APPENDIX H

Hazelden Betty Ford Center

Traffic Impact Analysis

City of Rancho Mirage

Including

Table 1 Project (Less Intense) Trip Generation Summary, and

Table 2 Project (More Intense) Trip Generation Summary

February 4, 2020

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Hazelden Betty Ford Center

TRAFFIC IMPACT ANALYSIS

CITY OF RANCHO MIRAGE

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TABLE OF CONTENTS

APPENDICES

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LIST OF EXHIBITS

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LIST OF TABLES

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMS	Changeable Message Sign
CMP	Congestion Management Program
CVAG	Coachella Valley Association of Governments
E+P	Existing Plus Project
EAP	Existing Plus Ambient Growth Plus Project
EAPC	Existing Plus Ambient Growth Plus Project Plus Cumulative
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
ITE	Institute of Transportation Engineers
LOS	Level of Service
MUTCD	Manual on Uniform Traffic Control Devices
N/A	Not Applicable
NP	Without Project
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Hazelden Betty Ford Center
RivTAM	Riverside County Transportation Analysis Model
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
sf	Square Feet
SHS	State Highway System
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
VPH	Vehicles Per Hour
WP	With Project

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Hazelden Betty Ford Center ("Project"), which is located immediately west of Vista del Sol and east of the existing Eisenhower Medical Center Campus, in the City of Rancho Mirage as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and recommend improvements to achieve acceptable circulation system operational conditions. This TIA has been prepared based on scoping agreement with the City of Rancho Mirage. (1) To ensure that this TIA satisfies the City of Rancho Mirage's traffic study requirements, Urban Crossroads, Inc. prepared a traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The Agreement approved by the City is included in Appendix 1.1.

1.1 SUMMARY OF FINDINGS

For Existing (2019) traffic conditions, the intersection of Bob Hope Drive & Street A is currently operating under deficient LOS (i.e., LOS E in the PM peak hour). For General Plan Buildout (2040) Without Project traffic conditions, the intersection of Bob Hope Drive & MacMillan Way is anticipated to operate under deficient LOS (i.e., LOS E in the PM peak hour).

For EAP (2023), EAPC (2023), and General Plan Buildout (2040) With Project traffic conditions, the addition of Project traffic to study area intersections did not result in deficient intersection LOS operations. Also, the addition of 2 dwelling units per acre to the vacant lots along Vista Del Sol did not result in any deficient intersection operations.

It is recommended that the Project contribute fair share towards the installation of a traffic signal at the intersection of Bob Hope Drive & Street A.

Although the intersection of Bob Hope Drive & MacMillan Way is anticipated to operate under a deficient LOS for General Plan Buildout (2040) traffic conditions, no improvements have been recommended. The addition of a traffic signal may impede overall traffic circulation due to the restricted access (i.e., left-in/right-out only). The Project is anticipated to contribute only 7 AM peak hour trips and 5 PM peak hour trips to the intersection. As such, no improvements are recommended for the intersection of Bob Hope Drive & MacMillan Way.

The Project should construct Vista Del Sol to its ultimate half-section width as a Local Street (60-foot right-of-way) between the Project's northern and southern boundaries consistent with the City of Rancho Mirage General Plan Circulation Element. The Project Applicant would improve Vista Del Sol as required by the final Conditions of Approval for the Project and applicable City of Rancho Mirage standards.

EXHIBIT 1-1: PRELIMINARY SITE PLAN

1.2 PROJECT OVERVIEW

The proposed changes to the Hazelden Betty Ford Center campus include the removal of four inpatient buildings totaling 51,694± square feet and a total of 80 beds. The Alumni Renewal Center will have a reduction of 30 beds. These five buildings will be replaced by two 2-story inpatient buildings, each providing 46 beds for a total of 92 beds. Each new inpatient building will encompass 30,935± square feet for a total of 61,870± square feet. The project also includes the construction of a new one-story, 22,748± square foot day-treatment building. This new building will house 44 day treatment patients, associated support space, and 6,399 square feet of administrative space including a computer lab and lecture hall.

As a result, the proposed Project will have a net increase of 56 beds (existing 100 beds; proposed 156 beds) and a net increase of 6,399 square feet of administrative office space. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.

Access to the Project site will be provided via the following roadways:

- Driveway 1 on Vista Del Sol (full access)
- Betty Ford Way on Joe Friend Lane (full access)

Regional access to the project site is provided via the SR-111 at Country Club Drive.

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use are typically used. Since there is limited data on drug and alcohol treatment facilities, existing 24-hour counts were utilized to estimate the trip generation for the drug and alcohol treatment facility. The trip rate per bed was calculating the total traffic based on counts by the existing number of beds (100). The proposed Project is anticipated to generate a net total of 562 trip-ends per day, 72 AM peak hour trips and 48 PM peak hour trips.

The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been evaluated for each of the following conditions:

- Existing (2019) Conditions
- E+P Conditions
- Existing plus Ambient Growth plus Project (EAP) (2023) Conditions
- Existing plus Ambient Growth plus Project Plus Cumulative (EAPC) (2023) Conditions
- General Plan Buildout (2040) Without Project
- General Plan Buildout (2040) With Project

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology.

1.3.1 EXISTING CONDITIONS

Existing physical conditions have been disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 E+P CONDITIONS

The E+P analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.3.3 EAP CONDITIONS

The EAP (2023) traffic conditions analyses determine potential traffic impacts based on a comparison of the EAP traffic conditions to Existing conditions. To account for background traffic growth, an ambient growth factor from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) for 2023 conditions is included for EAP traffic conditions. Consistent with County of Riverside traffic study guidelines, the EAP analysis is intended to identify "Opening Year" deficiencies associated with the development of the proposed Project based on the expected background growth within the study area.

1.3.4 EAPC CONDITIONS

The EAPC (2023) traffic conditions analyses determine the potential near-term cumulative circulation system deficiencies. Background traffic for these analysis scenarios follow the same ambient growth methodology described above for EAP traffic conditions. However, EAPC traffic conditions also include the addition of cumulative development traffic. The comprehensive list of cumulative development projects was compiled from information provided by the City of Rancho Mirage and Cathedral City.

1.3.5 GENERAL PLAN BUILDOUT (2040) CONDITIONS

Traffic projections for General Plan Buildout conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) updated in the CVAG region for consistency with the SCAG draft 2016 RTP for the Transportation Project Prioritization Study (TPPS) 2040 project using accepted procedures for model forecast refinement and smoothing. RivTAM was prepared for the Riverside County Transportation Department in cooperation with Southern California Association of Governments. The General Plan Buildout conditions analysis determines the long-range cumulative circulation system deficiencies.

The General Plan Buildout (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Transportation Uniform Mitigation Fee (TUMF), or other approved funding mechanism (e.g., Community Facilities District, etc.) can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Rancho Mirage (lead agency) General Plan. Other improvements needed beyond the "funded" improvements (such as localized

improvements to non-TUMF) are identified as such. Each of these regional transportation fee programs are discussed in more detail in Section 9 *Local and Regional Funding Mechanisms*.

1.4 STUDY AREA

The Project study area was defined in coordination with the City of Rancho Mirage. Consistent with County of Riverside traffic study guidelines, the study area includes any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. Exhibit 1-2 presents the study area and intersection analysis locations.

The "50 peak hour trip" criteria generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of impact (i.e., study area).

To ensure that this TIA satisfies the needs of the City of Rancho Mirage, Urban Crossroads, Inc. prepared a Project specific traffic study scoping agreement for review by City staff prior to the preparation of this TIA. The agreement provides an outline of the study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the City of Rancho Mirage is included in Appendix 1.1.

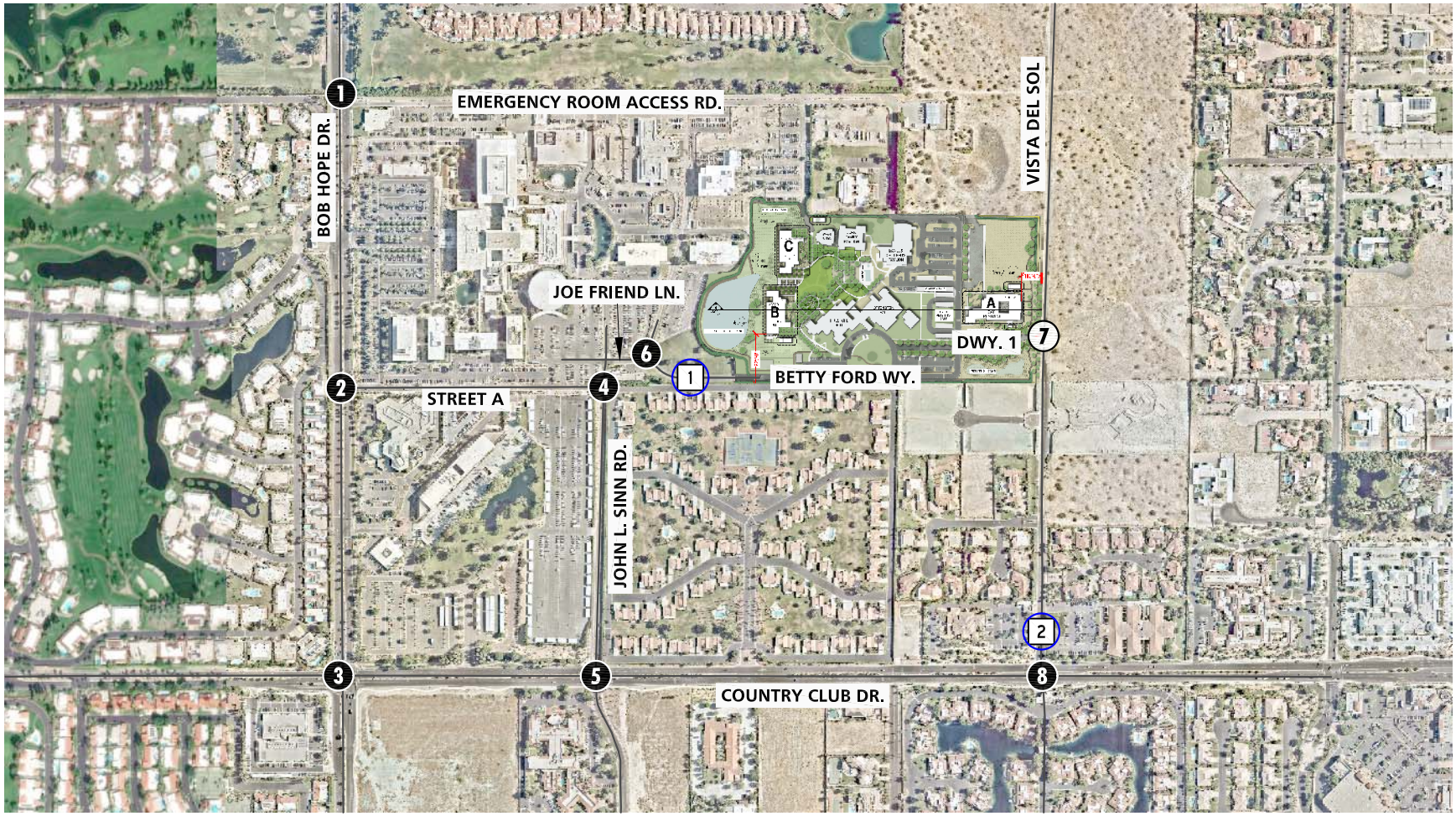
1.4.1 INTERSECTIONS

The following 8 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with City of Rancho Mirage staff. The study area includes intersections in nearby proximity with input from the City of Rancho Mirage staff. The Project is anticipated to contribute fewer than 50 peak hour trips to all study area intersections.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
1	Bob Hope Dr. & MacMillan Wy.	Rancho Mirage
2	Bob Hope Dr. & Street A	Rancho Mirage
3	Bob Hope Dr. & Country Club Dr.	Rancho Mirage
4	John L. Sinn Rd. & Street A	Rancho Mirage
5	John L. Sinn Rd. & Country Club Rd.	Rancho Mirage
6	Joe Friend Ln. & Betty Ford Wy.	Rancho Mirage
7	Vista Del Sol & Driveway 1	Rancho Mirage
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	Rancho Mirage

EXHIBIT 1-2: LOCATION MAP



LEGEND:

- = EXISTING INTERSECTION ANALYSIS AND COUNT LOCATION
- = FUTURE INTERSECTION ANALYSIS LOCATION
- = 24-HOUR ROADWAY SEGMENT COUNT LOCATION

N

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P	EAP (2023)	EAPC (2023)	General Plan Buildout (2040) Without Project	General Plan Buildout (2040) With Project
1	Bob Hope Dr. & MacMillan Wy.						
2	Bob Hope Dr. & Street A						
3	Bob Hope Dr. & Country Club Dr.						
4	John L. Sinn Rd. & Street A						
5	John L. Sinn Rd. & Country Club Dr.						
6	Joe Friend Ln. & Betty Ford Wy.						
7	Vista Del Sol & Dwy. 1	NA				NA	
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS E
- = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing (2019), E+P, EAP (2023), EAPC (2023), and General Plan Buildout (2040) traffic conditions. A summary of intersection LOS by analysis scenario is shown on Exhibit 1-3.

1.5.1 EXISTING CONDITIONS

Intersection Operations

For Existing traffic conditions, the following study area intersection is currently operating at an unacceptable LOS during the peak hours:

- Bob Hope Dr. & Street A (#2) – LOS E PM peak hour only

Traffic Signal Warrant Analysis

The following study area intersections currently warrant a traffic signal based on peak hour volumes:

- Bob Hope Dr. & MacMillan Wy. (#1)
- Bob Hope Dr. & Street A (#2)

1.5.2 E+P CONDITIONS

Intersection Operations

The addition of Project traffic is not anticipated to result in any additional deficiencies, consistent with Existing traffic conditions.

Traffic Signal Warrant Analysis

No additional study area intersections are anticipated to warrant a traffic signal under E+P traffic conditions.

1.5.3 EAP 2023 Conditions

Intersection Operations

For EAP 2023 conditions, the addition of ambient growth and Project traffic is not anticipated to result in any additional deficiencies, consistent with Existing and E+P traffic conditions.

Traffic Signal Warrant Analysis

No additional study area intersections are anticipated to warrant a traffic signal under EAP 2023 traffic conditions, consistent with Existing and E+P traffic conditions.

1.5.4 EAPC 2023 Conditions

Intersection Operations

For EAPC 2023 conditions, the addition of ambient growth, cumulative projects, and Project traffic is not anticipated to result in any additional deficiencies, consistent with Existing, E+P, and EAP (2023) traffic conditions.

Traffic Signal Warrant Analysis

No additional study area intersections are anticipated to warrant a traffic signal under EAPC 2023 traffic conditions, consistent with Existing, E+P, and EAP (2023) traffic conditions.

1.5.5 General Plan Buildout (2040) Conditions

Intersection Operations

For General Plan Buildout (2040) Without Project conditions, the following study area intersection is anticipated to operate at unacceptable levels of service, in addition to the deficient intersection identified under Existing (2019) traffic conditions:

- Bob Hope Dr. & MacMillan Wy. (#1) – LOS E PM peak hour

With the addition of Project traffic, no additional study area intersections are anticipated to operate at unacceptable levels of service, consistent with General Plan Buildout (2040) Without Project conditions.

Traffic Signal Warrant Analysis

No additional study area intersections are anticipated to warrant a traffic signal under General Plan Buildout (2040) Without and With Project traffic conditions, consistent with Existing, E+P, EAP (2023), and EAPC (2023) traffic conditions.

1.6 SUMMARY OF IMPROVEMENTS

Cumulative impacts are deficiencies in the transportation network's LOS that would not be directly caused by the Project. The Project would, however, contribute traffic to these deficient conditions. Recommended improvements that would achieve pre-Project LOS conditions under Existing, E+P, EAP, EAPC, and General Plan Buildout traffic conditions are summarized on Table 1-2. The Project's proportional contributions to traffic volumes at the affected locations are also indicated. The detailed fair share calculations are shown on Table 9-1.

1.7 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

The Project is proposed to have access onto Vista Del Sol via Driveway 1 and Joe Friend Lane via Betty Ford Way. Regional access to the Project site will be provided by the SR-111.

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

Table 1-2

Summary of Intersection Improvements

#	Intersection Location	Jurisdiction	E+P (Project Buildout)	EAP (2023) With Project	EAPC (2023) With Project	General Plan Buildout (2040) With Project	Fair Share %[1]
2	Bob Hope Dr. & Street A	Rancho Mirage	-Install a traffic signal	-Same	-Same	-Same	0.9%

[1] Program improvements constructed by project may be eligible for fee credit, at discretion of the City. See Table 9-1 for Fair Share Calculations.

1.7.1 SITE ADJACENT ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as conditions of approval as part of the Project approval. Exhibit 1-4 illustrates the site adjacent and site access roadway improvement recommendations.

Vista Del Sol is a north-south oriented roadway located along the Project's eastern boundary. Construct Vista Del Sol its ultimate half-section width as a Local Street (60-foot right-of-way) between the Project's northern and southern boundaries consistent with the City of Rancho Mirage General Plan Circulation Element. The Project Applicant would improve Vista Del Sol as required by the final Conditions of Approval for the Project and applicable City of Rancho Mirage standards.

1.7.2 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the on-site and site adjacent recommended intersection lane improvements for Project traffic conditions.

The following intersection recommendations represent the minimum lanes that must be provided to achieve acceptable peak hour operations:

Vista Del Sol & Driveway 1 – Construct the intersection with a stop control on the eastbound approach and the following geometrics:

- Northbound Approach: One shared left-through turn lane.
- Southbound Approach: One shared through-right turn lane.
- Eastbound Approach: One shared left-right turn lane.
- Westbound Approach: Not Applicable (N/A).

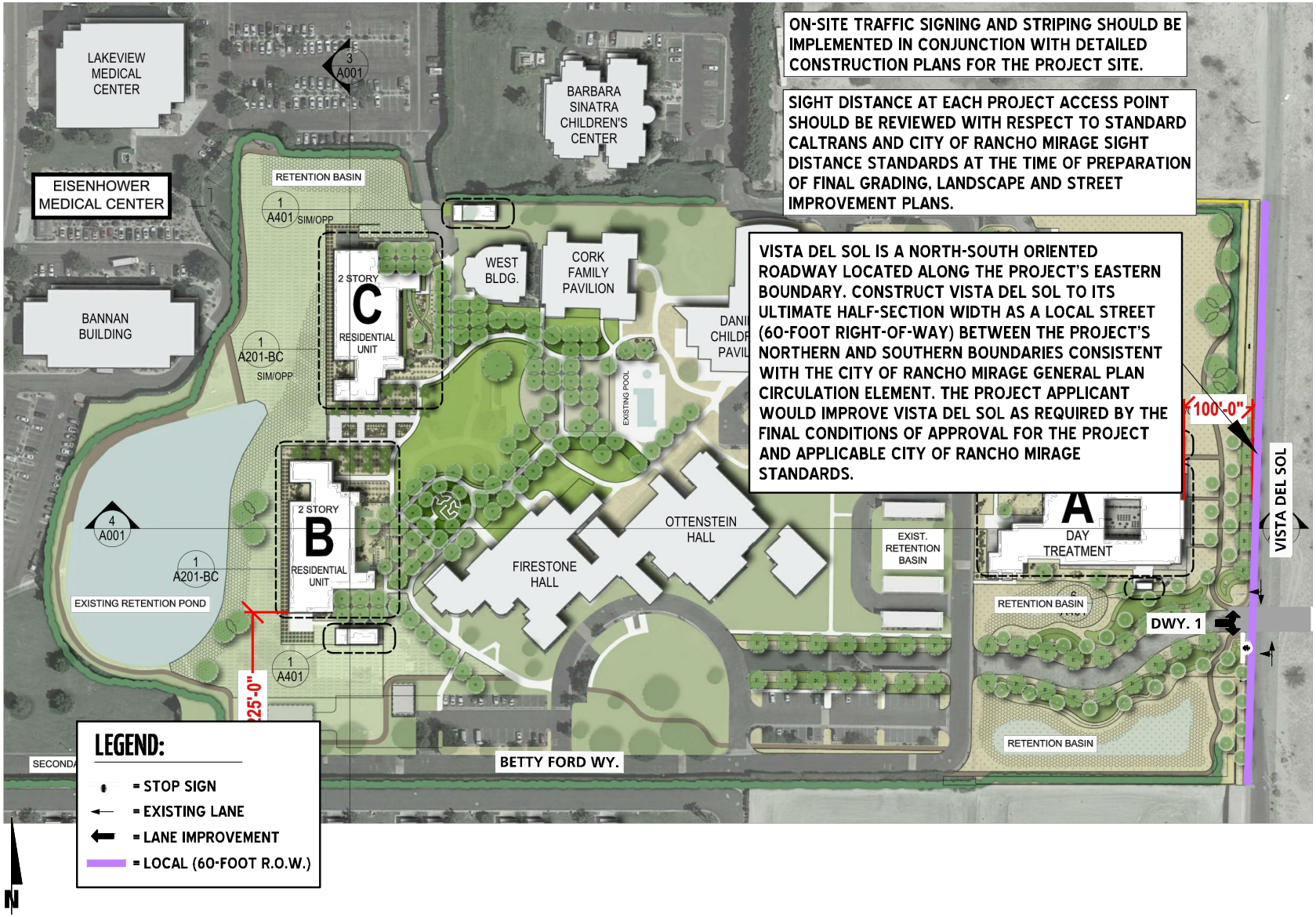
On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City of Rancho Mirage sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

1.8 QUEUING ANALYSIS AT THE PROJECT DRIVEWAYS

A queuing analysis was conducted along the site adjacent roadways for "With Project" traffic conditions to determine the turn pocket lengths necessary to accommodate near term 95th percentile queues. The analysis was conducted for both the weekday AM and weekday PM peak hours.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS



URBAN CROSSROADS

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to assess queues at the Project access points. Synchro is a macroscopic traffic software program that is based on the signalized and unsignalized intersection capacity analyses as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length in Synchro. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). However, the average queue is the average of all the two-minute maximum queues observed by SimTraffic. The maximum back of queue observed for every two-minute period is recorded by SimTraffic.

SimTraffic has been utilized to assess peak hour queuing at the site access driveways for General Plan Buildout (2040) With Project traffic conditions. The random simulations generated by SimTraffic have been utilized to determine the 50th and 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded five (5) times, during the weekday AM and weekday PM peak hours, and has been seeded for 60-minute periods with 60-minute recording intervals.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. Although only the 95th percentile queue has been utilized for purposes of determining the necessary turn pocket storage lengths, the 50th percentile queues are also reported. The 50th percentile queue is the maximum back of queue on a typical cycle during the peak hour, while the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour. In other words, if traffic were observed for 100 cycles, the 95th percentile queue would be the queue experienced with the 95th busiest cycle (or 5% of the time).

The General Plan Buildout (2040) queuing results are provided in Table 1-3 and Appendix 1.2 of this report.

Table 1-3

Peak Hour Queuing Summary

Intersection	Movement	Available Stacking Distance (Feet)	E+P				EAP				EAPC				2040 WP			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Joe Friend Ln. & Betty Ford Wy.	NBT/R	140	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes
	SBL/T	270	14	10	Yes	Yes	18	0	Yes	Yes	24	0	Yes	Yes	33	0	Yes	Yes
Vista Del Sol & Driveway 1	NBL/T	300	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes	18	15	Yes	Yes
	SBT/R	1,100	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes	0	0	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

2 METHODOLOGIES

This section documents the methodologies and assumptions used to perform this traffic assessment.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The *Highway Capacity Manual* (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (2) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rancho Mirage require signalized intersection operations analysis based on the methodology described in the HCM 6th Edition (2). Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

TABLE 2-1: SIGNALIZED INTERSECTION DESCRIPTION OF LOS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F

Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 6th Edition

Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. All signalized study area intersections have also utilized the Synchro software.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per Chapter 4 of the HCM 6th Edition, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (7)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rancho Mirage require the operations of unsignalized intersections be evaluated using the methodology described in the HCM 6th Edition. (2) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION DESCRIPTION OF LOS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD), for all study area intersections. (3)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CAMUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (3) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for all of the following unsignalized study area intersections (see Table 2-3):

TABLE 2-3: UNSIGNALIZED INTERSECTION LOCATIONS

ID	Intersection Location
1	Bob Hope Dr. & MacMillan Wy.
2	Bob Hope Dr. & Street A
3	John L. Sinn Rd. & Street A
4	Joe Friend Ln. & Betty Ford Wy.
5	Vista Del Sol & Driveway 1

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Existing Conditions* of this report. The traffic signal warrant analysis for future conditions is presented Section 5 *E+P Traffic Analysis*, Section 6 *EAP (2023) Traffic Analysis*, Section 7 *EAPC (2023) Traffic Analysis, and* Section 8 *General Plan Buildout (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may

satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 MINIMUM LEVEL OF SERVICE (LOS)

Per Goal 1, Policy 1 of the City of Rancho Mirage General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour LOS D or better at intersections and roadway segments.

2.5 DEFICIENCY CRITERIA

To determine whether the addition of project traffic at a study intersection would result in a deficiency, the following will be utilized:

- A deficiency occurs at study area intersections if the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and the addition of project trips causes the peak hour LOS of the study area intersection to operate at unacceptable LOS (i.e., LOS E or F). Per the County of Riverside traffic study guidelines, for intersections currently operating at unacceptable LOS (LOS E or F), a deficiency would occur if the Project contributes 50 or more peak hour trips to pre-project traffic conditions.

2.6 FAIR SHARE CONTRIBUTION

For cumulative long-range analysis (i.e., General Plan build-out) the project participates in future improvements on a fair-share basis. Project's equitable share is to be calculated using the following equation:

$$P = \frac{T}{T_B - T_E}$$

Where:

P = The equitable share for the proposed project's traffic impact.

T = The vehicle trips generated by the project during peak hour of adjacent street, vph.

T_B = General Plan build-out forecast traffic volume (i.e., 20-year model or the furthest future model date feasible), vph.

T_E = Existing traffic volume, vph.

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Rancho Mirage General Plan Circulation Network, and a review of existing peak hour intersection operations, and traffic signal warrant analyses. (4)

3.1 EXISTING CIRCULATION NETWORK

The study area includes a total of 8 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF RANCHO MIRAGE GENERAL PLAN CIRCULATION ELEMENT

Exhibit 3-2 shows the City of Rancho Mirage General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Rancho Mirage General Plan roadway cross-sections.

A brief description of each roadway including existing and planned roadway width is provided below:

Country Club Drive is an east-west arterial between State Highway 111 and Monterey Avenue. East of Bob Hope Drive, Country Club Drive is designated as a minor arterial, and is constructed to its ultimate 100-foot right-of-way with two through travel lanes in each direction and a raised median. West of Bob Hope Drive, Country Club Drive is designated as a major collector roadway with a 100-foot right-of-way.

Bob Hope Drive is a minor arterial providing regional north-south access from the I-10 Freeway to Highway 111. This arterial is master planned for a 110-foot wide right-of-way with two through lanes in each direction and a raised median.

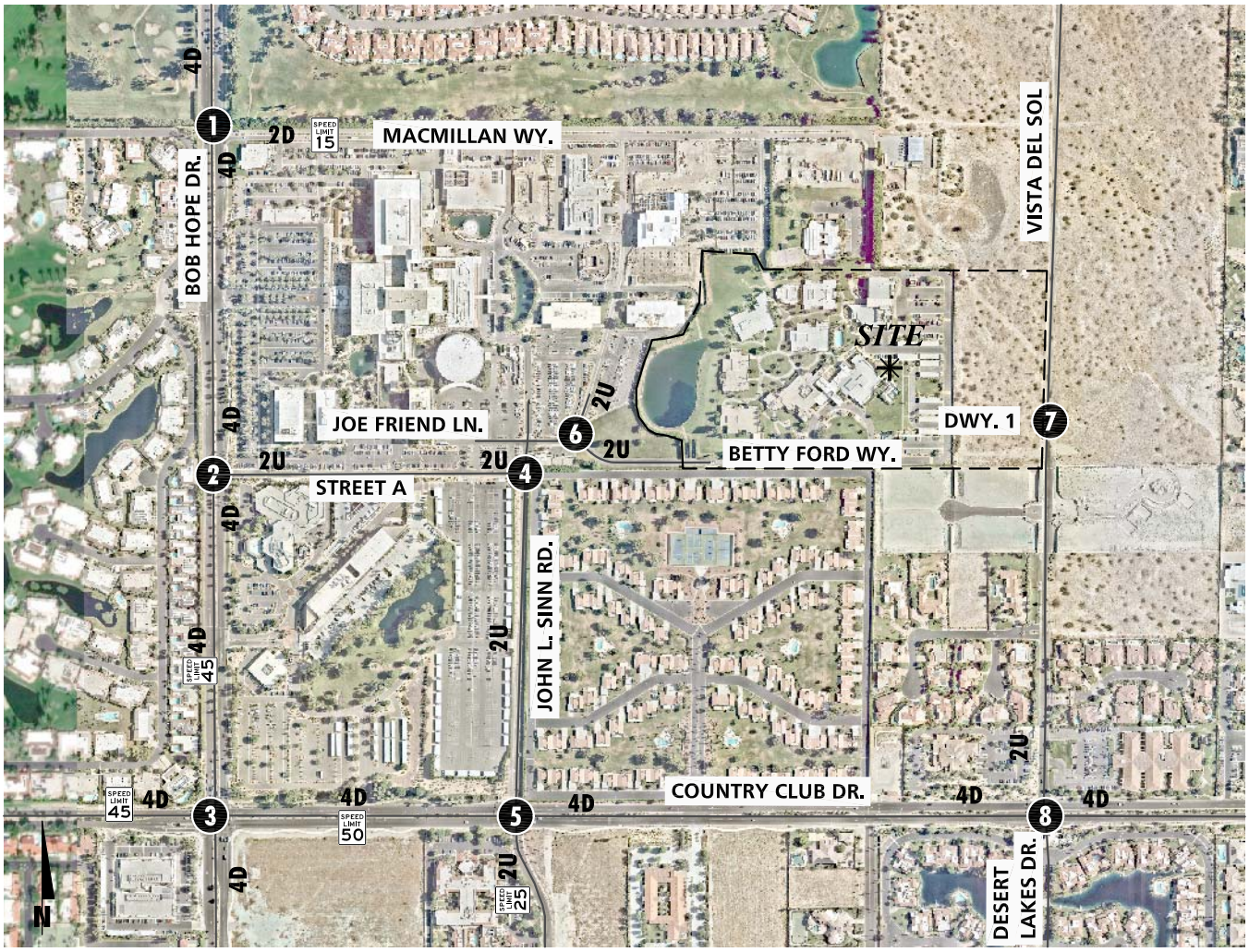
3.3 TRUCK ROUTES

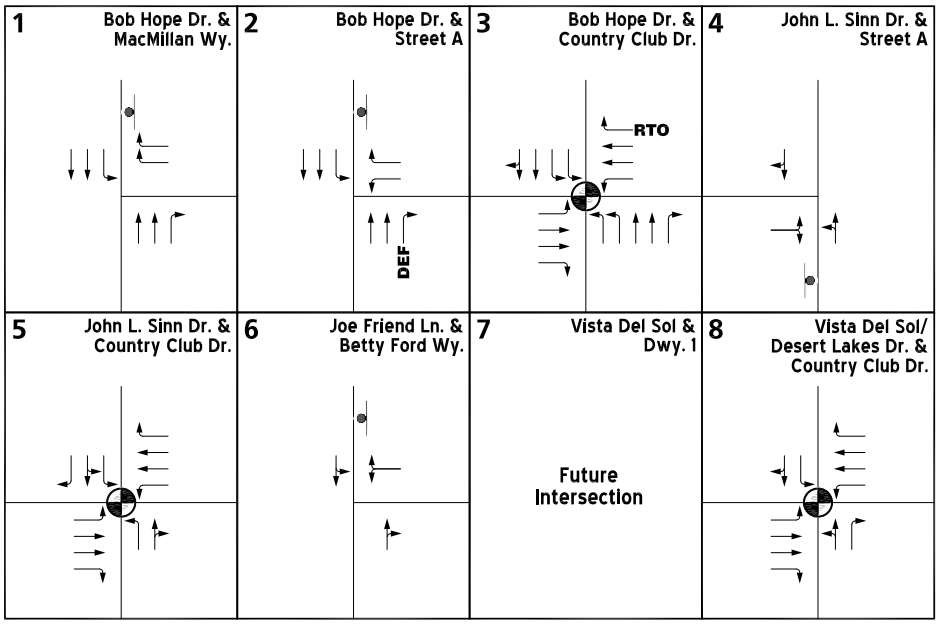
The City of Rancho Mirage designated truck route map is shown on Exhibit 3-4. Highway 111 is identified as designated truck route.

3.4 TRANSIT SERVICE

The City of Rancho Mirage and is currently served by the SunLine Transit Agency (STA), a public transit agency serving various jurisdictions throughout Coachella Valley. The existing bus routes provided within the City are shown on Exhibit 3-5. Transit service is reviewed and updated by STA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. It should also be noted that SunDial service provides special services for the disabled and seniors (60+).

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS





LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- RTO = RIGHT TURN OVERLAP
- DEF = DEFACTO RIGHT TURN
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

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URBAN CROSSROADS

EXHIBIT 3-2: CITY OF RANCHO MIRAGE GENERAL PLAN CIRCULATION ELEMENT

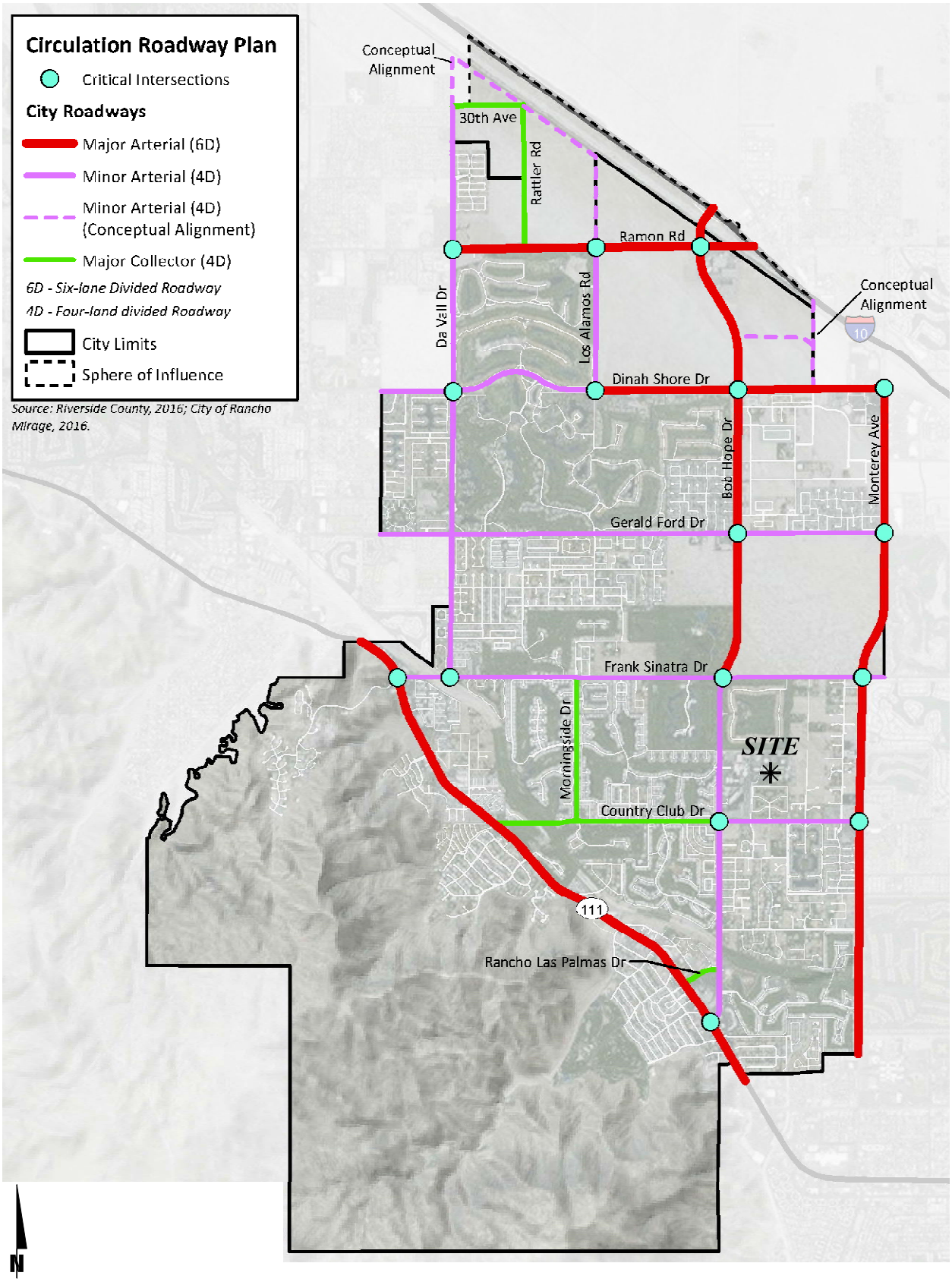
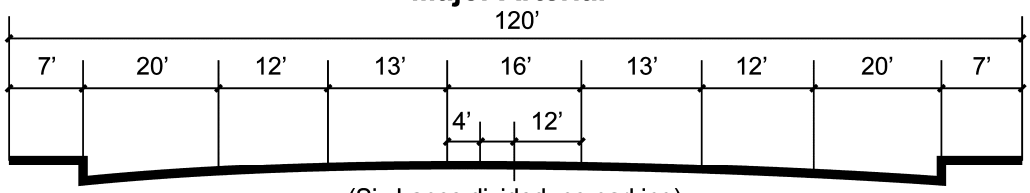


EXHIBIT 3-3: CITY OF RANCHO MIRAGE GENERAL PLAN STREET CROSS SECTIONS

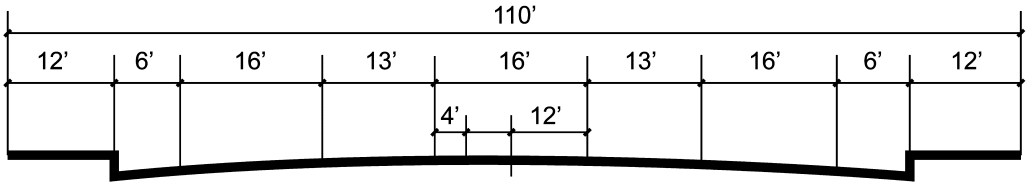
Major Arterial*



(Six Lanes divided, no parking)

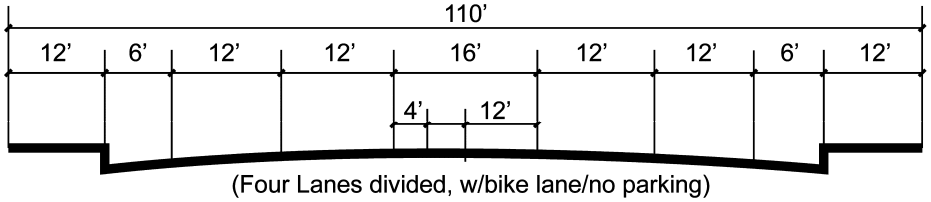
*Highway 111 has special design geometrics, See Rancho Mirage Highway 111 Alignment Study, 1996.

Minor Arterial



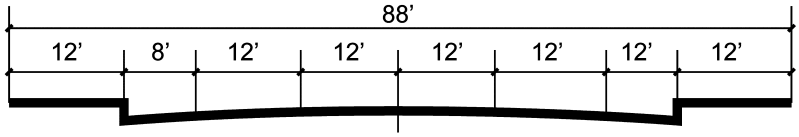
(Four Lanes divided, w/bike lane/no parking)

Major Collector



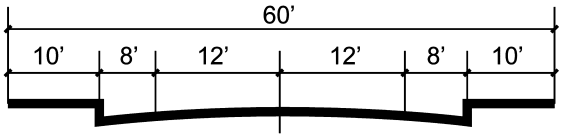
(Four Lanes divided, w/bike lane/no parking)

Minor Collector



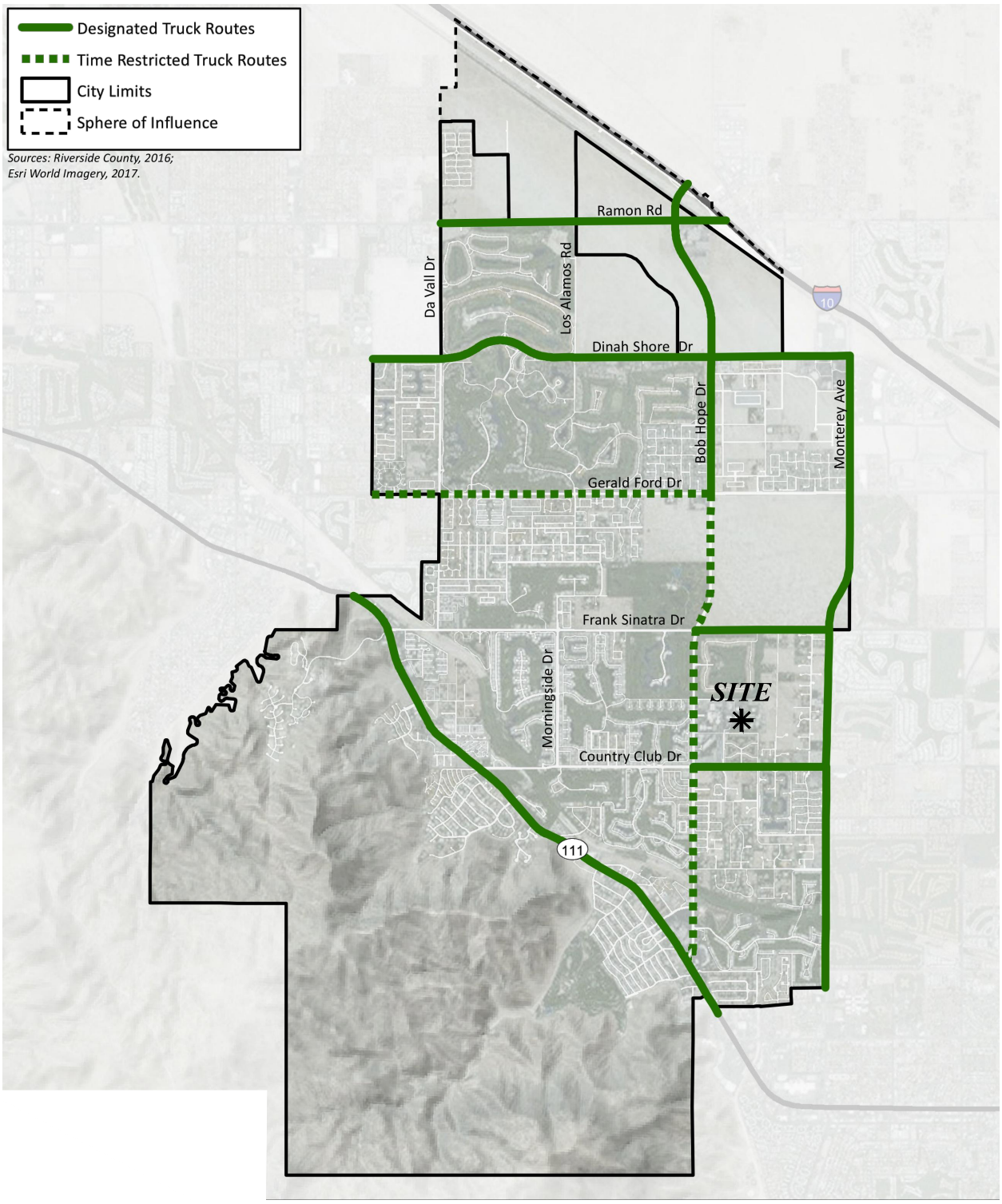
(Four Lanes undivided, w/parking)

Local



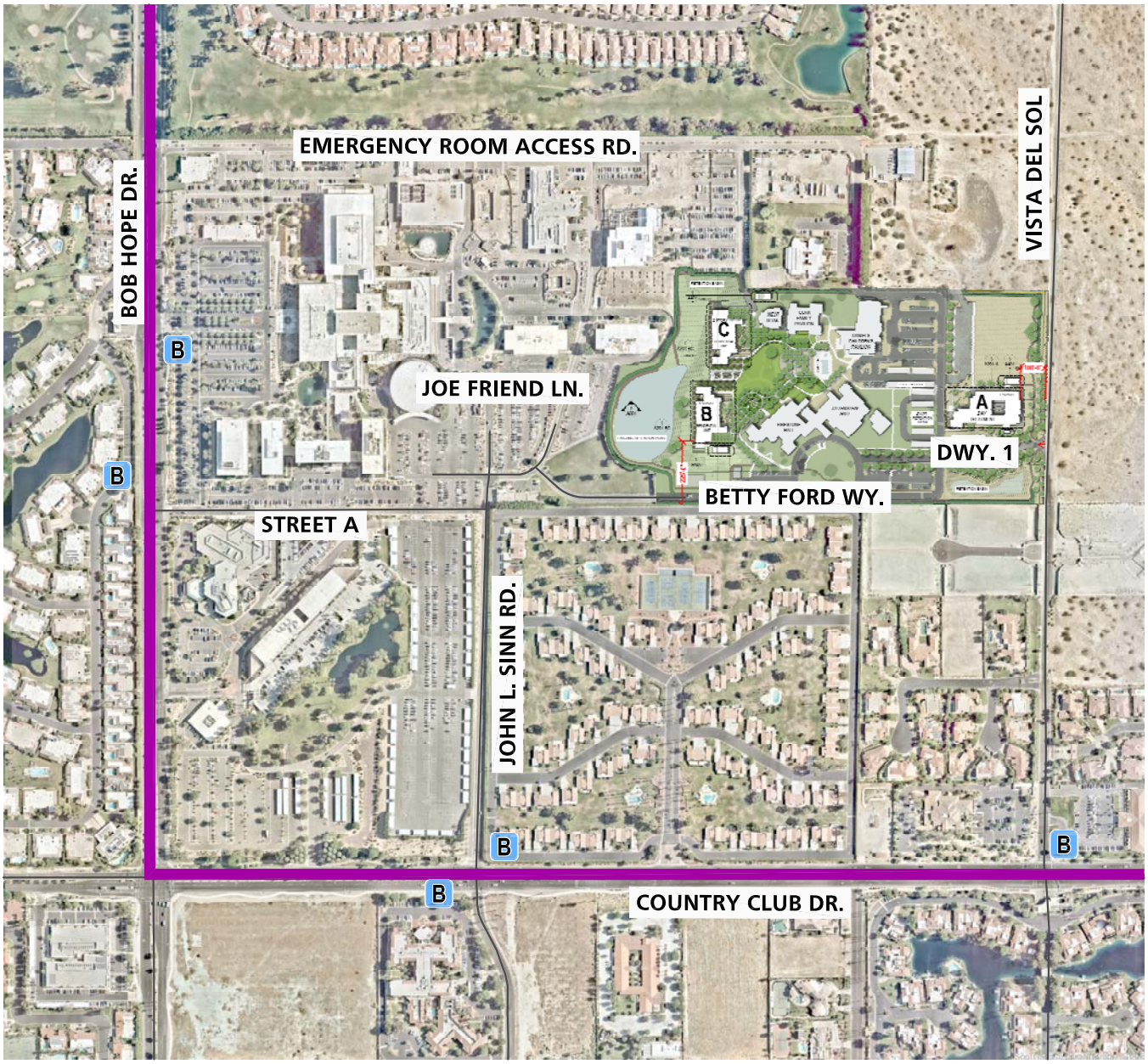
(Two Lanes, w/parking)

EXHIBIT 3-4: CITY OF RANCHO MIRAGE GENERAL PLAN DESIGNATED TRUCK ROUTES



N

EXHIBIT 3-5: EXISTING TRANSIT ROUTES



LEGEND:

= SUNLINE TRANSIT AGENCY ROUTE 32 B = BUS STOP

N

3.5 BICYCLE & PEDESTRIAN FACILITIES

Existing bicycle and pedestrian facilities within City are shown on Exhibit 3-6. The General Plan identifies that Pedestrian and other non-motor circulation is encouraged in the City wherever possible.

3.6 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in December 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and PM peak hour count data is representative of typical peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-7. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.92 = Leg Volume

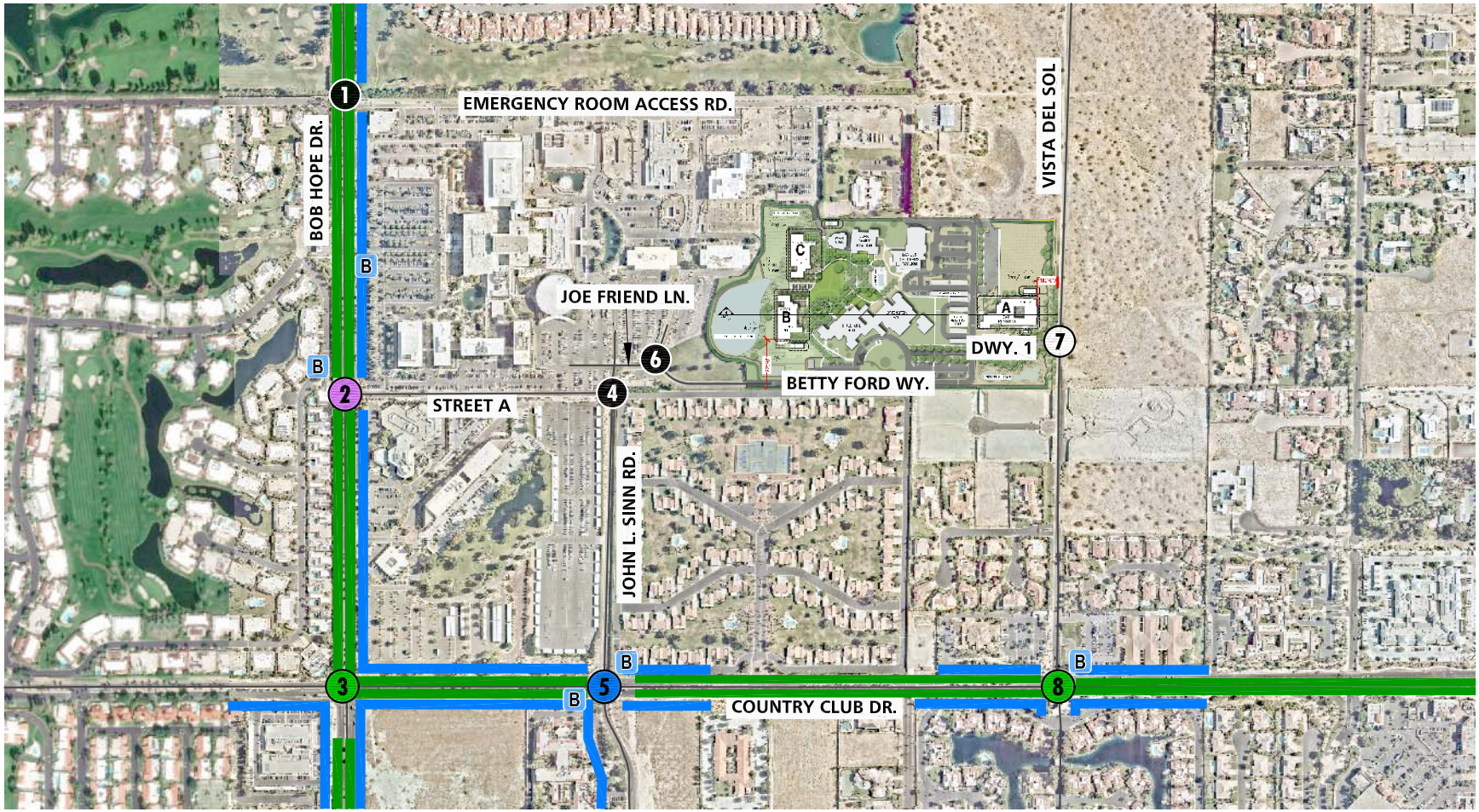
A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 8.39 percent. As such, the above equation utilizing a factor of 11.92 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.39 percent (i.e., 1/0.00839 = 11.92) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and PM intersection volumes are shown on Exhibit 3-7.

3.7 EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1 which indicates that the following existing study area intersection is currently operating at an unacceptable LOS (i.e., LOS E or worse) during one or more of the peak hours:

- Bob Hope Dr. & Street A (#2) – LOS E PM peak hour only

EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES



LEGEND:

- = SIDEWALK
- = BIKE LANE
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 0 = CROSSWALK ON ALL APPROACHES
- 0 = CROSSWALK ON THREE APPROACHES
- 0 = CROSSWALK ON ONE APPROACH

N

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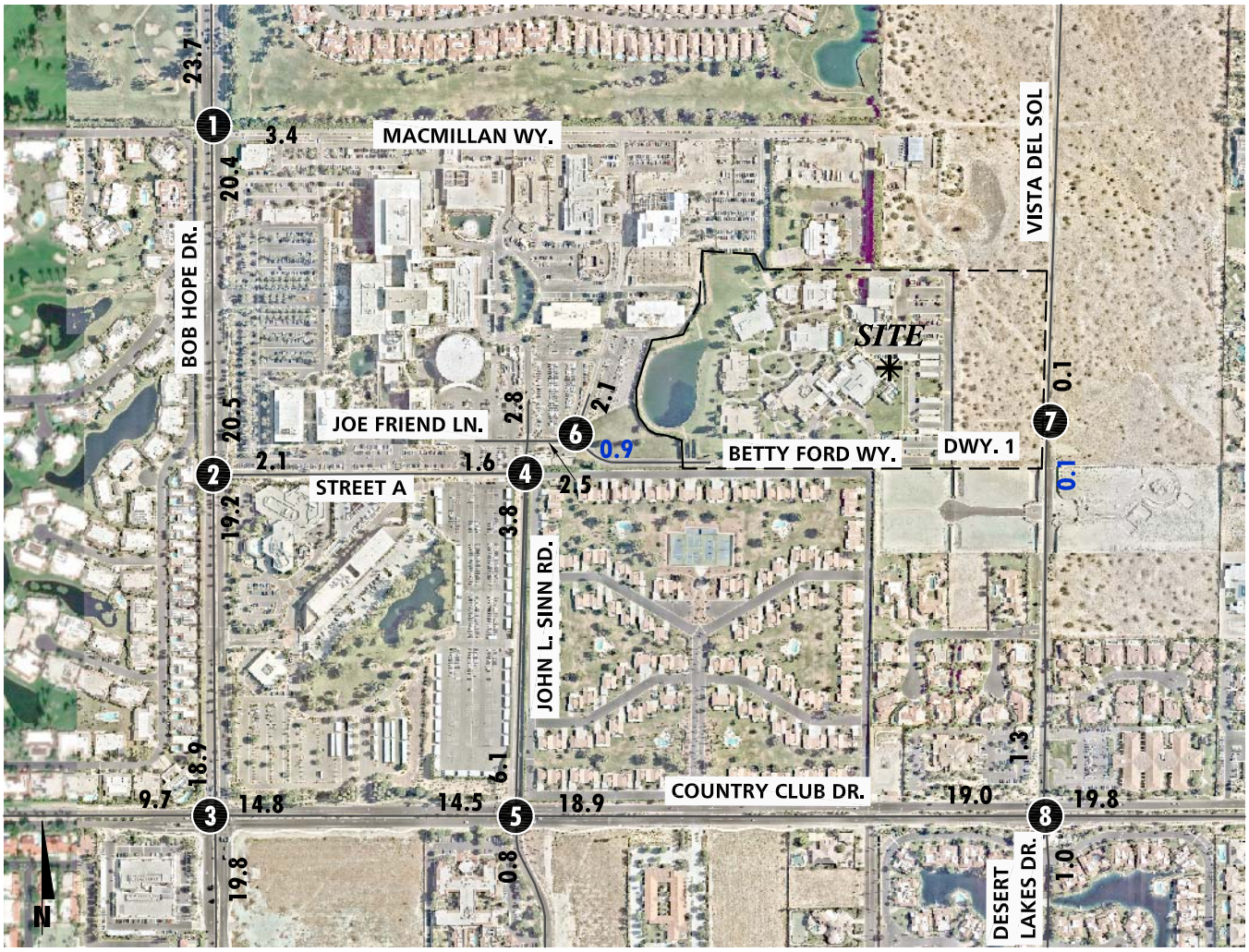
URBAN CROSSROADS

EXHIBIT 3-7: EXISTING (2019) TRAFFIC VOLUMES



1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
998(663) 244(39) 87(241) 308(1047) 35(3)	762(656) 174(28) 36(113) 11(20) 371(921) 51(13)	43(41) 519(523) 109(180) 170(171) 238(261) 205(189) 65(69) 187(270) 98(84) 53(87) 330(605) 101(170)	14(14) 67(133) 18(14) 17(78) 76(27) 225(77)	21(57) 0(8) 85(371) 379(65) 658(526) 14(11) 44(11) 327(592) 16(12) 3(19) 1(1) 5(23)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
50(119) 15(2) 5(16) 8(37) 110(35) 87(18)	Future Intersection	12(25) 1(0) 20(46) 43(24) 1046(565) 20(31) 15(9) 385(966) 9(16) 14(16) 0(1) 21(25)

LEGEND:

10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Bob Hope Dr. & MacMillan Wy.	CSS	0	2	1	1	2	0	0	0	0	0	0	2	9.9	20.7	A	C
2	Bob Hope Dr. & Street A	CSS	0	2	d	1	2	0	0	0	0	1	0	1	31.5	**38.7**	D	**E**
3	Bob Hope Dr. & Country Club Dr.	TS	2	2	1	2	2	0	1	2	1	1	2	1>	21.1	22.2	C	C
4	John L. Sinn Rd. & Street A	CSS	0	1	0	0	1	0	0	1	0	0	0	0	11.5	9.7	B	A
5	John L. Sinn Rd. & Country Club Rd.	TS	1	1	0	1	1	1	1	2	1	1	2	1	13.6	15.6	B	B
6	Joe Friend Ln. & Betty Ford Wy.	CSS	0	1	0	0	1	0	0	0	0	0	1	0	9.9	9.6	A	A
7	Vista Del Sol & Driveway 1		Future Intersection															
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	TS	0	1	1	1	1	0	1	2	1	1	2	0	8.6	9.0	A	A

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-turn Overlap

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-8. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.8 EXISTING CONDITIONS TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. For Existing (2019) traffic conditions, the following existing study area intersections appear to currently warrant a traffic signal based on peak hour traffic flows (see Appendix 3.3):

- Bob Hope Dr. & MacMillan Wy. (#1)
- Bob Hope Dr. & Street A (#2)

EXHIBIT 3-8: EXISTING (2019) SUMMARY OF LOS

LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network.

The proposed changes to the Hazelden Betty Ford Center campus include the removal of four inpatient buildings totaling 51,694± square feet and a total of 80 beds. The Alumni Renewal Center will have a reduction of 30 beds. These five buildings will be replaced by two 2-story inpatient buildings, each providing 46 beds for a total of 92 beds. Each new inpatient building will encompass 30,935± square feet for a total of 61,870± square feet. The project also includes the construction of a new one-story, 22,748± square foot day-treatment building. This new building will house 44 day treatment patients, associated support space, and 6,399 square feet of administrative space including a computer lab and lecture hall. As a result, the proposed Project will have a net increase of 56 beds (existing 100 beds; proposed 156 beds) and a net increase of 6,399 square feet of administrative office space.

For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development with a projected Opening Year of 2023.

Access to the Project site will be provided via the following roadways:

- Driveway 1 on Vista Del Sol (full access)
- Betty Ford Way on Joe Friend Lane (full access)

Regional access to the project site is provided via the SR-111 at Country Club Drive.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use are typically used. Since there is limited data on drug and alcohol treatment facilities, existing 24-hour counts were utilized to estimate the trip generation for the drug and alcohol treatment facility. The trip rate per bed was calculating the total traffic based on counts by the existing number of beds (100). The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project are shown in Table 4-1. As shown on Table 4-1, the proposed Project is anticipated to generate a net total of 562 trip-ends per day, 72 AM peak hour trips and 48 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

The near-term trip distribution patterns for the proposed Project are graphically depicted on Exhibit 4-1 and the General Plan Buildout trip distribution patterns for the proposed Project are graphically depicted on Exhibit 4-2. The trip distributions have been developed based on past work experience in the vicinity of the Project site and refined to reflect the roadway network and the surrounding uses in the vicinity of the proposed Project as they exist today.

Table 4-1

Project Trip Generation Summary

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
General Office Building[1]	710	TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Drug/Alcohol Treatment Center[3]	--	Beds	1.02	0.15	1.17	0.17	0.56	0.73	8.87

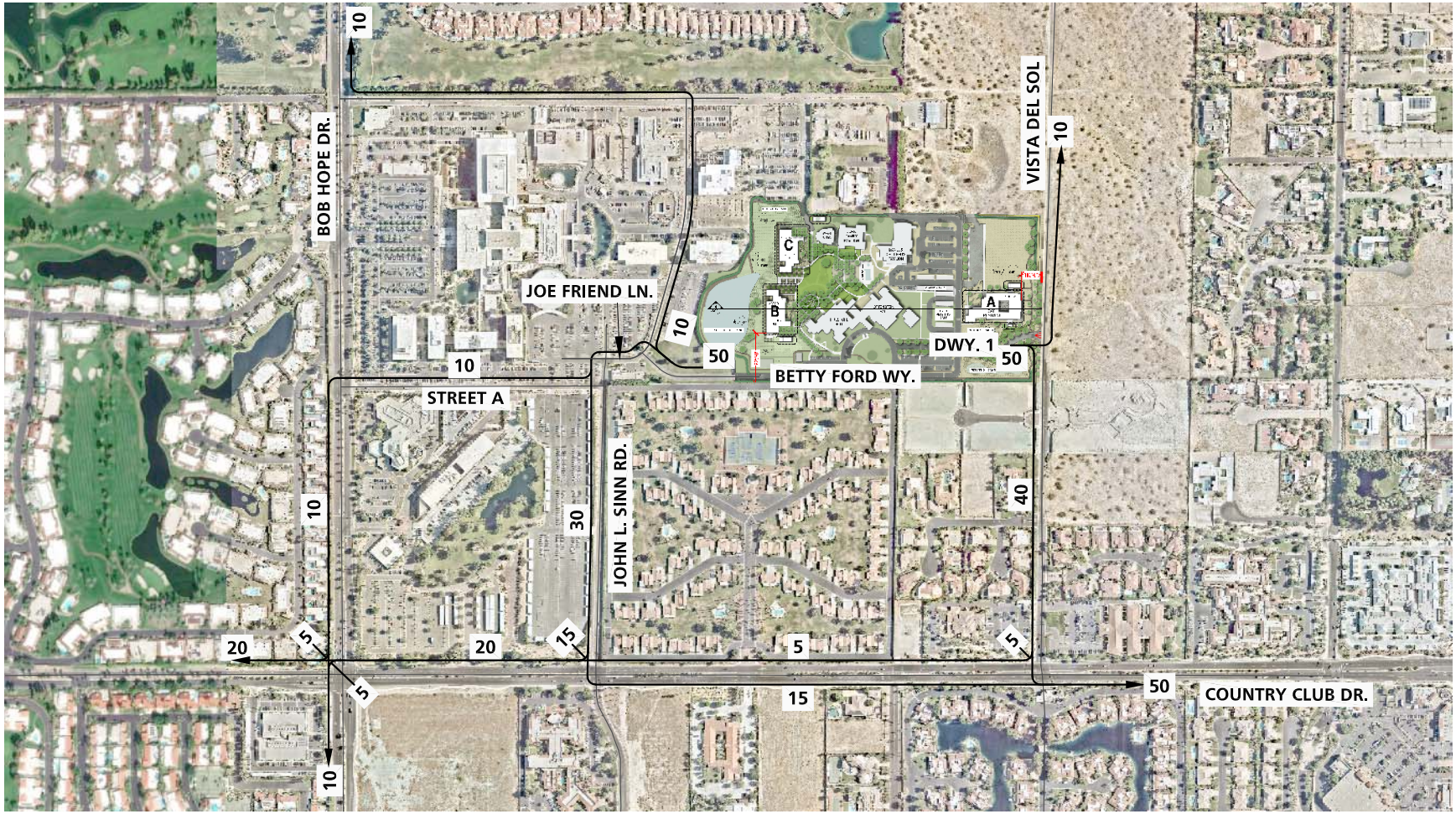
Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
General Office Building	6.399	TSF	6	1	7	1	6	7	64
Drug/Alcohol Treatment Center[3]	56	Beds	57	8	65	10	31	41	498
		Total	**63**	**9**	**72**	**11**	**37**	**48**	**562**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] TSF = Thousand Square Feet

[3] Based on 24-hour counts collected at Hazelden Betty Ford Center on Wednesday 12/11/19.

EXHIBIT 4-1: PROJECT (NEAR-TERM) TRIP DISTRIBUTION

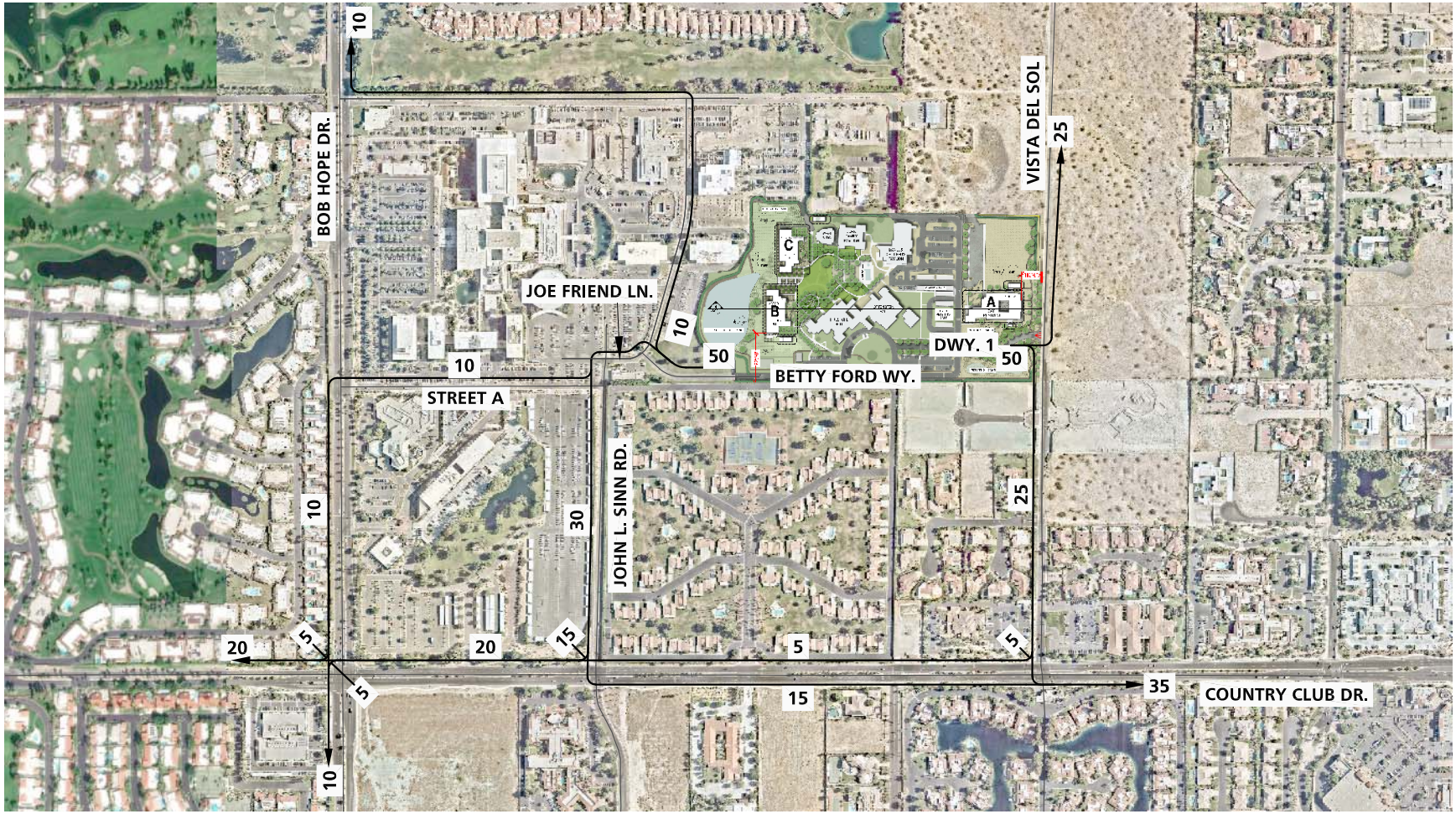


LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 4-2: PROJECT (GENERAL PLAN BUILDOUT) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

4.3 MODAL SPLIT

Although the use of public transit, walking, and/or bicycling have the potential to reduce Project-related traffic, such reductions have not been taken into considerations in this traffic study in order to provide a conservative analysis of the Project's potential to contribute to circulation system deficiencies.

4.4 TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project (near-term) traffic generation and trip distribution patterns, Project (near-term) weekday ADT, AM peak hour, and PM peak hour peak hour intersection turning movement volumes are shown on Exhibit 4-3. The Project (General Plan Buildout) weekday ADT, AM peak hour, and PM peak hour peak hour intersection turning movement volumes are shown on Exhibit 4-4.

4.5 CUMULATIVE GROWTH TRAFFIC

4.5.1 AMBIENT GROWTH RATE

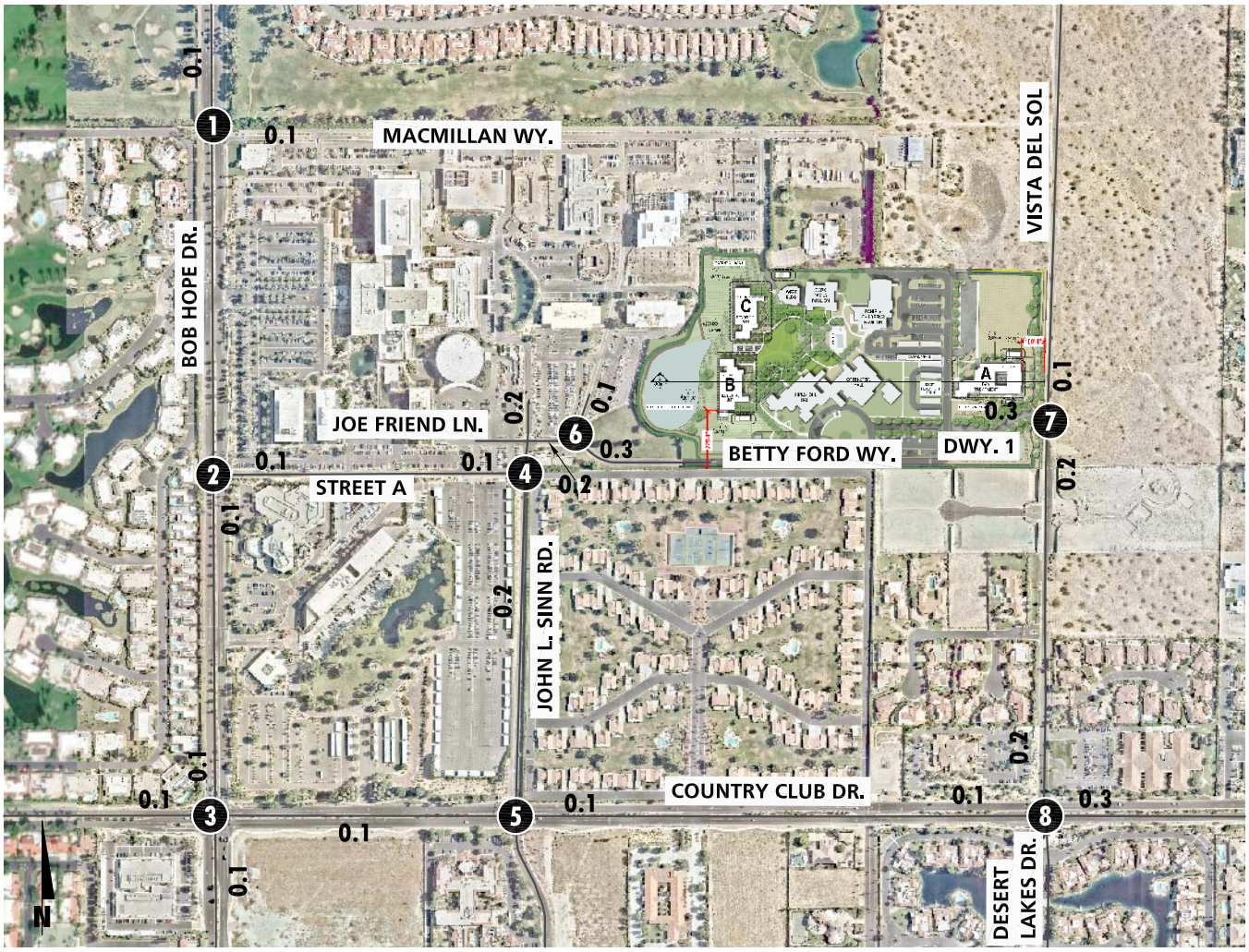
Future year traffic forecasts have been based upon background (ambient) growth at 8.24 percent (2 percent per year over 4 years) for EAP and EAPC traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies, for EAPC traffic conditions.

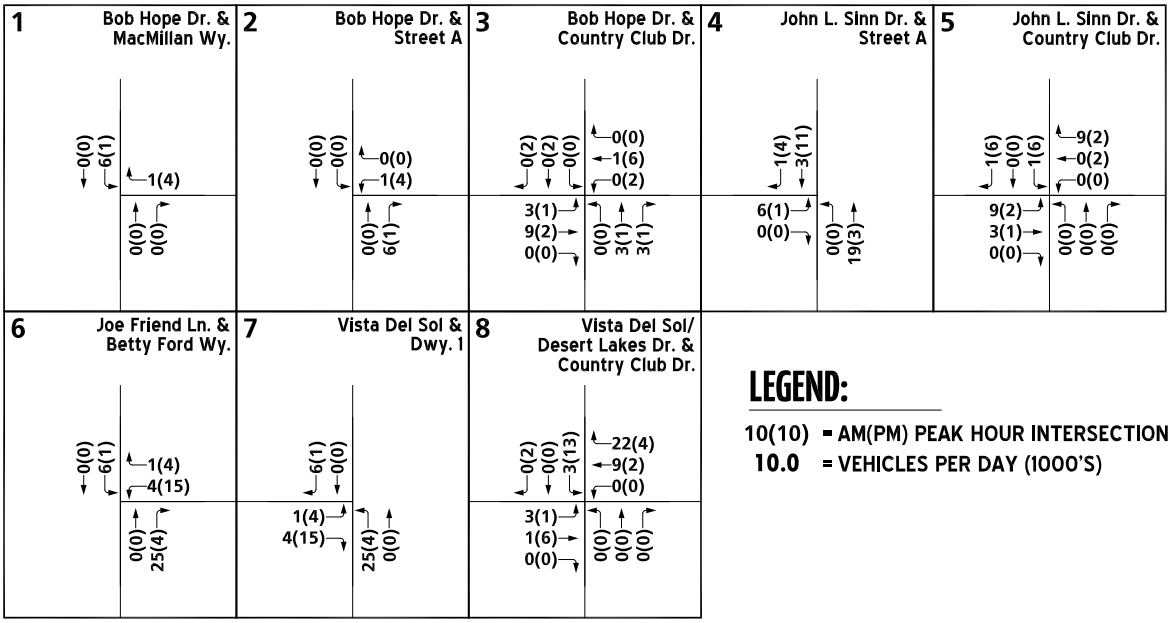
4.5.2 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Rancho Mirage.

Exhibit 4-5 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-2. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-2 are reflected as part of the background traffic. Trip generation rates used to estimate cumulative development project traffic and a summary of the cumulative development project's weekday trip generation are shown in Table 4-3.

EXHIBIT 4-3: PROJECT ONLY (NEAR-TERM) TRAFFIC VOLUMES

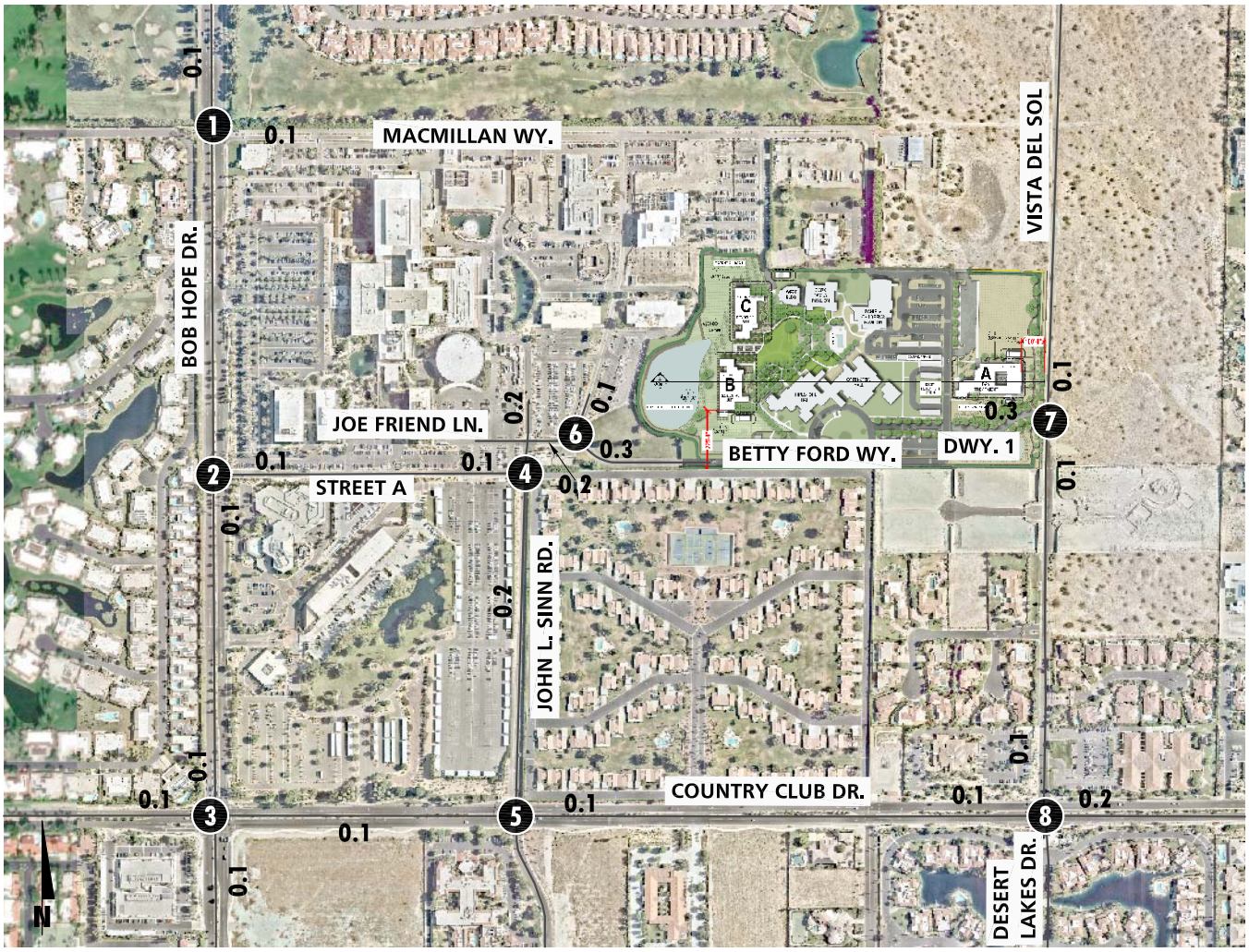




LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 4-4: PROJECT ONLY (GENERAL PLAN BUILDOUT) TRAFFIC VOLUMES



1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
0(0) 6(1) 1(4) / 0(0) 0(0)	0(0) 0(0) 0(0) 1(4) / 0(0) 6(1)	0(2) 0(2) 0(0) 0(0) 1(6) 0(2) / 3(1) 9(2) 0(0) 0(0) 3(1) 3(1)	1(4) 3(11) / 6(1) 0(0) 0(0) 19(3)	1(6) 0(0) 1(6) 9(2) 0(2) 0(0) / 9(2) 3(1) 0(0) 0(0) 0(0) 0(0)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
0(0) 6(1) 1(4) 4(15) / 0(0) 25(4)	16(3) 0(0) / 2(9) 2(9) 16(3) 0(0)	0(2) 0(0) 2(7) 13(2) 9(2) 0(0) / 3(1) 1(6) 0(0) 0(0) 0(0) 0(0)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Exhibit 4-5: Cumulative Development Projects Location Map

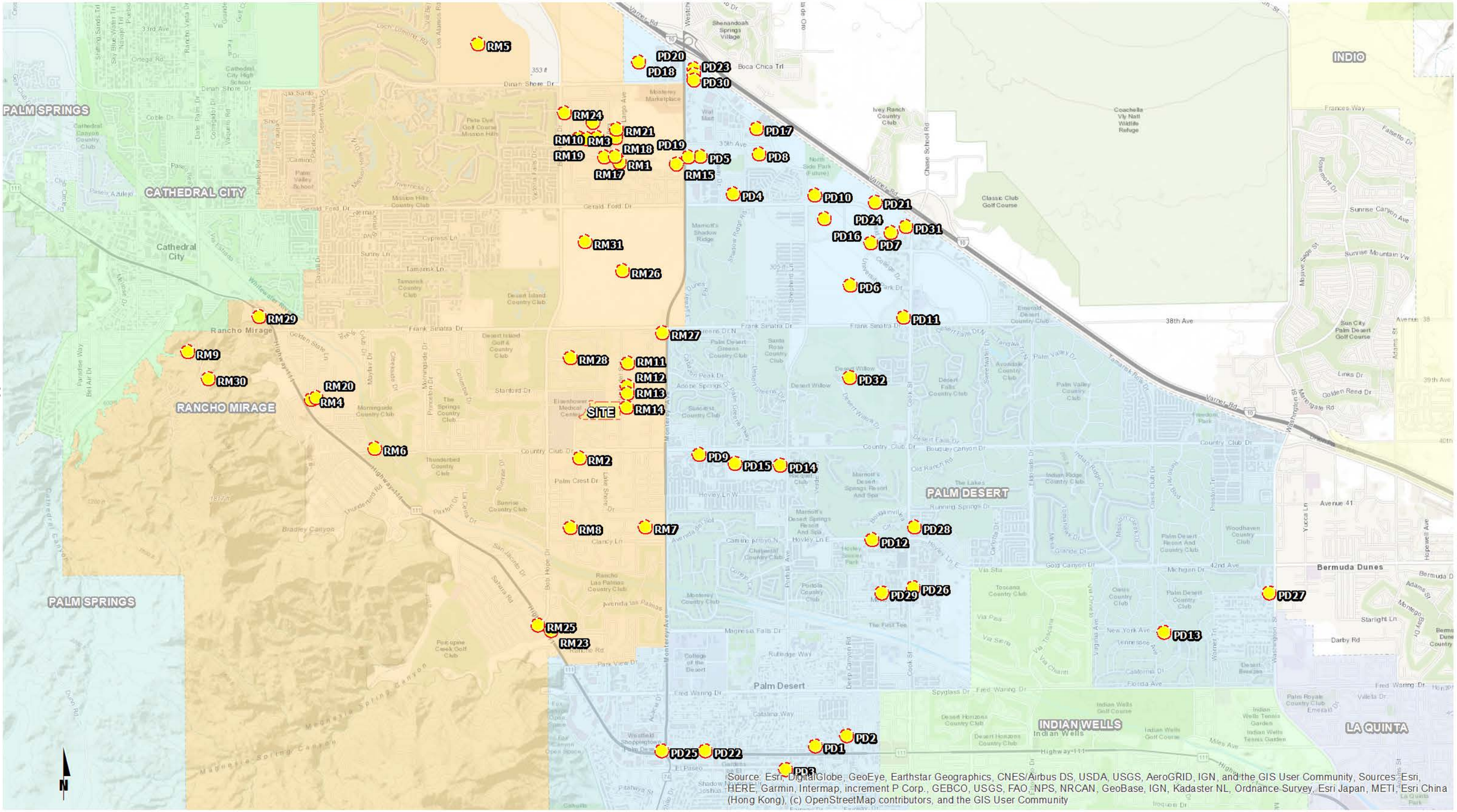


Table 4-2

Cumulative Development Land Use Summary

TAZ	Project	Case Number	Land Use	Quantity	Units[1]
		City of Rancho Mirage			
RM1	RM 38 JV LLC	DA190002 / TTM36620	Residential	82	DU
RM2	Carefield Senior Living	PDP18004 / DA180003 / EA180002	Residential	84	DU
RM3	ECHO at Rancho Mirage	PDP18003	Residential	9	DU
RM4	Santa Barbara Cove Estates	PDP18001 / TTM35573	Residential	20	DU
RM5	Pulte Homes/ Del Webb	PDP17001 / TTM36809	Residential	1,200	DU
RM6	Veneto	MOD16019	Residential	34	DU
RM7	Revelle	PDP13003 / FDP13004	Residential	32	DU
RM8	Bella Clancy	ZTA05003 / EA050025 / MOD05016 / FDP04002 / PDP03015	Residential	20	DU
RM9	Mirada Villas	FDP05004 / PDP04011 / MOD06024 / MOD11040	Residential	46	DU
RM10	Estilo	PDP12003 / FDP12005	Residential	39	DU
RM11	RM Five-1 LLC/Kilani	TPM37222R / EA190008	Residential	4	DU
RM12	Heinrich/Steinberg	TPM34232 / TPPMX34232 / TPM34233 / TPMX34233	Residential	4	DU
RM13	Rancho Mirage LLC	TPM34741 / EA060009 / TPMX-34741 / PDPX34741	Residential	4	DU
RM14	La Paloma Homes, Inc.	TTM37637	Residential	13	DU
RM15	Monterey Medical Center	TTM37703 / PDP17002	Medical Office	75.164	TSF
RM16	38 JV, LLC c/o Meriwether Companies	TTM36621 / EA130007 / TTM3X36621	Residential	10	DU
RM17	38 JV, LLC c/o Meriwether Companies	TTM36620 / EA130006 / SPA13001 / TTM2X36620	Residential	97	DU
RM18	38 JV, LLC c/o Meriwether Companies	TTM36622 / EA130008 / TTM3X36622	Residential	10	DU
RM19	GRV Mirage, LLC (ECHO)	TTM35619 / EA070011	Residential	9	DU
RM20	Ken Catanzarite	TTM35573	Residential	20	DU
RM21	Miragedunes Properties	TTM05004 / TTM33329 / TTM2X33329	Residential	9	DU
RM22	AMS Development Group (Bellavia)	TTM35089	Residential	18	DU
RM23	IN-N-OUT Burgers	PDP19002 / EA190004 / CUP19007 / ZTA19002 / DA190001	Commercial	3.995	DU
RM24	DHO Medical Office Building	PDP19001 / EA190001	Medical Office	13.800	TSF
RM25	Chase Bank	PDP18005	Bank	3.470	TSF
RM26	Section 31 Specific Plan Project	SP180001 / EIR18001 / GPZMA18003	Hotel	400	Rooms
			Commercial	175.000	TSF
			Residential	1,932	DU
RM27	Tower Energy Group	CUP18004 / TPM37486 / EA180004	Commercial	5.565	TSF
RM28	Oasis Ranch LLC	PDP18002 / TTM37461	Hotel	60	Rooms
			Residential	108	DU
RM29	Horizon Pacific Rancho Cove MSA Consulting	PDP16003 / TTM37122	Commercial	20.000	TSF
			Hotel	100	Rooms
			Residential	35	DU
RM30	Ritz-Carlton Residences	--	Residential	106	DU
			Commercial	6.966	TSF

Table 4-2

Cumulative Development Land Use Summary

TAZ	Project	Case Number	Land Use	Quantity	Units[1]
City of Palm Desert					
PD1	Stomel Apartments	PP 19-0005	Residential	7	DU
PD2	Maley Condominiums	PP/CUP 20-0001 / TTM 37870	Residential	12	DU
PD3	Roberge Condominiums	CZ 19-0003 / PP 19-0009 / CUP 19-0010 / TTM 37849	Residential	55	DU
PD4	Dolce Development	TT 31071	Residential	132	DU
PD5	Falling Waters	CZ 05-03 / TT 34179 / PP 05-02	Residential	227	DU
PD6	Desert Wells	DA 06-02 / TT 32655 / TPM 31730	Residential	270	DU
PD7	University Park	PP 06-05 Amendment #1 / HTE 10-434 / TT 36342	Residential	195	DU
PD8	Sage	PP 14-170 / TT 36351	Residential	111	DU
PD9	Arc Village	PP/CUP 16-102	Residential	36	DU
PD10	Genesis @ Millennium	DA/GPA/CZ/EA 14-332 / TPM 36792 / TTM 36793	Residential	166	DU
PD11	Villas At Cook Street	PP 17-035 / TTM 37339	Residential	80	DU
PD12	The Sands Apartments	PP16-394	Residential	388	DU
PD13	Palm Desert Country Club	CZ 16-280 / PP 16-280 / CUP 16-280	Residential	69	DU
PD14	Avenida Senior Living	PP 18-0004	Residential	161	DU
PD15	Wolff Senior Living	CZ 18-0002 / PP 18-0003	Residential	164	DU
PD16	University Park	PP 18-0005 / TTM 37506	Residential	1,100	DU
PD17	Alpha Holdings	PP 19-0010	Industrial	17.900	TSF
PD18	Landmark	SP 18-0001 / GPA 18-0001 / CZ 18-0004 / TPM 37575	Industrial	266.000	TSF
			Residential	1,500	DU
			Commercial	75.000	TSF
PD19	MCPP Palm Desert	PCD 16-00342 / TPM 37234	Commercial	120.000	TSF
			Residential	384	DU
PD20	Habit Burger	MISC 20-0001	Commercial	5.000	TSF
PD21	Millennium Specific Plan	DA/GPA/CZ/EA 14-332 / TPM 36792 / TTM 36793	Residential	166	DU
PD22	Crystal Palms	CUP 16-217	Commercial	2.500	TSF
PD23	Monterey Crossing	SP/PP/CUP 16-188 / TPM 37157	Commercial	130.000	TSF
			Hotel	130	Rooms
PD24	Holiday Inn Express & Future Hotel	PP 18-0002 / TPM 37488	Hotel	186	Rooms
PD25	Chase Bank	PP 18-0006	Commercial	4.400	TSF
PD26	Russell Lane	PP 18-0007 / CUP 19-0003	Industrial	26.700	TSF
PD27	Palm Village	TPM 37611 / PP/CUP 16-303	Commercial	--	TSF
			Office	12.000	TSF
PD28	University Village	MISC 19-0022	Commercial	9.000	TSF
PD29	Extra Space Storage	PP 19-0002	Industrial	35.800	TSF
PD30	Chick-Fil-A	MISC 19-0018	Commercial	5.000	TSF
PD31	La Quinta Brewery	PP/CUP 19-0007	Commercial	13.300	TSF
PD32	Desert Surf	SP 18-0002 / PP 18-0009 / EA 18-0002 / TTM 37639	Hotel	438	Rooms

[1] DU = Dwelling Units; TSF = Thousand Square Feet

Table 4-3

Cumulative Development Project Trip Generation Summary

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
Single-Family Detached Housing	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Assisted Living	254	DU	0.12	0.07	0.19	0.10	0.16	0.26	2.60

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
RM Five-1 LLC/Kilani	4	DU	1	2	3	2	1	3	38
Heinrich/Steinberg	4	DU	1	2	3	2	1	3	38
Rancho Mirage LLC	4	DU	1	2	3	2	1	3	38
La Paloma Homes, Inc.	13	DU	2	7	9	8	5	13	124
TAZ 1 Total			**5**	**13**	**18**	**14**	**8**	**22**	**238**
Carefield Senior Living	84	DU	10	6	16	8	13	22	220
TAZ 2 Total			**10**	**6**	**16**	**8**	**13**	**22**	**220**
Rancho Mirage Country Club[3]	--	Varies	54	56	110	82	64	146	1,908
TAZ 3 Total			**54**	**56**	**110**	**82**	**64**	**146**	**1,908**
Section 31 Specific Plan[4]	--	Varies	433	821	1,254	1,091	828	1,919	22,764
TAZ 4 Total			**433**	**821**	**1,254**	**1,091**	**828**	**1,919**	**22,764**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units

[3] Source: Rancho Mirage Country Club Redevelopment Traffic Impact Analysis (prepared by Urban Crossroads, Inc., November 1, 2018)

[4] Source: Section 31 Specific Plan Transportation Impact Study (prepared by Fehr & Peers, Inc., March 2019)

Cumulative development project weekday ADT, AM peak hour, and PM peak hour intersection turning movement volumes are shown on Exhibit 4-6.

4.5.3 NEAR-TERM TRAFFIC FORECASTS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast EAP (2023) and EAPC (2023) traffic conditions. An ambient growth factor of 2% per year accounts for background (area-wide) traffic increases that occur over time up to the year 2023 from the year 2019 (compounded 2% per year growth over a 4-year period). Project traffic is added to assess both forecast EAP (2023) and EAPC (2023) traffic conditions. Traffic volumes generated by cumulative development projects are not included in the EAP (2023) traffic conditions.

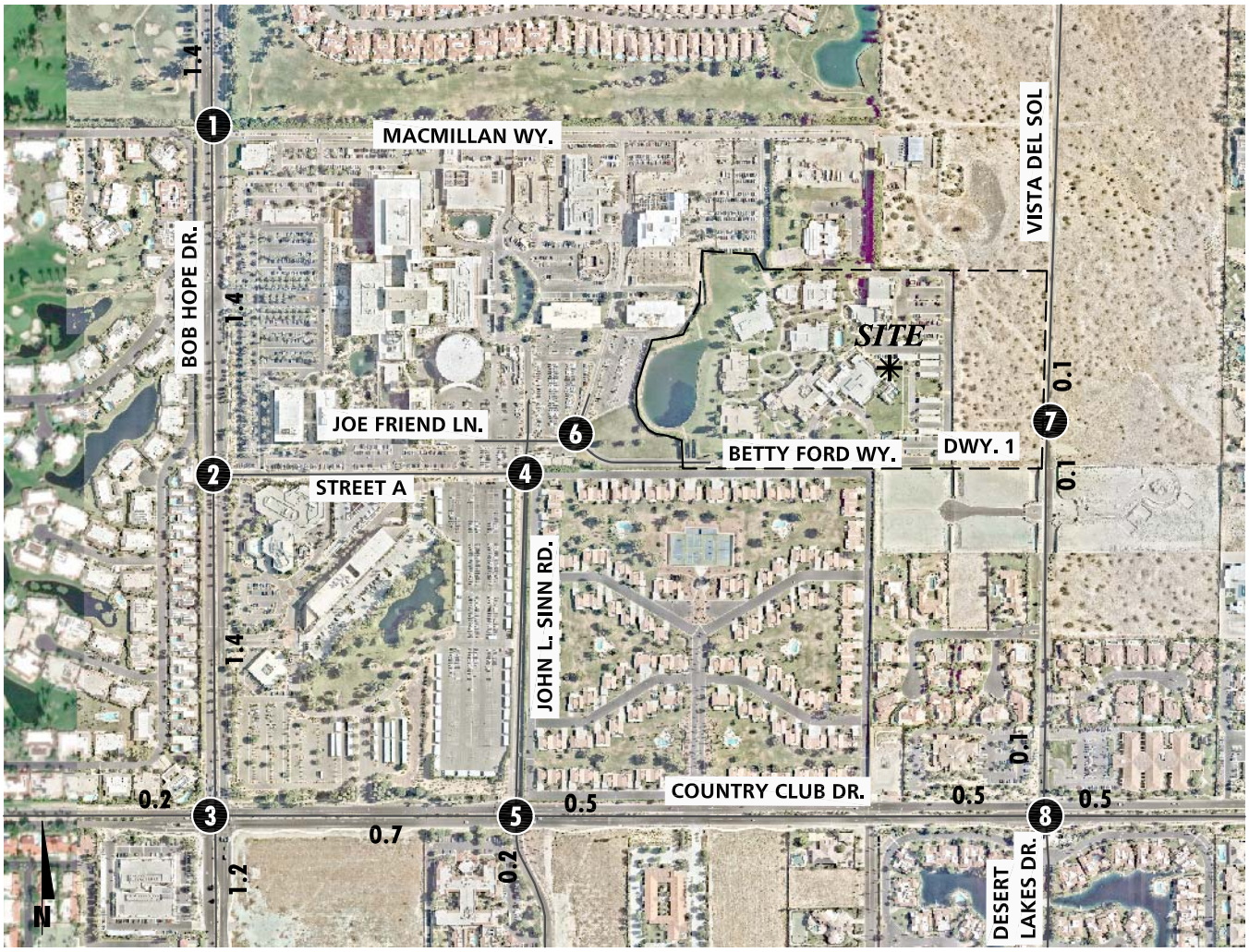
The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

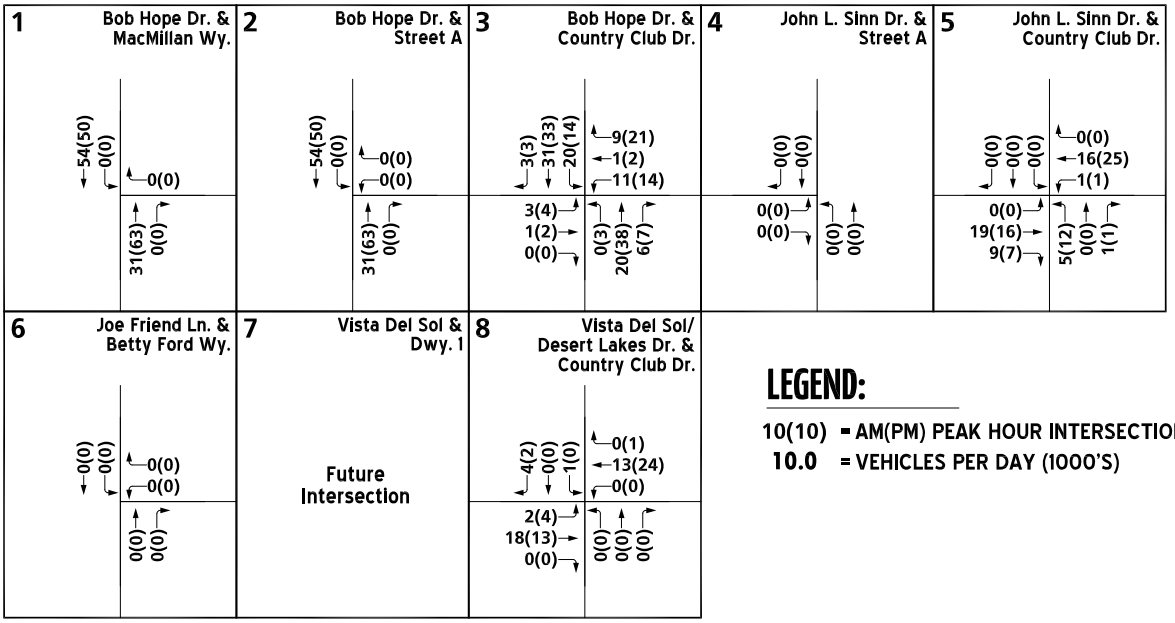
- EAP (2023)
  - Existing 2019 volumes
  - Ambient growth traffic (8.24%)
  - Project Traffic
- EAPC (2023)
  - Existing 2019 volumes
  - Ambient growth traffic (8.24%)
  - Cumulative Development traffic
  - Project Traffic

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS) (April 2016) growth forecasts for the City of Rancho Mirage identifies projected growth in population of 49,800 in 2012 to 61,700 in 2040, or a 23.90 percent increase over the 28-year period. (5) The change in population equates to roughly a 0.77 percent annual growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 34.19 percent, or a 1.06 percent annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 45.26 percent, or a 1.34 percent annual growth rate. The average growth rate is 1.34%, compounded annually between Year 2012 and Year 2040.

The average growth rate is estimated at approximately 3.50%, compounded annually between Existing (2019) and EAPC (2023) traffic conditions. The annual growth rate at each individual intersection is not lower than 2.97% compounded annually to as high as 4.95% compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Rancho Mirage for EAPC (2023) traffic conditions, especially when considered along with the addition of project-related traffic.

EXHIBIT 4-6: CUMULATIVE DEVELOPMENT PROJECT ONLY TRAFFIC VOLUMES





4.6 GENERAL PLAN BUILDOUT (2040) VOLUME DEVELOPMENT

Traffic projections for General Plan Buildout conditions were modeled using RivTAM 2040 Plus TPPS-CVAG model using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions, and General Plan Buildout (2040) conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the General Plan Buildout peak hour forecasts were refined using the model derived long-range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in December 2019. Other specific projects are included in the analysis such as the Section 31 Specific Plan and the addition of 2 dwelling units per acre to the vacant lots along Vista Del Sol.

The refined future peak hour approach and departure volumes obtained from these calculations are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

Lastly, the traffic forecasts for General Plan Buildout (2040) traffic conditions were reviewed to ensure a minimum growth over Existing (2019) traffic conditions as a part of the refinement process consistent with from the 2016 SCAG RTP/SCS. (5)

Post-processing worksheets for General Plan Buildout (2040) traffic conditions are provided in Appendix 4.1.

5 E+P TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing Plus Project (E+P) traffic conditions and the resulting peak hour intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. E+P weekday ADT, AM, and PM peak hour intersection turning movement volumes are shown on Exhibit 5-1.

5.3 E+P INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicate that there are no additional intersections operating at an unacceptable LOS with the addition of Project traffic, consistent with Existing (2019) conditions.

Consistent with Table 5-1, a summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

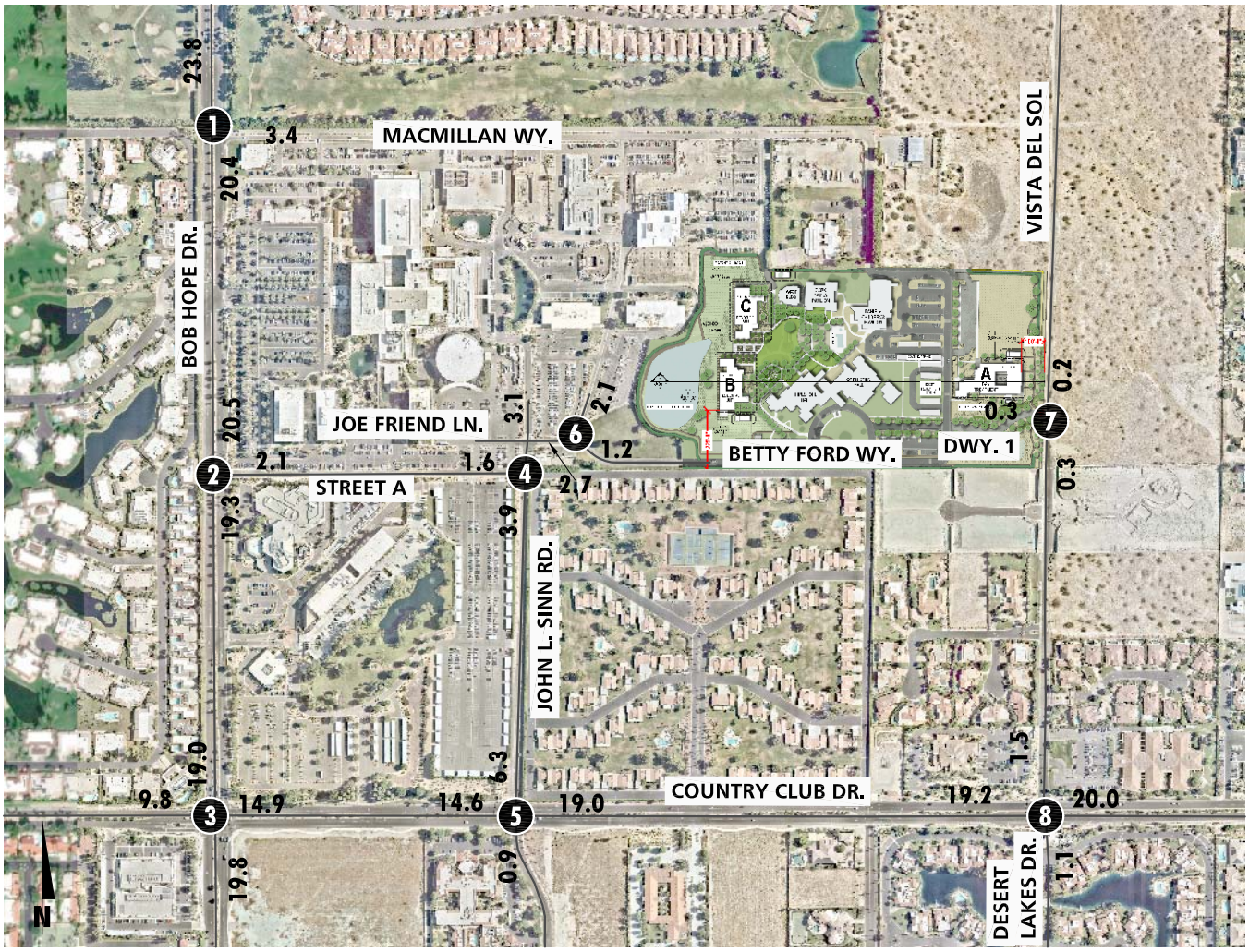
5.4 E+P TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on planning level (ADT) intersection volumes. For E+P traffic conditions, no additional study area intersections are anticipated to warrant a traffic signal (see Appendix 5.2), consistent with Existing (2019) conditions.

5.5 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. The effectiveness of the proposed recommended improvements is presented in Table 5-2 for E+P traffic conditions. The intersection operations analysis worksheets for E+P, with improvements, are included in Appendix 5.3.

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
998(663) 250(40) 88(245) 308(1047) 35(3)	762(656) 174(28) 36(113) 12(24) 371(921) 57(14)	43(43) 519(525) 109(180) 170(171) 239(267) 205(191) 68(70) 196(272) 98(84) 53(87) 333(606) 104(171)	15(18) 70(144) 24(15) 17(78) 76(27) 244(80)	22(63) 0(8) 86(377) 388(67) 658(528) 14(11) 53(13) 330(593) 16(12) 3(19) 1(1) 5(23)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
50(119) 21(3) 6(20) 12(52) 110(35) 112(22)	6(1) 5(5) 1(4) 4(15) 25(4) 5(5)	12(27) 1(0) 23(59) 65(28) 1055(567) 20(31) 18(10) 386(972) 9(16) 14(16) 0(1) 21(25)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 5-2: E+P SUMMARY OF LOS

LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F

Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	Existing (2019) Delay[1] (secs.) PM	Existing (2019) Level of Service AM	Existing (2019) Level of Service PM	E+P Delay[1] (secs.) AM	E+P Delay[1] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM
1	Bob Hope Dr. & MacMillan Wy.	CSS	9.9	20.7	A	C	9.9	21.0	A	C
2	Bob Hope Dr. & Street A	CSS	31.5	**38.7**	D	**E**	31.7	**40.0**	D	**E**
3	Bob Hope Dr. & Country Club Dr.	TS	21.1	22.2	C	C	21.1	22.3	C	C
4	John L. Sinn Rd. & Street A	CSS	11.5	9.7	B	A	12.2	9.9	B	A
5	John L. Sinn Rd. & Country Club Rd.	TS	13.6	15.6	B	B	13.8	15.7	B	B
6	Joe Friend Ln. & Betty Ford Wy.	CSS	9.9	9.6	A	A	10.2	9.9	B	A
7	Vista Del Sol & Driveway 1	--/**CSS**	Future Intersection				8.5	8.5	A	A
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	TS	8.6	9.0	A	A	8.8	9.5	A	A

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal

Table 5-2

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Bob Hope Dr. & Street A																	
	- Without Improvements	CSS	0	2	d	1	2	0	0	0	0	1	0	1	31.7	**40.0**	D	**E**
	- With Improvements	**TS**	0	2	d	1	2	0	0	0	0	1	0	1	7.8	9.1	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

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6 EAP (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing plus Ambient Growth plus Project (EAP) (2023) traffic conditions and the resulting peak hour intersection operations and traffic signal warrant.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

6.2 EAP (2023) TRAFFIC VOLUME FORECASTS

To account for background traffic growth, an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) is included for EAP traffic conditions. Cumulative development projects are not included as part of the EAP analysis. EAP weekday ADT, AM, and PM peak hour intersection turning movement volumes are shown on Exhibit 6-1.

6.3 EAP (2023) INTERSECTION OPERATIONS ANALYSIS

EAP peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 6-1, which indicate that there are no additional intersections operating at an unacceptable LOS with the addition of ambient growth and Project traffic, consistent with Existing (2019) and E+P traffic conditions.

Consistent with Table 6-1, a summary of the peak hour intersection LOS for EAP conditions is shown on Exhibit 6-2. The intersection operations analysis worksheets for EAP traffic conditions is included in Appendix 6.1 of this TIA.

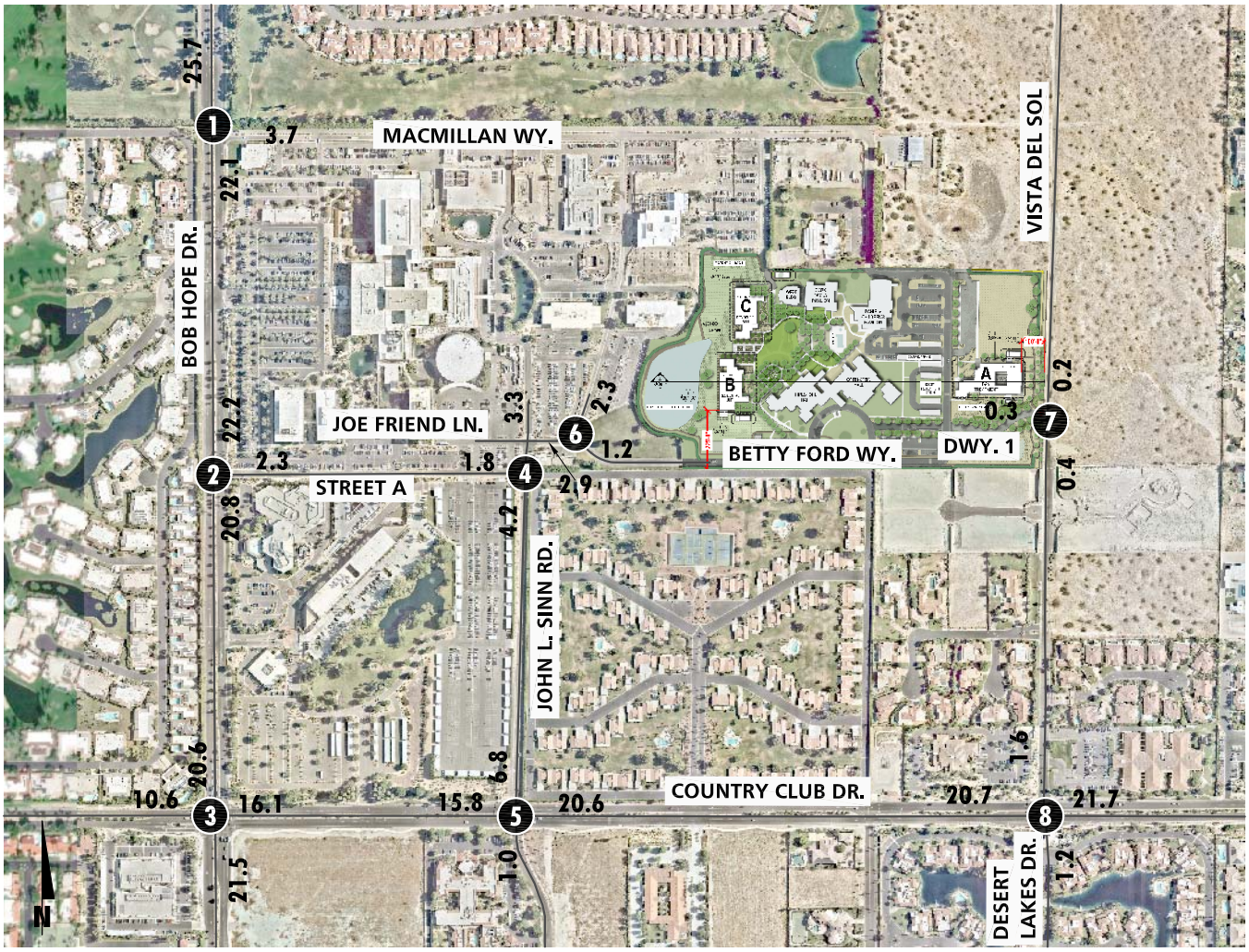
6.4 EAP (2023) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for EAP traffic conditions are based on planning level (ADT) intersection volumes. For EAP traffic conditions, no additional study area intersections are anticipated to warrant a traffic signal (see Appendix 6.2), consistent with Existing (2019) and E+P traffic conditions.

6.5 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. The effectiveness of the proposed recommended improvements is presented in Table 6-2 for EAP (2023) traffic conditions. The intersection operations analysis worksheets for EAP (2023), with improvements, are included in Appendix 6.3.

EXHIBIT 6-1: EAP (2023) TRAFFIC VOLUMES



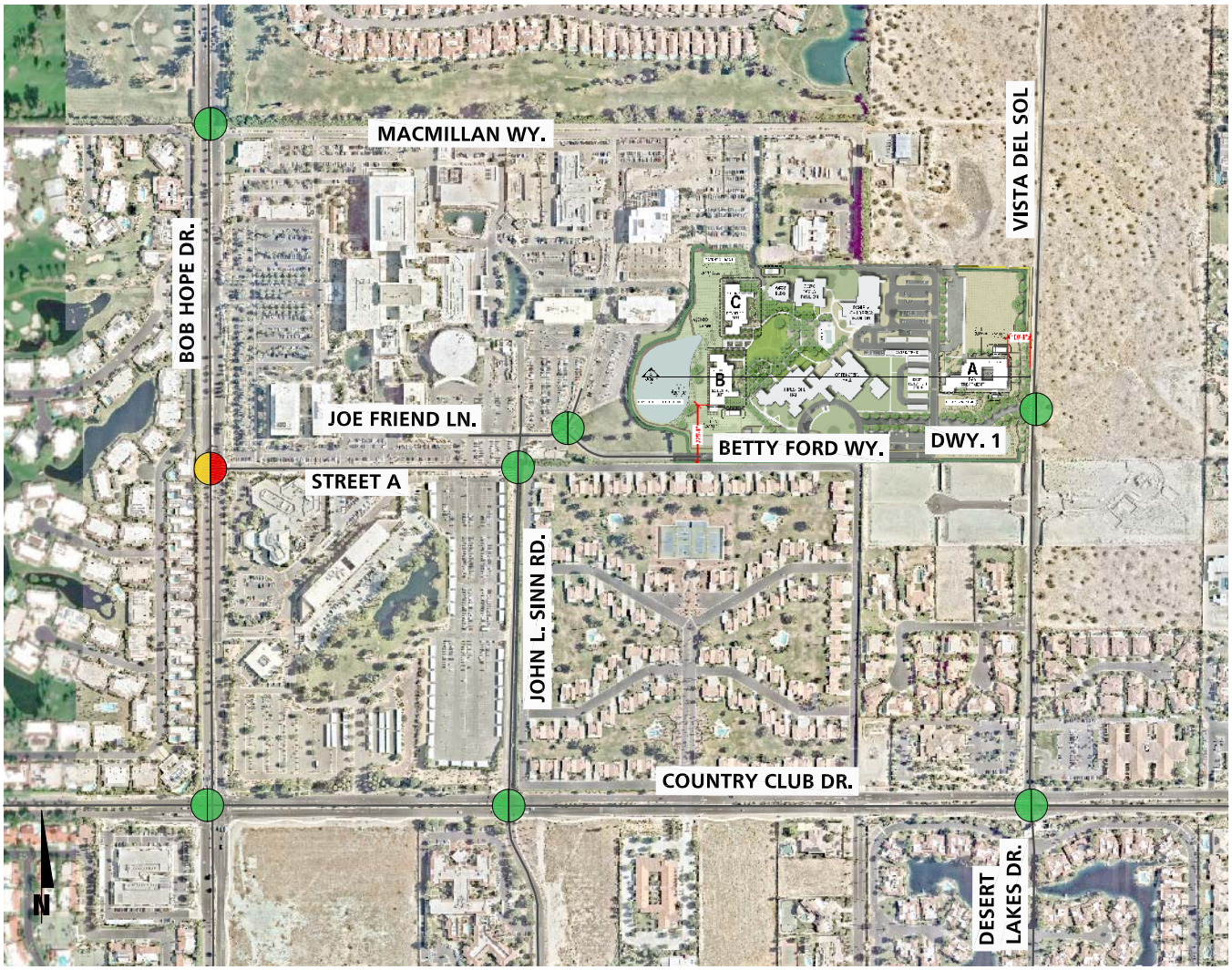
1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
↓1080(718) 270(43) ↳95(265)	↓825(710) 188(30) ↳39(122) 13(26)	↓47(46) 562(568) 118(195) ↳184(185) ←259(289) 222(207)	↓16(19) 76(155)	↓24(68) 0(9) 93(408) ↳419(72) ←712(571) 15(12)
↑333(1133) 38(3)	↑402(997) 61(15)	73(76)→ 211(294)→ 106(91)→ ↑57(94) 360(656) 112(185)	25(16)→ 18(84)→ ↑82(29) 263(86)	57(14)→ 357(642)→ 17(13)→ ↑3(21) 1(1) 5(25)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
↓54(129) 22(3) ↳6(21) 13(55)	↓6(1) 5(5)	↓13(29) 1(0) 25(63) ↳69(30) ←1141(614) 22(34)
↑119(38) 119(23)	1(4)→ 4(15)→ ↑25(4) 5(5)	19(11)→ 418(1052)→ 10(17)→ ↑15(17) 0(1) 23(27)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 6-2: EAP (2023) SUMMARY OF LOS



LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F

Table 6-1

Intersection Analysis for EAP (2023) Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	Existing (2019) Delay[1] (secs.) PM	Existing (2019) Level of Service AM	Existing (2019) Level of Service PM	EAP (2023) Delay[1] (secs.) AM	EAP (2023) Delay[1] (secs.) PM	EAP (2023) Level of Service AM	EAP (2023) Level of Service PM
1	Bob Hope Dr. & MacMillan Wy.	CSS	9.9	20.7	A	C	10.1	25.6	B	D
2	Bob Hope Dr. & Street A	CSS	31.5	**38.7**	D	**E**	**37.7**	**50.6**	**E**	**F**
3	Bob Hope Dr. & Country Club Dr.	TS	21.1	22.2	C	C	21.9	23.2	C	C
4	John L. Sinn Rd. & Street A	CSS	11.5	9.7	B	A	12.7	10.0	B	B
5	John L. Sinn Rd. & Country Club Rd.	TS	13.6	15.6	B	B	14.2	16.2	B	B
6	Joe Friend Ln. & Betty Ford Wy.	CSS	9.9	9.6	A	A	10.4	10.0	B	B
7	Vista Del Sol & Driveway 1	--/**CSS**	Future Intersection				8.5	8.5	A	A
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	TS	8.6	9.0	A	A	9.2	9.8	A	A

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal

Table 6-2

Intersection Analysis for EAP (2023) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Bob Hope Dr. & Street A																	
	- Without Improvements	CSS	0	2	d	1	2	0	0	0	0	1	0	1	**37.7**	**50.6**	**E**	**F**
	- With Improvements	**TS**	0	2	d	1	2	0	0	0	0	1	0	1	8.0	9.3	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

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7 EAPC (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (EAPC) (2023) traffic conditions and the resulting peak hour intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

7.2 EAPC (2023) TRAFFIC VOLUME FORECASTS

To account for background traffic growth, other known cumulative development projects in the study area were included in addition to an ambient growth from Existing conditions of 8.24% (2 percent per year over 4 years, compounded annually) for EAPC traffic conditions. EAPC weekday ADT, AM, and PM peak hour intersection turning movement volumes are shown on Exhibit 7-1.

7.3 EAPC (2023) INTERSECTION OPERATIONS ANALYSIS

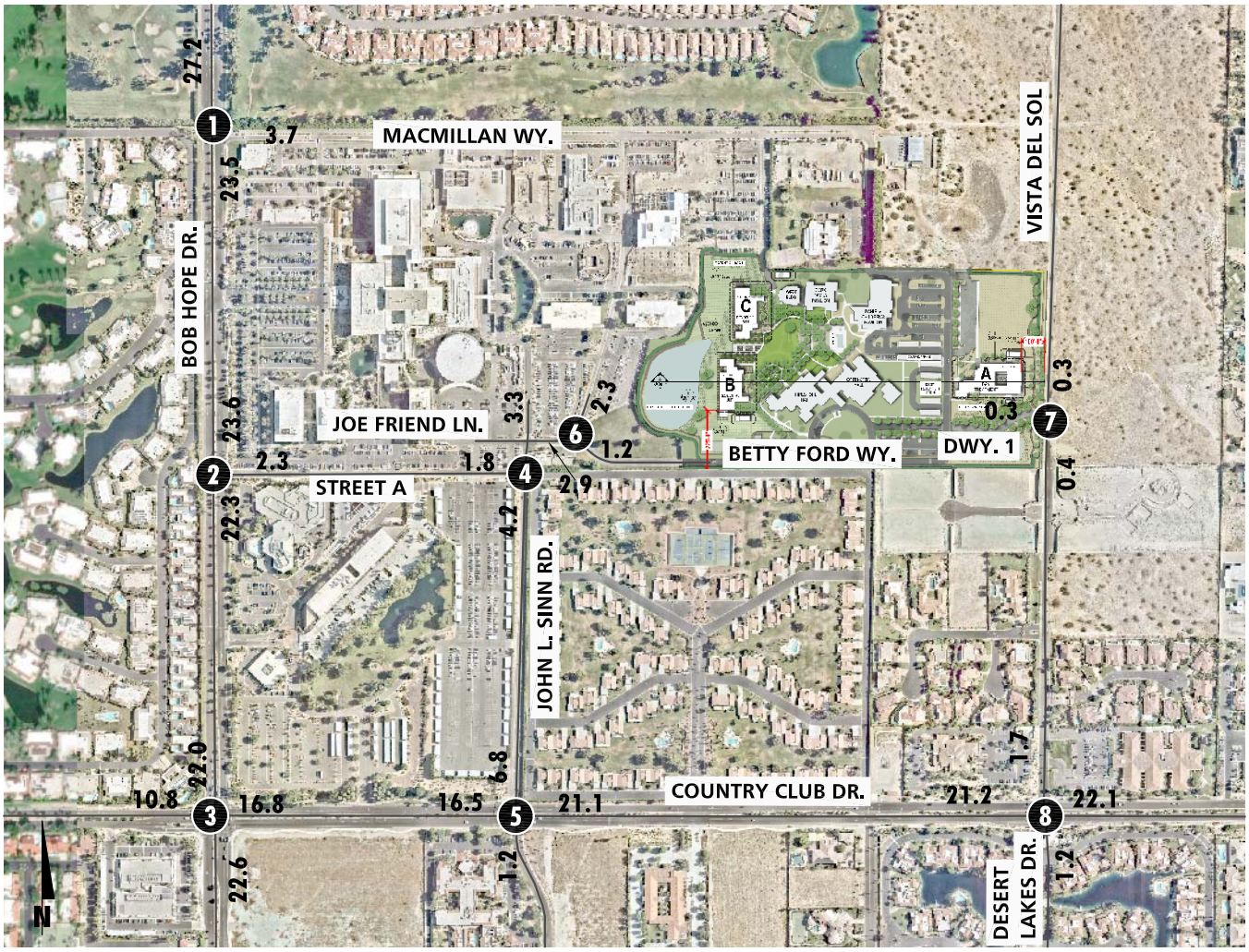
EAPC peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 7-1, which indicate that there are no additional intersections operating at an unacceptable LOS with the addition of ambient growth, cumulative projects, and Project traffic, consistent with Existing (2019), E+P, and EAP (2023) traffic conditions.

Consistent with Table 7-1, a summary of the peak hour intersection LOS for EAPC conditions is shown on Exhibit 7-2. The intersection operations analysis worksheets for EAPC traffic conditions is included in Appendix 7.1 of this TIA.

7.4 EAPC (2023) TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for EAPC traffic conditions are based on planning level (ADT) intersection volumes. For EAPC traffic conditions, no additional study area intersections are anticipated to warrant a traffic signal (see Appendix 7.2), consistent with Existing (2019), E+P, and EAP (2023) traffic conditions.

EXHIBIT 7-1: EAPC (2023) TRAFFIC VOLUMES



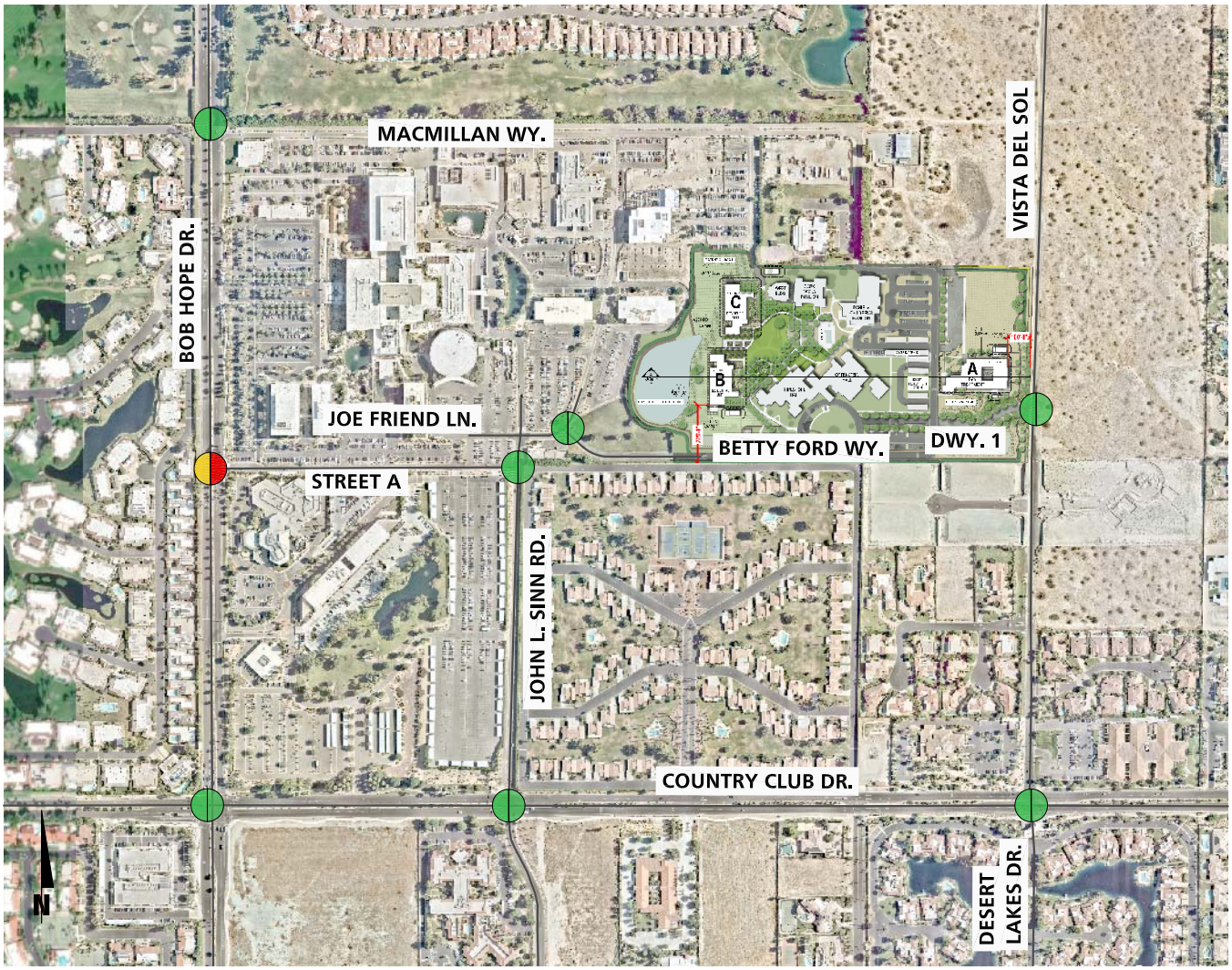
1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
1134(768) 270(43) 95(265)	879(760) 188(30) 39(122) 13(26)	50(49) 593(601) 138(209) 193(206) 260(291) 233(221)	16(19) 76(155)	24(68) 0(9) 93(408) 419(72) 728(596) 16(13)
364(1196) 38(3)	433(1060) 61(15)	76(80) 212(296) 106(91) 57(97) 380(694) 118(192)	25(16) 18(84) 82(29) 263(86)	57(14) 376(658) 26(20) 8(33) 1(1) 6(26)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
54(129) 22(3) 6(21) 13(55)	6(1) 10(8)	17(31) 1(0) 26(63) 69(31) 1154(638) 22(34)
119(38) 119(23)	1(4) 4(15) 25(4) 7(10)	21(15) 436(1065) 10(17) 15(17) 0(1) 23(27)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 7-2: EAPC (2023) SUMMARY OF LOS



LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F

Table 7-1

Intersection Analysis for EAPC (2023) Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	Existing (2019) Delay[1] (secs.) PM	Existing (2019) Level of Service AM	Existing (2019) Level of Service PM	EAPC (2023) Delay[1] (secs.) AM	EAPC (2023) Delay[1] (secs.) PM	EAPC (2023) Level of Service AM	EAPC (2023) Level of Service PM
1	Bob Hope Dr. & MacMillan Wy.	CSS	9.9	20.7	A	C	10.2	28.4	B	D
2	Bob Hope Dr. & Street A	CSS	31.5	**38.7**	D	**E**	**41.7**	**60.1**	**E**	**F**
3	Bob Hope Dr. & Country Club Dr.	TS	21.1	22.2	C	C	22.4	24.1	C	C
4	John L. Sinn Rd. & Street A	CSS	11.5	9.7	B	A	12.7	10.0	B	B
5	John L. Sinn Rd. & Country Club Rd.	TS	13.6	15.6	B	B	14.7	17.0	B	B
6	Joe Friend Ln. & Betty Ford Wy.	CSS	9.9	9.6	A	A	10.4	10.0	B	B
7	Vista Del Sol & Driveway 1	--/**CSS**	Future Intersection				8.5	8.5	A	A
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	TS	8.6	9.0	A	A	9.5	10.0	A	A

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal

7.5 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. The effectiveness of the proposed recommended improvements is presented in Table 7-2 for EAPC (2023) traffic conditions. The intersection operations analysis worksheets for EAPC (2023), with improvements, are included in Appendix 7.3.

Table 7-2

Intersection Analysis for EAPC (2023) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Bob Hope Dr. & Street A																	
	- Without Improvements	CSS	0	2	d	1	2	0	0	0	0	1	0	1	**41.7**	**60.1**	**E**	**F**
	- With Improvements	**TS**	0	2	d	1	2	0	0	0	0	1	0	1	8.1	9.4	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

8 GENERAL PLAN BUILDOUT (2040) TRAFFIC ANALYSIS

This section discusses the methods used to develop General Plan Buildout Without and With Project and the resulting intersection operations and traffic signal warrants analysis.

8.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for General Plan Buildout conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for General Plan Buildout With Project conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for General Plan Buildout conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).
- The addition of 2 dwelling units per acre to the vacant lots along Vista Del Sol.

8.2 GENERAL PLAN BUILDOUT WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the RivTAM (see Section 4.6 *General Plan Buildout (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT, AM, and PM peak hour volumes which can be expected for General Plan Buildout (2040) Without Project traffic conditions are shown on Exhibit 8-1.

8.3 GENERAL PLAN BUILDOUT WITH PROJECT TRAFFIC VOLUME FORECASTS

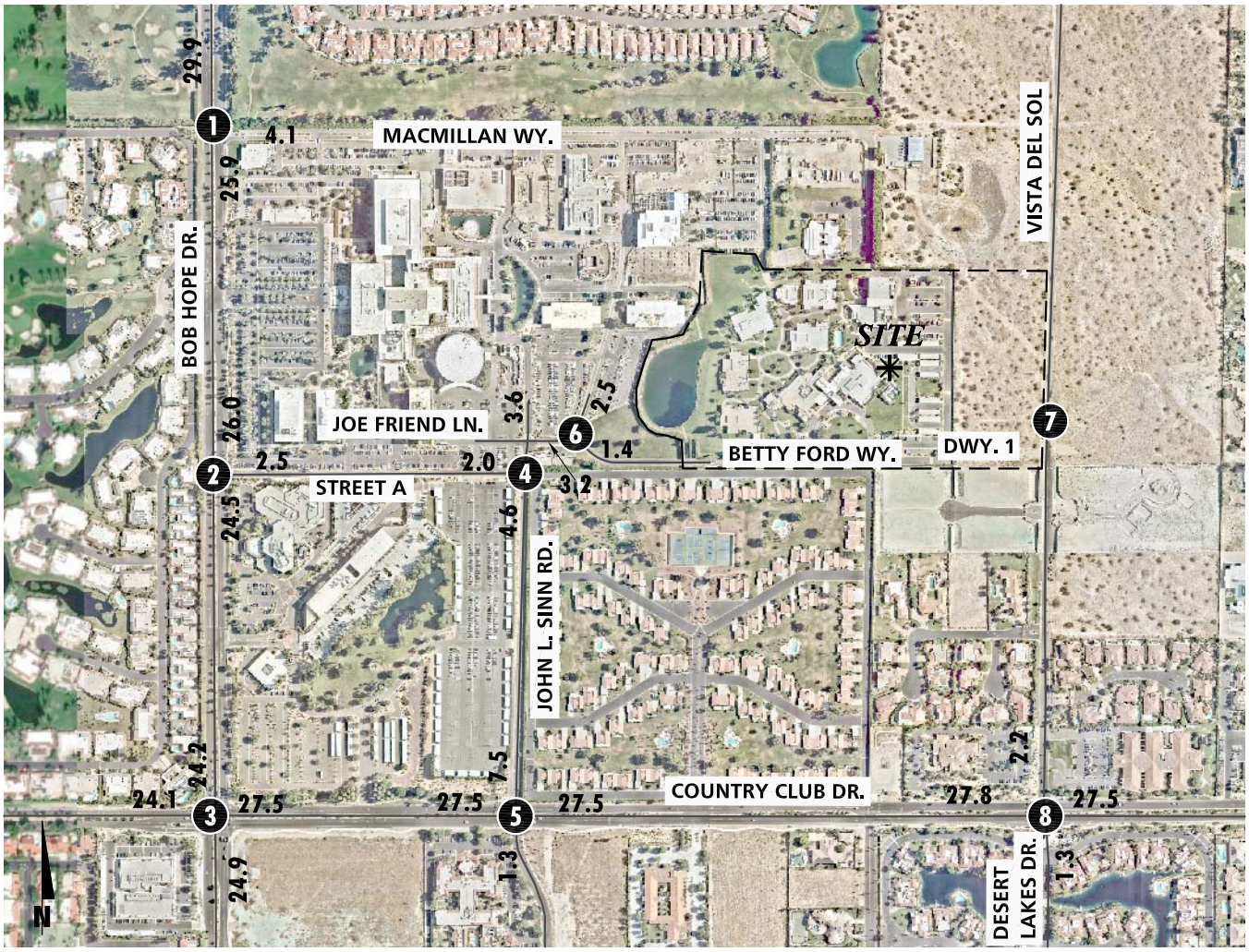
This scenario includes the refined post-process volumes obtained from the RivTAM, plus the traffic generated by the proposed Project. General Plan Buildout (2040) With Project traffic forecasts assumes buildout of the Project. The weekday ADT, AM, and PM peak hour volumes which can be expected for General Plan Buildout (2040) With Project traffic conditions are shown on Exhibit 8-2.

8.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under General Plan Buildout (2040) Without Project conditions with roadway and intersection geometrics consistent with Existing conditions. As shown in Table 8-1, the following study area intersection is anticipated to operate at unacceptable levels of service under General Plan Buildout (2040) Without Project conditions, in addition to the deficient intersection identified under Existing (2019) traffic conditions:

- Bob Hope Dr. & MacMillan Wy. (#1) – LOS E PM peak hour

EXHIBIT 8-1: GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT TRAFFIC VOLUMES



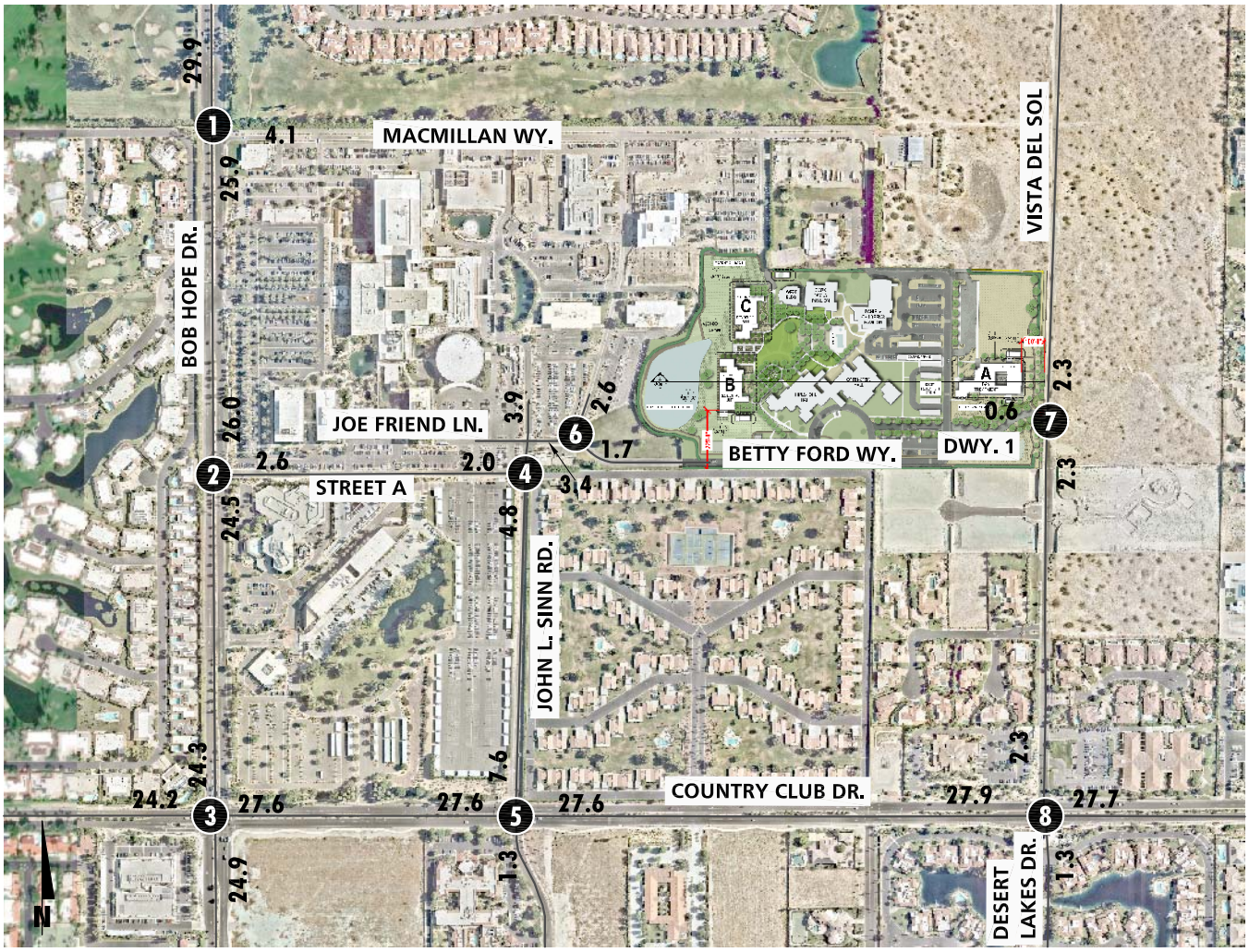
1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
1248(1083) / 297(48) / 105(291)	967(1083) / 207(33) / 43(135) / 14(28)	116(197) / 652(661) / 188(320) / 253(226) / 582(787) / 360(296)	18(21) / 83(170)	26(74) / 0(10) / 102(448) / 461(80) / 1195(1309) / 18(14)
858(1316) / 42(4)	858(1166) / 67(17)	235(88) / 474(668) / 166(144) / 98(195) / 418(763) / 152(354)	28(18) / 20(93) / 90(32) / 289(95)	62(15) / 814(1342) / 29(22) / 9(36) / 1(1) / 7(28)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
60(142) / 24(3) / 7(23) / 14(61)	Future Intersection	36(46) / 1(0) / 32(72) / 76(39) / 1195(1309) / 24(37)
131(42) / 131(26)		29(36) / 814(1342) / 11(19) / 17(19) / 0(1) / 25(30)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 8-2: GENERAL PLAN BUILDOUT (2040) WITH PROJECT TRAFFIC VOLUMES



1 Bob Hope Dr. & MacMillan Wy.	2 Bob Hope Dr. & Street A	3 Bob Hope Dr. & Country Club Dr.	4 John L. Sinn Dr. & Street A	5 John L. Sinn Dr. & Country Club Dr.
1248(1083) 303(49) 106(295) 858(1316) 42(4)	967(1083) 207(33) 43(135) 15(32) 858(1166) 73(18)	116(199) 652(663) 188(320) 253(226) 583(793) 360(298) 238(89) 483(670) 166(144) 98(195) 421(764) 155(355)	19(25) 86(181) 34(19) 20(93) 90(32) 308(98)	27(80) 0(10) 103(454) 470(82) 1195(1311) 18(14) 71(17) 817(1343) 29(22) 9(36) 1(1) 7(28)

6 Joe Friend Ln. & Betty Ford Wy.	7 Vista Del Sol & Dwy. 1	8 Vista Del Sol/ Desert Lakes Dr. & Country Club Dr.
60(142) 30(4) 8(27) 18(76) 131(42) 156(30)	23(4) 69(118) 3(13) 6(26) 44(7) 106(76)	36(48) 1(0) 34(79) 89(41) 1204(1311) 24(37) 32(37) 815(1348) 11(19) 17(19) 0(1) 25(30)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Table 8-1

Intersection Analysis for General Plan Buildout (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Bob Hope Dr. & MacMillan Wy.	CSS	15.9	**42.0**	C	**E**	16.1	**43.2**	C	**E**
2	Bob Hope Dr. & Street A	CSS	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**
3	Bob Hope Dr. & Country Club Dr.	TS	43.1	45.3	D	D	43.9	45.6	D	D
4	John L. Sinn Rd. & Street A	CSS	13.6	10.3	B	B	14.5	10.4	B	B
5	John L. Sinn Rd. & Country Club Rd.	TS	19.0	41.2	B	D	19.4	42.0	B	D
6	Joe Friend Ln. & Betty Ford Wy.	CSS	10.6	10.2	B	B	11.0	10.4	B	B
7	Vista Del Sol & Driveway 1	--/**CSS**	Future Intersection				9.3	9.4	A	A
8	Vista Del Sol/Desert Lakes Dr. & Country Club Dr.	TS	11.1	12.5	B	B	11.4	12.7	B	B

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal

With the addition of Project traffic, no additional study area intersections are anticipated to operate at unacceptable levels of service.

A summary of the peak hour intersection LOS for General Plan Buildout (2040) Without and With Project traffic conditions are shown on Exhibits 8-3 and 8-4, respectively. The intersection operations analysis worksheets for General Plan Buildout (2040) Without Project conditions are included in Appendix 8.1 of this TIA. The intersection operations analysis worksheets for General Plan Buildout (2040) With Project conditions are included in Appendix 8.2 of this TIA.

8.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

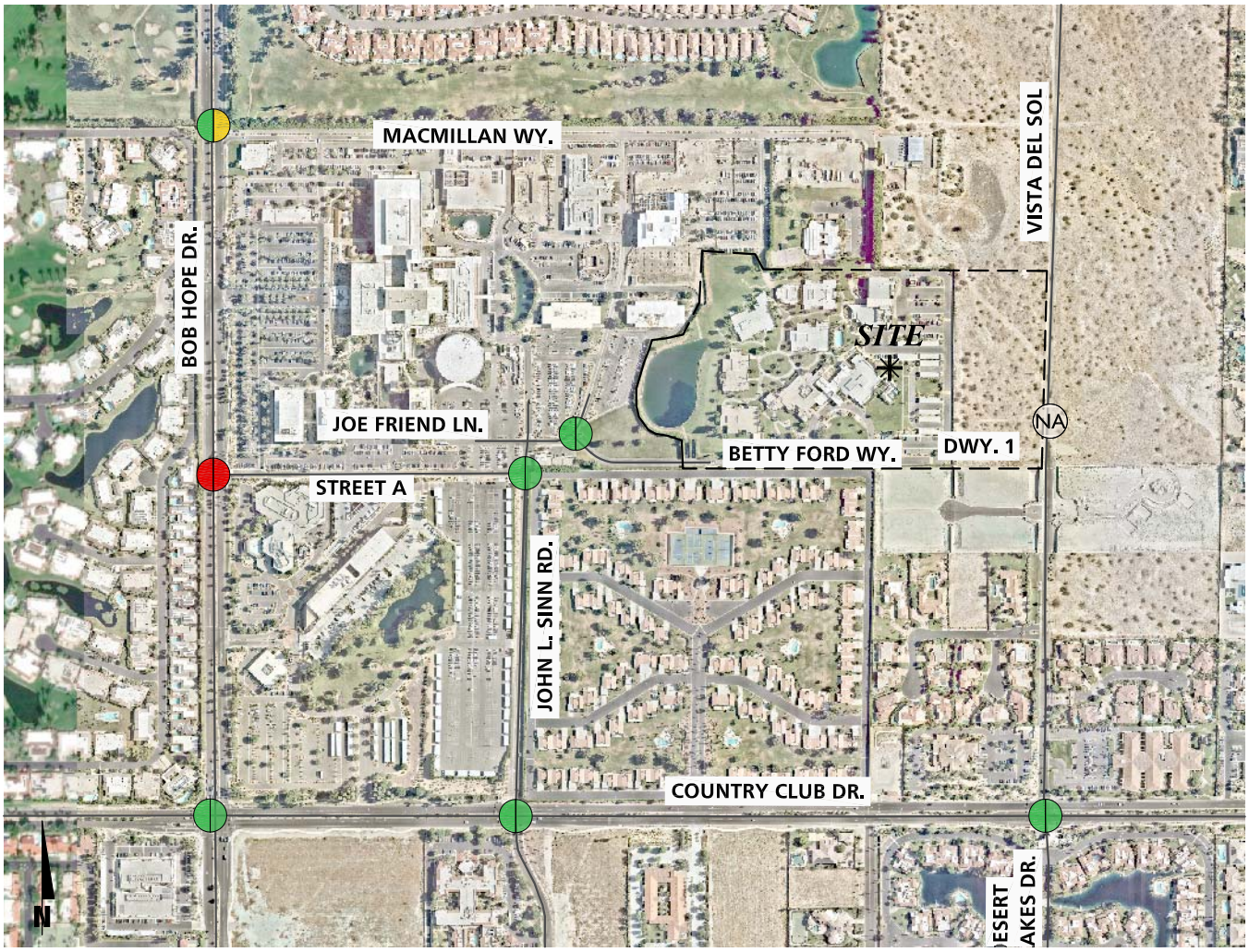
A traffic signal warrant analysis was performed at the unsignalized driveways for General Plan Buildout (2040) Without and With Project traffic conditions. No additional study area intersections are anticipated to warrant a traffic signal under General Plan Buildout (2040) Without and With Project traffic conditions, consistent with Existing, E+P, EAP (2023), and EAPC (2023) traffic conditions. Traffic signal warrants worksheets for General Plan Buildout (2040) Without and With Project conditions are provided in Appendix 8.3 and Appendix 8.4, respectively.

8.6 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Although the intersection of Bob Hope Drive & MacMillan Way is anticipated to operate under a deficient LOS for General Plan Buildout (2040) traffic conditions, no improvements have been recommended. The addition of a traffic signal may impede overall traffic circulation due to the restricted access (i.e., left-in/right-out only). The Project is anticipated to contribute only 7 AM peak hour trips and 5 PM peak hour trips to the intersection. As such, no improvements are recommended for the intersection of Bob Hope Drive & MacMillan Way.

The effectiveness of the proposed recommended improvements is presented in Table 8-2 for General Plan Buildout (2040) traffic conditions. The intersection operations analysis worksheets for General Plan Buildout (2040) With Project, with improvements, are included in Appendix 8.5.

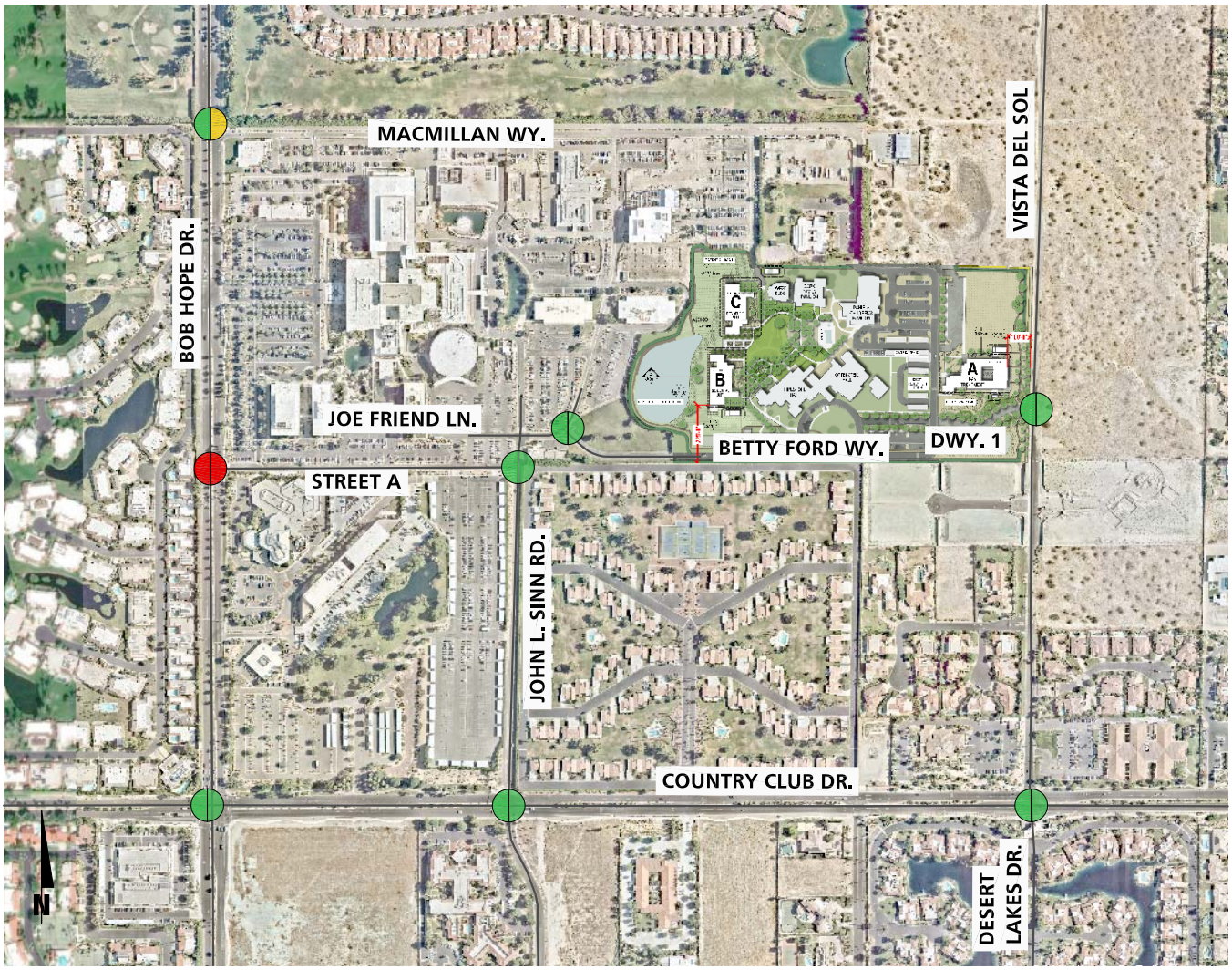
EXHIBIT 8-3: GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT SUMMARY OF LOS



LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

EXHIBIT 8-4: GENERAL PLAN BUILDOUT (2040) WITH PROJECT SUMMARY OF LOS



LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-D
- LOS E
- LOS F

Table 8-2

Intersection Analysis for General Plan Buildout (2040) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
2	Bob Hope Dr. & Street A																	
	- Without Improvements	CSS	0	2	d	1	2	0	0	0	0	1	0	1	**>100.0**	**>100.0**	**F**	**F**
	- With Improvements	**TS**	0	2	d	1	2	0	0	0	0	1	0	1	9.8	9.8	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

9 LOCAL AND REGIONAL FUNDING MECHANISMS

9.1 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by CVAG based upon a regional Nexus Study most recently updated in 2009 to address major changes in right of way acquisition and improvement cost factors. CVAG is currently in the process of completing a current Nexus Study update to the program. Final changes to network facilities, network cost allocations, and fee changes were not available at the time this assessment was prepared. This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region. The CVAG TUMF boundary covers many of the municipalities in the Coachella Valley while WRCOG TUMF cover those found in Western Riverside County.

TUMF fees are imposed on new residential, industrial, and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit stage. In addition, an annual inflation adjustment is considered each year in February. In this way, TUMF fees are adjusted upwards on a regular basis to ensure that the development impact fees collected keep pace with construction and labor costs, etc.

9.2 FAIR SHARE FEES

The Project Applicant's mitigation responsibilities may also be fulfilled through payment of fair-share fees. Fair share fees would be paid in instances where required traffic facilities are not otherwise funded by the programs noted previously. Fair share calculations are provided on Table 9-1 for each of the study area intersections where the Project is anticipated to contribute cumulatively to a peak hour issue.

Table 9-1

Project Fair Share Calculations for Intersections

#	Intersection	Existing	Project	2040 With Project Volume	Total New Traffic	Project % of New Traffic
2	Bob Hope Dr. & Street A					
	AM:	1,405	7	2,163	758	**0.9%**
	PM:	1,751	5	2,467	716	0.7%

BOLD = Denotes highest fair share percentage.

10 REFERENCES

1. **Riverside County Transportation Department.** *Traffic Impact Analysis Preparation Guide.* County of Riverside : s.n., Updated April 2008.
2. **Transportation Research Board.** *Highway Capacity Manual (HCM).* s.l. : National Academy of Sciences, 2010.
3. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.
4. *City of Rancho Mirage General Plan.* **City of Rancho Mirage.** November 2017.
5. **Southern California Association of Governments.** *2016 Regional Transportation Plan/Sustainable Communities Strategy.* April 2016.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

December 5,2019 (Revised January 21, 2020)

Mr. Jesse Eckenroth
City of Rancho Mirage
69825 Highway 111
Rancho Mirage, CA 92270

SUBJECT: SCOPING AGREEMENT FOR HAZELDEN BETTY FORD CENTER TRAFFIC IMPACT ANALYSIS

Dear Mr. Jesse Eckenroth:

The firm of Urban Crossroads, Inc. is pleased to submit this scoping agreement for Hazelden Betty Ford Center ("Project"), which is located immediately west of Vista del Sol and east of the existing Eisenhower Medical Center Campus, in the City of Rancho Mirage. The traffic analysis will be conducted for the buildout of the Project with an anticipated opening year of 2023.

Our goal is to obtain comments from City of Rancho Mirage staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the proposed analysis methodology, Project trip generation, trip distribution, and Project traffic assignment/project trips on the surrounding roadway network. The following scoping assumptions have been prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (April 2008) as the City of Rancho Mirage does not have its own traffic impact analysis guidelines.

The proposed changes to the Hazelden Betty Ford Center campus include the removal of four inpatient buildings totaling 51,694± square feet and a total of 80 beds. The Alumni Renewal Center will have a reduction of 30 beds. These five buildings will be replaced by two 2-story inpatient buildings, each providing 46 beds for a total of 92 beds. Each new inpatient building will encompass 30,935± square feet for a total of 61,870± square feet. The project also includes the construction of a new one-story, 22,748± square foot day-treatment building. This new building will house 44 day treatment patients, associated support space, and 6,399 square feet of administrative space including a computer lab and lecture hall. As a result, the proposed Project will have a net increase of 56 beds (existing 100 beds; proposed 156 beds) and a net increase of 6,399 square feet of administrative office space.

The preliminary site plan for the proposed Project is shown on Exhibit 1.

Access to the Project site will be provided via the following roadways:

- Driveway 1 on Vista Del Sol (full access)
- Betty Ford Way on Joe Friend Lane (full access)

Exhibit 2 depicts the location of the proposed Project in relation to the existing roadway network.

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the proposed land use are typically used. Since there is limited data on drug and alcohol treatment facilities, existing 24-hour counts were utilized to estimate the trip generation for the drug and alcohol treatment facility. The trip rate per bed was calculating the total traffic based on counts by the existing number of beds (100). The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project are shown in Table 1. As shown on Table 1, the proposed Project is anticipated to generate a net total of 562 trip-ends per day, 72 AM peak hour trips and 48 PM peak hour trips.

TRIP DISTRIBUTION

The near-term and General Plan buildout trip distribution patterns for the Project are graphically depicted on Exhibits 3 and 4, respectively. The trip distributions have been developed based on past work experience in the vicinity of the Project site and refined to reflect the roadway network and the surrounding uses in the vicinity of the proposed Project as they exist today.

STUDY AREA

The traffic impact study area was defined in conformance with the requirements of County of Riverside's Traffic Impact Analysis Preparation Guide. Consistent with the County's TIA guidelines, study area intersections have been identified for the Project based on the contribution of 50 or more peak hour trips. Exhibit 2 presents the study area intersection analysis locations.

TRAFFIC COUNTS

Weekday traffic counts were conducted during AM (7-9 AM) and PM (4-6 PM) peak hours on a typical Tuesday, Wednesday, or Thursday when local schools are in session and operating on a typical bell schedule. Weekday peak hour and 24-hour counts were taken for the locations shown on Exhibit 2.

AMBIENT GROWTH ASSUMPTIONS

The ambient growth rate of 8.24% will be utilized for an opening year of 2023 (2% compounded over 4 years).

ANALYSIS SCENARIOS

The following analysis scenarios are proposed for this traffic study:

- Existing (2019)
- Existing Plus Project (E+P)
- Existing Plus Ambient Growth Plus Project (E+A+P) (2023)
- Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (E+A+C+P) (2023)
- General Plan Buildout (2040) Without Project
- General Plan Buildout (2040) With Project

General Plan Buildout (2040) traffic forecasts will be developed based on the Riverside County Transportation and Analysis Model (RivTAM). Buildout traffic on Vista Del Sol will be calculated based on 1 dwelling unit per acre for currently vacant lots.

LEVEL OF SERVICE (LOS) CRITERIA

Per Goal 1, Policy 1 of the City of Rancho Mirage General Plan, the following LOS will be utilized for study area intersections located within the City: Require development to achieve a peak hour LOS D or better at intersections and roadway segments.

PREFERRED ANALYSIS METHODOLOGY

For the purposes of this analysis, signalized intersection operations analysis will be based on the methodology described in the Highway Capacity Manual (6th Edition). Intersection LOS operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM 6th Edition. At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane.

OPEN ITEMS - CUMULATIVE DEVELOPMENT PROJECTS

The City of Rancho Mirage Planning Department will be contacted to provide a list of cumulative projects to be included in the analysis. The City of Palm Desert will also be consulted for their input on cumulative projects within their jurisdiction.

SPECIAL ISSUES

The following issues will also be addressed as part of the TIA:

- *Site Access Evaluation:* Recommendations regarding site access and internal circulation features to accommodate peak hour traffic volumes will be included in the traffic study. Queuing analyses will be prepared for all turn lanes into the project site for "with project" scenarios.
- *Traffic Signal Warrant Analysis:* Signal warrant analysis will be prepared for unsignalized intersections for all study scenarios, except when an intersection is warranted in an earlier scenario. Peak hour volume based warrants (CA MUTCD Warrant 3) will be utilized for existing conditions. For future scenarios, CA MUTCD Figure 4C-103, Traffic Signals Warrant Worksheet (Average Traffic Estimate Form) will be utilized.

If you have any questions, please contact me directly at (949) 336-5992.

Respectfully submitted,

URBAN CROSSROADS, INC.

Pranesh Tarikere, PE
Senior Engineer

Table 1

Project Trip Generation Summary

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
General Office Building[1]	710	TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Drug/Alcohol Treatment Center[3]	--	Beds	1.02	0.15	1.17	0.17	0.56	0.73	8.87

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
General Office Building	6.399	TSF	6	1	7	1	6	7	64
Drug/Alcohol Treatment Center[3]	56	Beds	57	8	65	10	31	41	498
		Total	**63**	**9**	**72**	**11**	**37**	**48**	**562**

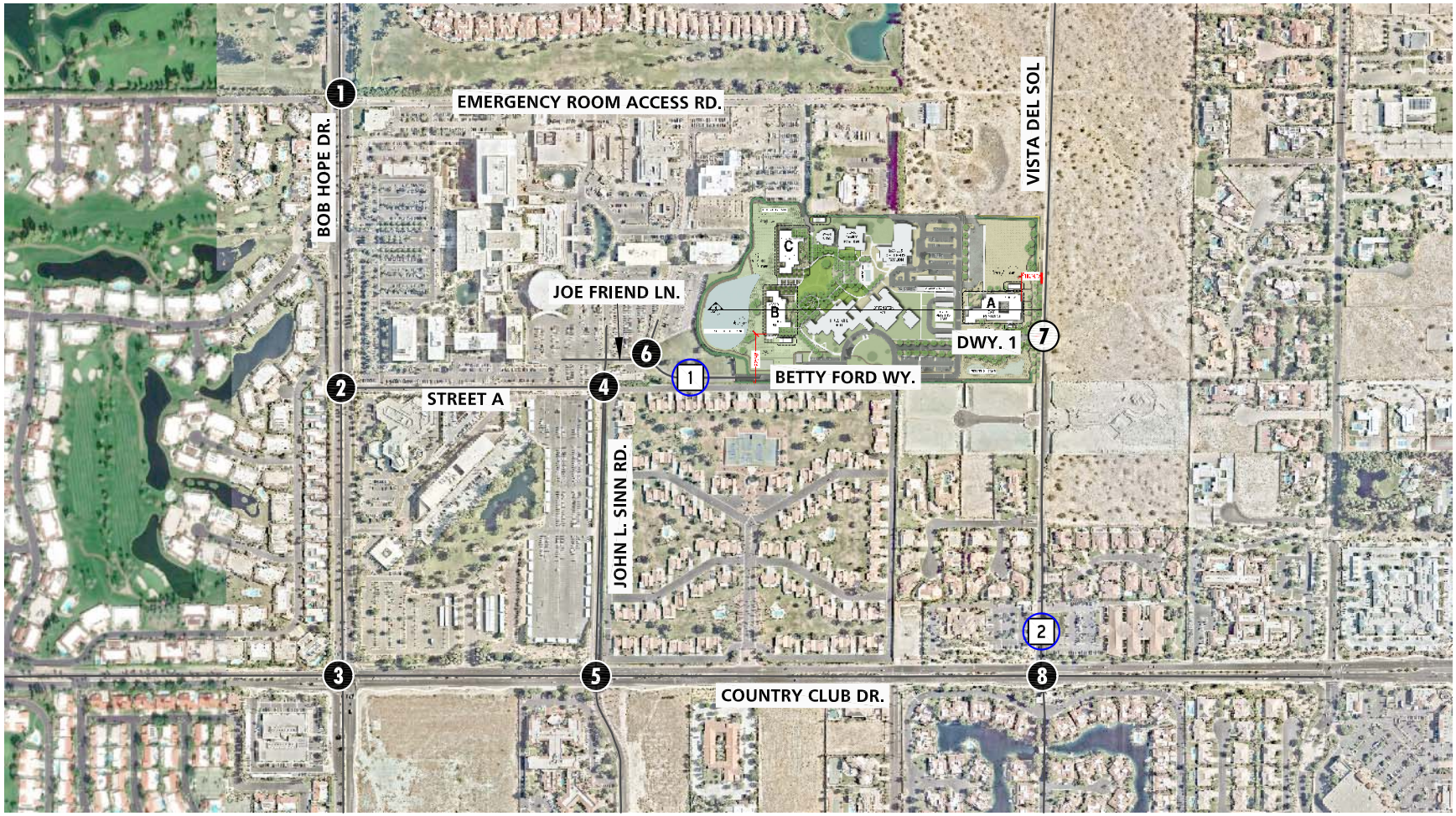
[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] TSF = Thousand Square Feet

[3] Based on 24-hour counts collected at Hazelden Betty Ford Center on Wednesday 12/11/19.

EXHIBIT 1: PRELIMINARY SITE PLAN

EXHIBIT 2: LOCATION MAP

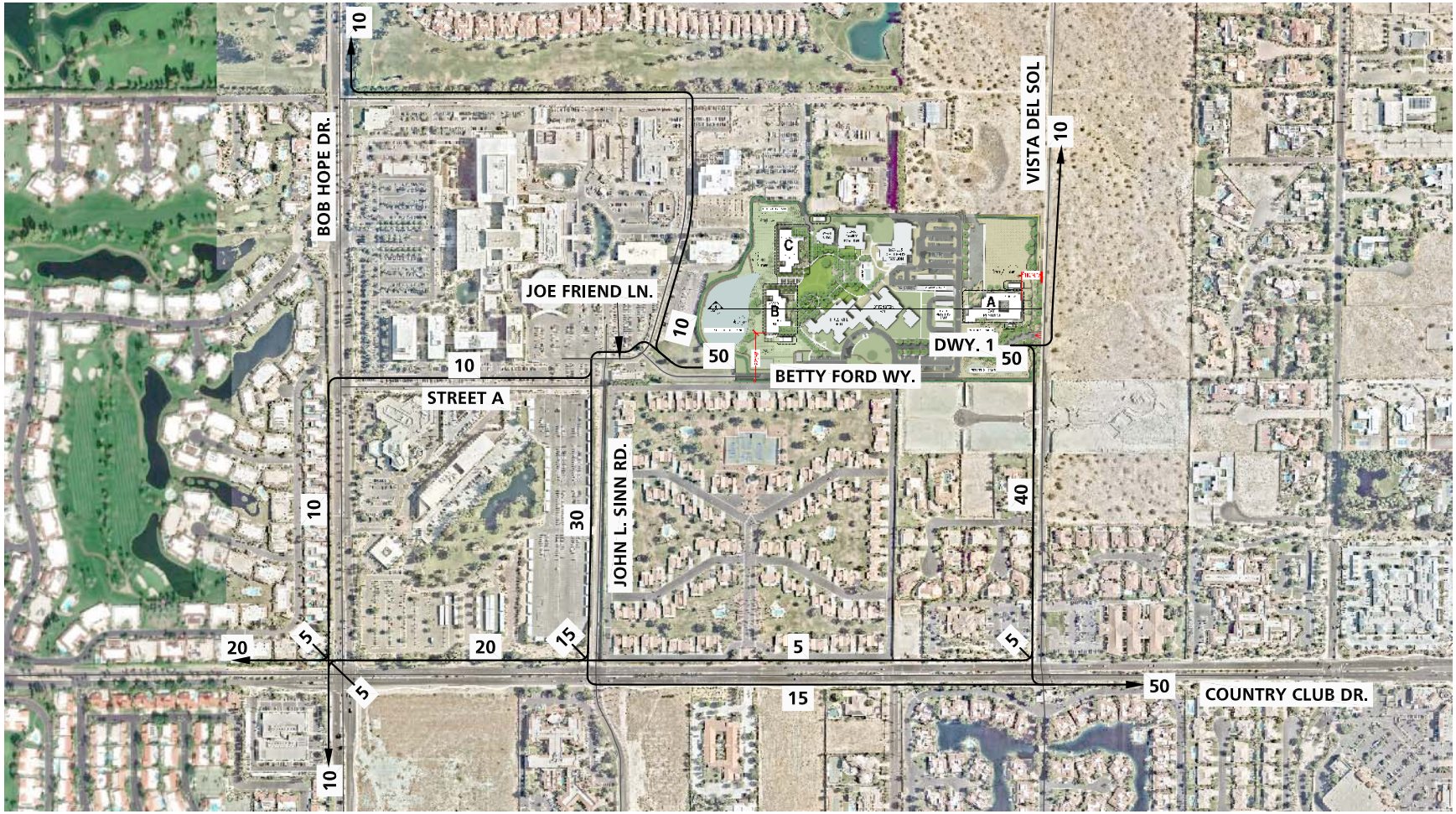


LEGEND:

- = EXISTING INTERSECTION ANALYSIS AND COUNT LOCATION
- = FUTURE INTERSECTION ANALYSIS LOCATION
- = 24-HOUR ROADWAY SEGMENT COUNT LOCATION

N

EXHIBIT 3: PROJECT (NEAR-TERM) TRIP DISTRIBUTION

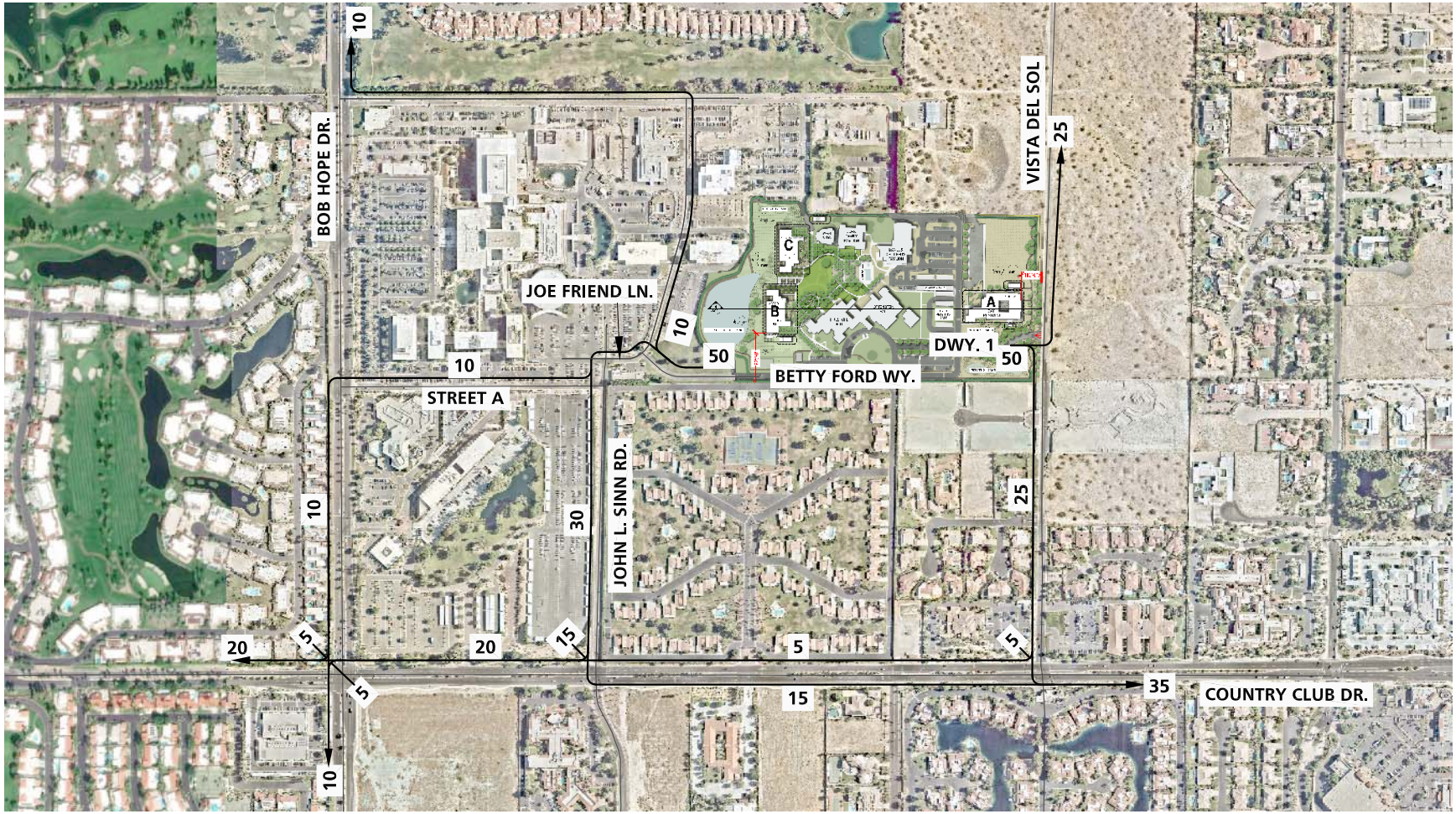


LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 4: PROJECT (GENERAL PLAN BUILDOUT) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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APPENDIX 1.2:

SITE ACCESS QUEUES

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Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	55	30
Average Queue (ft)	16	2
95th Queue (ft)	43	14
Link Distance (ft)	1388	560
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB
Directions Served	LR
Maximum Queue (ft)	54
Average Queue (ft)	32
95th Queue (ft)	43
Link Distance (ft)	1388
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	30	30
Average Queue (ft)	17	3
95th Queue (ft)	41	18
Link Distance (ft)	1388	560
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	32
95th Queue (ft)	52
Link Distance (ft)	1388
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	13
95th Queue (ft)	38
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	30	30
Average Queue (ft)	17	5
95th Queue (ft)	41	24
Link Distance (ft)	1388	560
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB
Directions Served	LR
Maximum Queue (ft)	54
Average Queue (ft)	31
95th Queue (ft)	56
Link Distance (ft)	1388
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	15
95th Queue (ft)	41
Link Distance (ft)	645
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	53	52
Average Queue (ft)	23	7
95th Queue (ft)	47	33
Link Distance (ft)	1388	560
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	31
Average Queue (ft)	6	3
95th Queue (ft)	26	18
Link Distance (ft)	645	1392
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 6: Joe Friend Ln. & Betty Ford Wy.

Movement	WB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	35
95th Queue (ft)	55
Link Distance (ft)	1388
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Vista Del Sol & Driveway 1

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	53	31
Average Queue (ft)	25	2
95th Queue (ft)	47	15
Link Distance (ft)	645	1392
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – DECEMBER 2019

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)
Weather: Clear

File Name : 01_RNM_Bob_ER AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound			MacMillan Way Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	55	151	206	0	7	7	39	0	39	252
07:15 AM	65	154	219	0	7	7	59	5	64	290
07:30 AM	65	217	282	0	41	41	68	8	76	399
07:45 AM	75	301	376	0	22	22	72	8	80	478
Total	260	823	1083	0	77	77	238	21	259	1419
08:00 AM	57	216	273	0	14	14	78	8	86	373
08:15 AM	47	264	311	0	10	10	90	11	101	422
08:30 AM	40	212	252	0	20	20	105	4	109	381
08:45 AM	33	201	234	0	10	10	134	14	148	392
Total	177	893	1070	0	54	54	407	37	444	1568
Grand Total	437	1716	2153	0	131	131	645	58	703	2987
Apprch %	20.3	79.7		0	100		91.7	8.3		
Total %	14.6	57.4	72.1	0	4.4	4.4	21.6	1.9	23.5	

	Bob Hope Drive Southbound			MacMillan Way Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	65	217	282	0	**41**	**41**	68	8	76	399
07:45 AM	**75**	**301**	**376**	0	22	22	72	8	80	**478**
08:00 AM	57	216	273	0	14	14	78	8	86	373
08:15 AM	47	264	311	0	10	10	**90**	**11**	**101**	422
Total Volume	244	998	1242	0	87	87	308	35	343	1672
% App. Total	19.6	80.4		0	100		89.8	10.2		
PHF	.813	.829	.826	.000	.530	.530	.856	.795	.849	.874

Counts Unlimited
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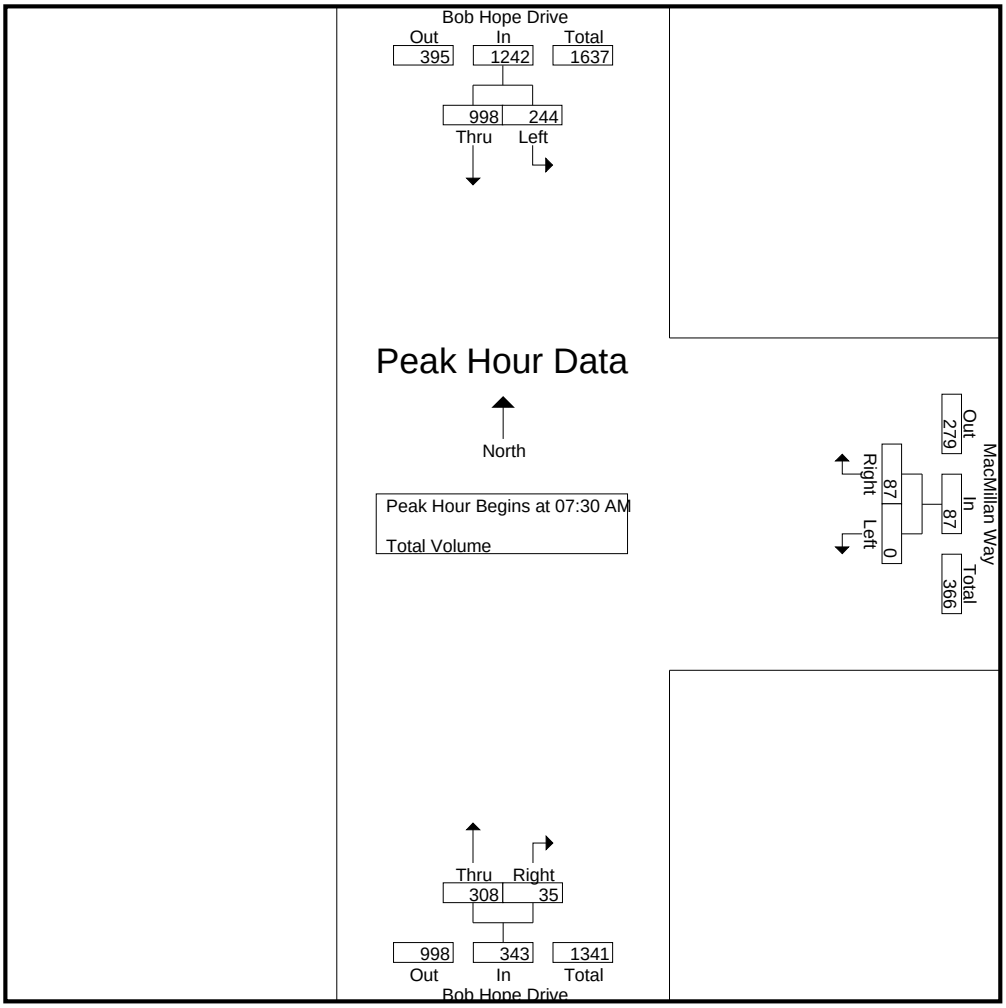
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)
Weather: Clear

File Name : 01_RNM_Bob_ER AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			08:00 AM		
+0 mins.	65	217	282	0	**41**	**41**	78	8	86
+15 mins.	**75**	**301**	**376**	0	22	22	90	11	101
+30 mins.	57	216	273	0	14	14	105	4	109
+45 mins.	47	264	311	0	10	10	**134**	**14**	**148**
Total Volume	244	998	1242	0	87	87	407	37	444
% App. Total	19.6	80.4		0	100		91.7	8.3	
PHF	.813	.829	.826	.000	.530	.530	.759	.661	.750

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City of Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)
Weather: Clear

File Name : 01_RNM_Bob_ER PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound			MacMillan Way Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	19	166	185	0	57	57	271	4	275	517
04:15 PM	12	161	173	0	44	44	217	0	217	434
04:30 PM	11	160	171	0	59	59	289	0	289	519
04:45 PM	13	176	189	0	57	57	267	1	268	514
Total	55	663	718	0	217	217	1044	5	1049	1984
05:00 PM	3	166	169	0	81	81	274	2	276	526
05:15 PM	13	151	164	0	36	36	218	0	218	418
05:30 PM	14	131	145	0	39	39	192	1	193	377
05:45 PM	9	125	134	0	22	22	115	0	115	271
Total	39	573	612	0	178	178	799	3	802	1592
Grand Total	94	1236	1330	0	395	395	1843	8	1851	3576
Apprch %	7.1	92.9		0	100		99.6	0.4		
Total %	2.6	34.6	37.2	0	11	11	51.5	0.2	51.8	

	Bob Hope Drive Southbound			MacMillan Way Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	12	161	173	0	44	44	217	0	217	434
04:30 PM	11	160	171	0	59	59	**289**	0	**289**	519
04:45 PM	**13**	**176**	**189**	0	57	57	267	1	268	514
05:00 PM	3	166	169	0	**81**	**81**	274	**2**	276	**526**
Total Volume	39	663	702	0	241	241	1047	3	1050	1993
% App. Total	5.6	94.4		0	100		99.7	0.3		
PHF	.750	.942	.929	.000	.744	.744	.906	.375	.908	.947

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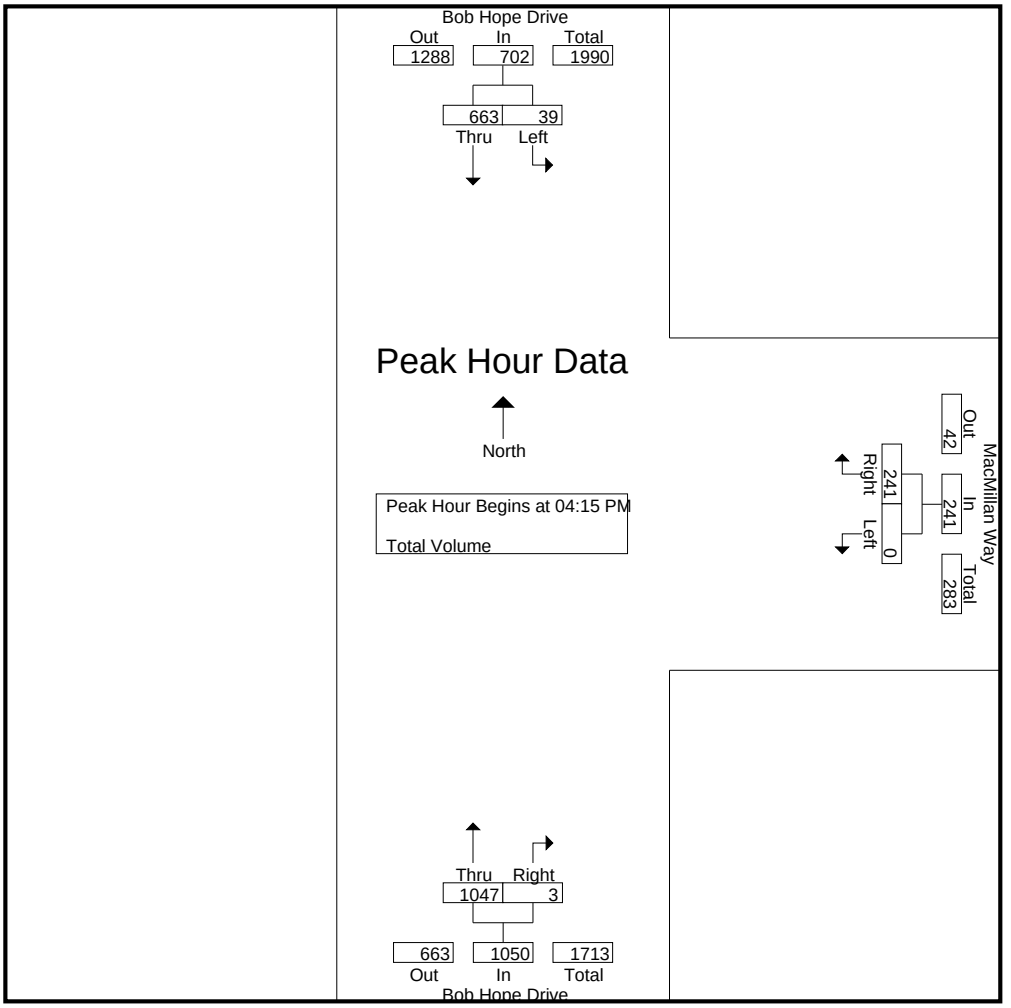
City of Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)
Weather: Clear

File Name : 01_RNM_Bob_ER PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:15 PM			04:30 PM		
+0 mins.	**19**	166	185	0	44	44	**289**	0	**289**
+15 mins.	12	161	173	0	59	59	267	1	268
+30 mins.	11	160	171	0	57	57	274	**2**	276
+45 mins.	13	**176**	**189**	0	**81**	**81**	218	0	218
Total Volume	55	663	718	0	241	241	1048	3	1051
% App. Total	7.7	92.3		0	100		99.7	0.3	
PHF	.724	.942	.950	.000	.744	.744	.907	.375	.909

Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg Bob Hope Drive	East Leg MacMillan Way	South Leg Bob Hope Drive	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	2	0	0	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	4	0	0	4

	North Leg Bob Hope Drive	East Leg MacMillan Way	South Leg Bob Hope Drive	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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PO Box 1178
Corona, CA 92878
951-268-6268

Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: MacMillan Way (ER Access)

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound Bob Hope Drive			Westbound MacMillan Way			Northbound Bob Hope Drive			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

	Southbound Bob Hope Drive			Westbound MacMillan Way			Northbound Bob Hope Drive			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	1	0	0	0	0	3

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Counts Unlimited
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Corona, CA 92878
(951) 268-6268

City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Street A
Weather: Clear

File Name : 02_RNM_Bob_A St AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound			Street A Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	39	112	151	2	5	7	46	5	51	209
07:15 AM	46	100	146	3	7	10	65	12	77	233
07:30 AM	47	166	213	2	8	10	67	5	72	295
07:45 AM	73	210	283	1	12	13	79	9	88	384
Total	205	588	793	8	32	40	257	31	288	1121
08:00 AM	29	183	212	4	5	9	96	15	111	332
08:15 AM	37	198	235	4	8	12	90	15	105	352
08:30 AM	35	171	206	2	11	13	106	12	118	337
08:45 AM	31	160	191	2	12	14	127	16	143	348
Total	132	712	844	12	36	48	419	58	477	1369
Grand Total	337	1300	1637	20	68	88	676	89	765	2490
Apprch %	20.6	79.4		22.7	77.3		88.4	11.6		
Total %	13.5	52.2	65.7	0.8	2.7	3.5	27.1	3.6	30.7	

	Bob Hope Drive Southbound			Street A Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**73**	**210**	**283**	1	**12**	**13**	79	9	88	**384**
08:00 AM	29	183	212	**4**	5	9	96	**15**	111	332
08:15 AM	37	198	235	4	8	12	90	15	105	352
08:30 AM	35	171	206	2	11	13	**106**	12	**118**	337
Total Volume	174	762	936	11	36	47	371	51	422	1405
% App. Total	18.6	81.4		23.4	76.6		87.9	12.1		
PHF	.596	.907	.827	.688	.750	.904	.875	.850	.894	.915

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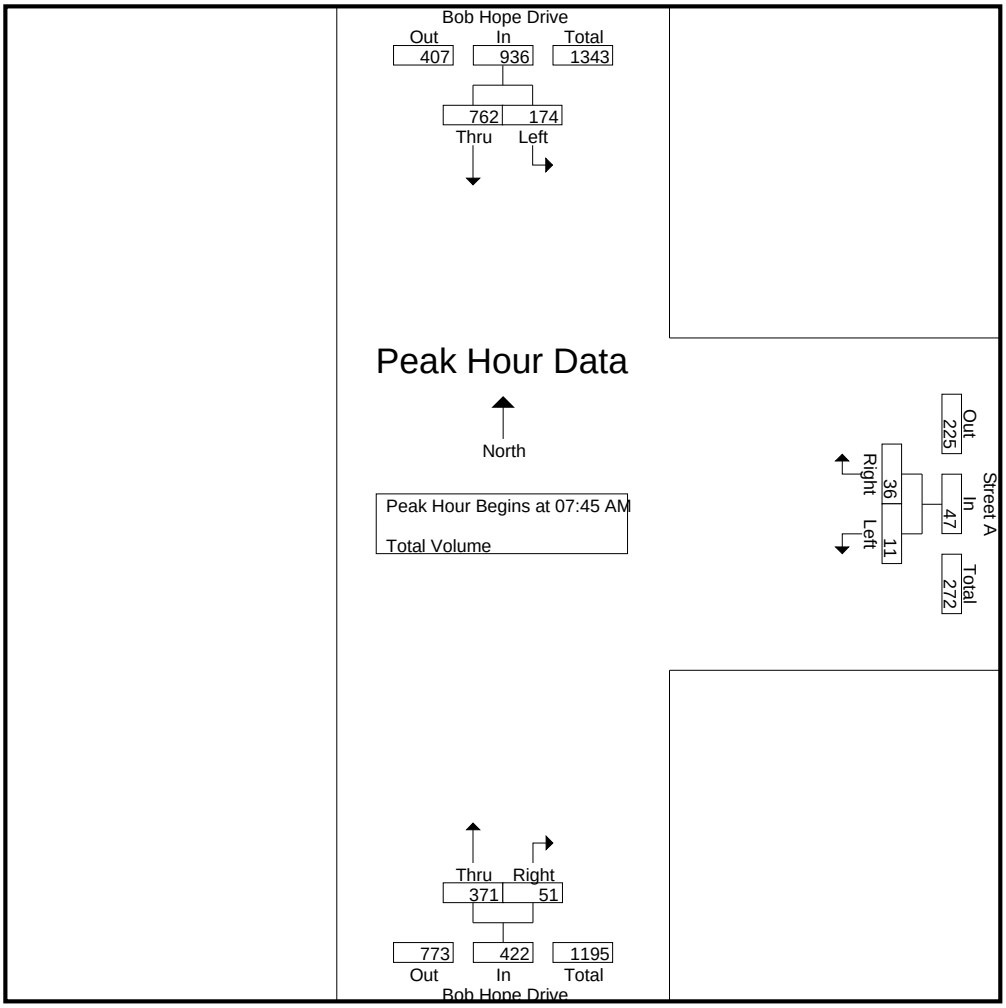
City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Street A
Weather: Clear

File Name : 02_RNM_Bob_A St AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			08:00 AM		
+0 mins.	47	166	213	**4**	5	9	96	15	111
+15 mins.	**73**	**210**	**283**	4	8	12	90	15	105
+30 mins.	29	183	212	2	11	13	106	12	118
+45 mins.	37	198	235	2	**12**	**14**	**127**	**16**	**143**
Total Volume	186	757	943	12	36	48	419	58	477
% App. Total	19.7	80.3		25	75		87.8	12.2	
PHF	.637	.901	.833	.750	.750	.857	.825	.906	.834

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City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Street A
Weather: Clear

File Name : 02_RNM_Bob_A St PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound			Street A Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	8	172	180	4	40	44	246	3	249	473
04:15 PM	6	162	168	4	15	19	189	5	194	381
04:30 PM	6	168	174	7	30	37	249	7	256	467
04:45 PM	9	153	162	4	30	34	231	1	232	428
Total	29	655	684	19	115	134	915	16	931	1749
05:00 PM	8	170	178	6	32	38	243	0	243	459
05:15 PM	5	165	170	3	21	24	198	5	203	397
05:30 PM	4	140	144	2	23	25	170	1	171	340
05:45 PM	5	132	137	2	10	12	132	1	133	282
Total	22	607	629	13	86	99	743	7	750	1478
Grand Total	51	1262	1313	32	201	233	1658	23	1681	3227
Apprch %	3.9	96.1		13.7	86.3		98.6	1.4		
Total %	1.6	39.1	40.7	1	6.2	7.2	51.4	0.7	52.1	

	Bob Hope Drive Southbound			Street A Westbound			Bob Hope Drive Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	6	168	174	**7**	30	37	**249**	**7**	**256**	**467**
04:45 PM	**9**	153	162	4	30	34	231	1	232	428
05:00 PM	8	**170**	**178**	6	**32**	**38**	243	0	243	459
05:15 PM	5	165	170	3	21	24	198	5	203	397
Total Volume	28	656	684	20	113	133	921	13	934	1751
% App. Total	4.1	95.9		15	85		98.6	1.4		
PHF	.778	.965	.961	.714	.883	.875	.925	.464	.912	.937

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City of Rancho Mirage
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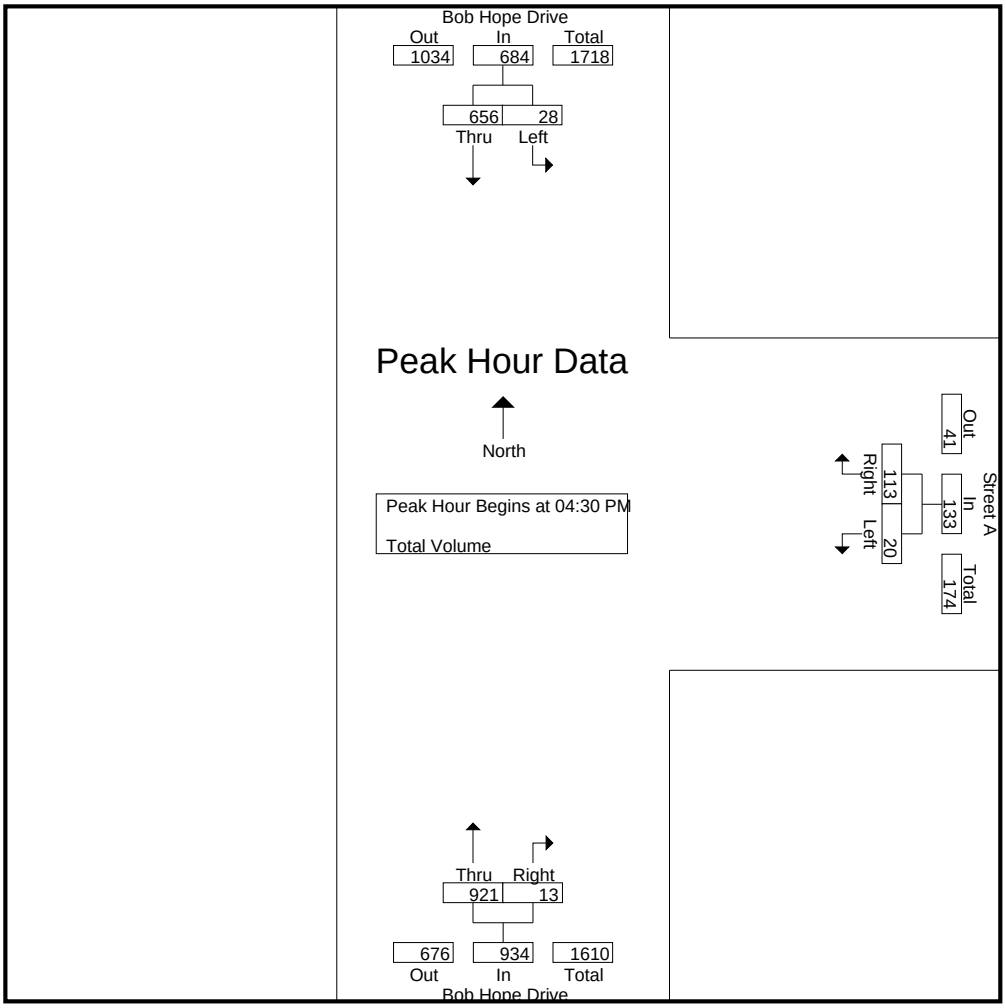
Weather: Clear

File Name : 02_RNM_Bob_A St PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:30 PM		
+0 mins.	8	**172**	**180**	4	**40**	**44**	**249**	**7**	**256**
+15 mins.	6	162	168	4	15	19	231	1	232
+30 mins.	6	168	174	**7**	30	37	243	0	243
+45 mins.	**9**	153	162	4	30	34	198	5	203
Total Volume	29	655	684	19	115	134	921	13	934
% App. Total	4.2	95.8		14.2	85.8		98.6	1.4	
PHF	.806	.952	.950	.679	.719	.761	.925	.464	.912

Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: Street A

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg Bob Hope Drive	East Leg Street A	South Leg Bob Hope Drive	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	2	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	2	0	0	2
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	5	0	0	5

	North Leg Bob Hope Drive	East Leg Street A	South Leg Bob Hope Drive	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: Street A

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound Bob Hope Drive			Westbound Street A			Northbound Bob Hope Drive			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	2	0	0	0	0	3

	Southbound Bob Hope Drive			Westbound Street A			Northbound Bob Hope Drive			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
N/S: Bob Hope Drive
E/W: Country Club Drive
Weather: Clear

File Name : 03_RNM_Bob_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound					Country Club Drive Westbound					Bob Hope Drive Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	22	81	3	1	106	18	46	21	14	85	4	32	12	7	48	11	43	11	7	65	29	304	333
07:15 AM	19	73	4	2	96	23	42	24	16	89	4	51	16	9	71	11	33	17	13	61	40	317	357
07:30 AM	31	94	8	2	133	38	58	22	12	118	12	57	21	9	90	9	45	21	19	75	42	416	458
07:45 AM	21	148	18	5	187	52	67	41	18	160	13	64	21	11	98	22	47	23	16	92	50	537	587
Total	93	396	33	10	522	131	213	108	60	452	33	204	70	36	307	53	168	72	55	293	161	1574	1735
08:00 AM	22	125	18	4	165	58	56	34	15	148	10	86	23	15	119	11	41	22	18	74	52	506	558
08:15 AM	30	144	9	1	183	59	63	45	21	167	8	61	25	9	94	23	49	20	19	92	50	536	586
08:30 AM	33	125	8	5	166	43	56	41	25	140	19	89	23	11	131	16	45	25	21	86	62	523	585
08:45 AM	24	125	8	0	157	45	63	50	21	158	16	94	30	13	140	15	52	31	25	98	59	553	612
Total	109	519	43	10	671	205	238	170	82	613	53	330	101	48	484	65	187	98	83	350	223	2118	2341
Grand Total	202	915	76	20	1193	336	451	278	142	1065	86	534	171	84	791	118	355	170	138	643	384	3692	4076
Apprch %	16.9	76.7	6.4			31.5	42.3	26.1			10.9	67.5	21.6			18.4	55.2	26.4					
Total %	5.5	24.8	2.1		32.3	9.1	12.2	7.5		28.8	2.3	14.5	4.6		21.4	3.2	9.6	4.6		17.4	9.4	90.6	

3.1-13

	Bob Hope Drive Southbound				Country Club Drive Westbound				Bob Hope Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	22	125	**18**	165	58	56	34	148	10	86	23	119	11	41	22	74	506
08:15 AM	30	**144**	9	**183**	**59**	**63**	45	**167**	8	61	25	94	**23**	49	20	92	536
08:30 AM	**33**	125	8	166	43	56	41	140	**19**	89	23	131	16	45	25	86	523
08:45 AM	24	125	8	157	45	63	**50**	158	16	**94**	**30**	**140**	15	**52**	**31**	**98**	**553**
Total Volume	109	519	43	671	205	238	170	613	53	330	101	484	65	187	98	350	2118
% App. Total	16.2	77.3	6.4		33.4	38.8	27.7		11	68.2	20.9		18.6	53.4	28		
PHF	.826	.901	.597	.917	.869	.944	.850	.918	.697	.878	.842	.864	.707	.899	.790	.893	.958

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City of Rancho Mirage
N/S: Bob Hope Drive
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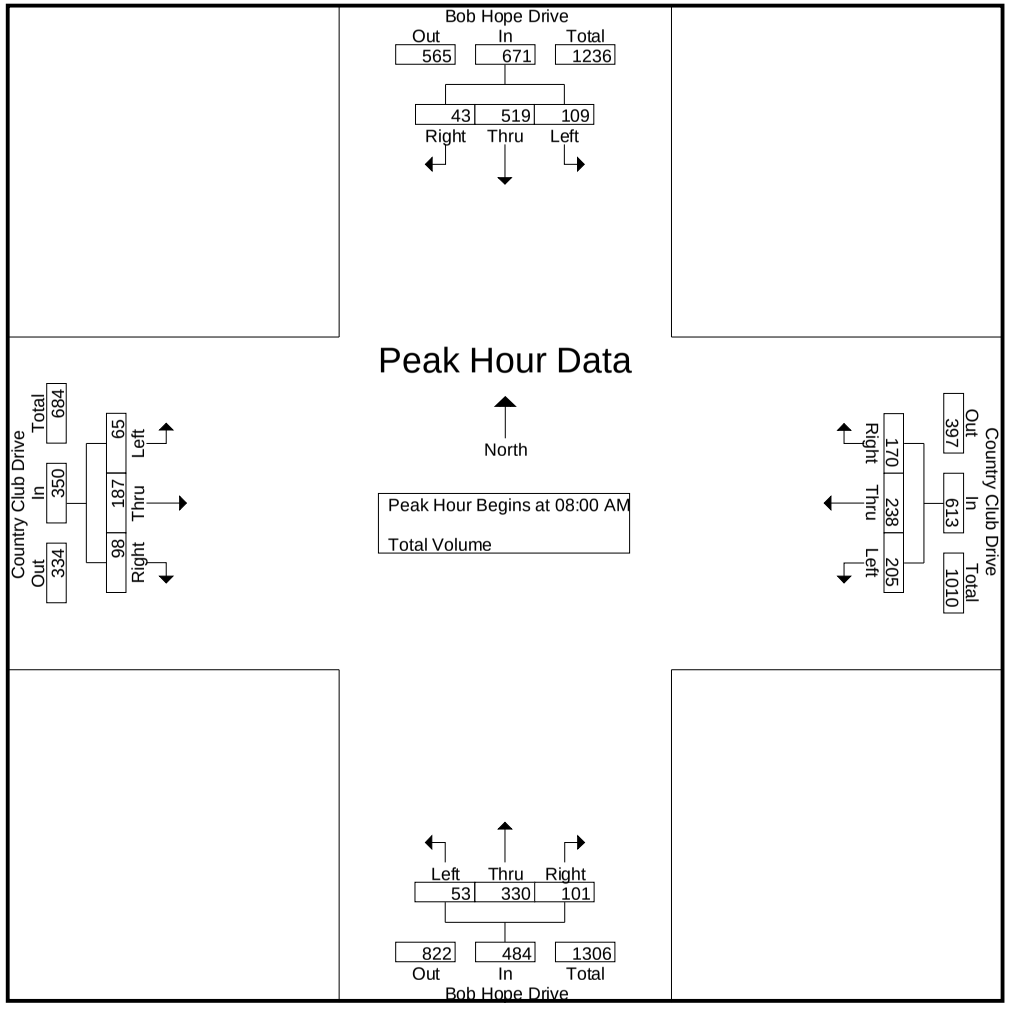
Weather: Clear

File Name : 03_RNM_Bob_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: Bob Hope Drive
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File Name : 03_RNM_Bob_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 3

	Bob Hope Drive Southbound				Country Club Drive Westbound				Bob Hope Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				08:00 AM				08:00 AM				
+0 mins.	21	**148**	**18**	**187**	52	**67**	41	160	10	86	23	119	11	41	22	74	
+15 mins.	22	125	18	165	58	56	34	148	8	61	25	94	**23**	49	20	92	
+30 mins.	30	144	9	183	**59**	63	**45**	**167**	**19**	89	23	131	16	45	25	86	
+45 mins.	**33**	125	8	166	43	56	41	140	16	**94**	**30**	**140**	15	**52**	**31**	**98**	
Total Volume	106	542	53	701	212	242	161	615	53	330	101	484	65	187	98	350	
% App. Total	15.1	77.3	7.6		34.5	39.3	26.2		11	68.2	20.9		18.6	53.4	28		
PHF	.803	.916	.736	.937	.898	.903	.894	.921	.697	.878	.842	.864	.707	.899	.790	.893	

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City of Rancho Mirage
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Page No : 1

Groups Printed- Total Volume

	Bob Hope Drive Southbound					Country Club Drive Westbound					Bob Hope Drive Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	48	137	12	1	197	38	64	46	19	148	21	156	49	30	226	22	66	27	20	115	70	686	756
04:15 PM	43	112	10	3	165	55	74	38	15	167	22	150	43	19	215	14	75	20	16	109	53	656	709
04:30 PM	52	145	14	4	211	43	59	41	17	143	24	148	43	16	215	18	67	16	13	101	50	670	720
04:45 PM	37	129	5	1	171	53	64	46	16	163	20	151	35	17	206	15	62	21	18	98	52	638	690
Total	180	523	41	9	744	189	261	171	67	621	87	605	170	82	862	69	270	84	67	423	225	2650	2875
05:00 PM	41	129	8	0	178	50	74	37	15	161	15	171	54	26	240	13	58	15	11	86	52	665	717
05:15 PM	41	132	7	3	180	38	57	47	20	142	15	134	45	17	194	12	46	14	12	72	52	588	640
05:30 PM	33	99	6	2	138	38	53	30	22	121	14	112	34	10	160	12	49	14	11	75	45	494	539
05:45 PM	34	104	7	3	145	37	31	21	11	89	6	108	38	12	152	5	24	9	9	38	35	424	459
Total	149	464	28	8	641	163	215	135	68	513	50	525	171	65	746	42	177	52	43	271	184	2171	2355
Grand Total	329	987	69	17	1385	352	476	306	135	1134	137	1130	341	147	1608	111	447	136	110	694	409	4821	5230
Apprch %	23.8	71.3	5			31	42	27			8.5	70.3	21.2			16	64.4	19.6					
Total %	6.8	20.5	1.4		28.7	7.3	9.9	6.3		23.5	2.8	23.4	7.1		33.4	2.3	9.3	2.8		14.4	7.8	92.2	

3.1-16

	Bob Hope Drive Southbound				Country Club Drive Westbound				Bob Hope Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	48	137	12	197	38	64	**46**	148	21	**156**	**49**	**226**	**22**	66	**27**	**115**	**686**
04:15 PM	43	112	10	165	**55**	**74**	38	**167**	22	150	43	215	14	**75**	20	109	656
04:30 PM	**52**	**145**	**14**	**211**	43	59	41	143	**24**	148	43	215	18	67	16	101	670
04:45 PM	37	129	5	171	53	64	46	163	20	151	35	206	15	62	21	98	638
Total Volume	180	523	41	744	189	261	171	621	87	605	170	862	69	270	84	423	2650
% App. Total	24.2	70.3	5.5		30.4	42	27.5		10.1	70.2	19.7		16.3	63.8	19.9		
PHF	.865	.902	.732	.882	.859	.882	.929	.930	.906	.970	.867	.954	.784	.900	.778	.920	.966

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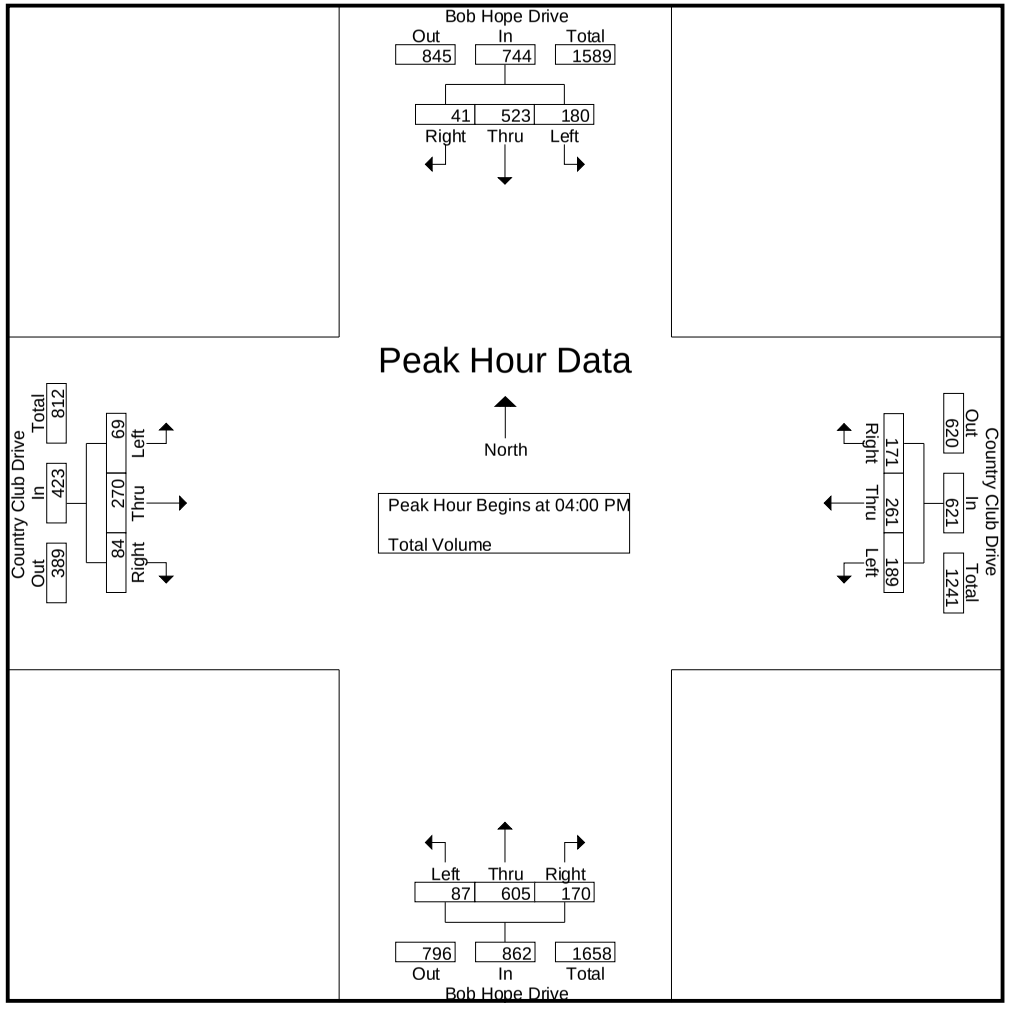

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	Bob Hope Drive Southbound				Country Club Drive Westbound				Bob Hope Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:15 PM				04:15 PM				04:00 PM				
+0 mins.	48	137	12	197	**55**	**74**	38	**167**	22	150	43	215	**22**	66	**27**	**115**	
+15 mins.	43	112	10	165	43	59	41	143	**24**	148	43	215	14	**75**	20	109	
+30 mins.	**52**	**145**	**14**	**211**	53	64	**46**	163	20	151	35	206	18	67	16	101	
+45 mins.	37	129	5	171	50	74	37	161	15	**171**	**54**	**240**	15	62	21	98	
Total Volume	180	523	41	744	201	271	162	634	81	620	175	876	69	270	84	423	
% App. Total	24.2	70.3	5.5		31.7	42.7	25.6		9.2	70.8	20		16.3	63.8	19.9		
PHF	.865	.902	.732	.882	.914	.916	.880	.949	.844	.906	.810	.913	.784	.900	.778	.920	

Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg Bob Hope Drive	East Leg Country Club Drive	South Leg Bob Hope Drive	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	2	0	0	2	4
7:30 AM	1	3	3	1	8
7:45 AM	5	20	21	5	51
8:00 AM	2	2	2	2	8
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	11	25	26	10	72

	North Leg Bob Hope Drive	East Leg Country Club Drive	South Leg Bob Hope Drive	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	2	2	1	0	5
4:15 PM	0	0	0	0	0
4:30 PM	0	1	1	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	4	2	0	8

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Location: Rancho Mirage
N/S: Bob Hope Drive
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound Bob Hope Drive			Westbound Country Club Drive			Northbound Bob Hope Drive			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1	0	0	0	0	1	0	0	3

	Southbound Bob Hope Drive			Westbound Country Club Drive			Northbound Bob Hope Drive			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	0	0	0	0	2

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City of Rancho Mirage
N/S: John L Sinn Road
E/W: Street A
Weather: Clear

File Name : 04_RNM_John_St A AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	John L Sinn Road Southbound			John L Sinn Road Northbound			Street A Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	8	6	14	6	32	38	5	6	11	63
07:15 AM	11	5	16	19	27	46	4	4	8	70
07:30 AM	23	3	26	25	48	73	3	3	6	105
07:45 AM	14	5	19	23	78	101	6	7	13	133
Total	56	19	75	73	185	258	18	20	38	371
08:00 AM	14	3	17	14	54	68	4	6	10	95
08:15 AM	16	3	19	14	45	59	5	1	6	84
08:30 AM	15	3	18	25	50	75	4	8	12	105
08:45 AM	29	4	33	8	45	53	7	14	21	107
Total	74	13	87	61	194	255	20	29	49	391
Grand Total	130	32	162	134	379	513	38	49	87	762
Apprch %	80.2	19.8		26.1	73.9		43.7	56.3		
Total %	17.1	4.2	21.3	17.6	49.7	67.3	5	6.4	11.4	

	John L Sinn Road Southbound			John L Sinn Road Northbound			Street A Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**23**	3	**26**	**25**	48	73	3	3	6	105
07:45 AM	14	**5**	19	23	**78**	**101**	**6**	**7**	**13**	**133**
08:00 AM	14	3	17	14	54	68	4	6	10	95
08:15 AM	16	3	19	14	45	59	5	1	6	84
Total Volume	67	14	81	76	225	301	18	17	35	417
% App. Total	82.7	17.3		25.2	74.8		51.4	48.6		
PHF	.728	.700	.779	.760	.721	.745	.750	.607	.673	.784

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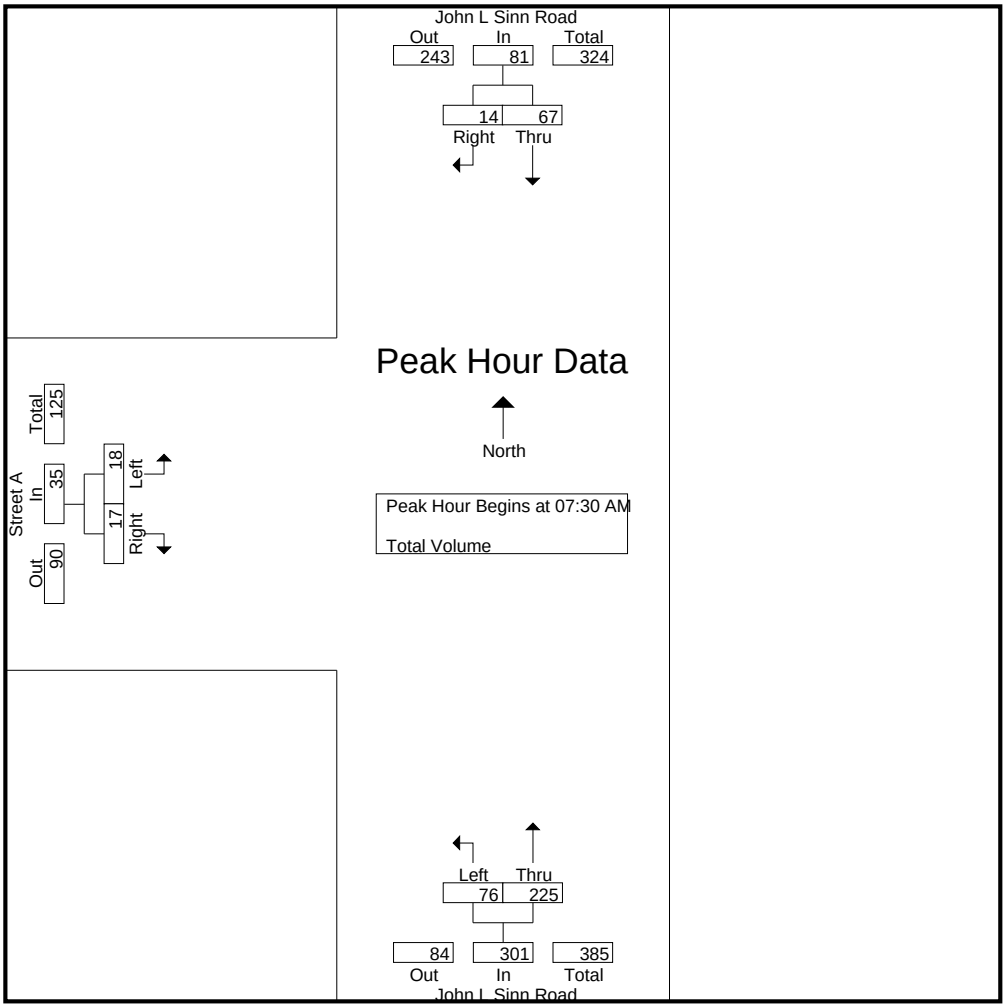
City of Rancho Mirage
N/S: John L Sinn Road
E/W: Street A
Weather: Clear

File Name : 04_RNM_John_St A AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:45 AM			08:00 AM		
+0 mins.	14	3	17	23	**78**	**101**	4	6	10
+15 mins.	16	3	19	14	54	68	5	1	6
+30 mins.	15	3	18	14	45	59	4	8	12
+45 mins.	**29**	**4**	**33**	**25**	50	75	**7**	**14**	**21**
Total Volume	74	13	87	76	227	303	20	29	49
% App. Total	85.1	14.9		25.1	74.9		40.8	59.2	
PHF	.638	.813	.659	.760	.728	.750	.714	.518	.583

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City of Rancho Mirage
N/S: John L Sinn Road
E/W: Street A
Weather: Clear

File Name : 04_RNM_John_St A PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	John L Sinn Road Southbound			John L Sinn Road Northbound			Street A Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	32	4	36	7	21	28	2	23	25	89
04:15 PM	35	5	40	6	10	16	1	18	19	75
04:30 PM	32	4	36	8	20	28	3	21	24	88
04:45 PM	34	1	35	6	26	32	8	16	24	91
Total	133	14	147	27	77	104	14	78	92	343
05:00 PM	40	5	45	3	18	21	2	19	21	87
05:15 PM	29	3	32	2	15	17	1	6	7	56
05:30 PM	28	0	28	1	17	18	4	12	16	62
05:45 PM	27	2	29	3	20	23	2	4	6	58
Total	124	10	134	9	70	79	9	41	50	263
Grand Total	257	24	281	36	147	183	23	119	142	606
Apprch %	91.5	8.5		19.7	80.3		16.2	83.8		
Total %	42.4	4	46.4	5.9	24.3	30.2	3.8	19.6	23.4	

	John L Sinn Road Southbound			John L Sinn Road Northbound			Street A Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	32	4	36	7	21	28	2	**23**	**25**	89
04:15 PM	**35**	**5**	**40**	6	10	16	1	18	19	75
04:30 PM	32	4	36	**8**	20	28	3	21	24	88
04:45 PM	34	1	35	6	**26**	**32**	**8**	16	24	**91**
Total Volume	133	14	147	27	77	104	14	78	92	343
% App. Total	90.5	9.5		26	74		15.2	84.8		
PHF	.950	.700	.919	.844	.740	.813	.438	.848	.920	.942

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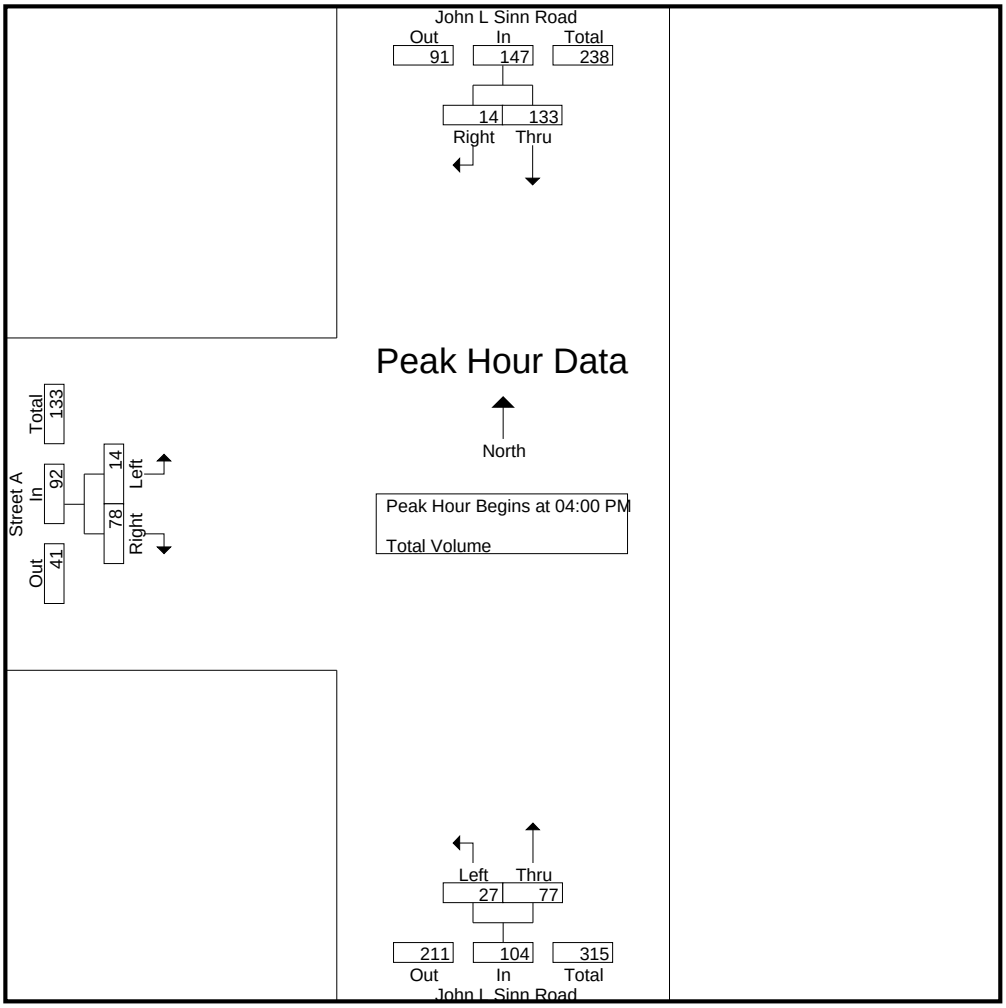
City of Rancho Mirage
N/S: John L Sinn Road
E/W: Street A
Weather: Clear

File Name : 04_RNM_John_St A PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:00 PM		
+0 mins.	35	**5**	40	7	21	28	2	**23**	**25**
+15 mins.	32	4	36	6	10	16	1	18	19
+30 mins.	34	1	35	**8**	20	28	3	21	24
+45 mins.	**40**	5	**45**	6	**26**	**32**	**8**	16	24
Total Volume	141	15	156	27	77	104	14	78	92
% App. Total	90.4	9.6		26	74		15.2	84.8	
PHF	.881	.750	.867	.844	.740	.813	.438	.848	.920

Location: Rancho Mirage
N/S: John L Sinn Road
E/W: Street A

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg John L Sinn Road	East Leg Dead End	South Leg John L Sinn Road	West Leg Street A	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg John L Sinn Road	East Leg Dead End	South Leg John L Sinn Road	West Leg Street A	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Rancho Mirage
N/S: John L Sinn Road
E/W: Street A

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound John L Sinn Road			Westbound Dead End			Northbound John L Sinn Road			Eastbound Street A			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound John L Sinn Road			Westbound Dead End			Northbound John L Sinn Road			Eastbound Street A			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
N/S: John L Sinn Road
E/W: Country Club Drive
Weather: Clear

File Name : 05_RNM_John_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	John L Sinn Road Southbound					Country Club Drive Westbound					John L Sinn Road Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	5	1	1	1	7	5	85	38	6	128	0	2	2	0	4	7	62	4	1	73	8	212	220
07:15 AM	15	0	1	1	16	7	108	82	8	197	0	1	2	1	3	8	63	3	1	74	11	290	301
07:30 AM	23	0	3	1	26	4	118	102	14	224	1	0	0	0	1	13	77	5	0	95	15	346	361
07:45 AM	12	0	2	1	14	4	185	134	13	323	0	1	1	1	2	20	70	3	0	93	15	432	447
Total	55	1	7	4	63	20	496	356	41	872	1	4	5	2	10	48	272	15	2	335	49	1280	1329
08:00 AM	21	0	6	4	27	2	157	78	15	237	2	0	2	1	4	11	72	5	2	88	22	356	378
08:15 AM	20	0	7	6	27	2	164	89	16	255	0	0	0	0	0	10	88	3	0	101	22	383	405
08:30 AM	32	0	6	3	38	6	152	78	23	236	1	0	2	0	3	3	97	5	0	105	26	382	408
08:45 AM	24	0	5	5	29	5	151	74	13	230	1	1	2	1	4	10	93	2	0	105	19	368	387
Total	97	0	24	18	121	15	624	319	67	958	4	1	6	2	11	34	350	15	2	399	89	1489	1578
Grand Total	152	1	31	22	184	35	1120	675	108	1830	5	5	11	4	21	82	622	30	4	734	138	2769	2907
Apprch %	82.6	0.5	16.8			1.9	61.2	36.9			23.8	23.8	52.4			11.2	84.7	4.1					
Total %	5.5	0	1.1		6.6	1.3	40.4	24.4		66.1	0.2	0.2	0.4		0.8	3	22.5	1.1		26.5	4.7	95.3	

	John L Sinn Road Southbound				Country Club Drive Westbound				John L Sinn Road Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	12	0	2	14	4	**185**	**134**	**323**	0	**1**	1	2	**20**	70	3	93	**432**
08:00 AM	21	0	6	27	2	157	78	237	**2**	0	**2**	**4**	11	72	**5**	88	356
08:15 AM	20	0	**7**	27	2	164	89	255	0	0	0	0	10	88	3	101	383
08:30 AM	**32**	0	6	**38**	**6**	152	78	236	1	0	2	3	3	**97**	5	**105**	382
Total Volume	85	0	21	106	14	658	379	1051	3	1	5	9	44	327	16	387	1553
% App. Total	80.2	0	19.8		1.3	62.6	36.1		33.3	11.1	55.6		11.4	84.5	4.1		
PHF	.664	.000	.750	.697	.583	.889	.707	.813	.375	.250	.625	.563	.550	.843	.800	.921	.899

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City of Rancho Mirage
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File Name : 05_RNM_John_Country AM
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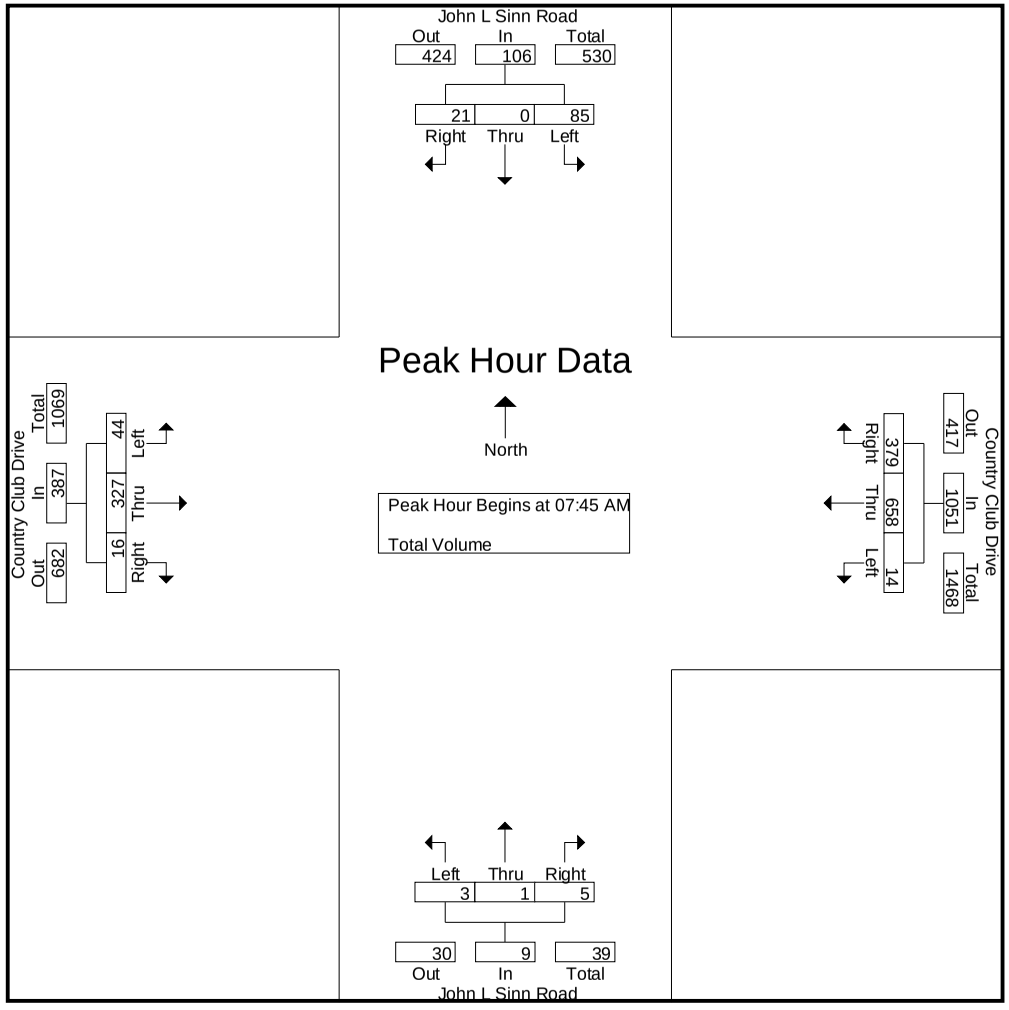
Page No : 2



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Page No : 3

	John L Sinn Road Southbound				Country Club Drive Westbound				John L Sinn Road Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	08:00 AM				07:45 AM				08:00 AM				08:00 AM				
+0 mins.	21	0	6	27	4	**185**	**134**	**323**	**2**	0	**2**	**4**	**11**	72	**5**	88	
+15 mins.	20	0	**7**	27	2	157	78	237	0	0	0	0	10	88	3	101	
+30 mins.	**32**	0	6	**38**	2	164	89	255	1	0	2	3	3	**97**	5	**105**	
+45 mins.	24	0	5	29	**6**	152	78	236	1	**1**	2	4	10	93	2	105	
Total Volume	97	0	24	121	14	658	379	1051	4	1	6	11	34	350	15	399	
% App. Total	80.2	0	19.8		1.3	62.6	36.1		36.4	9.1	54.5		8.5	87.7	3.8		
PHF	.758	.000	.857	.796	.583	.889	.707	.813	.500	.250	.750	.688	.773	.902	.750	.950	

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File Name : 05_RNM_John_Country PM
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Page No : 1

Groups Printed- Total Volume

	John L Sinn Road Southbound					Country Club Drive Westbound					John L Sinn Road Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	79	3	17	11	99	8	124	23	7	155	2	0	10	8	12	3	152	7	1	162	27	428	455
04:15 PM	70	2	11	5	83	2	147	17	3	166	2	0	3	2	5	0	158	4	0	162	10	416	426
04:30 PM	118	3	16	10	137	4	119	16	6	139	8	0	5	5	13	2	159	2	0	163	21	452	473
04:45 PM	62	1	13	12	76	2	137	15	1	154	6	0	6	6	12	3	129	5	1	137	20	379	399
Total	329	9	57	38	395	16	527	71	17	614	18	0	24	21	42	8	598	18	2	624	78	1675	1753
05:00 PM	121	2	17	9	140	3	123	17	4	143	3	1	9	7	13	6	146	1	1	153	21	449	470
05:15 PM	69	0	8	6	77	2	112	15	7	129	10	0	4	3	14	3	129	5	1	137	17	357	374
05:30 PM	41	1	12	8	54	2	97	12	3	111	7	0	5	4	12	0	114	2	0	116	15	293	308
05:45 PM	38	0	8	7	46	4	84	17	1	105	0	0	3	1	3	3	94	0	0	97	9	251	260
Total	269	3	45	30	317	11	416	61	15	488	20	1	21	15	42	12	483	8	2	503	62	1350	1412
Grand Total	598	12	102	68	712	27	943	132	32	1102	38	1	45	36	84	20	1081	26	4	1127	140	3025	3165
Apprch %	84	1.7	14.3			2.5	85.6	12			45.2	1.2	53.6			1.8	95.9	2.3					
Total %	19.8	0.4	3.4		23.5	0.9	31.2	4.4		36.4	1.3	0	1.5		2.8	0.7	35.7	0.9		37.3	4.4	95.6	

3.1-30

	John L Sinn Road Southbound				Country Club Drive Westbound				John L Sinn Road Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	70	2	11	83	2	**147**	**17**	**166**	2	0	3	5	0	158	4	162	416
04:30 PM	118	**3**	16	137	**4**	119	16	139	**8**	0	5	**13**	2	**159**	2	**163**	**452**
04:45 PM	62	1	13	76	2	137	15	154	6	0	6	12	3	129	**5**	137	379
05:00 PM	**121**	2	**17**	**140**	3	123	17	143	3	**1**	**9**	13	**6**	146	1	153	449
Total Volume	371	8	57	436	11	526	65	602	19	1	23	43	11	592	12	615	1696
% App. Total	85.1	1.8	13.1		1.8	87.4	10.8		44.2	2.3	53.5		1.8	96.3	2		
PHF	.767	.667	.838	.779	.688	.895	.956	.907	.594	.250	.639	.827	.458	.931	.600	.943	.938

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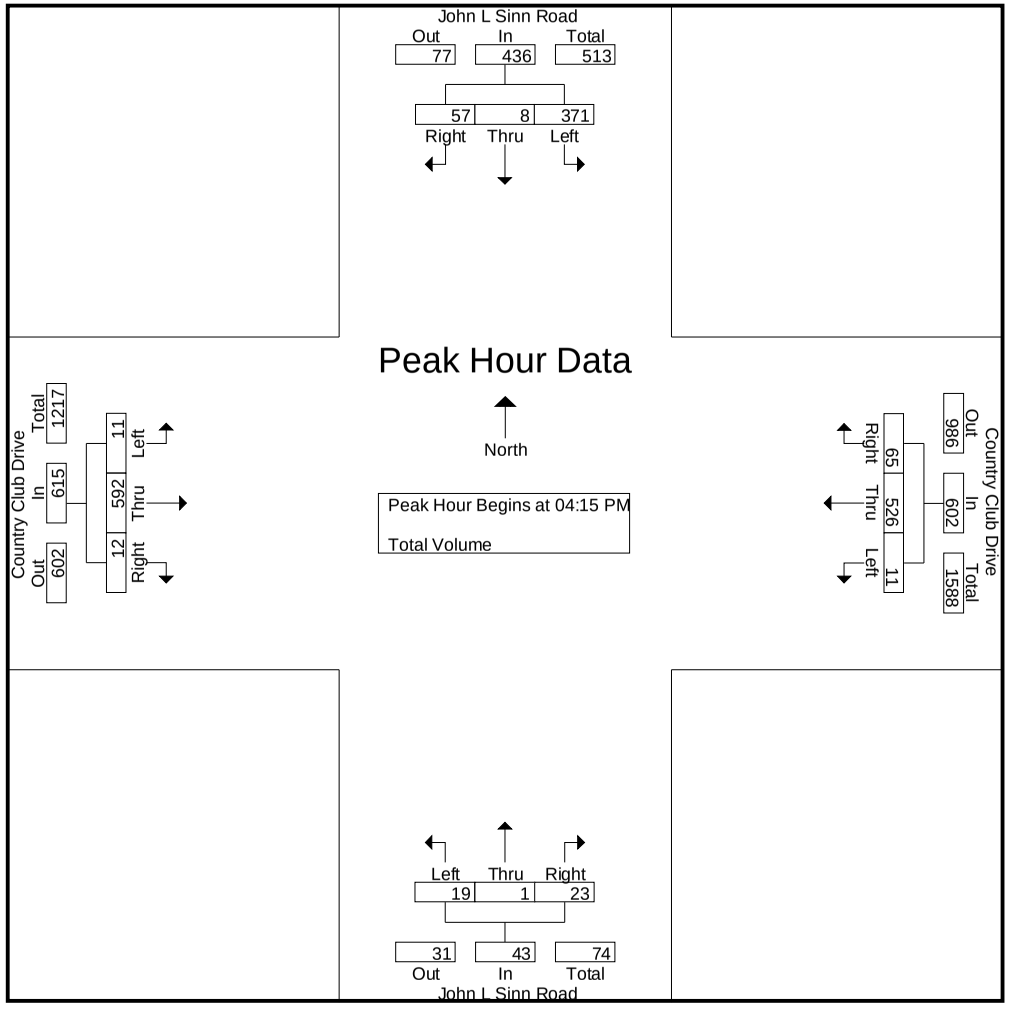
City of Rancho Mirage
N/S: John L Sinn Road
E/W: Country Club Drive
Weather: Clear

File Name : 05_RNM_John_Country PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: John L Sinn Road
E/W: Country Club Drive
Weather: Clear

File Name : 05_RNM_John_Country PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 3

	John L Sinn Road Southbound				Country Club Drive Westbound				John L Sinn Road Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:00 PM				04:30 PM				04:00 PM				
+0 mins.	70	2	11	83	**8**	124	**23**	155	8	0	5	13	**3**	152	**7**	162	
+15 mins.	118	**3**	16	137	2	**147**	17	**166**	6	0	6	12	0	158	4	162	
+30 mins.	62	1	13	76	4	119	16	139	3	**1**	**9**	13	2	**159**	2	**163**	
+45 mins.	**121**	2	**17**	**140**	2	137	15	154	**10**	0	4	**14**	3	129	5	137	
Total Volume	371	8	57	436	16	527	71	614	27	1	24	52	8	598	18	624	
% App. Total	85.1	1.8	13.1		2.6	85.8	11.6		51.9	1.9	46.2		1.3	95.8	2.9		
PHF	.767	.667	.838	.779	.500	.896	.772	.925	.675	.250	.667	.929	.667	.940	.643	.957	

Location: Rancho Mirage
N/S: John L Sinn Road
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg John L Sinn Road	East Leg Country Club Drive	South Leg John L Sinn Road	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	1	1	2
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	0	0	3	1	4

	North Leg John L Sinn Road	East Leg Country Club Drive	South Leg John L Sinn Road	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	2	1	3
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	0	1
5:15 PM	0	0	1	1	2
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	4	2	6

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Location: Rancho Mirage
N/S: John L Sinn Road
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound John L Sinn Road			Westbound Country Club Drive			Northbound John L Sinn Road			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	4	0	0	0	0	0	0	0	4

	Southbound John L Sinn Road			Westbound Country Club Drive			Northbound John L Sinn Road			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way
Weather: Clear

File Name : 06_RNM_Joe_Betty AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Joe Friend Lane Southbound			Betty Ford Way Westbound			Joe Friend Lane Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	2	6	8	0	2	2	11	8	19	29
07:15 AM	3	6	9	1	0	1	16	13	29	39
07:30 AM	6	5	11	1	1	2	43	16	59	72
07:45 AM	6	11	17	1	1	2	33	32	65	84
Total	17	28	45	3	4	7	103	69	172	224
08:00 AM	3	10	13	2	2	4	22	17	39	56
08:15 AM	1	13	14	2	2	4	21	22	43	61
08:30 AM	5	16	21	3	0	3	34	16	50	74
08:45 AM	5	17	22	2	0	2	38	7	45	69
Total	14	56	70	9	4	13	115	62	177	260
Grand Total	31	84	115	12	8	20	218	131	349	484
Apprch %	27	73		60	40		62.5	37.5		
Total %	6.4	17.4	23.8	2.5	1.7	4.1	45	27.1	72.1	

	Joe Friend Lane Southbound			Betty Ford Way Westbound			Joe Friend Lane Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**6**	11	17	1	1	2	33	**32**	**65**	**84**
08:00 AM	3	10	13	2	**2**	**4**	22	17	39	56
08:15 AM	1	13	14	2	2	4	21	22	43	61
08:30 AM	5	**16**	**21**	**3**	0	3	**34**	16	50	74
Total Volume	15	50	65	8	5	13	110	87	197	275
% App. Total	23.1	76.9		61.5	38.5		55.8	44.2		
PHF	.625	.781	.774	.667	.625	.813	.809	.680	.758	.818

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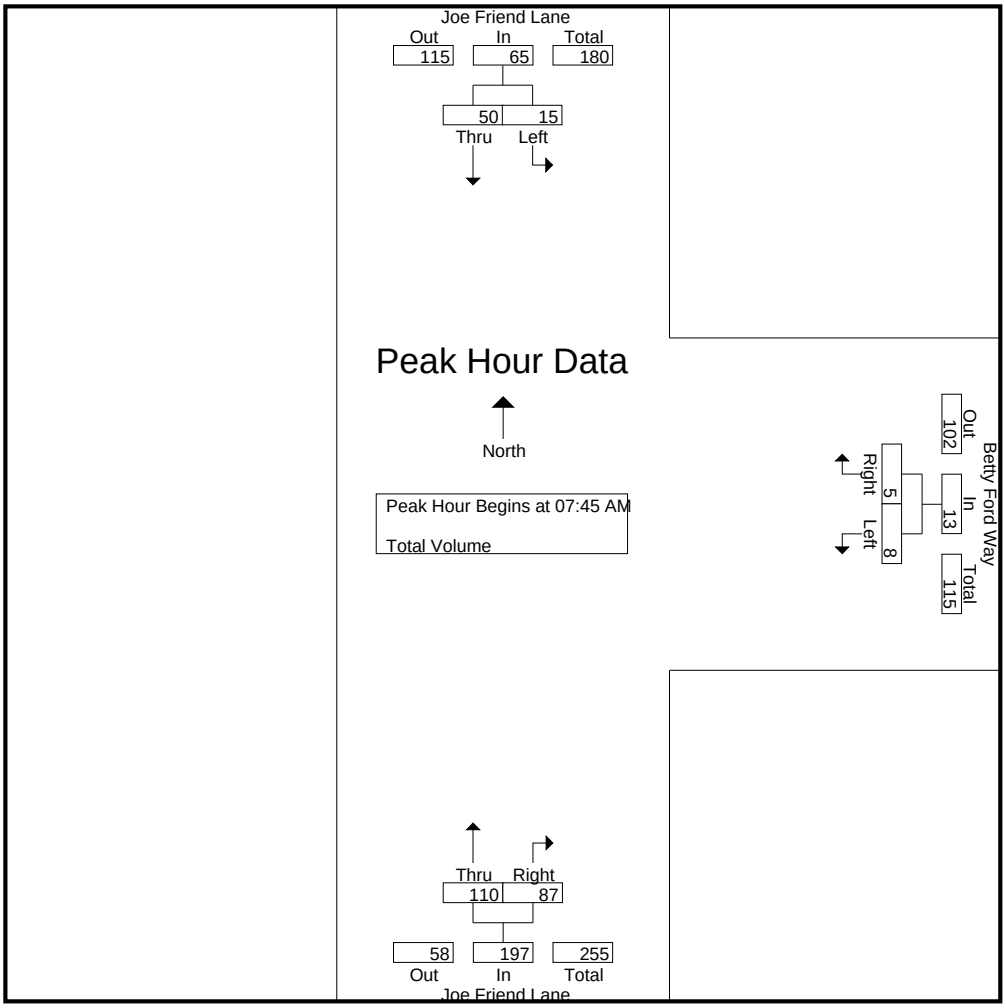
City of Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way
Weather: Clear

File Name : 06_RNM_Joe_Betty AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:45 AM			07:30 AM		
+0 mins.	3	10	13	1	1	2	**43**	16	59
+15 mins.	1	13	14	2	**2**	**4**	33	**32**	**65**
+30 mins.	**5**	16	21	2	2	4	22	17	39
+45 mins.	5	**17**	**22**	**3**	0	3	21	22	43
Total Volume	14	56	70	8	5	13	119	87	206
% App. Total	20	80		61.5	38.5		57.8	42.2	
PHF	.700	.824	.795	.667	.625	.813	.692	.680	.792

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City of Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way
Weather: Clear

File Name : 06_RNM_Joe_Betty PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Joe Friend Lane Southbound			Betty Ford Way Westbound			Joe Friend Lane Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	1	30	31	9	1	10	13	4	17	58
04:15 PM	0	21	21	13	5	18	10	1	11	50
04:30 PM	1	36	37	13	4	17	6	5	11	65
04:45 PM	0	18	18	5	5	10	11	4	15	43
Total	2	105	107	40	15	55	40	14	54	216
05:00 PM	1	44	45	6	2	8	8	8	16	69
05:15 PM	2	14	16	5	4	9	10	6	16	41
05:30 PM	1	11	12	9	3	12	6	3	9	33
05:45 PM	0	7	7	5	1	6	2	9	11	24
Total	4	76	80	25	10	35	26	26	52	167
Grand Total	6	181	187	65	25	90	66	40	106	383
Apprch %	3.2	96.8		72.2	27.8		62.3	37.7		
Total %	1.6	47.3	48.8	17	6.5	23.5	17.2	10.4	27.7	

	Joe Friend Lane Southbound			Betty Ford Way Westbound			Joe Friend Lane Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	21	21	**13**	**5**	**18**	10	1	11	50
04:30 PM	**1**	36	37	13	4	17	6	5	11	65
04:45 PM	0	18	18	5	5	10	**11**	4	15	43
05:00 PM	1	**44**	**45**	6	2	8	8	**8**	**16**	**69**
Total Volume	2	119	121	37	16	53	35	18	53	227
% App. Total	1.7	98.3		69.8	30.2		66	34		
PHF	.500	.676	.672	.712	.800	.736	.795	.563	.828	.822

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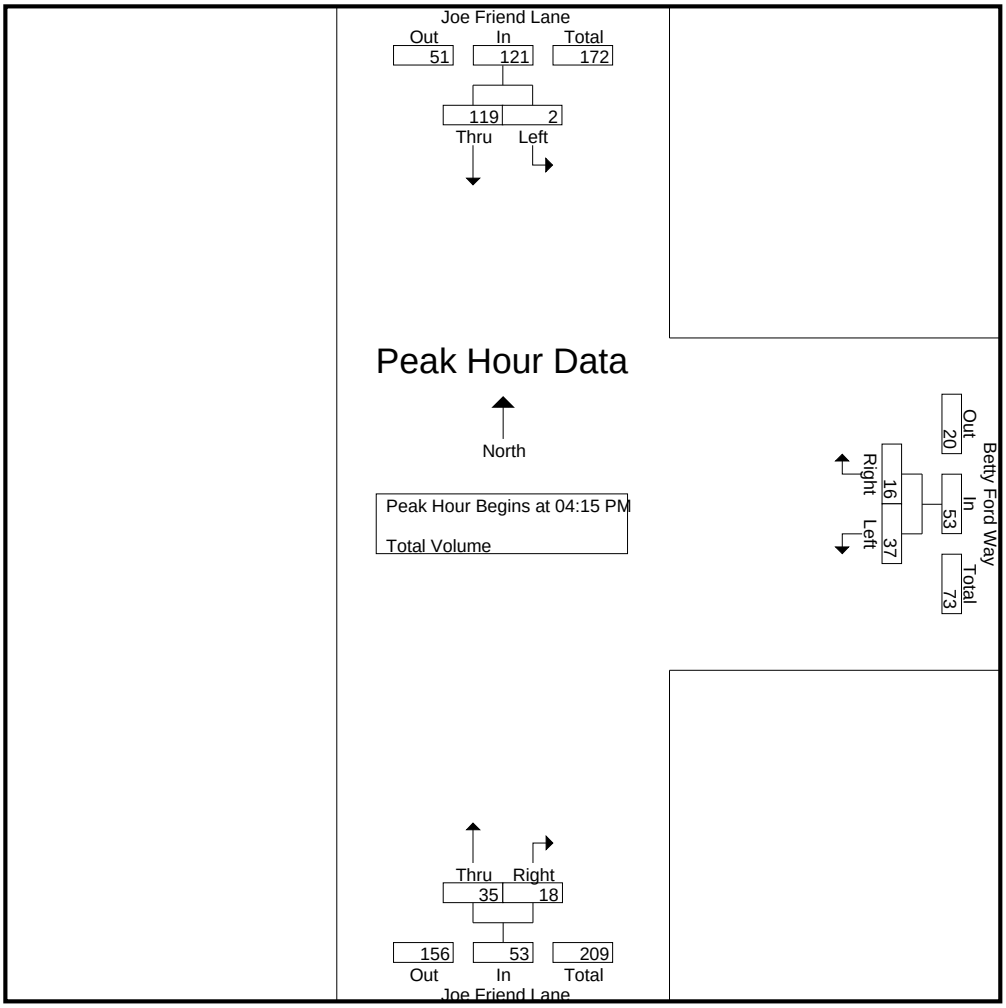
City of Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way
Weather: Clear

File Name : 06_RNM_Joe_Betty PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:30 PM		
+0 mins.	0	21	21	9	1	10	6	5	11
+15 mins.	**1**	36	37	**13**	**5**	**18**	**11**	4	15
+30 mins.	0	18	18	13	4	17	8	**8**	**16**
+45 mins.	1	**44**	**45**	5	5	10	10	6	16
Total Volume	2	119	121	40	15	55	35	23	58
% App. Total	1.7	98.3		72.7	27.3		60.3	39.7	
PHF	.500	.676	.672	.769	.750	.764	.795	.719	.906

Location: Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg Joe Friend Lane	East Leg Betty Ford Way	South Leg Joe Friend Lane	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Joe Friend Lane	East Leg Betty Ford Way	South Leg Joe Friend Lane	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	1	0	0	1
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

Location: Rancho Mirage
N/S: Joe Friend Lane
E/W: Betty Ford Way

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound Joe Friend Lane			Westbound Betty Ford Way			Northbound Joe Friend Lane			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Joe Friend Lane			Westbound Betty Ford Way			Northbound Joe Friend Lane			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
E/W: Country Club Drive
Weather: Clear

File Name : 08_RNM_VDS_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Vista Del Sol Southbound					Country Club Drive Westbound					Desert Lakes Drive Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	4	1	5	5	10	4	126	15	2	145	3	0	8	8	11	1	65	3	0	69	15	235	250
07:15 AM	1	1	1	1	3	3	194	11	0	208	1	1	1	1	3	4	71	4	0	79	2	293	295
07:30 AM	4	1	1	1	6	5	214	7	0	226	4	0	1	1	5	3	93	3	0	99	2	336	338
07:45 AM	4	1	3	1	8	5	329	15	1	349	2	0	8	7	10	7	77	1	0	85	9	452	461
Total	13	4	10	8	27	17	863	48	3	928	10	1	18	17	29	15	306	11	0	332	28	1316	1344
08:00 AM	7	0	1	1	8	2	234	11	0	247	6	0	3	2	9	3	90	4	2	97	5	361	366
08:15 AM	3	0	4	4	7	8	263	10	1	281	1	0	5	5	6	1	102	2	0	105	10	399	409
08:30 AM	6	0	4	3	10	5	220	7	0	232	5	0	5	4	10	4	116	2	0	122	7	374	381
08:45 AM	2	0	5	3	7	7	226	7	0	240	4	0	7	7	11	5	121	4	0	130	10	388	398
Total	18	0	14	11	32	22	943	35	1	1000	16	0	20	18	36	13	429	12	2	454	32	1522	1554
Grand Total	31	4	24	19	59	39	1806	83	4	1928	26	1	38	35	65	28	735	23	2	786	60	2838	2898
Apprch %	52.5	6.8	40.7			2	93.7	4.3			40	1.5	58.5			3.6	93.5	2.9					
Total %	1.1	0.1	0.8		2.1	1.4	63.6	2.9		67.9	0.9	0	1.3		2.3	1	25.9	0.8		27.7	2.1	97.9	

3.1-41

	Vista Del Sol Southbound				Country Club Drive Westbound				Desert Lakes Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	4	**1**	3	8	5	**329**	**15**	**349**	2	0	**8**	**10**	**7**	77	1	85	**452**
08:00 AM	**7**	0	1	8	2	234	11	247	**6**	0	3	9	3	90	**4**	97	361
08:15 AM	3	0	**4**	7	**8**	263	10	281	1	0	5	6	1	102	2	105	399
08:30 AM	6	0	4	**10**	5	220	7	232	5	0	5	10	4	**116**	2	**122**	374
Total Volume	20	1	12	33	20	1046	43	1109	14	0	21	35	15	385	9	409	1586
% App. Total	60.6	3	36.4		1.8	94.3	3.9		40	0	60		3.7	94.1	2.2		
PHF	.714	.250	.750	.825	.625	.795	.717	.794	.583	.000	.656	.875	.536	.830	.563	.838	.877

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City of Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
E/W: Country Club Drive
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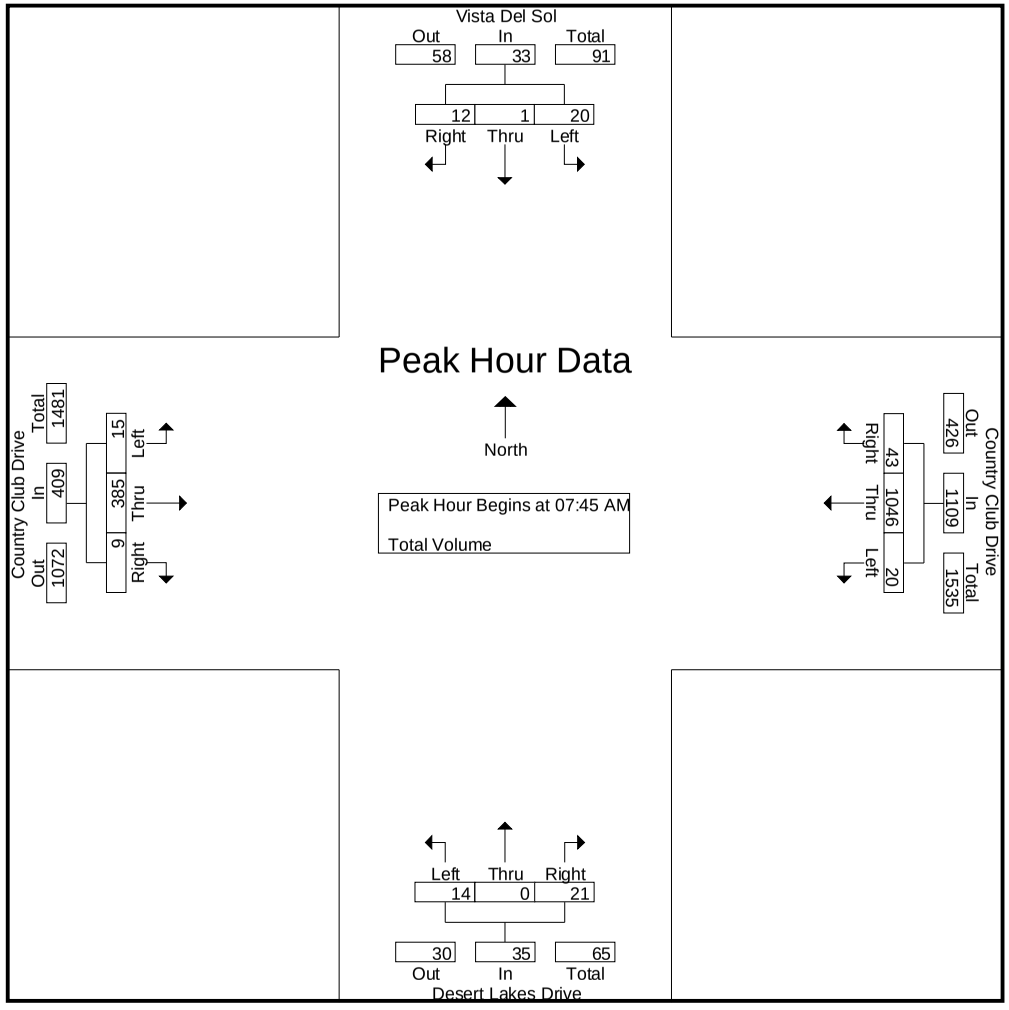
File Name : 08_RNM_VDS_Country AM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
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File Name : 08_RNM_VDS_Country AM
Site Code : 05119832
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Page No : 3

	Vista Del Sol Southbound				Country Club Drive Westbound				Desert Lakes Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:45 AM				07:45 AM				08:00 AM				08:00 AM				
+0 mins.	4	**1**	3	8	5	**329**	**15**	**349**	**6**	0	3	9	3	90	**4**	97	
+15 mins.	**7**	0	1	8	2	234	11	247	1	0	5	6	1	102	2	105	
+30 mins.	3	0	**4**	7	**8**	263	10	281	5	0	5	10	4	116	2	122	
+45 mins.	6	0	4	**10**	5	220	7	232	4	0	**7**	**11**	**5**	**121**	4	**130**	
Total Volume	20	1	12	33	20	1046	43	1109	16	0	20	36	13	429	12	454	
% App. Total	60.6	3	36.4		1.8	94.3	3.9		44.4	0	55.6		2.9	94.5	2.6		
PHF	.714	.250	.750	.825	.625	.795	.717	.794	.667	.000	.714	.818	.650	.886	.750	.873	

Counts Unlimited
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City of Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
E/W: Country Club Drive
Weather: Clear

File Name : 08_RNM_VDS_Country PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 1

Groups Printed- Total Volume

	Vista Del Sol Southbound					Country Club Drive Westbound					Desert Lakes Drive Northbound					Country Club Drive Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	14	0	9	6	23	7	135	9	0	151	2	0	6	3	8	4	246	3	0	253	9	435	444
04:15 PM	16	0	9	7	25	8	159	5	0	172	3	0	2	1	5	4	229	5	0	238	8	440	448
04:30 PM	13	0	9	7	22	10	123	7	1	140	3	0	5	5	8	3	255	5	0	263	13	433	446
04:45 PM	8	0	4	2	12	6	147	9	0	162	7	0	11	10	18	2	213	2	0	217	12	409	421
Total	51	0	31	22	82	31	564	30	1	625	15	0	24	19	39	13	943	15	0	971	42	1717	1759
05:00 PM	9	0	3	2	12	7	136	3	1	146	3	1	7	7	11	0	269	4	0	273	10	442	452
05:15 PM	6	0	4	4	10	2	123	3	0	128	2	0	7	7	9	1	202	6	0	209	11	356	367
05:30 PM	7	0	4	4	11	8	110	3	0	121	2	0	5	4	7	3	160	1	0	164	8	303	311
05:45 PM	3	0	1	1	4	4	103	2	0	109	2	0	3	2	5	4	131	1	0	136	3	254	257
Total	25	0	12	11	37	21	472	11	1	504	9	1	22	20	32	8	762	12	0	782	32	1355	1387
Grand Total	76	0	43	33	119	52	1036	41	2	1129	24	1	46	39	71	21	1705	27	0	1753	74	3072	3146
Apprch %	63.9	0	36.1			4.6	91.8	3.6			33.8	1.4	64.8			1.2	97.3	1.5					
Total %	2.5	0	1.4		3.9	1.7	33.7	1.3		36.8	0.8	0	1.5		2.3	0.7	55.5	0.9		57.1	2.4	97.6	

3.1-44

	Vista Del Sol Southbound				Country Club Drive Westbound				Desert Lakes Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**16**	0	**9**	**25**	8	**159**	5	**172**	3	0	2	5	**4**	229	**5**	238	440
04:30 PM	13	0	9	22	**10**	123	7	140	3	0	5	8	3	255	5	263	433
04:45 PM	8	0	4	12	6	147	**9**	162	**7**	0	**11**	**18**	2	213	2	217	409
05:00 PM	9	0	3	12	7	136	3	146	3	**1**	7	11	0	**269**	4	**273**	**442**
Total Volume	46	0	25	71	31	565	24	620	16	1	25	42	9	966	16	991	1724
% App. Total	64.8	0	35.2		5	91.1	3.9		38.1	2.4	59.5		0.9	97.5	1.6		
PHF	.719	.000	.694	.710	.775	.888	.667	.901	.571	.250	.568	.583	.563	.898	.800	.908	.975

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City of Rancho Mirage
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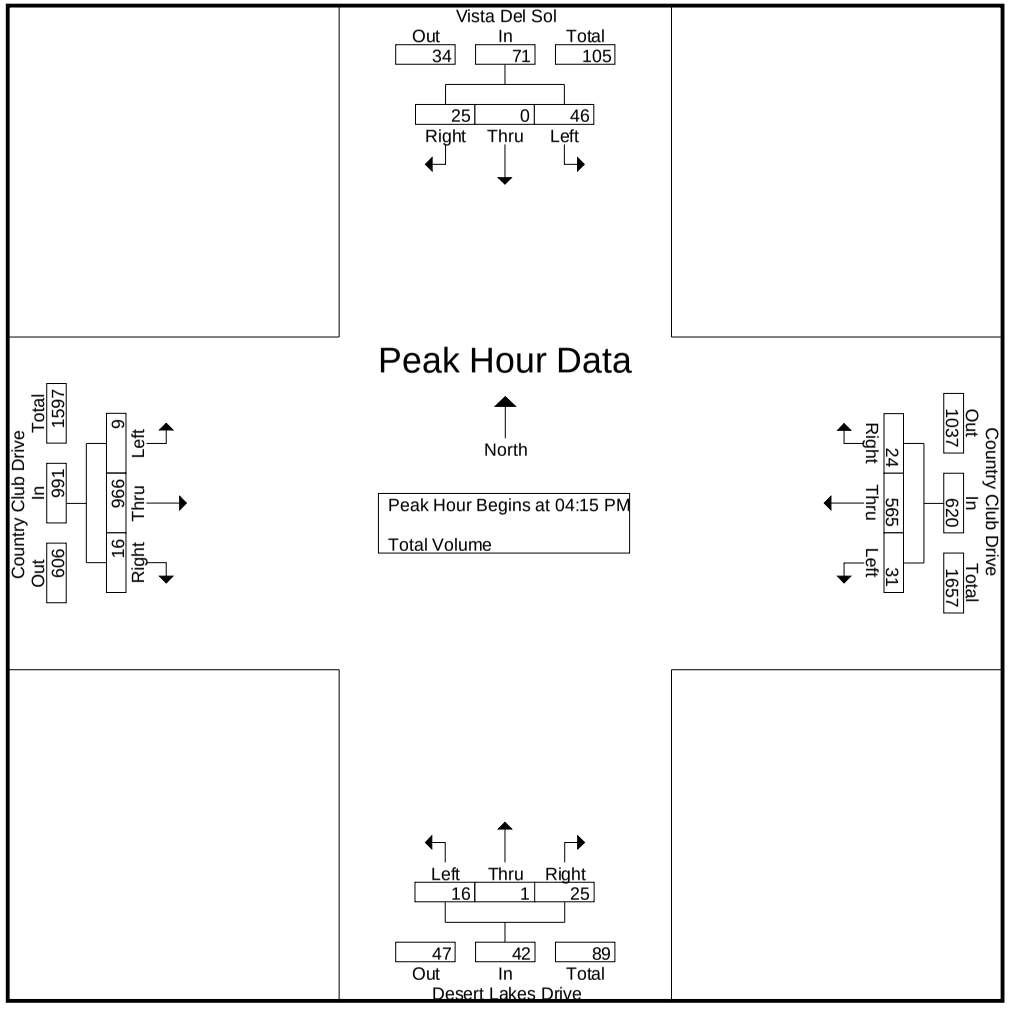
File Name : 08_RNM_VDS_Country PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 2



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City of Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
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Weather: Clear

File Name : 08_RNM_VDS_Country PM
Site Code : 05119832
Start Date : 12/11/2019
Page No : 3

	Vista Del Sol Southbound				Country Club Drive Westbound				Desert Lakes Drive Northbound				Country Club Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:30 PM				04:15 PM				
+0 mins.	14	0	**9**	23	7	135	**9**	151	3	0	5	8	**4**	229	**5**	238	
+15 mins.	**16**	0	9	**25**	8	**159**	5	**172**	**7**	0	**11**	**18**	3	255	5	263	
+30 mins.	13	0	9	22	**10**	123	7	140	3	**1**	7	11	2	213	2	217	
+45 mins.	8	0	4	12	6	147	9	162	2	0	7	9	0	**269**	4	**273**	
Total Volume	51	0	31	82	31	564	30	625	15	1	30	46	9	966	16	991	
% App. Total	62.2	0	37.8		5	90.2	4.8		32.6	2.2	65.2		0.9	97.5	1.6		
PHF	.797	.000	.861	.820	.775	.887	.833	.908	.536	.250	.682	.639	.563	.898	.800	.908	

Location: Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

PEDESTRIANS

	North Leg Vista Del Sol	East Leg Country Club Drive	South Leg Desert Lakes Drive	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	1	0	1	0	2
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	1	2
TOTAL VOLUMES:	1	1	2	1	5

	North Leg Vista Del Sol	East Leg Country Club Drive	South Leg Desert Lakes Drive	West Leg Country Club Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	1	1	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	2	1	3

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Location: Rancho Mirage
N/S: Vista Del Sol/Desert Lakes Drive
E/W: Country Club Drive

Date: 12/11/2019
Day: Wednesday

BICYCLES

	Southbound Vista Del Sol			Westbound Country Club Drive			Northbound Desert Lakes Drive			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	4	0	0	0	0	0	0	0	4

	Southbound Vista Del Sol			Westbound Country Club Drive			Northbound Desert Lakes Drive			Eastbound Country Club Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Rancho Mirage
Betty Ford Way
E/ John L Sinn Road
24 Hour Directional Volume Count

RNM001
Site Code: 051-19832

Start Time	12/11/2019 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	5			0	4				
12:15		4	6			0	6				
12:30		2	5			0	5				
12:45		0	7	9	23	0	8	0	23	9	46
01:00		0	4			0	6				
01:15		0	8			0	18				
01:30		0	4			0	12				
01:45		0	4	0	20	0	1	0	37	0	57
02:00		1	1			0	9				
02:15		0	2			0	4				
02:30		1	3			0	12				
02:45		0	1	2	7	0	7	0	32	2	39
03:00		0	4			0	6				
03:15		0	3			0	8				
03:30		0	15			0	6				
03:45		3	10	3	32	0	5	0	25	3	57
04:00		0	5			0	**11**				
04:15		3	2			0	**18**				
04:30		2	6			0	**17**				
04:45		4	4	9	17	1	**10**	1	56	10	73
05:00		0	**9**			4	7				
05:15		3	**9**			1	9				
05:30		1	**7**			0	9				
05:45		10	**10**	14	35	1	5	6	30	20	65
06:00		3	3			1	3				
06:15		2	5			0	7				
06:30		4	9			3	15				
06:45		9	17	18	34	2	3	6	28	24	62
07:00		10	3			2	8				
07:15		16	5			2	0				
07:30		**21**	3			2	5				
07:45		**36**	0	83	11	2	8	8	21	91	32
08:00		**22**	0			3	20				
08:15		**23**	1			5	2				
08:30		21	1			5	0				
08:45		11	1	77	3	2	1	15	23	92	26
09:00		3	2			2	3				
09:15		7	2			11	0				
09:30		3	1			5	0				
09:45		9	2	22	7	**4**	0	22	3	44	10
10:00		3	1			**9**	0				
10:15		12	1			**10**	0				
10:30		8	2			**11**	0				
10:45		14	0	37	4	1	1	31	1	68	5
11:00		5	0			2	0				
11:15		5	0			3	0				
11:30		10	1			7	0				
11:45		8	5	28	6	6	0	18	0	46	6
Total		302	199	302	199	107	279	107	279	409	478
Combined Total		501		501		386		386		887	
AM Peak	-	07:30	-	-	-	09:45	-	-	-	-	-
Vol.	-	102	-	-	-	34	-	-	-	-	-
P.H.F.		0.708				0.773					
PM Peak	-	-	05:00	-	-	-	04:00	-	-	-	-
Vol.	-	-	35	-	-	-	56	-	-	-	-
P.H.F.			0.583				0.778				
Percentage		60.3%	39.7%			27.7%	72.3%				
ADT/AADT		ADT 887		AADT 887							

Counts Unlimited, Inc.

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City of Rancho Mirage
Vista del Sol
N/ Country Club Drive
24 Hour Directional Volume Count

RNM002
Site Code: 051-19832

Start Time	12/11/2019 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	4			0	0				
12:15		0	1			0	1				
12:30		0	2			0	1				
12:45		0	0	0	7	0	3	0	5	0	12
01:00		0	5			0	0				
01:15		0	0			0	0				
01:30		0	1			0	**2**				
01:45		0	**2**	0	8	0	**2**	0	4	0	12
02:00		0	**4**			0	**4**				
02:15		0	**0**			0	**1**				
02:30		0	**3**			0	0				
02:45		0	2	0	9	0	4	0	9	0	18
03:00		0	0			0	2				
03:15		0	1			0	1				
03:30		0	0			0	1				
03:45		0	0	0	1	0	3	0	7	0	8
04:00		0	7			0	0				
04:15		0	1			0	1				
04:30		0	0			0	0				
04:45		0	0	0	8	0	1	0	2	0	10
05:00		0	0			0	0				
05:15		0	0			1	0				
05:30		0	0			0	0				
05:45		0	0	0	0	0	0	1	0	1	0
06:00		0	0			1	0				
06:15		0	0			1	0				
06:30		0	0			0	0				
06:45		**4**	0	4	0	1	0	3	0	7	0
07:00		**3**	0			3	0				
07:15		**0**	0			0	0				
07:30		**2**	0			0	0				
07:45		3	0	8	0	1	0	4	0	12	0
08:00		2	1			0	0				
08:15		2	0			0	0				
08:30		2	0			1	0				
08:45		0	0	6	1	0	0	1	0	7	1
09:00		1	0			3	0				
09:15		3	0			1	0				
09:30		0	0			0	0				
09:45		0	0	4	0	1	0	5	0	9	0
10:00		1	0			0	0				
10:15		2	0			0	0				
10:30		0	0			**2**	0				
10:45		0	0	3	0	**0**	0	2	0	5	0
11:00		6	0			**4**	0				
11:15		0	0			**3**	0				
11:30		0	0			0	0				
11:45		1	0	7	0	1	0	8	0	15	0
Total		32	34	32	34	24	27	24	27	56	61
Combined Total		66		66		51		51		117	
AM Peak	-	06:45	-	-	-	10:30	-	-	-	-	-
Vol.	-	9	-	-	-	9	-	-	-	-	-
P.H.F.		0.563				0.563					
PM Peak	-	-	01:45	-	-	-	01:30	-	-	-	-
Vol.	-	-	9	-	-	-	9	-	-	-	-
P.H.F.			0.450				0.563				
Percentage		48.5%	51.5%			47.1%	52.9%				
ADT/AADT		ADT 117		AADT 117							

APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	87	308	35	244	998
Future Vol, veh/h	0	87	308	35	244	998
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	100	354	40	280	1147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	177	0	0	394	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	835	-	-	1161	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	835	-	-	1161	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	835	1161	-
HCM Lane V/C Ratio	-	-	0.12	0.242	-
HCM Control Delay (s)	-	-	9.9	9.1	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.9	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	36	371	51	174	762
Future Vol, veh/h	11	36	371	51	174	762
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	39	403	55	189	828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1195	202	0	0	458	0
Stage 1	403	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	179	805	-	-	1099	-
Stage 1	644	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	148	805	-	-	1099	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	337	-	-	-	-	-

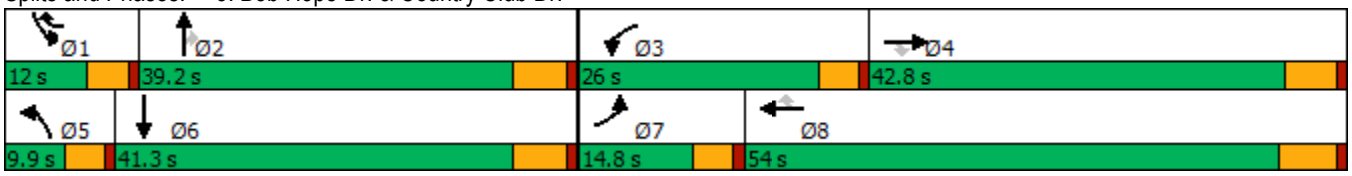
Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	148	805	1099	-
HCM Lane V/C Ratio	-	-	0.081	0.049	0.172	-
HCM Control Delay (s)	-	-	31.5	9.7	9	-
HCM Lane LOS	-	-	D	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	65	187	98	205	238	170	53	330	101	109	519
Future Volume (vph)	65	187	98	205	238	170	53	330	101	109	519
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 74.2
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	187	98	205	238	170	53	330	101	109	519	43
Future Volume (veh/h)	65	187	98	205	238	170	53	330	101	109	519	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	195	16	214	248	92	55	344	55	114	541	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	679	302	266	1006	562	175	788	351	250	825	53
Arrive On Green	0.06	0.19	0.19	0.15	0.28	0.28	0.05	0.22	0.22	0.07	0.24	0.24
Sat Flow, veh/h	1781	3554	1580	1781	3554	1580	3456	3554	1581	3456	3388	219
Grp Volume(v), veh/h	68	195	16	214	248	92	55	344	55	114	283	293
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1580	1728	1777	1581	1728	1777	1830
Q Serve(g_s), s	2.2	2.7	0.5	6.7	3.1	2.3	0.9	4.8	1.6	1.8	8.3	8.4
Cycle Q Clear(g_c), s	2.2	2.7	0.5	6.7	3.1	2.3	0.9	4.8	1.6	1.8	8.3	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	102	679	302	266	1006	562	175	788	351	250	433	446
V/C Ratio(X)	0.67	0.29	0.05	0.80	0.25	0.16	0.31	0.44	0.16	0.46	0.65	0.66
Avail Cap(c_a), veh/h	313	2266	1007	657	2927	1416	316	2045	910	441	1087	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	20.1	19.2	23.9	16.0	12.8	26.6	19.5	18.2	25.8	19.8	19.8
Incr Delay (d2), s/veh	2.8	0.2	0.1	2.2	0.1	0.1	0.4	0.4	0.2	0.5	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	0.2	2.6	1.1	0.7	0.3	1.7	0.5	0.7	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	20.3	19.3	26.0	16.2	12.9	26.9	19.8	18.4	26.3	21.4	21.4
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		279			554			454			690	
Approach Delay, s/veh		22.5			19.4			20.5			22.2	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	18.7	13.3	17.3	7.5	19.9	7.9	22.6
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	3.8	6.8	8.7	4.7	2.9	10.4	4.2	5.1
Green Ext Time (p_c), s	0.0	2.2	0.2	1.2	0.0	3.2	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	17	76	225	67	14
Future Vol, veh/h	18	17	76	225	67	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	22	97	288	86	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	577	95	104	0	-	0
Stage 1	95	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	478	962	1488	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	441	962	1488	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	621	-	-	-	-	-

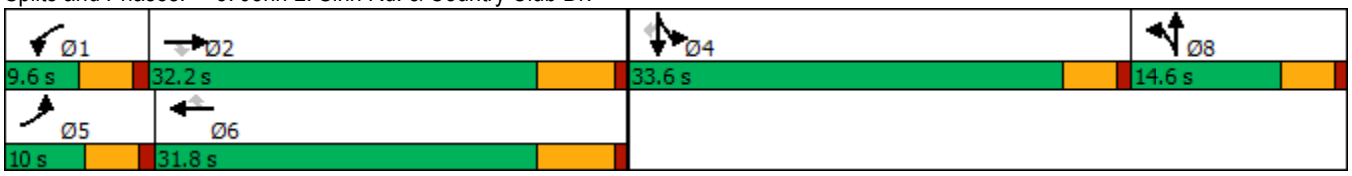
Approach	EB	NB	SB
HCM Control Delay, s	11.5	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1488	-	598	-	-
HCM Lane V/C Ratio	0.065	-	0.075	-	-
HCM Control Delay (s)	7.6	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	44	327	16	14	658	379	3	1	85	0	21
Future Volume (vph)	44	327	16	14	658	379	3	1	85	0	21
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 45.2
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	327	16	14	658	379	3	1	5	85	0	21
Future Volume (veh/h)	44	327	16	14	658	379	3	1	5	85	0	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	363	16	16	731	349	3	1	4	94	0	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1312	585	36	1205	535	38	7	28	569	0	253
Arrive On Green	0.05	0.37	0.37	0.02	0.34	0.34	0.02	0.02	0.02	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3554	1578	1781	327	1308	3563	0	1583
Grp Volume(v), veh/h	49	363	16	16	731	349	3	0	5	94	0	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1578	1781	0	1635	1781	0	1583
Q Serve(g_s), s	1.2	3.3	0.3	0.4	8.0	8.7	0.1	0.0	0.1	1.1	0.0	0.2
Cycle Q Clear(g_c), s	1.2	3.3	0.3	0.4	8.0	8.7	0.1	0.0	0.1	1.1	0.0	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	90	1312	585	36	1205	535	38	0	35	569	0	253
V/C Ratio(X)	0.55	0.28	0.03	0.45	0.61	0.65	0.08	0.00	0.14	0.17	0.00	0.03
Avail Cap(c_a), veh/h	207	1986	884	191	1955	868	383	0	351	2220	0	986
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	10.3	9.3	22.5	12.8	13.1	22.3	0.0	22.4	16.9	0.0	16.5
Incr Delay (d2), s/veh	1.9	0.1	0.0	3.2	0.5	1.4	0.9	0.0	1.9	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.9	0.1	0.2	2.3	2.3	0.0	0.0	0.1	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	10.4	9.4	25.8	13.3	14.4	23.2	0.0	24.3	17.0	0.0	16.5
LnGrp LOS	C	B	A	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		428			1096			8			101	
Approach Delay, s/veh		11.9			13.8			23.9			17.0	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	23.4		12.0	6.9	22.0		5.6
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.4	5.3		3.1	3.2	10.7		2.1
Green Ext Time (p_c), s	0.0	2.0		0.3	0.0	5.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	5	110	87	15	50
Future Vol, veh/h	8	5	110	87	15	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	6	134	106	18	61

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	284	187	0	0	240	0
Stage 1	187	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	706	855	-	-	1327	-
Stage 1	845	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	696	855	-	-	1327	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	914	-	-	-	-	-

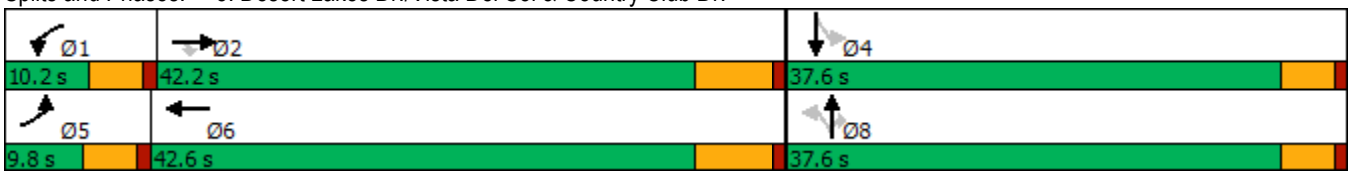
Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	750	1327	-
HCM Lane V/C Ratio	-	-	0.021	0.014	-
HCM Control Delay (s)	-	-	9.9	7.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	15	385	9	20	1046	14	0	21	20	1
Future Volume (vph)	15	385	9	20	1046	14	0	21	20	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 42.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	385	9	20	1046	43	14	0	21	20	1	12
Future Volume (veh/h)	15	385	9	20	1046	43	14	0	21	20	1	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	438	8	23	1189	47	16	0	4	23	1	4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	1758	783	50	1745	69	316	0	163	302	34	134
Arrive On Green	0.02	0.49	0.49	0.03	0.50	0.50	0.10	0.00	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3554	1583	1781	3481	138	1373	0	1585	1412	327	1308
Grp Volume(v), veh/h	17	438	8	23	607	629	16	0	4	23	0	5
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1842	1373	0	1585	1412	0	1635
Q Serve(g_s), s	0.4	2.9	0.1	0.5	10.6	10.6	0.4	0.0	0.1	0.6	0.0	0.1
Cycle Q Clear(g_c), s	0.4	2.9	0.1	0.5	10.6	10.6	0.5	0.0	0.1	1.2	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	38	1758	783	50	891	923	316	0	163	302	0	168
V/C Ratio(X)	0.44	0.25	0.01	0.46	0.68	0.68	0.05	0.00	0.02	0.08	0.00	0.03
Avail Cap(c_a), veh/h	225	3112	1387	243	1573	1631	1304	0	1272	1290	0	1312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.9	6.0	5.3	19.7	7.8	7.8	16.8	0.0	16.6	17.3	0.0	16.6
Incr Delay (d2), s/veh	3.0	0.1	0.0	2.4	0.9	0.9	0.1	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.0	0.2	2.0	2.1	0.1	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	6.1	5.3	22.1	8.7	8.7	16.9	0.0	16.7	17.4	0.0	16.7
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		463			1259			20			28	
Approach Delay, s/veh		6.7			8.9			16.9			17.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	26.5		8.8	5.5	26.8		8.8
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.5	4.9		3.2	2.4	12.6		2.5
Green Ext Time (p_c), s	0.0	2.7		0.1	0.0	8.0		0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	241	1047	3	39	663
Future Vol, veh/h	0	241	1047	3	39	663
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	254	1102	3	41	698

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	551	0	0	1105	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	478	-	-	628	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	478	-	-	628	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	628	-
HCM Lane V/C Ratio	-	-	0.531	0.065	-
HCM Control Delay (s)	-	-	20.7	11.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	3.1	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	113	921	13	28	656
Future Vol, veh/h	20	113	921	13	28	656
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	120	980	14	30	698

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1389	490	0	0	994	0
Stage 1	980	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	134	524	-	-	692	-
Stage 1	324	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	128	524	-	-	692	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	612	-	-	-	-	-

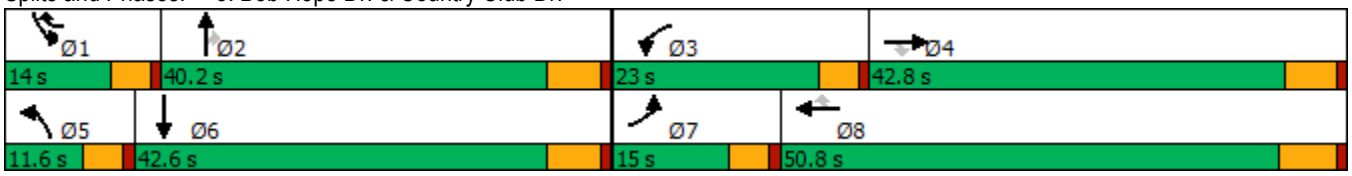
Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	128	524	692	-
HCM Lane V/C Ratio	-	-	0.166	0.229	0.043	-
HCM Control Delay (s)	-	-	38.7	13.9	10.4	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0.9	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	69	270	84	189	261	171	87	605	170	180	523
Future Volume (vph)	69	270	84	189	261	171	87	605	170	180	523
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 81.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	270	84	189	261	171	87	605	170	180	523	41
Future Volume (veh/h)	69	270	84	189	261	171	87	605	170	180	523	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	278	18	195	269	107	90	624	90	186	539	33
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	626	278	243	908	535	219	935	416	286	960	59
Arrive On Green	0.06	0.18	0.18	0.14	0.26	0.26	0.06	0.26	0.26	0.08	0.28	0.28
Sat Flow, veh/h	1781	3554	1580	1781	3554	1581	3456	3554	1580	3456	3399	208
Grp Volume(v), veh/h	71	278	18	195	269	107	90	624	90	186	281	291
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1581	1728	1777	1580	1728	1777	1830
Q Serve(g_s), s	2.4	4.3	0.6	6.6	3.8	3.0	1.6	9.7	2.8	3.2	8.4	8.4
Cycle Q Clear(g_c), s	2.4	4.3	0.6	6.6	3.8	3.0	1.6	9.7	2.8	3.2	8.4	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	101	626	278	243	908	535	219	935	416	286	502	517
V/C Ratio(X)	0.70	0.44	0.06	0.80	0.30	0.20	0.41	0.67	0.22	0.65	0.56	0.56
Avail Cap(c_a), veh/h	299	2119	942	528	2554	1268	390	1970	876	523	1054	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	22.8	21.3	26.0	18.6	14.6	27.9	20.4	17.9	27.6	19.0	19.0
Incr Delay (d2), s/veh	3.3	0.5	0.1	2.4	0.2	0.2	0.5	0.8	0.3	0.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.6	0.2	2.6	1.3	0.9	0.6	3.6	0.9	1.2	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	23.3	21.4	28.4	18.8	14.8	28.4	21.3	18.1	28.5	20.0	20.0
LnGrp LOS	C	C	C	C	B	B	C	C	B	C	B	B
Approach Vol, veh/h		367			571			804			758	
Approach Delay, s/veh		24.9			21.3			21.7			22.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	22.1	13.1	17.1	8.5	23.3	8.1	22.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	5.2	11.7	8.6	6.3	3.6	10.4	4.4	5.8
Green Ext Time (p_c), s	0.1	4.2	0.2	1.7	0.0	3.2	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	78	27	77	133	14
Future Vol, veh/h	14	78	27	77	133	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	83	29	82	141	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	289	149	156	0	-	0
Stage 1	149	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	702	898	1424	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	687	898	1424	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	887	-	-	-	-	-

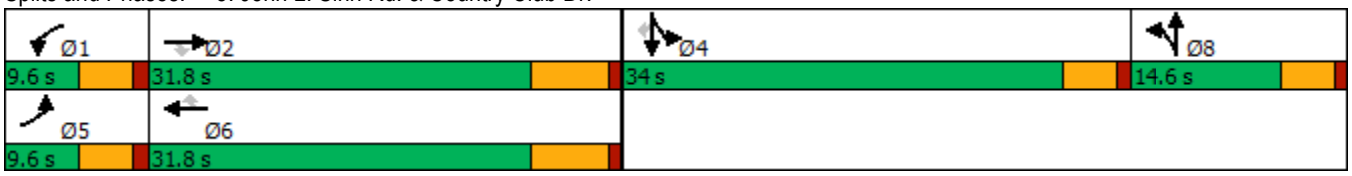
Approach	EB	NB	SB
HCM Control Delay, s	9.7	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1424	-	858	-	-
HCM Lane V/C Ratio	0.02	-	0.114	-	-
HCM Control Delay (s)	7.6	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	11	592	12	11	526	65	19	1	371	8	57
Future Volume (vph)	11	592	12	11	526	65	19	1	371	8	57
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 49.9
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	592	12	11	526	65	19	1	23	371	8	57
Future Volume (veh/h)	11	592	12	11	526	65	19	1	23	371	8	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	630	11	12	560	54	20	1	3	401	0	23
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	28	976	435	28	976	435	102	24	71	779	0	346
Arrive On Green	0.02	0.27	0.27	0.02	0.27	0.27	0.06	0.06	0.06	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	412	1236	3563	0	1583
Grp Volume(v), veh/h	12	630	11	12	560	54	20	0	4	401	0	23
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	0	1648	1781	0	1583
Q Serve(g_s), s	0.3	7.2	0.2	0.3	6.3	1.2	0.5	0.0	0.1	4.6	0.0	0.5
Cycle Q Clear(g_c), s	0.3	7.2	0.2	0.3	6.3	1.2	0.5	0.0	0.1	4.6	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	28	976	435	28	976	435	102	0	95	779	0	346
V/C Ratio(X)	0.44	0.65	0.03	0.44	0.57	0.12	0.20	0.00	0.04	0.51	0.00	0.07
Avail Cap(c_a), veh/h	193	1973	879	193	1973	880	386	0	357	2272	0	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	14.7	12.2	22.5	14.4	12.6	20.7	0.0	20.5	15.9	0.0	14.3
Incr Delay (d2), s/veh	4.0	0.7	0.0	4.0	0.5	0.1	0.9	0.0	0.2	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.2	0.1	0.1	1.9	0.3	0.2	0.0	0.0	1.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	15.5	12.2	26.5	14.9	12.7	21.6	0.0	20.7	16.4	0.0	14.4
LnGrp LOS	C	B	B	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		653			626			24			424	
Approach Delay, s/veh		15.6			15.0			21.5			16.3	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	18.9		14.7	5.3	18.9		7.2				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0				
Max Q Clear Time (g_c+I1), s	2.3	9.2		6.6	2.3	8.3		2.5				
Green Ext Time (p_c), s	0.0	3.4		1.5	0.0	3.2		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	16	35	18	2	119
Future Vol, veh/h	37	16	35	18	2	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	20	43	22	2	145

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	203	54	0	0	65	0
Stage 1	54	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	786	1013	-	-	1537	-
Stage 1	969	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	785	1013	-	-	1537	-
Mov Cap-2 Maneuver	785	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	878	-	-	-	-	-

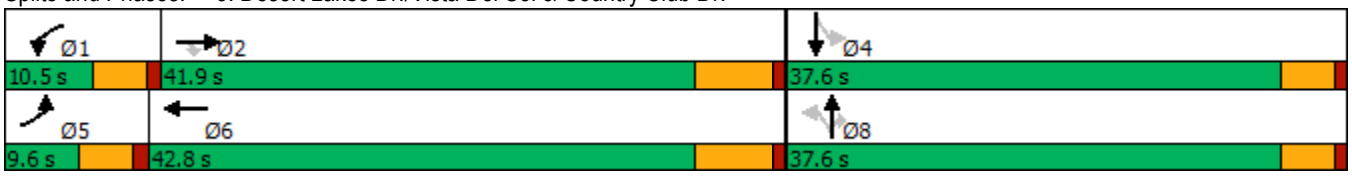
Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	842	1537	-
HCM Lane V/C Ratio	-	-	0.077	0.002	-
HCM Control Delay (s)	-	-	9.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	9	966	16	31	565	16	1	25	46	0
Future Volume (vph)	9	966	16	31	565	16	1	25	46	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 43.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	966	16	31	565	24	16	1	25	46	0	25
Future Volume (veh/h)	9	966	16	31	565	24	16	1	25	46	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	996	16	32	582	23	16	1	2	47	0	7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	21	1561	695	67	1619	64	356	17	220	362	0	220
Arrive On Green	0.01	0.44	0.44	0.04	0.46	0.46	0.14	0.14	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3554	1583	1781	3485	138	1308	124	1585	1414	0	1585
Grp Volume(v), veh/h	9	996	16	32	296	309	17	0	2	47	0	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1846	1432	0	1585	1414	0	1585
Q Serve(g_s), s	0.2	8.7	0.2	0.7	4.3	4.3	0.3	0.0	0.0	1.2	0.0	0.2
Cycle Q Clear(g_c), s	0.2	8.7	0.2	0.7	4.3	4.3	0.4	0.0	0.0	1.6	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.07	0.94		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	21	1561	695	67	826	858	373	0	220	362	0	220
V/C Ratio(X)	0.42	0.64	0.02	0.48	0.36	0.36	0.05	0.00	0.01	0.13	0.00	0.03
Avail Cap(c_a), veh/h	222	3168	1411	262	1624	1687	1353	0	1306	1330	0	1306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	8.7	6.4	18.9	6.9	6.9	15.0	0.0	14.9	15.7	0.0	14.9
Incr Delay (d2), s/veh	4.9	0.4	0.0	2.0	0.3	0.3	0.0	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.8	0.0	0.3	0.8	0.9	0.1	0.0	0.0	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	9.2	6.4	20.9	7.2	7.1	15.1	0.0	14.9	15.9	0.0	15.0
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1021			637			19			54	
Approach Delay, s/veh		9.3			7.8			15.0			15.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	23.8		10.2	5.1	24.8		10.2
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	2.7	10.7		3.6	2.2	6.3		2.4
Green Ext Time (p_c), s	0.0	6.8		0.1	0.0	3.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday AM Peak Hour**

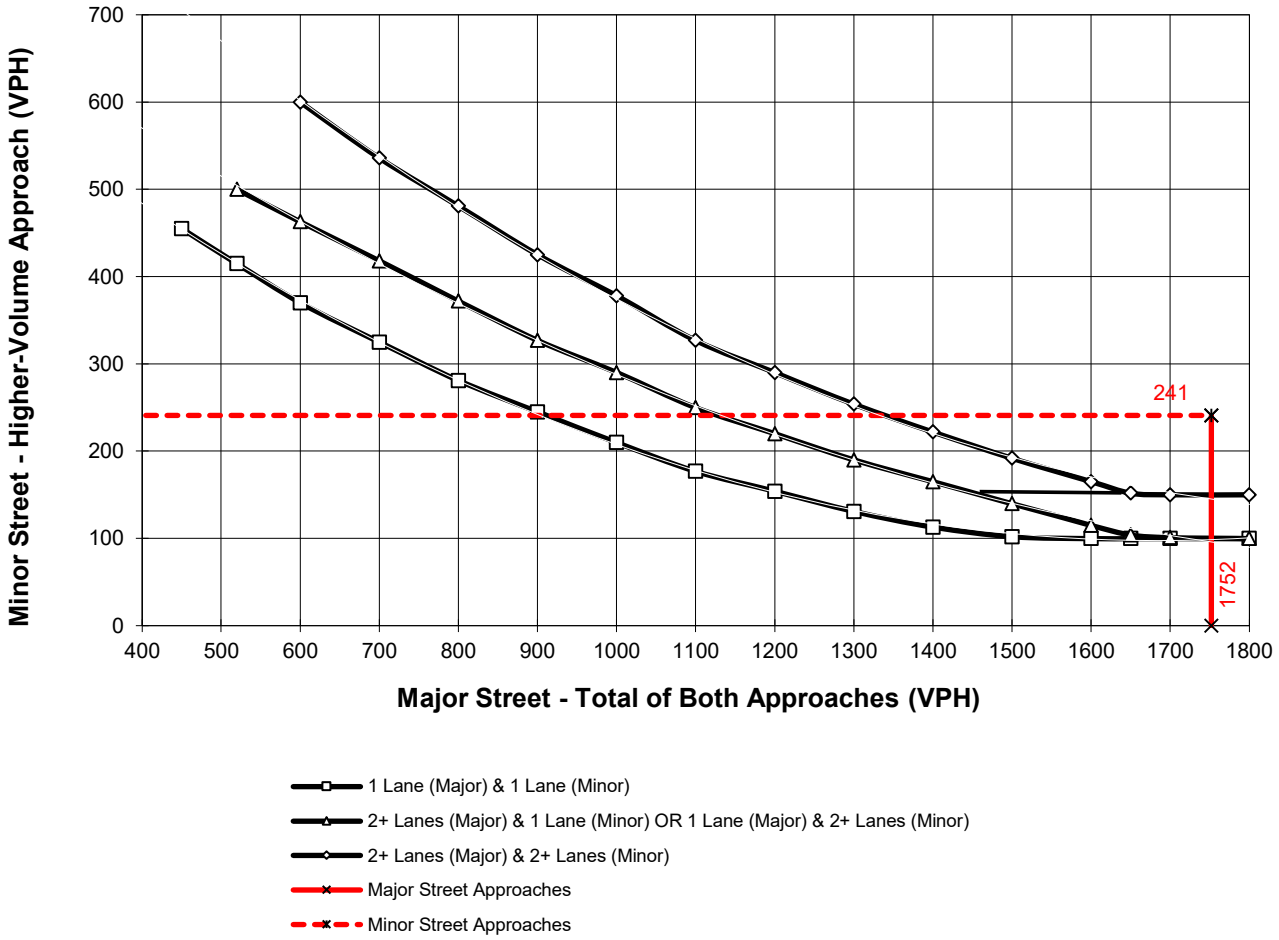
Major Street Name = **Bob Hope Dr.**

Total of Both Approaches (VPH) = **1752**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **MacMillan Wy.**

High Volume Approach (VPH) = **241**
Number of Approach Lanes On Minor Street = **2**

WARRANTED FOR A SIGNAL



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

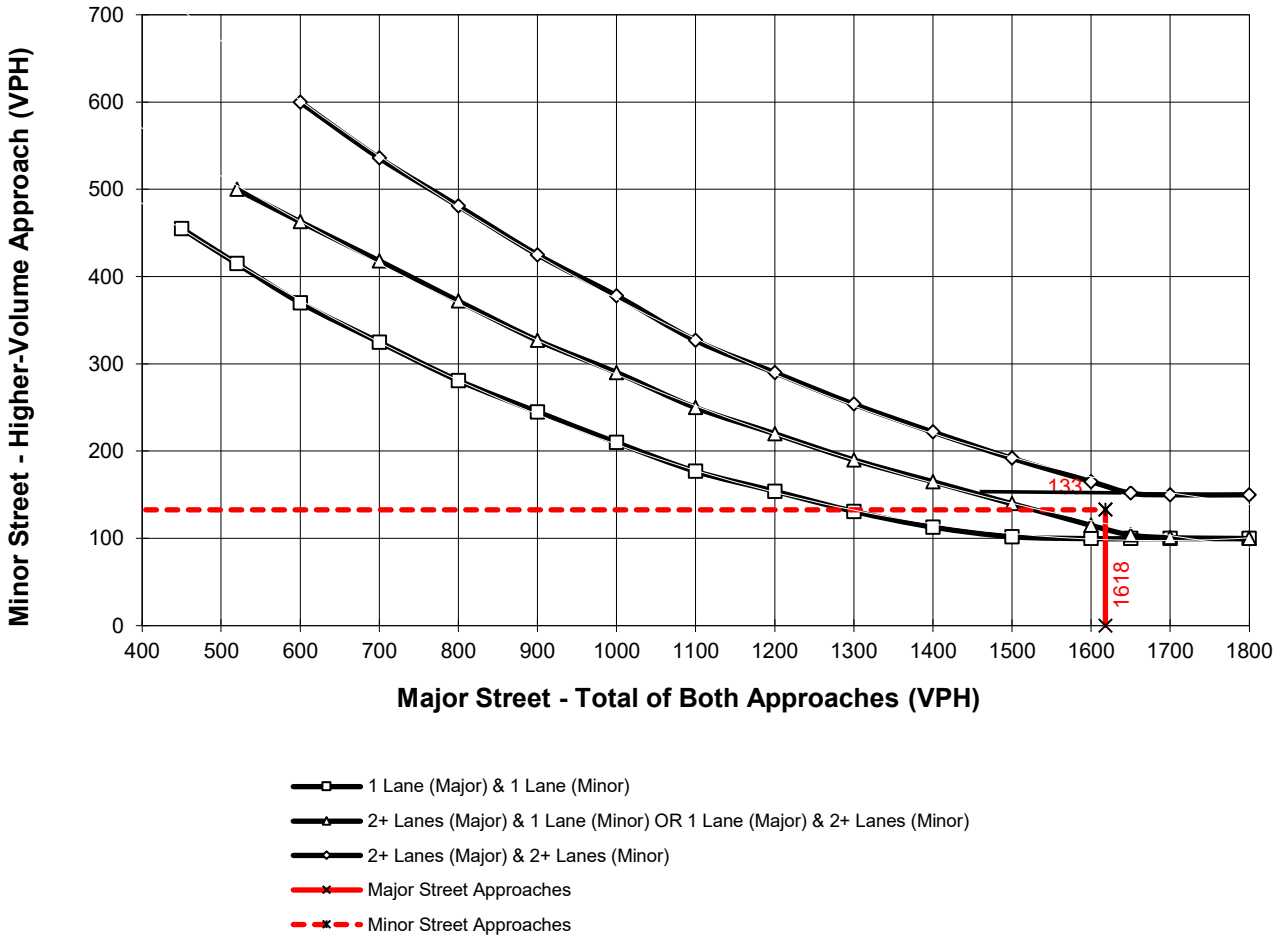
Major Street Name = **Bob Hope Dr.**

Total of Both Approaches (VPH) = **1618**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **St. A**

High Volume Approach (VPH) = **133**
Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

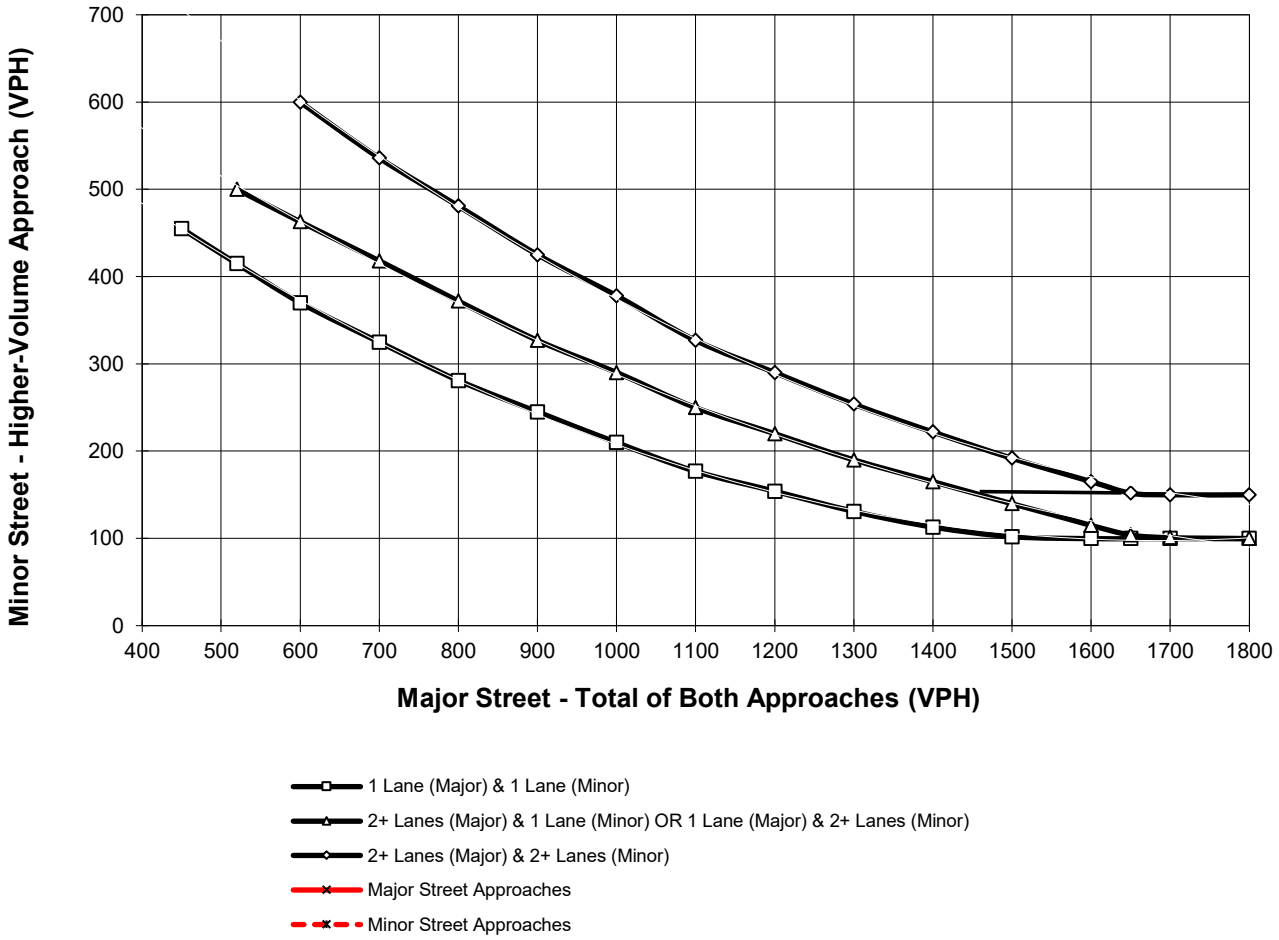
Major Street Name = **John L. Sinn**

Total of Both Approaches (VPH) = **251**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **St. A**

High Volume Approach (VPH) = **92**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

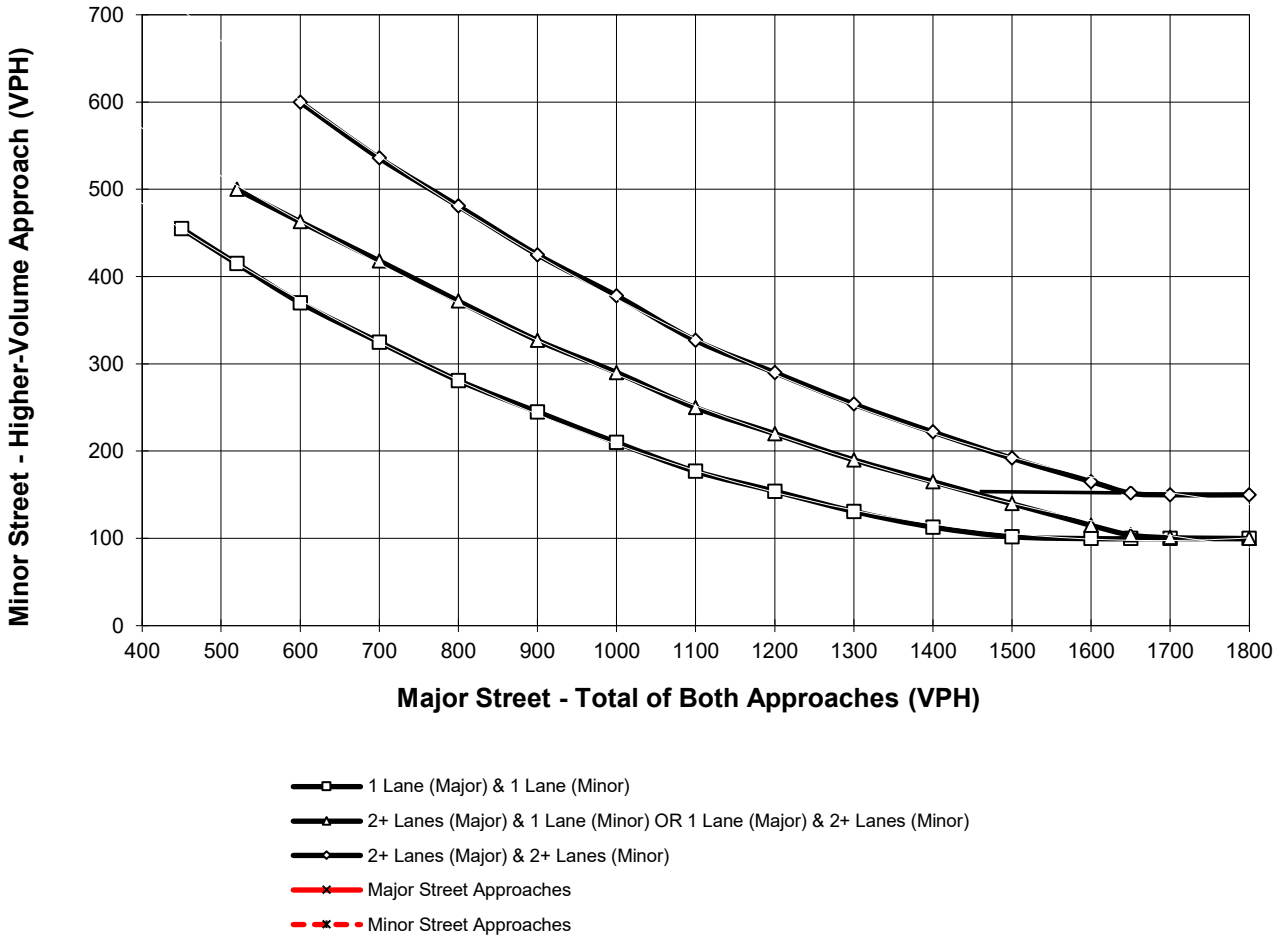
Major Street Name = **Joe Friend Ln.**

Total of Both Approaches (VPH) = **174**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Betty Ford Wy.**

High Volume Approach (VPH) = **53**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project:	Hazelden Betty Ford Center	Job #:	12719
Scenario:	Horizon Year (2040)	Analyst:	RV
		Date:	1/31/20

LOCATION: Bob Hope Drive / Country Club Drive
FORECAST YEAR: 2040
Leon Road / Scott Road

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	53	71	18	34%	87	92	5	6%
	Through	330	335	5	2%	605	648	43	7%
	Right	101	88	-13	-13%	170	210	40	24%
	NB Total	484	494	10	2%	862	950	88	10%
SOUTH BOUND	Left	109	175	66	61%	180	316	136	76%
	Through	519	574	55	11%	523	542	19	4%
	Right	43	106	63	147%	41	61	20	49%
	SB Total	671	855	184	27%	744	919	175	24%
EAST BOUND	Left	65	168	103	158%	69	125	56	81%
	Through	187	416	229	122%	270	562	292	108%
	Right	98	150	52	53%	84	103	19	23%
	EB Total	350	734	384	110%	423	790	367	87%
WEST BOUND	Left	205	176	-29	-14%	189	268	79	42%
	Through	238	454	216	91%	261	535	274	105%
	Right	170	247	77	45%	171	357	186	109%
	WB Total	613	877	264	43%	621	1,160	539	87%
TOTAL ENTERING VOLUME		2,118	2,960	842	40%	2,650	3,819	1169	44%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	855	919			
North Leg	Outbound	750	1,130			
North Leg	**TOTAL**	**1,605**	**2,049**	**5%**	**7%**	**29,468**
South Leg	Inbound	494	950			
South Leg	Outbound	900	913			
South Leg	**TOTAL**	**1,394**	**1,863**	**5%**	**7%**	**26,778**
East Leg	Inbound	877	1,160			
East Leg	Outbound	679	1,088			
East Leg	**TOTAL**	**1,556**	**2,248**	**6%**	**9%**	**24,668**
West Leg	Inbound	734	790			
West Leg	Outbound	631	688			
West Leg	**TOTAL**	**1,365**	**1,478**	**6%**	**6%**	**24,359**
OVERALL TOTAL		***5,920***	***7,638***	**6%**	***7%***	***105,273***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑	↱	↰	↑↑
Traffic Vol, veh/h	0	88	308	35	250	998
Future Vol, veh/h	0	88	308	35	250	998
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	101	354	40	287	1147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	177	0	0	394	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	835	-	-	1161	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	835	-	-	1161	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	835	1161	-
HCM Lane V/C Ratio	-	-	0.121	0.248	-
HCM Control Delay (s)	-	-	9.9	9.1	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	1	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	36	371	57	174	762
Future Vol, veh/h	12	36	371	57	174	762
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	39	403	62	189	828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1195	202	0	0	465	0
Stage 1	403	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	179	805	-	-	1093	-
Stage 1	644	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	148	805	-	-	1093	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	337	-	-	-	-	-

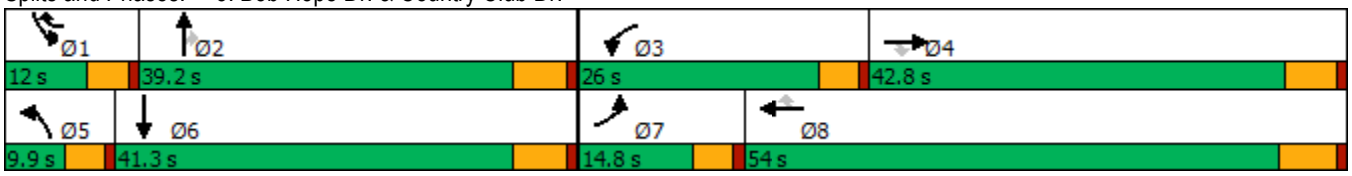
Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	148	805	1093	-
HCM Lane V/C Ratio	-	-	0.088	0.049	0.173	-
HCM Control Delay (s)	-	-	31.7	9.7	9	-
HCM Lane LOS	-	-	D	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	68	196	98	205	239	170	53	333	104	109	519
Future Volume (vph)	68	196	98	205	239	170	53	333	104	109	519
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 74.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	196	98	205	239	170	53	333	104	109	519	43
Future Volume (veh/h)	68	196	98	205	239	170	53	333	104	109	519	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	204	16	214	249	92	55	347	58	114	541	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	679	302	266	1001	560	175	788	351	250	825	53
Arrive On Green	0.06	0.19	0.19	0.15	0.28	0.28	0.05	0.22	0.22	0.07	0.24	0.24
Sat Flow, veh/h	1781	3554	1580	1781	3554	1580	3456	3554	1581	3456	3388	219
Grp Volume(v), veh/h	71	204	16	214	249	92	55	347	58	114	283	293
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1580	1728	1777	1581	1728	1777	1830
Q Serve(g_s), s	2.3	2.9	0.5	6.7	3.1	2.3	0.9	4.9	1.7	1.8	8.3	8.4
Cycle Q Clear(g_c), s	2.3	2.9	0.5	6.7	3.1	2.3	0.9	4.9	1.7	1.8	8.3	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	105	679	302	266	1001	560	175	788	351	250	433	446
V/C Ratio(X)	0.68	0.30	0.05	0.80	0.25	0.16	0.31	0.44	0.17	0.46	0.65	0.66
Avail Cap(c_a), veh/h	313	2266	1007	657	2927	1416	316	2045	910	441	1087	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	20.1	19.2	23.9	16.1	12.9	26.6	19.5	18.2	25.8	19.8	19.8
Incr Delay (d2), s/veh	2.9	0.2	0.1	2.2	0.1	0.1	0.4	0.4	0.2	0.5	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	0.2	2.6	1.1	0.7	0.3	1.8	0.5	0.7	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	20.4	19.3	26.0	16.2	13.0	27.0	19.9	18.5	26.3	21.4	21.4
LnGrp LOS	C	C	B	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		291			555			460			690	
Approach Delay, s/veh		22.6			19.5			20.5			22.2	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	18.7	13.3	17.3	7.5	19.9	8.0	22.5
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	3.8	6.9	8.7	4.9	2.9	10.4	4.3	5.1
Green Ext Time (p_c), s	0.0	2.2	0.2	1.2	0.0	3.2	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	17	76	244	70	15
Future Vol, veh/h	24	17	76	244	70	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	22	97	313	90	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	607	100	109	0	-	0
Stage 1	100	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	460	956	1481	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	424	956	1481	-	-	-
Mov Cap-2 Maneuver	424	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	605	-	-	-	-	-

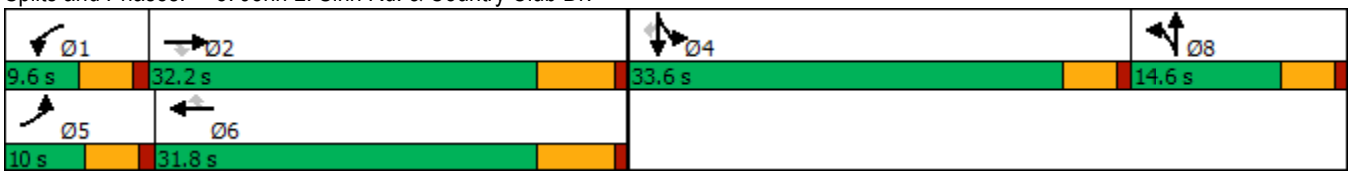
Approach	EB	NB	SB
HCM Control Delay, s	12.2	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1481	-	551	-	-
HCM Lane V/C Ratio	0.066	-	0.095	-	-
HCM Control Delay (s)	7.6	0	12.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	330	16	14	658	388	3	1	86	0	22
Future Volume (vph)	53	330	16	14	658	388	3	1	86	0	22
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 48.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	330	16	14	658	388	3	1	5	86	0	22
Future Volume (veh/h)	53	330	16	14	658	388	3	1	5	86	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	367	16	16	731	359	3	1	4	96	0	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	1343	598	36	1212	538	38	7	28	571	0	253
Arrive On Green	0.06	0.38	0.38	0.02	0.34	0.34	0.02	0.02	0.02	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3554	1578	1781	327	1308	3563	0	1583
Grp Volume(v), veh/h	59	367	16	16	731	359	3	0	5	96	0	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1578	1781	0	1635	1781	0	1583
Q Serve(g_s), s	1.5	3.4	0.3	0.4	8.1	9.2	0.1	0.0	0.1	1.1	0.0	0.2
Cycle Q Clear(g_c), s	1.5	3.4	0.3	0.4	8.1	9.2	0.1	0.0	0.1	1.1	0.0	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	101	1343	598	36	1212	538	38	0	34	571	0	253
V/C Ratio(X)	0.58	0.27	0.03	0.45	0.60	0.67	0.08	0.00	0.15	0.17	0.00	0.03
Avail Cap(c_a), veh/h	202	1944	866	187	1914	850	375	0	344	2174	0	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	10.3	9.3	23.0	13.0	13.4	22.8	0.0	22.8	17.2	0.0	16.8
Incr Delay (d2), s/veh	2.0	0.1	0.0	3.2	0.5	1.4	0.9	0.0	1.9	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.9	0.1	0.2	2.3	2.5	0.0	0.0	0.1	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.8	10.4	9.3	26.3	13.5	14.8	23.7	0.0	24.7	17.4	0.0	16.9
LnGrp LOS	C	B	A	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		442			1106			8			104	
Approach Delay, s/veh		12.1			14.1			24.4			17.3	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	24.2		12.2	7.3	22.4		5.6
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.4	5.4		3.1	3.5	11.2		2.1
Green Ext Time (p_c), s	0.0	2.0		0.3	0.0	5.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	6	110	112	21	50
Future Vol, veh/h	12	6	110	112	21	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	7	134	137	26	61

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	316	203	0	0	271	0
Stage 1	203	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	677	838	-	-	1292	-
Stage 1	831	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	663	838	-	-	1292	-
Mov Cap-2 Maneuver	663	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	713	1292	-
HCM Lane V/C Ratio	-	-	0.031	0.02	-
HCM Control Delay (s)	-	-	10.2	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	25	5	5	6
Future Vol, veh/h	1	4	25	5	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	27	5	5	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	68	9	12	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	937	1073	1607	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	1073	1607	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	964	-	-	-	-	-

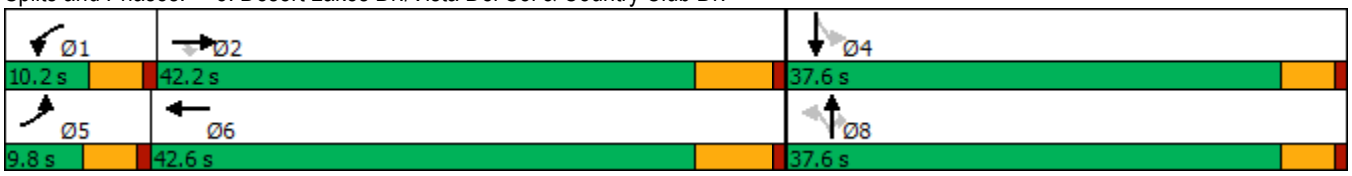
Approach	EB	NB	SB
HCM Control Delay, s	8.5	6.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	1039	-	-
HCM Lane V/C Ratio	0.017	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	18	386	9	20	1055	14	0	21	23	1
Future Volume (vph)	18	386	9	20	1055	14	0	21	23	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 42.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	386	9	20	1055	65	14	0	21	23	1	12
Future Volume (veh/h)	18	386	9	20	1055	65	14	0	21	23	1	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	439	8	23	1199	72	16	0	4	26	1	4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	44	1793	799	50	1727	104	315	0	169	301	35	139
Arrive On Green	0.02	0.50	0.50	0.03	0.51	0.51	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1583	1781	3401	204	1375	0	1585	1412	327	1308
Grp Volume(v), veh/h	20	439	8	23	626	645	16	0	4	26	0	5
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1828	1375	0	1585	1412	0	1635
Q Serve(g_s), s	0.5	3.0	0.1	0.5	11.4	11.4	0.4	0.0	0.1	0.7	0.0	0.1
Cycle Q Clear(g_c), s	0.5	3.0	0.1	0.5	11.4	11.4	0.6	0.0	0.1	1.3	0.0	0.1
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	44	1793	799	50	902	928	315	0	169	301	0	174
V/C Ratio(X)	0.45	0.24	0.01	0.46	0.69	0.70	0.05	0.00	0.02	0.09	0.00	0.03
Avail Cap(c_a), veh/h	217	3001	1337	234	1517	1561	1257	0	1227	1244	0	1265
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.5	6.0	5.3	20.4	8.0	8.0	17.3	0.0	17.1	17.9	0.0	17.1
Incr Delay (d2), s/veh	2.7	0.1	0.0	2.5	1.0	0.9	0.1	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.5	0.0	0.2	2.2	2.3	0.1	0.0	0.0	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	6.0	5.3	22.9	8.9	8.9	17.4	0.0	17.1	18.0	0.0	17.1
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		467			1294			20			31	
Approach Delay, s/veh		6.8			9.2			17.3			17.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	27.7		9.1	5.7	27.8		9.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.5	5.0		3.3	2.5	13.4		2.6
Green Ext Time (p_c), s	0.0	2.7		0.1	0.0	8.2		0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	245	1047	3	40	663
Future Vol, veh/h	0	245	1047	3	40	663
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	258	1102	3	42	698

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	551	0	0	1105	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	478	-	-	628	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	478	-	-	628	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	628	-
HCM Lane V/C Ratio	-	-	0.54	0.067	-
HCM Control Delay (s)	-	-	21	11.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	3.2	0.2	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	113	921	14	28	656
Future Vol, veh/h	24	113	921	14	28	656
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	120	980	15	30	698

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1389	490	0	0	995	0
Stage 1	980	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	134	524	-	-	691	-
Stage 1	324	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	128	524	-	-	691	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	612	-	-	-	-	-

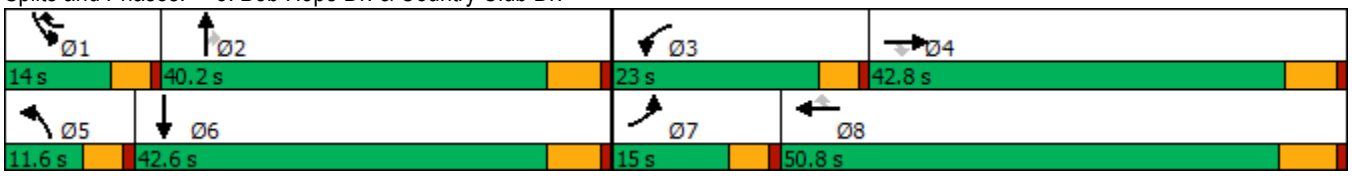
Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	128	524	691	-
HCM Lane V/C Ratio	-	-	0.199	0.229	0.043	-
HCM Control Delay (s)	-	-	40	13.9	10.4	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.9	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	70	272	84	191	267	171	87	606	171	180	525
Future Volume (vph)	70	272	84	191	267	171	87	606	171	180	525
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 81.5
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	272	84	191	267	171	87	606	171	180	525	43
Future Volume (veh/h)	70	272	84	191	267	171	87	606	171	180	525	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	280	18	197	275	107	90	625	91	186	541	35
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	625	278	245	910	536	219	936	416	286	957	62
Arrive On Green	0.06	0.18	0.18	0.14	0.26	0.26	0.06	0.26	0.26	0.08	0.28	0.28
Sat Flow, veh/h	1781	3554	1580	1781	3554	1581	3456	3554	1580	3456	3386	219
Grp Volume(v), veh/h	72	280	18	197	275	107	90	625	91	186	283	293
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1581	1728	1777	1580	1728	1777	1828
Q Serve(g_s), s	2.5	4.4	0.6	6.7	3.9	3.0	1.6	9.8	2.8	3.2	8.5	8.5
Cycle Q Clear(g_c), s	2.5	4.4	0.6	6.7	3.9	3.0	1.6	9.8	2.8	3.2	8.5	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	102	625	278	245	910	536	219	936	416	286	502	517
V/C Ratio(X)	0.71	0.45	0.06	0.80	0.30	0.20	0.41	0.67	0.22	0.65	0.56	0.57
Avail Cap(c_a), veh/h	298	2113	939	527	2547	1265	389	1965	873	522	1051	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	22.9	21.4	26.0	18.7	14.6	28.0	20.5	17.9	27.7	19.0	19.1
Incr Delay (d2), s/veh	3.3	0.5	0.1	2.4	0.2	0.2	0.5	0.8	0.3	0.9	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.7	0.2	2.6	1.4	0.9	0.6	3.6	0.9	1.2	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	23.4	21.5	28.4	18.9	14.8	28.5	21.3	18.2	28.6	20.0	20.0
LnGrp LOS	C	C	C	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		370			579			806			762	
Approach Delay, s/veh		25.0			21.3			21.8			22.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	22.2	13.1	17.1	8.5	23.4	8.2	22.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	5.2	11.8	8.7	6.4	3.6	10.5	4.5	5.9
Green Ext Time (p_c), s	0.1	4.2	0.2	1.7	0.0	3.2	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	78	27	80	144	18
Future Vol, veh/h	15	78	27	80	144	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	83	29	85	153	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	306	163	172	0	-	0
Stage 1	163	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	686	882	1405	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	671	882	1405	-	-	-
Mov Cap-2 Maneuver	671	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	884	-	-	-	-	-

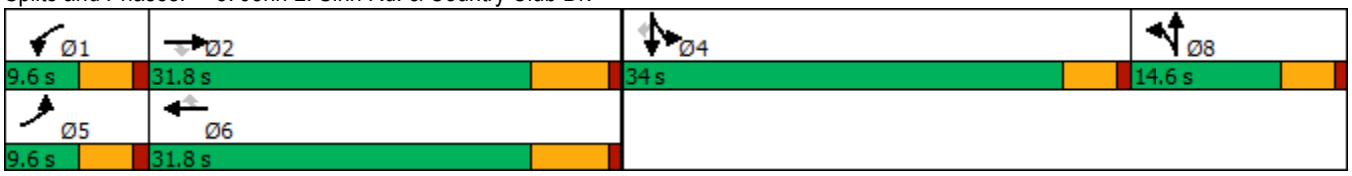
Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	839	-	-
HCM Lane V/C Ratio	0.02	-	0.118	-	-
HCM Control Delay (s)	7.6	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	13	593	12	11	528	67	19	1	377	8	63
Future Volume (vph)	13	593	12	11	528	67	19	1	377	8	63
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 50.2
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	593	12	11	528	67	19	1	23	377	8	63
Future Volume (veh/h)	13	593	12	11	528	67	19	1	23	377	8	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	631	11	12	562	56	20	1	3	407	0	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	977	435	28	969	432	102	24	71	779	0	346
Arrive On Green	0.02	0.27	0.27	0.02	0.27	0.27	0.06	0.06	0.06	0.22	0.00	0.22
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	412	1236	3563	0	1583
Grp Volume(v), veh/h	14	631	11	12	562	56	20	0	4	407	0	29
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	0	1648	1781	0	1583
Q Serve(g_s), s	0.4	7.2	0.2	0.3	6.3	1.2	0.5	0.0	0.1	4.6	0.0	0.7
Cycle Q Clear(g_c), s	0.4	7.2	0.2	0.3	6.3	1.2	0.5	0.0	0.1	4.6	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	32	977	435	28	969	432	102	0	95	779	0	346
V/C Ratio(X)	0.44	0.65	0.03	0.44	0.58	0.13	0.20	0.00	0.04	0.52	0.00	0.08
Avail Cap(c_a), veh/h	193	1972	878	193	1972	880	386	0	357	2270	0	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	14.7	12.2	22.5	14.5	12.7	20.7	0.0	20.5	15.9	0.0	14.3
Incr Delay (d2), s/veh	3.6	0.7	0.0	4.0	0.6	0.1	0.9	0.0	0.2	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	0.1	0.1	1.9	0.3	0.2	0.0	0.0	1.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	15.5	12.2	26.5	15.0	12.8	21.6	0.0	20.7	16.4	0.0	14.4
LnGrp LOS	C	B	B	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		656			630			24			436	
Approach Delay, s/veh		15.6			15.1			21.5			16.3	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	18.9		14.7	5.4	18.8		7.2
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.3	9.2		6.6	2.4	8.3		2.5
Green Ext Time (p_c), s	0.0	3.4		1.6	0.0	3.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	20	35	22	3	119
Future Vol, veh/h	52	20	35	22	3	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	24	43	27	4	145

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	210	57	0	0	70	0
Stage 1	57	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	778	1009	-	-	1531	-
Stage 1	966	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	776	1009	-	-	1531	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	872	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	829	1531	-
HCM Lane V/C Ratio	-	-	0.106	0.002	-
HCM Control Delay (s)	-	-	9.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	15	4	5	5	1
Future Vol, veh/h	4	15	4	5	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	16	4	5	5	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	19	6	6	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	998	1077	1615	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	996	1077	1615	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.2	0
HCM LOS	A		

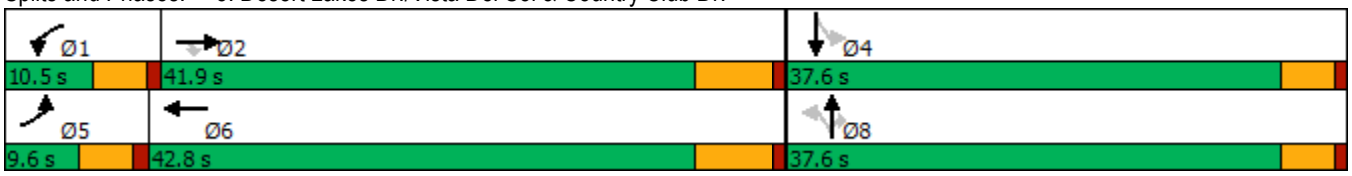
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	1059	-	-
HCM Lane V/C Ratio	0.003	-	0.02	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	972	16	31	567	16	1	25	59	0
Future Volume (vph)	10	972	16	31	567	16	1	25	59	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 44.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	972	16	31	567	28	16	1	25	59	0	27
Future Volume (veh/h)	10	972	16	31	567	28	16	1	25	59	0	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	1002	16	32	585	27	16	1	2	61	0	9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	23	1549	690	66	1591	73	370	18	245	377	0	245
Arrive On Green	0.01	0.44	0.44	0.04	0.46	0.46	0.15	0.15	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1583	1781	3459	159	1301	118	1585	1414	0	1585
Grp Volume(v), veh/h	10	1002	16	32	300	312	17	0	2	61	0	9
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1842	1419	0	1585	1414	0	1585
Q Serve(g_s), s	0.2	9.2	0.2	0.7	4.5	4.6	0.3	0.0	0.0	1.6	0.0	0.2
Cycle Q Clear(g_c), s	0.2	9.2	0.2	0.7	4.5	4.6	0.5	0.0	0.0	2.1	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.09	0.94		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	1549	690	66	817	847	389	0	245	377	0	245
V/C Ratio(X)	0.43	0.65	0.02	0.48	0.37	0.37	0.04	0.00	0.01	0.16	0.00	0.04
Avail Cap(c_a), veh/h	215	3067	1366	254	1572	1629	1306	0	1264	1286	0	1264
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	9.2	6.7	19.5	7.3	7.3	15.0	0.0	14.8	15.8	0.0	14.9
Incr Delay (d2), s/veh	4.5	0.5	0.0	2.0	0.3	0.3	0.0	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.0	0.0	0.3	0.9	1.0	0.1	0.0	0.0	0.5	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.8	9.6	6.7	21.5	7.5	7.5	15.0	0.0	14.8	16.0	0.0	14.9
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1028			644			19			70	
Approach Delay, s/veh		9.7			8.2			15.0			15.9	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	24.2		11.0	5.1	25.2		11.0
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	2.7	11.2		4.1	2.2	6.6		2.5
Green Ext Time (p_c), s	0.0	6.9		0.2	0.0	3.4		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM

TRAFFIC CONDITIONS **E+P**

CALC RV DATE 01/28/20

CHK RV DATE 01/28/20

Jurisdiction: **City of Rancho Mirage**

Major Street: **John L. Sinn Rd.**

Minor Street: **Street A**

Critical Approach Speed (Major) 25 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,918** vpd

Minor Street Future ADT = **442** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,918**	*1* **442**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,918**	*1* **442**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 18% / **B** 16%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			E+P
				CALC	RV	DATE	01/28/20
Jurisdiction:	City of Rancho Mirage			CHK	RV	DATE	01/28/20
Major Street:	Joe Friend Ln.			Critical Approach Speed (Major)			25 mph
Minor Street:	Betty Ford Wy.			Critical Approach Speed (Minor)			25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,119** vpd Minor Street Future ADT = **368** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,119**	*1* **368**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,119**	*1* **368**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 14% **B** 9%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 5.3:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	36	371	57	174	762
Future Volume (vph)	12	36	371	57	174	762
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	26.0	26.0	19.0	45.0
Total Split (%)	25.0%	25.0%	43.3%	43.3%	31.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 36.3
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	36	371	57	174	762
Future Volume (veh/h)	12	36	371	57	174	762
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	39	403	62	189	828
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	204	181	1058	472	252	2047
Arrive On Green	0.11	0.11	0.30	0.30	0.14	0.58
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	13	39	403	62	189	828
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.2	0.8	3.0	1.0	3.4	4.3
Cycle Q Clear(g_c), s	0.2	0.8	3.0	1.0	3.4	4.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	204	181	1058	472	252	2047
V/C Ratio(X)	0.06	0.22	0.38	0.13	0.75	0.40
Avail Cap(c_a), veh/h	551	491	2137	953	763	4146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	13.5	9.3	8.6	13.9	3.9
Incr Delay (d2), s/veh	0.1	0.6	0.2	0.1	4.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.7	0.2	1.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.4	14.1	9.6	8.7	18.3	4.1
LnGrp LOS	B	B	A	A	B	A
Approach Vol, veh/h	52		465			1017
Approach Delay, s/veh	13.9		9.5			6.7
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.4	15.8				25.2	8.4
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	14.4	20.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	5.4	5.0				6.3	2.8
Green Ext Time (p_c), s	0.3	2.2				5.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	113	921	14	28	656
Future Volume (vph)	24	113	921	14	28	656
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	35.0	35.0	10.0	45.0
Total Split (%)	25.0%	25.0%	58.3%	58.3%	16.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 37.7
Natural Cycle: 50
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	113	921	14	28	656
Future Volume (veh/h)	24	113	921	14	28	656
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	120	980	15	30	698
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	346	308	1475	658	63	1987
Arrive On Green	0.19	0.19	0.41	0.41	0.04	0.56
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	26	120	980	15	30	698
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.5	2.8	9.4	0.2	0.7	4.5
Cycle Q Clear(g_c), s	0.5	2.8	9.4	0.2	0.7	4.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	346	308	1475	658	63	1987
V/C Ratio(X)	0.08	0.39	0.66	0.02	0.48	0.35
Avail Cap(c_a), veh/h	439	391	2460	1097	228	3303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	14.8	10.0	7.3	20.0	5.1
Incr Delay (d2), s/veh	0.1	0.8	0.5	0.0	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.9	2.3	0.1	0.3	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.0	15.6	10.5	7.3	22.1	5.2
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	146		995			728
Approach Delay, s/veh	15.3		10.4			5.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.1	23.3				29.4	12.8
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	5.4	29.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	2.7	11.4				6.5	4.8
Green Ext Time (p_c), s	0.0	6.1				4.8	0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

APPENDIX 6.1:

EAP (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	95	333	38	270	1080
Future Vol, veh/h	0	95	333	38	270	1080
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	109	383	44	310	1241

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	192	0	0	427	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	817	-	-	1129	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	817	-	-	1129	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	817	1129	-
HCM Lane V/C Ratio	-	-	0.134	0.275	-
HCM Control Delay (s)	-	-	10.1	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	1.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	39	402	61	188	825
Future Vol, veh/h	13	39	402	61	188	825
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	42	437	66	204	897

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1294	219	0	0	503	0
Stage 1	437	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	154	785	-	-	1058	-
Stage 1	619	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	124	785	-	-	1058	-
Mov Cap-2 Maneuver	124	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	303	-	-	-	-	-

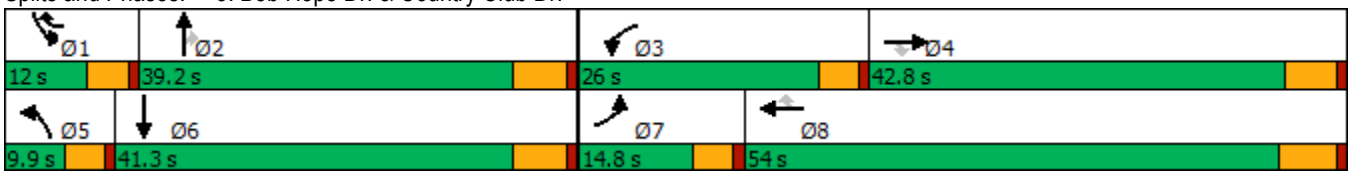
Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	124	785	1058	-
HCM Lane V/C Ratio	-	-	0.114	0.054	0.193	-
HCM Control Delay (s)	-	-	37.7	9.8	9.2	-
HCM Lane LOS	-	-	E	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.7	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	73	211	106	222	259	184	57	360	112	118	562
Future Volume (vph)	73	211	106	222	259	184	57	360	112	118	562
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 77.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	211	106	222	259	184	57	360	112	118	562	47
Future Volume (veh/h)	73	211	106	222	259	184	57	360	112	118	562	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	220	24	231	270	107	59	375	67	123	585	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	653	290	283	1006	561	180	837	372	249	864	58
Arrive On Green	0.06	0.18	0.18	0.16	0.28	0.28	0.05	0.24	0.24	0.07	0.26	0.26
Sat Flow, veh/h	1781	3554	1580	1781	3554	1580	3456	3554	1581	3456	3381	225
Grp Volume(v), veh/h	76	220	24	231	270	107	59	375	67	123	307	317
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1580	1728	1777	1581	1728	1777	1829
Q Serve(g_s), s	2.5	3.3	0.8	7.6	3.6	2.8	1.0	5.5	2.1	2.1	9.4	9.5
Cycle Q Clear(g_c), s	2.5	3.3	0.8	7.6	3.6	2.8	1.0	5.5	2.1	2.1	9.4	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	106	653	290	283	1006	561	180	837	372	249	454	468
V/C Ratio(X)	0.72	0.34	0.08	0.82	0.27	0.19	0.33	0.45	0.18	0.49	0.68	0.68
Avail Cap(c_a), veh/h	300	2170	965	629	2803	1361	302	1959	871	422	1041	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	21.5	20.5	24.6	16.9	13.5	27.7	19.8	18.5	27.1	20.3	20.3
Incr Delay (d2), s/veh	3.4	0.3	0.1	2.2	0.1	0.2	0.4	0.4	0.2	0.6	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.2	0.3	2.9	1.2	0.8	0.4	2.0	0.7	0.8	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	21.8	20.6	26.8	17.0	13.7	28.1	20.2	18.7	27.6	22.1	22.0
LnGrp LOS	C	C	C	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		320			608			501			747	
Approach Delay, s/veh		24.0			20.2			20.9			23.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	20.1	14.2	17.3	7.7	21.3	8.2	23.3
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	4.1	7.5	9.6	5.3	3.0	11.5	4.5	5.6
Green Ext Time (p_c), s	0.1	2.4	0.2	1.4	0.0	3.5	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	18	82	263	76	16
Future Vol, veh/h	25	18	82	263	76	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	23	105	337	97	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	655	108	118	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	431	946	1470	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	946	1470	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	580	-	-	-	-	-

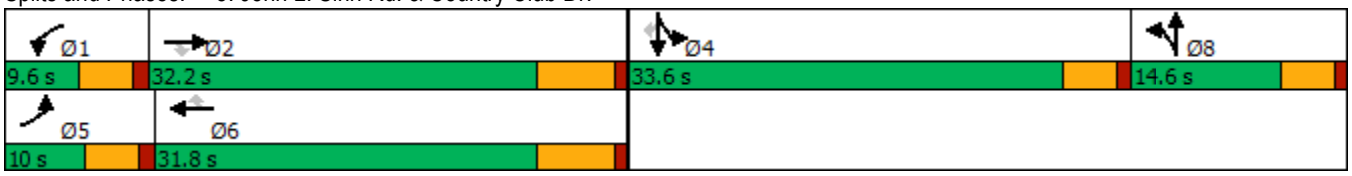
Approach	EB	NB	SB
HCM Control Delay, s	12.7	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1470	-	520	-	-
HCM Lane V/C Ratio	0.072	-	0.106	-	-
HCM Control Delay (s)	7.6	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	57	357	17	15	712	419	3	1	93	0	24
Future Volume (vph)	57	357	17	15	712	419	3	1	93	0	24
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 49.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	357	17	15	712	419	3	1	5	93	0	24
Future Volume (veh/h)	57	357	17	15	712	419	3	1	5	93	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	397	17	17	791	394	3	1	4	103	0	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	1402	625	37	1270	564	37	7	28	578	0	257
Arrive On Green	0.06	0.39	0.39	0.02	0.36	0.36	0.02	0.02	0.02	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3554	1578	1781	327	1308	3563	0	1583
Grp Volume(v), veh/h	63	397	17	17	791	394	3	0	5	103	0	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1578	1781	0	1635	1781	0	1583
Q Serve(g_s), s	1.7	3.8	0.3	0.5	9.2	10.7	0.1	0.0	0.1	1.2	0.0	0.3
Cycle Q Clear(g_c), s	1.7	3.8	0.3	0.5	9.2	10.7	0.1	0.0	0.1	1.2	0.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	104	1402	625	37	1270	564	37	0	34	578	0	257
V/C Ratio(X)	0.61	0.28	0.03	0.45	0.62	0.70	0.08	0.00	0.15	0.18	0.00	0.04
Avail Cap(c_a), veh/h	193	1853	826	179	1825	810	357	0	328	2072	0	921
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.9	10.3	9.2	24.1	13.2	13.7	23.9	0.0	24.0	18.0	0.0	17.6
Incr Delay (d2), s/veh	2.1	0.1	0.0	3.2	0.5	1.6	0.9	0.0	1.9	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.0	0.1	0.2	2.7	2.9	0.0	0.0	0.1	0.5	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	10.4	9.3	27.3	13.8	15.3	24.8	0.0	25.9	18.2	0.0	17.7
LnGrp LOS	C	B	A	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		477			1202			8			114	
Approach Delay, s/veh		12.3			14.5			25.5			18.1	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	25.9		12.7	7.5	24.0		5.6
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.5	5.8		3.2	3.7	12.7		2.1
Green Ext Time (p_c), s	0.0	2.2		0.3	0.0	5.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	6	119	119	22	54
Future Vol, veh/h	13	6	119	119	22	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	7	145	145	27	66

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	338	218	0	0	290	0
Stage 1	218	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	658	822	-	-	1272	-
Stage 1	818	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	822	-	-	1272	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	691	1272	-
HCM Lane V/C Ratio	-	-	0.034	0.021	-
HCM Control Delay (s)	-	-	10.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	25	5	5	6
Future Vol, veh/h	1	4	25	5	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	27	5	5	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	68	9	12	0	-	0
Stage 1	9	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	937	1073	1607	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	1073	1607	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	964	-	-	-	-	-

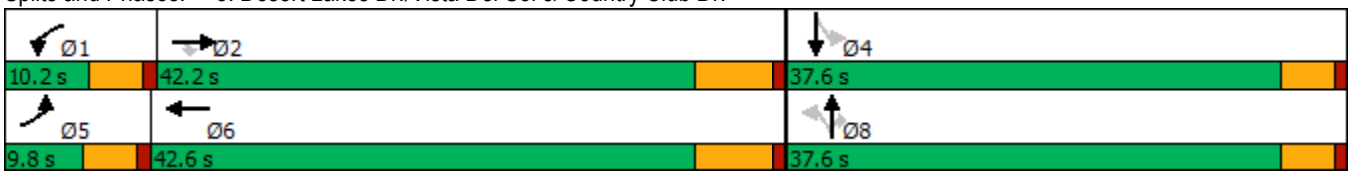
Approach	EB	NB	SB
HCM Control Delay, s	8.5	6.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1607	-	1039	-	-
HCM Lane V/C Ratio	0.017	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	19	418	10	22	1141	15	0	23	25	1
Future Volume (vph)	19	418	10	22	1141	15	0	23	25	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 46.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	418	10	22	1141	69	15	0	23	25	1	13
Future Volume (veh/h)	19	418	10	22	1141	69	15	0	23	25	1	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	475	9	25	1297	76	17	0	6	28	1	5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	1859	828	53	1793	105	310	0	178	295	30	152
Arrive On Green	0.03	0.52	0.52	0.03	0.53	0.53	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3554	1584	1781	3407	199	1369	0	1585	1410	271	1355
Grp Volume(v), veh/h	22	475	9	25	675	698	17	0	6	28	0	6
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1829	1369	0	1585	1410	0	1626
Q Serve(g_s), s	0.6	3.4	0.1	0.6	13.4	13.4	0.5	0.0	0.2	0.8	0.0	0.2
Cycle Q Clear(g_c), s	0.6	3.4	0.1	0.6	13.4	13.4	0.7	0.0	0.2	1.5	0.0	0.2
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	47	1859	828	53	935	963	310	0	178	295	0	183
V/C Ratio(X)	0.46	0.26	0.01	0.47	0.72	0.72	0.05	0.00	0.03	0.09	0.00	0.03
Avail Cap(c_a), veh/h	201	2780	1239	217	1405	1447	1163	0	1137	1148	0	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	6.0	5.3	22.0	8.3	8.3	18.5	0.0	18.2	19.1	0.0	18.2
Incr Delay (d2), s/veh	2.6	0.1	0.0	2.4	1.1	1.1	0.1	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.6	0.0	0.3	2.8	2.9	0.2	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	6.1	5.3	24.4	9.4	9.4	18.6	0.0	18.3	19.2	0.0	18.3
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		506			1398			23			34	
Approach Delay, s/veh		6.9			9.7			18.5			19.1	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	30.3		9.8	5.8	30.4		9.8
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.6	5.4		3.5	2.6	15.4		2.7
Green Ext Time (p_c), s	0.0	2.9		0.1	0.0	8.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	265	1133	3	43	718
Future Vol, veh/h	0	265	1133	3	43	718
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	279	1193	3	45	756

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	597	0	0	1196	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	446	-	-	579	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	446	-	-	579	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	446	579	-
HCM Lane V/C Ratio	-	-	0.625	0.078	-
HCM Control Delay (s)	-	-	25.6	11.7	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	4.2	0.3	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	122	997	15	30	710
Future Vol, veh/h	26	122	997	15	30	710
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	130	1061	16	32	755

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1503	531	0	0	1077	0
Stage 1	1061	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	112	493	-	-	643	-
Stage 1	294	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	106	493	-	-	643	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	294	-	-	-	-	-
Stage 2	584	-	-	-	-	-

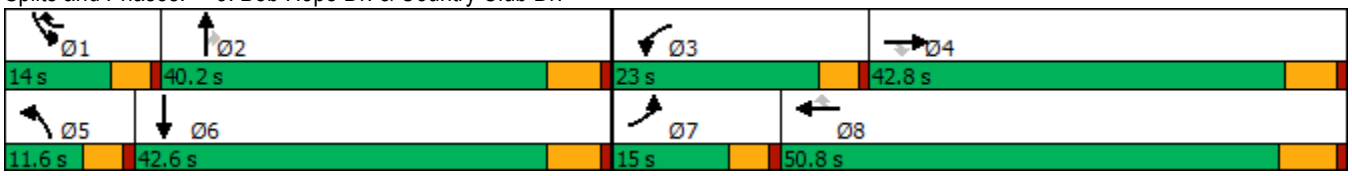
Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	106	493	643	-
HCM Lane V/C Ratio	-	-	0.261	0.263	0.05	-
HCM Control Delay (s)	-	-	50.6	14.9	10.9	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1	1	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	76	294	91	207	289	185	94	656	185	195	568
Future Volume (vph)	76	294	91	207	289	185	94	656	185	195	568
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 85.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	294	91	207	289	185	94	656	185	195	568	46
Future Volume (veh/h)	76	294	91	207	289	185	94	656	185	195	568	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	303	25	213	298	122	97	676	106	201	586	38
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	596	265	260	910	542	219	981	436	299	1013	66
Arrive On Green	0.06	0.17	0.17	0.15	0.26	0.26	0.06	0.28	0.28	0.09	0.30	0.30
Sat Flow, veh/h	1781	3554	1579	1781	3554	1581	3456	3554	1580	3456	3385	219
Grp Volume(v), veh/h	78	303	25	213	298	122	97	676	106	201	307	317
Grp Sat Flow(s),veh/h/ln	1781	1777	1579	1781	1777	1581	1728	1777	1580	1728	1777	1828
Q Serve(g_s), s	2.8	5.1	0.9	7.6	4.5	3.6	1.8	11.1	3.4	3.7	9.6	9.6
Cycle Q Clear(g_c), s	2.8	5.1	0.9	7.6	4.5	3.6	1.8	11.1	3.4	3.7	9.6	9.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	103	596	265	260	910	542	219	981	436	299	532	547
V/C Ratio(X)	0.76	0.51	0.09	0.82	0.33	0.23	0.44	0.69	0.24	0.67	0.58	0.58
Avail Cap(c_a), veh/h	283	2008	892	500	2420	1214	369	1867	830	496	998	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	24.8	23.0	27.1	19.8	15.3	29.6	21.2	18.4	29.0	19.4	19.5
Incr Delay (d2), s/veh	4.2	0.7	0.2	2.4	0.2	0.2	0.5	0.9	0.3	1.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.0	0.3	3.0	1.6	1.1	0.7	4.1	1.1	1.4	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	25.5	23.2	29.5	20.0	15.5	30.1	22.1	18.7	30.0	20.4	20.4
LnGrp LOS	C	C	C	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		406			633			879			825	
Approach Delay, s/veh		27.1			22.3			22.5			22.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	23.9	14.2	17.2	8.7	25.4	8.4	23.0
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	5.7	13.1	9.6	7.1	3.8	11.6	4.8	6.5
Green Ext Time (p_c), s	0.1	4.5	0.2	1.9	0.0	3.5	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	84	29	86	155	19
Future Vol, veh/h	16	84	29	86	155	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	89	31	91	165	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	328	175	185	0	-	0
Stage 1	175	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	666	868	1390	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	651	868	1390	-	-	-
Mov Cap-2 Maneuver	651	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	875	-	-	-	-	-

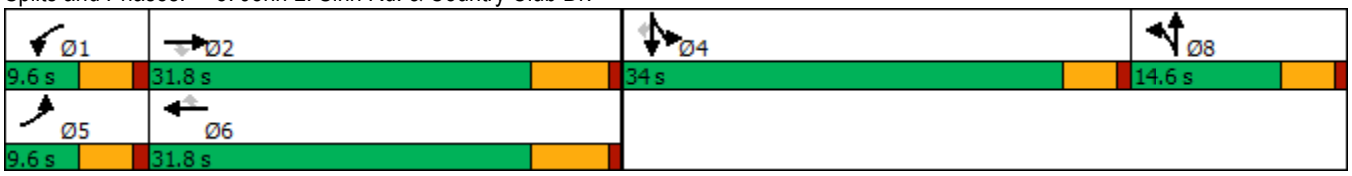
Approach	EB	NB	SB
HCM Control Delay, s	10	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1390	-	824	-	-
HCM Lane V/C Ratio	0.022	-	0.129	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	14	642	13	12	571	72	21	1	408	9	68
Future Volume (vph)	14	642	13	12	571	72	21	1	408	9	68
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 54.7
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	642	13	12	571	72	21	1	25	408	9	68
Future Volume (veh/h)	14	642	13	12	571	72	21	1	25	408	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	683	12	13	607	62	22	1	6	441	0	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1024	456	30	1016	453	119	15	93	752	0	334
Arrive On Green	0.02	0.29	0.29	0.02	0.29	0.29	0.07	0.07	0.07	0.21	0.00	0.21
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	231	1389	3563	0	1583
Grp Volume(v), veh/h	15	683	12	13	607	62	22	0	7	441	0	34
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	0	1620	1781	0	1583
Q Serve(g_s), s	0.4	8.1	0.3	0.3	7.0	1.4	0.6	0.0	0.2	5.3	0.0	0.8
Cycle Q Clear(g_c), s	0.4	8.1	0.3	0.3	7.0	1.4	0.6	0.0	0.2	5.3	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	34	1024	456	30	1016	453	119	0	108	752	0	334
V/C Ratio(X)	0.45	0.67	0.03	0.44	0.60	0.14	0.18	0.00	0.06	0.59	0.00	0.10
Avail Cap(c_a), veh/h	186	1898	845	186	1898	847	372	0	338	2186	0	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	15.0	12.2	23.3	14.7	12.7	21.1	0.0	21.0	17.0	0.0	15.2
Incr Delay (d2), s/veh	3.4	0.8	0.0	3.8	0.6	0.1	0.7	0.0	0.2	0.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	0.1	0.2	2.2	0.4	0.2	0.0	0.1	2.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	15.8	12.3	27.1	15.3	12.9	21.9	0.0	21.2	17.8	0.0	15.4
LnGrp LOS	C	B	B	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		710			682			29			475	
Approach Delay, s/veh		16.0			15.3			21.7			17.6	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	20.0		14.7	5.5	19.9		7.8
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.3	10.1		7.3	2.4	9.0		2.6
Green Ext Time (p_c), s	0.0	3.7		1.7	0.0	3.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	21	38	23	3	129
Future Vol, veh/h	55	21	38	23	3	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	26	46	28	4	157

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	225	60	0	0	74	0
Stage 1	60	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	763	1005	-	-	1526	-
Stage 1	963	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	761	1005	-	-	1526	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1526	-
HCM Lane V/C Ratio	-	-	0.114	0.002	-
HCM Control Delay (s)	-	-	10	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	15	4	5	5	1
Future Vol, veh/h	4	15	4	5	5	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	16	4	5	5	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	19	6	6	0	-	0
Stage 1	6	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	998	1077	1615	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	996	1077	1615	-	-	-
Mov Cap-2 Maneuver	996	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1615	-	1059	-	-
HCM Lane V/C Ratio	0.003	-	0.02	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

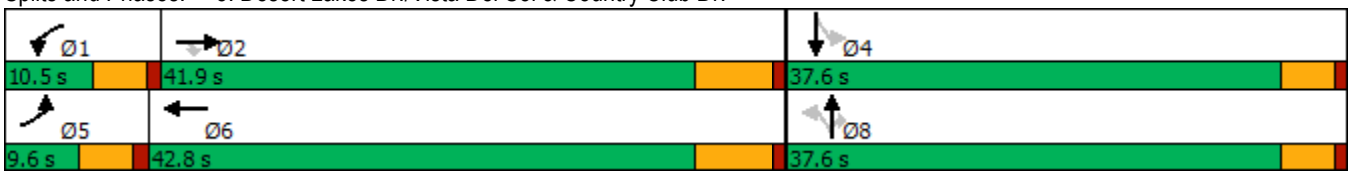
8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	11	1052	17	34	614	17	1	27	63	0
Future Volume (vph)	11	1052	17	34	614	17	1	27	63	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 46.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1052	17	34	614	30	17	1	27	63	0	29
Future Volume (veh/h)	11	1052	17	34	614	30	17	1	27	63	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	1085	18	35	633	29	18	1	4	65	0	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	25	1612	718	70	1656	76	365	16	252	367	0	252
Arrive On Green	0.01	0.45	0.45	0.04	0.48	0.48	0.16	0.16	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3460	158	1298	102	1585	1411	0	1585
Grp Volume(v), veh/h	11	1085	18	35	325	337	19	0	4	65	0	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1842	1399	0	1585	1411	0	1585
Q Serve(g_s), s	0.3	10.6	0.3	0.9	5.2	5.2	0.4	0.0	0.1	1.8	0.0	0.3
Cycle Q Clear(g_c), s	0.3	10.6	0.3	0.9	5.2	5.2	0.6	0.0	0.1	2.4	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.09	0.95		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	25	1612	718	70	851	882	381	0	252	367	0	252
V/C Ratio(X)	0.43	0.67	0.03	0.50	0.38	0.38	0.05	0.00	0.02	0.18	0.00	0.04
Avail Cap(c_a), veh/h	201	2867	1277	237	1469	1523	1215	0	1182	1195	0	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	9.5	6.7	20.8	7.4	7.4	15.9	0.0	15.7	17.0	0.0	15.8
Incr Delay (d2), s/veh	4.2	0.5	0.0	2.0	0.3	0.3	0.1	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.4	0.1	0.3	1.1	1.1	0.2	0.0	0.0	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	10.0	6.7	22.8	7.6	7.6	16.0	0.0	15.7	17.2	0.0	15.8
LnGrp LOS	C	B	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1114			697			23			76	
Approach Delay, s/veh		10.1			8.4			15.9			17.0	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	26.3		11.6	5.2	27.4		11.6
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	2.9	12.6		4.4	2.3	7.2		2.6
Green Ext Time (p_c), s	0.0	7.4		0.2	0.0	3.7		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

APPENDIX 6.2:

EAP (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM

TRAFFIC CONDITIONS **EAP 2023**

CALC RV DATE 01/28/20

CHK RV DATE 01/28/20

Jurisdiction: **City of Rancho Mirage**

Major Street: **John L. Sinn Rd.**

Minor Street: **Street A**

Critical Approach Speed (Major) 25 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,061** vpd

Minor Street Future ADT = **477** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,061**	*1* **477**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,061**	*1* **477**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 20% / **B** 17%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM

TRAFFIC CONDITIONS **EAP 2023**

CALC RV DATE 01/28/20

CHK RV DATE 01/28/20

Jurisdiction: **City of Rancho Mirage**

Major Street: **Joe Friend Ln.**

Minor Street: **Betty Ford Wy.**

Critical Approach Speed (Major) 25 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,200** vpd

Minor Street Future ADT = **386** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied XX	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,200**	*1* **386**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied XX	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,200**	*1* **386**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 15% / **B** 10%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 6.3:

EAP (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	39	402	61	188	825
Future Volume (vph)	13	39	402	61	188	825
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	26.0	26.0	19.0	45.0
Total Split (%)	25.0%	25.0%	43.3%	43.3%	31.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 36.8
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	39	402	61	188	825
Future Volume (veh/h)	13	39	402	61	188	825
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	42	437	66	204	897
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	215	191	1034	461	271	2050
Arrive On Green	0.12	0.12	0.29	0.29	0.15	0.58
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	14	42	437	66	204	897
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.2	0.8	3.4	1.1	3.8	4.9
Cycle Q Clear(g_c), s	0.2	0.8	3.4	1.1	3.8	4.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	215	191	1034	461	271	2050
V/C Ratio(X)	0.07	0.22	0.42	0.14	0.75	0.44
Avail Cap(c_a), veh/h	539	480	2088	931	746	4052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	13.7	9.9	9.0	13.9	4.1
Incr Delay (d2), s/veh	0.1	0.6	0.3	0.1	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.8	0.2	1.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	14.2	10.1	9.2	18.1	4.3
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	56		503			1101
Approach Delay, s/veh	14.1		10.0			6.8
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.8	15.8				25.6	8.7
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	14.4	20.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	5.8	5.4				6.9	2.8
Green Ext Time (p_c), s	0.3	2.4				6.6	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	122	997	15	30	710
Future Volume (vph)	26	122	997	15	30	710
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	35.0	35.0	10.0	45.0
Total Split (%)	25.0%	25.0%	58.3%	58.3%	16.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 41.9
Natural Cycle: 50
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	122	997	15	30	710
Future Volume (veh/h)	26	122	997	15	30	710
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	130	1061	16	32	755
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	344	306	1536	685	65	2034
Arrive On Green	0.19	0.19	0.43	0.43	0.04	0.57
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	28	130	1061	16	32	755
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.6	3.2	10.7	0.3	0.8	5.1
Cycle Q Clear(g_c), s	0.6	3.2	10.7	0.3	0.8	5.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	344	306	1536	685	65	2034
V/C Ratio(X)	0.08	0.42	0.69	0.02	0.49	0.37
Avail Cap(c_a), veh/h	417	371	2338	1043	217	3139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	15.7	10.2	7.2	21.0	5.2
Incr Delay (d2), s/veh	0.1	0.9	0.6	0.0	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.1	2.7	0.1	0.3	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	16.7	10.8	7.2	23.1	5.3
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	158		1077			787
Approach Delay, s/veh	16.3		10.7			6.0
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.2	25.0				31.2	13.2
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	5.4	29.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	2.8	12.7				7.1	5.2
Green Ext Time (p_c), s	0.0	6.5				5.3	0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

APPENDIX 7.1:

EAPC (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	95	364	38	270	1134
Future Vol, veh/h	0	95	364	38	270	1134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	109	418	44	310	1303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	209	0	0	462	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	797	-	-	1095	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	797	-	-	1095	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	797	1095	-
HCM Lane V/C Ratio	-	-	0.137	0.283	-
HCM Control Delay (s)	-	-	10.2	9.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	1.2	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	39	433	61	188	879
Future Vol, veh/h	13	39	433	61	188	879
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	42	471	66	204	955

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1357	236	0	0	537	0
Stage 1	471	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	140	766	-	-	1027	-
Stage 1	594	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	766	-	-	1027	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	291	-	-	-	-	-

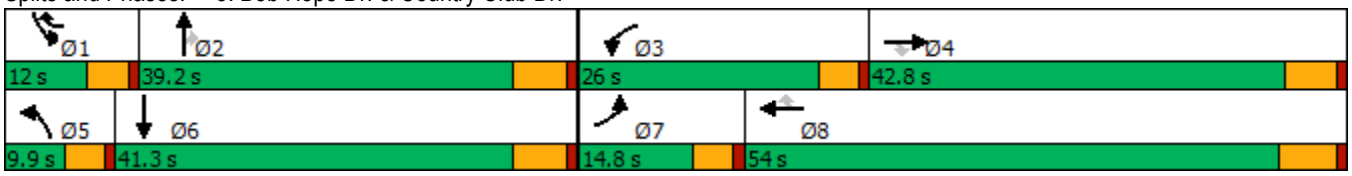
Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	112	766	1027	-
HCM Lane V/C Ratio	-	-	0.126	0.055	0.199	-
HCM Control Delay (s)	-	-	41.7	10	9.4	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.7	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	76	212	106	233	260	193	57	380	118	138	593
Future Volume (vph)	76	212	106	233	260	193	57	380	118	138	593
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 79.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	212	106	233	260	193	57	380	118	138	593	50
Future Volume (veh/h)	76	212	106	233	260	193	57	380	118	138	593	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	221	24	243	271	116	59	396	73	144	618	42
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	636	283	294	1011	566	177	862	384	254	894	61
Arrive On Green	0.06	0.18	0.18	0.17	0.28	0.28	0.05	0.24	0.24	0.07	0.26	0.26
Sat Flow, veh/h	1781	3554	1580	1781	3554	1580	3456	3554	1581	3456	3376	229
Grp Volume(v), veh/h	79	221	24	243	271	116	59	396	73	144	325	335
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1580	1728	1777	1581	1728	1777	1828
Q Serve(g_s), s	2.7	3.4	0.8	8.2	3.7	3.2	1.0	5.9	2.3	2.5	10.3	10.3
Cycle Q Clear(g_c), s	2.7	3.4	0.8	8.2	3.7	3.2	1.0	5.9	2.3	2.5	10.3	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	106	636	283	294	1011	566	177	862	384	254	471	484
V/C Ratio(X)	0.74	0.35	0.08	0.83	0.27	0.20	0.33	0.46	0.19	0.57	0.69	0.69
Avail Cap(c_a), veh/h	291	2107	937	611	2722	1327	293	1902	846	410	1011	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	22.4	21.4	25.2	17.3	13.9	28.6	20.1	18.8	27.9	20.6	20.7
Incr Delay (d2), s/veh	3.8	0.3	0.1	2.3	0.1	0.2	0.4	0.4	0.2	0.7	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.3	0.3	3.2	1.3	0.9	0.4	2.2	0.7	1.0	3.9	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	22.8	21.5	27.4	17.4	14.1	29.0	20.5	19.0	28.7	22.5	22.4
LnGrp LOS	C	C	C	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		324			630			528			804	
Approach Delay, s/veh		25.1			20.7			21.3			23.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	20.9	14.9	17.4	7.8	22.3	8.3	24.0
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	4.5	7.9	10.2	5.4	3.0	12.3	4.7	5.7
Green Ext Time (p_c), s	0.1	2.6	0.2	1.4	0.0	3.7	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	18	82	263	76	16
Future Vol, veh/h	25	18	82	263	76	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	23	105	337	97	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	655	108	118	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	431	946	1470	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	946	1470	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	580	-	-	-	-	-

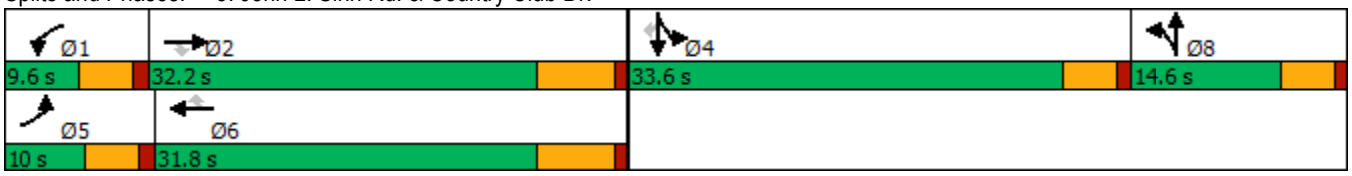
Approach	EB	NB	SB
HCM Control Delay, s	12.7	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1470	-	520	-	-
HCM Lane V/C Ratio	0.072	-	0.106	-	-
HCM Control Delay (s)	7.6	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	57	376	26	16	728	419	8	1	93	0	24
Future Volume (vph)	57	376	26	16	728	419	8	1	93	0	24
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 50.6
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	376	26	16	728	419	8	1	6	93	0	24
Future Volume (veh/h)	57	376	26	16	728	419	8	1	6	93	0	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	418	27	18	809	394	9	1	5	103	0	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	1387	618	39	1260	560	67	10	51	569	0	253
Arrive On Green	0.06	0.39	0.39	0.02	0.35	0.35	0.04	0.04	0.04	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3554	1578	1781	271	1355	3563	0	1583
Grp Volume(v), veh/h	63	418	27	18	809	394	9	0	6	103	0	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1578	1781	0	1626	1781	0	1583
Q Serve(g_s), s	1.8	4.2	0.5	0.5	9.7	11.0	0.3	0.0	0.2	1.3	0.0	0.3
Cycle Q Clear(g_c), s	1.8	4.2	0.5	0.5	9.7	11.0	0.3	0.0	0.2	1.3	0.0	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.83	1.00		1.00
Lane Grp Cap(c), veh/h	103	1387	618	39	1260	560	67	0	61	569	0	253
V/C Ratio(X)	0.61	0.30	0.04	0.46	0.64	0.70	0.13	0.00	0.10	0.18	0.00	0.04
Avail Cap(c_a), veh/h	188	1804	803	174	1776	789	348	0	317	2017	0	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.6	10.8	9.7	24.7	13.8	14.2	23.8	0.0	23.8	18.6	0.0	18.2
Incr Delay (d2), s/veh	2.2	0.1	0.0	3.1	0.6	1.6	0.9	0.0	0.7	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.2	0.1	0.2	2.9	3.1	0.1	0.0	0.1	0.5	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	10.9	9.7	27.8	14.4	15.8	24.8	0.0	24.5	18.8	0.0	18.3
LnGrp LOS	C	B	A	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		508			1221			15			114	
Approach Delay, s/veh		12.7			15.0			24.7			18.7	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	26.2		12.8	7.6	24.4		6.5
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.5	6.2		3.3	3.8	13.0		2.3
Green Ext Time (p_c), s	0.0	2.4		0.3	0.0	5.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	6	119	119	22	54
Future Vol, veh/h	13	6	119	119	22	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	7	145	145	27	66

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	338	218	0	0	290	0
Stage 1	218	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	658	822	-	-	1272	-
Stage 1	818	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	822	-	-	1272	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	885	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	691	1272	-
HCM Lane V/C Ratio	-	-	0.034	0.021	-
HCM Control Delay (s)	-	-	10.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	25	7	10	6
Future Vol, veh/h	1	4	25	7	10	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	27	8	11	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	77	15	18	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	62	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	926	1065	1599	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	910	1065	1599	-	-	-
Mov Cap-2 Maneuver	910	-	-	-	-	-
Stage 1	991	-	-	-	-	-
Stage 2	961	-	-	-	-	-

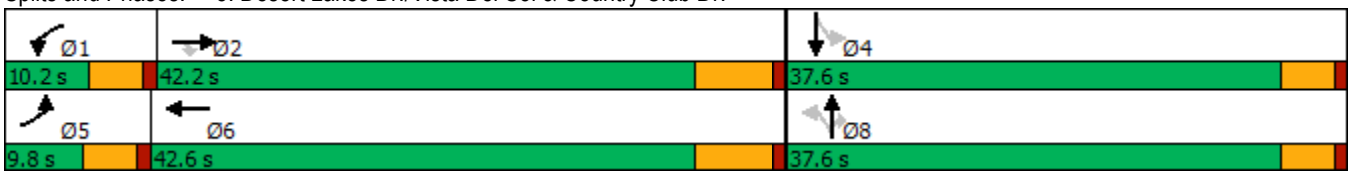
Approach	EB	NB	SB
HCM Control Delay, s	8.5	5.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	1030	-	-
HCM Lane V/C Ratio	0.017	-	0.005	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	21	436	10	22	1154	15	0	23	26	1
Future Volume (vph)	21	436	10	22	1154	15	0	23	26	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 51.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	436	10	22	1154	69	15	0	23	26	1	17
Future Volume (veh/h)	21	436	10	22	1154	69	15	0	23	26	1	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	495	9	25	1311	76	17	0	6	30	1	9
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	1865	831	53	1792	104	312	0	189	298	19	173
Arrive On Green	0.03	0.52	0.52	0.03	0.53	0.53	0.12	0.00	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3554	1584	1781	3409	197	1340	0	1585	1410	161	1449
Grp Volume(v), veh/h	24	495	9	25	682	705	17	0	6	30	0	10
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1829	1340	0	1585	1410	0	1610
Q Serve(g_s), s	0.6	3.6	0.1	0.7	13.9	14.0	0.5	0.0	0.2	0.9	0.0	0.3
Cycle Q Clear(g_c), s	0.6	3.6	0.1	0.7	13.9	14.0	0.8	0.0	0.2	1.7	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	51	1865	831	53	934	962	312	0	189	298	0	192
V/C Ratio(X)	0.47	0.27	0.01	0.47	0.73	0.73	0.05	0.00	0.03	0.10	0.00	0.05
Avail Cap(c_a), veh/h	196	2712	1209	211	1371	1412	1128	0	1109	1116	0	1126
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	6.2	5.4	22.5	8.6	8.6	18.8	0.0	18.4	19.4	0.0	18.4
Incr Delay (d2), s/veh	2.5	0.1	0.0	2.4	1.1	1.1	0.1	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.7	0.0	0.3	3.0	3.1	0.2	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	6.3	5.4	25.0	9.7	9.7	18.8	0.0	18.4	19.5	0.0	18.5
LnGrp LOS	C	A	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		528			1412			23			40	
Approach Delay, s/veh		7.1			10.0			18.7			19.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	31.0		10.2	5.9	31.0		10.2
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.7	5.6		3.7	2.6	16.0		2.8
Green Ext Time (p_c), s	0.0	3.1		0.1	0.0	8.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↱	↑↑	↱	↰	↑↑
Traffic Vol, veh/h	0	265	1196	3	43	768
Future Vol, veh/h	0	265	1196	3	43	768
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	279	1259	3	45	808

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	630	0	0	1262	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	424	-	-	547	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	424	-	-	547	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.4	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	424	547	-
HCM Lane V/C Ratio	-	-	0.658	0.083	-
HCM Control Delay (s)	-	-	28.4	12.2	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	4.6	0.3	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	122	1060	15	30	760
Future Vol, veh/h	26	122	1060	15	30	760
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	130	1128	16	32	809

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1597	564	0	0	1144	0
Stage 1	1128	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	97	469	-	-	606	-
Stage 1	271	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	92	469	-	-	606	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	271	-	-	-	-	-
Stage 2	564	-	-	-	-	-

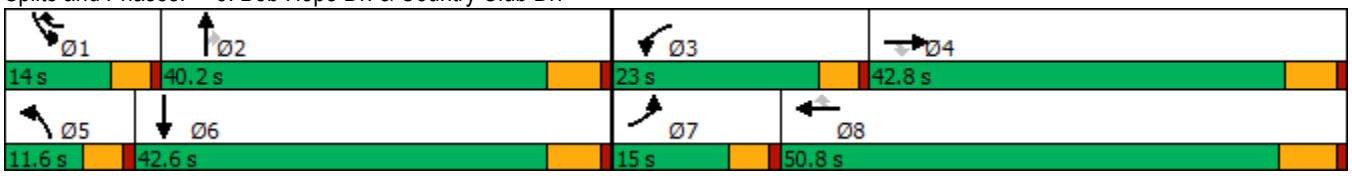
Approach	WB	NB	SB
HCM Control Delay, s	23.4	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	92	469	606	-
HCM Lane V/C Ratio	-	-	0.301	0.277	0.053	-
HCM Control Delay (s)	-	-	60.1	15.6	11.3	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	1.1	1.1	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	80	296	91	221	291	206	97	694	192	209	601
Future Volume (vph)	80	296	91	221	291	206	97	694	192	209	601
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 87.5
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	296	91	221	291	206	97	694	192	209	601	49
Future Volume (veh/h)	80	296	91	221	291	206	97	694	192	209	601	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	305	25	228	300	143	100	715	113	215	620	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	573	255	274	910	547	215	1011	450	310	1054	71
Arrive On Green	0.06	0.16	0.16	0.15	0.26	0.26	0.06	0.28	0.28	0.09	0.31	0.31
Sat Flow, veh/h	1781	3554	1579	1781	3554	1581	3456	3554	1580	3456	3374	228
Grp Volume(v), veh/h	82	305	25	228	300	143	100	715	113	215	326	336
Grp Sat Flow(s),veh/h/ln	1781	1777	1579	1781	1777	1581	1728	1777	1580	1728	1777	1826
Q Serve(g_s), s	3.1	5.4	0.9	8.5	4.7	4.4	1.9	12.3	3.8	4.1	10.6	10.6
Cycle Q Clear(g_c), s	3.1	5.4	0.9	8.5	4.7	4.4	1.9	12.3	3.8	4.1	10.6	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	106	573	255	274	910	547	215	1011	450	310	555	570
V/C Ratio(X)	0.78	0.53	0.10	0.83	0.33	0.26	0.47	0.71	0.25	0.69	0.59	0.59
Avail Cap(c_a), veh/h	271	1924	855	480	2319	1174	354	1789	795	475	957	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	26.3	24.4	28.0	20.7	16.1	31.0	21.9	18.8	30.2	19.8	19.8
Incr Delay (d2), s/veh	4.5	0.8	0.2	2.5	0.2	0.3	0.6	0.9	0.3	1.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.1	0.3	3.4	1.7	1.4	0.7	4.6	1.2	1.6	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	27.1	24.6	30.5	20.9	16.3	31.5	22.8	19.1	31.2	20.8	20.8
LnGrp LOS	D	C	C	C	C	B	C	C	B	C	C	C
Approach Vol, veh/h		412			671			928			877	
Approach Delay, s/veh		28.7			23.2			23.3			23.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	25.3	15.1	17.2	8.9	27.1	8.7	23.7
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	6.1	14.3	10.5	7.4	3.9	12.6	5.1	6.7
Green Ext Time (p_c), s	0.1	4.8	0.2	1.9	0.0	3.7	0.0	2.2

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	84	29	86	155	19
Future Vol, veh/h	16	84	29	86	155	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	89	31	91	165	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	328	175	185	0	-	0
Stage 1	175	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	666	868	1390	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	651	868	1390	-	-	-
Mov Cap-2 Maneuver	651	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	875	-	-	-	-	-

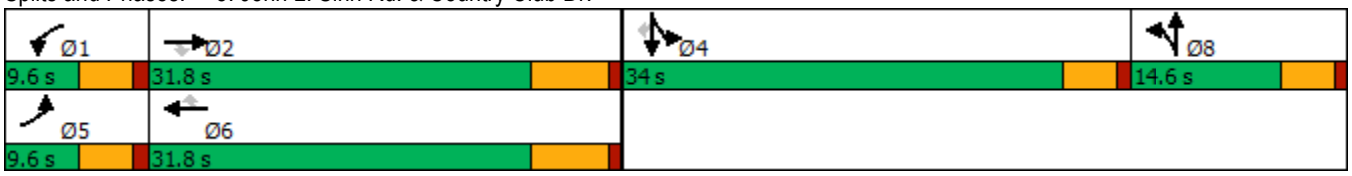
Approach	EB	NB	SB
HCM Control Delay, s	10	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1390	-	824	-	-
HCM Lane V/C Ratio	0.022	-	0.129	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	14	658	20	13	596	72	33	1	408	9	68
Future Volume (vph)	14	658	20	13	596	72	33	1	408	9	68
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 54.9
Natural Cycle: 85
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	658	20	13	596	72	33	1	26	408	9	68
Future Volume (veh/h)	14	658	20	13	596	72	33	1	26	408	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	700	19	14	634	62	35	1	7	441	0	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1029	458	31	1025	457	160	18	127	722	0	321
Arrive On Green	0.02	0.29	0.29	0.02	0.29	0.29	0.09	0.09	0.09	0.20	0.00	0.20
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	202	1414	3563	0	1583
Grp Volume(v), veh/h	15	700	19	14	634	62	35	0	8	441	0	34
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	0	1616	1781	0	1583
Q Serve(g_s), s	0.4	8.7	0.4	0.4	7.7	1.4	0.9	0.0	0.2	5.6	0.0	0.9
Cycle Q Clear(g_c), s	0.4	8.7	0.4	0.4	7.7	1.4	0.9	0.0	0.2	5.6	0.0	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	34	1029	458	31	1025	457	160	0	145	722	0	321
V/C Ratio(X)	0.45	0.68	0.04	0.44	0.62	0.14	0.22	0.00	0.06	0.61	0.00	0.11
Avail Cap(c_a), veh/h	178	1821	811	178	1821	812	357	0	323	2097	0	931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	15.7	12.8	24.3	15.4	13.2	21.1	0.0	20.8	18.1	0.0	16.2
Incr Delay (d2), s/veh	3.4	0.8	0.0	3.6	0.6	0.1	0.7	0.0	0.2	0.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.7	0.1	0.2	2.4	0.4	0.4	0.0	0.1	2.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	16.5	12.8	27.9	16.0	13.3	21.8	0.0	20.9	19.0	0.0	16.4
LnGrp LOS	C	B	B	C	B	B	C	A	C	B	A	B
Approach Vol, veh/h		734			710			43			475	
Approach Delay, s/veh		16.6			16.0			21.6			18.8	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	20.7		14.7	5.5	20.6		9.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.4	10.7		7.6	2.4	9.7		2.9
Green Ext Time (p_c), s	0.0	3.7		1.7	0.0	3.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	21	38	23	3	129
Future Vol, veh/h	55	21	38	23	3	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	26	46	28	4	157

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	225	60	0	0	74	0
Stage 1	60	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	763	1005	-	-	1526	-
Stage 1	963	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	761	1005	-	-	1526	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1526	-
HCM Lane V/C Ratio	-	-	0.114	0.002	-
HCM Control Delay (s)	-	-	10	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	15	4	10	8	1
Future Vol, veh/h	4	15	4	10	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	16	4	11	9	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	29	10	10	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	19	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	986	1071	1610	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	984	1071	1610	-	-	-
Mov Cap-2 Maneuver	984	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1004	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1610	-	1051	-	-
HCM Lane V/C Ratio	0.003	-	0.02	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

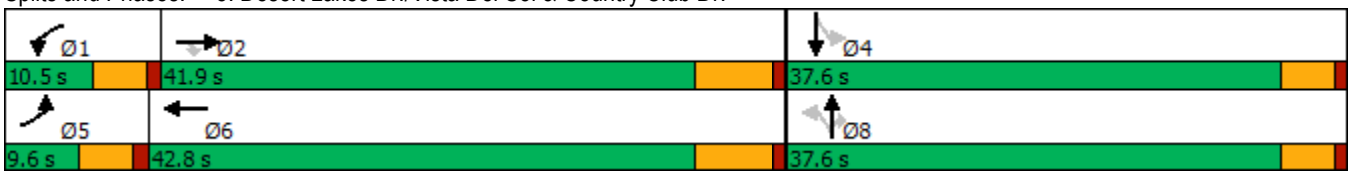
8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	15	1065	17	34	638	17	1	27	63	0
Future Volume (vph)	15	1065	17	34	638	17	1	27	63	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 46.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1065	17	34	638	31	17	1	27	63	0	31
Future Volume (veh/h)	15	1065	17	34	638	31	17	1	27	63	0	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	1098	18	35	658	30	18	1	4	65	0	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1621	722	70	1650	75	363	16	253	365	0	253
Arrive On Green	0.02	0.46	0.46	0.04	0.48	0.48	0.16	0.16	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1583	1781	3461	158	1287	101	1585	1411	0	1585
Grp Volume(v), veh/h	15	1098	18	35	338	350	19	0	4	65	0	13
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1842	1387	0	1585	1411	0	1585
Q Serve(g_s), s	0.4	10.9	0.3	0.9	5.5	5.5	0.4	0.0	0.1	1.8	0.0	0.3
Cycle Q Clear(g_c), s	0.4	10.9	0.3	0.9	5.5	5.5	0.7	0.0	0.1	2.5	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.09	0.95		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	34	1621	722	70	847	878	379	0	253	365	0	253
V/C Ratio(X)	0.44	0.68	0.02	0.50	0.40	0.40	0.05	0.00	0.02	0.18	0.00	0.05
Avail Cap(c_a), veh/h	199	2838	1264	235	1455	1508	1200	0	1170	1181	0	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	9.6	6.7	21.0	7.6	7.6	16.1	0.0	15.8	17.1	0.0	15.9
Incr Delay (d2), s/veh	3.3	0.5	0.0	2.0	0.3	0.3	0.1	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	0.1	0.3	1.2	1.2	0.2	0.0	0.0	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	10.1	6.7	23.1	7.9	7.9	16.1	0.0	15.8	17.4	0.0	16.0
LnGrp LOS	C	B	A	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1131			723			23			78	
Approach Delay, s/veh		10.2			8.6			16.1			17.1	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	26.6		11.7	5.4	27.5		11.7
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	2.9	12.9		4.5	2.4	7.5		2.7
Green Ext Time (p_c), s	0.0	7.5		0.2	0.0	3.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

APPENDIX 7.2:

EAPC (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM		TRAFFIC CONDITIONS		**EAPC 2023**
				CALC	RV	DATE	01/28/20
Jurisdiction:	**City of Rancho Mirage**			CHK	RV	DATE	01/28/20
Major Street:	**John L. Sinn Rd.**				Critical Approach Speed (Major)		25 mph
Minor Street:	**Street A**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,061** vpd Minor Street Future ADT = **477** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,061**	*1* **477**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,061**	*1* **477**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** / **B**				
	20% / **17%**				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			**EAPC 2023**
				CALC	RV	DATE	01/28/20
Jurisdiction:	**City of Rancho Mirage**			CHK	RV	DATE	01/28/20
Major Street:	**Joe Friend Ln.**			Critical Approach Speed (Major)			25 mph
Minor Street:	**Betty Ford Wy.**			Critical Approach Speed (Minor)			25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,200** vpd Minor Street Future ADT = **386** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. ☐

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. ☐

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,200**	*1* **386**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,200**	*1* **386**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 15% / **B** 10%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 7.3:

EAPC (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	39	433	61	188	879
Future Volume (vph)	13	39	433	61	188	879
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	26.0	26.0	19.0	45.0
Total Split (%)	25.0%	25.0%	43.3%	43.3%	31.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 37.1
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	39	433	61	188	879
Future Volume (veh/h)	13	39	433	61	188	879
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	42	471	66	204	955
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	215	191	1034	461	271	2050
Arrive On Green	0.12	0.12	0.29	0.29	0.15	0.58
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	14	42	471	66	204	955
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.2	0.8	3.7	1.1	3.8	5.3
Cycle Q Clear(g_c), s	0.2	0.8	3.7	1.1	3.8	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	215	191	1034	461	271	2050
V/C Ratio(X)	0.07	0.22	0.46	0.14	0.75	0.47
Avail Cap(c_a), veh/h	539	480	2088	931	746	4052
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	13.7	10.0	9.0	13.9	4.2
Incr Delay (d2), s/veh	0.1	0.6	0.3	0.1	4.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.9	0.2	1.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	14.2	10.3	9.2	18.1	4.4
LnGrp LOS	B	B	B	A	B	A
Approach Vol, veh/h	56		537			1159
Approach Delay, s/veh	14.1		10.1			6.8
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.8	15.8				25.6	8.7
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	14.4	20.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	5.8	5.7				7.3	2.8
Green Ext Time (p_c), s	0.3	2.6				7.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	122	1060	15	30	760
Future Volume (vph)	26	122	1060	15	30	760
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	35.0	35.0	10.0	45.0
Total Split (%)	25.0%	25.0%	58.3%	58.3%	16.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 42.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	122	1060	15	30	760
Future Volume (veh/h)	26	122	1060	15	30	760
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	130	1128	16	32	809
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	337	300	1588	708	65	2074
Arrive On Green	0.19	0.19	0.45	0.45	0.04	0.58
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	28	130	1128	16	32	809
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.6	3.3	11.8	0.3	0.8	5.6
Cycle Q Clear(g_c), s	0.6	3.3	11.8	0.3	0.8	5.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	337	300	1588	708	65	2074
V/C Ratio(X)	0.08	0.43	0.71	0.02	0.49	0.39
Avail Cap(c_a), veh/h	405	360	2266	1011	210	3043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	16.4	10.3	7.1	21.6	5.1
Incr Delay (d2), s/veh	0.1	1.0	0.6	0.0	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	3.0	0.1	0.3	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.4	17.4	10.9	7.1	23.8	5.3
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	158		1144			841
Approach Delay, s/veh	17.0		10.8			6.0
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.3	26.3				32.5	13.3
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	5.4	29.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	2.8	13.8				7.6	5.3
Green Ext Time (p_c), s	0.0	6.7				5.7	0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

APPENDIX 8.1:

GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	105	858	42	297	1248
Future Vol, veh/h	0	105	858	42	297	1248
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	121	986	48	341	1434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	493	0	0	1034	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	522	-	-	668	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	522	-	-	668	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	3.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	522	668	-
HCM Lane V/C Ratio	-	-	0.231	0.511	-
HCM Control Delay (s)	-	-	14	15.9	-
HCM Lane LOS	-	-	B	C	-
HCM 95th %tile Q(veh)	-	-	0.9	2.9	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	43	858	67	207	967
Future Vol, veh/h	14	43	858	67	207	967
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	47	933	73	225	1051

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1909	467	0	0	1006	0
Stage 1	933	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	60	542	-	-	684	-
Stage 1	343	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	542	-	-	684	-
Mov Cap-2 Maneuver	40	-	-	-	-	-
Stage 1	343	-	-	-	-	-
Stage 2	219	-	-	-	-	-

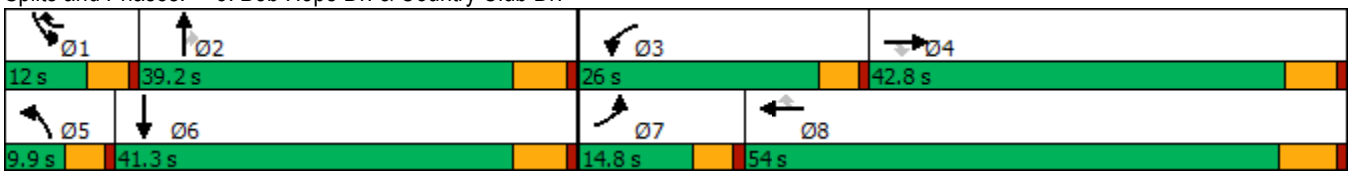
Approach	WB	NB	SB
HCM Control Delay, s	44.2	0	2.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	40	542	684	-
HCM Lane V/C Ratio	-	-	0.38	0.086	0.329	-
HCM Control Delay (s)	-	-	142.3	12.3	12.8	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.3	0.3	1.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	235	474	166	360	582	253	98	418	152	188	652
Future Volume (vph)	235	474	166	360	582	253	98	418	152	188	652
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 97.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	474	166	360	582	253	98	418	152	188	652	116
Future Volume (veh/h)	235	474	166	360	582	253	98	418	152	188	652	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	245	494	87	375	606	179	102	435	108	196	679	111
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	718	319	408	1124	623	179	897	399	268	850	139
Arrive On Green	0.11	0.20	0.20	0.23	0.32	0.32	0.05	0.25	0.25	0.08	0.28	0.28
Sat Flow, veh/h	1781	3554	1580	1781	3554	1581	3456	3554	1581	3456	3057	499
Grp Volume(v), veh/h	245	494	87	375	606	179	102	435	108	196	394	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1581	1728	1777	1581	1728	1777	1779
Q Serve(g_s), s	10.2	11.4	4.1	18.2	12.5	6.9	2.6	9.3	4.9	4.9	18.3	18.3
Cycle Q Clear(g_c), s	10.2	11.4	4.1	18.2	12.5	6.9	2.6	9.3	4.9	4.9	18.3	18.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	205	718	319	408	1124	623	179	897	399	268	494	495
V/C Ratio(X)	1.20	0.69	0.27	0.92	0.54	0.29	0.57	0.49	0.27	0.73	0.80	0.80
Avail Cap(c_a), veh/h	205	1481	659	429	1914	974	206	1337	595	288	711	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	32.8	29.9	33.4	25.0	18.4	41.1	28.3	26.6	40.0	29.7	29.7
Incr Delay (d2), s/veh	126.1	1.2	0.5	23.4	0.4	0.3	1.1	0.4	0.4	7.1	4.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	4.7	1.5	9.9	4.8	2.3	1.1	3.7	1.7	2.3	7.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	165.4	34.0	30.4	56.8	25.4	18.6	42.2	28.7	27.0	47.1	33.9	33.9
LnGrp LOS	F	C	C	E	C	B	D	C	C	D	C	C
Approach Vol, veh/h		826			1160			645			986	
Approach Delay, s/veh		72.6			34.5			30.5			36.5	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	28.2	24.9	24.1	9.2	30.5	14.8	34.3
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	6.9	11.3	20.2	13.4	4.6	20.3	12.2	14.5
Green Ext Time (p_c), s	0.0	2.9	0.1	3.3	0.0	4.0	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	20	90	289	83	18
Future Vol, veh/h	28	20	90	289	83	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	26	115	371	106	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	719	118	129	0	-	0
Stage 1	118	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	395	934	1457	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	356	934	1457	-	-	-
Mov Cap-2 Maneuver	356	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	547	-	-	-	-	-

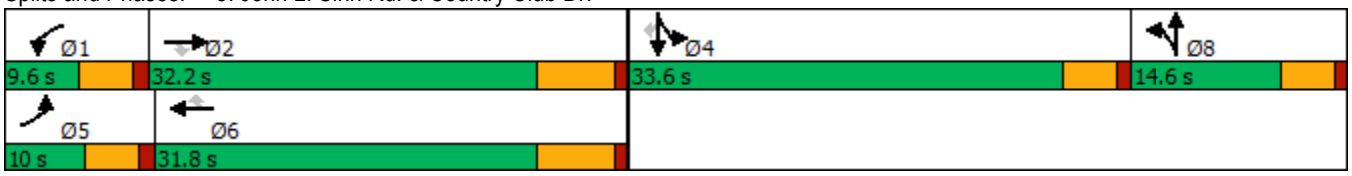
Approach	EB	NB	SB
HCM Control Delay, s	13.6	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1457	-	480	-	-
HCM Lane V/C Ratio	0.079	-	0.128	-	-
HCM Control Delay (s)	7.7	0	13.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	814	29	18	1195	461	9	1	102	0	26
Future Volume (vph)	62	814	29	18	1195	461	9	1	102	0	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 61.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	814	29	18	1195	461	9	1	7	102	0	26
Future Volume (veh/h)	62	814	29	18	1195	461	9	1	7	102	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	904	30	20	1328	440	10	1	6	113	0	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	1605	715	42	1486	660	73	10	57	532	0	236
Arrive On Green	0.06	0.45	0.45	0.02	0.42	0.42	0.04	0.04	0.04	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1583	1781	3554	1579	1781	231	1389	3563	0	1582
Grp Volume(v), veh/h	69	904	30	20	1328	440	10	0	7	113	0	13
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1579	1781	0	1620	1781	0	1582
Q Serve(g_s), s	2.3	11.2	0.6	0.7	20.8	13.4	0.3	0.0	0.2	1.7	0.0	0.4
Cycle Q Clear(g_c), s	2.3	11.2	0.6	0.7	20.8	13.4	0.3	0.0	0.2	1.7	0.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	102	1605	715	42	1486	660	73	0	67	532	0	236
V/C Ratio(X)	0.68	0.56	0.04	0.48	0.89	0.67	0.14	0.00	0.11	0.21	0.00	0.05
Avail Cap(c_a), veh/h	161	1605	715	149	1521	676	298	0	271	1727	0	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.7	12.1	9.2	28.8	16.2	14.0	27.7	0.0	27.6	22.4	0.0	21.8
Incr Delay (d2), s/veh	3.0	0.5	0.0	3.1	7.1	2.4	0.8	0.0	0.7	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.3	0.2	0.3	7.7	4.0	0.2	0.0	0.1	0.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	12.5	9.2	31.9	23.3	16.5	28.5	0.0	28.3	22.5	0.0	21.9
LnGrp LOS	C	B	A	C	C	B	C	A	C	C	A	C
Approach Vol, veh/h		1003			1788			17			126	
Approach Delay, s/veh		13.7			21.7			28.4			22.5	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	33.2		13.5	8.0	31.2		7.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.7	13.2		3.7	4.3	22.8		2.3
Green Ext Time (p_c), s	0.0	4.6		0.4	0.0	2.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	7	131	131	24	60
Future Vol, veh/h	14	7	131	131	24	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	9	160	160	29	73

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	371	240	0	0	320	0
Stage 1	240	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	799	-	-	1240	-
Stage 1	800	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	615	799	-	-	1240	-
Mov Cap-2 Maneuver	615	-	-	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	874	-	-	-	-	-

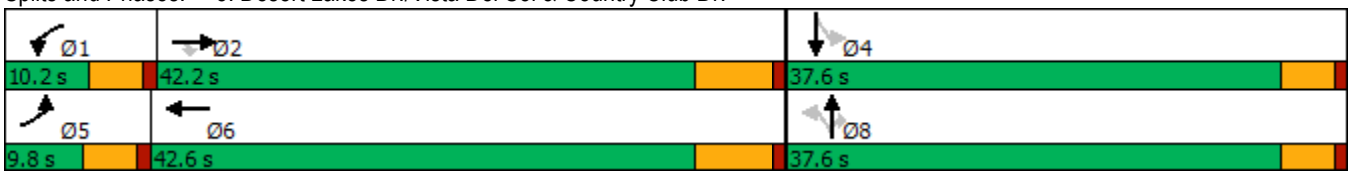
Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	666	1240	-
HCM Lane V/C Ratio	-	-	0.038	0.024	-
HCM Control Delay (s)	-	-	10.6	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	29	814	11	24	1195	17	0	25	32	1
Future Volume (vph)	29	814	11	24	1195	17	0	25	32	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 55.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	814	11	24	1195	76	17	0	25	32	1	36
Future Volume (veh/h)	29	814	11	24	1195	76	17	0	25	32	1	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	925	10	27	1358	84	19	0	8	36	1	31
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	1880	838	55	1777	110	312	0	228	299	7	222
Arrive On Green	0.04	0.53	0.53	0.03	0.52	0.52	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3394	209	1209	0	1585	1407	50	1543
Grp Volume(v), veh/h	33	925	10	27	709	733	19	0	8	36	0	32
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1827	1209	0	1585	1407	0	1593
Q Serve(g_s), s	0.9	8.6	0.2	0.8	16.4	16.6	0.6	0.0	0.2	1.2	0.0	0.9
Cycle Q Clear(g_c), s	0.9	8.6	0.2	0.8	16.4	16.6	1.5	0.0	0.2	2.8	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		0.97
Lane Grp Cap(c), veh/h	65	1880	838	55	930	957	312	0	228	299	0	229
V/C Ratio(X)	0.51	0.49	0.01	0.49	0.76	0.77	0.06	0.00	0.04	0.12	0.00	0.14
Avail Cap(c_a), veh/h	178	2462	1097	192	1245	1280	989	0	1007	990	0	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	7.8	5.8	24.8	9.8	9.8	20.1	0.0	19.2	20.9	0.0	19.4
Incr Delay (d2), s/veh	2.3	0.2	0.0	2.5	2.0	2.0	0.1	0.0	0.1	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.9	0.0	0.3	4.2	4.3	0.2	0.0	0.1	0.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	8.0	5.8	27.2	11.8	11.8	20.2	0.0	19.2	21.1	0.0	19.7
LnGrp LOS	C	A	A	C	B	B	C	A	B	C	A	B
Approach Vol, veh/h		968			1469			27			68	
Approach Delay, s/veh		8.6			12.1			19.9			20.5	
Approach LOS		A			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	33.7		12.1	6.5	33.4		12.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.8	10.6		4.8	2.9	18.6		3.5
Green Ext Time (p_c), s	0.0	6.2		0.2	0.0	8.6		0.1

Intersection Summary		
HCM 6th Ctrl Delay		11.1
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	291	1316	4	48	1083
Future Vol, veh/h	0	291	1316	4	48	1083
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	306	1385	4	51	1140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	693	0	0	1389	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	386	-	-	489	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	386	-	-	489	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42	0	0.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	386	489	-
HCM Lane V/C Ratio	-	-	0.794	0.103	-
HCM Control Delay (s)	-	-	42	13.2	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	6.8	0.3	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	135	1166	17	33	1083
Future Vol, veh/h	28	135	1166	17	33	1083
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	144	1240	18	35	1152

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1886	620	0	0	1258	0
Stage 1	1240	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	62	431	-	-	549	-
Stage 1	236	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	58	431	-	-	549	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	236	-	-	-	-	-
Stage 2	453	-	-	-	-	-

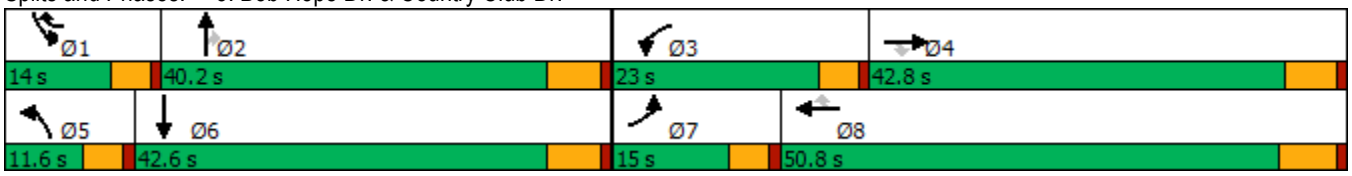
Approach	WB	NB	SB
HCM Control Delay, s	35.1	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	58	431	549	-
HCM Lane V/C Ratio	-	-	0.514	0.333	0.064	-
HCM Control Delay (s)	-	-	119.9	17.5	12	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2	1.4	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	88	668	144	296	787	226	195	763	354	320	661
Future Volume (vph)	88	668	144	296	787	226	195	763	354	320	661
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 106.6
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	668	144	296	787	226	195	763	354	320	661	197
Future Volume (veh/h)	88	668	144	296	787	226	195	763	354	320	661	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	689	79	305	811	164	201	787	280	330	681	194
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	116	881	392	321	1290	720	237	968	431	318	805	229
Arrive On Green	0.06	0.25	0.25	0.18	0.36	0.36	0.07	0.27	0.27	0.09	0.30	0.30
Sat Flow, veh/h	1781	3554	1581	1781	3554	1582	3456	3554	1580	3456	2721	775
Grp Volume(v), veh/h	91	689	79	305	811	164	201	787	280	330	445	430
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1582	1728	1777	1580	1728	1777	1719
Q Serve(g_s), s	5.1	18.5	4.0	17.3	19.2	6.4	5.9	21.1	16.0	9.4	24.0	24.0
Cycle Q Clear(g_c), s	5.1	18.5	4.0	17.3	19.2	6.4	5.9	21.1	16.0	9.4	24.0	24.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	116	881	392	321	1290	720	237	968	431	318	526	509
V/C Ratio(X)	0.79	0.78	0.20	0.95	0.63	0.23	0.85	0.81	0.65	1.04	0.85	0.85
Avail Cap(c_a), veh/h	181	1287	573	321	1551	837	237	1197	532	318	640	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	35.8	30.4	41.4	26.8	16.9	47.1	34.7	32.9	46.4	33.8	33.8
Incr Delay (d2), s/veh	4.6	2.0	0.3	36.9	0.6	0.2	23.0	3.6	2.0	60.7	8.7	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.8	1.5	10.5	7.6	2.2	3.2	9.1	6.0	6.6	11.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	37.8	30.7	78.4	27.4	17.1	70.1	38.3	34.8	107.0	42.4	42.8
LnGrp LOS	D	D	C	E	C	B	E	D	C	F	D	D
Approach Vol, veh/h		859			1280			1268			1205	
Approach Delay, s/veh		38.6			38.2			42.6			60.2	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	33.6	23.0	31.5	11.6	36.0	11.2	43.3
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	11.4	23.1	19.3	20.5	7.9	26.0	7.1	21.2
Green Ext Time (p_c), s	0.0	4.5	0.0	4.2	0.0	3.8	0.0	5.7

Intersection Summary	
HCM 6th Ctrl Delay	45.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	93	32	95	170	21
Future Vol, veh/h	18	93	32	95	170	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	99	34	101	181	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	361	192	203	0	-	0
Stage 1	192	-	-	-	-	-
Stage 2	169	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	638	850	1369	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	621	850	1369	-	-	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	861	-	-	-	-	-

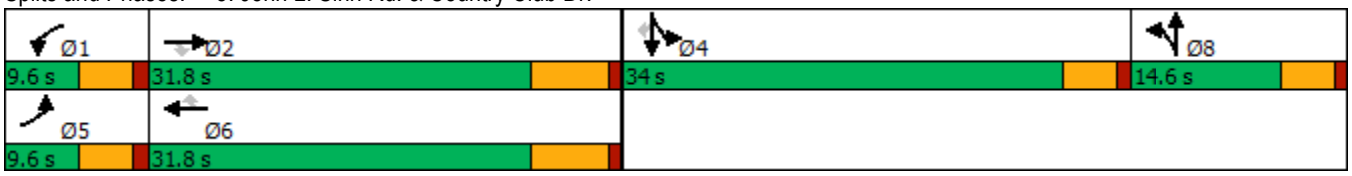
Approach	EB	NB	SB
HCM Control Delay, s	10.3	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1369	-	802	-	-
HCM Lane V/C Ratio	0.025	-	0.147	-	-
HCM Control Delay (s)	7.7	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	15	1342	22	14	1309	80	36	1	448	10	74
Future Volume (vph)	15	1342	22	14	1309	80	36	1	448	10	74
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 64.2
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1342	22	14	1309	80	36	1	28	448	10	74
Future Volume (veh/h)	15	1342	22	14	1309	80	36	1	28	448	10	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	1428	21	15	1393	70	38	1	9	485	0	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	34	1404	625	33	1400	624	159	14	129	676	0	300
Arrive On Green	0.02	0.40	0.40	0.02	0.39	0.39	0.09	0.09	0.09	0.19	0.00	0.19
Sat Flow, veh/h	1781	3554	1583	1781	3554	1585	1781	161	1449	3563	0	1583
Grp Volume(v), veh/h	16	1428	21	15	1393	70	38	0	10	485	0	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1585	1781	0	1610	1781	0	1583
Q Serve(g_s), s	0.6	25.7	0.5	0.5	25.4	1.8	1.3	0.0	0.4	8.3	0.0	1.4
Cycle Q Clear(g_c), s	0.6	25.7	0.5	0.5	25.4	1.8	1.3	0.0	0.4	8.3	0.0	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	34	1404	625	33	1400	624	159	0	144	676	0	300
V/C Ratio(X)	0.47	1.02	0.03	0.46	0.99	0.11	0.24	0.00	0.07	0.72	0.00	0.14
Avail Cap(c_a), veh/h	137	1404	625	137	1400	624	274	0	248	1612	0	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	19.7	12.1	31.6	19.6	12.5	27.5	0.0	27.1	24.7	0.0	21.9
Incr Delay (d2), s/veh	3.6	28.4	0.0	3.7	22.8	0.1	0.8	0.0	0.2	1.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	13.8	0.2	0.2	12.6	0.5	0.6	0.0	0.1	3.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	48.1	12.1	35.3	42.4	12.6	28.3	0.0	27.3	26.1	0.0	22.1
LnGrp LOS	D	F	B	D	D	B	C	A	C	C	A	C
Approach Vol, veh/h		1465			1478			48			526	
Approach Delay, s/veh		47.4			40.9			28.1			25.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	31.9		16.9	5.9	31.8		10.4
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.5	27.7		10.3	2.6	27.4		3.3
Green Ext Time (p_c), s	0.0	0.0		1.9	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	41.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	23	42	26	3	142
Future Vol, veh/h	61	23	42	26	3	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	28	51	32	4	173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	248	67	0	0	83	0
Stage 1	67	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	740	997	-	-	1514	-
Stage 1	956	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	738	997	-	-	1514	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	795	1514	-
HCM Lane V/C Ratio	-	-	0.129	0.002	-
HCM Control Delay (s)	-	-	10.2	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

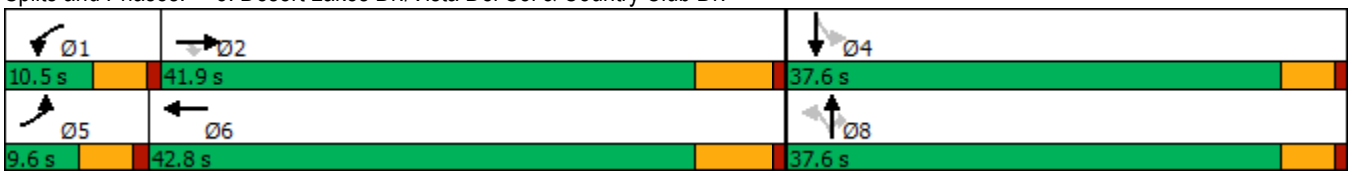
8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	36	1342	19	37	1309	19	1	30	72	0
Future Volume (vph)	36	1342	19	37	1309	19	1	30	72	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 57.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1342	19	37	1309	39	19	1	30	72	0	46
Future Volume (veh/h)	36	1342	19	37	1309	39	19	1	30	72	0	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	1384	20	38	1349	38	20	1	7	74	0	28
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	1817	810	72	1807	51	325	13	254	324	0	254
Arrive On Green	0.04	0.51	0.51	0.04	0.51	0.51	0.16	0.16	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1584	1781	3530	99	1207	82	1585	1407	0	1585
Grp Volume(v), veh/h	37	1384	20	38	678	709	21	0	7	74	0	28
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1852	1289	0	1585	1407	0	1585
Q Serve(g_s), s	1.1	16.6	0.3	1.1	16.1	16.1	0.6	0.0	0.2	2.6	0.0	0.8
Cycle Q Clear(g_c), s	1.1	16.6	0.3	1.1	16.1	16.1	1.4	0.0	0.2	3.9	0.0	0.8
Prop In Lane	1.00		1.00	1.00		0.05	0.95		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	1817	810	72	910	949	338	0	254	324	0	254
V/C Ratio(X)	0.53	0.76	0.02	0.53	0.75	0.75	0.06	0.00	0.03	0.23	0.00	0.11
Avail Cap(c_a), veh/h	167	2376	1059	197	1218	1270	979	0	980	969	0	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	10.4	6.5	25.1	10.3	10.3	19.6	0.0	18.9	21.1	0.0	19.2
Incr Delay (d2), s/veh	2.2	1.1	0.0	2.2	1.7	1.7	0.1	0.0	0.0	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.2	0.1	0.4	4.2	4.4	0.2	0.0	0.1	0.8	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	11.5	6.5	27.4	12.0	12.0	19.7	0.0	19.0	21.5	0.0	19.4
LnGrp LOS	C	B	A	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		1441			1425			28			102	
Approach Delay, s/veh		11.9			12.4			19.5			20.9	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	33.5		13.1	6.7	33.5		13.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	3.1	18.6		5.9	3.1	18.1		3.4
Green Ext Time (p_c), s	0.0	8.7		0.3	0.0	8.3		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

APPENDIX 8.2:

GENERAL PLAN BUILDOUT (2040) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	106	858	42	303	1248
Future Vol, veh/h	0	106	858	42	303	1248
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	122	986	48	348	1434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	493	0	0	1034	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	522	-	-	668	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	522	-	-	668	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	3.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	522	668	-
HCM Lane V/C Ratio	-	-	0.233	0.521	-
HCM Control Delay (s)	-	-	14	16.1	-
HCM Lane LOS	-	-	B	C	-
HCM 95th %tile Q(veh)	-	-	0.9	3	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	43	858	73	207	967
Future Vol, veh/h	15	43	858	73	207	967
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	47	933	79	225	1051

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1909	467	0	0	1012	0
Stage 1	933	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	60	542	-	-	681	-
Stage 1	343	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	542	-	-	681	-
Mov Cap-2 Maneuver	40	-	-	-	-	-
Stage 1	343	-	-	-	-	-
Stage 2	218	-	-	-	-	-

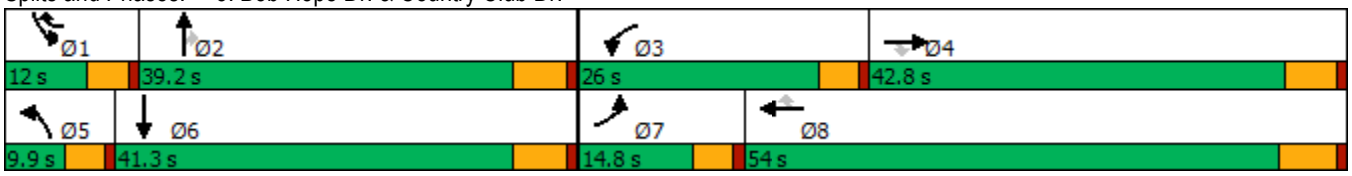
Approach	WB	NB	SB
HCM Control Delay, s	47.1	0	2.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	40	542	681	-
HCM Lane V/C Ratio	-	-	0.408	0.086	0.33	-
HCM Control Delay (s)	-	-	146.8	12.3	12.9	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.4	0.3	1.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	238	483	166	360	583	253	98	421	155	188	652
Future Volume (vph)	238	483	166	360	583	253	98	421	155	188	652
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	14.8	42.8	42.8	26.0	54.0	12.0	9.9	39.2	39.2	12.0	41.3
Total Split (%)	12.3%	35.7%	35.7%	21.7%	45.0%	10.0%	8.3%	32.7%	32.7%	10.0%	34.4%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 97.9
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	483	166	360	583	253	98	421	155	188	652	116
Future Volume (veh/h)	238	483	166	360	583	253	98	421	155	188	652	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	248	503	87	375	607	179	102	439	111	196	679	111
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	727	323	408	1134	627	178	895	398	268	849	139
Arrive On Green	0.11	0.20	0.20	0.23	0.32	0.32	0.05	0.25	0.25	0.08	0.28	0.28
Sat Flow, veh/h	1781	3554	1580	1781	3554	1581	3456	3554	1581	3456	3057	499
Grp Volume(v), veh/h	248	503	87	375	607	179	102	439	111	196	394	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1581	1728	1777	1581	1728	1777	1779
Q Serve(g_s), s	10.2	11.7	4.1	18.4	12.5	6.9	2.6	9.4	5.0	5.0	18.4	18.4
Cycle Q Clear(g_c), s	10.2	11.7	4.1	18.4	12.5	6.9	2.6	9.4	5.0	5.0	18.4	18.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	203	727	323	408	1134	627	178	895	398	268	493	494
V/C Ratio(X)	1.22	0.69	0.27	0.92	0.54	0.29	0.57	0.49	0.28	0.73	0.80	0.80
Avail Cap(c_a), veh/h	203	1472	655	427	1902	969	205	1329	591	286	706	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	32.9	29.9	33.6	25.0	18.3	41.4	28.5	26.9	40.3	29.9	30.0
Incr Delay (d2), s/veh	134.6	1.2	0.4	23.7	0.4	0.2	1.1	0.4	0.4	7.3	4.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	4.9	1.5	10.0	4.9	2.3	1.1	3.8	1.8	2.3	7.9	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	174.1	34.1	30.3	57.4	25.4	18.6	42.5	28.9	27.3	47.6	34.2	34.3
LnGrp LOS	F	C	C	E	C	B	D	C	C	D	C	C
Approach Vol, veh/h		838			1161			652			986	
Approach Delay, s/veh		75.2			34.6			30.8			36.9	
Approach LOS		E			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	28.3	25.0	24.5	9.2	30.6	14.8	34.7
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	7.4	33.4	21.4	* 37	5.3	35.5	10.2	47.8
Max Q Clear Time (g_c+I1), s	7.0	11.4	20.4	13.7	4.6	20.4	12.2	14.5
Green Ext Time (p_c), s	0.0	2.9	0.1	3.3	0.0	4.0	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	20	90	308	86	19
Future Vol, veh/h	34	20	90	308	86	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	26	115	395	110	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	747	122	134	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	381	929	1451	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	929	1451	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	534	-	-	-	-	-

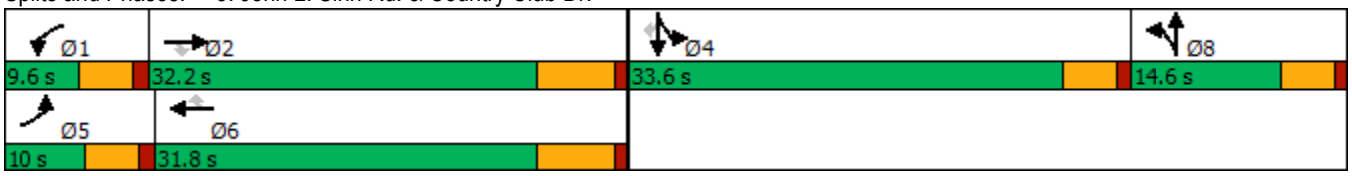
Approach	EB	NB	SB
HCM Control Delay, s	14.5	1.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1451	-	446	-	-
HCM Lane V/C Ratio	0.08	-	0.155	-	-
HCM Control Delay (s)	7.7	0	14.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	71	817	29	18	1195	470	9	1	103	0	27
Future Volume (vph)	71	817	29	18	1195	470	9	1	103	0	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	10.0	32.2	32.2	9.6	31.8	31.8	14.6	14.6	33.6	33.6	33.6
Total Split (%)	11.1%	35.8%	35.8%	10.7%	35.3%	35.3%	16.2%	16.2%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 61.1
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	817	29	18	1195	470	9	1	7	103	0	27
Future Volume (veh/h)	71	817	29	18	1195	470	9	1	7	103	0	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	908	30	20	1328	450	10	1	6	114	0	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1612	718	42	1480	658	73	10	57	532	0	236
Arrive On Green	0.06	0.45	0.45	0.02	0.42	0.42	0.04	0.04	0.04	0.15	0.00	0.15
Sat Flow, veh/h	1781	3554	1583	1781	3554	1579	1781	231	1389	3563	0	1582
Grp Volume(v), veh/h	79	908	30	20	1328	450	10	0	7	114	0	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1579	1781	0	1620	1781	0	1582
Q Serve(g_s), s	2.6	11.3	0.6	0.7	21.0	14.0	0.3	0.0	0.3	1.7	0.0	0.5
Cycle Q Clear(g_c), s	2.6	11.3	0.6	0.7	21.0	14.0	0.3	0.0	0.3	1.7	0.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.86	1.00		1.00
Lane Grp Cap(c), veh/h	108	1612	718	42	1480	658	73	0	67	532	0	236
V/C Ratio(X)	0.73	0.56	0.04	0.48	0.90	0.68	0.14	0.00	0.11	0.21	0.00	0.06
Avail Cap(c_a), veh/h	160	1612	718	148	1511	672	296	0	269	1716	0	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.8	12.1	9.2	29.0	16.4	14.3	27.8	0.0	27.8	22.5	0.0	22.0
Incr Delay (d2), s/veh	3.5	0.5	0.0	3.1	7.4	2.8	0.8	0.0	0.7	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.4	0.2	0.3	7.9	4.3	0.2	0.0	0.1	0.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	12.5	9.2	32.1	23.8	17.1	28.7	0.0	28.5	22.7	0.0	22.1
LnGrp LOS	C	B	A	C	C	B	C	A	C	C	A	C
Approach Vol, veh/h		1017			1798			17			128	
Approach Delay, s/veh		13.9			22.2			28.6			22.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	33.5		13.6	8.3	31.3		7.1
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	26.0		29.0	5.4	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.7	13.3		3.7	4.6	23.0		2.3
Green Ext Time (p_c), s	0.0	4.6		0.4	0.0	2.1		0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	8	131	156	30	60
Future Vol, veh/h	18	8	131	156	30	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	10	160	190	37	73

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	402	255	0	0	350	0
Stage 1	255	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	604	784	-	-	1209	-
Stage 1	788	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	585	784	-	-	1209	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	2.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	635	1209	-
HCM Lane V/C Ratio	-	-	0.05	0.03	-
HCM Control Delay (s)	-	-	11	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	6	44	106	69	23
Future Vol, veh/h	3	6	44	106	69	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	7	48	115	75	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	299	88	100	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	692	970	1493	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	668	970	1493	-	-	-
Mov Cap-2 Maneuver	668	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	824	-	-	-	-	-

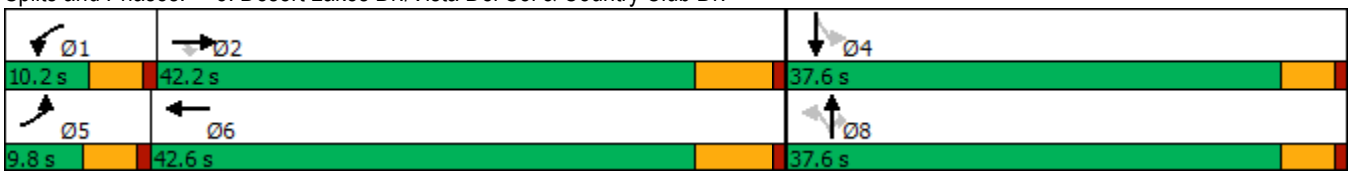
Approach	EB	NB	SB
HCM Control Delay, s	9.3	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1493	-	843	-	-
HCM Lane V/C Ratio	0.032	-	0.012	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	32	815	11	24	1204	17	0	25	34	1
Future Volume (vph)	32	815	11	24	1204	17	0	25	34	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.8	42.2	42.2	10.2	42.6	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.9%	46.9%	46.9%	11.3%	47.3%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 57.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	815	11	24	1204	89	17	0	25	34	1	36
Future Volume (veh/h)	32	815	11	24	1204	89	17	0	25	34	1	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	926	10	27	1368	99	19	0	8	39	1	31
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	1901	847	55	1769	128	310	0	228	296	7	222
Arrive On Green	0.04	0.54	0.54	0.03	0.53	0.53	0.14	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	3554	1584	1781	3355	242	1209	0	1585	1407	50	1543
Grp Volume(v), veh/h	36	926	10	27	722	745	19	0	8	39	0	32
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1820	1209	0	1585	1407	0	1593
Q Serve(g_s), s	1.1	8.7	0.2	0.8	17.2	17.4	0.6	0.0	0.2	1.3	0.0	0.9
Cycle Q Clear(g_c), s	1.1	8.7	0.2	0.8	17.2	17.4	1.6	0.0	0.2	2.9	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		0.97
Lane Grp Cap(c), veh/h	69	1901	847	55	937	959	310	0	228	296	0	229
V/C Ratio(X)	0.52	0.49	0.01	0.49	0.77	0.78	0.06	0.00	0.04	0.13	0.00	0.14
Avail Cap(c_a), veh/h	174	2410	1074	188	1218	1248	968	0	985	969	0	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	7.8	5.8	25.3	10.0	10.0	20.5	0.0	19.5	21.4	0.0	19.8
Incr Delay (d2), s/veh	2.2	0.2	0.0	2.5	2.3	2.3	0.1	0.0	0.1	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.0	0.0	0.3	4.5	4.7	0.2	0.0	0.1	0.4	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	8.0	5.8	27.8	12.3	12.4	20.6	0.0	19.6	21.6	0.0	20.1
LnGrp LOS	C	A	A	C	B	B	C	A	B	C	A	C
Approach Vol, veh/h		972			1494			27			71	
Approach Delay, s/veh		8.6			12.6			20.3			20.9	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	34.6		12.2	6.7	34.2		12.2
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.6	36.0		33.0	5.2	36.4		33.0
Max Q Clear Time (g_c+I1), s	2.8	10.7		4.9	3.1	19.4		3.6
Green Ext Time (p_c), s	0.0	6.2		0.2	0.0	8.6		0.1

Intersection Summary		
HCM 6th Ctrl Delay		11.4
HCM 6th LOS		B

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	295	1316	4	49	1083
Future Vol, veh/h	0	295	1316	4	49	1083
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	190	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	311	1385	4	52	1140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	693	0	0	1389	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	0	386	-	-	489	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	386	-	-	489	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.2	0	0.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	386	489	-
HCM Lane V/C Ratio	-	-	0.804	0.105	-
HCM Control Delay (s)	-	-	43.2	13.2	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	7.1	0.4	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	135	1166	18	33	1083
Future Vol, veh/h	32	135	1166	18	33	1083
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	110	-	200	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	144	1240	19	35	1152

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1886	620	0	0	1259	0
Stage 1	1240	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	62	431	-	-	548	-
Stage 1	236	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	58	431	-	-	548	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	236	-	-	-	-	-
Stage 2	453	-	-	-	-	-

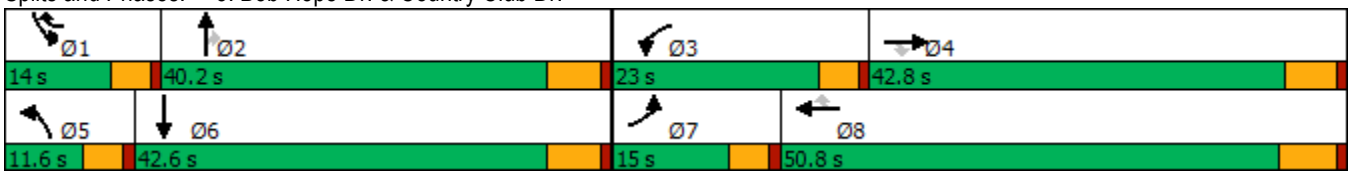
Approach	WB	NB	SB
HCM Control Delay, s	39.5	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	58	431	548	-
HCM Lane V/C Ratio	-	-	0.587	0.333	0.064	-
HCM Control Delay (s)	-	-	132.3	17.5	12	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.4	1.4	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	89	670	144	298	793	226	195	764	355	320	663
Future Volume (vph)	89	670	144	298	793	226	195	764	355	320	663
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8	1	5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	1	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	42.8	42.8	9.6	36.2	9.6	9.6	37.8	37.8	9.6	37.8
Total Split (s)	15.0	42.8	42.8	23.0	50.8	14.0	11.6	40.2	40.2	14.0	42.6
Total Split (%)	12.5%	35.7%	35.7%	19.2%	42.3%	11.7%	9.7%	33.5%	33.5%	11.7%	35.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8
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
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
Total Lost Time (s)	4.6	5.8	5.8	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 106.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Bob Hope Dr. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	670	144	298	793	226	195	764	355	320	663	199
Future Volume (veh/h)	89	670	144	298	793	226	195	764	355	320	663	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	691	79	307	818	164	201	788	281	330	684	196
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	883	393	320	1289	720	236	969	431	318	805	230
Arrive On Green	0.07	0.25	0.25	0.18	0.36	0.36	0.07	0.27	0.27	0.09	0.30	0.30
Sat Flow, veh/h	1781	3554	1581	1781	3554	1582	3456	3554	1580	3456	2717	778
Grp Volume(v), veh/h	92	691	79	307	818	164	201	788	281	330	447	433
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1582	1728	1777	1580	1728	1777	1718
Q Serve(g_s), s	5.2	18.6	4.0	17.5	19.5	6.5	5.9	21.2	16.1	9.4	24.2	24.2
Cycle Q Clear(g_c), s	5.2	18.6	4.0	17.5	19.5	6.5	5.9	21.2	16.1	9.4	24.2	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	117	883	393	320	1289	720	236	969	431	318	526	509
V/C Ratio(X)	0.79	0.78	0.20	0.96	0.63	0.23	0.85	0.81	0.65	1.04	0.85	0.85
Avail Cap(c_a), veh/h	181	1285	572	320	1549	836	236	1195	531	318	639	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	35.9	30.4	41.6	27.0	17.0	47.1	34.8	32.9	46.4	33.9	33.9
Incr Delay (d2), s/veh	5.2	2.0	0.2	38.8	0.6	0.2	23.2	3.6	2.0	61.1	9.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.9	1.5	10.7	7.7	2.2	3.2	9.2	6.0	6.6	11.2	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	37.9	30.7	80.4	27.6	17.1	70.4	38.4	34.9	107.5	42.9	43.2
LnGrp LOS	D	D	C	F	C	B	E	D	C	F	D	D
Approach Vol, veh/h		862			1289			1270			1210	
Approach Delay, s/veh		38.7			38.8			42.7			60.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	33.7	23.0	31.6	11.6	36.1	11.3	43.3
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.2	4.6	5.8	4.6	6.2
Max Green Setting (Gmax), s	9.4	34.4	18.4	* 37	7.0	36.8	10.4	44.6
Max Q Clear Time (g_c+I1), s	11.4	23.2	19.5	20.6	7.9	26.2	7.2	21.5
Green Ext Time (p_c), s	0.0	4.5	0.0	4.2	0.0	3.8	0.0	5.8

Intersection Summary	
HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	93	32	98	181	25
Future Vol, veh/h	19	93	32	98	181	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	99	34	104	193	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	379	207	220	0	-	0
Stage 1	207	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	623	833	1349	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	606	833	1349	-	-	-
Mov Cap-2 Maneuver	606	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	858	-	-	-	-	-

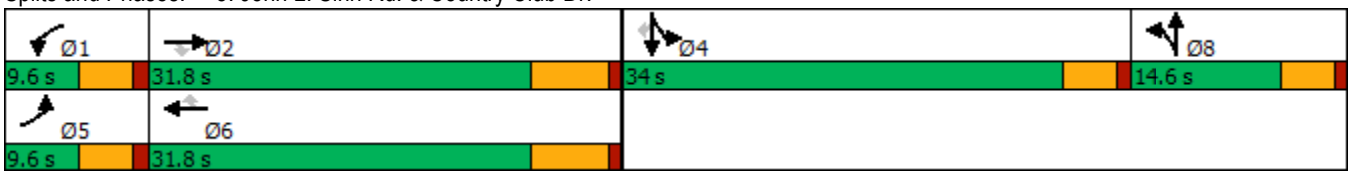
Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1349	-	783	-	-
HCM Lane V/C Ratio	0.025	-	0.152	-	-
HCM Control Delay (s)	7.7	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	17	1343	22	14	1311	82	36	1	454	10	80
Future Volume (vph)	17	1343	22	14	1311	82	36	1	454	10	80
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	4	4	
Permitted Phases			2			6					4
Detector Phase	5	2	2	1	6	6	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	23.2	14.6	14.6	33.6	33.6	33.6
Total Split (s)	9.6	31.8	31.8	9.6	31.8	31.8	14.6	14.6	34.0	34.0	34.0
Total Split (%)	10.7%	35.3%	35.3%	10.7%	35.3%	35.3%	16.2%	16.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
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
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 64.9
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: John L. Sinn Rd. & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	1343	22	14	1311	82	36	1	28	454	10	80
Future Volume (veh/h)	17	1343	22	14	1311	82	36	1	28	454	10	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	1429	21	15	1395	72	38	1	9	491	0	47
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	1404	625	32	1393	621	159	14	129	683	0	303
Arrive On Green	0.02	0.39	0.39	0.02	0.39	0.39	0.09	0.09	0.09	0.19	0.00	0.19
Sat Flow, veh/h	1781	3554	1583	1781	3554	1585	1781	161	1449	3563	0	1583
Grp Volume(v), veh/h	18	1429	21	15	1395	72	38	0	10	491	0	47
Grp Sat Flow(s),veh/h/ln	1781	1777	1583	1781	1777	1585	1781	0	1610	1781	0	1583
Q Serve(g_s), s	0.7	25.8	0.5	0.5	25.6	1.9	1.3	0.0	0.4	8.4	0.0	1.6
Cycle Q Clear(g_c), s	0.7	25.8	0.5	0.5	25.6	1.9	1.3	0.0	0.4	8.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	38	1404	625	32	1393	621	159	0	143	683	0	303
V/C Ratio(X)	0.47	1.02	0.03	0.46	1.00	0.12	0.24	0.00	0.07	0.72	0.00	0.15
Avail Cap(c_a), veh/h	136	1404	625	136	1393	621	273	0	246	1603	0	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.6	19.8	12.1	31.7	19.9	12.7	27.7	0.0	27.3	24.8	0.0	22.0
Incr Delay (d2), s/veh	3.4	28.6	0.0	3.8	24.5	0.1	0.8	0.0	0.2	1.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	13.9	0.2	0.2	13.0	0.6	0.6	0.0	0.1	3.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	48.4	12.1	35.5	44.4	12.7	28.5	0.0	27.5	26.2	0.0	22.2
LnGrp LOS	C	F	B	D	F	B	C	A	C	C	A	C
Approach Vol, veh/h		1468			1482			48			538	
Approach Delay, s/veh		47.7			42.8			28.3			25.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	32.0		17.1	6.0	31.8		10.4
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.0	25.6		29.4	5.0	25.6		10.0
Max Q Clear Time (g_c+I1), s	2.5	27.8		10.4	2.7	27.6		3.3
Green Ext Time (p_c), s	0.0	0.0		1.9	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	42.0
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	27	42	30	4	142
Future Vol, veh/h	76	27	42	30	4	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	33	51	37	5	173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	253	70	0	0	88	0
Stage 1	70	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	736	993	-	-	1508	-
Stage 1	953	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	733	993	-	-	1508	-
Mov Cap-2 Maneuver	733	-	-	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	787	1508	-
HCM Lane V/C Ratio	-	-	0.16	0.003	-
HCM Control Delay (s)	-	-	10.4	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	26	7	76	118	4
Future Vol, veh/h	13	26	7	76	118	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	28	8	83	128	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	229	130	132	0	-	0
Stage 1	130	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	759	920	1453	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	754	920	1453	-	-	-
Mov Cap-2 Maneuver	754	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	925	-	-	-	-	-

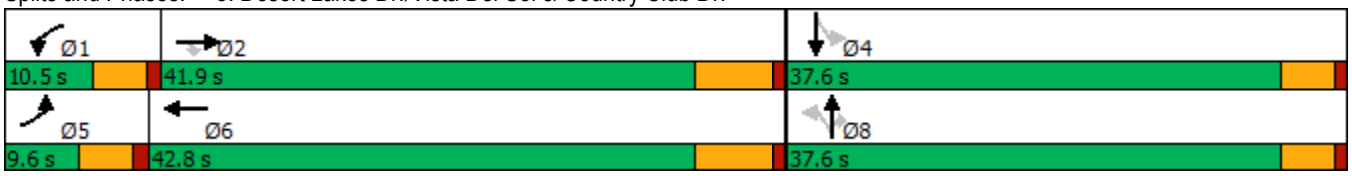
Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1453	-	857	-	-
HCM Lane V/C Ratio	0.005	-	0.049	-	-
HCM Control Delay (s)	7.5	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	37	1348	19	37	1311	19	1	30	79	0
Future Volume (vph)	37	1348	19	37	1311	19	1	30	79	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	23.2	23.2	9.6	23.2	37.6	37.6	37.6	37.6	37.6
Total Split (s)	9.6	41.9	41.9	10.5	42.8	37.6	37.6	37.6	37.6	37.6
Total Split (%)	10.7%	46.6%	46.6%	11.7%	47.6%	41.8%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
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
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2		4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 58.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Desert Lakes Dr./Vista Del Sol & Country Club Dr.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1348	19	37	1311	41	19	1	30	79	0	48
Future Volume (veh/h)	37	1348	19	37	1311	41	19	1	30	79	0	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	1390	20	38	1352	40	20	1	7	81	0	30
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	1817	809	72	1802	53	325	13	258	325	0	258
Arrive On Green	0.04	0.51	0.51	0.04	0.51	0.51	0.16	0.16	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3554	1584	1781	3524	104	1198	81	1585	1407	0	1585
Grp Volume(v), veh/h	38	1390	20	38	681	711	21	0	7	81	0	30
Grp Sat Flow(s),veh/h/ln	1781	1777	1584	1781	1777	1852	1280	0	1585	1407	0	1585
Q Serve(g_s), s	1.1	16.9	0.3	1.1	16.4	16.4	0.6	0.0	0.2	2.8	0.0	0.9
Cycle Q Clear(g_c), s	1.1	16.9	0.3	1.1	16.4	16.4	1.4	0.0	0.2	4.3	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.06	0.95		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	1817	809	72	908	947	338	0	258	325	0	258
V/C Ratio(X)	0.53	0.77	0.02	0.53	0.75	0.75	0.06	0.00	0.03	0.25	0.00	0.12
Avail Cap(c_a), veh/h	165	2356	1050	195	1208	1259	968	0	972	959	0	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.3	10.6	6.5	25.3	10.4	10.4	19.7	0.0	19.0	21.3	0.0	19.2
Incr Delay (d2), s/veh	2.2	1.1	0.0	2.2	1.8	1.8	0.1	0.0	0.0	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.3	0.1	0.5	4.4	4.5	0.2	0.0	0.1	0.9	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	11.7	6.5	27.6	12.3	12.2	19.8	0.0	19.0	21.7	0.0	19.4
LnGrp LOS	C	B	A	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		1448			1430			28			111	
Approach Delay, s/veh		12.0			12.7			19.6			21.1	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.8	33.7		13.3	6.8	33.7		13.3
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6
Max Green Setting (Gmax), s	5.9	35.7		33.0	5.0	36.6		33.0
Max Q Clear Time (g_c+I1), s	3.1	18.9		6.3	3.1	18.4		3.4
Green Ext Time (p_c), s	0.0	8.6		0.4	0.0	8.3		0.1

Intersection Summary		
HCM 6th Ctrl Delay		12.7
HCM 6th LOS		B

APPENDIX 8.3:

GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM

TRAFFIC CONDITIONS **GPBO NP**

CALC RV DATE 01/28/20

CHK RV DATE 01/28/20

Jurisdiction: **City of Rancho Mirage**

Major Street: **John L. Sinn Rd.**

Minor Street: **Street A**

Critical Approach Speed (Major) 25 mph

Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,266** vpd

Minor Street Future ADT = **524** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……

URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,266**	*1* **524**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,266**	*1* **524**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 22% / **B** 19%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			**GPBO NP**
				CALC	RV	DATE	01/28/20
Jurisdiction:	**City of Rancho Mirage**			CHK	RV	DATE	01/28/20
Major Street:	**Joe Friend Ln.**			Critical Approach Speed (Major)			25 mph
Minor Street:	**Betty Ford Wy.**			Critical Approach Speed (Minor)			25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,320** vpd Minor Street Future ADT = **425** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …… [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,320**	*1* **425**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,320**	*1* **425**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 17% / **B** 11%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 8.4:

GENERAL PLAN BUILDOUT (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		GPBO WP	
				CALC	RV	DATE	01/28/20
Jurisdiction:	City of Rancho Mirage			CHK	RV	DATE	01/28/20
Major Street:	John L. Sinn Rd.			Critical Approach Speed (Major)		25	mph
Minor Street:	Street A			Critical Approach Speed (Minor)		25	mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,462** vpd Minor Street Future ADT = **552** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,462**	*1* **552**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,462**	*1* **552**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 23% **B** 21%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			**GPBO WP**
				CALC	RV	DATE	01/28/20
Jurisdiction:	**City of Rancho Mirage**			CHK	RV	DATE	01/28/20
Major Street:	**Joe Friend Ln.**			Critical Approach Speed (Major)			25 mph
Minor Street:	**Betty Ford Wy.**			Critical Approach Speed (Minor)			25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,461** vpd Minor Street Future ADT = **566** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **URBAN (U)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,461**	*1* **566**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2 +*	9,600	6,720	3,200	2,240
1	*2 +*	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **1,461**	*1* **566**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2 +*	14,400	10,080	1,600	1,120
1	*2 +*	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied	2 CONDITIONS 80%		2 CONDITIONS 80%	
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 18% **B** 12%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 8.5:

GENERAL PLAN BUILDOUT (2040) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	WBR	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	106	858	42	303	1248
Future Volume (vph)	106	858	42	303	1248
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	3	2		1	6
Permitted Phases			2		
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	23.8	23.8	9.6	23.8
Total Split (s)	9.6	28.4	28.4	22.0	50.4
Total Split (%)	16.0%	47.3%	47.3%	36.7%	84.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8
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)	4.6	5.8	5.8	4.6	5.8
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 51.8
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bob Hope Dr. & MacMillan Wy.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	106	858	42	303	1248
Future Volume (veh/h)	0	106	858	42	303	1248
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	122	986	48	348	1434
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2	2	2	2
Cap, veh/h	0	0	1565	698	435	2929
Arrive On Green	0.00	0.00	0.44	0.44	0.24	0.82
Sat Flow, veh/h	0		3647	1585	1781	3647
Grp Volume(v), veh/h	0.0		986	48	348	1434
Grp Sat Flow(s),veh/h/ln			1777	1585	1781	1777
Q Serve(g_s), s			7.1	0.6	6.1	3.9
Cycle Q Clear(g_c), s			7.1	0.6	6.1	3.9
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1565	698	435	2929
V/C Ratio(X)			0.63	0.07	0.80	0.49
Avail Cap(c_a), veh/h			2434	1086	939	4803
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			7.2	5.3	11.7	0.9
Incr Delay (d2), s/veh			0.4	0.0	1.3	0.1
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.2	0.7	1.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			7.6	5.4	13.0	1.0
LnGrp LOS			A	A	B	A
Approach Vol, veh/h			1034			1782
Approach Delay, s/veh			7.5			3.3
Approach LOS			A			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	12.7	20.3				33.0
Change Period (Y+Rc), s	4.6	5.8				5.8
Max Green Setting (Gmax), s	17.4	22.6				44.6
Max Q Clear Time (g_c+I1), s	8.1	9.1				5.9
Green Ext Time (p_c), s	0.4	5.4				13.4

Intersection Summary	
HCM 6th Ctrl Delay	4.9
HCM 6th LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	43	858	73	207	967
Future Volume (vph)	15	43	858	73	207	967
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	26.0	26.0	19.0	45.0
Total Split (%)	25.0%	25.0%	43.3%	43.3%	31.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 45.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	43	858	73	207	967
Future Volume (veh/h)	15	43	858	73	207	967
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	47	933	79	225	1051
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	219	195	1294	577	291	2256
Arrive On Green	0.12	0.12	0.36	0.36	0.16	0.63
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	16	47	933	79	225	1051
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.3	1.2	9.7	1.4	5.2	6.6
Cycle Q Clear(g_c), s	0.3	1.2	9.7	1.4	5.2	6.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	219	195	1294	577	291	2256
V/C Ratio(X)	0.07	0.24	0.72	0.14	0.77	0.47
Avail Cap(c_a), veh/h	432	384	1672	746	597	3245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	17.0	11.8	9.1	17.2	4.1
Incr Delay (d2), s/veh	0.1	0.6	1.1	0.1	4.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	2.7	0.4	2.0	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.8	17.6	12.9	9.2	21.5	4.2
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	63		1012			1276
Approach Delay, s/veh	17.4		12.6			7.3
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.6	21.4				33.0	9.9
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	14.4	20.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	7.2	11.7				8.6	3.2
Green Ext Time (p_c), s	0.3	3.9				8.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Lane Group	WBR	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	295	1316	4	49	1083
Future Volume (vph)	295	1316	4	49	1083
Turn Type	Prot	NA	Perm	Prot	NA
Protected Phases	3	2		1	6
Permitted Phases			2		
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	23.8	23.8	9.6	23.8
Total Split (s)	12.0	38.0	38.0	10.0	48.0
Total Split (%)	20.0%	63.3%	63.3%	16.7%	80.0%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8
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)	4.6	5.8	5.8	4.6	5.8
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 48.6
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Bob Hope Dr. & MacMillan Wy.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	295	1316	4	49	1083
Future Volume (veh/h)	0	295	1316	4	49	1083
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	311	1385	4	52	1140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	2
Cap, veh/h	0	0	2207	984	103	2917
Arrive On Green	0.00	0.00	0.62	0.62	0.06	0.82
Sat Flow, veh/h	0		3647	1585	1781	3647
Grp Volume(v), veh/h	0.0		1385	4	52	1140
Grp Sat Flow(s),veh/h/ln			1777	1585	1781	1777
Q Serve(g_s), s			7.8	0.0	0.9	2.7
Cycle Q Clear(g_c), s			7.8	0.0	0.9	2.7
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			2207	984	103	2917
V/C Ratio(X)			0.63	0.00	0.51	0.39
Avail Cap(c_a), veh/h			3534	1576	297	4632
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			3.8	2.3	14.8	0.8
Incr Delay (d2), s/veh			0.3	0.0	1.4	0.1
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.1	0.0	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			4.1	2.3	16.2	0.9
LnGrp LOS			A	A	B	A
Approach Vol, veh/h			1389			1192
Approach Delay, s/veh			4.1			1.5
Approach LOS			A			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	6.5	25.9				32.4
Change Period (Y+Rc), s	4.6	5.8				5.8
Max Green Setting (Gmax), s	5.4	32.2				42.2
Max Q Clear Time (g_c+I1), s	2.9	9.8				4.7
Green Ext Time (p_c), s	0.0	10.3				9.4

Intersection Summary	
HCM 6th Ctrl Delay	2.9
HCM 6th LOS	A

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	135	1166	18	33	1083
Future Volume (vph)	32	135	1166	18	33	1083
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)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	23.8	23.8	9.6	23.8
Total Split (s)	15.0	15.0	35.0	35.0	10.0	45.0
Total Split (%)	25.0%	25.0%	58.3%	58.3%	16.7%	75.0%
Yellow Time (s)	3.6	3.6	4.8	4.8	3.6	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)	4.6	4.6	5.8	5.8	4.6	5.8
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 43.8
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Bob Hope Dr. & St. A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	135	1166	18	33	1083
Future Volume (veh/h)	32	135	1166	18	33	1083
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	144	1240	19	35	1152
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	333	296	1657	739	69	2130
Arrive On Green	0.19	0.19	0.47	0.47	0.04	0.60
Sat Flow, veh/h	1781	1585	3647	1585	1781	3647
Grp Volume(v), veh/h	34	144	1240	19	35	1152
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1585	1781	1777
Q Serve(g_s), s	0.8	4.0	13.9	0.3	0.9	9.4
Cycle Q Clear(g_c), s	0.8	4.0	13.9	0.3	0.9	9.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	333	296	1657	739	69	2130
V/C Ratio(X)	0.10	0.49	0.75	0.03	0.51	0.54
Avail Cap(c_a), veh/h	381	339	2132	951	198	2862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	17.7	10.7	7.0	22.9	5.8
Incr Delay (d2), s/veh	0.1	1.2	1.1	0.0	2.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.4	3.7	0.1	0.4	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.5	18.9	11.8	7.0	25.1	6.0
LnGrp LOS	B	B	B	A	C	A
Approach Vol, veh/h	178		1259			1187
Approach Delay, s/veh	18.5		11.7			6.6
Approach LOS	B		B			A

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.5	28.5				35.0	13.7
Change Period (Y+Rc), s	4.6	5.8				5.8	4.6
Max Green Setting (Gmax), s	5.4	29.2				39.2	10.4
Max Q Clear Time (g_c+I1), s	2.9	15.9				11.4	6.0
Green Ext Time (p_c), s	0.0	6.8				8.8	0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Table 1

Project (Less Intense) Trip Generation Summary

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
General Office Building[1]	710	TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Drug/Alcohol Treatment Center[3]	--	Beds	1.02	0.15	1.17	0.17	0.56	0.73	8.87

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
General Office Building	6.399	TSF	6	1	7	1	6	7	64
Drug/Alcohol Treatment Center[3]	23	Beds	23	3	26	4	13	17	206
		Total	**29**	**4**	**33**	**5**	**19**	**24**	**270**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] TSF = Thousand Square Feet

[3] Based on 24-hour counts collected at Hazelden Betty Ford Center on Wednesday 12/11/19.

Table 2

Project (More Intense) Trip Generation Summary

Land Use	ITE LU Code	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:									
General Office Building[1]	710	TSF	1.00	0.16	1.16	0.18	0.97	1.15	9.74
Drug/Alcohol Treatment Center[3]	--	Beds	1.02	0.15	1.17	0.17	0.56	0.73	8.87

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
General Office Building	6.399	TSF	6	1	7	1	6	7	64
Drug/Alcohol Treatment Center[3]	124	Beds	126	19	145	21	69	90	1,100
		Total	**132**	**20**	**152**	**22**	**75**	**97**	**1,164**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] TSF = Thousand Square Feet

[3] Based on 24-hour counts collected at Hazelden Betty Ford Center on Wednesday 12/11/19.