.0	40.0	40.0
Total Split (%)	55.4%	13.8%	69.2%	30.8%	30.8%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	55.2	8.7	67.7	9.1	9.1
Actuated g/C Ratio	0.63	0.10	0.77	0.10	0.10
v/c Ratio	0.57	0.44	0.55	0.42	0.49
Control Delay	11.3	40.9	4.8	39.8	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	40.9	4.8	39.8	11.7
LOS	B	D	A	D	B
Approach Delay	11.3		6.0	21.6	
Approach LOS	B		A	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 87.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 49.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 14: Seagrove St & DMHR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1380	30	60	1680	60	110
Future Volume (vph)	1380	30	60	1680	60	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5069		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5069		1770	5085	1770	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1769	38	77	2154	77	141
RTOR Reduction (vph)	1	0	0	0	0	126
Lane Group Flow (vph)	1806	0	77	2154	77	15
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	55.2		7.9	68.3	9.1	9.1
Effective Green, g (s)	55.2		7.9	68.3	9.1	9.1
Actuated g/C Ratio	0.63		0.09	0.78	0.10	0.10
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3179		158	3946	183	163
v/s Ratio Prot	0.36		0.04	c0.42	c0.04	
v/s Ratio Perm						0.01
v/c Ratio	0.57		0.49	0.55	0.42	0.09
Uniform Delay, d1	9.5		38.1	3.8	37.0	35.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.9	0.4	0.6	0.1
Delay (s)	9.9		39.0	4.2	37.5	35.8
Level of Service	A		D	A	D	D
Approach Delay (s)	9.9			5.4	36.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

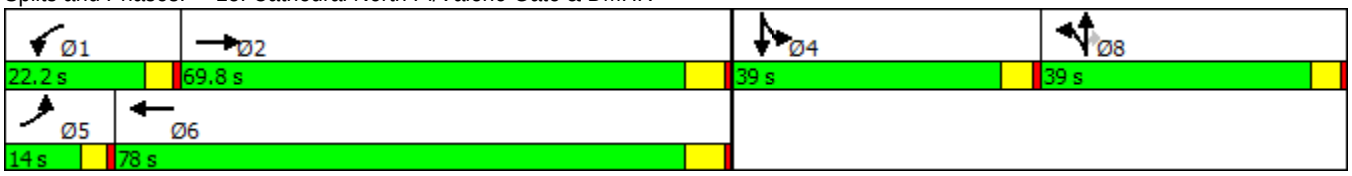
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	1060	220	1680	210	10	120	50	10
Future Volume (vph)	20	1060	220	1680	210	10	120	50	10
Turn Type	Prot	NA	Prot	NA	Split	NA	Perm	Split	NA
Protected Phases	5	2	1	6	8	8		4	4
Permitted Phases							8		
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	14.0	69.8	22.2	78.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	8.2%	41.1%	13.1%	45.9%	22.9%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?									
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.4	64.2	14.9	76.7	15.3	15.3	15.3	9.5	9.5
Actuated g/C Ratio	0.05	0.52	0.12	0.62	0.12	0.12	0.12	0.08	0.08
v/c Ratio	0.29	0.61	0.70	1.03	0.70	0.70	0.47	0.49	0.47
Control Delay	67.5	23.4	63.3	53.3	70.8	70.7	12.4	69.3	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.5	23.4	63.3	53.3	70.8	70.7	12.4	69.3	24.3
LOS	E	C	E	D	E	E	B	E	C
Approach Delay		24.1		54.5		50.1			43.1
Approach LOS		C		D		D			D

Intersection Summary

Cycle Length: 170
Actuated Cycle Length: 124.1
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 43.4 — Intersection LOS: D
Intersection Capacity Utilization 76.2% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1060	140	220	1680	30	210	10	120	50	10	60
Future Volume (vph)	20	1060	140	220	1680	30	210	10	120	50	10	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4996		3433	3530		1681	1693	1583	1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4996		3433	3530		1681	1693	1583	1770	1623	
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	26	1395	184	289	2211	39	276	13	158	66	13	79
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	139	0	73	0
Lane Group Flow (vph)	26	1571	0	289	2250	0	144	145	19	66	19	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	4.2	66.0		14.9	76.7		15.3	15.3	15.3	9.5	9.5	
Effective Green, g (s)	4.2	66.0		14.9	76.7		15.3	15.3	15.3	9.5	9.5	
Actuated g/C Ratio	0.03	0.52		0.12	0.61		0.12	0.12	0.12	0.08	0.08	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	59	2619		406	2150		204	205	192	133	122	
v/s Ratio Prot	0.01	0.31		c0.08	c0.64		c0.09	0.09		c0.04	0.01	
v/s Ratio Perm									0.01			
v/c Ratio	0.44	0.60		0.71	1.05		0.71	0.71	0.10	0.50	0.16	
Uniform Delay, d1	59.7	20.8		53.4	24.6		53.1	53.1	49.2	55.9	54.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	1.0		4.9	32.8		8.7	8.8	0.1	1.1	0.2	
Delay (s)	61.6	21.8		58.3	57.4		61.9	61.9	49.3	57.0	54.7	
Level of Service	E	C		E	E		E	E	D	E	D	
Approach Delay (s)		22.5			57.5			57.4			55.6	
Approach LOS		C			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	125.9	Sum of lost time (s)	20.2
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

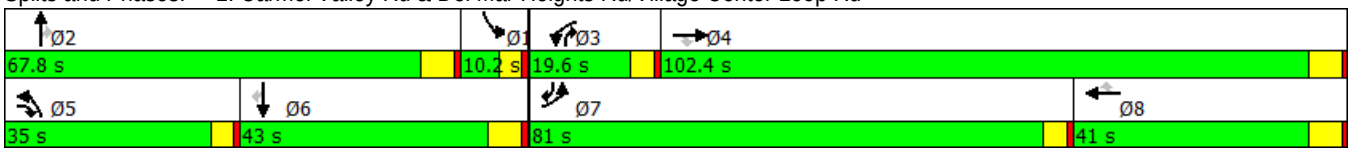
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1090	310	640	150	210	90	200	580	80	40	330	250
Future Volume (vph)	1090	310	640	150	210	90	200	580	80	40	330	250
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.4	49.0	8.4	8.4	41.0	41.0	8.4	44.0	8.4	8.4	42.0	8.4
Total Split (s)	81.0	102.4	35.0	19.6	41.0	41.0	35.0	67.8	19.6	10.2	43.0	81.0
Total Split (%)	40.5%	51.2%	17.5%	9.8%	20.5%	20.5%	17.5%	33.9%	9.8%	5.1%	21.5%	40.5%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	76.6	96.4	133.0	15.2	35.0	35.0	30.6	61.8	78.6	5.8	37.0	119.6
Actuated g/C Ratio	0.38	0.48	0.66	0.08	0.18	0.18	0.15	0.31	0.39	0.03	0.18	0.60
v/c Ratio	0.87	0.19	0.62	0.61	0.36	0.25	0.40	0.56	0.12	0.42	0.53	0.26
Control Delay	65.8	29.9	19.4	100.0	74.5	5.6	79.1	60.1	5.4	108.6	77.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	29.9	19.4	100.0	74.5	5.6	79.1	60.1	5.4	108.6	77.0	5.4
LOS	E	C	B	F	E	A	E	E	A	F	E	A
Approach Delay		45.8			69.2			59.4			50.2	
Approach LOS		D			E			E			D	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 52.1 — Intersection LOS: D
Intersection Capacity Utilization 79.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1090	310	640	150	210	90	200	580	80	40	330	250
Future Volume (vph)	1090	310	640	150	210	90	200	580	80	40	330	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1147	326	674	158	221	95	211	611	84	42	347	263
RTOR Reduction (vph)	0	0	30	0	0	78	0	0	52	0	0	84
Lane Group Flow (vph)	1147	326	644	158	221	17	211	611	32	42	347	179
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	76.6	96.4	127.0	15.2	35.0	35.0	30.6	61.8	77.0	5.8	37.0	113.6
Effective Green, g (s)	76.6	96.4	127.0	15.2	35.0	35.0	30.6	61.8	77.0	5.8	37.0	113.6
Actuated g/C Ratio	0.38	0.48	0.64	0.08	0.18	0.18	0.15	0.31	0.38	0.03	0.18	0.57
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	1314	1705	1005	260	619	277	525	1093	609	99	654	899
v/s Ratio Prot	c0.33	0.09	c0.10	0.05	0.06		0.06	c0.17	0.00	0.01	c0.10	0.08
v/s Ratio Perm			0.31			0.01			0.02			0.04
v/c Ratio	0.87	0.19	0.64	0.61	0.36	0.06	0.40	0.56	0.05	0.42	0.53	0.20
Uniform Delay, d1	57.2	29.6	22.5	89.5	72.6	68.8	76.4	57.7	38.6	95.5	73.7	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	0.2	3.1	10.1	1.6	0.4	2.3	2.1	0.2	12.8	3.1	0.5
Delay (s)	65.4	29.8	25.6	99.7	74.2	69.2	78.7	59.8	38.8	108.2	76.7	21.5
Level of Service	E	C	C	F	E	E	E	E	D	F	E	C
Approach Delay (s)		47.5			81.7			62.2			56.5	
Approach LOS		D			F			E			E	

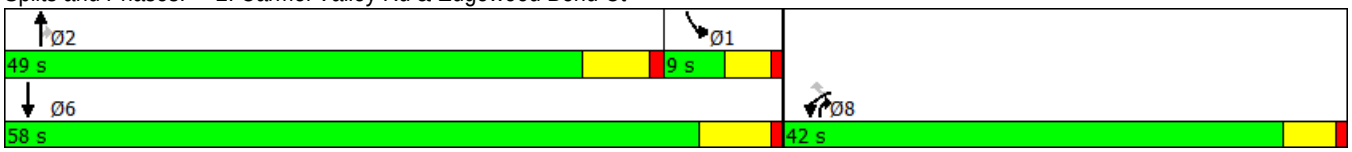
Intersection Summary			
HCM 2000 Control Delay	56.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	60	850	50	40	1080
Future Volume (vph)	140	60	850	50	40	1080
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	42.0	42.0	49.0	42.0	9.0	58.0
Total Split (%)	42.0%	42.0%	49.0%	42.0%	9.0%	58.0%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	7.6	7.6	37.7	53.5	8.4	46.2
Actuated g/C Ratio	0.12	0.12	0.58	0.82	0.13	0.71
v/c Ratio	0.39	0.28	0.46	0.04	0.10	0.48
Control Delay	30.6	11.7	10.4	0.9	26.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	11.7	10.4	0.9	26.7	4.9
LOS	C	B	B	A	C	A
Approach Delay	24.9		9.9			5.7
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 65.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 9.1	Intersection LOS: A
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	60	850	50	40	1080
Future Volume (vph)	140	60	850	50	40	1080
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	67	944	56	44	1200
RTOR Reduction (vph)	0	59	0	18	0	0
Lane Group Flow (vph)	156	8	944	38	44	1200
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	7.6	7.6	37.7	45.3	6.3	48.1
Effective Green, g (s)	7.6	7.6	37.7	45.3	6.3	48.1
Actuated g/C Ratio	0.11	0.11	0.56	0.68	0.09	0.72
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	389	179	1994	1187	323	2544
v/s Ratio Prot	c0.05		0.27	0.00	0.01	c0.34
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.40	0.04	0.47	0.03	0.14	0.47
Uniform Delay, d1	27.5	26.4	8.7	3.6	27.8	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.5	0.0	0.1	0.5
Delay (s)	27.8	26.4	9.1	3.6	27.9	4.4
Level of Service	C	C	A	A	C	A
Approach Delay (s)	27.4		8.8			5.3
Approach LOS	C		A			A

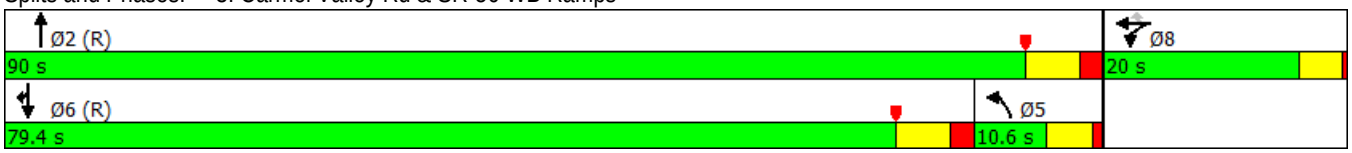
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	15.3
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	270	20	690	750	480
Future Volume (vph)	10	270	20	690	750	480
Turn Type	NA	Perm	Prot	NA	NA	Prot
Protected Phases	8		5	2	6	6
Permitted Phases		8				
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	5.0	11.0	13.0	13.0
Minimum Split (s)	20.0	20.0	9.7	34.0	37.0	37.0
Total Split (s)	20.0	20.0	10.6	90.0	79.4	79.4
Total Split (%)	18.2%	18.2%	9.6%	81.8%	72.2%	72.2%
Yellow Time (s)	3.5	3.5	3.7	4.5	4.5	4.5
All-Red Time (s)	0.5	0.5	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.7	6.5	6.5	6.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	7.3	7.3	5.8	92.2	88.0	88.0
Actuated g/C Ratio	0.07	0.07	0.05	0.84	0.80	0.80
v/c Ratio	0.18	0.63	0.23	0.24	0.60	0.35
Control Delay	51.0	12.5	64.0	0.4	7.7	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	12.5	64.0	0.4	7.7	1.2
LOS	D	B	E	A	A	A
Approach Delay	15.2			2.2	5.4	
Approach LOS	B			A	A	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 94 (85%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 5.7	Intersection LOS: A
Intersection Capacity Utilization 92.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	10	270	20	690	0	0	750	480
Future Volume (vph)	0	0	0	10	10	270	20	690	0	0	750	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor					1.00	0.88	1.00	0.95			0.95	0.95
Frt					1.00	0.85	1.00	1.00			0.99	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1817	2787	1770	3539			1753	1504
Flt Permitted					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1817	2787	1770	3539			1753	1504
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	11	11	284	21	726	0	0	789	505
RTOR Reduction (vph)	0	0	0	0	0	265	0	0	0	0	1	103
Lane Group Flow (vph)	0	0	0	0	22	19	21	726	0	0	839	351
Turn Type				Split	NA	Perm	Prot	NA			NA	Prot
Protected Phases				8	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)					7.3	7.3	2.4	92.2			85.1	85.1
Effective Green, g (s)					7.3	7.3	2.4	92.2			85.1	85.1
Actuated g/C Ratio					0.07	0.07	0.02	0.84			0.77	0.77
Clearance Time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					120	184	38	2966			1356	1163
v/s Ratio Prot					c0.01		c0.01	0.21			c0.48	0.23
v/s Ratio Perm						0.01						
v/c Ratio					0.18	0.10	0.55	0.24			0.62	0.30
Uniform Delay, d1					48.5	48.3	53.3	1.8			5.4	3.7
Progression Factor					1.00	1.00	1.18	0.12			1.00	1.00
Incremental Delay, d2					0.7	0.2	13.4	0.2			2.1	0.7
Delay (s)					49.3	48.5	76.2	0.4			7.5	4.3
Level of Service					D	D	E	A			A	A
Approach Delay (s)		0.0			48.6			2.5			6.4	
Approach LOS		A			D			A			A	

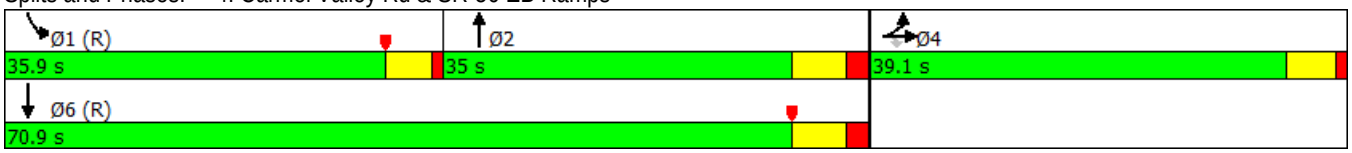
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	630	40	20	30	700	30
Future Volume (vph)	630	40	20	30	700	30
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	12.0	14.0	11.0
Minimum Split (s)	39.1	39.1	39.1	35.0	18.7	34.0
Total Split (s)	39.1	39.1	39.1	35.0	35.9	70.9
Total Split (%)	35.5%	35.5%	35.5%	31.8%	32.6%	64.5%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	6.5	4.7	6.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	C-Max	C-Min
Act Effct Green (s)	29.5	29.5	29.5	12.0	52.2	68.9
Actuated g/C Ratio	0.27	0.27	0.27	0.11	0.47	0.63
v/c Ratio	0.78	0.78	0.04	0.14	0.45	0.03
Control Delay	49.0	48.9	0.1	31.1	16.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	48.9	0.1	31.1	16.3	9.9
LOS	D	D	A	C	B	A
Approach Delay		47.5		31.1		16.0
Approach LOS		D		C		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 105 (95%), Referenced to phase 1:SBL and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 92.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Carmel Valley Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	40	20	0	0	0	0	30	20	700	30	0
Future Volume (vph)	630	40	20	0	0	0	0	30	20	700	30	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1695	1583					3329		3433	1863	
Flt Permitted	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1695	1583					3329		3433	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	663	42	21	0	0	0	0	32	21	737	32	0
RTOR Reduction (vph)	0	0	15	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	351	354	6	0	0	0	0	34	0	737	32	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	29.5	29.5	29.5					12.0		52.2	68.9	
Effective Green, g (s)	29.5	29.5	29.5					12.0		52.2	68.9	
Actuated g/C Ratio	0.27	0.27	0.27					0.11		0.47	0.63	
Clearance Time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	450	454	424					363		1629	1166	
v/s Ratio Prot	0.21	c0.21						c0.01		c0.21	0.02	
v/s Ratio Perm			0.00									
v/c Ratio	0.78	0.78	0.01					0.09		0.45	0.03	
Uniform Delay, d1	37.2	37.2	29.6					44.1		19.3	7.8	
Progression Factor	1.00	1.00	1.00					1.00		0.74	0.98	
Incremental Delay, d2	8.5	8.3	0.0					0.1		0.7	0.0	
Delay (s)	45.8	45.5	29.6					44.2		15.1	7.7	
Level of Service	D	D	C					D		B	A	
Approach Delay (s)		45.2			0.0			44.2			14.8	
Approach LOS		D			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	70	20	40	40	20	70
Future Volume (vph)	70	20	40	40	20	70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	22	44	44	22	78

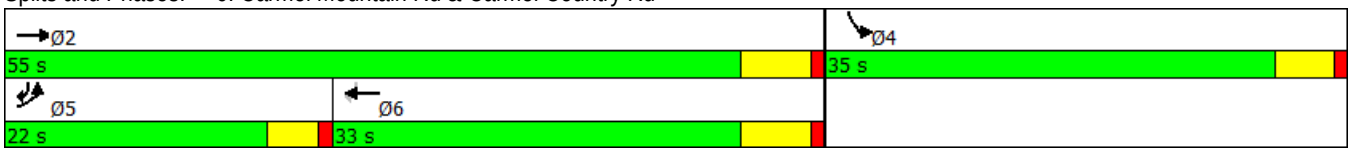
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	100	88	100
Volume Left (vph)	78	44	0
Volume Right (vph)	22	0	78
Hadj (s)	0.06	0.13	-0.43
Departure Headway (s)	4.4	4.4	3.8
Degree Utilization, x	0.12	0.11	0.11
Capacity (veh/h)	792	796	919
Control Delay (s)	7.9	7.9	7.2
Approach Delay (s)	7.9	7.9	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	760	140	70	60	300
Future Volume (vph)	760	140	70	60	300
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					6
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	55.0	33.0	35.0	22.0
Total Split (%)	24.4%	61.1%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min
Act Effct Green (s)	21.2	35.9	7.8	7.3	36.7
Actuated g/C Ratio	0.46	0.78	0.17	0.16	0.79
v/c Ratio	0.52	0.06	0.26	0.23	0.14
Control Delay	12.3	3.1	10.4	20.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	3.1	10.4	20.1	0.7
LOS	B	A	B	C	A
Approach Delay		10.9	10.4	3.9	
Approach LOS		B	B	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 46.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 45.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	760	140	70	80	60	300
Future Volume (vph)	760	140	70	80	60	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.92		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3256		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3256		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	826	152	76	87	65	326
RTOR Reduction (vph)	0	0	73	0	0	130
Lane Group Flow (vph)	826	152	90	0	65	196
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						6
Actuated Green, G (s)	21.3	33.5	7.8		4.2	29.1
Effective Green, g (s)	21.3	33.5	7.8		4.2	29.1
Actuated g/C Ratio	0.44	0.69	0.16		0.09	0.60
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1513	2454	525		153	1933
v/s Ratio Prot	c0.24	0.04	c0.03		c0.04	0.04
v/s Ratio Perm						0.03
v/c Ratio	0.55	0.06	0.17		0.42	0.10
Uniform Delay, d1	9.9	2.4	17.5		20.9	4.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	0.2		0.7	0.0
Delay (s)	10.2	2.4	17.7		21.6	4.1
Level of Service	B	A	B		C	A
Approach Delay (s)		8.9	17.7		7.0	
Approach LOS		A	B		A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	48.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	120	1040	20	120	580
Future Volume (Veh/h)	10	120	1040	20	120	580
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	126	1095	21	126	611
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1968	1106			1116	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1968	1106			1116	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	51			80	
cM capacity (veh/h)	55	256			626	

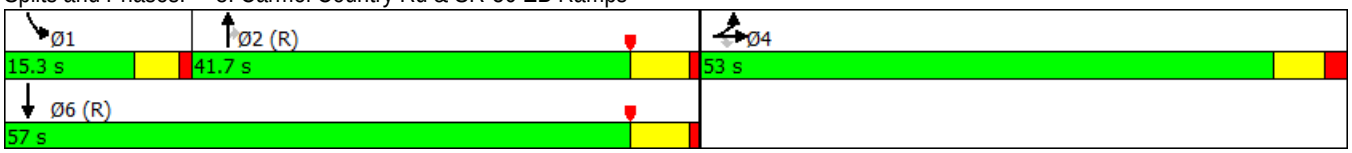
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	11	126	1116	126	611
Volume Left	11	0	0	126	0
Volume Right	0	126	21	0	0
cSH	55	256	1700	626	1700
Volume to Capacity	0.20	0.49	0.66	0.20	0.36
Queue Length 95th (ft)	17	63	0	19	0
Control Delay (s)	86.1	31.9	0.0	12.2	0.0
Lane LOS	F	D		B	
Approach Delay (s)	36.3		0.0	2.1	
Approach LOS	E				

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	350	650	210	590	540	280	580
Future Volume (vph)	350	650	210	590	540	280	580
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	53.0	53.0	53.0	41.7	41.7	15.3	57.0
Total Split (%)	48.2%	48.2%	48.2%	37.9%	37.9%	13.9%	51.8%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	46.6	46.6	46.6	35.9	35.9	10.9	51.5
Actuated g/C Ratio	0.42	0.42	0.42	0.33	0.33	0.10	0.47
v/c Ratio	0.47	0.97	0.28	0.54	0.96	0.87	0.37
Control Delay	25.3	57.2	5.2	32.3	59.0	70.2	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	57.2	5.2	32.3	59.0	70.2	14.1
LOS	C	E	A	C	E	E	B
Approach Delay		39.9		45.1			32.4
Approach LOS		D		D			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 69 (63%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 39.7	Intersection LOS: D
Intersection Capacity Utilization 88.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	650	210	0	0	0	0	590	540	280	580	0
Future Volume (vph)	350	650	210	0	0	0	0	590	540	280	580	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1765	1583					3539	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1765	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	368	684	221	0	0	0	0	621	568	295	611	0
RTOR Reduction (vph)	0	0	111	0	0	0	0	0	74	0	0	0
Lane Group Flow (vph)	331	721	110	0	0	0	0	621	494	295	611	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	46.6	46.6	46.6					35.9	35.9	10.9	51.5	
Effective Green, g (s)	46.6	46.6	46.6					35.9	35.9	10.9	51.5	
Actuated g/C Ratio	0.42	0.42	0.42					0.33	0.33	0.10	0.47	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	712	747	670					1155	516	340	1656	
v/s Ratio Prot	0.20	c0.41						0.18		c0.09	0.17	
v/s Ratio Perm			0.07						c0.31			
v/c Ratio	0.46	0.97	0.16					0.54	0.96	0.87	0.37	
Uniform Delay, d1	22.8	30.9	19.6					30.3	36.3	48.8	18.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.90	0.71	
Incremental Delay, d2	0.5	24.4	0.1					1.8	30.3	19.9	0.6	
Delay (s)	23.2	55.3	19.8					32.1	66.6	64.0	13.9	
Level of Service	C	E	B					C	E	E	B	
Approach Delay (s)		40.8			0.0			48.6			30.2	
Approach LOS		D			A			D			C	

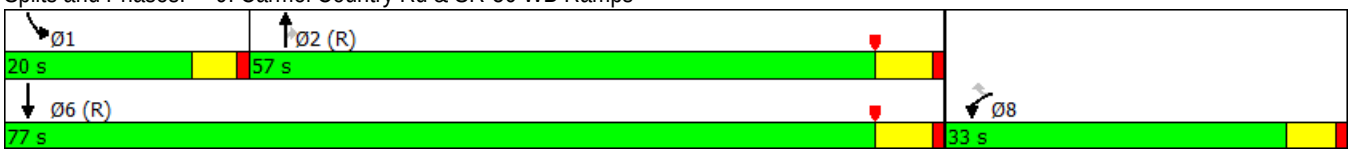
Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	260	350	720	260	240	560
Future Volume (vph)	260	350	720	260	240	560
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	33.0	33.0	57.0	57.0	20.0	77.0
Total Split (%)	30.0%	30.0%	51.8%	51.8%	18.2%	70.0%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	14.8	14.8	66.3	66.3	13.4	84.3
Actuated g/C Ratio	0.13	0.13	0.60	0.60	0.12	0.77
v/c Ratio	0.59	0.72	0.36	0.26	0.61	0.22
Control Delay	49.7	14.1	5.3	1.0	51.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	14.1	5.3	1.0	51.9	4.1
LOS	D	B	A	A	D	A
Approach Delay	29.3		4.1			18.5
Approach LOS	C		A			B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 50.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	260	350	720	260	240	560
Future Volume (vph)	260	350	720	260	240	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	368	758	274	253	589
RTOR Reduction (vph)	0	302	0	109	0	0
Lane Group Flow (vph)	274	66	758	165	253	589
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	14.8	14.8	66.2	66.2	13.4	84.3
Effective Green, g (s)	14.8	14.8	66.2	66.2	13.4	84.3
Actuated g/C Ratio	0.13	0.13	0.60	0.60	0.12	0.77
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	461	212	2129	952	418	2712
v/s Ratio Prot	c0.08		c0.21		c0.07	0.17
v/s Ratio Perm		0.04		0.10		
v/c Ratio	0.59	0.31	0.36	0.17	0.61	0.22
Uniform Delay, d1	44.8	43.0	11.1	9.7	45.8	3.6
Progression Factor	1.00	1.00	0.40	0.29	1.00	1.00
Incremental Delay, d2	2.1	0.8	0.4	0.3	2.5	0.2
Delay (s)	46.8	43.8	4.9	3.2	48.3	3.8
Level of Service	D	D	A	A	D	A
Approach Delay (s)	45.1		4.4			17.2
Approach LOS	D		A			B

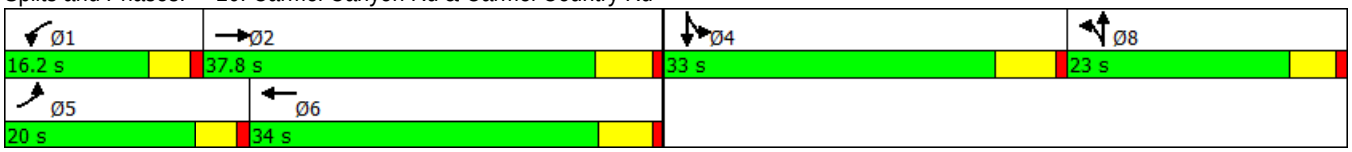
Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	290	410	80	450	40	250	250	60
Future Volume (vph)	290	410	80	450	40	250	250	60
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	20.0	37.8	16.2	34.0	23.0	23.0	33.0	33.0
Total Split (%)	18.2%	34.4%	14.7%	30.9%	20.9%	20.9%	30.0%	30.0%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	15.6	37.2	8.7	28.6	18.1	18.1	14.3	14.3
Actuated g/C Ratio	0.16	0.38	0.09	0.29	0.19	0.19	0.15	0.15
v/c Ratio	1.08	0.36	0.53	0.94	0.13	1.16	0.52	0.49
Control Delay	116.0	23.8	54.9	41.1	35.5	135.4	42.1	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.0	23.8	54.9	41.1	35.5	135.4	42.1	28.7
LOS	F	C	D	D	D	F	D	C
Approach Delay		59.4		42.1		125.9		37.3
Approach LOS		E		D		F		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 97.4	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 59.4	Intersection LOS: E
Intersection Capacity Utilization 92.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	410	50	80	450	580	40	250	130	250	60	80
Future Volume (vph)	290	410	50	80	450	580	40	250	130	250	60	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.98		1.00	0.92		1.00	0.95		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3481		1770	3240		1770	1767		3433	1703	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3481		1770	3240		1770	1767		3433	1703	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	432	53	84	474	611	42	263	137	263	63	84
RTOR Reduction (vph)	0	7	0	0	201	0	0	16	0	0	50	0
Lane Group Flow (vph)	305	478	0	84	884	0	42	384	0	263	97	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	15.6	37.2		7.6	29.5		18.1	18.1		14.3	14.3	
Effective Green, g (s)	15.6	37.2		7.6	29.5		18.1	18.1		14.3	14.3	
Actuated g/C Ratio	0.16	0.38		0.08	0.30		0.18	0.18		0.15	0.15	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	281	1318		136	973		326	325		499	247	
v/s Ratio Prot	c0.17	0.14		0.05	c0.27		0.02	c0.22		c0.08	0.06	
v/s Ratio Perm												
v/c Ratio	1.09	0.36		0.62	0.91		0.13	1.18		0.53	0.39	
Uniform Delay, d1	41.3	22.0		43.9	33.1		33.5	40.0		38.8	38.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	78.4	0.2		5.8	12.0		0.1	108.4		1.3	1.4	
Delay (s)	119.7	22.1		49.6	45.0		33.5	148.5		40.1	39.4	
Level of Service	F	C		D	D		C	F		D	D	
Approach Delay (s)		59.8			45.4			137.5			39.9	
Approach LOS		E			D			F			D	

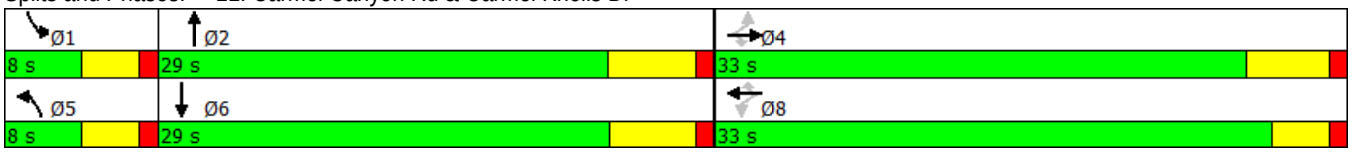
Intersection Summary			
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	20	40	170	10	50	40	650	80	180
Future Volume (vph)	20	20	40	170	10	50	40	650	80	180
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	8.0	29.0	8.0	29.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	11.4%	41.4%	11.4%	41.4%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	9.4	9.4	9.4	10.9	10.9	10.9	4.1	27.2	4.1	30.4
Actuated g/C Ratio	0.19	0.19	0.19	0.22	0.22	0.22	0.08	0.55	0.08	0.62
v/c Ratio	0.08	0.06	0.11	0.59	0.03	0.12	0.28	0.55	0.57	0.10
Control Delay	17.3	16.9	0.9	26.6	15.5	1.8	29.6	10.8	44.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	16.9	0.9	26.6	15.5	1.8	29.6	10.8	44.2	7.1
LOS	B	B	A	C	B	A	C	B	D	A
Approach Delay		9.0			20.7			11.5		17.3
Approach LOS		A			C			B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 49.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 13.7	Intersection LOS: B
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	40	170	10	50	40	650	360	80	180	30
Future Volume (vph)	20	20	40	170	10	50	40	650	360	80	180	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3350		1770	3462	
Flt Permitted	0.75	1.00	1.00	0.74	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1398	1863	1583	1385	1863	1583	1770	3350		1770	3462	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	21	42	179	11	53	42	684	379	84	189	32
RTOR Reduction (vph)	0	0	36	0	0	44	0	80	0	0	13	0
Lane Group Flow (vph)	21	21	6	179	11	9	42	983	0	84	208	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	8.1	8.1	8.1	9.4	9.4	9.4	1.4	27.1		3.0	28.8	
Effective Green, g (s)	8.1	8.1	8.1	9.4	9.4	9.4	1.4	27.1		3.0	28.8	
Actuated g/C Ratio	0.15	0.15	0.15	0.18	0.18	0.18	0.03	0.51		0.06	0.54	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	213	284	241	245	329	280	46	1709		100	1877	
v/s Ratio Prot		0.01			0.01		0.02	c0.29		c0.05	0.06	
v/s Ratio Perm	0.02		0.00	c0.13		0.01						
v/c Ratio	0.10	0.07	0.03	0.73	0.03	0.03	0.91	0.58		0.84	0.11	
Uniform Delay, d1	19.4	19.3	19.1	20.7	18.1	18.1	25.8	9.0		24.8	5.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0	0.0	9.3	0.0	0.0	98.1	0.6		41.6	0.0	
Delay (s)	19.4	19.3	19.2	29.9	18.1	18.1	123.9	9.6		66.4	6.0	
Level of Service	B	B	B	C	B	B	F	A		E	A	
Approach Delay (s)		19.3			26.8			13.9			22.6	
Approach LOS		B			C			B			C	

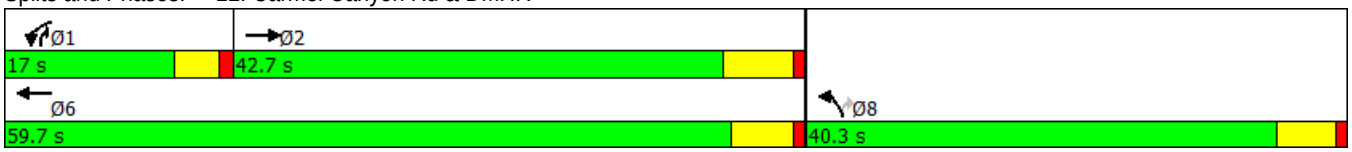
Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	14.9
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1470	140	470	100	580
Future Volume (vph)	1470	140	470	100	580
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	32.3	12.4	15.6	40.3	12.4
Total Split (s)	42.7	17.0	59.7	40.3	17.0
Total Split (%)	42.7%	17.0%	59.7%	40.3%	17.0%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Max	None	Max	None	None
Act Effct Green (s)	36.6	12.7	55.7	6.6	22.2
Actuated g/C Ratio	0.53	0.18	0.80	0.09	0.32
v/c Ratio	0.65	0.46	0.12	0.33	1.21
Control Delay	13.8	32.0	2.3	33.1	134.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	32.0	2.3	33.1	134.9
LOS	B	C	A	C	F
Approach Delay	13.8		9.1	120.0	
Approach LOS	B		A	F	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 69.6	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 37.6	Intersection LOS: D
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 12: Carmel Canyon Rd & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1470	160	140	470	100	580
Future Volume (vph)	1470	160	140	470	100	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5011		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5011		1770	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1547	168	147	495	105	611
RTOR Reduction (vph)	10	0	0	0	0	2
Lane Group Flow (vph)	1705	0	147	495	105	609
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	36.6		12.7	54.4	5.4	18.1
Effective Green, g (s)	36.6		12.7	54.4	5.4	18.1
Actuated g/C Ratio	0.52		0.18	0.77	0.08	0.26
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	2594		317	3912	262	405
v/s Ratio Prot	c0.34		0.08	0.10	0.03	c0.27
v/s Ratio Perm						0.11
v/c Ratio	0.66		0.46	0.13	0.40	1.50
Uniform Delay, d1	12.5		26.0	2.1	31.1	26.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3		0.4	0.1	0.4	239.0
Delay (s)	13.8		26.3	2.1	31.5	265.3
Level of Service	B		C	A	C	F
Approach Delay (s)	13.8			7.7	231.0	
Approach LOS	B			A	F	

Intersection Summary			
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	80	1910	120	80	530	60	10	80	10
Future Volume (vph)	80	1910	120	80	530	60	10	80	10
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	19.0	87.0	11.0	12.0	80.0	11.0	39.0	12.0	40.0
Total Split (%)	12.7%	58.0%	7.3%	8.0%	53.3%	7.3%	26.0%	8.0%	26.7%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	10.2	81.4	92.6	7.6	78.6	9.1	8.4	7.6	8.9
Actuated g/C Ratio	0.08	0.65	0.74	0.06	0.63	0.07	0.07	0.06	0.07
v/c Ratio	0.58	0.87	0.11	0.78	0.20	0.49	0.55	0.78	0.34
Control Delay	70.6	22.8	1.4	99.6	9.9	71.3	26.3	99.6	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	22.8	1.4	99.6	9.9	71.3	26.3	99.6	26.7
LOS	E	C	A	F	A	E	C	F	C
Approach Delay		23.4			20.3		43.1		71.4
Approach LOS		C			C		D		E

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 124.3	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 80.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1910	120	80	530	80	60	10	90	80	10	40
Future Volume (vph)	80	1910	120	80	530	80	60	10	90	80	10	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	4985		1770	1612		1770	1641	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	4985		1770	1612		1770	1641	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	2011	126	84	558	84	63	11	95	84	11	42
RTOR Reduction (vph)	0	0	22	0	10	0	0	83	0	0	39	0
Lane Group Flow (vph)	84	2011	104	84	632	0	63	23	0	84	14	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	10.2	81.4	90.5	7.6	78.6		9.1	9.4		7.6	7.7	
Effective Green, g (s)	10.2	81.4	90.5	7.6	78.6		9.1	9.4		7.6	7.7	
Actuated g/C Ratio	0.08	0.65	0.72	0.06	0.63		0.07	0.08		0.06	0.06	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	144	2299	1143	107	3127		128	120		107	100	
v/s Ratio Prot	0.05	c0.57	0.01	c0.05	0.13		0.04	c0.01		c0.05	0.01	
v/s Ratio Perm			0.06									
v/c Ratio	0.58	0.87	0.09	0.79	0.20		0.49	0.19		0.79	0.14	
Uniform Delay, d1	55.5	17.8	5.2	58.0	10.0		55.9	54.4		58.0	55.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	5.0	0.0	28.5	0.1		1.1	1.0		28.5	0.7	
Delay (s)	59.3	22.8	5.2	86.5	10.1		57.0	55.3		86.5	56.3	
Level of Service	E	C	A	F	B		E	E		F	E	
Approach Delay (s)		23.2			19.0			55.9			74.8	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	125.3	Sum of lost time (s)	19.7
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	2010	50	630	30	30
Future Volume (vph)	2010	50	630	30	30
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	77.6	14.4	92.0	38.0	38.0
Total Split (%)	59.7%	11.1%	70.8%	29.2%	29.2%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Max	None	Max	None	None
Act Effct Green (s)	79.7	7.4	90.4	7.3	7.3
Actuated g/C Ratio	0.76	0.07	0.86	0.07	0.07
v/c Ratio	0.56	0.42	0.15	0.26	0.23
Control Delay	7.8	56.2	1.6	51.3	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	56.2	1.6	51.3	19.6
LOS	A	E	A	D	B
Approach Delay	7.8		5.7	35.5	
Approach LOS	A		A	D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 104.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 14: Seagrove St & DMHR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2010	40	50	630	30	30
Future Volume (vph)	2010	40	50	630	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5070		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5070		1770	5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2116	42	53	663	32	32
RTOR Reduction (vph)	1	0	0	0	0	30
Lane Group Flow (vph)	2157	0	53	663	32	2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	78.4		6.5	90.1	6.0	6.0
Effective Green, g (s)	78.4		6.5	90.1	6.0	6.0
Actuated g/C Ratio	0.73		0.06	0.84	0.06	0.06
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3725		107	4293	99	89
v/s Ratio Prot	c0.43		c0.03	0.13	c0.02	
v/s Ratio Perm						0.00
v/c Ratio	0.58		0.50	0.15	0.32	0.02
Uniform Delay, d1	6.5		48.5	1.5	48.4	47.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		1.3	0.1	0.7	0.0
Delay (s)	7.2		49.8	1.6	49.1	47.6
Level of Service	A		D	A	D	D
Approach Delay (s)	7.2			5.1	48.3	
Approach LOS	A			A	D	

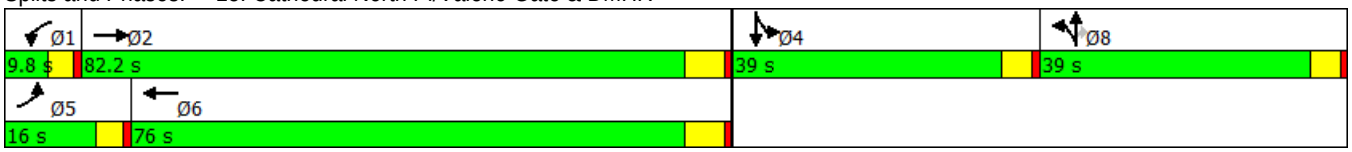
Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	106.7	Sum of lost time (s)	15.8
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	50	1940	70	620	90	10	130	30	10
Future Volume (vph)	50	1940	70	620	90	10	130	30	10
Turn Type	Prot	NA	Prot	NA	Split	NA	Perm	Split	NA
Protected Phases	5	2	1	6	8	8		4	4
Permitted Phases							8		
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	16.0	82.2	9.8	76.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	9.4%	48.4%	5.8%	44.7%	22.9%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?									
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	8.1	76.4	5.4	75.9	8.6	8.6	8.6	7.5	7.5
Actuated g/C Ratio	0.07	0.66	0.05	0.66	0.07	0.07	0.07	0.06	0.06
v/c Ratio	0.46	0.68	0.49	0.31	0.44	0.44	0.57	0.29	0.26
Control Delay	64.7	14.2	66.0	10.6	63.7	63.7	18.0	59.9	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	14.2	66.0	10.6	63.7	63.7	18.0	59.9	32.7
LOS	E	B	E	B	E	E	B	E	C
Approach Delay		15.4		16.1		37.9			46.3
Approach LOS		B		B		D			D

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 115.6	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1940	110	70	620	20	90	10	130	30	10	20
Future Volume (vph)	50	1940	110	70	620	20	90	10	130	30	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5044		3433	3523		1681	1701	1583	1770	1676	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5044		3433	3523		1681	1701	1583	1770	1676	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	2156	122	78	689	22	100	11	144	33	11	22
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	133	0	21	0
Lane Group Flow (vph)	56	2276	0	78	710	0	55	56	11	33	12	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	6.9	77.4		5.4	75.9		8.6	8.6	8.6	6.0	6.0	
Effective Green, g (s)	6.9	77.4		5.4	75.9		8.6	8.6	8.6	6.0	6.0	
Actuated g/C Ratio	0.06	0.66		0.05	0.65		0.07	0.07	0.07	0.05	0.05	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	103	3319		157	2273		122	124	115	90	85	
v/s Ratio Prot	c0.03	c0.45		0.02	0.20		0.03	c0.03		c0.02	0.01	
v/s Ratio Perm									0.01			
v/c Ratio	0.54	0.69		0.50	0.31		0.45	0.45	0.09	0.37	0.14	
Uniform Delay, d1	53.8	12.5		54.8	9.3		52.2	52.2	50.9	54.0	53.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	1.2		0.9	0.4		1.0	1.0	0.1	0.9	0.3	
Delay (s)	56.9	13.7		55.7	9.6		53.2	53.2	51.0	54.9	53.6	
Level of Service	E	B		E	A		D	D	D	D	D	
Approach Delay (s)		14.7			14.2			51.9			54.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	20.2
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 With Little McGonigle Ranch Road LOS Worksheets

APPENDIX G

1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd

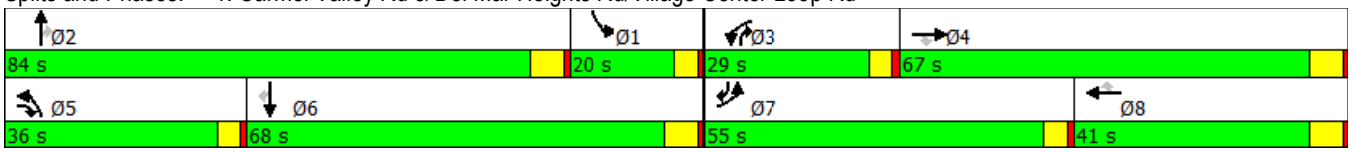
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	530	468	220	550	110	562	408	300	130	982	968
Future Volume (vph)	332	530	468	220	550	110	562	408	300	130	982	968
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.4	49.0	8.4	8.4	41.0	41.0	8.4	44.0	8.4	8.4	42.0	8.4
Total Split (s)	55.0	67.0	36.0	29.0	41.0	41.0	36.0	84.0	29.0	20.0	68.0	55.0
Total Split (%)	27.5%	33.5%	18.0%	14.5%	20.5%	20.5%	18.0%	42.0%	14.5%	10.0%	34.0%	27.5%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	50.6	61.0	98.6	24.6	35.0	35.0	31.6	78.0	104.2	15.6	62.0	118.6
Actuated g/C Ratio	0.25	0.30	0.49	0.12	0.18	0.18	0.16	0.39	0.52	0.08	0.31	0.59
v/c Ratio	0.48	0.61	0.72	0.65	1.11	0.37	1.30	0.37	0.44	0.61	1.12	1.27
Control Delay	65.7	62.4	40.2	91.6	142.2	17.3	207.5	44.5	16.2	99.6	126.6	163.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	62.4	40.2	91.6	142.2	17.3	207.5	44.5	16.2	99.6	126.6	163.3
LOS	E	E	D	F	F	B	F	D	B	F	F	F
Approach Delay		55.4			113.9			110.0			142.0	
Approach LOS		E			F			F			F	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 109.5 — Intersection LOS: F
Intersection Capacity Utilization 103.5% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	530	468	220	550	110	562	408	300	130	982	968
Future Volume (vph)	332	530	468	220	550	110	562	408	300	130	982	968
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	415	662	585	275	688	138	702	510	375	162	1228	1210
RTOR Reduction (vph)	0	0	39	0	0	100	0	0	36	0	0	17
Lane Group Flow (vph)	415	663	546	275	688	38	703	510	339	163	1228	1193
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	50.6	61.0	92.6	24.6	35.0	35.0	31.6	78.0	102.6	15.6	62.0	112.6
Effective Green, g (s)	50.6	61.0	92.6	24.6	35.0	35.0	31.6	78.0	102.6	15.6	62.0	112.6
Actuated g/C Ratio	0.25	0.30	0.46	0.12	0.18	0.18	0.16	0.39	0.51	0.08	0.31	0.56
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	868	1079	732	422	619	277	542	1380	812	267	1097	891
v/s Ratio Prot	0.12	0.19	0.12	0.08	c0.19		c0.20	0.14	0.05	0.05	0.35	c0.34
v/s Ratio Perm			0.23			0.02			0.16			0.41
v/c Ratio	0.48	0.61	0.75	0.65	1.11	0.14	1.30	0.37	0.42	0.61	1.12	1.34
Uniform Delay, d1	63.5	59.4	44.0	83.6	82.5	69.7	84.2	43.5	30.2	89.3	69.0	43.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	2.6	6.8	7.6	70.7	1.0	146.9	0.8	1.6	10.0	66.2	159.9
Delay (s)	65.4	62.1	50.8	91.2	153.2	70.8	231.1	44.2	31.8	99.3	135.2	203.6
Level of Service	E	E	D	F	F	E	F	D	C	F	F	F
Approach Delay (s)		58.9			127.4			124.0			164.8	
Approach LOS		E			F			F			F	

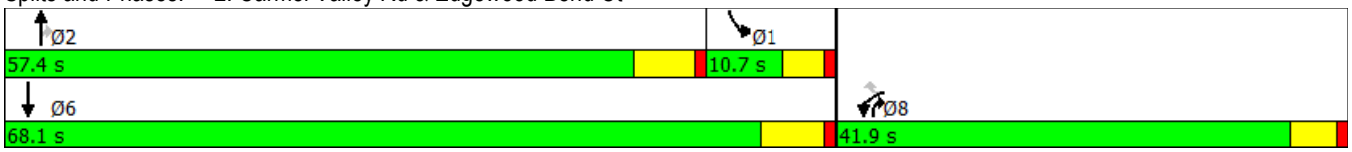
Intersection Summary			
HCM 2000 Control Delay	124.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	350	100	1120	630	120	1480
Future Volume (vph)	350	100	1120	630	120	1480
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	41.9	41.9	57.4	41.9	10.7	68.1
Total Split (%)	38.1%	38.1%	52.2%	38.1%	9.7%	61.9%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max	None	None	Max
Act Effct Green (s)	25.0	25.0	51.7	82.7	6.3	62.1
Actuated g/C Ratio	0.25	0.25	0.53	0.84	0.06	0.63
v/c Ratio	0.55	0.29	0.83	0.65	0.74	0.91
Control Delay	33.8	11.3	25.8	5.2	67.7	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	11.3	25.8	5.2	67.7	24.6
LOS	C	B	C	A	E	C
Approach Delay	28.8		18.4			27.9
Approach LOS	C		B			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 98.4	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.6	Intersection LOS: C
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	350	100	1120	630	120	1480
Future Volume (vph)	350	100	1120	630	120	1480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	479	137	1534	863	164	2027
RTOR Reduction (vph)	0	72	0	5	0	0
Lane Group Flow (vph)	479	65	1534	858	164	2027
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	25.0	25.0	51.7	76.7	6.3	62.1
Effective Green, g (s)	25.0	25.0	51.7	76.7	6.3	62.1
Actuated g/C Ratio	0.25	0.25	0.53	0.78	0.06	0.63
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	873	402	1861	1314	220	2235
v/s Ratio Prot	0.14		0.43	c0.17	0.05	c0.57
v/s Ratio Perm		0.04		0.38		
v/c Ratio	0.55	0.16	0.82	0.65	0.75	0.91
Uniform Delay, d1	31.8	28.5	19.5	4.8	45.2	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	4.3	0.9	11.3	6.8
Delay (s)	32.1	28.6	23.8	5.7	56.5	22.4
Level of Service	C	C	C	A	E	C
Approach Delay (s)	31.3		17.3			24.9
Approach LOS	C		B			C

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	15.3
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	340	52	1480	416	1424
Future Volume (vph)	10	340	52	1480	416	1424
Turn Type	NA	Perm	Prot	NA	NA	Prot
Protected Phases	8		5	2	6	6
Permitted Phases		8				
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	5.0	11.0	13.0	13.0
Minimum Split (s)	20.0	20.0	9.7	34.0	37.0	37.0
Total Split (s)	23.0	23.0	11.3	117.0	105.7	105.7
Total Split (%)	16.4%	16.4%	8.1%	83.6%	75.5%	75.5%
Yellow Time (s)	3.5	3.5	3.7	4.5	4.5	4.5
All-Red Time (s)	0.5	0.5	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.7	6.5	6.5	6.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	19.0	19.0	6.6	110.5	99.2	99.2
Actuated g/C Ratio	0.14	0.14	0.05	0.79	0.71	0.71
v/c Ratio	0.49	1.08	0.86	0.73	1.11	0.94
Control Delay	63.6	113.2	107.4	0.9	82.5	22.3
Queue Delay	0.0	0.0	0.0	0.5	0.1	1.6
Total Delay	63.6	113.2	107.4	1.4	82.7	23.9
LOS	E	F	F	A	F	C
Approach Delay	103.2			5.0	54.5	
Approach LOS	F			A	D	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 40.0	Intersection LOS: D
Intersection Capacity Utilization 119.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	76	10	340	52	1480	0	0	416	1424
Future Volume (vph)	0	0	0	76	10	340	52	1480	0	0	416	1424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor					1.00	0.88	1.00	0.95			0.95	0.95
Frt					1.00	0.85	1.00	1.00			0.92	0.85
Flt Protected					0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1784	2787	1770	3539			1620	1504
Flt Permitted					0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1784	2787	1770	3539			1620	1504
Peak-hour factor, PHF	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Adj. Flow (vph)	0	0	0	104	14	466	71	2027	0	0	570	1951
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	34	218
Lane Group Flow (vph)	0	0	0	0	118	411	71	2027	0	0	1277	992
Turn Type				Split	NA	Perm	Prot	NA			NA	Prot
Protected Phases				8	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)					19.0	19.0	6.6	110.5			99.2	99.2
Effective Green, g (s)					19.0	19.0	6.6	110.5			99.2	99.2
Actuated g/C Ratio					0.14	0.14	0.05	0.79			0.71	0.71
Clearance Time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					242	378	83	2793			1147	1065
v/s Ratio Prot					0.07		0.04	c0.57			c0.79	0.66
v/s Ratio Perm						c0.15						
v/c Ratio					0.49	1.09	0.86	0.73			1.11	0.93
Uniform Delay, d1					56.0	60.5	66.2	7.3			20.4	17.5
Progression Factor					1.00	1.00	1.16	0.03			1.00	1.00
Incremental Delay, d2					1.5	71.5	27.0	0.7			63.6	15.3
Delay (s)					57.5	132.0	103.6	0.9			84.0	32.8
Level of Service					E	F	F	A			F	C
Approach Delay (s)		0.0			116.9			4.4			59.4	
Approach LOS		A			F			A			E	

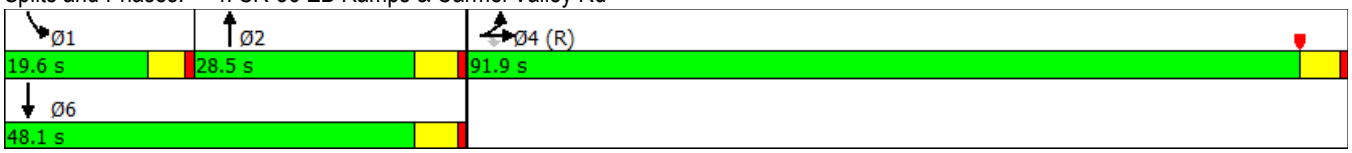
Intersection Summary			
HCM 2000 Control Delay	43.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1372	10	53	180	330	142
Future Volume (vph)	1372	10	53	180	330	142
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.1	39.1	39.1	28.5	9.7	29.5
Total Split (s)	91.9	91.9	91.9	28.5	19.6	48.1
Total Split (%)	65.6%	65.6%	65.6%	20.4%	14.0%	34.4%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.5	4.7	5.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	94.3	94.3	94.3	15.5	14.9	35.1
Actuated g/C Ratio	0.67	0.67	0.67	0.11	0.11	0.25
v/c Ratio	0.95	0.95	0.05	0.72	0.98	0.33
Control Delay	38.7	40.0	2.5	55.5	67.3	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	40.0	2.5	55.5	67.3	34.0
LOS	D	D	A	E	E	C
Approach Delay		38.4		55.5		57.3
Approach LOS		D		E		E

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 129 (92%), Referenced to phase 4:EBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 43.3	Intersection LOS: D
Intersection Capacity Utilization 119.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: SR-56 EB Ramps & Carmel Valley Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1372	10	53	0	0	0	0	180	104	330	142	0
Future Volume (vph)	1372	10	53	0	0	0	0	180	104	330	142	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					5.5		4.7	5.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1686	1583					3345		3433	1863	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1686	1583					3345		3433	1863	
Peak-hour factor, PHF	0.64	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2144	11	58	0	0	0	0	196	113	359	154	0
RTOR Reduction (vph)	0	0	18	0	0	0	0	62	0	0	0	0
Lane Group Flow (vph)	1072	1083	40	0	0	0	0	247	0	359	154	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	94.3	94.3	94.3					15.5		14.9	35.1	
Effective Green, g (s)	94.3	94.3	94.3					15.5		14.9	35.1	
Actuated g/C Ratio	0.67	0.67	0.67					0.11		0.11	0.25	
Clearance Time (s)	5.1	5.1	5.1					5.5		4.7	5.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	1132	1135	1066					370		365	467	
v/s Ratio Prot	0.64	c0.64						c0.07		c0.10	0.08	
v/s Ratio Perm			0.03									
v/c Ratio	0.95	0.95	0.04					0.67		0.98	0.33	
Uniform Delay, d1	20.6	20.9	7.7					59.8		62.4	42.8	
Progression Factor	1.00	1.00	1.00					1.00		0.91	0.80	
Incremental Delay, d2	16.7	17.7	0.1					4.5		10.6	0.0	
Delay (s)	37.3	38.6	7.7					64.3		67.2	34.3	
Level of Service	D	D	A					E		E	C	
Approach Delay (s)		37.2			0.0			64.3			57.3	
Approach LOS		D			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	119.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	40	164	219	20	40	110
Future Volume (vph)	40	164	219	20	40	110
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	53	219	292	27	53	147

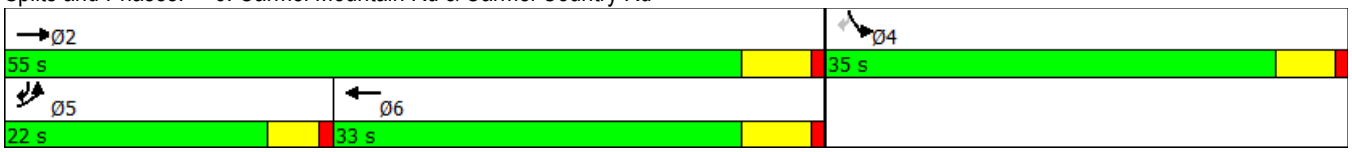
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	272	319	200
Volume Left (vph)	53	292	0
Volume Right (vph)	219	0	147
Hadj (s)	-0.41	0.22	-0.41
Departure Headway (s)	4.8	5.1	4.6
Degree Utilization, x	0.36	0.45	0.26
Capacity (veh/h)	700	681	725
Control Delay (s)	10.4	12.1	9.2
Approach Delay (s)	10.4	12.1	9.2
Approach LOS	B	B	A

Intersection Summary			
Delay	10.8		
Level of Service	B		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	512	241	281	38	438
Future Volume (vph)	512	241	281	38	438
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					4
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	55.0	33.0	35.0	22.0
Total Split (%)	24.4%	61.1%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min
Act Effct Green (s)	18.3	38.7	12.9	7.5	24.7
Actuated g/C Ratio	0.38	0.80	0.27	0.16	0.51
v/c Ratio	0.55	0.12	0.48	0.20	0.39
Control Delay	16.0	2.7	16.9	23.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	2.7	16.9	23.2	3.8
LOS	B	A	B	C	A
Approach Delay		11.8	16.9	5.3	
Approach LOS		B	B	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 48.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 42.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	512	241	281	42	38	438
Future Volume (vph)	512	241	281	42	38	438
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3470		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3470		1770	2787
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	721	339	396	59	54	617
RTOR Reduction (vph)	0	0	14	0	0	194
Lane Group Flow (vph)	721	339	441	0	54	423
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						4
Actuated Green, G (s)	18.3	35.7	13.0		3.9	22.2
Effective Green, g (s)	18.3	35.7	13.0		3.9	22.2
Actuated g/C Ratio	0.36	0.71	0.26		0.08	0.44
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1251	2516	898		137	1232
v/s Ratio Prot	c0.21	0.10	c0.13		c0.03	0.13
v/s Ratio Perm						0.03
v/c Ratio	0.58	0.13	0.49		0.39	0.34
Uniform Delay, d1	12.8	2.3	15.8		22.0	9.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	0.0	0.6		0.7	0.1
Delay (s)	13.2	2.3	16.4		22.7	9.3
Level of Service	B	A	B		C	A
Approach Delay (s)		9.8	16.4		10.4	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	119	924	10	63	626
Future Volume (Veh/h)	10	119	924	10	63	626
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	12	140	1087	12	74	736
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1977	1093			1099	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1977	1093			1099	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	46			88	
cM capacity (veh/h)	60	261			635	

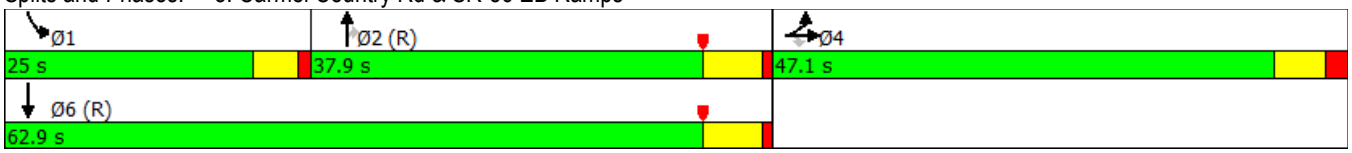
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	12	140	1099	74	736
Volume Left	12	0	0	74	0
Volume Right	0	140	12	0	0
cSH	60	261	1700	635	1700
Volume to Capacity	0.20	0.54	0.65	0.12	0.43
Queue Length 95th (ft)	17	73	0	10	0
Control Delay (s)	79.2	33.8	0.0	11.4	0.0
Lane LOS	F	D		B	
Approach Delay (s)	37.4		0.0	1.0	
Approach LOS	E				

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	436	0	182	741	462	428	407
Future Volume (vph)	436	0	182	741	462	428	407
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	47.1	47.1	47.1	37.9	37.9	25.0	62.9
Total Split (%)	42.8%	42.8%	42.8%	34.5%	34.5%	22.7%	57.2%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	23.1	23.1	23.1	50.0	50.0	20.3	75.0
Actuated g/C Ratio	0.21	0.21	0.21	0.45	0.45	0.18	0.68
v/c Ratio	0.69	0.69	0.41	0.51	0.58	0.75	0.19
Control Delay	49.2	49.2	6.9	24.9	13.1	43.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	49.2	6.9	24.9	13.1	43.9	2.8
LOS	D	D	A	C	B	D	A
Approach Delay		36.7		20.4			23.9
Approach LOS		D		C			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 64 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	436	0	182	0	0	0	0	741	462	428	407	0
Future Volume (vph)	436	0	182	0	0	0	0	741	462	428	407	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1681	1583					3539	1583	3433	3539	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1681	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	484	0	202	0	0	0	0	823	513	476	452	0
RTOR Reduction (vph)	0	0	160	0	0	0	0	0	167	0	0	0
Lane Group Flow (vph)	242	242	42	0	0	0	0	823	346	476	452	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	23.1	23.1	23.1					50.0	50.0	20.3	75.0	
Effective Green, g (s)	23.1	23.1	23.1					50.0	50.0	20.3	75.0	
Actuated g/C Ratio	0.21	0.21	0.21					0.45	0.45	0.18	0.68	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	353	353	332					1608	719	633	2412	
v/s Ratio Prot	c0.14	0.14						c0.23		c0.14	0.13	
v/s Ratio Perm			0.03						0.22			
v/c Ratio	0.69	0.69	0.13					0.51	0.48	0.75	0.19	
Uniform Delay, d1	40.1	40.1	35.3					21.3	20.9	42.5	6.4	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.85	0.36	
Incremental Delay, d2	5.4	5.4	0.2					1.2	2.3	4.9	0.2	
Delay (s)	45.5	45.5	35.4					22.5	23.2	41.1	2.5	
Level of Service	D	D	D					C	C	D	A	
Approach Delay (s)		42.6			0.0			22.8			22.3	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	198	252	839	368	874	624
Future Volume (vph)	198	252	839	368	874	624
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	20.0	20.0	51.0	51.0	39.0	90.0
Total Split (%)	18.2%	18.2%	46.4%	46.4%	35.5%	81.8%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	12.0	12.0	48.5	48.5	33.9	87.1
Actuated g/C Ratio	0.11	0.11	0.44	0.44	0.31	0.79
v/c Ratio	0.57	0.66	0.58	0.46	0.90	0.24
Control Delay	52.4	13.5	23.9	8.1	25.3	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	13.5	23.9	8.1	25.3	5.8
LOS	D	B	C	A	C	A
Approach Delay	30.6		19.1			17.2
Approach LOS	C		B			B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 72 (65%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 66.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	198	252	839	368	874	624
Future Volume (vph)	198	252	839	368	874	624
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	274	912	400	950	678
RTOR Reduction (vph)	0	244	0	181	0	0
Lane Group Flow (vph)	215	30	912	219	950	678
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	12.0	12.0	48.5	48.5	33.9	87.1
Effective Green, g (s)	12.0	12.0	48.5	48.5	33.9	87.1
Actuated g/C Ratio	0.11	0.11	0.44	0.44	0.31	0.79
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	374	172	1560	697	1057	2802
v/s Ratio Prot	c0.06		c0.26		c0.28	0.19
v/s Ratio Perm		0.02		0.14		
v/c Ratio	0.57	0.17	0.58	0.31	0.90	0.24
Uniform Delay, d1	46.6	44.5	23.2	20.0	36.4	2.9
Progression Factor	1.00	1.00	0.93	1.34	0.51	1.82
Incremental Delay, d2	2.1	0.5	1.5	1.1	5.0	0.1
Delay (s)	48.7	45.0	23.0	27.7	23.6	5.5
Level of Service	D	D	C	C	C	A
Approach Delay (s)	46.6		24.4			16.0
Approach LOS	D		C			B

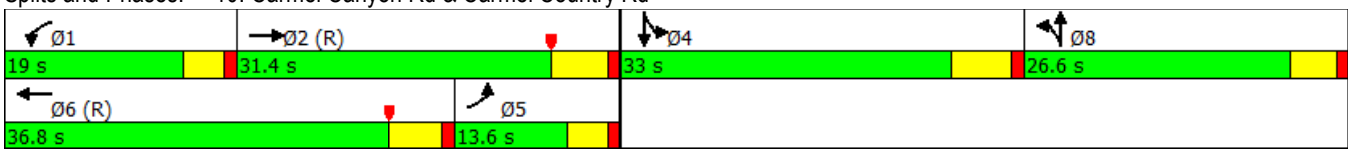
Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	510	200	360	60	120	781	230
Future Volume (vph)	120	510	200	360	60	120	781	230
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	13.6	31.4	19.0	36.8	26.6	26.6	33.0	33.0
Total Split (%)	12.4%	28.5%	17.3%	33.5%	24.2%	24.2%	30.0%	30.0%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lag	Lag	Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Min	None	C-Min	None	None	None	None
Act Effct Green (s)	10.3	24.2	14.5	28.7	21.7	21.7	28.6	28.6
Actuated g/C Ratio	0.09	0.22	0.13	0.26	0.20	0.20	0.26	0.26
v/c Ratio	0.79	0.77	0.93	0.87	0.19	0.99	0.95	0.87
Control Delay	80.8	47.1	81.2	15.6	38.5	77.9	61.6	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.8	47.1	81.2	15.6	38.5	77.9	61.6	56.6
LOS	F	D	F	B	D	E	E	E
Approach Delay		53.1		27.8		72.3		60.0
Approach LOS		D		C		E		E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 72 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 49.8	Intersection LOS: D
Intersection Capacity Utilization 93.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	510	40	200	360	511	60	120	240	781	230	150
Future Volume (vph)	120	510	40	200	360	511	60	120	240	781	230	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.91		1.00	0.90		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3501		1770	3228		1770	1676		3433	1752	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3501		1770	3228		1770	1676		3433	1752	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	554	43	217	391	555	65	130	261	849	250	163
RTOR Reduction (vph)	0	5	0	0	241	0	0	66	0	0	21	0
Lane Group Flow (vph)	130	592	0	217	705	0	65	325	0	849	392	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	10.3	24.2		14.5	28.7		21.7	21.7		28.6	28.6	
Effective Green, g (s)	10.3	24.2		14.5	28.7		21.7	21.7		28.6	28.6	
Actuated g/C Ratio	0.09	0.22		0.13	0.26		0.20	0.20		0.26	0.26	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	165	770		233	842		349	330		892	455	
v/s Ratio Prot	0.07	c0.17		0.12	c0.22		0.04	c0.19		c0.25	0.22	
v/s Ratio Perm												
v/c Ratio	0.79	0.77		0.93	0.84		0.19	0.99		0.95	0.86	
Uniform Delay, d1	48.8	40.3		47.3	38.4		36.8	44.0		40.0	38.8	
Progression Factor	1.00	1.00		0.87	0.29		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.1	7.2		34.9	8.0		0.1	45.1		19.5	15.8	
Delay (s)	68.9	47.5		76.2	19.2		36.9	89.1		59.5	54.7	
Level of Service	E	D		E	B		D	F		E	D	
Approach Delay (s)		51.3			29.8			81.7			57.9	
Approach LOS		D			C			F			E	

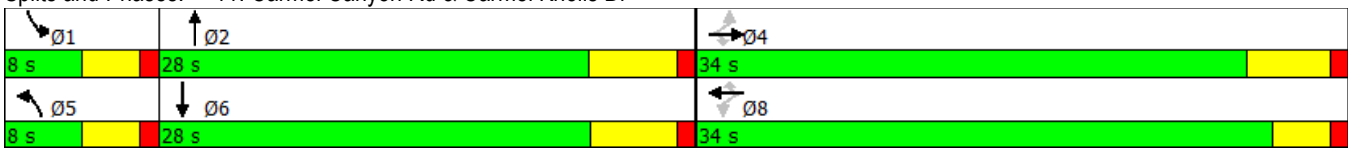
Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	10	70	500	30	90	40	541	30	601
Future Volume (vph)	30	10	70	500	30	90	40	541	30	601
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	8.0	28.0	8.0	28.0
Total Split (%)	48.6%	48.6%	48.6%	48.6%	48.6%	48.6%	11.4%	40.0%	11.4%	40.0%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	24.6	24.6	24.6	26.0	26.0	26.0	4.2	20.7	4.2	19.3
Actuated g/C Ratio	0.41	0.41	0.41	0.44	0.44	0.44	0.07	0.35	0.07	0.32
v/c Ratio	0.06	0.01	0.10	0.87	0.04	0.13	0.34	0.63	0.26	0.59
Control Delay	12.6	12.3	2.1	35.1	11.6	3.2	39.2	18.5	36.5	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	12.3	2.1	35.1	11.6	3.2	39.2	18.5	36.5	20.3
LOS	B	B	A	D	B	A	D	B	D	C
Approach Delay		5.9			29.3			19.6		21.0
Approach LOS		A			C			B		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 59.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 70.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	10	70	500	30	90	40	541	190	30	601	30
Future Volume (vph)	30	10	70	500	30	90	40	541	190	30	601	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3401		1770	3514	
Flt Permitted	0.74	1.00	1.00	0.75	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1372	1863	1583	1398	1863	1583	1770	3401		1770	3514	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	32	11	74	532	32	96	43	576	202	32	639	32
RTOR Reduction (vph)	0	0	44	0	0	56	0	49	0	0	5	0
Lane Group Flow (vph)	32	11	30	532	32	40	43	729	0	32	666	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	24.7	24.7	24.7	26.0	26.0	26.0	2.1	20.7		1.4	20.1	
Effective Green, g (s)	24.7	24.7	24.7	26.0	26.0	26.0	2.1	20.7		1.4	20.1	
Actuated g/C Ratio	0.40	0.40	0.40	0.42	0.42	0.42	0.03	0.34		0.02	0.33	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	549	745	633	589	785	667	60	1141		40	1144	
v/s Ratio Prot		0.01			0.02		c0.02	c0.21		0.02	0.19	
v/s Ratio Perm	0.02		0.02	c0.38		0.03						
v/c Ratio	0.06	0.01	0.05	0.90	0.04	0.06	0.72	0.64		0.80	0.58	
Uniform Delay, d1	11.4	11.2	11.3	16.7	10.5	10.6	29.5	17.3		30.0	17.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.0	0.0	16.9	0.0	0.0	28.5	1.3		66.3	0.9	
Delay (s)	11.4	11.2	11.3	33.5	10.5	10.6	58.0	18.7		96.3	18.2	
Level of Service	B	B	B	C	B	B	E	B		F	B	
Approach Delay (s)		11.3			29.1			20.7			21.7	
Approach LOS		B			C			C			C	

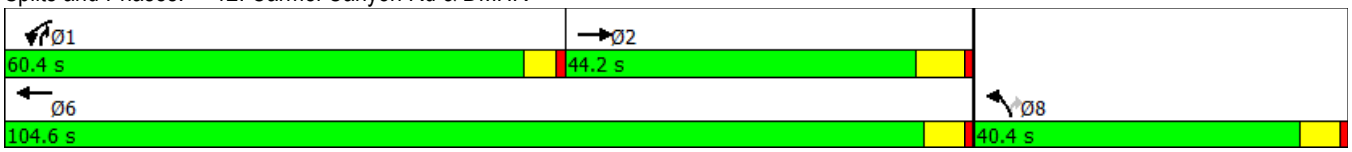
Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	14.9
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	829	461	1199	280	401
Future Volume (vph)	829	461	1199	280	401
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	32.3	12.4	15.6	40.3	12.4
Total Split (s)	44.2	60.4	104.6	40.4	60.4
Total Split (%)	30.5%	41.7%	72.1%	27.9%	41.7%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	25.7	30.2	61.3	13.3	49.0
Actuated g/C Ratio	0.30	0.35	0.71	0.15	0.57
v/c Ratio	0.66	0.78	0.35	0.56	0.47
Control Delay	29.7	35.4	5.0	40.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	35.4	5.0	40.5	12.5
LOS	C	D	A	D	B
Approach Delay	29.7		13.4	24.1	
Approach LOS	C		B	C	

Intersection Summary	
Cycle Length: 145	
Actuated Cycle Length: 86	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 65.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 12: Carmel Canyon Rd & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	829	120	461	1199	280	401
Future Volume (vph)	829	120	461	1199	280	401
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4989		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	4989		1770	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	873	126	485	1262	295	422
RTOR Reduction (vph)	13	0	0	0	0	5
Lane Group Flow (vph)	986	0	485	1262	295	417
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	26.0		30.2	61.3	13.3	43.5
Effective Green, g (s)	26.0		30.2	61.3	13.3	43.5
Actuated g/C Ratio	0.30		0.35	0.72	0.16	0.51
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	1517		625	3645	534	805
v/s Ratio Prot	c0.20		c0.27	0.25	c0.09	0.18
v/s Ratio Perm						0.08
v/c Ratio	0.65		0.78	0.35	0.55	0.52
Uniform Delay, d1	25.8		24.6	4.6	33.4	14.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		5.5	0.1	0.7	0.2
Delay (s)	26.9		30.1	4.6	34.1	14.2
Level of Service	C		C	A	C	B
Approach Delay (s)	26.9			11.7	22.4	
Approach LOS	C			B	C	

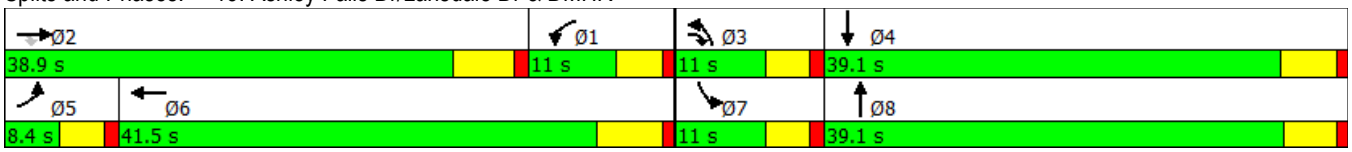
Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	40	1100	130	130	1470	140	30	120	20
Future Volume (vph)	40	1100	130	130	1470	140	30	120	20
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	8.4	38.9	11.0	11.0	41.5	11.0	39.1	11.0	39.1
Total Split (%)	8.4%	38.9%	11.0%	11.0%	41.5%	11.0%	39.1%	11.0%	39.1%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	None	None	None	None
Act Effct Green (s)	4.0	33.4	41.2	6.6	37.6	6.6	11.4	6.6	11.2
Actuated g/C Ratio	0.05	0.43	0.53	0.09	0.49	0.09	0.15	0.09	0.14
v/c Ratio	0.55	0.90	0.18	1.08	0.80	1.16	0.68	0.99	0.45
Control Delay	61.4	31.4	1.8	135.2	21.5	159.6	22.9	112.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	31.4	1.8	135.2	21.5	159.6	22.9	112.8	14.3
LOS	E	C	A	F	C	F	C	F	B
Approach Delay		29.3			30.2		79.1		63.6
Approach LOS		C			C		E		E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 77.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 36.8	Intersection LOS: D
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1100	130	130	1470	100	140	30	170	120	20	100
Future Volume (vph)	40	1100	130	130	1470	100	140	30	170	120	20	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5037		1770	1626		1770	1630	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	5037		1770	1626		1770	1630	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	50	1375	162	162	1838	125	175	38	212	150	25	125
RTOR Reduction (vph)	0	0	74	0	6	0	0	128	0	0	97	0
Lane Group Flow (vph)	50	1375	89	163	1957	0	175	123	0	150	53	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	3.2	33.4	40.0	7.6	37.6		6.6	11.4		6.6	11.2	
Effective Green, g (s)	3.2	33.4	40.0	7.6	37.6		6.6	11.4		6.6	11.2	
Actuated g/C Ratio	0.04	0.43	0.51	0.10	0.48		0.08	0.15		0.08	0.14	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	72	1509	808	171	2418		149	236		149	233	
v/s Ratio Prot	0.03	c0.39	0.01	c0.09	0.39		c0.10	c0.08		0.08	0.03	
v/s Ratio Perm			0.05									
v/c Ratio	0.69	0.91	0.11	0.95	0.81		1.17	0.52		1.01	0.23	
Uniform Delay, d1	37.1	21.1	9.9	35.2	17.3		35.9	30.9		35.9	29.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.8	8.6	0.0	54.4	2.5		128.3	2.5		75.5	0.5	
Delay (s)	57.9	29.7	9.9	89.6	19.8		164.1	33.4		111.4	30.3	
Level of Service	E	C	A	F	B		F	C		F	C	
Approach Delay (s)		28.6			25.2			87.1			70.8	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	19.7
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1320	60	1640	60	110
Future Volume (vph)	1320	60	1640	60	110
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	71.0	19.0	90.0	40.0	40.0
Total Split (%)	54.6%	14.6%	69.2%	30.8%	30.8%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Min	None	Min	None	None
Act Effct Green (s)	55.5	8.6	68.1	9.0	9.0
Actuated g/C Ratio	0.63	0.10	0.77	0.10	0.10
v/c Ratio	0.54	0.45	0.54	0.43	0.49
Control Delay	10.9	41.1	4.6	39.9	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	41.1	4.6	39.9	11.7
LOS	B	D	A	D	B
Approach Delay	10.9		5.9	21.7	
Approach LOS	B		A	C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 88.1	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 48.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 14: Seagrove St & DMHR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1320	30	60	1640	60	110
Future Volume (vph)	1320	30	60	1640	60	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5069		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5069		1770	5085	1770	1583
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	1692	38	77	2103	77	141
RTOR Reduction (vph)	1	0	0	0	0	127
Lane Group Flow (vph)	1729	0	77	2103	77	14
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	55.5		7.8	68.5	9.0	9.0
Effective Green, g (s)	55.5		7.8	68.5	9.0	9.0
Actuated g/C Ratio	0.63		0.09	0.78	0.10	0.10
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3193		156	3953	180	161
v/s Ratio Prot	0.34		0.04	c0.41	c0.04	
v/s Ratio Perm						0.01
v/c Ratio	0.54		0.49	0.53	0.43	0.09
Uniform Delay, d1	9.2		38.3	3.7	37.1	35.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.9	0.3	0.6	0.1
Delay (s)	9.5		39.2	4.1	37.7	35.9
Level of Service	A		D	A	D	D
Approach Delay (s)	9.5			5.3	36.6	
Approach LOS	A			A	D	

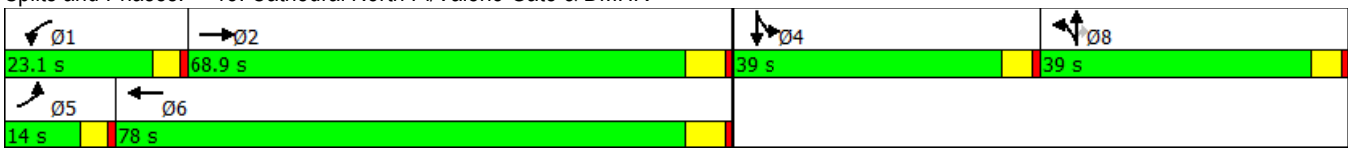
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	15.8
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	20	1012	232	1648	202	10	128	50	10
Future Volume (vph)	20	1012	232	1648	202	10	128	50	10
Turn Type	Prot	NA	Prot	NA	Split	NA	Perm	Split	NA
Protected Phases	5	2	1	6	8	8		4	4
Permitted Phases							8		
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	14.0	68.9	23.1	78.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	8.2%	40.5%	13.6%	45.9%	22.9%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?									
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.4	63.3	15.4	76.4	14.9	14.9	14.9	9.5	9.5
Actuated g/C Ratio	0.05	0.51	0.12	0.62	0.12	0.12	0.12	0.08	0.08
v/c Ratio	0.29	0.58	0.71	1.01	0.68	0.69	0.50	0.49	0.47
Control Delay	67.1	23.0	62.5	47.1	69.7	70.3	12.5	68.9	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	23.0	62.5	47.1	69.7	70.3	12.5	68.9	24.1
LOS	E	C	E	D	E	E	B	E	C
Approach Delay		23.8		49.0		48.4			42.8
Approach LOS		C		D		D			D

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 123.4	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 40.4	Intersection LOS: D
Intersection Capacity Utilization 75.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1012	128	232	1648	30	202	10	128	50	10	60
Future Volume (vph)	20	1012	128	232	1648	30	202	10	128	50	10	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5000		3433	3530		1681	1693	1583	1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5000		3433	3530		1681	1693	1583	1770	1623	
Peak-hour factor, PHF	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Adj. Flow (vph)	26	1332	168	305	2168	39	266	13	168	66	13	79
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	148	0	73	0
Lane Group Flow (vph)	26	1493	0	305	2207	0	138	141	20	66	19	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	4.2	65.1		15.4	76.3		14.9	14.9	14.9	9.5	9.5	
Effective Green, g (s)	4.2	65.1		15.4	76.3		14.9	14.9	14.9	9.5	9.5	
Actuated g/C Ratio	0.03	0.52		0.12	0.61		0.12	0.12	0.12	0.08	0.08	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	59	2601		422	2152		200	201	188	134	123	
v/s Ratio Prot	0.01	0.30		c0.09	c0.63		0.08	c0.08		c0.04	0.01	
v/s Ratio Perm									0.01			
v/c Ratio	0.44	0.57		0.72	1.03		0.69	0.70	0.11	0.49	0.15	
Uniform Delay, d1	59.3	20.5		52.8	24.4		52.9	53.0	49.2	55.5	54.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.9		5.1	26.2		7.7	8.7	0.1	1.0	0.2	
Delay (s)	61.2	21.4		57.9	50.6		60.6	61.7	49.3	56.5	54.3	
Level of Service	E	C		E	D		E	E	D	E	D	
Approach Delay (s)		22.1			51.5			56.7			55.2	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.1	Sum of lost time (s)	20.2
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	50	101	228	161	9
Future Volume (Veh/h)	12	50	101	228	161	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	16	67	135	304	215	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	439				234	135
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	439				234	135
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				71	99
cM capacity (veh/h)	1121				743	914

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	16	67	135	304	215	12
Volume Left	16	0	0	0	215	0
Volume Right	0	0	0	304	0	12
cSH	1121	1700	1700	1700	743	914
Volume to Capacity	0.01	0.04	0.08	0.18	0.29	0.01
Queue Length 95th (ft)	1	0	0	0	30	1
Control Delay (s)	8.3	0.0	0.0	0.0	11.8	9.0
Lane LOS	A				B	A
Approach Delay (s)	1.6		0.0		11.7	
Approach LOS					B	

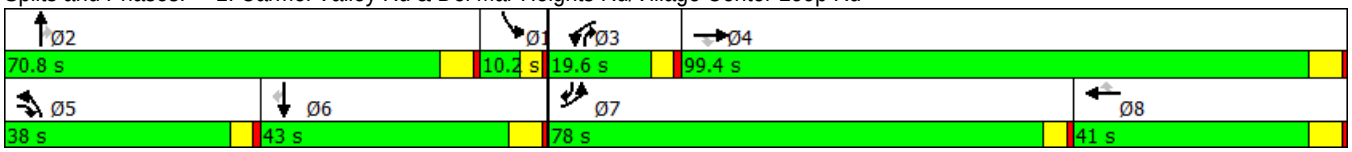
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1048	310	649	150	210	90	211	622	80	40	366	214
Future Volume (vph)	1048	310	649	150	210	90	211	622	80	40	366	214
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	8	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	4.0	20.0	4.0	4.0	10.0	10.0	4.0	10.0	4.0	4.0	20.0	4.0
Minimum Split (s)	8.4	49.0	8.4	8.4	41.0	41.0	8.4	44.0	8.4	8.4	42.0	8.4
Total Split (s)	78.0	99.4	38.0	19.6	41.0	41.0	38.0	70.8	19.6	10.2	43.0	78.0
Total Split (%)	39.0%	49.7%	19.0%	9.8%	20.5%	20.5%	19.0%	35.4%	9.8%	5.1%	21.5%	39.0%
Yellow Time (s)	3.4	5.0	3.4	3.4	5.0	5.0	3.4	5.0	3.4	3.4	5.0	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Act Effct Green (s)	73.6	93.4	133.0	15.2	35.0	35.0	33.6	64.8	81.6	5.8	37.0	116.6
Actuated g/C Ratio	0.37	0.47	0.66	0.08	0.18	0.18	0.17	0.32	0.41	0.03	0.18	0.58
v/c Ratio	0.87	0.20	0.63	0.61	0.36	0.25	0.39	0.57	0.12	0.42	0.59	0.22
Control Delay	67.7	31.7	20.2	100.0	74.5	5.6	76.3	58.5	5.7	108.6	78.7	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	31.7	20.2	100.0	74.5	5.6	76.3	58.5	5.7	108.6	78.7	3.6
LOS	E	C	C	F	E	A	E	E	A	F	E	A
Approach Delay		46.8			69.2			58.0			54.7	
Approach LOS		D			E			E			D	

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 53.1 — Intersection LOS: D
Intersection Capacity Utilization 78.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Carmel Valley Rd & Del Mar Heights Rd/Village Center Loop Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1048	310	649	150	210	90	211	622	80	40	366	214
Future Volume (vph)	1048	310	649	150	210	90	211	622	80	40	366	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1103	326	683	158	221	95	222	655	84	42	385	225
RTOR Reduction (vph)	0	0	27	0	0	78	0	0	49	0	0	90
Lane Group Flow (vph)	1103	326	656	158	221	17	222	655	35	42	385	135
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	73.6	93.4	127.0	15.2	35.0	35.0	33.6	64.8	80.0	5.8	37.0	110.6
Effective Green, g (s)	73.6	93.4	127.0	15.2	35.0	35.0	33.6	64.8	80.0	5.8	37.0	110.6
Actuated g/C Ratio	0.37	0.47	0.64	0.08	0.18	0.18	0.17	0.32	0.40	0.03	0.18	0.55
Clearance Time (s)	4.4	6.0	4.4	4.4	6.0	6.0	4.4	6.0	4.4	4.4	6.0	4.4
Vehicle Extension (s)	2.0	1.6	2.0	2.0	5.4	5.4	2.0	5.4	2.0	2.0	1.2	2.0
Lane Grp Cap (vph)	1263	1652	1005	260	619	277	576	1146	633	99	654	875
v/s Ratio Prot	c0.32	0.09	c0.11	0.05	0.06		0.06	0.19	0.00	0.01	c0.11	0.06
v/s Ratio Perm			0.30			0.01			0.02			0.03
v/c Ratio	0.87	0.20	0.65	0.61	0.36	0.06	0.39	0.57	0.06	0.42	0.59	0.15
Uniform Delay, d1	58.9	31.3	22.8	89.5	72.6	68.8	74.0	56.1	36.8	95.5	74.5	21.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.5	0.3	3.3	10.1	1.6	0.4	1.9	2.1	0.2	12.8	3.9	0.4
Delay (s)	67.4	31.6	26.1	99.7	74.2	69.2	76.0	58.2	37.0	108.2	78.4	22.2
Level of Service	E	C	C	F	E	E	E	E	D	F	E	C
Approach Delay (s)		48.5			81.7			60.4			60.9	
Approach LOS		D			F			E			E	

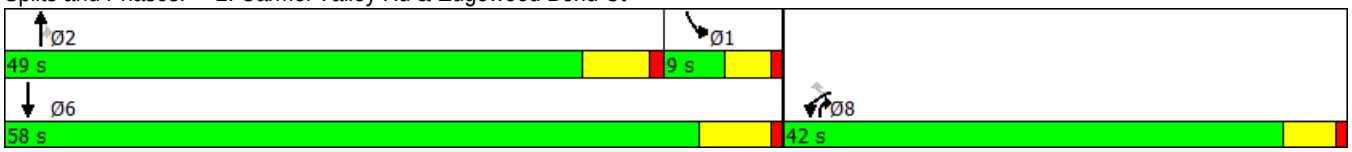
Intersection Summary			
HCM 2000 Control Delay	56.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	60	903	50	40	1125
Future Volume (vph)	140	60	903	50	40	1125
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	10.0	4.0	4.0	10.0
Minimum Split (s)	41.9	41.9	35.0	41.9	8.4	22.3
Total Split (s)	42.0	42.0	49.0	42.0	9.0	58.0
Total Split (%)	42.0%	42.0%	49.0%	42.0%	9.0%	58.0%
Yellow Time (s)	3.9	3.9	5.0	3.9	3.4	5.3
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min	None	None	Min
Act Effct Green (s)	7.6	7.6	39.8	55.6	8.0	48.0
Actuated g/C Ratio	0.11	0.11	0.59	0.83	0.12	0.72
v/c Ratio	0.40	0.28	0.48	0.04	0.11	0.49
Control Delay	31.5	11.8	10.1	0.7	28.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	11.8	10.1	0.7	28.4	5.0
LOS	C	B	B	A	C	A
Approach Delay	25.6		9.6			5.8
Approach LOS	C		A			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 66.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Carmel Valley Rd & Edgewood Bend Ct



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	60	903	50	40	1125
Future Volume (vph)	140	60	903	50	40	1125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	67	1003	56	44	1250
RTOR Reduction (vph)	0	60	0	17	0	0
Lane Group Flow (vph)	156	7	1003	39	44	1250
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	7.6	7.6	39.8	47.4	6.0	49.9
Effective Green, g (s)	7.6	7.6	39.8	47.4	6.0	49.9
Actuated g/C Ratio	0.11	0.11	0.58	0.69	0.09	0.73
Clearance Time (s)	4.9	4.9	6.0	4.9	4.4	6.3
Vehicle Extension (s)	2.0	2.0	5.6	2.0	2.0	6.6
Lane Grp Cap (vph)	379	175	2050	1205	299	2570
v/s Ratio Prot	c0.05		0.28	0.00	0.01	c0.35
v/s Ratio Perm		0.00		0.02		
v/c Ratio	0.41	0.04	0.49	0.03	0.15	0.49
Uniform Delay, d1	28.5	27.3	8.5	3.4	29.0	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0	0.5	0.0	0.1	0.5
Delay (s)	28.7	27.3	8.9	3.4	29.1	4.5
Level of Service	C	C	A	A	C	A
Approach Delay (s)	28.3		8.7			5.3
Approach LOS	C		A			A

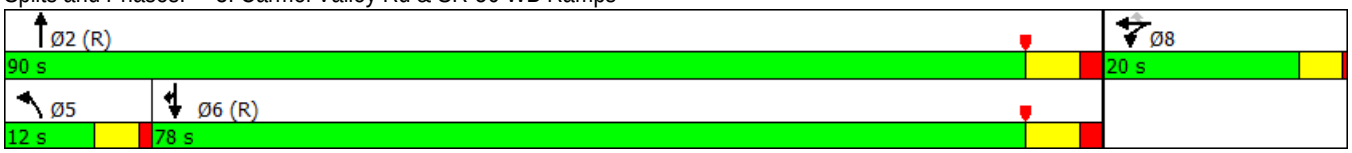
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	15.3
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	270	55	743	824	451
Future Volume (vph)	10	270	55	743	824	451
Turn Type	NA	Perm	Prot	NA	NA	Prot
Protected Phases	8		5	2	6	6
Permitted Phases		8				
Detector Phase	8	8	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	5.0	11.0	13.0	13.0
Minimum Split (s)	20.0	20.0	9.7	34.0	37.0	37.0
Total Split (s)	20.0	20.0	12.0	90.0	78.0	78.0
Total Split (%)	18.2%	18.2%	10.9%	81.8%	70.9%	70.9%
Yellow Time (s)	3.5	3.5	3.7	4.5	4.5	4.5
All-Red Time (s)	0.5	0.5	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.7	6.5	6.5	6.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max
Act Effct Green (s)	10.9	10.9	8.0	88.6	77.9	77.9
Actuated g/C Ratio	0.10	0.10	0.07	0.81	0.71	0.71
v/c Ratio	0.50	0.53	0.45	0.27	0.74	0.36
Control Delay	55.7	9.1	76.0	0.6	16.1	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	55.7	9.1	76.0	0.6	16.2	1.6
LOS	E	A	E	A	B	A
Approach Delay	20.1			5.8	11.6	
Approach LOS	C			A	B	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 102 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: Carmel Valley Rd & SR-56 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	73	10	270	55	743	0	0	824	451
Future Volume (vph)	0	0	0	73	10	270	55	743	0	0	824	451
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Lane Util. Factor					1.00	0.88	1.00	0.95			0.95	0.95
Frt					1.00	0.85	1.00	1.00			0.99	0.85
Flt Protected					0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1785	2787	1770	3539			1756	1504
Flt Permitted					0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1785	2787	1770	3539			1756	1504
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	77	11	284	58	782	0	0	867	475
RTOR Reduction (vph)	0	0	0	0	0	256	0	0	0	0	2	128
Lane Group Flow (vph)	0	0	0	0	88	28	58	782	0	0	914	299
Turn Type				Split	NA	Perm	Prot	NA			NA	Prot
Protected Phases				8	8		5	2			6	6
Permitted Phases						8						
Actuated Green, G (s)					10.9	10.9	6.9	88.6			77.0	77.0
Effective Green, g (s)					10.9	10.9	6.9	88.6			77.0	77.0
Actuated g/C Ratio					0.10	0.10	0.06	0.81			0.70	0.70
Clearance Time (s)					4.0	4.0	4.7	6.5			6.5	6.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					176	276	111	2850			1229	1052
v/s Ratio Prot					c0.05		c0.03	0.22			c0.52	0.20
v/s Ratio Perm						0.01						
v/c Ratio					0.50	0.10	0.52	0.27			0.74	0.28
Uniform Delay, d1					47.0	45.1	50.0	2.7			10.3	6.2
Progression Factor					1.00	1.00	1.35	0.13			1.00	1.00
Incremental Delay, d2					2.2	0.2	3.8	0.2			4.1	0.7
Delay (s)					49.2	45.3	71.3	0.5			14.4	6.9
Level of Service					D	D	E	A			B	A
Approach Delay (s)		0.0			46.2			5.4			12.0	
Approach LOS		A			D			A			B	

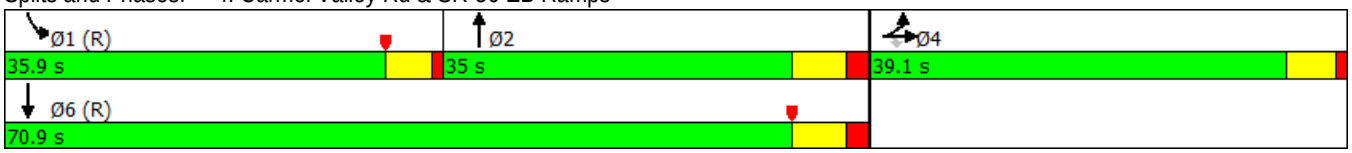
Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.2
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	596	40	48	151	700	167
Future Volume (vph)	596	40	48	151	700	167
Turn Type	Split	NA	Perm	NA	Prot	NA
Protected Phases	4	4		2	1	6
Permitted Phases			4			
Detector Phase	4	4	4	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	12.0	14.0	11.0
Minimum Split (s)	39.1	39.1	39.1	35.0	18.7	34.0
Total Split (s)	39.1	39.1	39.1	35.0	35.9	70.9
Total Split (%)	35.5%	35.5%	35.5%	31.8%	32.6%	64.5%
Yellow Time (s)	4.1	4.1	4.1	4.5	3.7	4.5
All-Red Time (s)	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	6.5	4.7	6.5
Lead/Lag				Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	
Recall Mode	None	None	None	Min	C-Max	C-Min
Act Effct Green (s)	28.5	28.5	28.5	12.6	52.6	69.9
Actuated g/C Ratio	0.26	0.26	0.26	0.11	0.48	0.64
v/c Ratio	0.76	0.77	0.11	0.55	0.45	0.15
Control Delay	48.6	48.8	2.5	32.7	13.6	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	48.8	2.5	32.7	13.6	5.3
LOS	D	D	A	C	B	A
Approach Delay		45.4		32.7		12.0
Approach LOS		D		C		B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 1 (1%), Referenced to phase 1:SBL and 6:SBT, Start of Yellow	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 95.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Carmel Valley Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	596	40	48	0	0	0	0	151	94	700	167	0
Future Volume (vph)	596	40	48	0	0	0	0	151	94	700	167	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Lane Util. Factor	0.95	0.95	1.00					0.95		0.97	1.00	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1681	1695	1583					3336		3433	1863	
Flt Permitted	0.95	0.96	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1681	1695	1583					3336		3433	1863	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	627	42	51	0	0	0	0	159	99	737	176	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	88	0	0	0	0
Lane Group Flow (vph)	332	337	13	0	0	0	0	170	0	737	176	0
Turn Type	Split	NA	Perm					NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	28.5	28.5	28.5					12.6		52.6	69.9	
Effective Green, g (s)	28.5	28.5	28.5					12.6		52.6	69.9	
Actuated g/C Ratio	0.26	0.26	0.26					0.11		0.48	0.64	
Clearance Time (s)	5.1	5.1	5.1					6.5		4.7	6.5	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	435	439	410					382		1641	1183	
v/s Ratio Prot	0.20	c0.20						c0.05		c0.21	0.09	
v/s Ratio Perm			0.01									
v/c Ratio	0.76	0.77	0.03					0.45		0.45	0.15	
Uniform Delay, d1	37.6	37.7	30.4					45.4		19.1	8.1	
Progression Factor	1.00	1.00	1.00					1.00		0.62	0.54	
Incremental Delay, d2	7.8	7.9	0.0					0.8		0.6	0.2	
Delay (s)	45.4	45.5	30.5					46.3		12.5	4.5	
Level of Service	D	D	C					D		B	A	
Approach Delay (s)		44.4			0.0			46.3			11.0	
Approach LOS		D			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	70	169	214	40	20	70
Future Volume (vph)	70	169	214	40	20	70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	188	238	44	22	78

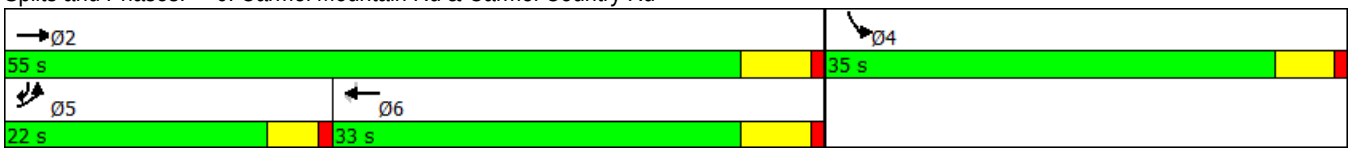
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	266	282	100
Volume Left (vph)	78	238	0
Volume Right (vph)	188	0	78
Hadj (s)	-0.33	0.20	-0.43
Departure Headway (s)	4.5	4.9	4.5
Degree Utilization, x	0.33	0.38	0.12
Capacity (veh/h)	747	707	741
Control Delay (s)	9.7	10.8	8.1
Approach Delay (s)	9.7	10.8	8.1
Approach LOS	A	B	A

Intersection Summary			
Delay	10.0		
Level of Service	A		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	718	272	183	24	264
Future Volume (vph)	718	272	183	24	264
Turn Type	Prot	NA	NA	Prot	pm+ov
Protected Phases	5	2	6	4	5
Permitted Phases					6
Detector Phase	5	2	6	4	5
Switch Phase					
Minimum Initial (s)	4.0	7.0	7.0	7.0	4.0
Minimum Split (s)	8.4	20.0	33.0	35.0	8.4
Total Split (s)	22.0	55.0	33.0	35.0	22.0
Total Split (%)	24.4%	61.1%	36.7%	38.9%	24.4%
Yellow Time (s)	3.4	4.7	4.7	3.9	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	5.7	4.9	4.4
Lead/Lag	Lead		Lag		Lead
Lead-Lag Optimize?	Yes		Yes		Yes
Recall Mode	Min	Min	None	None	Min
Act Effct Green (s)	19.3	37.7	9.0	7.1	37.9
Actuated g/C Ratio	0.48	0.93	0.22	0.18	0.94
v/c Ratio	0.48	0.09	0.30	0.08	0.11
Control Delay	9.8	1.2	12.9	16.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	1.2	12.9	16.7	0.4
LOS	A	A	B	B	A
Approach Delay		7.4	12.9	1.8	
Approach LOS		A	B	A	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 40.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 7.2	Intersection LOS: A
Intersection Capacity Utilization 45.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: Carmel Mountain Rd & Carmel Country Rd



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	718	272	183	38	24	264
Future Volume (vph)	718	272	183	38	24	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7	5.7		4.9	4.4
Lane Util. Factor	0.97	0.95	0.95		1.00	0.88
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	3539	3449		1770	2787
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	3539	3449		1770	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	780	296	199	41	26	287
RTOR Reduction (vph)	0	0	22	0	0	104
Lane Group Flow (vph)	780	296	218	0	26	183
Turn Type	Prot	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases						6
Actuated Green, G (s)	19.3	32.8	9.1		1.1	28.4
Effective Green, g (s)	19.3	32.8	9.1		1.1	28.4
Actuated g/C Ratio	0.43	0.74	0.20		0.02	0.64
Clearance Time (s)	4.4	5.7	5.7		4.9	4.4
Vehicle Extension (s)	2.0	4.0	4.0		2.0	2.0
Lane Grp Cap (vph)	1488	2608	705		43	2054
v/s Ratio Prot	c0.23	0.08	c0.06		c0.01	0.04
v/s Ratio Perm						0.03
v/c Ratio	0.52	0.11	0.31		0.60	0.09
Uniform Delay, d1	9.2	1.7	15.0		21.5	3.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	0.3		15.3	0.0
Delay (s)	9.4	1.7	15.4		36.8	3.1
Level of Service	A	A	B		D	A
Approach Delay (s)		7.3	15.4		5.9	
Approach LOS		A	B		A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	44.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	84	956	20	89	508
Future Volume (Veh/h)	10	84	956	20	89	508
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	88	1006	21	94	535
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1740	1016			1027	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1740	1016			1027	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	70			86	
cM capacity (veh/h)	82	289			676	

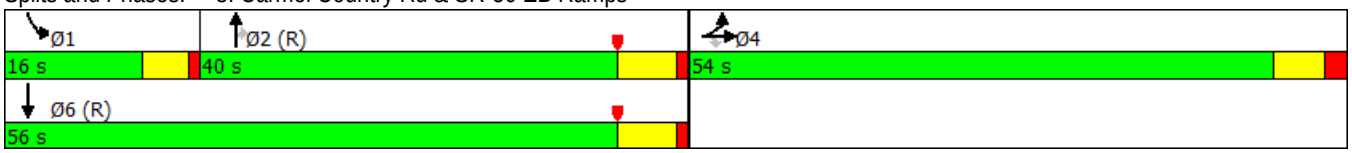
Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	11	88	1027	94	535
Volume Left	11	0	0	94	0
Volume Right	0	88	21	0	0
cSH	82	289	1700	676	1700
Volume to Capacity	0.13	0.30	0.60	0.14	0.31
Queue Length 95th (ft)	11	31	0	12	0
Control Delay (s)	55.3	22.9	0.0	11.2	0.0
Lane LOS	F	C		B	
Approach Delay (s)	26.5		0.0	1.7	
Approach LOS	D				

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	329	650	156	512	498	289	531
Future Volume (vph)	329	650	156	512	498	289	531
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	5.0	13.0
Minimum Split (s)	47.1	47.1	47.1	32.0	32.0	9.7	36.0
Total Split (s)	54.0	54.0	54.0	40.0	40.0	16.0	56.0
Total Split (%)	49.1%	49.1%	49.1%	36.4%	36.4%	14.5%	50.9%
Yellow Time (s)	4.1	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.8	5.8	4.7	5.8
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	47.1	47.1	47.1	34.9	34.9	11.4	51.0
Actuated g/C Ratio	0.43	0.43	0.43	0.32	0.32	0.10	0.46
v/c Ratio	0.43	0.95	0.22	0.48	0.90	0.86	0.34
Control Delay	24.2	53.8	4.9	32.2	49.0	67.3	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	53.8	4.9	32.2	49.0	67.3	14.3
LOS	C	D	A	C	D	E	B
Approach Delay		39.3		40.5			32.9
Approach LOS		D		D			C

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 66 (60%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: Carmel Country Rd & SR-56 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	650	156	0	0	0	0	512	498	289	531	0
Future Volume (vph)	329	650	156	0	0	0	0	512	498	289	531	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Lane Util. Factor	0.95	0.95	1.00					0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1765	1583					3539	1583	3433	3539	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1681	1765	1583					3539	1583	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	346	684	164	0	0	0	0	539	524	304	559	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	79	0	0	0
Lane Group Flow (vph)	311	719	81	0	0	0	0	539	445	304	559	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	47.1	47.1	47.1					34.9	34.9	11.4	51.0	
Effective Green, g (s)	47.1	47.1	47.1					34.9	34.9	11.4	51.0	
Actuated g/C Ratio	0.43	0.43	0.43					0.32	0.32	0.10	0.46	
Clearance Time (s)	6.1	6.1	6.1					5.8	5.8	4.7	5.8	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	719	755	677					1122	502	355	1640	
v/s Ratio Prot	0.18	c0.41						0.15		c0.09	0.16	
v/s Ratio Perm			0.05						c0.28			
v/c Ratio	0.43	0.95	0.12					0.48	0.89	0.86	0.34	
Uniform Delay, d1	22.1	30.4	19.0					30.2	35.7	48.5	18.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.91	0.71	
Incremental Delay, d2	0.4	21.8	0.1					1.5	20.2	17.8	0.6	
Delay (s)	22.5	52.1	19.0					31.7	55.9	62.0	14.0	
Level of Service	C	D	B					C	E	E	B	
Approach Delay (s)		39.9			0.0			43.6			30.9	
Approach LOS		D			A			D			C	

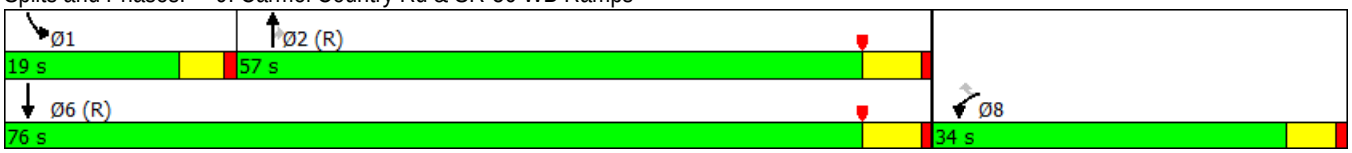
Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	361	684	197	222	553
Future Volume (vph)	224	361	684	197	222	553
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	20.0	20.0	51.0	51.0	9.7	22.0
Total Split (s)	34.0	34.0	57.0	57.0	19.0	76.0
Total Split (%)	30.9%	30.9%	51.8%	51.8%	17.3%	69.1%
Yellow Time (s)	4.1	4.1	4.8	4.8	3.7	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	14.1	14.1	67.5	67.5	12.8	85.0
Actuated g/C Ratio	0.13	0.13	0.61	0.61	0.12	0.77
v/c Ratio	0.54	0.75	0.33	0.20	0.59	0.21
Control Delay	48.7	16.4	5.2	1.0	52.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	16.4	5.2	1.0	52.0	4.0
LOS	D	B	A	A	D	A
Approach Delay	28.8		4.3			17.8
Approach LOS	C		A			B

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 50.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Carmel Country Rd & SR-56 WB Ramps



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	224	361	684	197	222	553
Future Volume (vph)	224	361	684	197	222	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Lane Util. Factor	0.97	1.00	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	3433	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	236	380	720	207	234	582
RTOR Reduction (vph)	0	304	0	80	0	0
Lane Group Flow (vph)	236	76	720	127	234	582
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	14.1	14.1	67.5	67.5	12.8	85.0
Effective Green, g (s)	14.1	14.1	67.5	67.5	12.8	85.0
Actuated g/C Ratio	0.13	0.13	0.61	0.61	0.12	0.77
Clearance Time (s)	5.1	5.1	5.8	5.8	4.7	5.8
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	440	202	2171	971	399	2734
v/s Ratio Prot	c0.07		c0.20		c0.07	0.16
v/s Ratio Perm		0.05		0.08		
v/c Ratio	0.54	0.37	0.33	0.13	0.59	0.21
Uniform Delay, d1	44.9	43.9	10.3	8.9	46.1	3.4
Progression Factor	1.00	1.00	0.42	0.36	1.00	1.00
Incremental Delay, d2	1.3	1.2	0.4	0.3	2.2	0.2
Delay (s)	46.2	45.1	4.7	3.5	48.3	3.6
Level of Service	D	D	A	A	D	A
Approach Delay (s)	45.5		4.4			16.4
Approach LOS	D		A			B

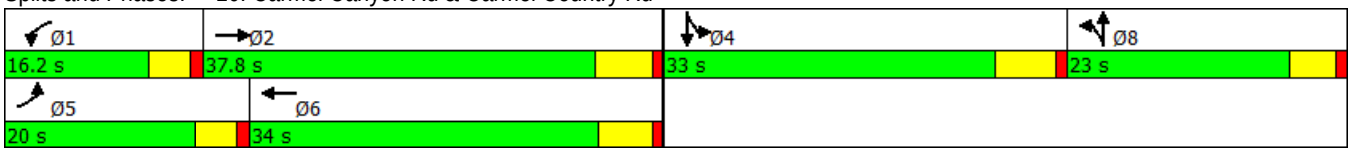
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	290	410	80	450	40	250	228	60
Future Volume (vph)	290	410	80	450	40	250	228	60
Turn Type	Prot	NA	Prot	NA	Split	NA	Split	NA
Protected Phases	5	2	1	6	8	8	4	4
Permitted Phases								
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.0	8.4	32.4	8.9	8.9	33.0	33.0
Total Split (s)	20.0	37.8	16.2	34.0	23.0	23.0	33.0	33.0
Total Split (%)	18.2%	34.4%	14.7%	30.9%	20.9%	20.9%	30.0%	30.0%
Yellow Time (s)	3.4	4.7	3.4	4.4	3.9	3.9	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.7	4.4	5.4	4.9	4.9	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Min	None	Min	None	None	None	None
Act Effct Green (s)	15.6	37.2	8.7	28.6	18.1	18.1	13.5	13.5
Actuated g/C Ratio	0.16	0.39	0.09	0.30	0.19	0.19	0.14	0.14
v/c Ratio	1.07	0.36	0.53	0.92	0.13	1.15	0.50	0.51
Control Delay	113.1	23.4	54.2	38.0	35.1	132.0	41.9	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.1	23.4	54.2	38.0	35.1	132.0	41.9	29.6
LOS	F	C	D	D	D	F	D	C
Approach Delay		58.0		39.2		122.8		37.3
Approach LOS		E		D		F		D

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 96.6	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 57.7	Intersection LOS: E
Intersection Capacity Utilization 91.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 10: Carmel Canyon Rd & Carmel Country Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	410	50	80	450	555	40	250	130	228	60	80
Future Volume (vph)	290	410	50	80	450	555	40	250	130	228	60	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.98		1.00	0.92		1.00	0.95		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3481		1770	3246		1770	1767		3433	1703	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3481		1770	3246		1770	1767		3433	1703	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	432	53	84	474	584	42	263	137	240	63	84
RTOR Reduction (vph)	0	7	0	0	192	0	0	16	0	0	50	0
Lane Group Flow (vph)	305	478	0	84	866	0	42	384	0	240	97	0
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases												
Actuated Green, G (s)	15.6	37.3		7.6	29.6		18.1	18.1		13.5	13.5	
Effective Green, g (s)	15.6	37.3		7.6	29.6		18.1	18.1		13.5	13.5	
Actuated g/C Ratio	0.16	0.38		0.08	0.30		0.19	0.19		0.14	0.14	
Clearance Time (s)	4.4	5.7		4.4	5.4		4.9	4.9		6.0	6.0	
Vehicle Extension (s)	2.0	3.2		2.0	3.0		2.0	2.0		4.0	4.0	
Lane Grp Cap (vph)	283	1331		137	985		328	328		475	235	
v/s Ratio Prot	c0.17	0.14		0.05	c0.27		0.02	c0.22		c0.07	0.06	
v/s Ratio Perm												
v/c Ratio	1.08	0.36		0.61	0.88		0.13	1.17		0.51	0.41	
Uniform Delay, d1	41.0	21.5		43.5	32.3		33.1	39.7		38.9	38.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	75.7	0.2		5.6	9.1		0.1	104.2		1.2	1.6	
Delay (s)	116.7	21.7		49.1	41.3		33.2	143.9		40.1	40.0	
Level of Service	F	C		D	D		C	F		D	D	
Approach Delay (s)		58.4			41.9			133.4			40.0	
Approach LOS		E			D			F			D	

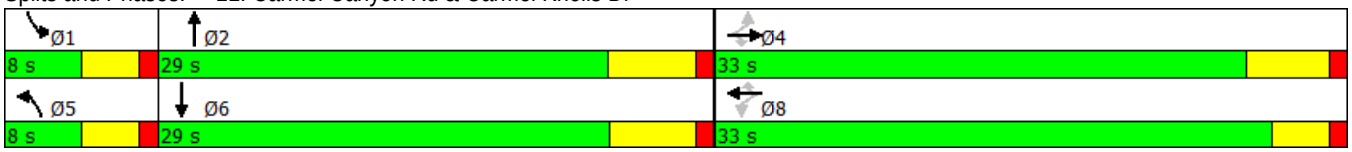
Intersection Summary			
HCM 2000 Control Delay	61.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	20	40	170	10	50	40	625	80	158
Future Volume (vph)	20	20	40	170	10	50	40	625	80	158
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.3	32.3	32.3	33.0	33.0	33.0	8.0	26.6	8.0	26.5
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	8.0	29.0	8.0	29.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	11.4%	41.4%	11.4%	41.4%
Yellow Time (s)	4.3	4.3	4.3	3.0	3.0	3.0	3.0	4.6	3.0	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6	4.0	5.5
Lead/Lag							Lead	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	9.4	9.4	9.4	10.9	10.9	10.9	4.2	26.9	4.2	30.1
Actuated g/C Ratio	0.19	0.19	0.19	0.22	0.22	0.22	0.09	0.55	0.09	0.61
v/c Ratio	0.08	0.06	0.11	0.58	0.03	0.12	0.28	0.54	0.56	0.09
Control Delay	17.3	16.9	0.9	26.4	15.5	1.8	29.4	10.5	43.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	16.9	0.9	26.4	15.5	1.8	29.4	10.5	43.5	7.0
LOS	B	B	A	C	B	A	C	B	D	A
Approach Delay		9.0			20.5			11.2		17.8
Approach LOS		A			C			B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 49	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: Carmel Canyon Rd & Carmel Knolls Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	40	170	10	50	40	625	360	80	158	30
Future Volume (vph)	20	20	40	170	10	50	40	625	360	80	158	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3345		1770	3453	
Flt Permitted	0.75	1.00	1.00	0.74	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1398	1863	1583	1385	1863	1583	1770	3345		1770	3453	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	21	42	179	11	53	42	658	379	84	166	32
RTOR Reduction (vph)	0	0	36	0	0	44	0	86	0	0	15	0
Lane Group Flow (vph)	21	21	6	179	11	9	42	951	0	84	183	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	8.1	8.1	8.1	9.4	9.4	9.4	1.4	26.7		3.0	28.4	
Effective Green, g (s)	8.1	8.1	8.1	9.4	9.4	9.4	1.4	26.7		3.0	28.4	
Actuated g/C Ratio	0.15	0.15	0.15	0.18	0.18	0.18	0.03	0.51		0.06	0.54	
Clearance Time (s)	5.3	5.3	5.3	4.0	4.0	4.0	4.0	5.6		4.0	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0		2.0	3.9	
Lane Grp Cap (vph)	214	286	243	247	332	282	47	1694		100	1860	
v/s Ratio Prot		0.01			0.01		0.02	c0.28		c0.05	0.05	
v/s Ratio Perm	0.02		0.00	c0.13		0.01						
v/c Ratio	0.10	0.07	0.03	0.72	0.03	0.03	0.89	0.56		0.84	0.10	
Uniform Delay, d1	19.2	19.1	18.9	20.4	17.9	17.9	25.6	9.0		24.6	5.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0	0.0	8.6	0.0	0.0	89.7	0.5		41.6	0.0	
Delay (s)	19.2	19.1	19.0	29.0	17.9	17.9	115.3	9.5		66.2	5.9	
Level of Service	B	B	B	C	B	B	F	A		E	A	
Approach Delay (s)		19.1			26.1			13.6			23.9	
Approach LOS		B			C			B			C	

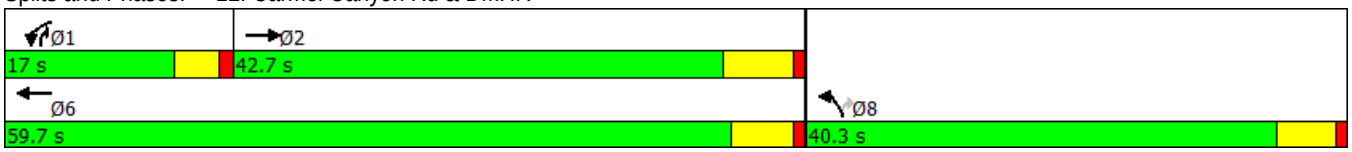
Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	14.9
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1443	118	447	100	555
Future Volume (vph)	1443	118	447	100	555
Turn Type	NA	Prot	NA	Prot	pm+ov
Protected Phases	2	1	6	8	1
Permitted Phases					8
Detector Phase	2	1	6	8	1
Switch Phase					
Minimum Initial (s)	10.0	8.0	10.0	4.0	8.0
Minimum Split (s)	32.3	12.4	15.6	40.3	12.4
Total Split (s)	42.7	17.0	59.7	40.3	17.0
Total Split (%)	42.7%	17.0%	59.7%	40.3%	17.0%
Yellow Time (s)	5.3	3.4	4.6	4.3	3.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.3	4.4	5.6	5.3	4.4
Lead/Lag	Lag	Lead			Lead
Lead-Lag Optimize?					
Recall Mode	Max	None	Max	None	None
Act Effct Green (s)	36.6	12.7	55.7	6.6	22.2
Actuated g/C Ratio	0.53	0.18	0.80	0.09	0.32
v/c Ratio	0.64	0.39	0.12	0.33	1.15
Control Delay	13.7	30.5	2.3	33.1	114.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	30.5	2.3	33.1	114.1
LOS	B	C	A	C	F
Approach Delay	13.7		8.2	101.8	
Approach LOS	B		A	F	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 69.6	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 74.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 12: Carmel Canyon Rd & DMHR



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1443	160	118	447	100	555
Future Volume (vph)	1443	160	118	447	100	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.3		4.4	5.6	5.3	4.4
Lane Util. Factor	0.91		1.00	0.91	0.97	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5009		1770	5085	3433	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5009		1770	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1519	168	124	471	105	584
RTOR Reduction (vph)	10	0	0	0	0	2
Lane Group Flow (vph)	1677	0	124	471	105	582
Turn Type	NA		Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	36.6		12.7	54.4	5.4	18.1
Effective Green, g (s)	36.6		12.7	54.4	5.4	18.1
Actuated g/C Ratio	0.52		0.18	0.77	0.08	0.26
Clearance Time (s)	6.3		4.4	5.6	5.3	4.4
Vehicle Extension (s)	3.5		2.0	3.3	2.0	2.0
Lane Grp Cap (vph)	2593		317	3912	262	405
v/s Ratio Prot	c0.33		0.07	0.09	0.03	c0.26
v/s Ratio Perm						0.11
v/c Ratio	0.65		0.39	0.12	0.40	1.44
Uniform Delay, d1	12.4		25.6	2.1	31.1	26.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3		0.3	0.1	0.4	210.1
Delay (s)	13.6		25.9	2.1	31.5	236.4
Level of Service	B		C	A	C	F
Approach Delay (s)	13.6			7.1	205.2	
Approach LOS	B			A	F	

Intersection Summary			
HCM 2000 Control Delay	56.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	80	1857	120	80	485	60	10	80	10
Future Volume (vph)	80	1857	120	80	485	60	10	80	10
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	3	1	6	3	8	7	4
Permitted Phases			2						
Detector Phase	5	2	3	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.4	31.6	8.4	8.4	31.0	8.4	38.9	8.4	39.1
Total Split (s)	19.0	87.0	11.0	12.0	80.0	11.0	39.0	12.0	40.0
Total Split (%)	12.7%	58.0%	7.3%	8.0%	53.3%	7.3%	26.0%	8.0%	26.7%
Yellow Time (s)	3.4	4.6	3.4	3.4	4.8	3.4	3.9	3.4	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	5.6	4.4	4.4	5.8	4.4	4.9	4.4	5.1
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	None	None	None	None
Act Effct Green (s)	10.5	81.4	92.6	7.6	78.3	9.1	8.8	7.6	9.3
Actuated g/C Ratio	0.08	0.65	0.74	0.06	0.63	0.07	0.07	0.06	0.07
v/c Ratio	0.60	0.89	0.11	0.83	0.20	0.52	0.57	0.83	0.34
Control Delay	71.7	24.8	1.5	108.0	10.1	73.2	28.6	108.0	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	24.8	1.5	108.0	10.1	73.2	28.6	108.0	25.9
LOS	E	C	A	F	B	E	C	F	C
Approach Delay		25.3			22.2		45.3		76.6
Approach LOS		C			C		D		E

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 124.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 27.9	Intersection LOS: C
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: Ashley Falls Dr/Lansdale Dr & DMHR

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	1857	120	80	485	80	60	10	90	80	10	40
Future Volume (vph)	80	1857	120	80	485	80	60	10	90	80	10	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.86		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	4977		1770	1611		1770	1639	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	4977		1770	1611		1770	1639	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	2063	133	89	539	89	67	11	100	89	11	44
RTOR Reduction (vph)	0	0	22	0	11	0	0	81	0	0	41	0
Lane Group Flow (vph)	89	2063	111	89	617	0	67	30	0	89	14	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	10.5	81.4	90.5	7.7	78.4		9.1	9.8		7.6	8.1	
Effective Green, g (s)	10.5	81.4	90.5	7.7	78.4		9.1	9.8		7.6	8.1	
Actuated g/C Ratio	0.08	0.65	0.72	0.06	0.62		0.07	0.08		0.06	0.06	
Clearance Time (s)	4.4	5.6	4.4	4.4	5.8		4.4	4.9		4.4	5.1	
Vehicle Extension (s)	2.0	3.1	2.0	2.0	6.2		2.0	3.7		2.0	3.2	
Lane Grp Cap (vph)	147	2289	1138	108	3101		128	125		106	105	
v/s Ratio Prot	0.05	c0.58	0.01	c0.05	0.12		0.04	c0.02		c0.05	0.01	
v/s Ratio Perm			0.06									
v/c Ratio	0.61	0.90	0.10	0.82	0.20		0.52	0.24		0.84	0.13	
Uniform Delay, d1	55.7	18.8	5.3	58.4	10.2		56.3	54.5		58.5	55.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.8	6.3	0.0	36.2	0.1		1.8	1.2		39.8	0.6	
Delay (s)	60.4	25.1	5.3	94.6	10.3		58.0	55.7		98.3	56.1	
Level of Service	E	C	A	F	B		E	E		F	E	
Approach Delay (s)		25.3			20.8			56.6			82.2	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	125.8	Sum of lost time (s)	19.7
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	1957	50	585	30	30
Future Volume (vph)	1957	50	585	30	30
Turn Type	NA	Prot	NA	Prot	Perm
Protected Phases	2	1	6	8	
Permitted Phases					8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	4.0	10.0	7.0	7.0
Minimum Split (s)	27.0	8.4	21.7	38.0	38.0
Total Split (s)	77.6	14.4	92.0	38.0	38.0
Total Split (%)	59.7%	11.1%	70.8%	29.2%	29.2%
Yellow Time (s)	5.5	3.4	4.7	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	4.4	5.7	4.9	4.9
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	Max	None	Max	None	None
Act Effct Green (s)	79.7	7.4	90.4	7.3	7.3
Actuated g/C Ratio	0.76	0.07	0.86	0.07	0.07
v/c Ratio	0.55	0.42	0.14	0.26	0.23
Control Delay	7.6	56.2	1.6	51.3	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	56.2	1.6	51.3	19.6
LOS	A	E	A	D	B
Approach Delay	7.6		6.0	35.5	
Approach LOS	A		A	D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 104.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 14: Seagrove St & DMHR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1957	40	50	585	30	30
Future Volume (vph)	1957	40	50	585	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		4.4	5.7	4.9	4.9
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5070		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5070		1770	5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2060	42	53	616	32	32
RTOR Reduction (vph)	1	0	0	0	0	30
Lane Group Flow (vph)	2101	0	53	616	32	2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases						8
Actuated Green, G (s)	78.4		6.5	90.1	6.0	6.0
Effective Green, g (s)	78.4		6.5	90.1	6.0	6.0
Actuated g/C Ratio	0.73		0.06	0.84	0.06	0.06
Clearance Time (s)	6.5		4.4	5.7	4.9	4.9
Vehicle Extension (s)	5.4		2.0	6.1	2.0	2.0
Lane Grp Cap (vph)	3725		107	4293	99	89
v/s Ratio Prot	c0.41		c0.03	0.12	c0.02	
v/s Ratio Perm						0.00
v/c Ratio	0.56		0.50	0.14	0.32	0.02
Uniform Delay, d1	6.4		48.5	1.5	48.4	47.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		1.3	0.1	0.7	0.0
Delay (s)	7.0		49.8	1.5	49.1	47.6
Level of Service	A		D	A	D	D
Approach Delay (s)	7.0			5.4	48.3	
Approach LOS	A			A	D	

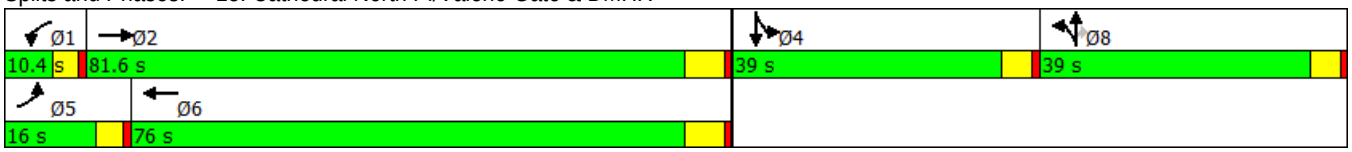
Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	106.7	Sum of lost time (s)	15.8
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	50	1898	81	584	81	10	139	30	10
Future Volume (vph)	50	1898	81	584	81	10	139	30	10
Turn Type	Prot	NA	Prot	NA	Split	NA	Perm	Split	NA
Protected Phases	5	2	1	6	8	8		4	4
Permitted Phases							8		
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	4.0	10.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	33.0	8.4	31.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	16.0	81.6	10.4	76.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	9.4%	48.0%	6.1%	44.7%	22.9%	22.9%	22.9%	22.9%	22.9%
Yellow Time (s)	3.4	5.0	3.4	5.0	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	6.0	4.4	6.0	4.9	4.9	4.9	4.9	4.9
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?									
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	8.1	75.8	6.0	75.8	8.4	8.4	8.4	7.5	7.5
Actuated g/C Ratio	0.07	0.66	0.05	0.66	0.07	0.07	0.07	0.07	0.07
v/c Ratio	0.46	0.67	0.51	0.29	0.41	0.41	0.60	0.29	0.26
Control Delay	64.4	14.0	65.2	10.3	62.8	62.8	18.4	59.7	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	14.0	65.2	10.3	62.8	62.8	18.4	59.7	32.6
LOS	E	B	E	B	E	E	B	E	C
Approach Delay		15.3		16.8		36.0			46.2
Approach LOS		B		B		D			D

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 115.3	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 66.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Cathedral North Pl/Valerio Gate & DMHR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1898	99	81	584	20	81	10	139	30	10	20
Future Volume (vph)	50	1898	99	81	584	20	81	10	139	30	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.97	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5047		3433	3522		1681	1703	1583	1770	1676	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5047		3433	3522		1681	1703	1583	1770	1676	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	56	2109	110	90	649	22	90	11	154	33	11	22
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	143	0	21	0
Lane Group Flow (vph)	56	2217	0	90	670	0	50	51	11	33	12	0
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases									8			
Actuated Green, G (s)	6.9	76.8		6.0	75.9		8.4	8.4	8.4	6.0	6.0	
Effective Green, g (s)	6.9	76.8		6.0	75.9		8.4	8.4	8.4	6.0	6.0	
Actuated g/C Ratio	0.06	0.65		0.05	0.65		0.07	0.07	0.07	0.05	0.05	
Clearance Time (s)	4.4	6.0		4.4	6.0		4.9	4.9	4.9	4.9	4.9	
Vehicle Extension (s)	2.0	5.4		2.0	5.4		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	104	3301		175	2277		120	121	113	90	85	
v/s Ratio Prot	c0.03	c0.44		0.03	0.19		0.03	c0.03		c0.02	0.01	
v/s Ratio Perm									0.01			
v/c Ratio	0.54	0.67		0.51	0.29		0.42	0.42	0.10	0.37	0.14	
Uniform Delay, d1	53.7	12.5		54.3	9.1		52.2	52.2	51.0	53.9	53.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.7	1.1		1.1	0.3		0.9	0.9	0.1	0.9	0.3	
Delay (s)	56.4	13.6		55.3	9.4		53.0	53.0	51.1	54.8	53.5	
Level of Service	E	B		E	A		D	D	D	D	D	
Approach Delay (s)		14.7			14.8			51.9			54.2	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	117.4	Sum of lost time (s)	20.2
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	68	85	199	180	10
Future Volume (Veh/h)	11	68	85	199	180	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	76	94	221	200	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	315				194	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	315				194	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				75	99
cM capacity (veh/h)	1245				787	963

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	12	76	94	221	200	11
Volume Left	12	0	0	0	200	0
Volume Right	0	0	0	221	0	11
cSH	1245	1700	1700	1700	787	963
Volume to Capacity	0.01	0.04	0.06	0.13	0.25	0.01
Queue Length 95th (ft)	1	0	0	0	25	1
Control Delay (s)	7.9	0.0	0.0	0.0	11.1	8.8
Lane LOS	A				B	A
Approach Delay (s)	1.1		0.0		11.0	
Approach LOS					B	

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	23.9%	ICU Level of Service	A
Analysis Period (min)	15		