Appendix G-1

The Wren Project Transportation Analysis

Integrated Engineering Group

July 2024

The Wren Project
Transportation Analysis

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EXECUTIVE SUMMARY

Purpose of the Report

The purpose of this transportation analysis (TA) report is to identify and document potential traffic deficiencies related to The Wren project (Project) in Cathedral City, according to the County of Riverside Transportation Analysis Guidelines for Level of Service (LOS) and Vehicle Miles Traveled (VMT), December 2020 (Guidelines). This technical report will also recommend transportation improvements to address potential project deficiencies at local and regional transportation facilities.

Project Overview

The Project will be developed on a vacant site located on the northeast corner of Date Palm Drive and future Rosemount Road extension. The Project is proposing the construction of 204 multi-family (low-rise) dwelling units.

Under existing conditions, Rosemount Road does not extend to Date Palm Drive. The Project will be conditioned to construct half-width roadway improvement along the property frontage on Rosemount Road including curb, gutter, sidewalk and paving. Therefore, access to the Project site will be provided via one proposed driveway along Rosemount Road extension and one existing driveway along Date Palm Drive through an access easement to the adjacent Northgate Community Church site. Additionally, the Project will construct a traffic signal at the new intersection of Rosemount Road and Date Palm Drive.

The Project trip generation was calculated using the ITE Trip Generation Manual (11th Edition). It is estimated that the Project will generate 1,375 total daily trips, 81 AM peak hour trips and 104 PM peak hour trips. Project trip distribution and assignment were developed, in coordination with the Cathedral City staff, based on the land use characteristics of the Project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the Project site, and approved projects located in the vicinity of the Project site. Analysis scenarios and study area were then established in coordination with City staff to determine the potential project deficiencies on the transportation network. Refer to **Appendix A** for approved scoping agreement.

Analysis Scenarios:

- Existing Conditions Year 2023
- Project Completion Year 2025 (Existing plus Ambient plus Project)
- Cumulative Year 2025 (Existing plus Ambient plus Cumulative plus Project)
- Horizon Year 2045 No Project Conditions
- Horizon Year Plus Project Conditions

Study Area Intersections:

1. Date Palm Drive and McCallum Way
2. Date Palm Drive and Rosemount Road
3. Date Palm Drive and 30th Avenue

Study Roadway Segments:

1. Date Palm Drive, McCallum Way to Rosemount Road
2. Date Palm Drive, Rosemount Road to 30th Avenue

Analysis Results and Recommendations

Existing Year 2023

All study area intersections operate at acceptable level of service (LOS) under Existing Year 2023. Additionally, all roadway segments have capacity at an acceptable LOS under Existing Year 2023. Therefore, no improvements are required by this Project.

Project Completion Year 2025

All study area intersections operate at acceptable LOS under Project Completion Year 2025 Conditions. Additionally, all roadway segments have capacity at an acceptable LOS under Project Completion Year 2025. Therefore, no improvements are required by this Project.

Cumulative Year 2025

All study area intersections operate at acceptable LOS under Cumulative Year 2025 Conditions. Additionally, all roadway segments have capacity at an acceptable LOS under Cumulative Year 2026 Conditions. Therefore, no improvements are required by this Project.

Horizon Year 2045 Scenario

All study area intersections operate at acceptable LOS under Horizon Year 2045 No Project and Horizon Year Plus Project Conditions. Additionally, all roadway segments have capacity at an acceptable LOS under Horizon Year 2045 No Project and Horizon Year Plus Project Conditions. Therefore, no improvements are required by this Project.

Recommended Improvements

The proposed traffic signal at the new intersection of Date Palm Drive and Rosemount Road will be constructed by whichever project completes their final phase first between Date Palm Drive Mixed Use, the Wren Project, and the Future Shopping Center west of Date Palm Drive and Rosemount Road intersection. The City of Cathedral City Transportation Department staff has requested a fair share assessment to determine the percentage of new traffic volumes added to the intersection of Date Palm Drive and Rosemount Road. The three proposed developments are expected to add a total of 12,166 ADTs to the subject intersection. The three projects will contribute to the funding of this transportation improvement based on their portion of total ADT generated as follows:

1. Wren Development is projected to add 1,375 ADTs (13.43%),
2. Date Plam Mixed Use is projected to add 1,668 ADTs (16.29%)
3. Future Shopping Center to the west of Date Palm Drive and Rosemount Road intersection is projected to add 7,199 ADTs (70.29%)

Project will be conditioned to construct the signal and ensure full signal operation prior to the issuance of project first certificate of occupancy.

Table ES-1 shows the project fair contribution toward the construction of the new signalized intersection at Date Palm Drive and Rosemount Road.

Table 6-1
Project Feature Contributions

Project	Project ADT	Project Share %
Wren Project	1,375	**13.43%**
Date Palm Drive Mixed Use[1]	1,668	16.29%
Future Shopping Center	7,199	70.29%
Total	12,116	

Notes:
[1] Assumed Scenario 1 as the viable option for this Date Palm Drive Mixed Use, since their Scenario 2, which includes the Vallarta Supermarket, is no longer a viable option because Vallarta has acquired the property to the west of Date Palm Drive to construct the supermarket

Future Date Palm Drive and Rosemount Road signalized intersection ultimate geometry will include the following:

1. Northbound – three thru lanes, one left turn lane and one exclusive right turn lane
2. Southbound – three thru lanes, one left turn lane and one exclusive right turn lane
3. Eastbound – one left turn lane and one thru-right turn lane
4. Westbound – one left turn lane, one thru lane and one exclusive right turn lane

VMT Screening Assessment

The Project is not anticipated to result in a significant transportation impact related to VMT under Base Year 2018, Opening Year 2025, or Horizon Year 2045 scenarios. VMT analysis is provided in a separate document.

Table of Contents

EXECUTIVE SUMMARY I
Purpose of the Report ..... *i*
Project Overview ..... *i*
Analysis Results and Recommendations ..... *ii*

1.0 PROJECT INTRODUCTION 1

PROJECT DESCRIPTION 1
STUDY AREA 1
PROJECT TRIP GENERATION 1
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT 2
PROJECT ACCESS 2
PARKING 2

2.0 METHODOLOGIES 6

ANALYSIS SCENARIOS 6
STUDY TIME PERIODS 6
ANALYSIS METHODOLOGIES 6
Intersection Capacity Analysis *7*
Signalized Intersections 7
Traffic Signal Warrant Analysis *8*
City of Cathedral City 2040 General Plan Compliance *9*

3.0 EXISTING YEAR 2023 10

ROADWAY NETWORK 10
TRANSIT SYSTEM 10
ACTIVE TRANSPORTATION SYSTEM 10
TRAFFIC VOLUMES 10
ANALYSIS RESULTS 11

4.0 PROJECT COMPLETION YEAR 2025 CONDITIONS 15

ANALYSIS RESULTS 15

5.0 CUMULATIVE YEAR 2025 CONDITIONS 18

ANALYSIS RESULTS AND RECOMMENDED IMPROVEMENTS 20

6.0 HORIZON YEAR 2045 CONDITIONS 23

ANALYSIS RESULTS AND RECOMMENDED IMPROVEMENTS 24

7.0 VEHICLE MILES TRAVELED 29

SB 743 29
VMT ANALYSIS GUIDELINES 29

List of Figures

Figure 1-1 – Project Site Plan 3
Figure 1-2 – Project Study Area and Trip Distribution 4
Figure 1-3 – Project Volumes 5
Figure 3-1 – Cathedral City General Plan Master Roadway Classifications 12
Figure 3-2 – Cathedral City General Plan Multi-Modal Facilities 13
Figure 3-3 – Existing Year 2023 AM/PM Peak Hour Intersection Volumes 14
Figure 4-1 – Project Completion Year 2025 Conditions AM/PM Peak Hour Intersection Volumes 17
Figure 5-1 – Cumulative Project Trip Assignment 21
Figure 5-2 – Cumulative Year 2025 Conditions AM/PM Peak Hour Intersection Volumes 22
Figure 6-1 – Date Palm Drive and Rosemount Road Intersection Lane Configuration 26
Figure 6-2 – Horizon Year 2045 No Project Conditions AM/PM Peak Hour Intersection Volumes 27
Figure 6-3 – Horizon Year Plus Project Conditions AM/PM Peak Hour Intersection Volumes 28

List of Tables

Table ES-1 Project Feature Contributions III
Table 1-1 Project Trip Generation Rate 2
Table 1-2 Project Trip Generation 2
Table 2-1 Vehicular Level of Service Definitions 7
Table 2-2 Signalized Intersection Level of Service HCM Operational Analysis Method 8
Table 2-4 Cathedral City General Plan Roadway Segment ADT Thresholds 8
Table 3-1 Existing Conditions 2023 Intersection Operation Analysis 11
Table 3-2 Existing Year 2023 Roadway Segment Capacity Analysis 11
Table 4-1 Project Completion Year 2025 Conditions Intersection Operation Analysis 16
Table 4-2 Project Completion Year 2025 Conditions Roadway Segment Capacity Analysis 16
Table 5-1 Cumulative Projects 18
Table 5-2 Cumulative Year 2025 Conditions Intersection Operation Analysis 20
Table 5-3 Cumulative Year 2025 Conditions Roadway Segment Capacity Analysis 20
Table 6-1 Project Feature Contributions 24
Table 6-2 Horizon Year 2045 Conditions Intersection Operation Analysis 24
Table 6-3 Horizon Year 2045 Plus Projects Intersection Queue Analysis 25
Table 6-4 Horizon Year 2045 Conditions Roadway Segment Capacity Analysis 25
Table 7-1 Project VMT analysis 30

Appendices

Appendix A - Scoping Agreement
Appendix B - Traffic Volume Data
Appendix C - Existing Year 2023 Conditions Peak Hour Intersection Analysis Worksheets
Appendix D - Project Completion Year 2025 Conditions Peak Hour Intersection Analysis Worksheets
Appendix E - Cumulative Project Trip Distribution
Appendix F - Cumulative Year 2025 Conditions Peak Hour Intersection Analysis Worksheets
Appendix G - Horizon Year 2045 Volume Development
Appendix H - Horizon Year 2045 No Project Conditions Peak Hour Intersection Analysis Worksheets
Appendix I - Horizon Year Plus Project Conditions Peak Hour Intersection Operation and Queue Analysis Worksheets
Appendix J - With Improvement Peak Hour Intersection and Signal Warrant Analysis Worksheets
Appendix K - Transit Route Information

1.0 PROJECT INTRODUCTION

This transportation analysis (TA) report has been prepared for The Wren project (Project) in Cathedral City, according to the County of Riverside Transportation Analysis Guidelines for Level of Service (LOS) and Vehicle Miles Traveled (VMT), December 2020 (Guidelines).

PROJECT DESCRIPTION

The Project will be developed on a vacant site located on the northeast corner of Date Palm Drive and future Rosemount Road extension. The Project is proposing the construction of 204 multi-family (low-rise) dwelling units.

Figure 1-1 shows the project site plan.

STUDY AREA

The study area for this project was developed consistent with the Guidelines, including all intersections of "Collector" or higher classification streets with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips. IEG prepared a project traffic study scoping agreement defining the study area, which was reviewed and approved by Cathedral City staff prior to the preparation of this technical report. Refer to **Appendix A** for approved scoping agreement.

Figure 1-2 presents the study area that includes the following key locations:

Study Area Intersections:

1. Date Palm Drive and McCallum Way
2. Date Palm Drive and Rosemount Road
3. Date Palm Drive and 30th Avenue

Study Roadway Segments:

1. Date Palm Drive, McCallum Way to Rosemount Road
2. Date Palm Drive, Rosemount Road to 30th Avenue

Turning movement counts for one weekday during the morning and evening peak hours and average daily traffic (ADT) counts were conducted on Tuesday May 9, 2023. The turning movement and ADT counts are included in **Appendix B.** These counts will be utilized in Synchro 11 software to determine LOS at all study intersections and for roadway segment capacity analysis. Year 2025 without Project traffic volumes will be developed by adding a 3% annual growth for two years to the existing counts. Horizon Year Plus Project volumes will be developed by applying an annual growth factor based on the growth from RIVCOM Base Year 2018 with Projects to Forecast Year 2045 with Projects.

PROJECT TRIP GENERATION

Trip generation is a measure or forecast of the number of trips that begin or end at the Project site. These trips will result in some traffic increases on the streets where they occur. The rates used in this analysis were determined using *Trip Generation, 11th Edition*, published by the Institute of Transportation Engineers (ITE), is the method preferred by the Guidelines. Project ITE average trip generation rates are presented in **Table 1-1** and the calculated trip generation based on the number of dwelling units associated with the Project is shown in **Table 1-2**.

Table 1-1
Project Trip Generation Rate

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Multifamily Housing (Low-Rise)	DU	220	0.10	0.30	0.40	0.32	0.19	0.51	6.74

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] DU = Dwelling Unit

Table 1-2
Project Trip Generation

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Multifamily Housing (Low-Rise)	204	DU	**20**	**61**	**81**	**65**	**39**	**104**	**1,375**

[1]Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] DU = Dwelling Unit

As shown in **Table 1-2**, the Project is anticipated to generate approximately 1,375 total daily trips, 81 AM peak hour trips and 104 PM peak hour trips.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution and assignment is the process of identifying the probable destinations, directions, and traffic routes that Project related traffic will affect. Once the proposed development's trips have been estimated, they are assigned to the study area network. For this development, the Project trip distribution and assignment were developed, in coordination with City staff, based on the land use characteristics of the Project and surrounding area, existing travel patterns within the study area, anticipated travel patterns to and from the Project site, and approved projects located in the vicinity of the Project site.

Figure 1-2 and **1-3** show Project study area, trip distribution, and trip assignment.

PROJECT ACCESS

Under existing conditions, Rosemount Road does not extend to Date Palm Drive. The Project will be conditioned to construct half-width roadway improvement along the property frontage on Rosemount Road including curb, gutter, sidewalk and paving. Therefore, access to the Project site will be provided via one proposed driveway along Rosemount Road extension and one existing driveway along Date Palm Drive through an access easement to the adjacent Northgate Community Church site. Additionally, the Project will construct a traffic signal at the new intersection of Rosemount Road and Date Palm Drive.

PARKING

The proposed development will provide on-site parking spaces consistent with Cathedral City parking requirements.

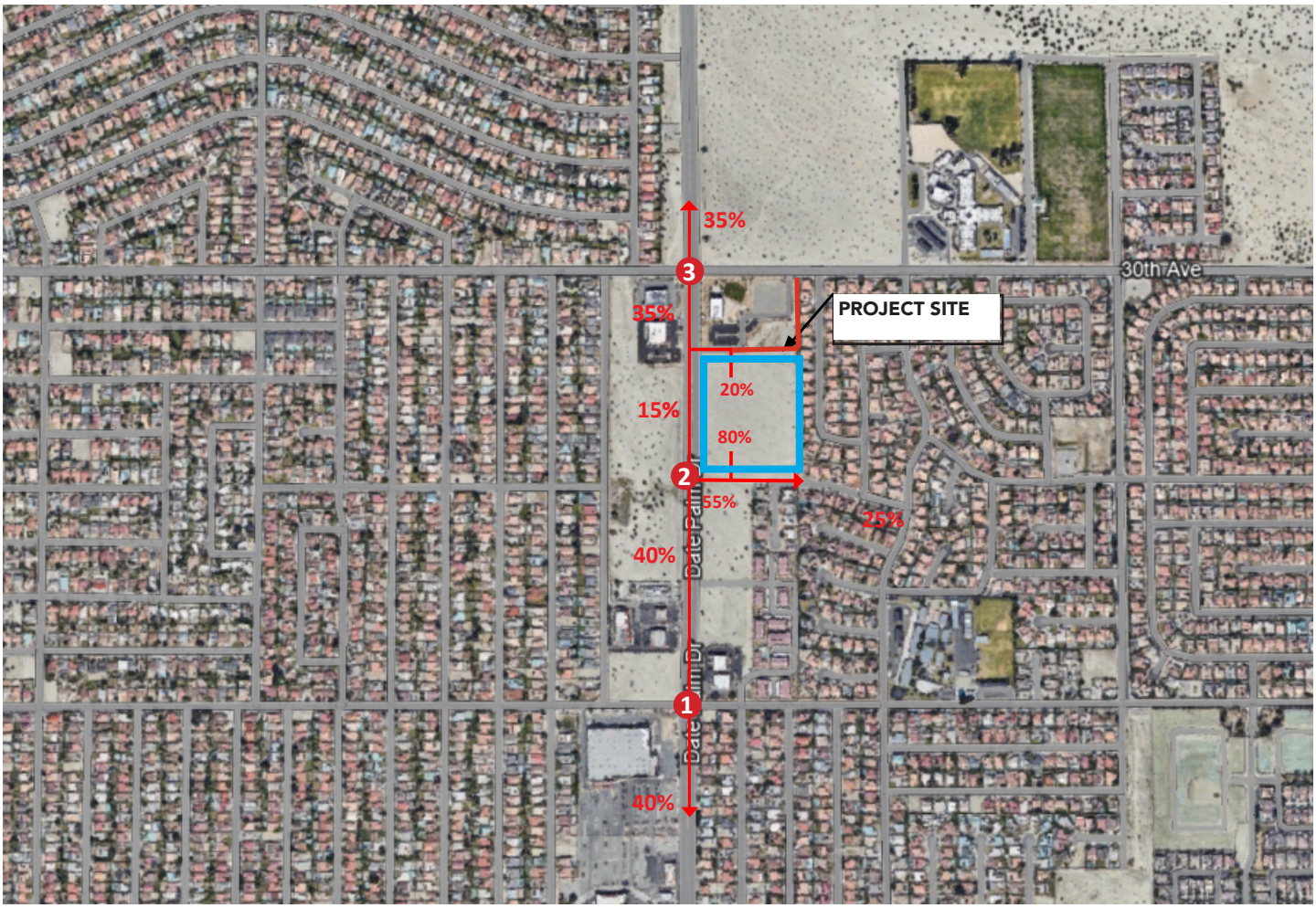


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The Wren

Project Site Plan

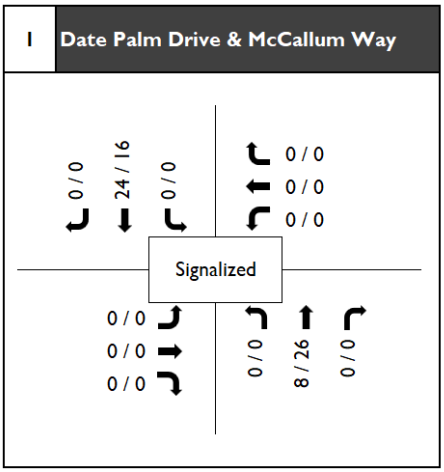
Figure 1-1

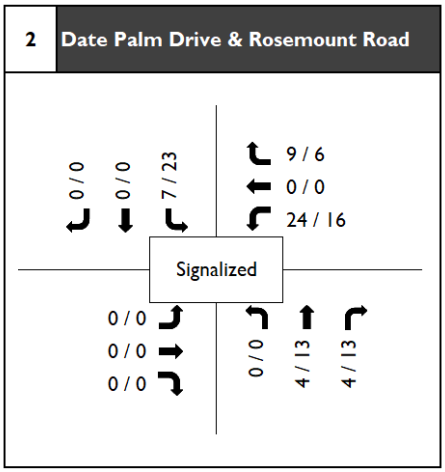


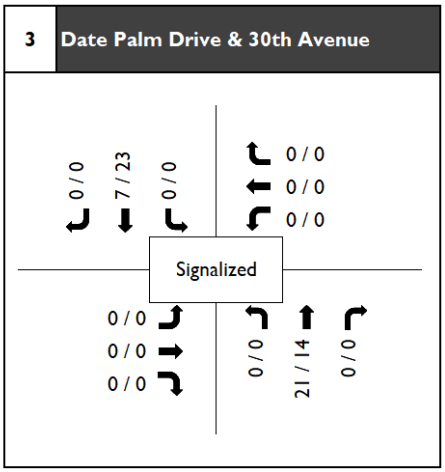
LEGEND # Intersection

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The Wren
Project Study Area and Trip Distribution
Figure 1-2







Roadway Segment	Project
Total ADT	1375
Date Palm Drive	
McCallum Way to Rosemount Road	550
Rosemount Road to 30th Avenue	481

XX / XX AM / PM Peak Hour Volumes

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The Wren
Project Volumes
Figure 1-3

2.0 METHODOLOGIES

This section documents the methodologies and assumptions used to conduct the circulation impact analysis for the proposed project. This section contains the following background information:

- Analysis scenarios
- Study time periods
- Analysis methodologies

Refer to **Appendix A** for approved scoping agreement.

ANALYSIS SCENARIOS

This report presents an analysis of the study area intersections and roadway segments for the following anticipated timeframe scenarios:

- Existing Conditions Year 2023
- Project Completion Year 2025 (Existing Plus Ambient Plus Project)
- Cumulative Year 2025 (Existing Plus Ambient Plus Cumulative Plus Project)
- Horizon Year 2045 No Project
- Horizon Year Plus Project

STUDY TIME PERIODS

The Guidelines recommend the following peak hours for analysis:

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

ANALYSIS METHODOLOGIES

Street system operating conditions are typically described in terms of "level of service." Level of service is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service (LOS) ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion). **Table 2-1** describes generalized definitions of auto LOS A through F.

Table 2-1
Vehicular Level of Service Definitions

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual, Transportation Research Board (2016)

Intersection Capacity Analysis

The analysis of peak hour intersection performance was conducted using the Synchro 11 software program, which uses methodologies defined in the Highway Capacity Manual (HCM) 6th Edition to calculate LOS. Level of service (LOS) for intersections is determined by control delay. Control delay is defined as the total elapsed time from when a vehicle stops at the end of a queue to the time the vehicle departs from the stop line. The total elapsed time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

Signalized Intersections

The HCM analysis methodology for evaluating signalized intersections is based on the "operational analysis" procedure. This technique uses 1,900 passenger cars per hour of green per lane (pcphpl) as the maximum saturation flow of a single lane at an intersection. **Table 2-2** summarizes the level of service criteria for signalized intersections.

Table 2-2
Signalized Intersection Level of Service HCM Operational Analysis Method

Average Control Delay Per Vehicle (seconds)	Level of Service (LOS) Characteristics
≤10.0	*LOS A* occurs when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1 – 20.0	*LOS B* occurs when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
20.1 – 35.0	*LOS C* occurs when progression is favorable or the cycle length is moderate. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
35.1 – 55.0	*LOS D* occurs when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
55.1 – 80.0	*LOS E* occurs when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	*LOS F* occurs when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, Transportation Research Board (2016)

Roadway Capacity Analysis

Roadway capacities are theoretical for planning purposes and are affected by factors such as intersection spacing, configuration, traffic control, access control, roadway grade, design geometrics, sight distance and vehicle mix. Roadway segment level of service is estimated by comparing the ADT on a roadway segment to the roadway ADT capacity. The City of Cathedral City 2040 General Plan provides roadway segment volume capacities based on street classifications. **Table 2-4** shows these ADT thresholds.

Table 2-4
Cathedral City General Plan Roadway Segment ADT Thresholds

Classification	Typical Lane Configuration	ADT Capacity (Vehicles per day)				
		LOS A	LOS B	LOS C	LOS D	LOS E
Arterial Highway	6-Lane Divided	17,000	27,500	38,000	48,500	59,000

Source: City of Cathedral City 2040 General Plan Table CM-3, 2021

Traffic Signal Warrant Analysis

The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), amended with California MUTCD 2014 Edition, presents warrant criteria for justifying the installation of a traffic signal at an unsignalized intersection. The criteria include studying traffic conditions, pedestrian characteristics, and physical characteristics of the intersection location. The MUTCD indicates that satisfaction of one or more of the traffic signal warrants does not in itself require the installation of a traffic control signal.

This study uses MUTCD Section 4C.04 Warrant 3, Peak Hour to assess the need of a traffic signal at the unsignalized intersections of Date Palm Drive and Rosemount Road. Signal warrant worksheets are included in **Appendix J**.

City of Cathedral City 2040 General Plan Compliance

In coordination with City staff, the transportation analysis will identify LOS deficiencies for compliance with City of Cathedral City 2040 General Plan goals. Cathedral City has established LOS "D" as the minimum allowable level of service at intersections and roadway segments. Therefore, any intersection or roadway segment resulting in an LOS worse than this minimum will be considered deficient for the purposes of this analysis.

3.0 EXISTING YEAR 2023

This section documents the circulation system conditions within the study area of the Project under Existing Year 2023. This section also documents operational deficiencies on the existing local and regional circulation networks.

ROADWAY NETWORK

Locally significant roadway located within the study area of the proposed project is discussed below.

Date Palm Drive functions as a divided 6-lane roadway within the study area from McCallum Way to 30th Avenue. The posted speed limit is 45 miles per hour. Per the City of Cathedral City 2040 General Plan Circulation & Mobility Element, Date Palm Drive is at its buildout roadway classification of an arterial highway.

Figure 3-1 shows the City of Cathedral City 2040 General Plan Master Roadway Classifications.

TRANSIT SYSTEM

The SunLine Transit Agency (STA) is the main transit agency servicing Cathedral City. Currently, STA operates Route 4 within the vicinity of the project. Route 4 operates seven days a week and connects to Palm Springs west of the site and Palm Desert to the south. Weekday and weekend service frequency is 60 minutes. Bus stops for Route 4 is currently located within 350 ft of the site at the northeast corner of the Date Palm Drive and McCallum Way intersection for northbound service and at the southwest corner for southbound service. Pedestrian accessibility and connectivity from the project site to these bus stops is provided along the frontage (east side of Date Palm Drive) with signalized crossings at the intersection where the bus stops are located. Bus route information is included in **Appendix K**.

ACTIVE TRANSPORTATION SYSTEM

Pedestrian facilities are provided within the study area of the project. Pedestrian crosswalks are generally provided at signalized intersections along Date Palm Drive with sidewalks on the west side from McCallum Way to 30th Avenue and on the east side from the Project limits to McCallum Way. There are no existing bicycle facilities along Date Palm Drive. However, the City of Cathedral City 2045 General Plan Circulation & Mobility Element proposes a Class I off-road shared bike and pedestrian trail along Date Palm Drive.

Figure 3-2 shows the City of Cathedral City 2040 General Plan Multi-Modal Facilities.

TRAFFIC VOLUMES

The Existing Year 2023 peak hour intersection turning movement and ADT counts were counted on Tuesday May 9, 2023. The counts are provided in **Appendix B**.

ANALYSIS RESULTS

Tables 3-1 and 3-2 show Existing Conditions intersection operation and roadway segment capacity analysis results.

Figure 3-3 shows peak hour intersection turning movement volumes under Existing Year 2023 Conditions.

Table 3-1
Existing Conditions 2023 Intersection Operation Analysis

Intersection	Intersection Control	Existing Conditions	
		Delay (a)	LOS (b)
AM/PM Peak			
1. Date Palm Drive and McCallum Way	Signalized	11.9/11.3	B/B
3. Date Palm Drive and 30th Avenue	Signalized	23.2/21.6	C/C

Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 11.

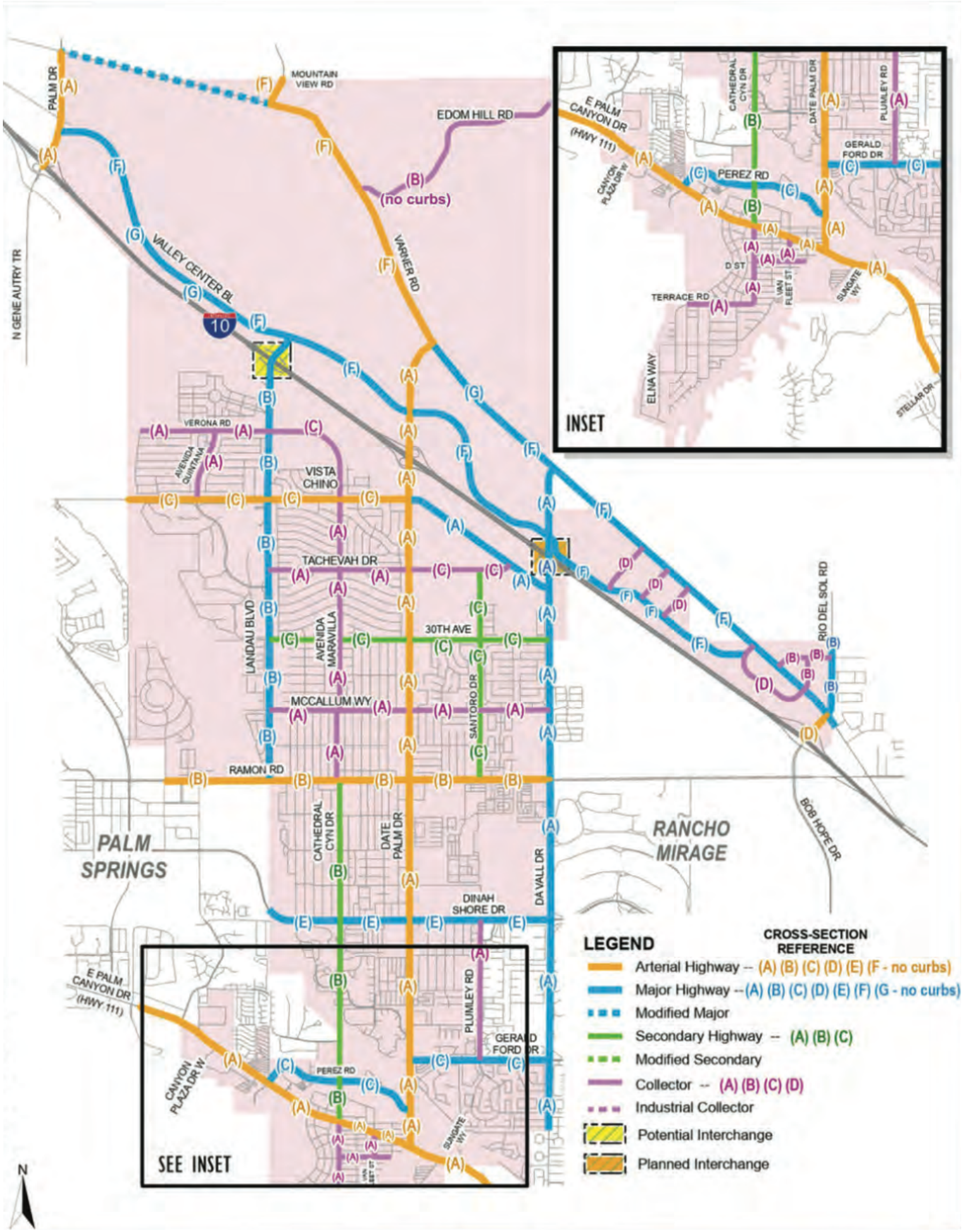
Per the analysis results shown in **Table 3-1**, all analyzed intersections are operating at an acceptable LOS under Existing Year 2023 Conditions.

Existing Year 2023 Conditions peak hour analysis worksheets are provided in **Appendix C**.

Table 3-2
Existing Year 2023 Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Existing Year 2023		
			ADT	V/C	LOS
Date Palm Drive					
McCallum Way to Rosemount Road	6-lane Arterial Highway	59,000	21,195	0.359	B
Rosemount Road to 30th Avenue	6-lane Arterial Highway	59,000	21,246	0.360	B

Per the analysis results shown in Table 3-2, all analyzed roadway segments are operating at an acceptable LOS under Existing Year 2023 Conditions.

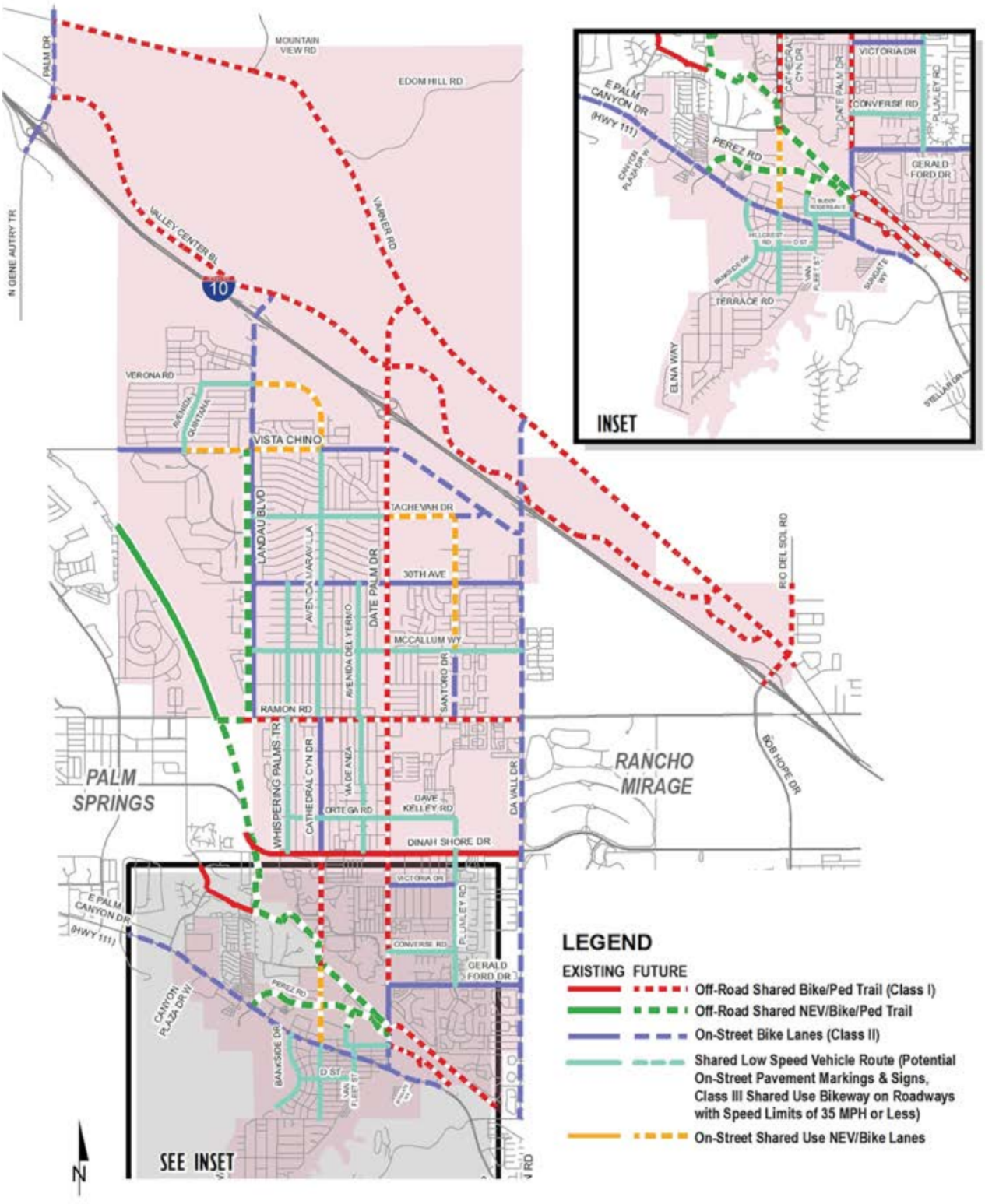


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The Wren

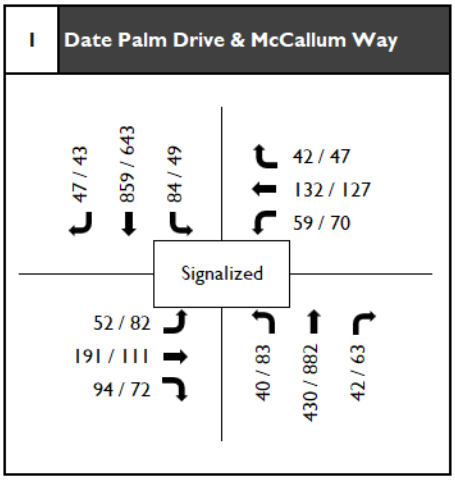
Cathedral City General Plan Master Roadway Classifications

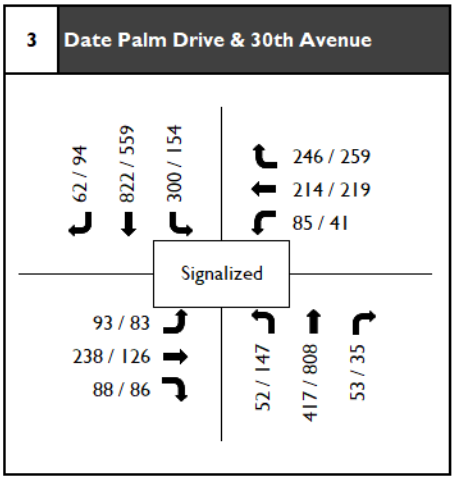
Figure 3-1



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Date Palm Drive Mixed Use
Cathedral City General Plan Multi-Modal Facilities
Figure 3-2





XX / XX AM / PM Peak Hour Volumes

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The Wren
Existing Year 2023 Peak Hour Intersection Volumes
Figure 3-3

4.0 PROJECT COMPLETION YEAR 2025 CONDITIONS

This section documents the circulation system conditions within the study area of the project under Project Completion Year 2025 (Existing Plus Ambient Plus Project Phase 1) Conditions. The Project proposes half-width improvements of Rosemount Road including curb, gutter, sidewalk and paving. Therefore, this analysis assumes the construction of a traffic signal at the new intersection of Rosemount Road and Date Palm Drive by the Project. Signal warrant worksheets are provided in **Appendix J**. IEG understands that existing traffic patterns would change due to these improvements. Adjusted Existing Year 2023 intersection peak hour traffic volumes for the Date Palm Drive Rosemount Road intersection were developed by redistributing forecast traffic from the Project's RIVCOM 3 Traffic Analysis Zone (TAZ) to the intersection of Date Palm Drive and Rosemount Road.

The TAZ adjacent to the west side of Date Palm Drive loads approximately one-third of its base year 2018 daily traffic onto Date Palm Drive. The TAZ that the project is located within also loads approximately one-third of its 2018 daily traffic volume onto the intersection of Santoro Drive and 30th Avenue. Since both TAZs include similar residential and commercial retail components, the unadjusted zone connector volumes applied to the intersection of Santoro Drive and 30th Avenue were also applied at the intersection of Date Palm Drive and Rosemount Road.

An annual growth factor based on the growth from Base Year 2018 to Forecast Year 2045 was applied to 2018 TAZ AM and PM peak hour volumes to calculate the redistributed volumes that would be applied to Existing Year 2023 counts. The turning movement distribution percentages for the eastbound approach at the intersection of Date Palm Drive and 30th Avenue was applied to the intersection of Date Palm Drive and Rosemount Road to calculate adjusted Year 2023 turning movement volumes. RIVCOM 3 model plots, annual growth calculation, Date Palm Drive and 30th Avenue distribution, and adjusted Year 2023 volumes are included in **Appendix B**.

Since the Project is expected to be built and operational in 2025, a 3% annual growth factor for two years was applied to the Adjusted Existing 2023 volumes. Project traffic volumes are then added to these volumes to develop Project Completion Year 2025 Conditions traffic volumes. This section also documents potential operational deficiencies on the proposed local and regional circulation network.

ANALYSIS RESULTS

Tables 4-1 and **4-2** show Project Completion Year 2025 Conditions intersection operation and roadway segment capacity analysis results.

Figure 4-1 shows intersection turning movement volumes under Project Completion Year 2025 Conditions, respectively.

Table 4-1
Project Completion Year 2025 Conditions Intersection Operation Analysis

Intersection	Intersection Control	Project Completion Year 2025	
		Delay (a)	LOS (b)
AM/PM Peak			
1. Date Palm Drive and McCallum Way	Signalized	12.7/11.9	B/B
2. Date Palm Drive and Rosemount Road	Signalized	7.6/11.1	A/B
3. Date Palm Drive and 30th Avenue	Signalized	22.2/18.5	C/B

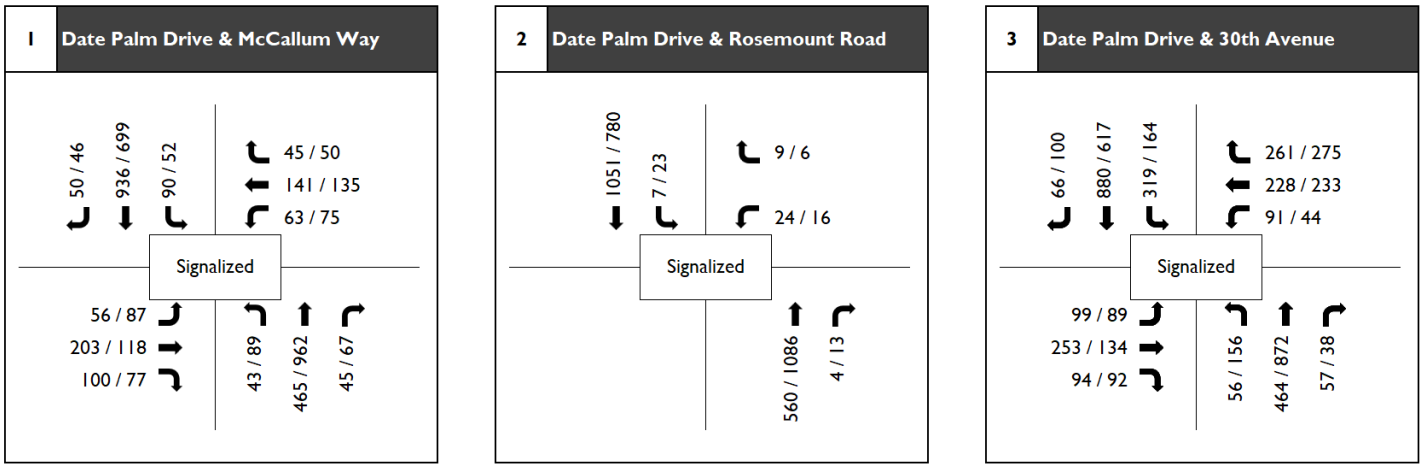
Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 11.

Per the analysis results shown in **Table 4-1**, all analyzed intersections are operating at an acceptable LOS under Project Completion Year 2025 Conditions. Project Completion Year 2025 Conditions peak hour analysis worksheets are provided in **Appendix D**.

Table 4-2
Project Completion Year 2025 Conditions Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Project Completion Year 2025		
			ADT	V/C	LOS
Date Palm Drive					
McCallum Way to Rosemount Road	Arterial Highway	59,000	23,040	0.391	B
Rosemount Drive to 30th Avenue	Arterial Highway	59,000	23,021	0.390	B

Per the analysis results shown in **Table 4-2**, all analyzed roadway segments are operating at an acceptable LOS under Project Completion Year 2025 Conditions.



XX / XX AM / PM Peak Hour Volumes

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The Wren
Project Completion Year 2025
Peak Hour Intersection Volumes
Figure 4-1

5.0 CUMULATIVE YEAR 2025 CONDITIONS

This section documents the circulation system conditions within the study area of the Project under Cumulative Year 2025 (Existing Plus Ambient Plus Cumulative Plus Project) Conditions. The Cumulative Conditions traffic volumes were developed by adding cumulative project trips to develop the Project Completion 2025 Conditions traffic volumes. These cumulative projects are listed in **Table 5-1** and the cumulative project trip assignment to the study area is shown in **Figure 5-1**. The locations and trip distribution for these cumulative projects are included in **Appendix E**.

Table 5-1
Cumulative Projects

ID[1]	Project	Land Use	Quantity	Units[2]
1	Kroger Gas Station	Service Station	10	VFP
2	Date Palm Drive Mixed Use (Phase I)	Self Storage	115.054	TSF
3	Future Shopping Center (Phase I)	Shopping Plaza	50	TSF
4	Canyon Springs Villas	Residential	58	DU
5	Mountain View Estates	Residential	110	DU
6	Tower Market	Service Station with Convenience Market	12	VFP
7	Cathedral Cove Center	Residential	200	DU
		Retail	6.65	TSF
		Fast-Food Restaurant	14.025	TSF
		Service Station with Convenience Market	12	VFP
C1	Ecoplex Park Phases 1 & 2	Cannabis Cultiviation	93.44	TSF
C2	Horizon Gardens	Senior Living	80	OB
C3	CCBC Restaurant	Restaurant	2.5	TSF
C4	Quick Quack Carwash	Carwash	3.5	TSF
C5	7-Eleven	Gas Station	8	VFP
C6	Ramon 19	Cannabis (Cultivation) Facility	486	TSF
		Dispensary	3	TSF
C7	District East	Residential	43	DU
C8	Greenscape Engineering (67587 Canyon Plaza)	Cannabis Cultivation	40	TSF
C9	Agua Caliente Casino	Casino	40	TSF
		Shopping Center	24	TSF
		High-Turnover Sit-Down Restaurant	14	TSF
		Quality Restaurant	14	TSF
		Fast Casual Restaurant	6	TSF
		Coffee Shop w/o Drive-Thru	2	TSF
C10	Nirvana Estates	Residential	103	DU
C11	Silver Torch Motel	Motel	6	Rooms
C12	Cree Gas Station	Convenience Store w/ Gas Station	8	VFP
C13	Cathedral City Events Center (35900 Date Palm Dr)	Event Center	80.0	TSF
C14	Amazon Hub Center (35780 Date Palm Dr)	Warehouse	94.0	TSF
C15	Medicinal Healing (36555 Bankside Dr)	Cannabis Cultivation Facility	11.0	TSF
C16	Horizon Hotel (67670 Carey Rd)	Hotel	68	Rooms
C17	MoGenCo (67555/67575 East Palm Canyon Drive)	Cannabis Cultivation Facility	111.0	TSF
C18	Desert Lexus (67855 East Palm Canyon Drive)	Automobile Dealership	41.0	TSF
C19	Cathedral City Community Amphitheater	Amphitheater	2,909	Seats

P1	Canyon View / Summit Project by EHOF Canyon View, LLC	Residential	80	DU
P2	Palm Springs Surf Club	Water Park	7.746	TSF
P3	Parker Hotel Expansion	Hotel	32	Rooms
P4	Vibrante	Condominium	41	DU
RM1	RM 38 JV LLC	Residential	82	DU
RM2	Carefield Senior Living	Residential	84	DU
RM3	ECHO at Rancho Mirage	Residential	9	DU
RM4	Santa Barbara Cove Estates	Residential	20	DU
RM5	Pulte Homes/ Del Webb	Residential	1,200	DU
RM6	Veneto	Residential	34	DU
RM7	Revelle	Residential	32	DU
RM8	Bella Clancy	Residential	20	DU
RM9	Mirada Villas	Residential	46	DU
RM10	Estilo	Residential	39	DU
RM11	RM Five-1 LLC/Kilani	Residential	4	DU
RM12	Heinrich/Steinberg	Residential	4	DU
RM13	Rancho Mirage LLC	Residential	4	DU
RM14	La Paloma Homes, Inc.	Residential	13	DU
RM15	Monterey Medical Center	Medical Office	75.164	TSF
RM16	38 JV, LLC c/o Meriwether Companies	Residential	10	DU
RM17	38 JV, LLC c/o Meriwether Companies	Residential	97	DU
RM18	38 JV, LLC c/o Meriwether Companies	Residential	10	DU
RM19	GRV Mirage, LLC (ECHO)	Residential	9	DU
RM20	Ken Catanzarite	Residential	20	DU
RM21	Miragedunes Properties	Residential	9	DU
RM22	AMS Development Group (Bellavia)	Residential	18	DU
RM23	IN-N-OUT Burgers	Commercial	3.995	TSF
RM24	DHO Medical Office Building	Medical Office	13.80	TSF
RM25	Chase Bank	Bank	3.47	TSF
RM26	Section 31 Specific Plan Project	Hotel	400	Rooms
		Commercial	175.00	TSF
		Residential	1,932	DU
RM27	Tower Energy Group	Commercial	5.565	TSF
RM28	Oasis Ranch LLC	Hotel	60	Rooms
		Residential	108	DU
RM29	Horizon Pacific Rancho Cove MSA Consulting	Commercial	20.00	TSF
		Hotel	100	Rooms
		Residential	35	DU
RM30	Ritz-Carlton Residences	Residential	106	DU
		Commercial	6.966	TSF
RM31	Hazelden Betty Ford Center	Office	6.399	TSF
		Drug/Alcohol Treatment Ctr.	56	Beds
RM32	Rancho Mirage Highway 111 Dealerships	Auto Sales (New)	58	TSF
		Auto Care Center	56	TSF

Notes:

[1] Projects with C, P, or RM designation are based on *Cathedral Cove Center Traffic Analysis* dated April 8, 2022, and prepared by Urban Crossroads. Volumes distributed north of Intersection 17 Date Palm Drive and Ramon Road were applied to study intersections as northbound and southbound through volumes.

[2] DU = Dwelling Units, TSF = Thousand Square Feet, VFP = Vehicle Fueling Positions, and OB = Occupied Beds

This section also documents potential Cumulative Conditions operational deficiencies on the circulation network. Rosemount Road does not currently extend to Date Palm Drive. However, the Project proposes half-width improvements of Rosemount Road including curb, gutter, sidewalk and paving. Therefore, the

following analysis assumes a traffic signal at the new intersection of Date Palm Drive and Rosemount Road. Signal warrant worksheets are provided in **Appendix J**.

ANALYSIS RESULTS AND RECOMMENDED IMPROVEMENTS

Tables 5-2 and **5-3** show Cumulative Conditions intersection operation and roadway segment analysis results, respectively.

Figure 5-2 shows intersection turning movement under Cumulative Conditions.

Table 5-2
Cumulative Year 2025 Conditions Intersection Operation Analysis

Intersection	Intersection Control	Cumulative Year 2025	
		Delay (a)	LOS (b)
AM/PM Peak			
1. Date Palm Drive and McCallum Way	Signalized	13.4/13.8	B/B
2. Date Palm Drive and Rosemount Road	Signalized	15.0/22.5	B/C
3. Date Palm Drive and 30th Avenue	Signalized	23.8/22.0	C/C

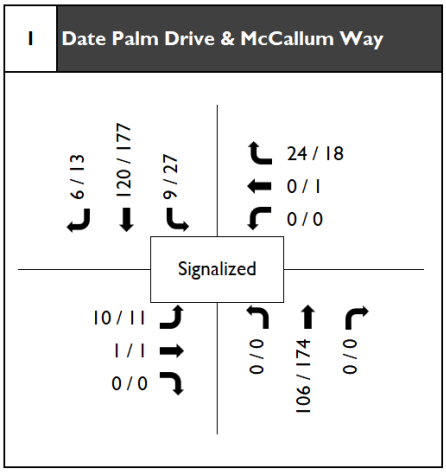
Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 11.

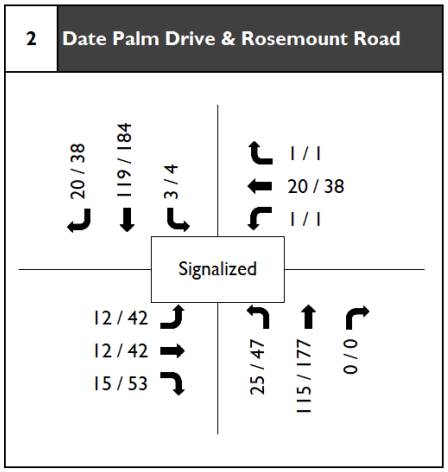
Per the analysis results shown in **Table 5-2**, all analyzed intersections are operating at an acceptable LOS under Cumulative Year 2025 Conditions. Cumulative Year 2025 Conditions peak hour analysis worksheets are provided in **Appendix F**.

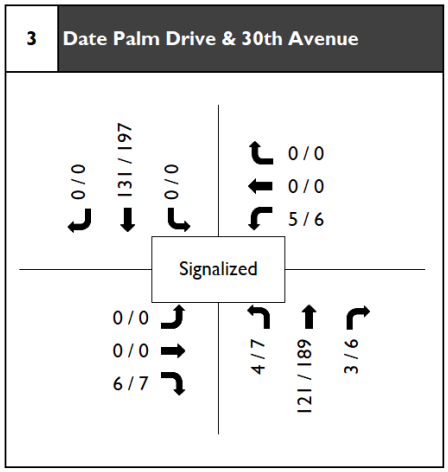
Table 5-3
Cumulative Year 2025 Conditions Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Cumulative Year 2025		
			ADT	V/C	LOS
Date Palm Drive					
McCallum Way to Rosemount Road	Arterial Highway	59,000	25,428	0.431	B
Rosemount Road to 30th Avenue	Arterial Highway	59,000	25,286	0.429	B

Per the analysis results shown in **Table 5-3**, all analyzed roadway segments are operating at an acceptable LOS under Cumulative Year 2025 Conditions.





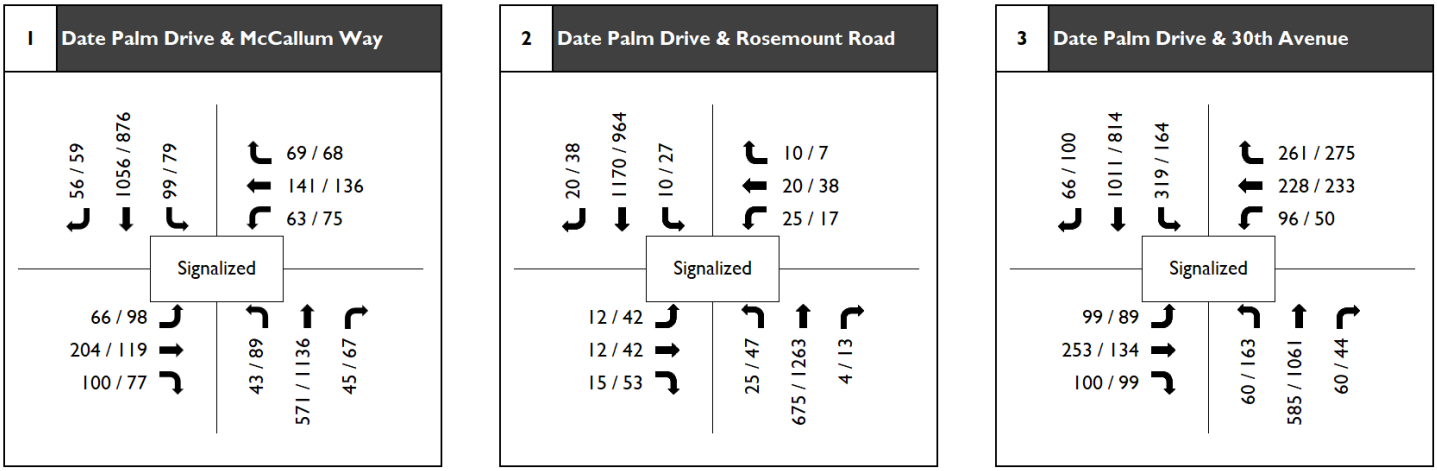


Roadway Segment	Cumulative Projects ADT
Date Palm Drive	
McCallum Way to Rosemount Road	2,388
Rosemount Road to 30th Avenue	2,265

XX / XX AM / PM Peak Hour Volumes

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The Wren
Cumulative Projects Trip Assignment
Figure 5-1



XX / XX AM / PM Peak Hour Volumes

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The Wren
Cumulative Year 2025 Peak Hour Intersection Volumes
Figure 5-2

6.0 HORIZON YEAR 2045 CONDITIONS

This section documents the circulation system conditions within the study area of the Project under Horizon Year 2045 No Project and Horizon Year Plus Project Conditions. Rosemount Road does not currently extend to Date Palm Drive. However, the Project proposes half-width improvements of Rosemount Road including curb, gutter, sidewalk and paving. Therefore, the following analysis assumes a traffic signal at the new intersection of Date Palm Drive and Rosemount Road. Signal warrant worksheets are provided in **Appendix J**.

The proposed traffic signal at the new intersection of Date Palm Drive and Rosemount Road will be constructed by whichever project completes their final phase first between Date Palm Drive Mixed Use, the Wren Project, and the Future Shopping Center west of Date Palm Drive and Rosemount Road intersection. The City of Cathedral City Transportation Department staff has requested a fair share assessment to determine the percentage of new traffic volumes added to the intersection of Date Palm Drive and Rosemount Road. The three proposed developments are expected to add a total of 12,166 ADTs to the subject intersection. The three projects will contribute to the funding of this transportation improvement based on their portion of total ADT generated as follows:

1. Wren Development is projected to add 1,375 ADTs (13.43%),
2. Date Plam Mixed Use is projected to add 1,668 ADTs (16.29%)
3. Future Shopping Center to the west of Date Palm Drive and Rosemount Road intersection is projected to add 7,199 ADTs (70.29%)

Future Date Palm Drive and Rosemount Road signalized intersection ultimate geometry will include the following:

1. Northbound – three thru lanes, one left turn lane and one exclusive right turn lane
2. Southbound – three thru lanes, one left turn lane and one exclusive right turn lane
3. Eastbound – one left turn lane and one thru-right turn lane
4. Westbound – one left turn lane, one thru lane and one exclusive right turn lane

Project will be conditioned to construct the signal and ensure full signal operation prior to the issuance of project first certificate of occupancy.

Figure 6-1 shows Date Palm Drive and Rosemount Road intersection future lane configuration.

Table 6-1 shows the project fair contribution toward the construction of the new signalized intersection at Date Palm Drive and Rosemount Road.

Trip generation is shown in **Appendix G**.

Table 6-1
Project Feature Contributions

Project	Project ADT	Project Share %
Wren Project	1,375	**13.43%**
Date Palm Drive Mixed Use[1]	1,668	16.29%
Future Shopping Center	7,199	70.29%
Total	12,116	

Notes:
[1] Assumed Scenario 1 as the viable option for this Date Palm Drive Mixed Use, since their Scenario 2, which includes the Vallarta Supermarket, is no longer a viable option because Vallarta has acquired the property to the west of Date Palm Drive to construct the supermarket

The Horizon Year Plus Project Conditions traffic volumes were developed by adding an annual growth factor based on the growth from RIVCOM 4.01 Base Year 2018 to Forecast Year 2045. The calculated growth factors are included in **Appendix G**. Horizon Year 2045 No Project volumes were developed by subtracting Project volumes from Horizon Year Plus Project volumes.

ANALYSIS RESULTS AND RECOMMENDED IMPROVEMENTS

Tables 6-2 through **6-4** show Horizon Year 2045 Conditions intersection operation, turn lane queue, and roadway segment analysis results, respectively.

Figures 6-2 and **6-3** show intersection turning movements under Horizon Year 2045 No Project and Horizon Year Plus Project Conditions, respectively.

Table 6-2
Horizon Year 2045 Conditions Intersection Operation Analysis

Intersection	Intersection Control	Horizon Year 2045 No Project		Horizon Year Plus Project	
		Delay (a)	LOS (b)	Delay (a)	LOS (b)
AM/PM Peak					
1. Date Palm Drive and McCallum Way	Signalized	30.5/29.9	C/C	31.1/30.3	C/C
2. Date Palm Drive and Rosemount Road	Signalized	Does not exist		22.4/47.3	C/D
3. Date Palm Drive and 30th Avenue	Signalized	28.9/23.4	C/C	29.0/23.8	C/C

Notes:
(a) Delay refers to the average control delay for the entire intersection, measured in seconds/vehicle.
(b) LOS calculations are based on the methodology outlined in the Highway Capacity Manual 6th Edition and performed using Synchro 11.

Per the analysis results shown in **Table 6-2**, all analyzed intersections are operating at an acceptable LOS under Horizon Year 2045 No Project and Horizon Year Plus Project Conditions. Horizon Year 2045 No Project and Horizon Year Plus Project Conditions peak hour analysis worksheets are provided in **Appendices H** and **I**, respectively.

Table 6-3 shows the proposed turn lane lengths to accommodate the anticipated queue demand under Horizon Year 2045 Plus Project Conditions. For queues that exceed the proposed turn lane lengths, the excess queue is within one vehicle length (20 feet) and will be accommodated by taper lengths. Queue analysis worksheets are included in **Appendix I**.

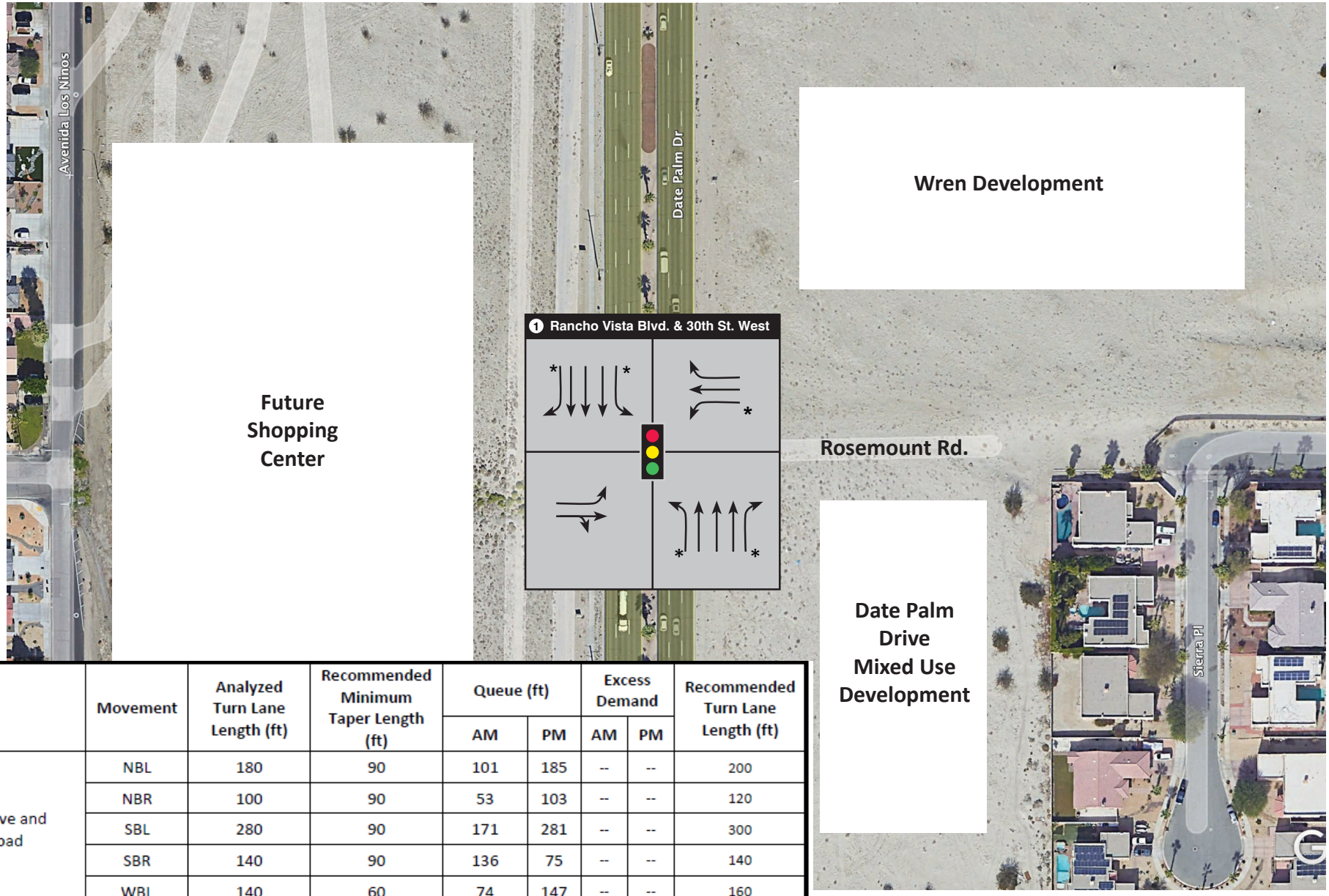
Table 6-3
Horizon Year 2045 Plus Projects Intersection Queue Analysis

Intersection	Movement	Analyzed Turn Lane Length (ft)	Recommended Minimum Taper Length (ft)	Queue (ft)		Excess Demand		Recommended Turn Lane Length (ft)
				AM	PM	AM	PM	
Date Palm Drive and Rosemount Road	NBL	180	90	101	185	--	--	200
	NBR	100	90	53	103	--	--	120
	SBL	280	90	171	281	--	--	300
	SBR	140	90	136	75	--	--	140
	WBL	140	60	74	147	--	--	160

Per the analysis results shown in **Table 6-4**, all analyzed roadway segments are operating at an acceptable LOS under Horizon Year 2045 Conditions.

Table 6-4
Horizon Year 2045 Conditions Roadway Segment Capacity Analysis

Roadway Segment	Classification	LOS E Capacity	Horizon Year 2045 No Project			Horizon Year Plus Project		
			ADT	V/C	LOS	ADT	V/C	LOS
Date Palm Drive								
McCallum Way to Rosemount Road	Arterial Highway	59,000	26,014	0.441	B	26,564	0.450	B
Rosemount Road to 30th Avenue	Arterial Highway	59,000	29,729	0.504	C	30,207	0.512	C

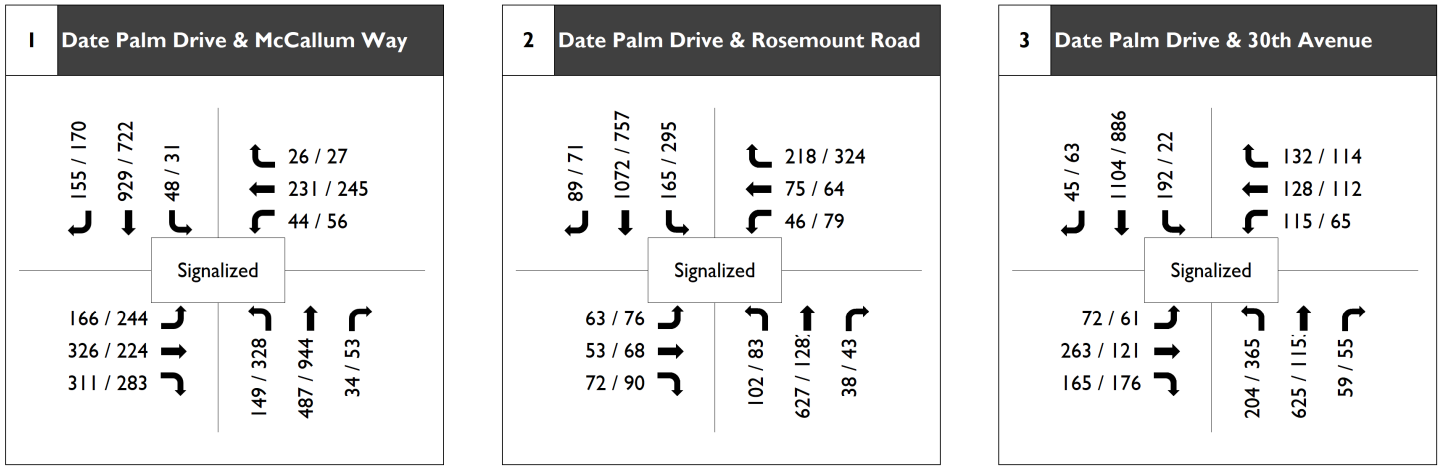


Intersection	Movement	Analyzed Turn Lane Length (ft)	Recommended Minimum Taper Length (ft)	Queue (ft)		Excess Demand		Recommended Turn Lane Length (ft)
				AM	PM	AM	PM	
Date Palm Drive and Rosemount Road	NBL	180	90	101	185	--	--	200
	NBR	100	90	53	103	--	--	120
	SBL	280	90	171	281	--	--	300
	SBR	140	90	136	75	--	--	140
	WBL	140	60	74	147	--	--	160

*** Refer to table above for recommended turn lane length**

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Date Palm Drive and Rosemount Road
Intersection Future Lane Configuration
Figure 6-1



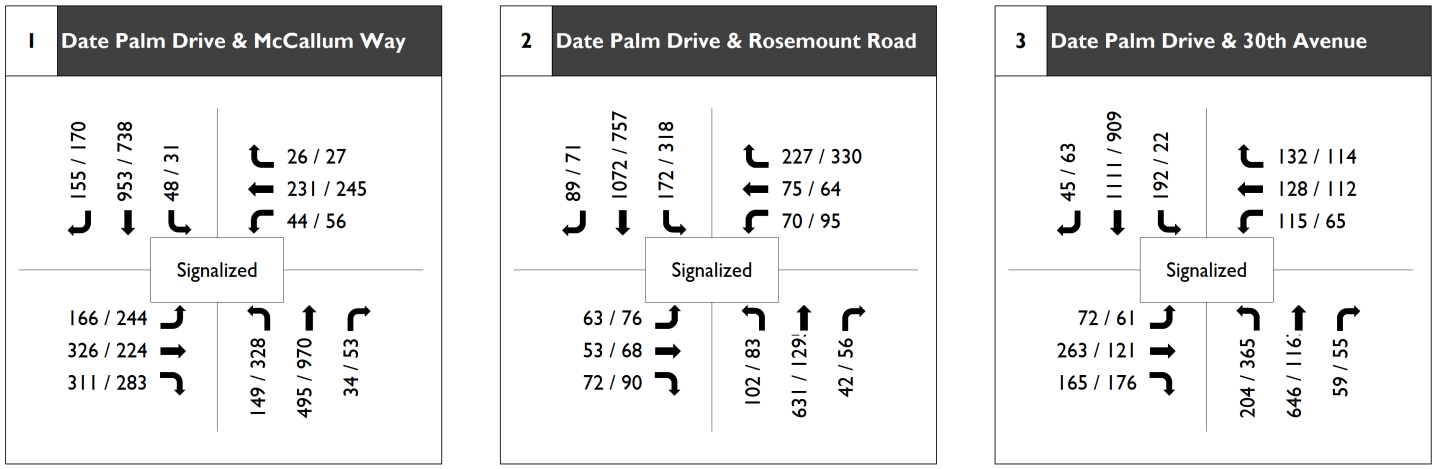
XX / XX AM / PM Peak Hour Volumes

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Horizon Year 2045 No Project Peak Hour Intersection Volumes

Figure 6-1



XX / XX AM / PM Peak Hour Volumes

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Horizon Year 2045 Plus Project Peak Hour Intersection Volumes
Figure 6-2

7.0 VEHICLE MILES TRAVELED

The purpose of this section is to evaluate the project's vehicle miles traveled (VMT) analysis requirements and compliance with Senate Bill 743 (SB 743) and the California Environmental Quality Act (CEQA).

SB 743

On September 27, 2013, SB 743 was signed into State law and started a process intended to fundamentally change transportation impact analysis as part of CEQA compliance. On December 28, 2018, the California Office of Administrative Law cleared the revised CEQA guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT.

VMT ANALYSIS GUIDELINES

The Project is within the jurisdiction of the City of Cathedral City (City). The City has not formally adopted its own guidance on evaluating VMT for transportation impacts under CEQA. In the absence of adopted lead agency guidance, and in consultation with the City, the Guidelines were selected as the most appropriate basis to evaluate VMT for this project.

VMT ANALYSIS

The VMT analysis was conducted by General Technologies & Solutions using RIVCOM4.01 to assess the Project VMT.

The Guidelines recommend use of home-based production VMT per capita as the VMT metric to evaluate residential land uses. The home-based production VMT is computed by using attraction VMT for the Home-Based production trip purpose. Per the Guidelines, the project will constitute a significant impact if the Project VMT per capita is higher than the Riverside Countywide home-based production VMT per capita.

Both baseline (2018) and horizon year (2045) model runs were used to estimate the Project's VMT impacts. RIVCOM4.01 socioeconomic databases for the scenarios were updated with the Project land use to calculate Project VMT. Typically, Project VMT is calculated by isolating the Project in a new TAZ or multiple TAZs depending on the diversity of Project land uses and Project size. RIVCOM4.01 does not allow addition of new TAZs or TAZ splits, however it includes some empty zones. One empty zone was borrowed to model the Project. The Project TAZ was utilized to calculate project specific VMT per capita.

Table 7-1 shows the Project VMT metrics and regional VMT thresholds for both baseline (2018) and horizon year (2045) "with Project" model runs.

Table 7-1
Project VMT analysis

Metric	Wren Residential (a)	Riverside County (b)
2018		
Total Population	660	2,358,439
Total Employment	-	759,857
Homebase Production HBP) VMT	10,375	42,904,715
HBP VMT per capita	**15.7**	**18.2**
2045		
Total Population	660	3,424,454
Total Employment	-	1,116,025
Homebase Production (HBP) VMT	9,785	63,396,364
HBP VMT per capita	**14.8**	**18.5**

(a) Estimated using RIVCOM4.01 "with project" model runs
(b) Estimated using GTS No Project RIVCOM4.01 model runs

A detailed VMT analysis is provided in a separate document. Since the Project is anticipated to be constructed by Opening Year 2025, we utilized interpolation to determine the Project VMT and regional average VMT values for Year 2025. The interpolated values are calculated to a Project VMT of 15.5 and a regional average VMT of 18.3.

Additionally, the project will be constructing half-width of Rosemount Road along the property frontage including travel lanes, curb, gutter, and sidewalk. The addition of travel lanes is in compliant with the Cathedral City Circulation Element and not expected to induce demand since the VMT is not a newly generated VMT; instead, it is the existing residential neighborhood traffic that will redistribute throughout the local roadway network that residents currently travel to and from each day. The roadway extension will provide the proposed project and existing residential neighborhood direct access to Date Palm Drive and to newly built commercial retail services within close proximity that will essentially reduce overall VMT. Therefore, it was determined that the Project and roadway extension are not anticipated to result in a significant transportation impact related to VMT under Base Year 2018, Opening Year 2025, or Horizon Year 2045 scenarios.

APPENDIX A -

SCOPING AGREEMENT

SCOPING AGREEMENT FOR TRANSPORTATION LOS ANALYSIS

This letter acknowledges Cathedral City Transportation Department requirements for transportation level of service analysis of the following project. The analysis must follow the Riverside County Transportation Department Transportation Analysis Guidelines, December 2020.

Case No.	
Related Cases	
Project Name:	The Wren
Project Address:	NEC of Date Palm Drive and Rosemount Road
Project Description:	204 multifamily (low rise) dwelling units and Rosemount Road extension to Date Palm Drive

	Traffic Consultant	Applicant/Developer
Name:	George Ghossain, Integrated Engineering Grp	Coachella Valley Comm Dev Group
Address:	23905 Clinton Keith Road 114-280	36101 Bob Hope Drive, Ste E5
	Wildomar, CA 92595	Rancho Mirage, CA 92270
Telephone:	951-239-1546	626-277-6782
E-mail:	george@intenggroup.com	stefan@buildbys2.com

Current GP Land Use: General Commercial
Proposed Land Use: High Density Residential
Current Zoning: Planned Community Comm
Proposed Zoning: R3 Multi Family Res

A. Trip Generation Source: ITE Trip Generation Manual, 11th Edition (2021)

	Current Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	20	61	81
PM Trips	0	0	0	65	39	104

Internal Trip Allowance ☐ Yes ☑ No (N/A % Trip Discount)
Pass-By Trip Allowance ☐ Yes ☑ No (N/A % Trip Discount)

A pass-by trip discount of 25% is allowed for appropriate land uses. The pass-by trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N 35 % S 40 % E 25 % W 0 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Build-out Year:	2025	Annual Ambient Growth Rate:	3 %
Phase Year(s)	N/A		
Other projects to be analyzed:	Date Palm Drive Mixed Use & Vallarta Shopping Center		
Model/Forecast methodology	RIVCOM 4 2018 BY & 2045 HY		

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Date Palm Drive & McCallum Way
2. Date Palm Drive & Rosemount Road
3. Date Palm Drive & 30th Avenue
4.
5.
6.
7.
8.
9.
10.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Date Palm Dr, McCallum Wy to Rosemount Rd
2. Date Palm Dr, Rosemount Rd to 30th Ave
3.
4.
5.
6.
7.
8.
9.
10.

F. Other Jurisdictional

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☑ Yes ☐ No

If yes, name of jurisdiction(s): Rancho Mirage

G. Site Plan (please attach reduced copy)

H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)

(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

Date Palm Dr/Rosemount Rd - traffic signal warrant and queue analysis for exclusive SBL & NBR

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of counts 05/09/2023

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with this form.**

Recommended by:

Integrated Engineering Group — 6/14/2024

Traffic Consultant — Date

Scoping Agreement Submitted on 6/18/2024

Revised on

Approved Scoping Agreement

Cathedral City Transportation Department — Date

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Date: Jun 2, 2024

To: John Corella, P.E., City Engineer/Public Works Director, Cathedral City

From: George Ghossain, Principal Engineer, Integrated Engineering Group

Subject: Scoping Agreement for The Wren Project

Integrated Engineering Group (IEG) is pleased to submit this scoping agreement for The Wren project (Project) located at the northeast corner of Date Palm Drive and future Rosemount Road connection within Cathedral City, California. The Project is proposing the construction of 204 multi-family (low-rise) dwelling units on a vacant 11.49-acre lot and the Rosemont Road extension between Date Palm Drive and the existing alignment at the residential subdivision to the east.

Our goal is to obtain comments from Cathedral City staff, to ensure this scoping agreement addresses the analysis requirements for the project, according to the County of Riverside Transportation Analysis Guidelines for Level of Service (LOS) and Vehicle Miles Traveled (VMT), December 2020 (Guidelines).

The preliminary site plan for the Project is shown in **Attachment 1**. It is anticipated that the proposed development will be built and occupied by Year 2025. Rosemount Road does not currently extend to Date Palm Drive. However, it is anticipated that the appropriate dedications and easements will be in place prior to Project opening. Therefore, access to the Project site will be provided via one proposed driveway along the Rosemount Road extension and one existing driveway along Date Palm Drive through a proposed access easement to the adjacent Northgate Community Church site. Additionally, the Project will construct a traffic signal at the new intersection of Rosemount Road and Date Palm Drive.

TRIP GENERATION FOR POTENTIAL USES

Trip generation is a measure or forecast of the number of trips that begin or end at the project site. The traffic generated is a function of the extent and type of development proposed for the site. These trips will result in some traffic increases on the streets where they occur. Per the Guidelines, project vehicular traffic generation characteristics should be estimated based on established rates contained in the *Trip Generation Manual (TGM), 11th Edition*, published by the Institute of Transportation Engineers (ITE). The proposed Project ITE average trip generation rates are shown in **Table 1**.

Table 1 - Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Multifamily Housing (Low-Rise)	DU	220	0.10	0.30	0.40	0.32	0.19	0.51	6.74

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] DU = Dwelling Unit

Table 2 - Project Trip Generation Summary

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Multifamily Housing (Low-Rise)	204	DU	**20**	**61**	**81**	**65**	**39**	**104**	**1,375**

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).
[2] DU = Dwelling Unit

STUDY AREA

The study area for this project was developed consistent with the Guidelines, which includes all intersections of two (2) or more "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips, and the roadway segments between these intersections. **Attachment 2** presents the study area that includes the key intersection and roadway segment locations identified in the scoping form.

24-hour segment and intersection counts will be conducted for one weekday (Tuesday through Thursday), with turning movements collected during the morning (7:00-9:00am) and evening (4:00-6:00) peak hours. The turning movement counts will be utilized in Synchro to determine level of service (LOS) at all study intersections.

TRIP DISTRIBUTION

Trip distribution and assignment is the process of identifying the probable destinations, directions, and traffic routes that project related traffic will likely affect. Trip distribution and assignment information can be estimated from observed traffic patterns, experience or through use of a computerized travel forecast model. Once the proposed developments trips have been estimated, they are assigned to the study area network. For this project, the trip distribution was developed based on the land use characteristics, surrounding land uses in the vicinity of the project site, anticipated travel patterns to and from the project site and existing travel patterns within the study area. **Attachments 2** and **3** show the project's trip distribution and trip assignment, respectively.

ANALYSIS SCENARIOS

Analysis of the intersection operating conditions during the peak periods will be conducted for the following anticipated timeframe scenarios:

- Existing Conditions Year 2023
- Project Completion Year 2025 (Existing plus Ambient Growth plus Project)
- Cumulative Year 2025 (Existing + Project + Ambient + Cumulative) Conditions
- Horizon Year 2045 No Project Conditions
- Horizon Year Plus Project Conditions

Ambient growth is 3% per year.

Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline)

The Study will include intersection queue analysis to determine the lengths of the following potential exclusive lanes:

- Southbound left turn lane length at the intersection of Date Palm Drive and Rosemount Road
- Northbound right turn lane at the intersection of Date Palm Drive and Rosemount Road

VEHICLE MILES TRAVELED (VMT) ANALYSIS

Per the Guidelines, the Project does not screen out per the Small Project criteria and will be required to run the model in order to conduct a full VMT analysis. Once City staff provide their input, IEG will conduct the required VMT analysis to determine if the Project would result in a significant transportation VMT impact.

Sincerely,

Approved By:



Signature: _____

Name: _____

George Ghossain, MS, PE
Principal Engineer

Address: _____

_____

_____

Attachments: 1 – Project Site Plan
2 – Project Study Area & Trip Distribution
3 – Project Trip Assignment

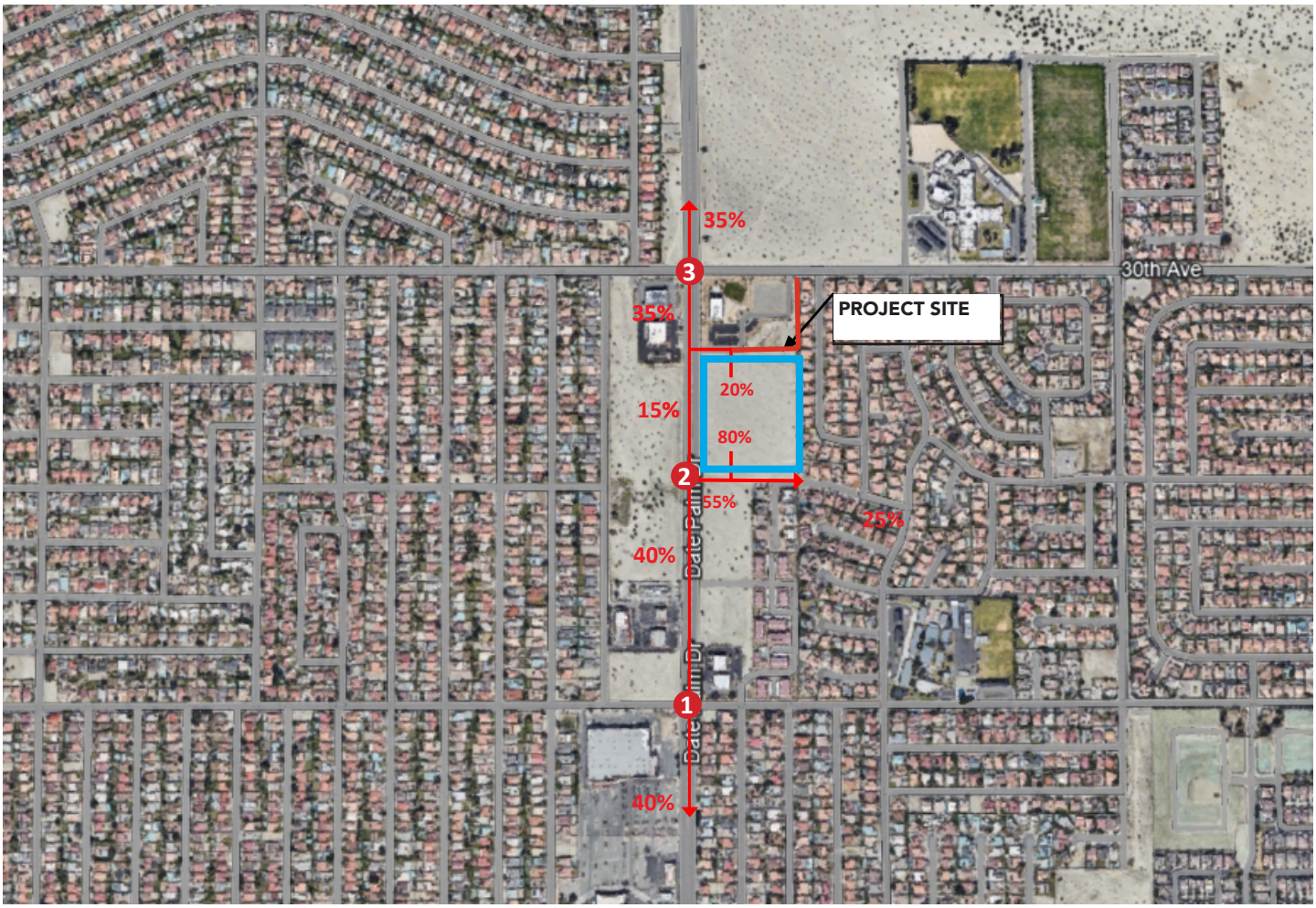
Attachment 1 - Vicinity Map and Project Site Plan


PROJECT SITE
Sky Nursery
Jack in the Box
Varner Rd
Sonny Bono Mem Fwy
N Gene Autry Trail
Palm Springs Gun Club
DoubleTree by Hilton Hotel Golf...
Dairy Queen Grill & Chill
E Vista Chino
Escena Golf Club
Palm Springs Air Museum
Date Palm Dr
30th Ave
Landau Blvd
SUNMOR
Cardenas Markets
In-N-Out Burger
Thousand Palms
Walmart Supercenter
Ramon Rd
Agua Caliente Resort Casino Spa...
DeMuth Park
Big League Dreams Cathedral City
Costco Wholesale
Tahquitz Creek Golf Resort
Planet Fitness
Mission Hills Country Club
Dinah Shore Dr
Walmart Supercenter
CANYON SANDS
ARABY COVE
Trader Joe's
Toyota of the Desert
Gerald Ford Dr
Cathedral City
Sunnylands Center & Gardens
Frank Sinatra Dr
The Ritz-Carlton, Rancho Mirage
Las Casuelas Nuevas
Thunderbird Country Club
Country Club Dr
Monterey Country Club
Audi Rancho Mirage
Rancho Mirage
N



INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

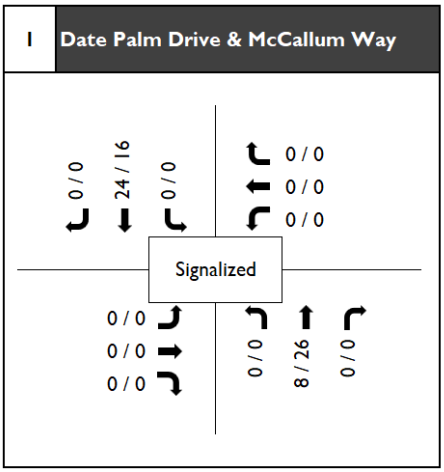
The Wren
Project Site Plan
Attachment 1

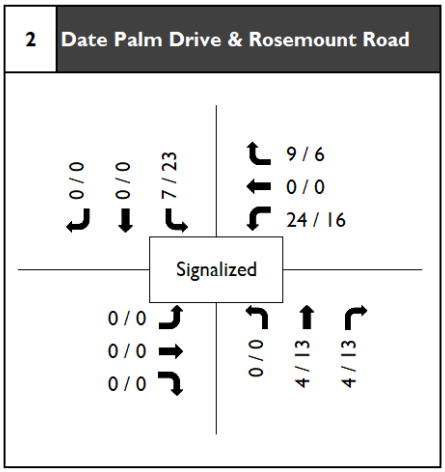


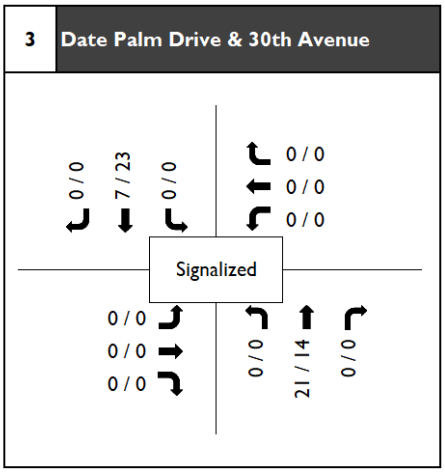
LEGEND # Intersection

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

The Wren
Project Study Area and Trip Distribution
Attachment 2







XX / XX AM / PM Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

The Wren
Project Trip Assignment
Attachment 3

APPENDIX B -

TRAFFIC VOLUME DATA

Tuesday, May 09, 2023 CITY: Cathedral City PROJECT: SC4010

ADT1 Date Palm north of Mccallum. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB			PM Period	NB		SB		
0:00	21		21			12:00	126		128		
0:15	15		19			12:15	151		145		
0:30	21		11			12:30	150		130		
0:45	14	71	13	64	135	12:45	149	576	148	551	1127
1:00	14		6			13:00	173		155		
1:15	21		17			13:15	182		121		
1:30	10		6			13:30	161		157		
1:45	6	51	9	38	89	13:45	174	690	164	597	1287
2:00	16		9			14:00	197		141		
2:15	10		12			14:15	162		163		
2:30	7		7			14:30	165		173		
2:45	7	40	10	38	78	14:45	190	714	207	684	1398
3:00	9		11			15:00	207		165		
3:15	10		6			15:15	204		163		
3:30	10		13			15:30	205		172		
3:45	10	39	16	46	85	15:45	231	847	253	753	1600
4:00	11		6			16:00	280		195		
4:15	15		10			16:15	271		174		
4:30	17		25			16:30	243		184		
4:45	20	63	34	75	138	16:45	220	1014	182	735	1749
5:00	33		30			17:00	265		190		
5:15	33		33			17:15	236		172		
5:30	62		63			17:30	197		151		
5:45	42	170	109	235	405	17:45	204	902	158	671	1573
6:00	59		102			18:00	206		160		
6:15	67		134			18:15	140		125		
6:30	71		143			18:30	183		141		
6:45	86	283	169	548	831	18:45	168	697	135	561	1258
7:00	91		188			19:00	136		126		
7:15	94		169			19:15	151		117		
7:30	126		248			19:30	116		129		
7:45	95	406	288	893	1299	19:45	152	555	135	507	1062
8:00	130		200			20:00	148		120		
8:15	134		266			20:15	137		90		
8:30	167		236			20:30	120		101		
8:45	132	563	240	942	1505	20:45	110	515	73	384	899
9:00	86		155			21:00	117		70		
9:15	125		131			21:15	111		72		
9:30	116		156			21:30	116		62		
9:45	121	448	144	586	1034	21:45	87	431	79	283	714
10:00	104		141			22:00	73		60		
10:15	104		144			22:15	85		48		
10:30	118		139			22:30	63		42		
10:45	109	435	164	588	1023	22:45	62	283	47	197	480
11:00	110		124			23:00	62		32		
11:15	119		157			23:15	39		28		
11:30	152		181			23:30	33		28		
11:45	133	514	158	620	1134	23:45	40	174	30	118	292
Total Vol.		3083		4673	**7756**			7398		6041	**13439**

Daily Totals

NB	SB	**Combined**
10481	10714	**21195**

	AM			**PM**		
Split %	39.7%	60.3%	**36.6%**	55.0%	45.0%	**63.4%**
Peak Hour	8:00	7:30	**7:45**	15:45	15:45	**15:45**
Volume	563	1002	**1516**	1025	806	**1831**
P.H.F.	0.84	0.87	**0.94**	0.94	0.80	**0.95**

Tuesday, May 09, 2023 CITY: Cathedral City PROJECT: SC4010

ADT2 Date Palm south of 30th. **Prepared by AimTD LLC tel. 714 253 7888**

AM Period	NB		SB			PM Period	NB		SB		
0:00	19		24			12:00	130		125		
0:15	16		18			12:15	143		144		
0:30	20		10			12:30	157		133		
0:45	14	69	13	65	134	12:45	152	582	155	557	1139
1:00	14		6			13:00	169		140		
1:15	10		13			13:15	182		135		
1:30	11		6			13:30	159		155		
1:45	6	41	11	36	77	13:45	173	683	151	581	1264
2:00	15		9			14:00	186		151		
2:15	10		11			14:15	167		155		
2:30	7		8			14:30	154		177		
2:45	7	39	10	38	77	14:45	193	700	191	674	1374
3:00	10		11			15:00	200		153		
3:15	9		9			15:15	206		159		
3:30	10		12			15:30	201		193		
3:45	11	40	16	48	88	15:45	260	867	237	742	1609
4:00	10		7			16:00	264		176		
4:15	16		12			16:15	250		187		
4:30	18		24			16:30	243		162		
4:45	19	63	37	80	143	16:45	233	990	181	706	1696
5:00	28		28			17:00	231		182		
5:15	35		34			17:15	250		175		
5:30	65		73			17:30	211		169		
5:45	41	169	108	243	412	17:45	193	885	140	666	1551
6:00	60		98			18:00	212		156		
6:15	69		141			18:15	151		130		
6:30	70		137			18:30	184		147		
6:45	83	282	172	548	830	18:45	176	723	143	576	1299
7:00	93		203			19:00	141		128		
7:15	108		193			19:15	157		119		
7:30	116		236			19:30	115		138		
7:45	112	429	283	915	1344	19:45	155	568	120	505	1073
8:00	121		212			20:00	163		126		
8:15	124		266			20:15	134		91		
8:30	165		237			20:30	124		96		
8:45	136	546	211	926	1472	20:45	110	531	73	386	917
9:00	98		169			21:00	117		65		
9:15	116		125			21:15	116		77		
9:30	121		152			21:30	123		60		
9:45	123	458	139	585	1043	21:45	79	435	73	275	710
10:00	112		147			22:00	81		62		
10:15	121		133			22:15	86		48		
10:30	148		133			22:30	63		44		
10:45	139	520	159	572	1092	22:45	57	287	46	200	487
11:00	113		136			23:00	65		30		
11:15	120		150			23:15	37		27		
11:30	146		171			23:30	38		33		
11:45	137	516	146	603	1119	23:45	40	180	26	116	296
Total Vol.		3172		4659	**7831**			7431		5984	**13415**

Daily Totals

NB	SB	**Combined**
10603	10643	**21246**

	AM			**PM**		
Split %	40.5%	59.5%	**36.9%**	55.4%	44.6%	**63.1%**
Peak Hour	11:45	7:45	**7:45**	15:45	15:30	**15:45**
Volume	567	998	**1520**	1017	793	**1779**
P.H.F.	0.90	0.88	**0.95**	0.97	0.84	**0.89**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, May 9, 23

LOCATION: Cathedral City
NORTH & SOUTH: Date Palm
EAST & WEST: Mccallum

PROJECT #: SC4010
LOCATION #: 1
CONTROL: SIGNAL

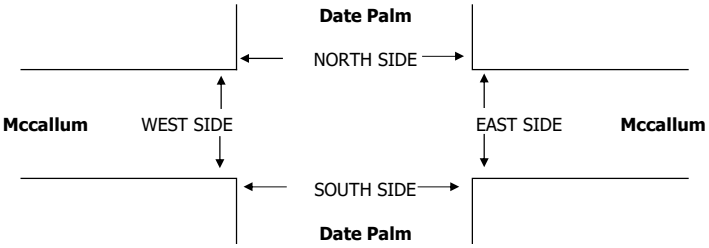
NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

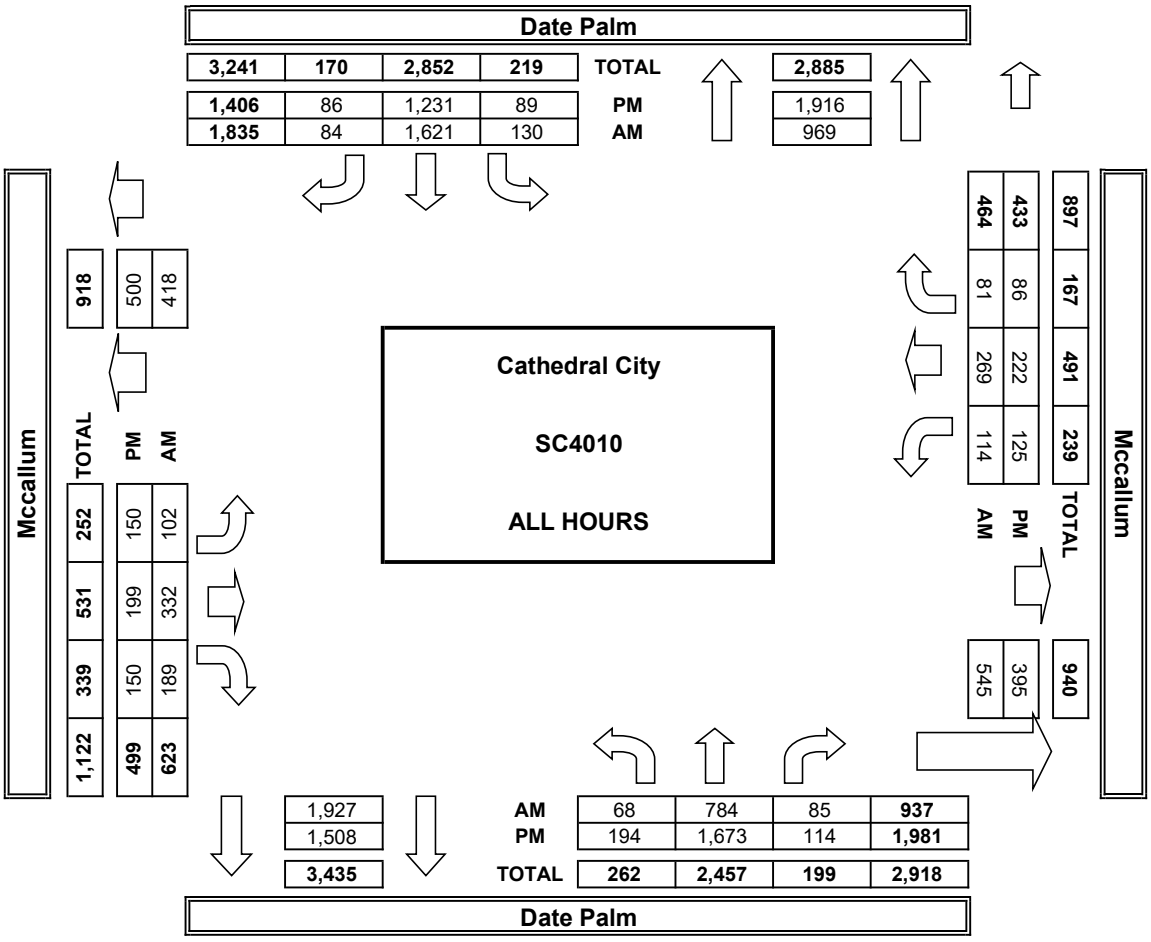
		NORTHBOUND Date Palm			SOUTHBOUND Date Palm			EASTBOUND Mccallum			WESTBOUND Mccallum				U-TURNS				
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	6	71	6	14	163	11	12	29	26	12	17	8	375	0	0	0	0	0
	7:15 AM	3	79	14	6	152	11	8	52	20	16	37	7	405	0	0	0	0	0
	7:30 AM	10	98	10	13	228	7	20	45	34	18	48	8	539	0	0	0	0	0
	7:45 AM	5	73	6	14	264	10	12	15	26	18	50	10	503	2	0	0	0	2
	8:00 AM	7	109	10	22	164	14	12	50	22	11	21	8	450	0	1	0	0	1
	8:15 AM	12	112	12	32	223	11	15	61	23	12	27	6	546	0	1	0	0	1
	8:30 AM	16	136	14	16	208	12	13	65	23	18	34	18	573	1	0	0	0	1
	8:45 AM	9	106	13	13	219	8	10	15	15	9	35	16	468	0	0	0	0	0
	VOLUMES	68	784	85	130	1,621	84	102	332	189	114	269	81	3,859	3	2	0	0	5
	APPROACH %	7%	84%	9%	7%	88%	5%	16%	53%	30%	25%	58%	17%						
	APP/DEPART	937	/	969	1,835	/	1,927	623	/	545	464	/	418	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	40	430	42	84	859	47	52	191	94	59	132	42	2,072					
	APPROACH %	8%	84%	8%	8%	87%	5%	15%	57%	28%	25%	57%	18%						
	PEAK HR FACTOR		0.771			0.859			0.834			0.747		0.904					
	APP/DEPART	512	/	526	990	/	1,015	337	/	315	233	/	216	0					
PM	4:00 PM	17	238	22	13	165	17	22	25	17	28	49	18	631	0	2	0	0	2
	4:15 PM	19	237	14	8	160	6	24	45	18	15	37	10	593	0	0	0	0	0
	4:30 PM	24	219	11	15	155	14	10	19	15	9	20	14	525	1	0	0	0	1
	4:45 PM	23	188	16	13	163	6	26	22	22	18	21	5	523	0	1	0	0	1
	5:00 PM	29	234	14	12	172	6	18	17	16	8	25	12	563	1	1	0	0	2
	5:15 PM	37	212	14	7	145	20	15	26	22	19	32	9	558	0	0	0	0	0
	5:30 PM	19	168	9	9	133	9	19	25	23	13	24	9	460	0	1	0	0	1
	5:45 PM	26	177	14	12	138	8	16	20	17	15	14	9	466	0	2	0	0	2
	VOLUMES	194	1,673	114	89	1,231	86	150	199	150	125	222	86	4,319	2	7	0	0	9
	APPROACH %	10%	84%	6%	6%	88%	6%	30%	40%	30%	29%	51%	20%						
	APP/DEPART	1,981	/	1,916	1,406	/	1,508	499	/	395	433	/	500	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	83	882	63	49	643	43	82	111	72	70	127	47	2,272					
	APPROACH %	8%	86%	6%	7%	87%	6%	31%	42%	27%	29%	52%	19%						
	PEAK HR FACTOR		0.928			0.942			0.761			0.642		0.900					
	APP/DEPART	1,028	/	1,014	735	/	786	265	/	220	244	/	252	0					

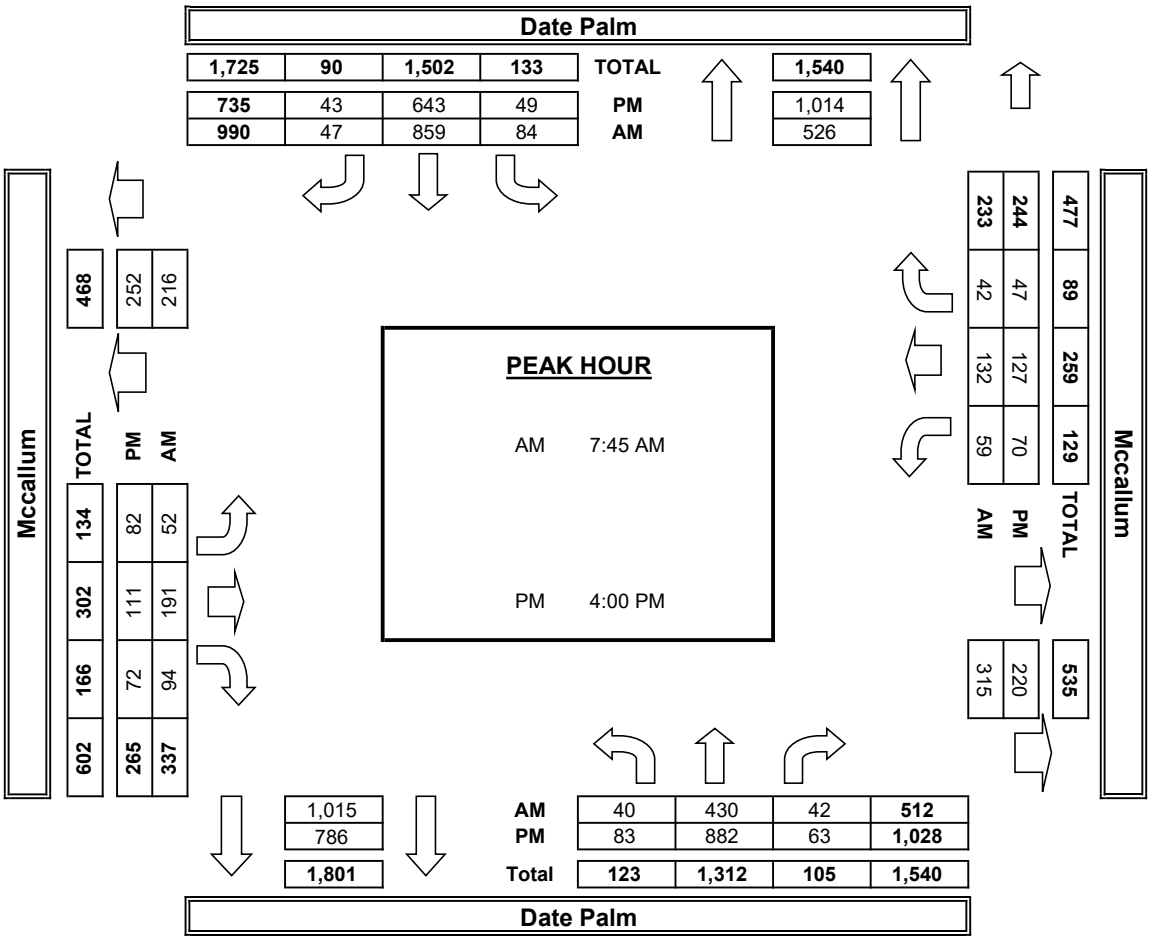


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	1	1	2	0	0	1	0	1	0	0	0	1	1
	7:15 AM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	7:30 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	7:45 AM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0
	8:00 AM	1	1	0	3	5	1	1	0	3	5	0	0	0	0	0
	8:15 AM	0	2	0	3	5	0	1	0	2	3	0	1	0	1	2
	8:30 AM	2	1	1	1	5	1	1	1	1	4	1	0	0	0	1
	8:45 AM	0	3	2	0	5	0	2	2	0	4	0	1	0	0	1
	TOTAL	4	8	5	10	27	3	6	5	8	22	1	2	0	2	5
	AM BEGIN PEAK HR			7:45 AM			2	3	1	8	14					
PM	4:00 PM	1	0	0	2	3	1	0	0	1	2	0	0	0	1	1
	4:15 PM	0	2	1	1	4	0	1	1	1	3	0	1	0	0	1
	4:30 PM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
	4:45 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	2	0	1	3	0	2	0	1	3	0	0	0	0	0
	5:30 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	8	2	5	16	1	7	2	4	14	0	1	0	1	2
	PM BEGIN PEAK HR			4:00 PM			1	3	2	3	9					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, May 9, 23

LOCATION: Cathedral City
NORTH & SOUTH: Date Palm
EAST & WEST: 30th

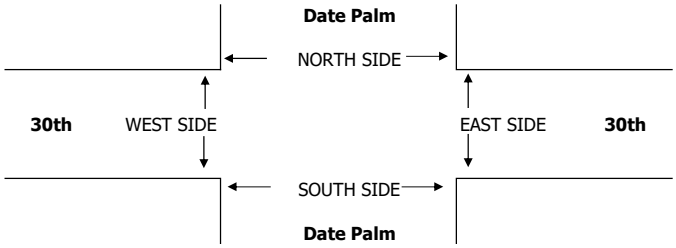
PROJECT #: SC4010
LOCATION #: 3
CONTROL: SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

☑ Add U-Turns to Left Turns

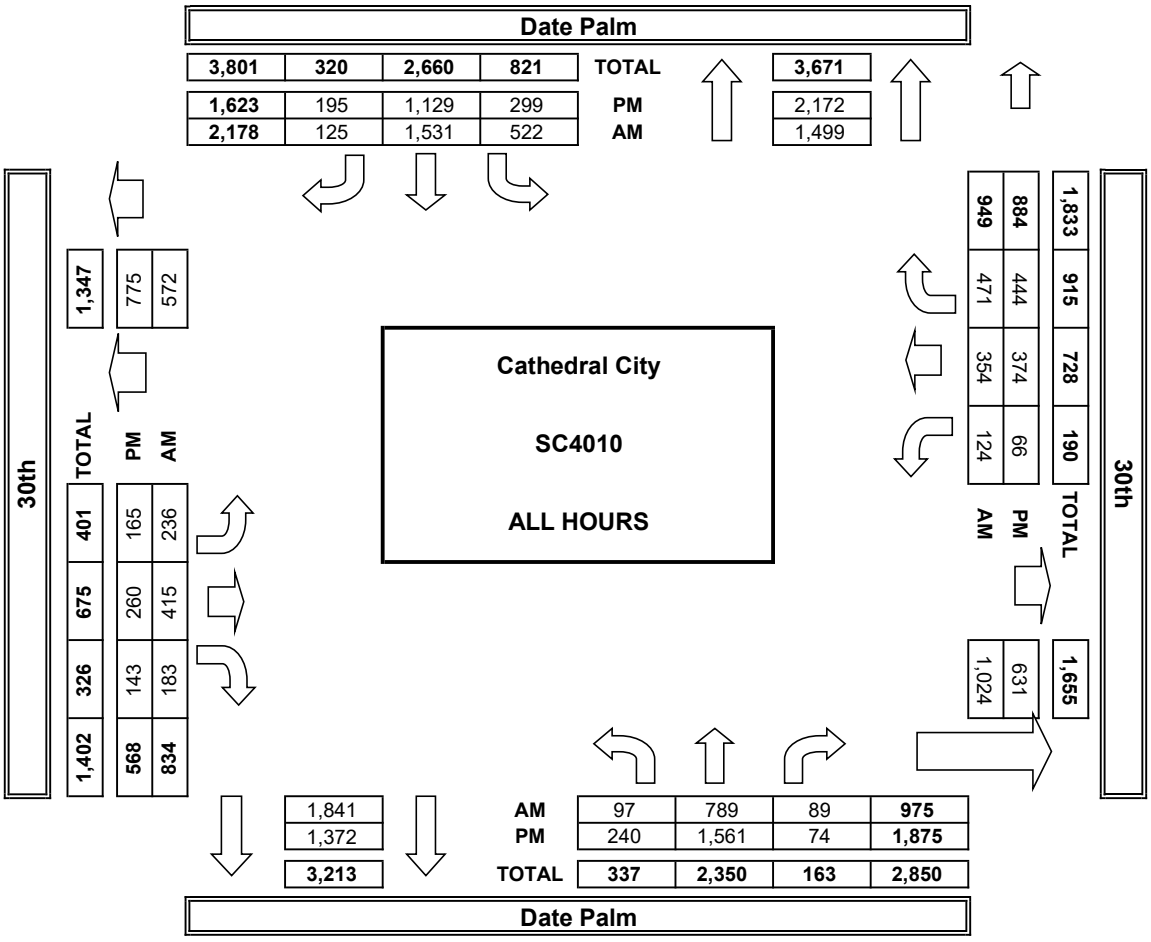
		NORTHBOUND Date Palm			SOUTHBOUND Date Palm			EASTBOUND 30th			WESTBOUND 30th				U-TURNS				
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	6	84	3	51	188	17	31	24	13	3	17	37	474	0	0	0	1	1
	7:15 AM	9	88	11	67	161	19	40	48	29	3	34	68	577	0	0	0	0	0
	7:30 AM	14	87	15	64	193	16	50	72	30	13	37	67	658	0	0	0	0	0
	7:45 AM	15	87	10	52	255	20	33	57	18	10	35	52	644	0	1	0	0	1
	8:00 AM	9	102	10	70	184	17	26	45	15	13	38	56	585	0	2	0	0	2
	8:15 AM	13	96	15	100	205	13	15	70	29	31	68	68	723	1	0	0	0	1
	8:30 AM	15	132	18	78	178	12	19	66	26	31	73	70	718	2	0	0	0	2
	8:45 AM	16	113	7	40	167	11	22	33	23	20	52	53	557	1	0	0	0	1
	VOLUMES	97	789	89	522	1,531	125	236	415	183	124	354	471	4,936	4	3	0	1	8
	APPROACH %	10%	81%	9%	24%	70%	6%	28%	50%	22%	13%	37%	50%						
	APP/DEPART	975	/	1,499	2,178	/	1,841	834	/	1,024	949	/	572	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	52	417	53	300	822	62	93	238	88	85	214	246	2,670					
	APPROACH %	10%	80%	10%	25%	69%	5%	22%	57%	21%	16%	39%	45%						
	PEAK HR FACTOR		0.791			0.905			0.919			0.783		0.923					
	APP/DEPART	522	/	759	1,184	/	998	419	/	588	545	/	325	0					
PM	4:00 PM	50	206	8	46	129	23	21	37	24	16	79	91	730	7	0	0	0	7
	4:15 PM	35	207	8	32	152	24	28	31	22	7	41	61	648	6	0	0	0	6
	4:30 PM	34	198	11	41	131	27	12	32	19	9	56	60	630	3	0	0	0	3
	4:45 PM	28	197	8	35	147	20	22	26	21	9	43	47	603	4	0	0	0	4
	5:00 PM	19	207	5	26	158	26	26	37	14	9	37	54	618	1	0	0	0	1
	5:15 PM	28	211	11	45	154	20	23	28	14	4	45	44	627	3	1	0	0	4
	5:30 PM	21	186	4	34	150	28	17	26	12	4	37	42	561	3	1	0	0	4
	5:45 PM	25	149	19	40	108	27	16	43	17	8	36	45	533	7	0	0	0	7
	VOLUMES	240	1,561	74	299	1,129	195	165	260	143	66	374	444	4,950	34	2	0	0	36
	APPROACH %	13%	83%	4%	18%	70%	12%	29%	46%	25%	7%	42%	50%						
	APP/DEPART	1,875	/	2,172	1,623	/	1,372	568	/	631	884	/	775	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	147	808	35	154	559	94	83	126	86	41	219	259	2,611					
	APPROACH %	15%	82%	4%	19%	69%	12%	28%	43%	29%	8%	42%	50%						
	PEAK HR FACTOR		0.938			0.970			0.899			0.698		0.894					
	APP/DEPART	990	/	1,150	807	/	706	295	/	315	519	/	440	0					

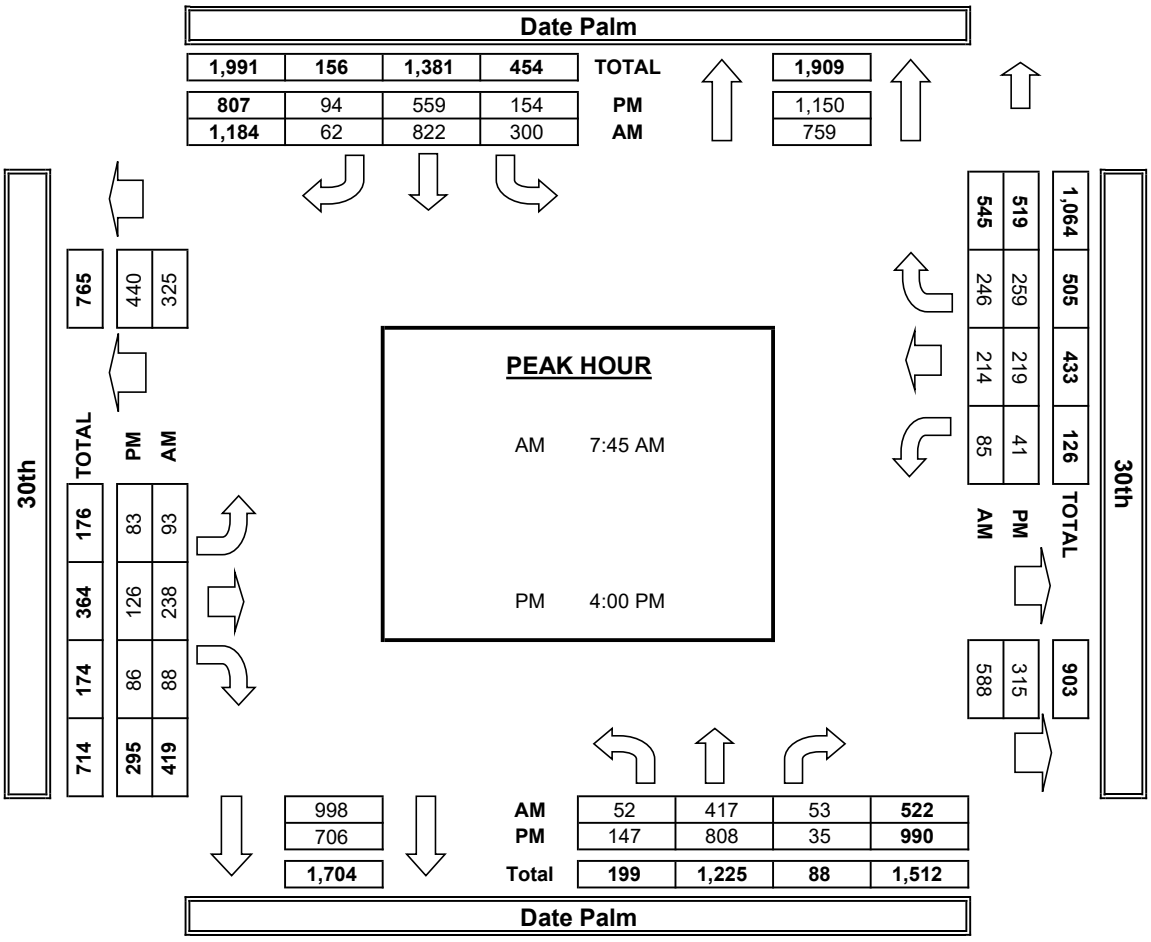


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	6	0	0	6	0	2	0	0	2	0	4	0	0	4
	7:15 AM	5	0	0	1	6	2	0	0	1	3	3	0	0	0	3
	7:30 AM	2	4	0	0	6	0	4	0	0	4	2	0	0	0	2
	7:45 AM	3	2	0	0	5	3	1	0	0	4	0	1	0	0	1
	8:00 AM	2	5	0	0	7	2	3	0	0	5	0	2	0	0	2
	8:15 AM	6	10	2	0	18	3	8	2	0	13	3	2	0	0	5
	8:30 AM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2
	8:45 AM	0	2	0	1	3	0	0	0	0	0	0	2	0	1	3
	TOTAL	18	31	2	2	53	10	18	2	1	31	8	13	0	1	22
	AM BEGIN PEAK HR			7:45 AM			8	12	2	0	22					
PM	4:00 PM	0	2	0	1	3	0	0	0	1	1	0	2	0	0	2
	4:15 PM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
	4:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1
	5:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	5:30 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	2	6	0	3	11	1	3	0	3	7	1	3	0	0	4
	PM BEGIN PEAK HR			4:00 PM			0	1	0	3	4					

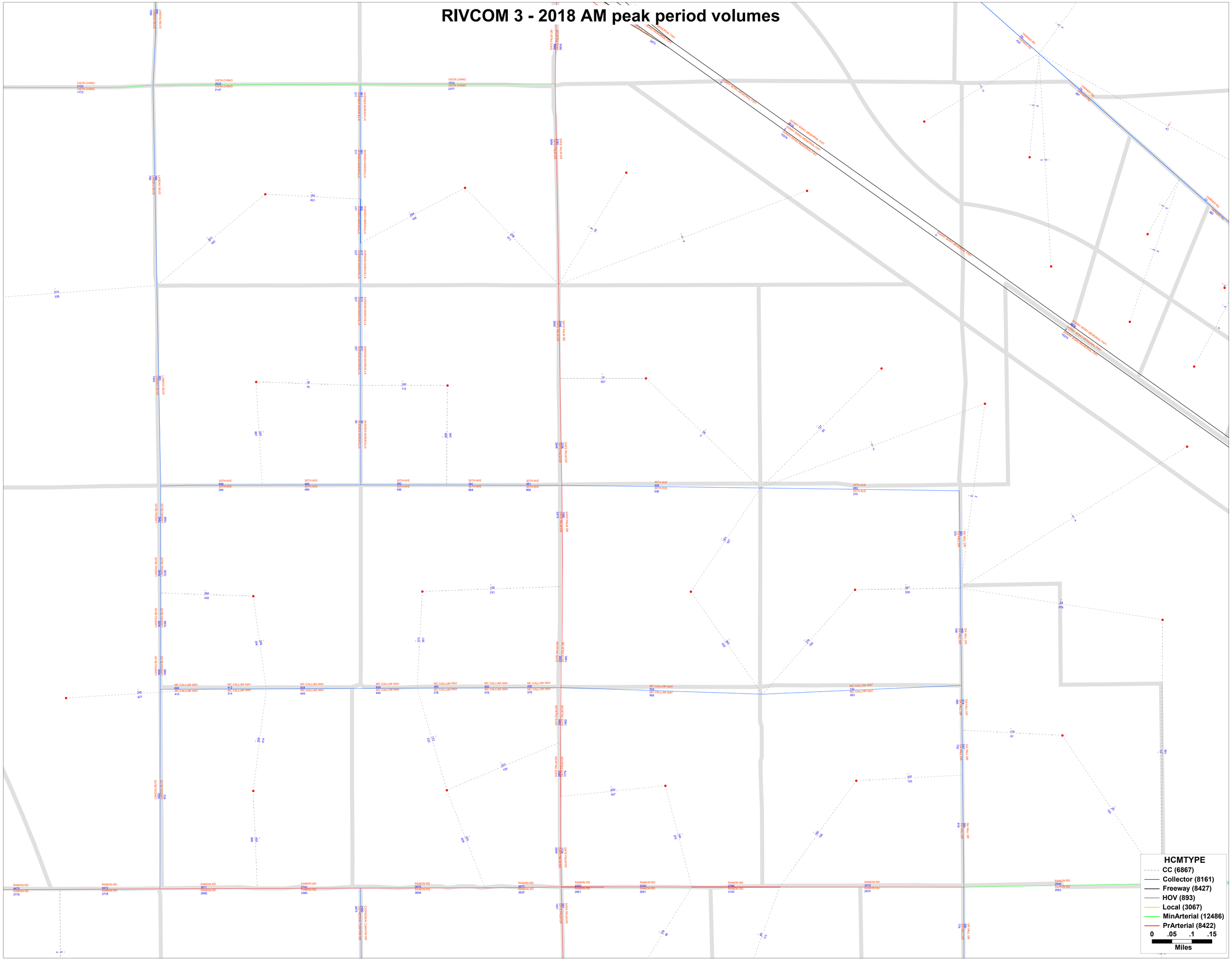
AimTD LLC

TURNING MOVEMENT COUNTS

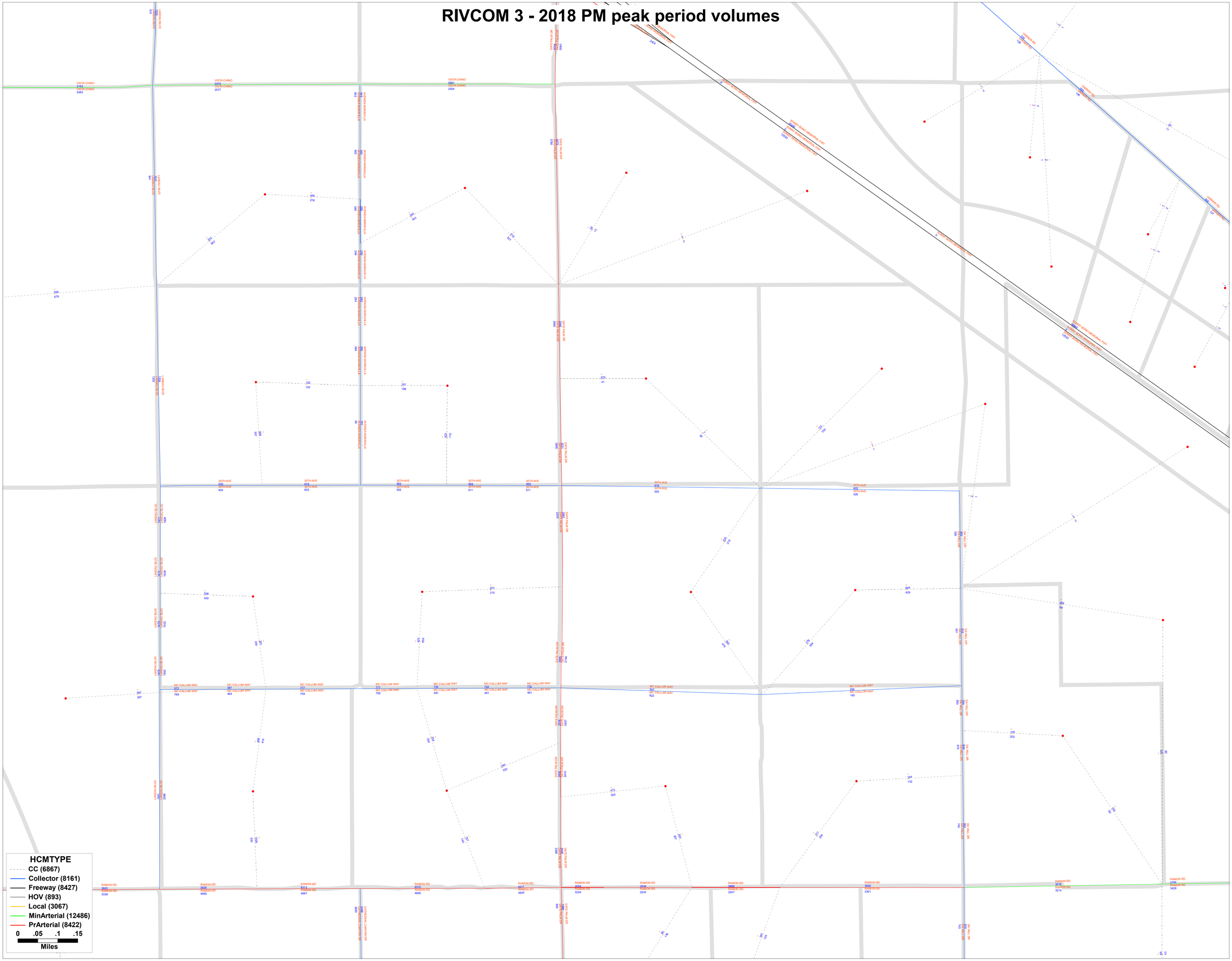




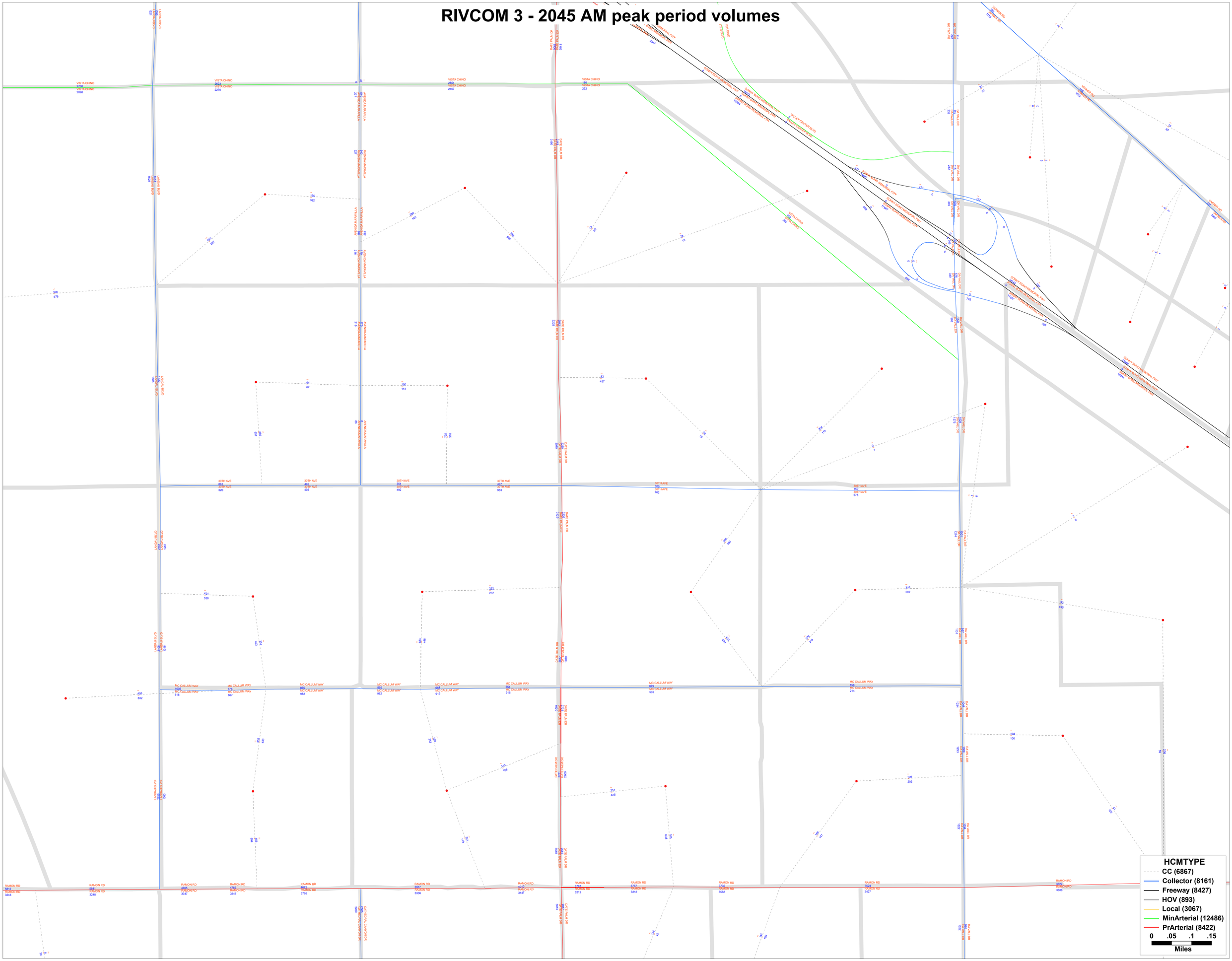
RIVCOM 3 - 2018 AM peak period volumes



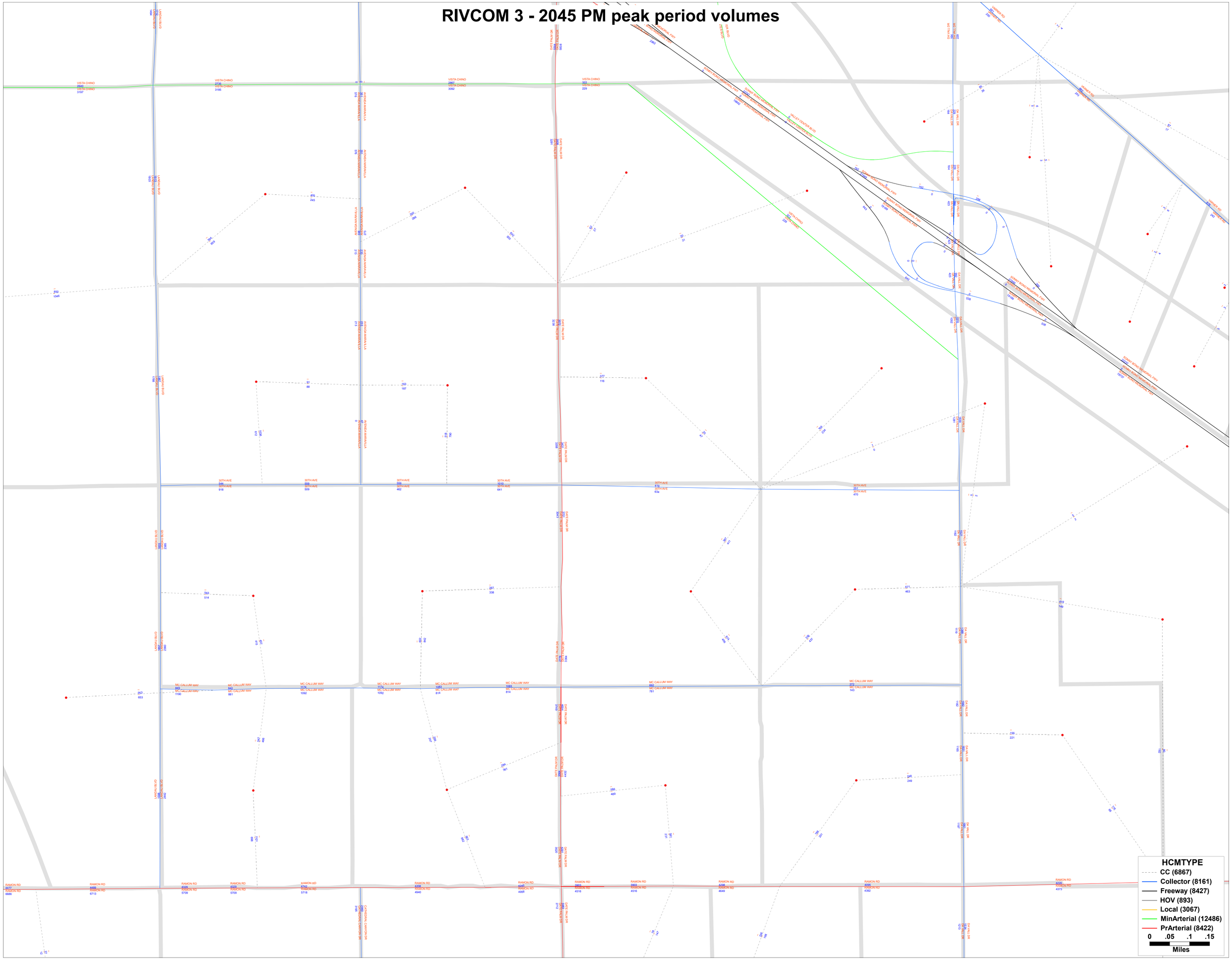
RIVCOM 3 - 2018 PM peak period volumes



RIVCOM 3 - 2045 AM peak period volumes



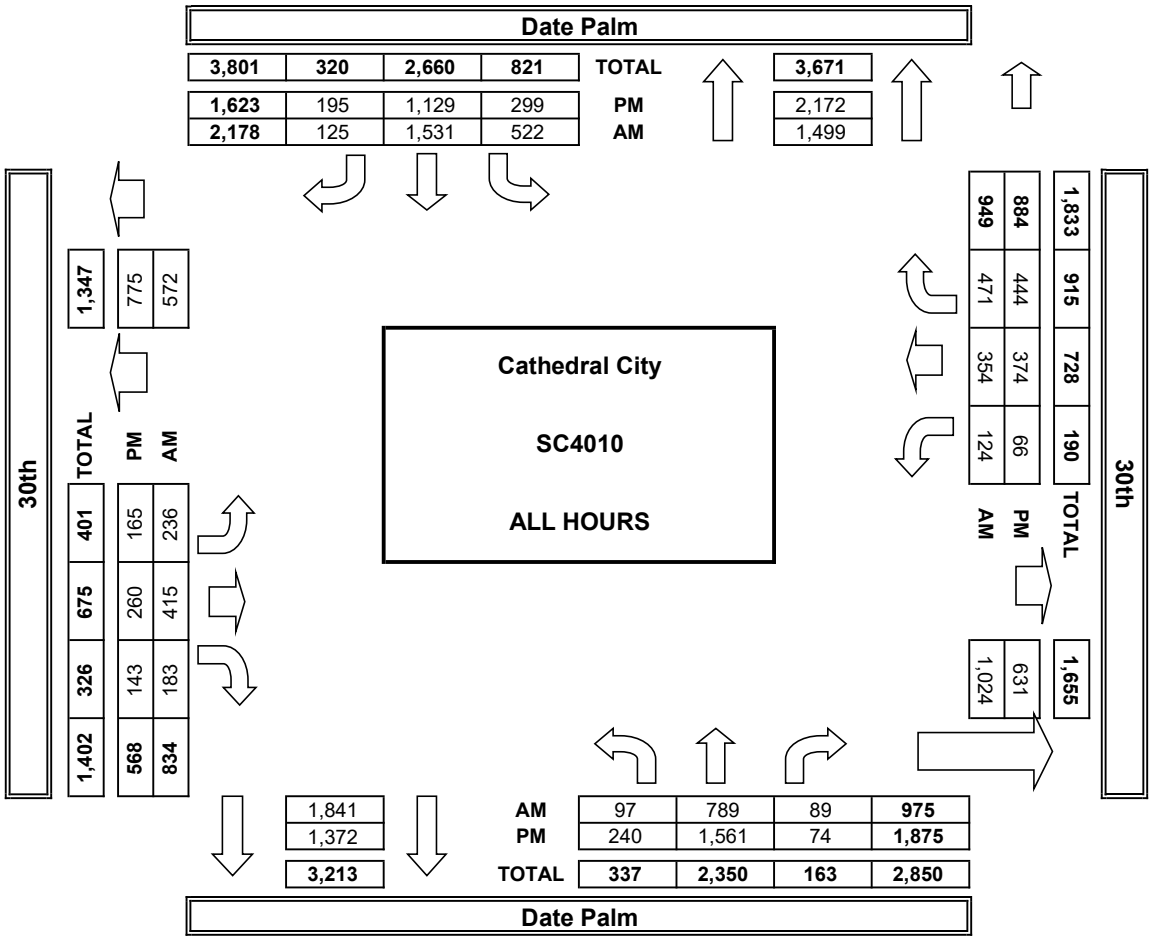
RIVCOM 3 - 2045 PM peak period volumes

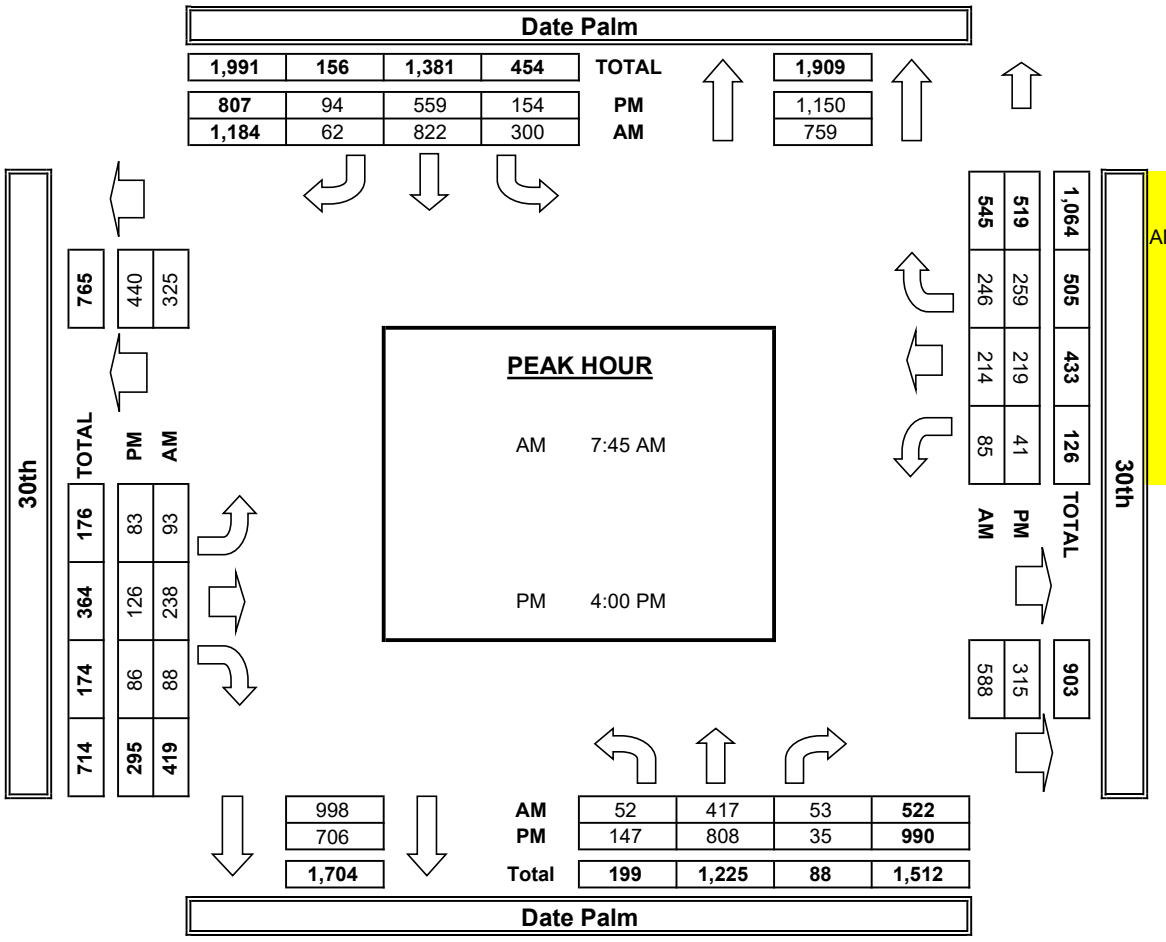


	AM		PM	
	In	Out	In	Out
Model 2018	183	187	226	219
Model 2045	308	350	367	411
Annual Growth	2.88%		2.77%	
Model 2023 Interpolated	209	187	257	219

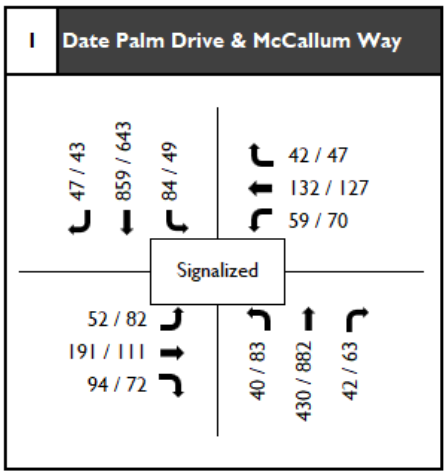
AimTD LLC

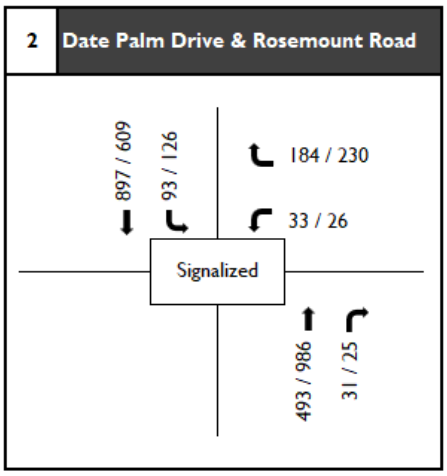
TURNING MOVEMENT COUNTS

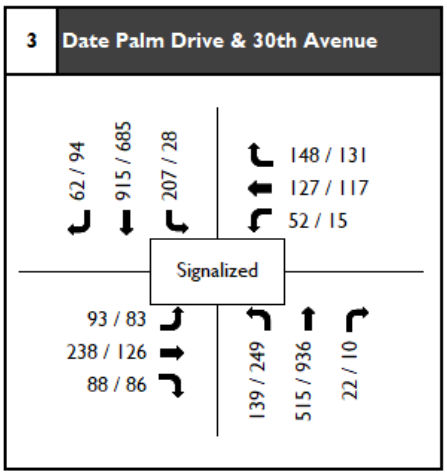




	AM	PM
	45%	50%
	39%	42%
	16%	8%







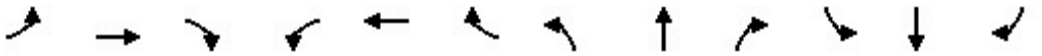
XX / XX AM / PM Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

The Wren
Adjusted Year 2023
AM/PM Peak Hour Intersection Volumes

APPENDIX C -

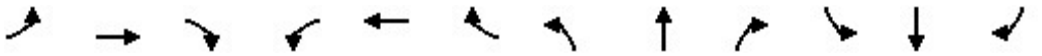
EXISTING CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	191	94	59	132	42	40	430	42	84	859	47
Future Volume (veh/h)	52	191	94	59	132	42	40	430	42	84	859	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	58	212	104	66	147	47	44	478	47	93	954	52
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	456	362	178	356	415	133	87	1374	133	147	1604	87
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.05	0.29	0.29	0.08	0.32	0.32
Sat Flow, veh/h	1187	1178	578	1062	1352	432	1781	4726	458	1781	4946	269
Grp Volume(v), veh/h	58	0	316	66	0	194	44	342	183	93	656	350
Grp Sat Flow(s),veh/h/ln	1187	0	1756	1062	0	1784	1781	1702	1780	1781	1702	1811
Q Serve(g_s), s	1.5	0.0	5.7	2.1	0.0	3.2	0.9	3.0	3.0	1.9	6.1	6.1
Cycle Q Clear(g_c), s	4.7	0.0	5.7	7.8	0.0	3.2	0.9	3.0	3.0	1.9	6.1	6.1
Prop In Lane	1.00		0.33	1.00		0.24	1.00		0.26	1.00		0.15
Lane Grp Cap(c), veh/h	456	0	539	356	0	548	87	990	518	147	1104	587
V/C Ratio(X)	0.13	0.00	0.59	0.19	0.00	0.35	0.50	0.35	0.35	0.63	0.59	0.60
Avail Cap(c_a), veh/h	913	0	1215	765	0	1235	237	1268	663	379	1540	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	11.0	14.3	0.0	10.1	17.4	10.5	10.5	16.7	10.6	10.6
Incr Delay (d2), s/veh	0.1	0.0	1.0	0.2	0.0	0.4	4.4	0.2	0.4	4.4	0.5	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	0.3	0.0	1.9	0.5	0.0	1.1	0.4	0.8	0.8	0.8	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	12.0	14.5	0.0	10.5	21.9	10.7	10.9	21.1	11.1	11.6
LnGrp LOS	B	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		374			260			569			1099	
Approach Delay, s/veh		12.0			11.5			11.6			12.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	14.9		15.5	5.8	16.2		15.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	8.0	14.0		26.0	5.0	17.0		26.0				
Max Q Clear Time (g_c+I1), s	3.9	5.0		7.7	2.9	8.1		9.8				
Green Ext Time (p_c), s	0.1	2.0		2.1	0.0	3.9		1.3				

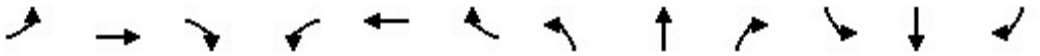
Intersection Summary												
HCM 6th Ctrl Delay			11.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	238	88	85	214	246	52	417	53	300	822	62
Future Volume (veh/h)	93	238	88	85	214	246	52	417	53	300	822	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.99	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	101	259	96	92	233	267	57	453	58	326	893	67
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	502	412	119	492	405	93	807	101	373	1614	121
Arrive On Green	0.07	0.27	0.27	0.07	0.26	0.26	0.05	0.18	0.18	0.21	0.33	0.33
Sat Flow, veh/h	1781	1870	1536	1781	1870	1541	1781	4590	577	1781	4845	362
Grp Volume(v), veh/h	101	259	96	92	233	267	57	334	177	326	627	333
Grp Sat Flow(s),veh/h/ln	1781	1870	1536	1781	1870	1541	1781	1702	1763	1781	1702	1804
Q Serve(g_s), s	3.2	6.7	2.8	2.9	6.0	8.9	1.8	5.1	5.3	10.1	8.6	8.7
Cycle Q Clear(g_c), s	3.2	6.7	2.8	2.9	6.0	8.9	1.8	5.1	5.3	10.1	8.6	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.20
Lane Grp Cap(c), veh/h	129	502	412	119	492	405	93	599	310	373	1134	601
V/C Ratio(X)	0.78	0.52	0.23	0.77	0.47	0.66	0.61	0.56	0.57	0.87	0.55	0.55
Avail Cap(c_a), veh/h	155	849	697	155	849	699	187	1247	646	373	1604	850
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	26.1	17.8	16.4	26.3	17.8	18.8	26.6	21.6	21.6	21.9	15.6	15.6
Incr Delay (d2), s/veh	18.9	0.8	0.3	15.8	0.7	1.8	6.5	0.8	1.7	19.9	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.5	0.9	1.6	2.3	2.8	0.8	1.8	2.0	5.5	2.6	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.1	18.6	16.6	42.1	18.5	20.7	33.1	22.4	23.3	41.8	16.0	16.4
LnGrp LOS	D	B	B	D	B	C	C	C	C	D	B	B
Approach Vol, veh/h		456			592			568			1286	
Approach Delay, s/veh		24.1			23.1			23.7			22.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	14.1	7.8	19.4	7.0	23.1	8.2	19.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	12.0	21.0	5.0	26.0	6.0	27.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	12.1	7.3	4.9	8.7	3.8	10.7	5.2	10.9
Green Ext Time (p_c), s	0.0	2.4	0.0	1.5	0.0	5.0	0.0	1.9

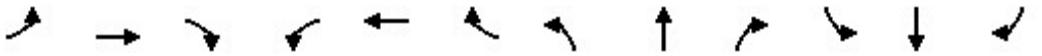
Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	111	72	70	127	47	83	882	63	49	643	43
Future Volume (veh/h)	82	111	72	70	127	47	83	882	63	49	643	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	123	80	78	141	52	92	980	70	54	714	48
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	413	281	183	401	348	128	149	1653	118	103	1533	102
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.08	0.34	0.34	0.06	0.31	0.31
Sat Flow, veh/h	1187	1051	683	1177	1302	480	1781	4863	347	1781	4879	326
Grp Volume(v), veh/h	91	0	203	78	0	193	92	685	365	54	497	265
Grp Sat Flow(s),veh/h/ln	1187	0	1734	1177	0	1782	1781	1702	1806	1781	1702	1801
Q Serve(g_s), s	2.4	0.0	3.5	2.1	0.0	3.2	1.8	6.0	6.0	1.1	4.2	4.2
Cycle Q Clear(g_c), s	5.6	0.0	3.5	5.6	0.0	3.2	1.8	6.0	6.0	1.1	4.2	4.2
Prop In Lane	1.00		0.39	1.00		0.27	1.00		0.19	1.00		0.18
Lane Grp Cap(c), veh/h	413	0	464	401	0	477	149	1157	614	103	1070	566
V/C Ratio(X)	0.22	0.00	0.44	0.19	0.00	0.40	0.62	0.59	0.59	0.52	0.46	0.47
Avail Cap(c_a), veh/h	956	0	1257	940	0	1292	348	1614	856	248	1424	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	10.9	13.2	0.0	10.8	15.9	9.8	9.8	16.4	9.9	9.9
Incr Delay (d2), s/veh	0.3	0.0	0.7	0.2	0.0	0.6	4.1	0.5	0.9	4.0	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.1	0.5	0.0	1.1	0.7	1.4	1.5	0.4	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	11.5	13.5	0.0	11.3	20.0	10.3	10.7	20.4	10.2	10.5
LnGrp LOS	B	A	B	B	A	B	B	B	B	C	B	B
Approach Vol, veh/h		294			271			1142			816	
Approach Delay, s/veh		12.1			12.0			11.2			11.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	16.2		13.6	7.0	15.3		13.6				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	17.0		26.0	7.0	15.0		26.0				
Max Q Clear Time (g_c+I1), s	3.1	8.0		7.6	3.8	6.2		7.6				
Green Ext Time (p_c), s	0.0	4.1		1.5	0.0	2.9		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		11.3	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	126	86	41	219	259	147	808	35	154	559	94
Future Volume (veh/h)	83	126	86	41	219	259	147	808	35	154	559	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	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	140	96	46	243	288	163	898	39	171	621	104
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	123	499	417	82	457	386	205	1375	60	214	1231	203
Arrive On Green	0.07	0.27	0.27	0.05	0.24	0.24	0.12	0.27	0.27	0.12	0.28	0.28
Sat Flow, veh/h	1781	1870	1562	1781	1870	1583	1781	5016	217	1781	4411	728
Grp Volume(v), veh/h	92	140	96	46	243	288	163	609	328	171	477	248
Grp Sat Flow(s),veh/h/ln	1781	1870	1562	1781	1870	1583	1781	1702	1830	1781	1702	1735
Q Serve(g_s), s	2.8	3.2	2.6	1.4	6.2	9.2	4.9	8.6	8.7	5.1	6.4	6.6
Cycle Q Clear(g_c), s	2.8	3.2	2.6	1.4	6.2	9.2	4.9	8.6	8.7	5.1	6.4	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.42
Lane Grp Cap(c), veh/h	123	499	417	82	457	386	205	933	501	214	950	484
V/C Ratio(X)	0.75	0.28	0.23	0.56	0.53	0.75	0.79	0.65	0.65	0.80	0.50	0.51
Avail Cap(c_a), veh/h	163	890	743	163	890	753	228	1308	703	228	1308	666
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	25.0	15.9	15.6	25.5	18.0	19.1	23.6	17.5	17.6	23.4	16.5	16.6
Incr Delay (d2), s/veh	12.6	0.3	0.3	5.9	1.0	2.9	16.0	0.8	1.5	17.0	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.2	0.8	0.7	2.3	3.1	2.7	2.9	3.2	2.8	2.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	16.2	15.9	31.4	18.9	22.0	39.5	18.3	19.0	40.4	16.9	17.4
LnGrp LOS	D	B	B	C	B	C	D	B	B	D	B	B
Approach Vol, veh/h		328			577			1100			896	
Approach Delay, s/veh		22.1			21.4			21.7			21.5	
Approach LOS		C			C			C			C	

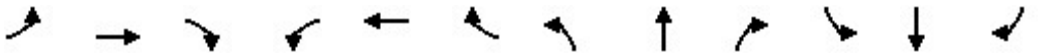
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	19.0	6.5	18.6	10.3	19.3	7.8	17.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	21.0	5.0	26.0	7.0	21.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	7.1	10.7	3.4	5.2	6.9	8.6	4.8	11.2
Green Ext Time (p_c), s	0.0	4.0	0.0	0.9	0.0	3.2	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

APPENDIX D -

PROJECT COMPLETION YEAR 2025 CONDITIONS PEAK HOUR INTERSECTION ANALYSIS

WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	203	100	63	141	45	43	465	45	90	936	50
Future Volume (veh/h)	56	203	100	63	141	45	43	465	45	90	936	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	62	226	111	70	157	50	48	517	50	100	1040	56
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	448	374	184	343	430	137	92	1407	134	150	1630	88
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.05	0.30	0.30	0.08	0.33	0.33
Sat Flow, veh/h	1173	1177	578	1042	1354	431	1781	4734	452	1781	4950	266
Grp Volume(v), veh/h	62	0	337	70	0	207	48	370	197	100	715	381
Grp Sat Flow(s),veh/h/ln	1173	0	1756	1042	0	1785	1781	1702	1782	1781	1702	1812
Q Serve(g_s), s	1.7	0.0	6.5	2.4	0.0	3.6	1.0	3.4	3.5	2.2	7.1	7.1
Cycle Q Clear(g_c), s	5.3	0.0	6.5	8.9	0.0	3.6	1.0	3.4	3.5	2.2	7.1	7.1
Prop In Lane	1.00		0.33	1.00		0.24	1.00		0.25	1.00		0.15
Lane Grp Cap(c), veh/h	448	0	558	343	0	567	92	1011	529	150	1121	597
V/C Ratio(X)	0.14	0.00	0.60	0.20	0.00	0.36	0.52	0.37	0.37	0.67	0.64	0.64
Avail Cap(c_a), veh/h	840	0	1145	691	0	1164	223	1195	626	357	1451	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	11.5	15.2	0.0	10.5	18.4	11.0	11.1	17.7	11.3	11.4
Incr Delay (d2), s/veh	0.1	0.0	1.1	0.3	0.0	0.4	4.5	0.2	0.4	5.1	0.6	1.1
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	0.4	0.0	2.2	0.5	0.0	1.2	0.5	0.9	1.0	0.9	1.8	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	12.5	15.5	0.0	10.9	22.9	11.3	11.5	22.8	12.0	12.5
LnGrp LOS	B	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		399			277			615			1196	
Approach Delay, s/veh		12.6			12.1			12.3			13.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	15.8		16.7	6.1	17.1		16.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	8.0	14.0		26.0	5.0	17.0		26.0				
Max Q Clear Time (g_c+I1), s	4.2	5.5		8.5	3.0	9.1		10.9				
Green Ext Time (p_c), s	0.1	2.1		2.3	0.0	3.9		1.3				

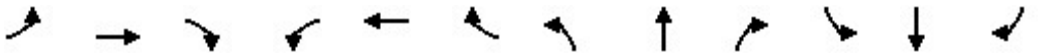
Intersection Summary												
HCM 6th Ctrl Delay			12.7									
HCM 6th LOS			B									



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	205	528	37	106	952
Future Volume (veh/h)	60	205	528	37	106	952
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	65	223	574	40	115	1035
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	382	340	1344	93	184	2627
Arrive On Green	0.21	0.21	0.28	0.28	0.10	0.51
Sat Flow, veh/h	1781	1585	5045	337	1781	5274
Grp Volume(v), veh/h	65	223	399	215	115	1035
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1810	1781	1702
Q Serve(g_s), s	0.9	3.8	2.8	2.9	1.8	3.6
Cycle Q Clear(g_c), s	0.9	3.8	2.8	2.9	1.8	3.6
Prop In Lane	1.00	1.00		0.19	1.00	
Lane Grp Cap(c), veh/h	382	340	938	499	184	2627
V/C Ratio(X)	0.17	0.66	0.43	0.43	0.62	0.39
Avail Cap(c_a), veh/h	1267	1127	2075	1103	543	5360
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	9.5	10.6	8.8	8.8	12.7	4.4
Incr Delay (d2), s/veh	0.2	2.1	0.3	0.6	3.4	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	0.3	1.1	0.7	0.8	0.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.7	12.7	9.1	9.4	16.1	4.5
LnGrp LOS	A	B	A	A	B	A
Approach Vol, veh/h	288		614			1150
Approach Delay, s/veh	12.0		9.2			5.6
Approach LOS	B		A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.1	12.1			19.2	10.3
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0
Max Green Setting (Gmax), s	9.0	18.0			31.0	21.0
Max Q Clear Time (g_c+I1), s	3.8	4.9			5.6	5.8
Green Ext Time (p_c), s	0.1	3.3			8.2	0.8

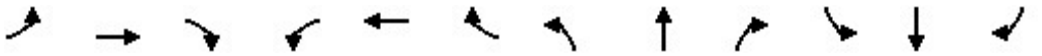
Intersection Summary	
HCM 6th Ctrl Delay	7.6
HCM 6th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	253	94	56	135	158	148	568	24	220	978	66
Future Volume (veh/h)	99	253	94	56	135	158	148	568	24	220	978	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	108	275	102	61	147	172	161	617	26	239	1063	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	449	368	97	405	333	205	1316	55	290	1512	102
Arrive On Green	0.08	0.24	0.24	0.05	0.22	0.22	0.12	0.26	0.26	0.16	0.31	0.31
Sat Flow, veh/h	1781	1870	1533	1781	1870	1535	1781	5025	211	1781	4883	330
Grp Volume(v), veh/h	108	275	102	61	147	172	161	417	226	239	741	394
Grp Sat Flow(s),veh/h/ln	1781	1870	1533	1781	1870	1535	1781	1702	1831	1781	1702	1810
Q Serve(g_s), s	3.4	7.5	3.1	1.9	3.8	5.6	5.0	5.9	5.9	7.4	10.9	11.0
Cycle Q Clear(g_c), s	3.4	7.5	3.1	1.9	3.8	5.6	5.0	5.9	5.9	7.4	10.9	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.18
Lane Grp Cap(c), veh/h	138	449	368	97	405	333	205	891	480	290	1054	560
V/C Ratio(X)	0.78	0.61	0.28	0.63	0.36	0.52	0.79	0.47	0.47	0.82	0.70	0.70
Avail Cap(c_a), veh/h	156	854	700	156	854	701	313	1315	707	344	1374	731
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	25.8	19.3	17.6	26.4	19.0	19.7	24.5	17.7	17.7	23.0	17.3	17.4
Incr Delay (d2), s/veh	20.0	1.4	0.4	6.6	0.5	1.2	7.1	0.4	0.7	13.0	1.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.9	1.0	0.9	1.5	1.8	2.3	2.0	2.2	3.6	3.4	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	20.6	18.0	33.0	19.5	20.9	31.7	18.1	18.4	36.0	18.5	19.4
LnGrp LOS	D	C	B	C	B	C	C	B	B	D	B	B
Approach Vol, veh/h		485			380			804			1374	
Approach Delay, s/veh		25.7			22.3			20.9			21.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.3	18.9	7.1	17.7	10.6	21.6	8.4	16.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	11.0	22.0	5.0	26.0	10.0	23.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	9.4	7.9	3.9	9.5	7.0	13.0	5.4	7.6
Green Ext Time (p_c), s	0.1	3.2	0.0	1.6	0.1	4.6	0.0	1.2

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	118	77	75	135	50	89	962	67	52	699	46
Future Volume (veh/h)	87	118	77	75	135	50	89	962	67	52	699	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	97	131	86	83	150	56	99	1069	74	58	777	51
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	403	289	190	390	358	134	152	1691	117	107	1572	103
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.09	0.35	0.35	0.06	0.32	0.32
Sat Flow, veh/h	1174	1047	687	1162	1297	484	1781	4875	337	1781	4888	319
Grp Volume(v), veh/h	97	0	217	83	0	206	99	746	397	58	540	288
Grp Sat Flow(s),veh/h/ln	1174	0	1734	1162	0	1781	1781	1702	1808	1781	1702	1803
Q Serve(g_s), s	2.8	0.0	3.9	2.4	0.0	3.6	2.0	6.9	7.0	1.2	4.8	4.9
Cycle Q Clear(g_c), s	6.4	0.0	3.9	6.3	0.0	3.6	2.0	6.9	7.0	1.2	4.8	4.9
Prop In Lane	1.00		0.40	1.00		0.27	1.00		0.19	1.00		0.18
Lane Grp Cap(c), veh/h	403	0	478	390	0	492	152	1181	627	107	1095	580
V/C Ratio(X)	0.24	0.00	0.45	0.21	0.00	0.42	0.65	0.63	0.63	0.54	0.49	0.50
Avail Cap(c_a), veh/h	885	0	1190	868	0	1223	329	1528	812	235	1348	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	11.3	14.0	0.0	11.2	16.8	10.3	10.4	17.3	10.4	10.4
Incr Delay (d2), s/veh	0.3	0.0	0.7	0.3	0.0	0.6	4.6	0.6	1.1	4.2	0.3	0.7
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	0.7	0.0	1.3	0.6	0.0	1.2	0.8	1.7	1.9	0.5	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	12.0	14.2	0.0	11.8	21.4	10.9	11.4	21.4	10.7	11.0
LnGrp LOS	B	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		314			289			1242			886	
Approach Delay, s/veh		12.7			12.5			11.9			11.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	17.1		14.5	7.2	16.2		14.5				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	17.0		26.0	7.0	15.0		26.0				
Max Q Clear Time (g_c+I1), s	3.2	9.0		8.4	4.0	6.9		8.3				
Green Ext Time (p_c), s	0.0	4.1		1.6	0.0	3.1		1.4				

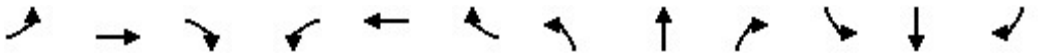
Intersection Summary												
HCM 6th Ctrl Delay			11.9									
HCM 6th LOS			B									



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	44	251	1060	40	157	647
Future Volume (veh/h)	44	251	1060	40	157	647
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	48	273	1152	43	171	703
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	401	357	1798	67	221	2953
Arrive On Green	0.23	0.23	0.36	0.36	0.12	0.58
Sat Flow, veh/h	1781	1585	5220	188	1781	5274
Grp Volume(v), veh/h	48	273	776	419	171	703
Grp Sat Flow(s),veh/h/ln	1781	1585	1702	1836	1781	1702
Q Serve(g_s), s	0.9	6.6	7.7	7.8	3.8	2.7
Cycle Q Clear(g_c), s	0.9	6.6	7.7	7.8	3.8	2.7
Prop In Lane	1.00	1.00		0.10	1.00	
Lane Grp Cap(c), veh/h	401	357	1211	653	221	2953
V/C Ratio(X)	0.12	0.76	0.64	0.64	0.77	0.24
Avail Cap(c_a), veh/h	918	817	1504	811	394	3885
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	12.6	14.8	10.9	11.0	17.3	4.2
Incr Delay (d2), s/veh	0.1	3.4	0.6	1.2	5.6	0.0
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	2.3	2.3	2.6	1.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.7	18.2	11.6	12.1	22.9	4.2
LnGrp LOS	B	B	B	B	C	A
Approach Vol, veh/h	321		1195			874
Approach Delay, s/veh	17.4		11.8			7.9
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.1	18.5			27.6	13.2
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0
Max Green Setting (Gmax), s	9.0	18.0			31.0	21.0
Max Q Clear Time (g_c+I1), s	5.8	9.8			4.7	8.6
Green Ext Time (p_c), s	0.1	4.7			5.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B



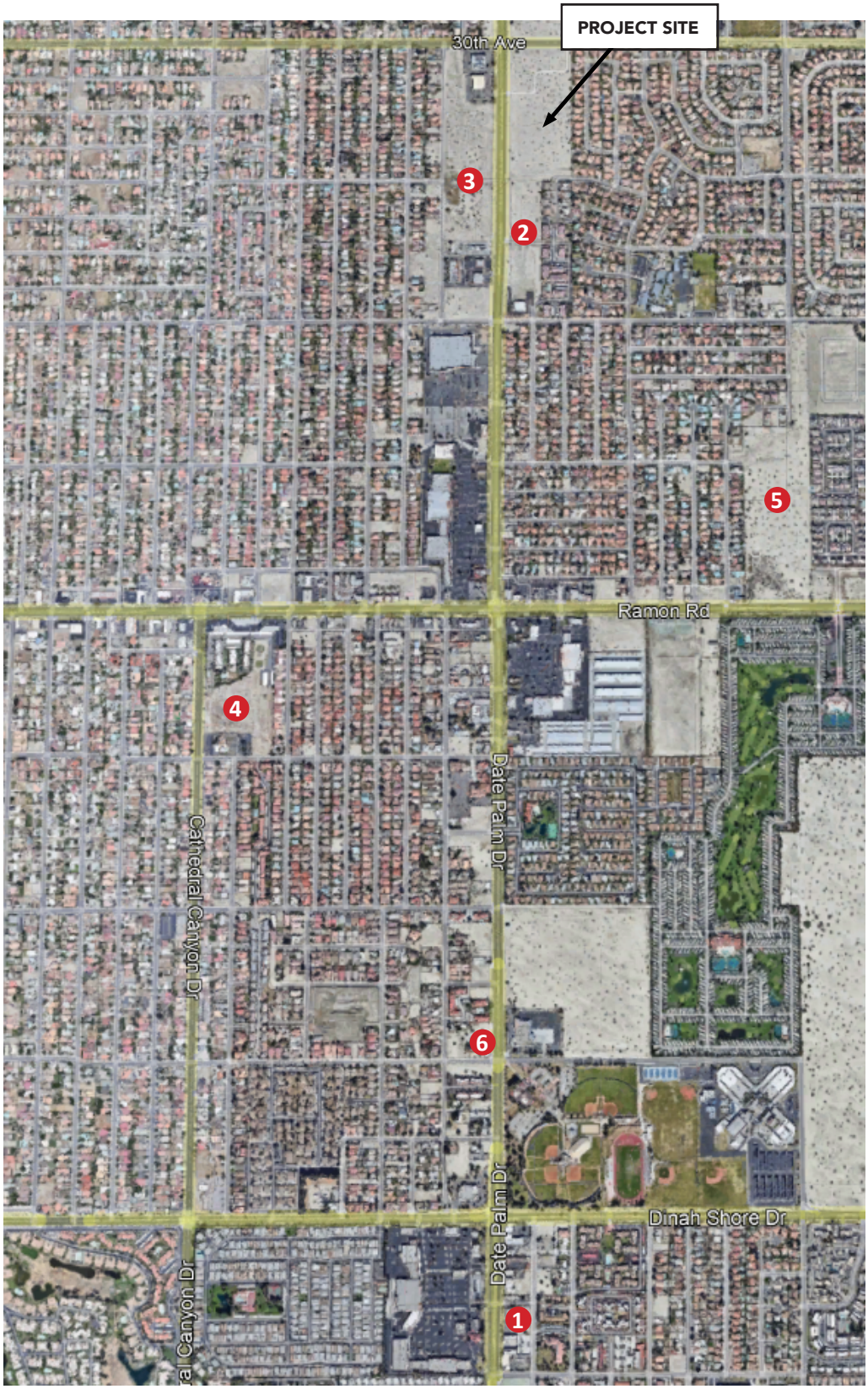
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	134	92	16	125	139	265	1008	11	30	750	100
Future Volume (veh/h)	89	134	92	16	125	139	265	1008	11	30	750	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		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	99	149	102	18	139	154	294	1120	12	33	833	111
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	128	382	318	39	288	243	350	2282	24	65	1267	168
Arrive On Green	0.07	0.20	0.20	0.02	0.15	0.15	0.20	0.44	0.44	0.04	0.28	0.28
Sat Flow, veh/h	1781	1870	1560	1781	1870	1582	1781	5208	56	1781	4558	604
Grp Volume(v), veh/h	99	149	102	18	139	154	294	732	400	33	621	323
Grp Sat Flow(s),veh/h/ln	1781	1870	1560	1781	1870	1582	1781	1702	1860	1781	1702	1758
Q Serve(g_s), s	2.9	3.7	3.0	0.5	3.6	4.9	8.5	8.2	8.2	1.0	8.6	8.7
Cycle Q Clear(g_c), s	2.9	3.7	3.0	0.5	3.6	4.9	8.5	8.2	8.2	1.0	8.6	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.03	1.00		0.34
Lane Grp Cap(c), veh/h	128	382	318	39	288	243	350	1492	815	65	946	489
V/C Ratio(X)	0.77	0.39	0.32	0.46	0.48	0.63	0.84	0.49	0.49	0.51	0.66	0.66
Avail Cap(c_a), veh/h	167	911	760	167	911	770	400	1785	975	167	1339	691
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	24.3	18.4	18.1	25.8	20.6	21.2	20.6	10.7	10.7	25.3	17.0	17.1
Incr Delay (d2), s/veh	15.0	0.7	0.6	8.2	1.3	2.7	13.3	0.3	0.5	6.1	0.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.4	0.9	0.3	1.5	1.7	4.2	2.3	2.5	0.5	2.6	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	19.0	18.7	34.0	21.9	23.9	34.0	11.0	11.2	31.4	17.8	18.6
LnGrp LOS	D	B	B	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		350			311			1426			977	
Approach Delay, s/veh		24.7			23.6			15.8			18.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	27.4	5.2	14.9	14.5	18.8	7.8	12.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	28.0	5.0	26.0	12.0	21.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	3.0	10.2	2.5	5.7	10.5	10.7	4.9	6.9
Green Ext Time (p_c), s	0.0	6.6	0.0	1.0	0.1	3.9	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

APPENDIX E -

CUMULATIVE PROJECT TRIP DISTRIBUTION/ASSIGNMENT



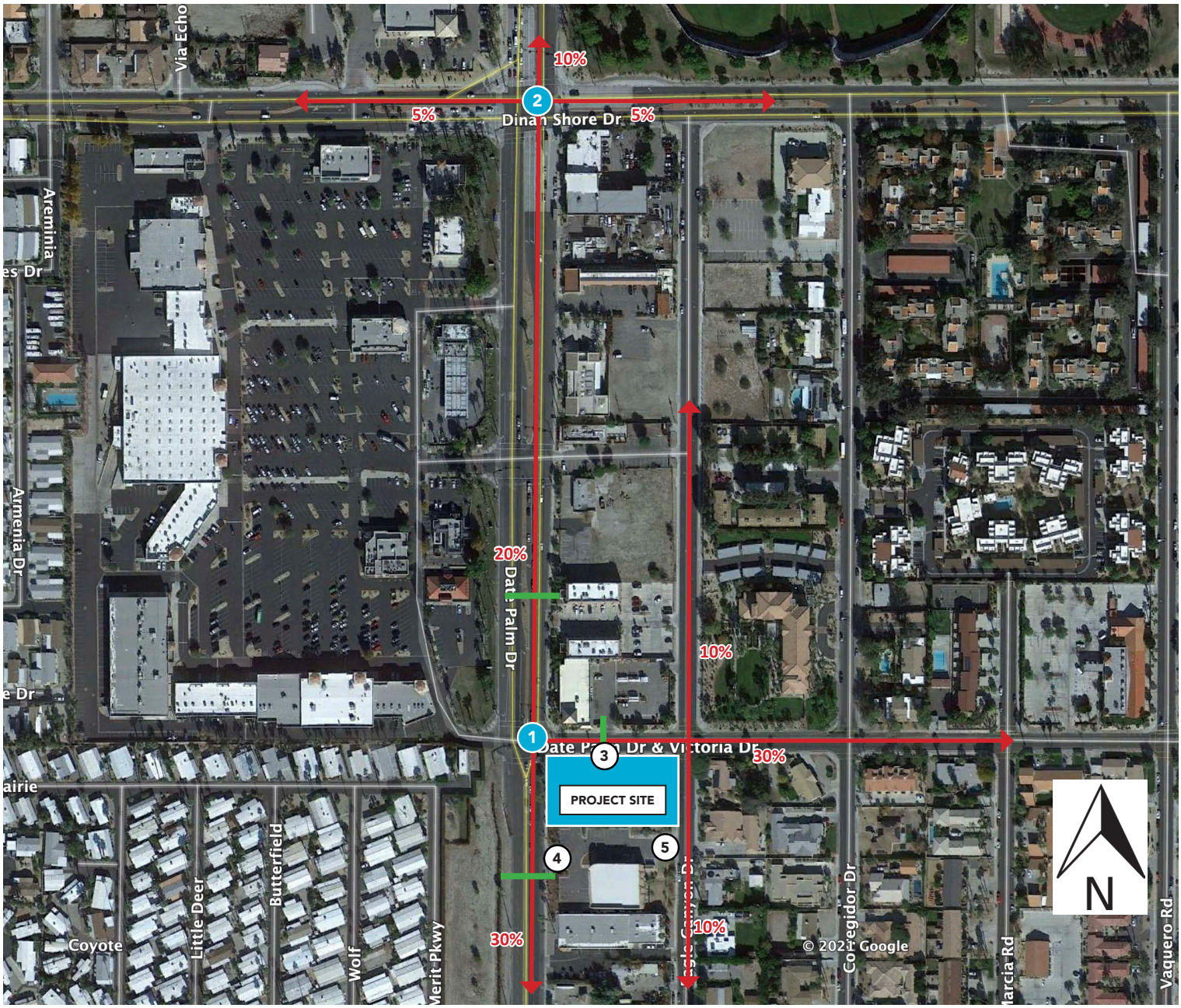
LEGEND **#** **Cumulative Project**

7 See Cathedral Cove Center TA Excerpts below

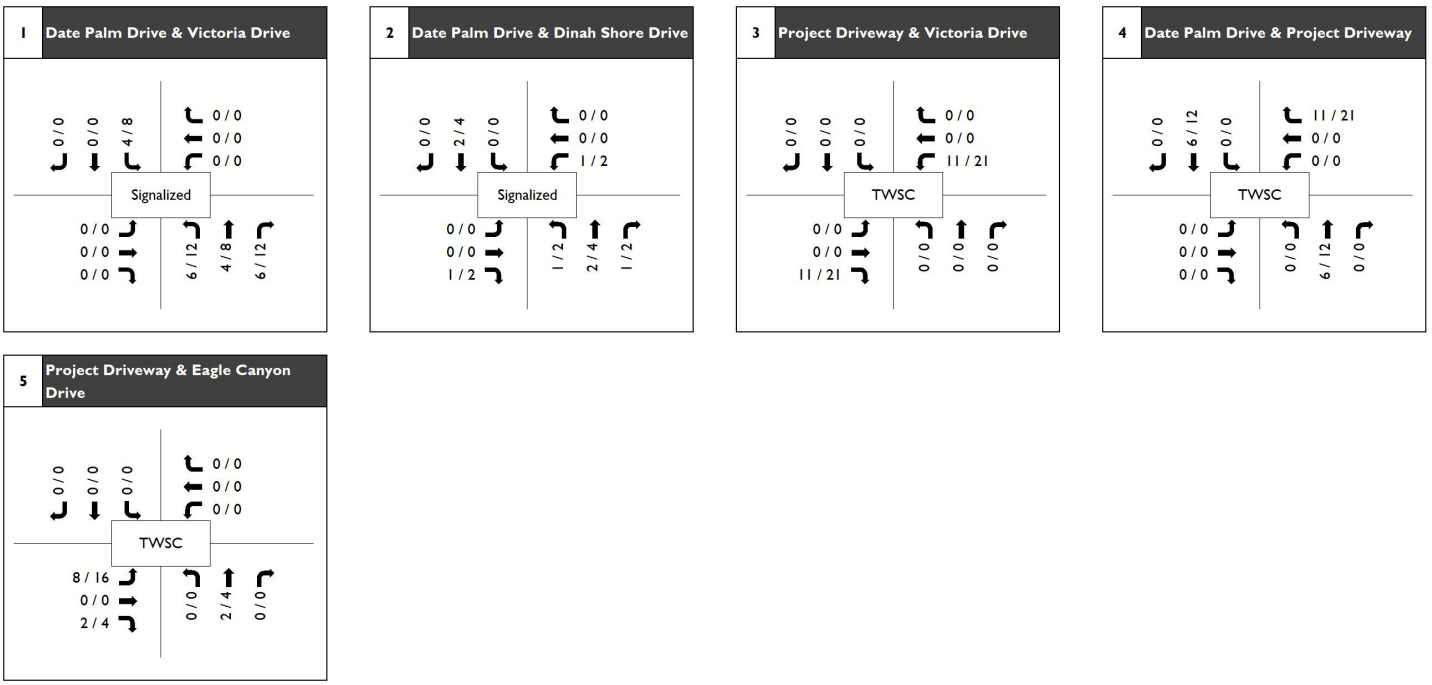
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TRANSPORTATION PLANNING AND ENGINEERING

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Cumulative Project Locations



LEGEND # Intersection ◯ Project Driveway ▬ Roadway Segment



LEGEND

(AM/PM) Peak Hour Volumes

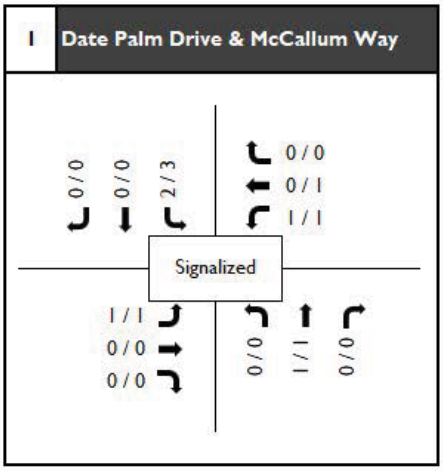


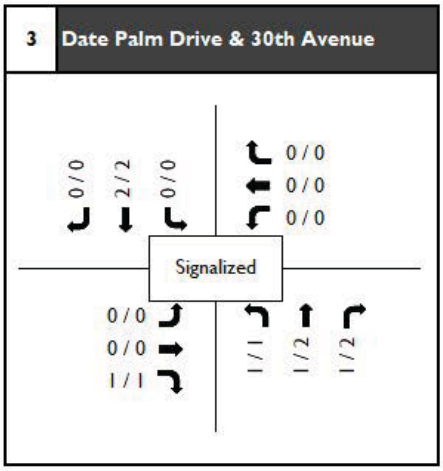
LEGEND Intersection Driveway

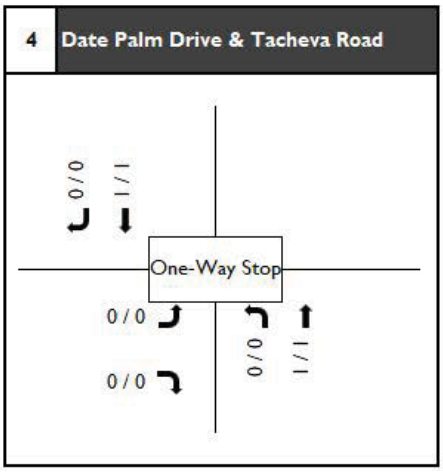
INTEGRATED ENGINEERING GROUP
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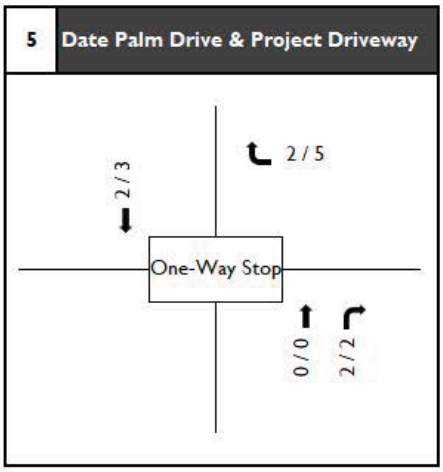
Date Palm Drive Mixed Use - Study Area and Trip Distribution (Phase 1 Only)

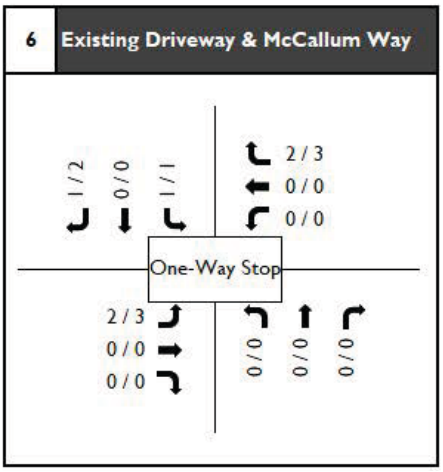
Figure 1-2a









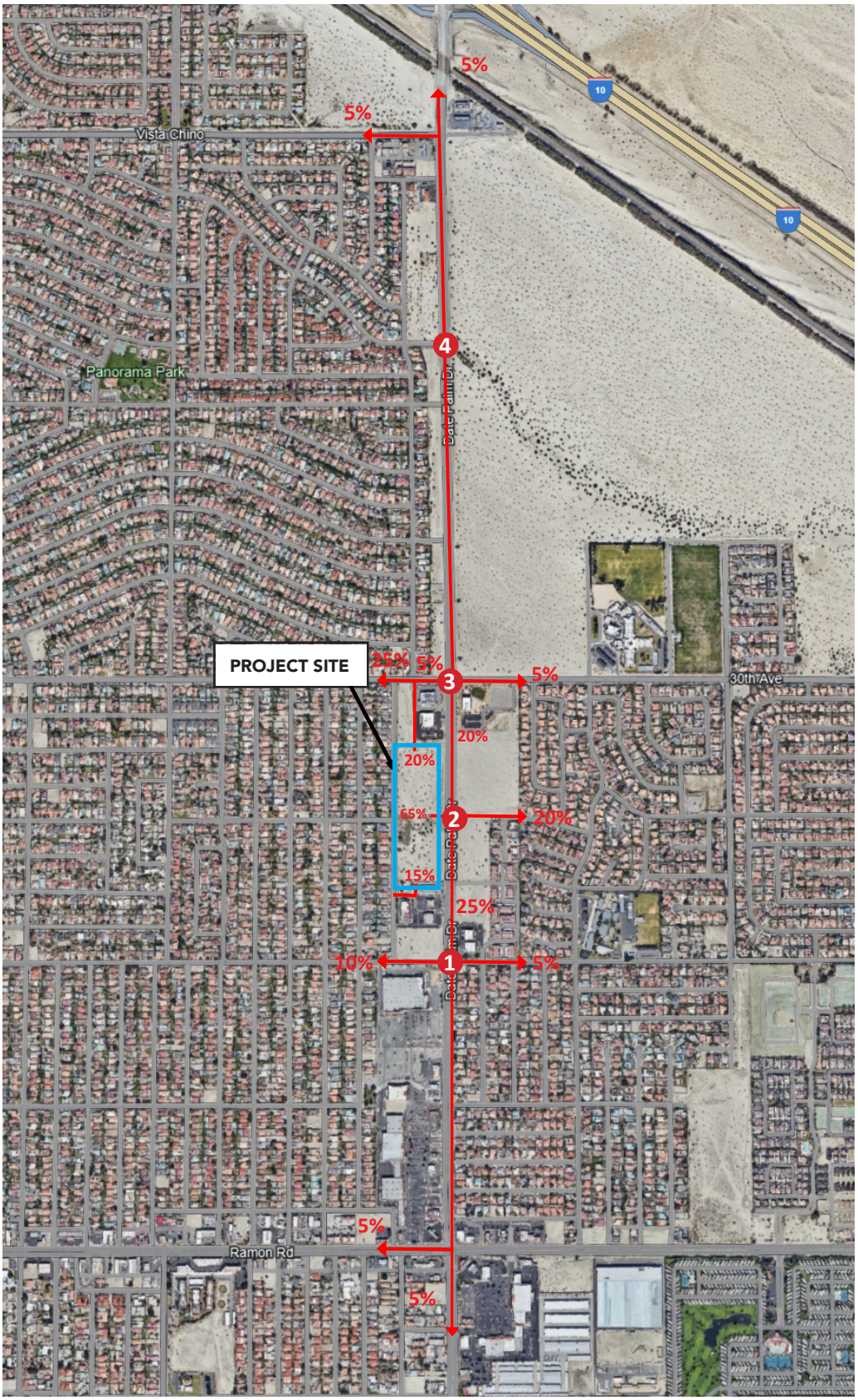


Roadway Segment	Phase 1 ADT
Total ADT	167
Date Palm Drive	
McCallum Way to Project Driveway	71
Project Driveway to 30th Avenue	84
30th Avenue to Tachevah Drive	33

XX / XX AM / PM Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

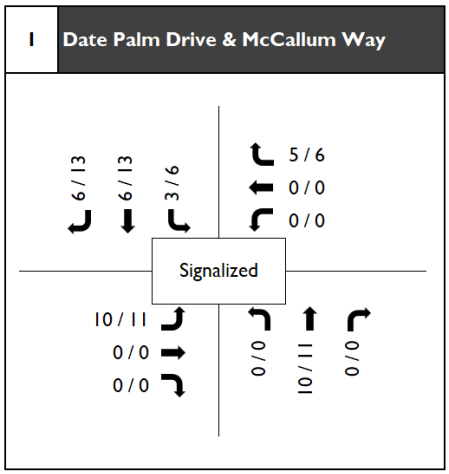
Date Palm Drive Mixed Use
Scenarios 1 & 2 Phase 1 Volumes
Figure 1-3a

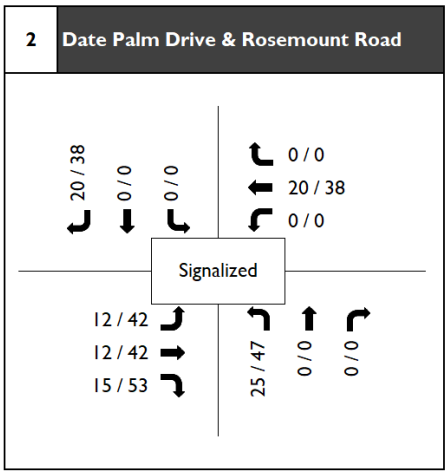


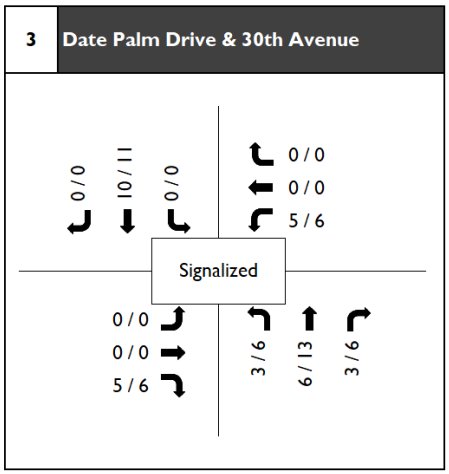
LEGEND # Intersection

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TRANSPORTATION PLANNING AND ENGINEERING

Vallarta Shopping Center
Trip Assignment







XX / XX AM / PM Peak Hour Volumes

INTEGRATED ENGINEERING GROUP
TRANSPORTATION PLANNING AND ENGINEERING

Vallarta Shopping Center (Phase I)
Trip Assignment

Exhibit 4-2 shows the forecast trip percent distribution of the proposed project within the study area and the trip assignment percentages for each intersection movement.

EXHIBIT 4-2: PROJECT TRAFFIC DISTRIBUTION AND ASSIGNMENT PERCENTAGES

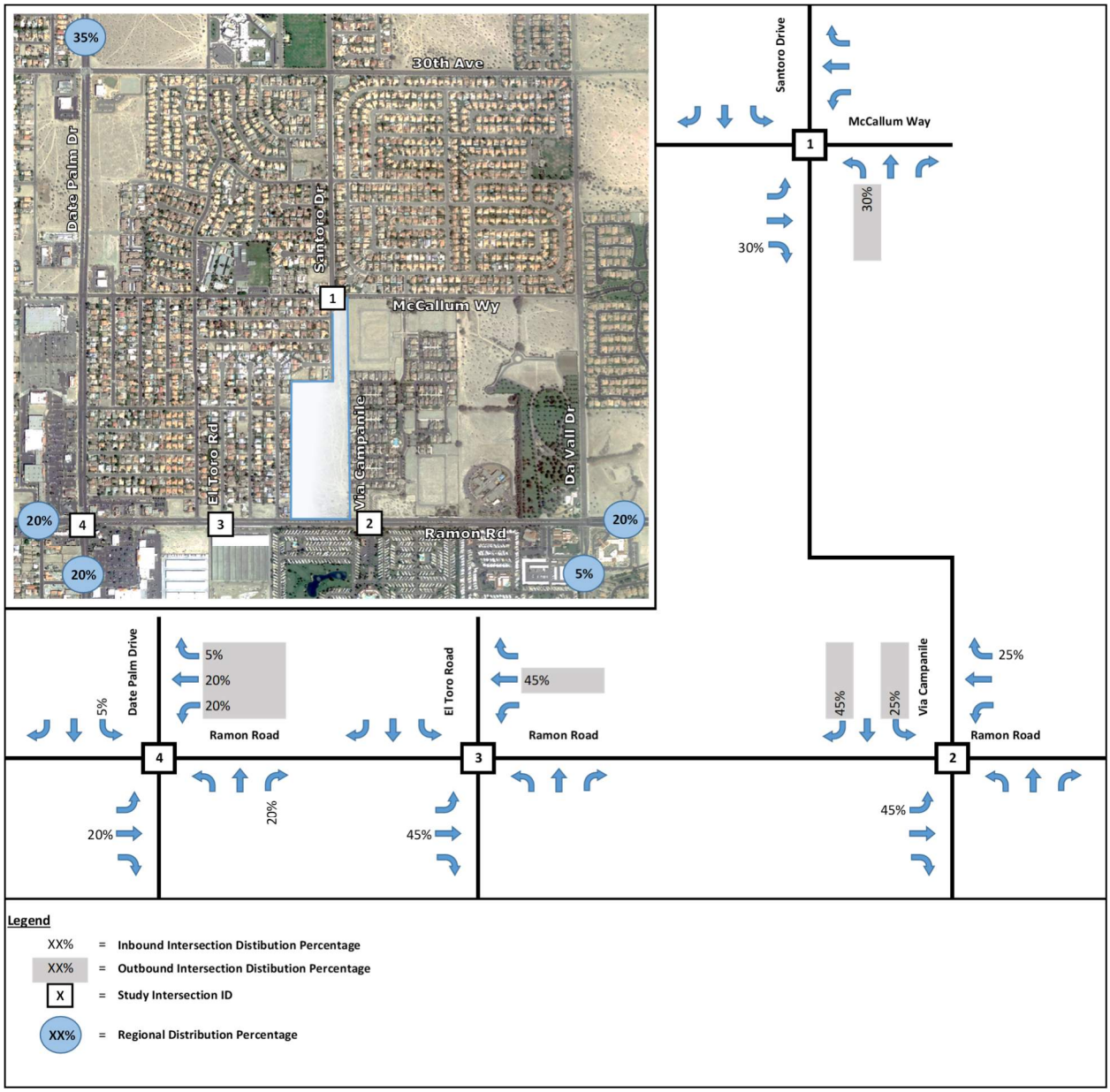


Exhibit 4-3 shows the corresponding forecast assignment of the AM Peak Hour and PM Peak Hour project-generated trips assuming the trip percent distribution shown in **Exhibit 4-2**.

EXHIBIT 4-3: PROJECT TRAFFIC PEAK HOUR TRIP ASSIGNMENT

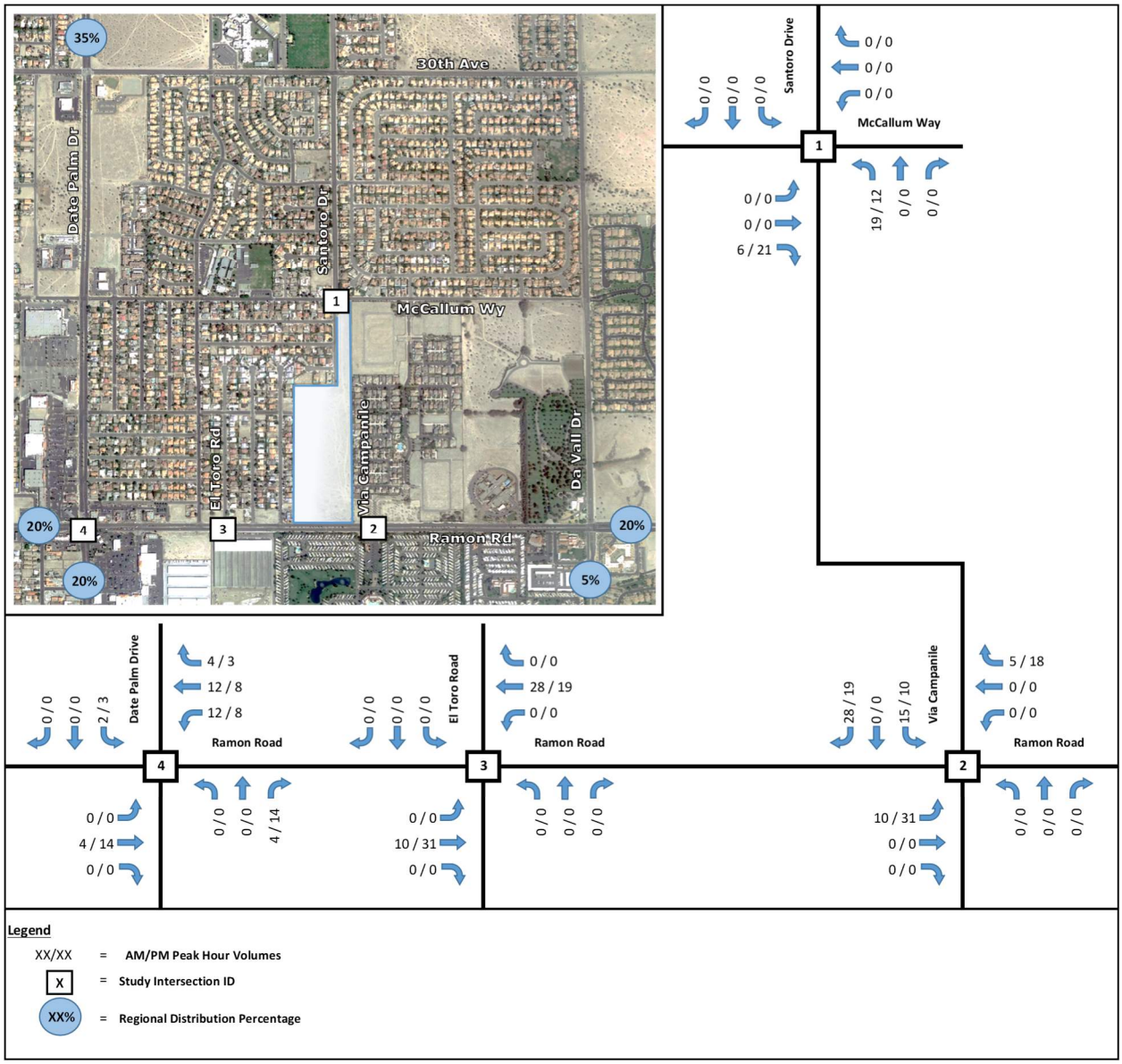
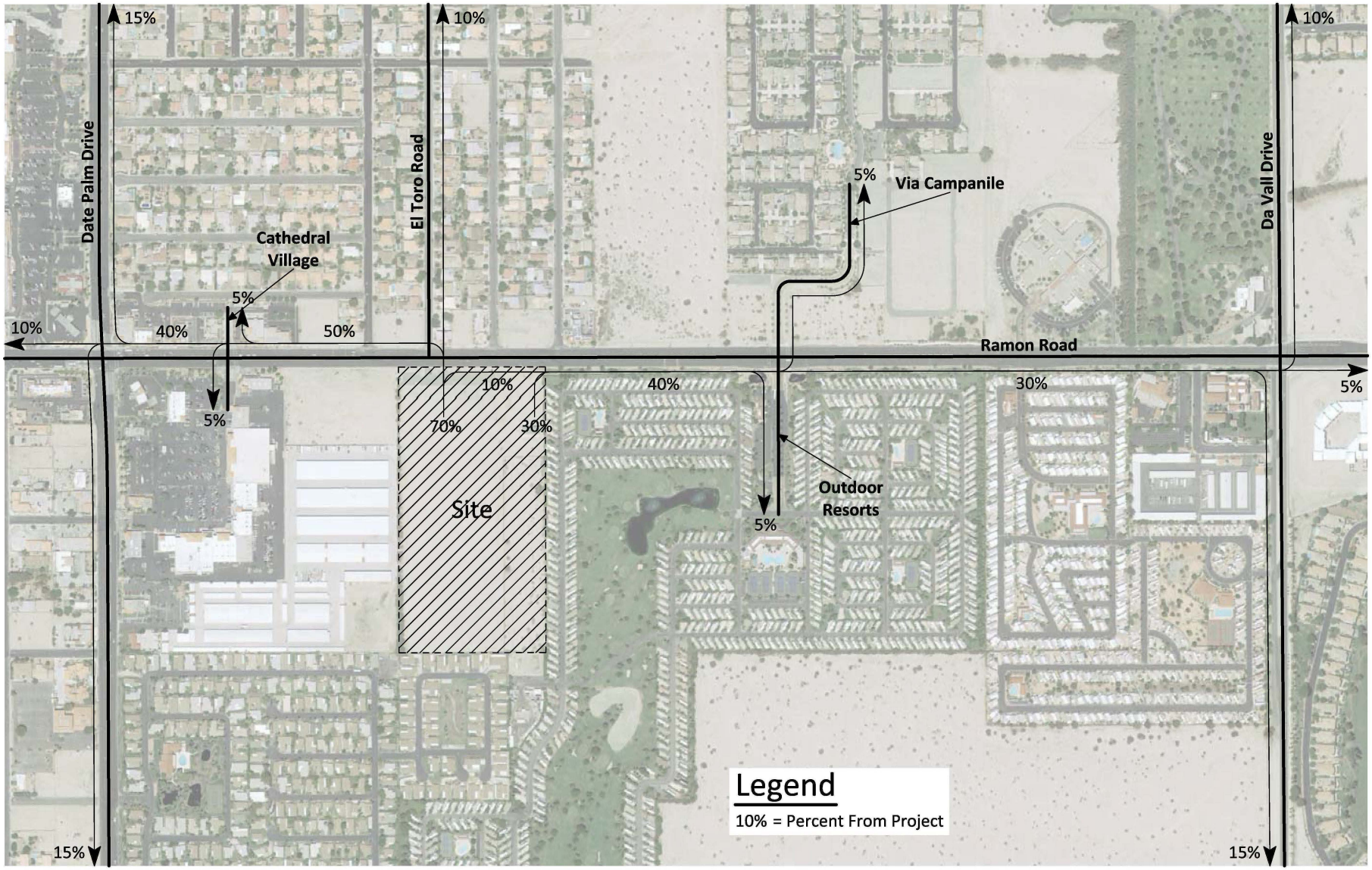


Figure 11
Project Outbound Trip Distribution - Dispensary and Clinic

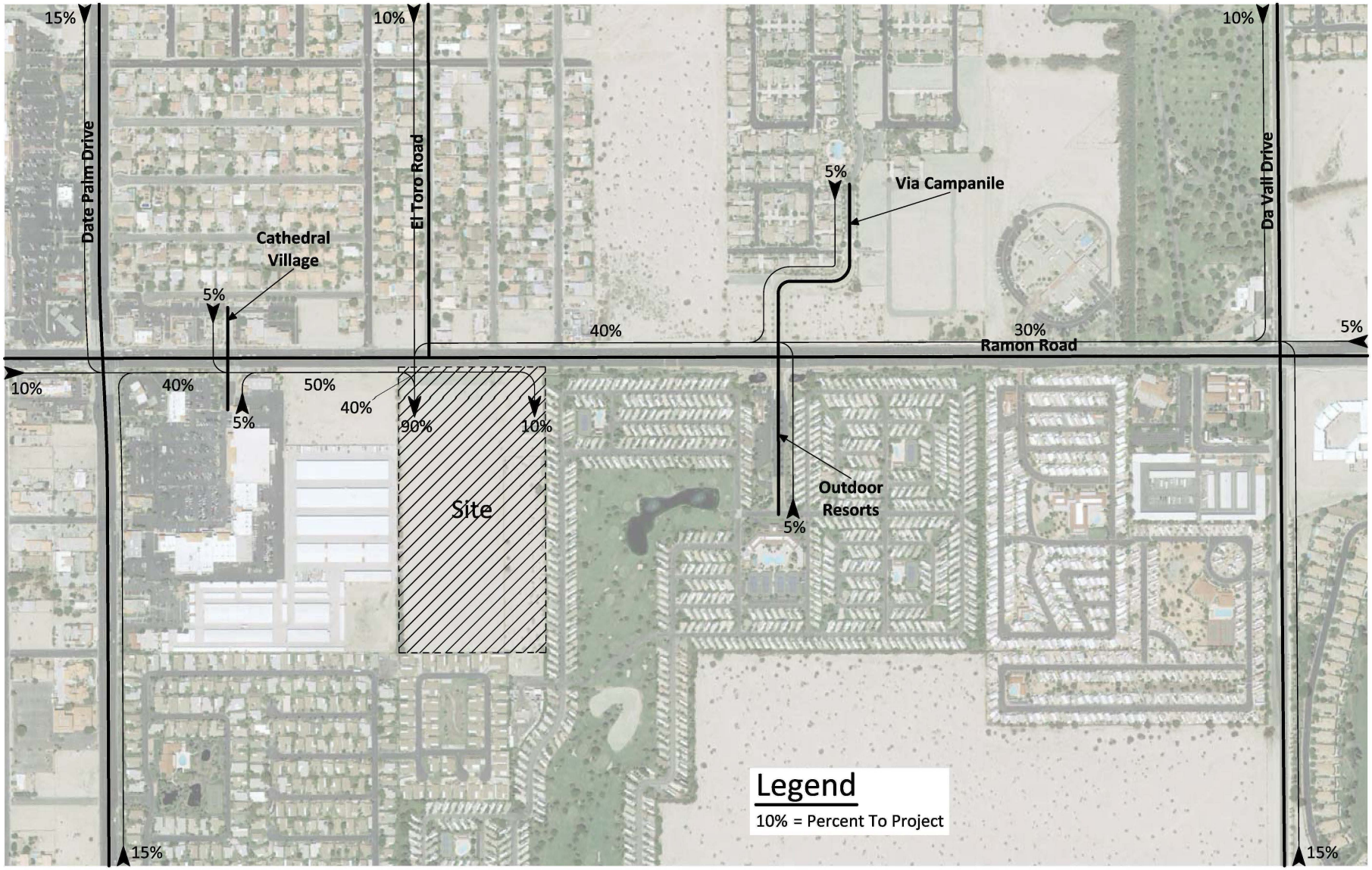


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 12
Project Inbound Trip Distribution - Dispensary and Clinic

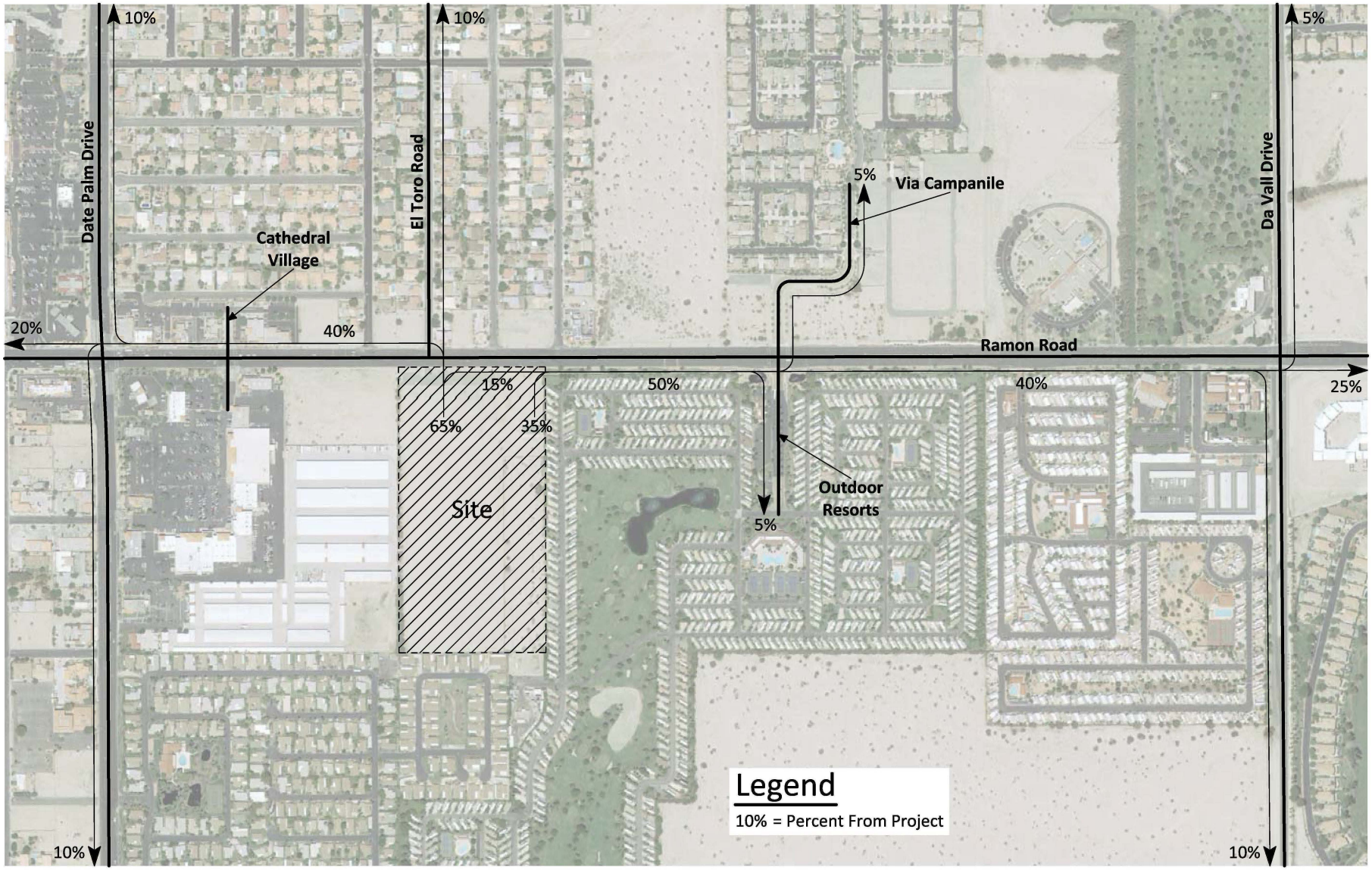


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 13
Project Outbound Trip Distribution - Employees

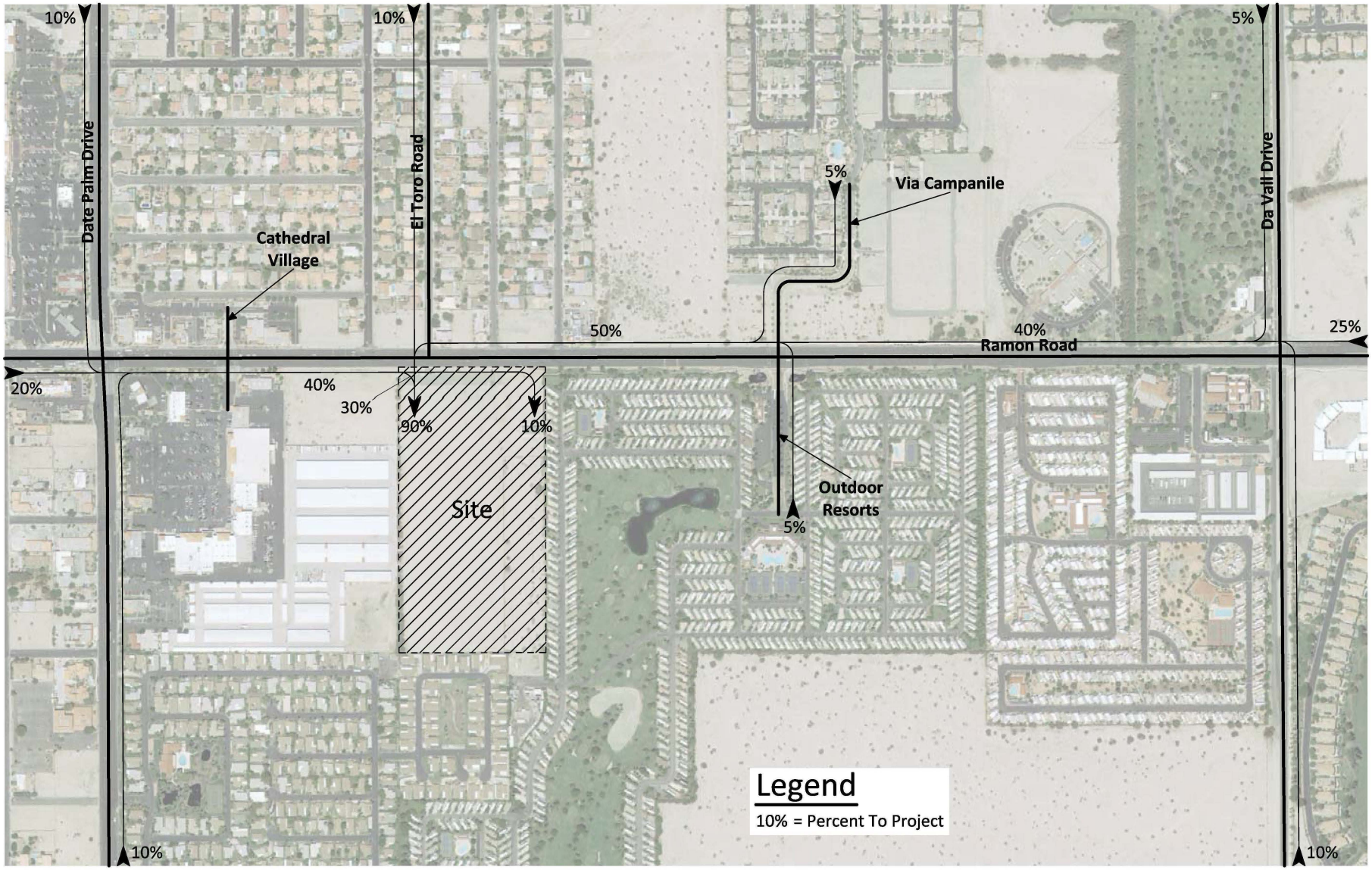


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 14
Project Inbound Trip Distribution - Employees

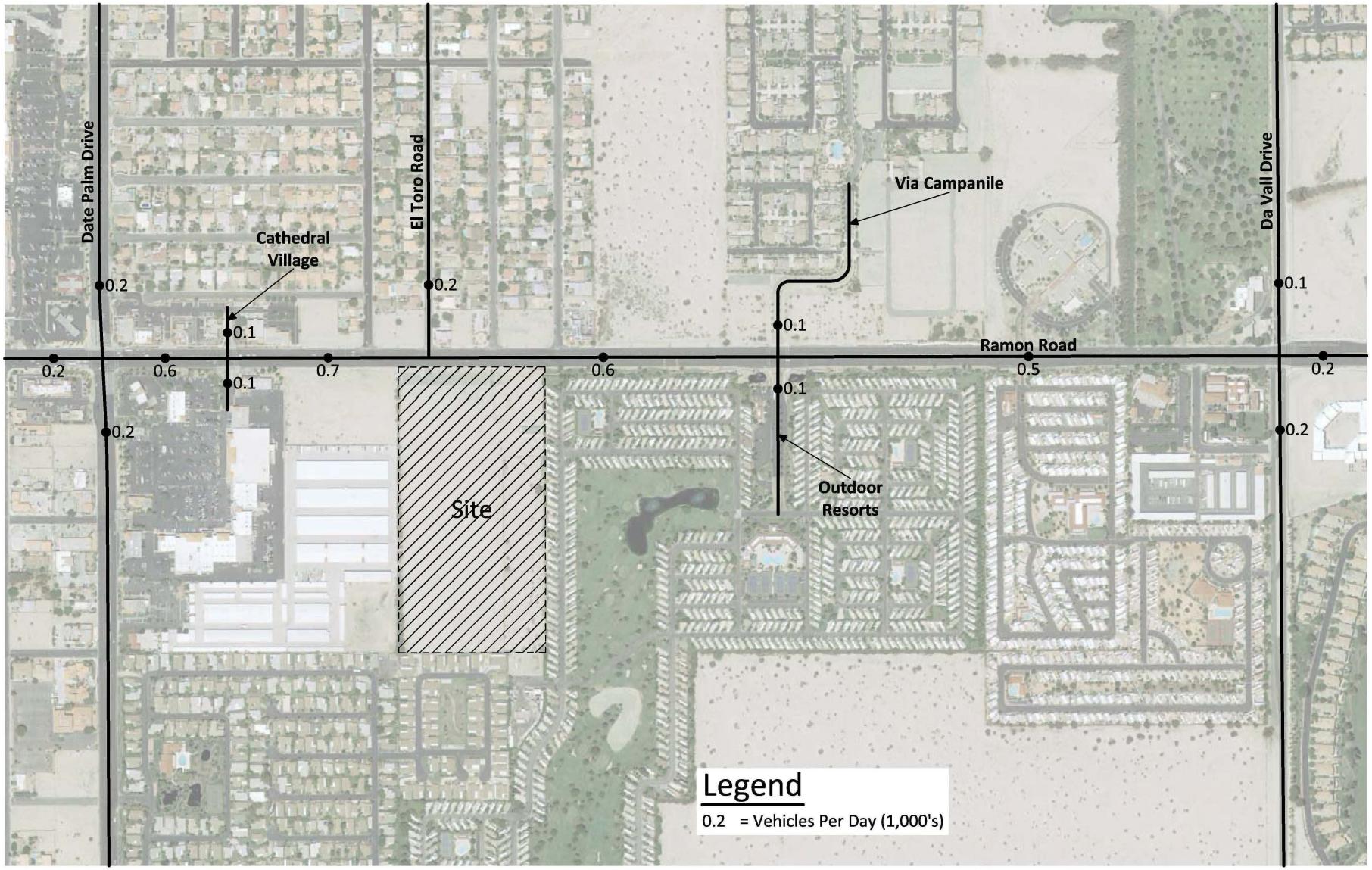


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 15
Project Average Daily Traffic Volumes

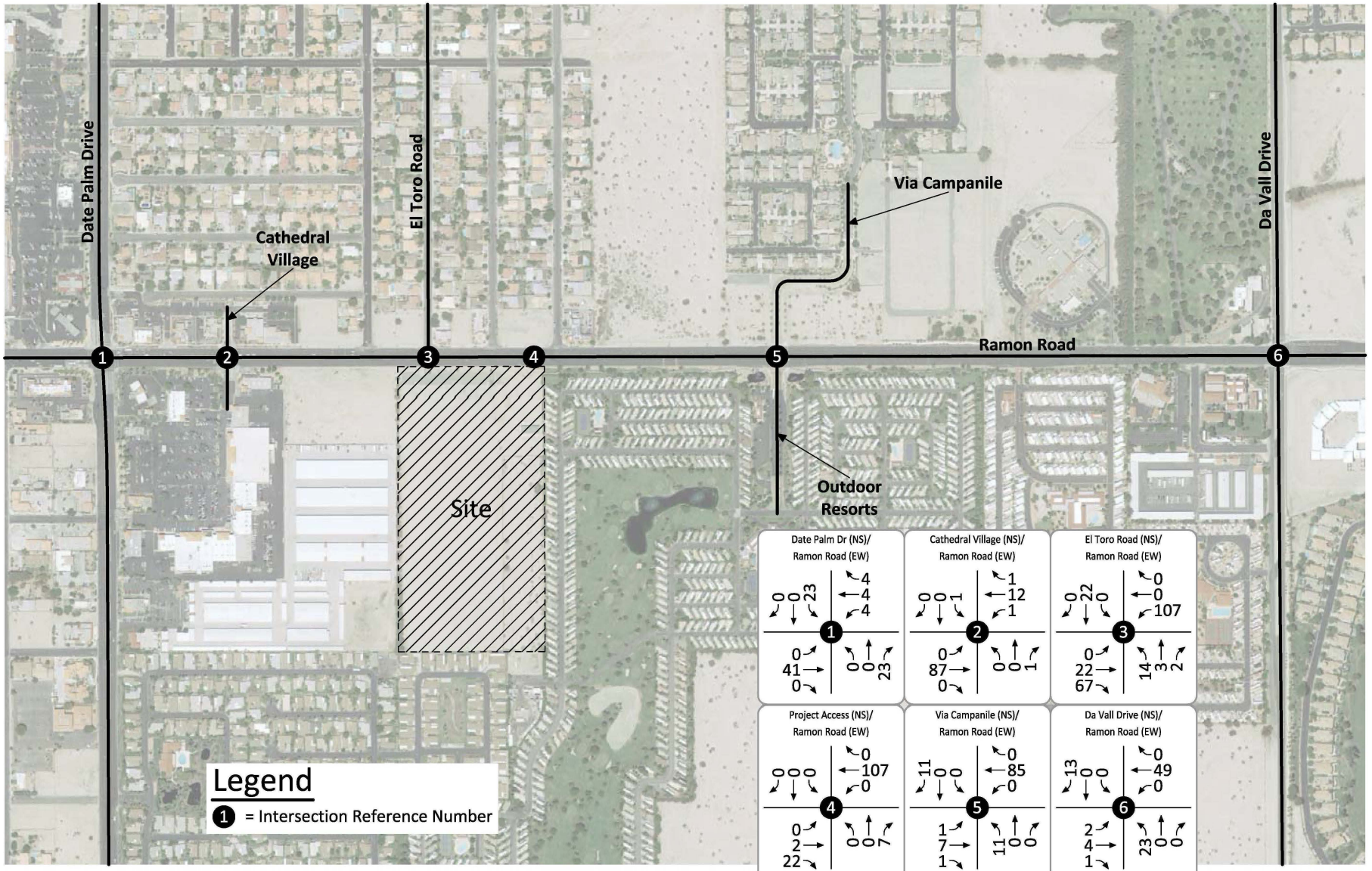


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 16
Project Morning Peak Hour Intersection Turning Movement Volumes

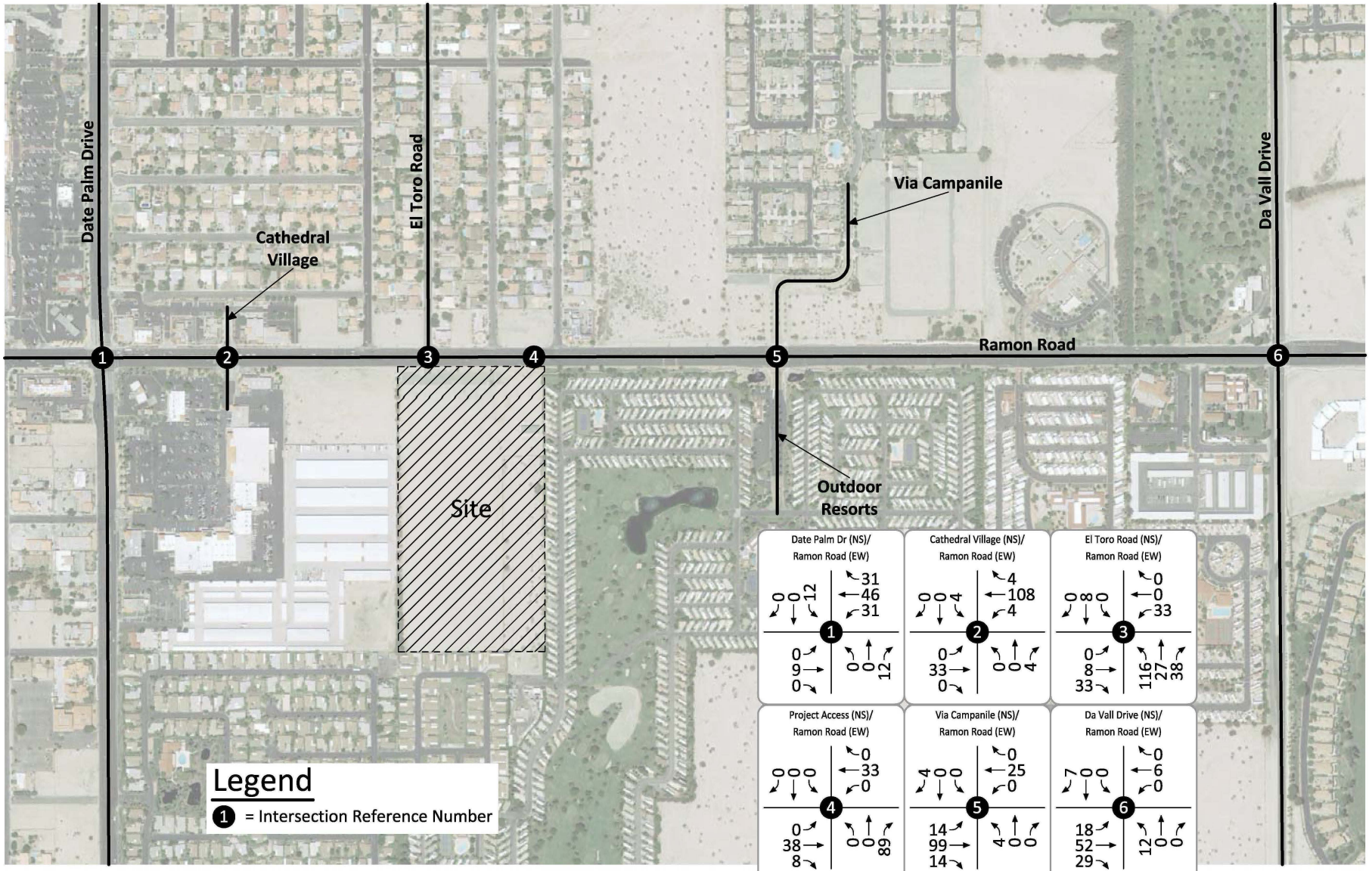


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

Figure 17
Project Evening Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6783c

EXHIBIT 4-1: PROJECT NON-RESIDENTIAL TRIP DISTRIBUTION

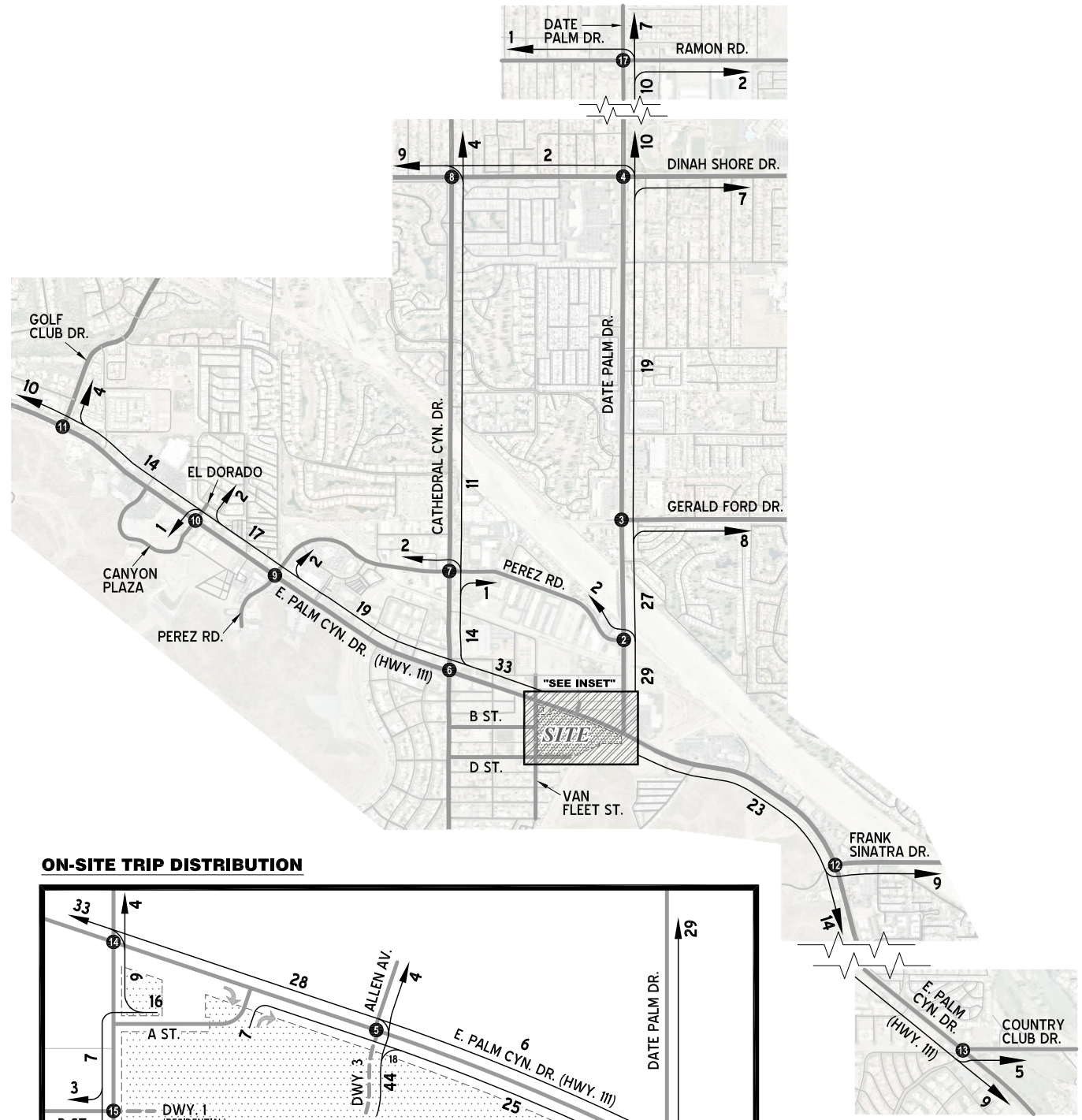
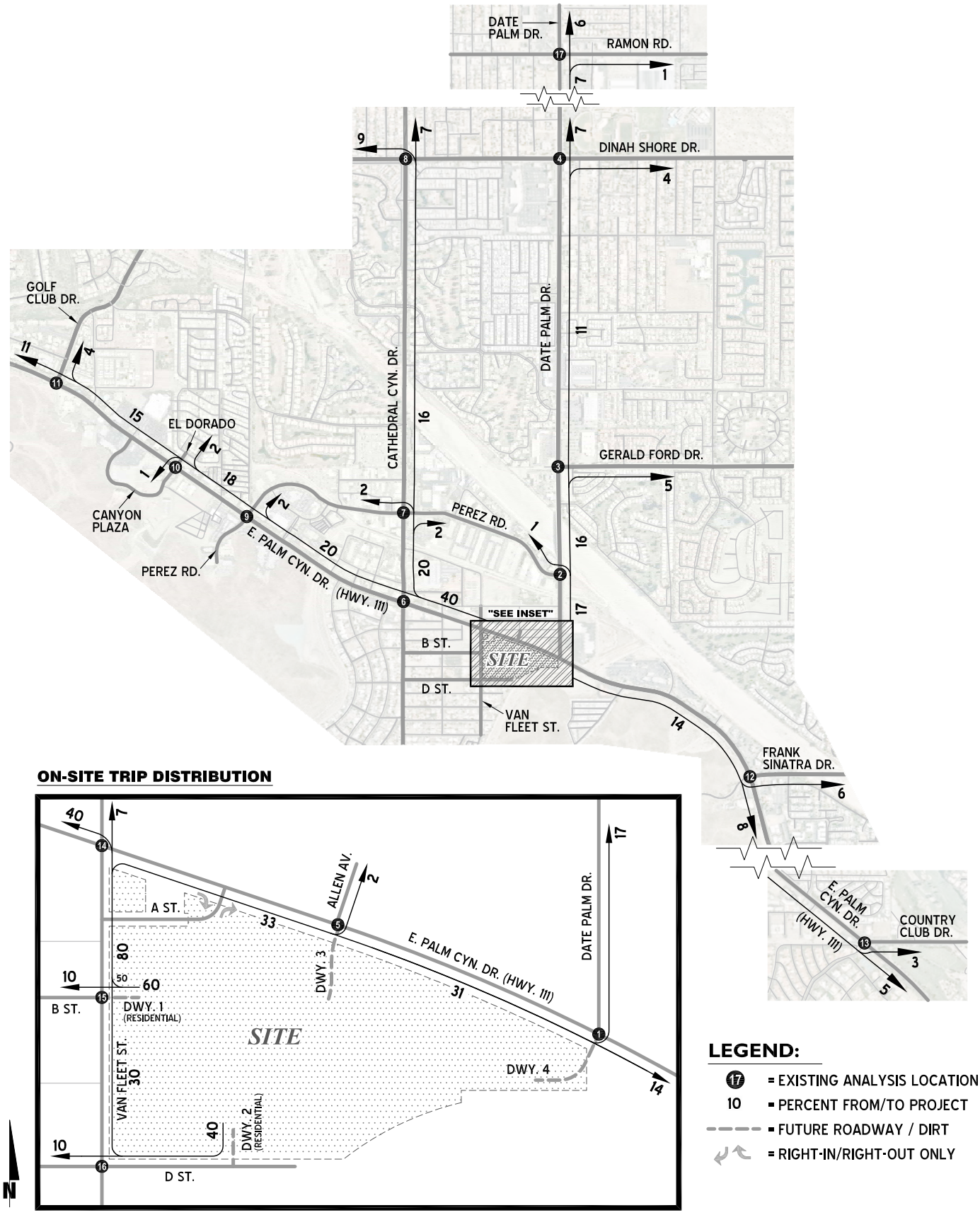
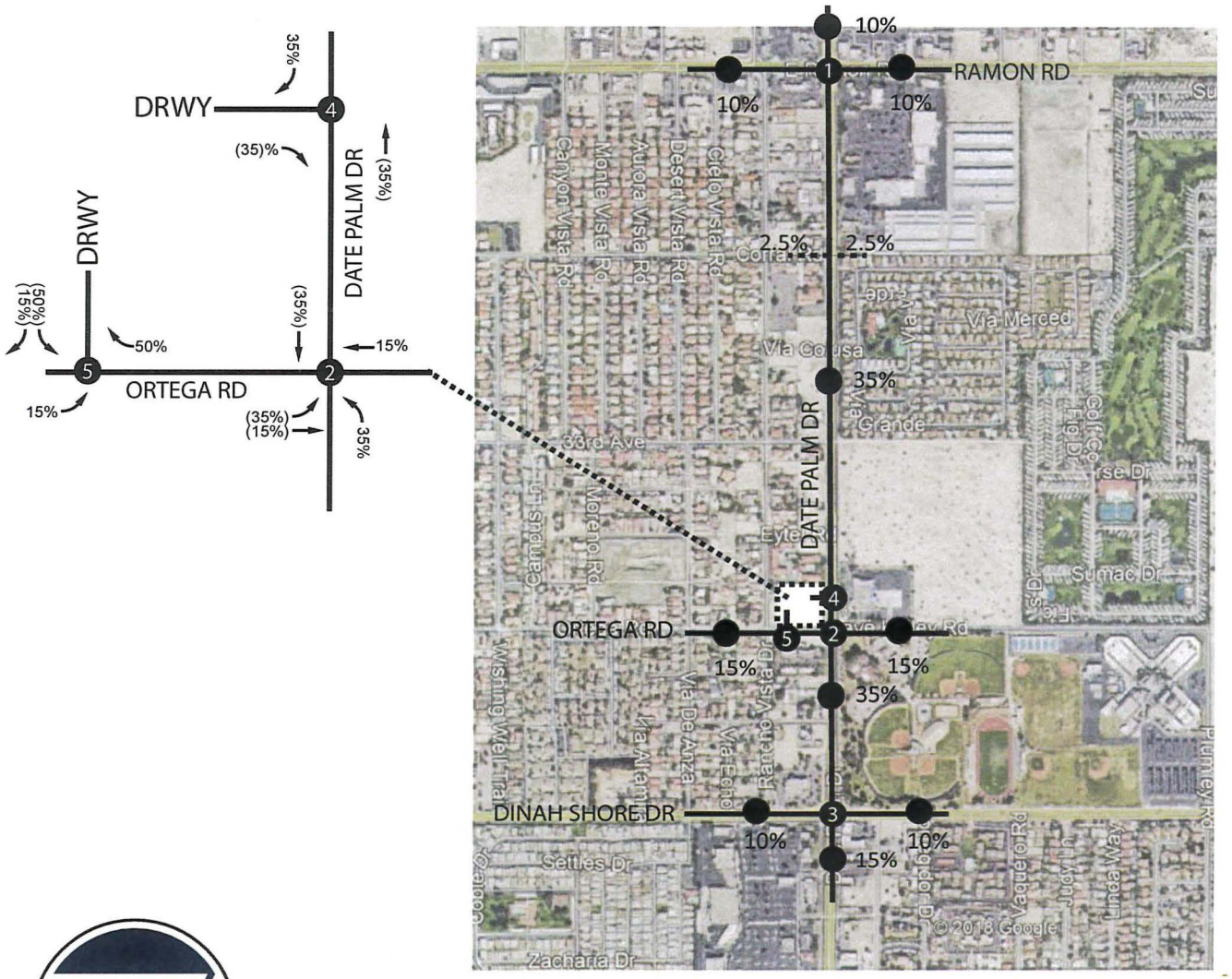


EXHIBIT 4-2: PROJECT RESIDENTIAL TRIP DISTRIBUTION





Legend:

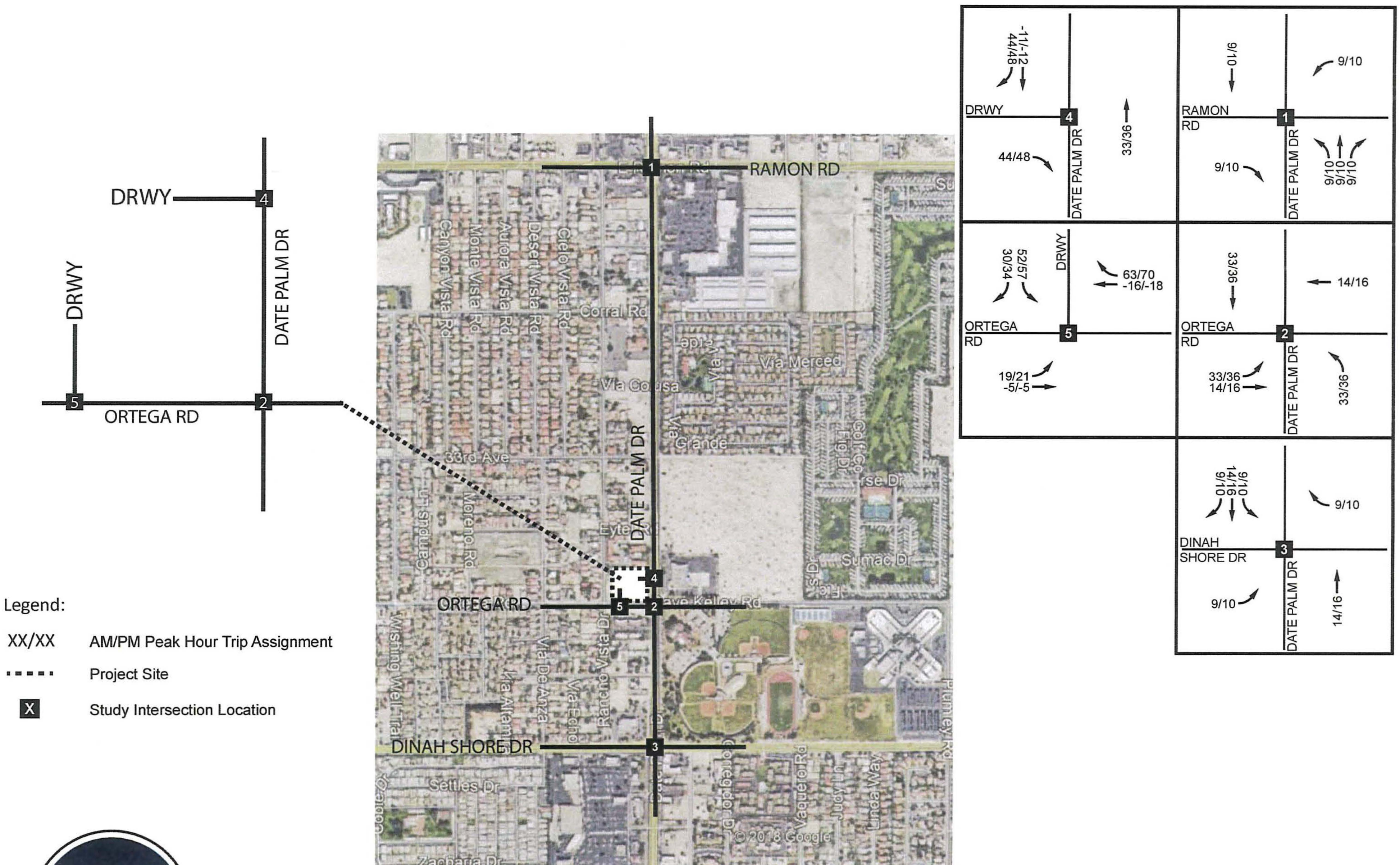
XX%	Percent Trip Distribution (both directions)
[XX%]	[Inbound] Percent Trip Distribution
(XX%)	(Outbound) Percent Trip Distribution
X	Study Intersection Location

Exhibit 5: Projected Trip Distribution of Proposed Project Trips

TEG-19-001 Tower Market Traffic Impact Analysis

TJW ENGINEERING, INC.

Not to Scale



TJW ENGINEERING, INC.

Exhibit 6: Proposed Project Trip Assignment

TEG-19-001 Tower Market Traffic Impact Analysis

EXHIBIT 4-3: PROJECT ONLY AM PEAK HOUR INTERSECTION VOLUMES (WITH PASS-BY ADJUSTMENTS)

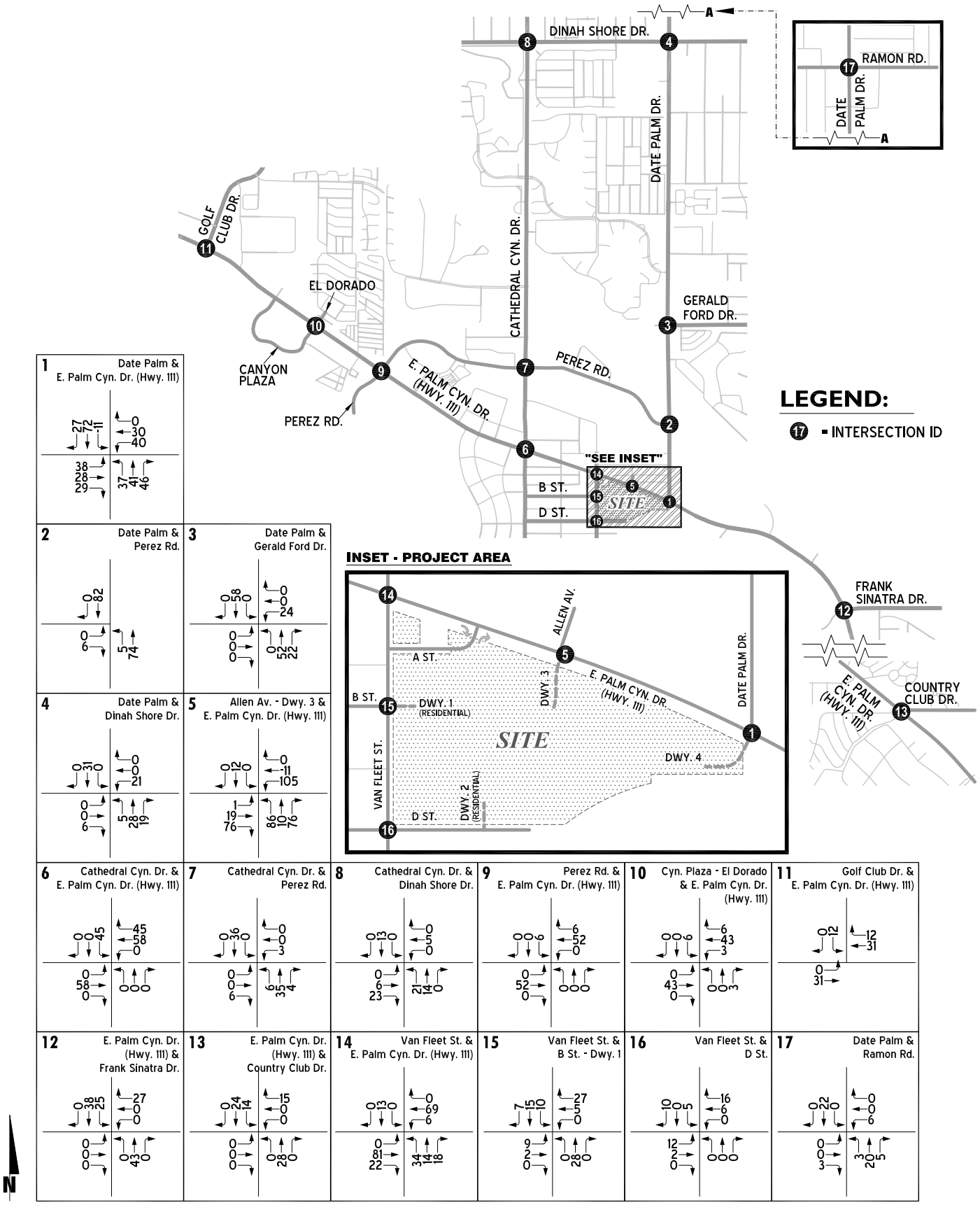


EXHIBIT 4-4: PROJECT ONLY PM PEAK HOUR INTERSECTION VOLUMES (WITH PASS-BY ADJUSTMENTS)

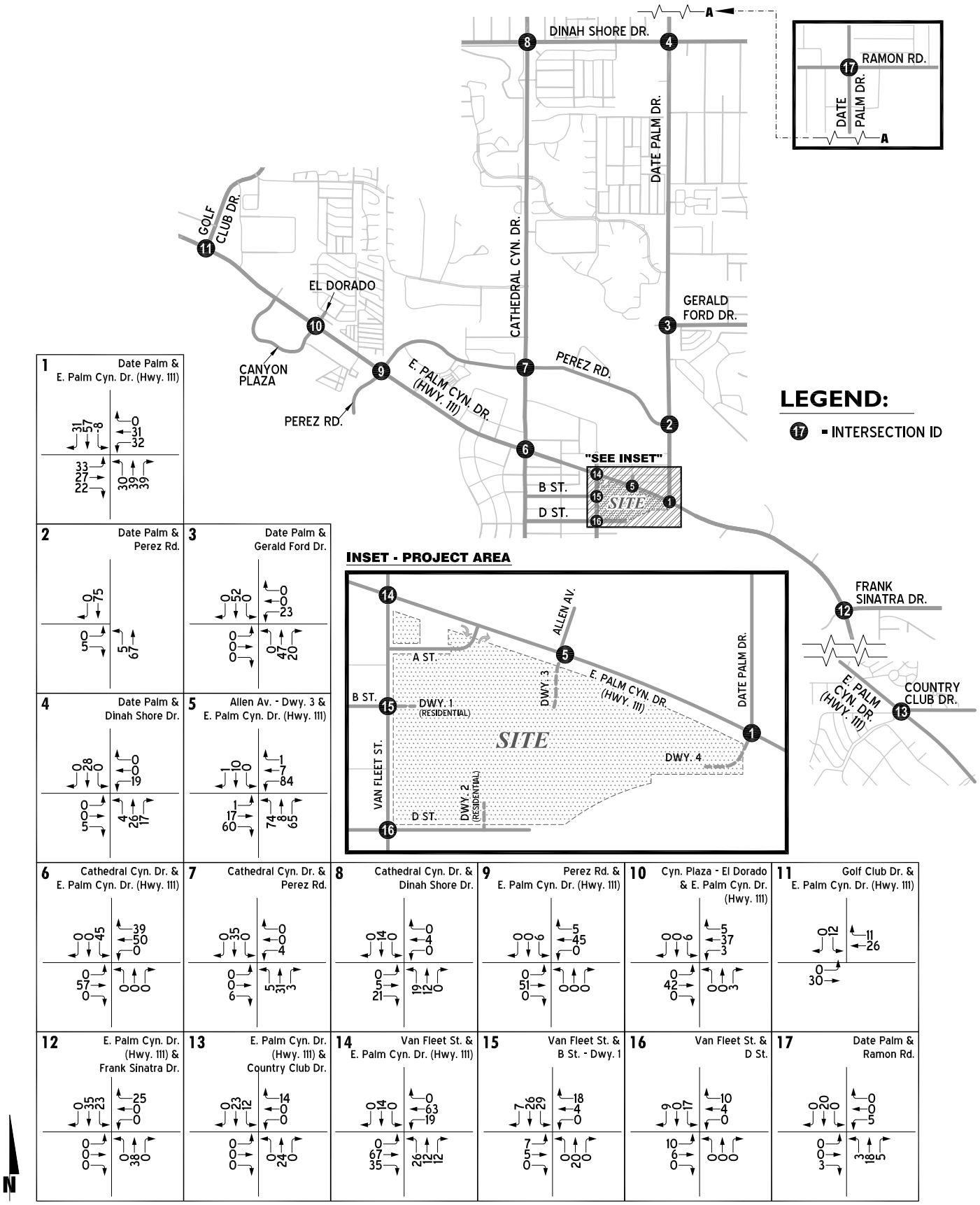
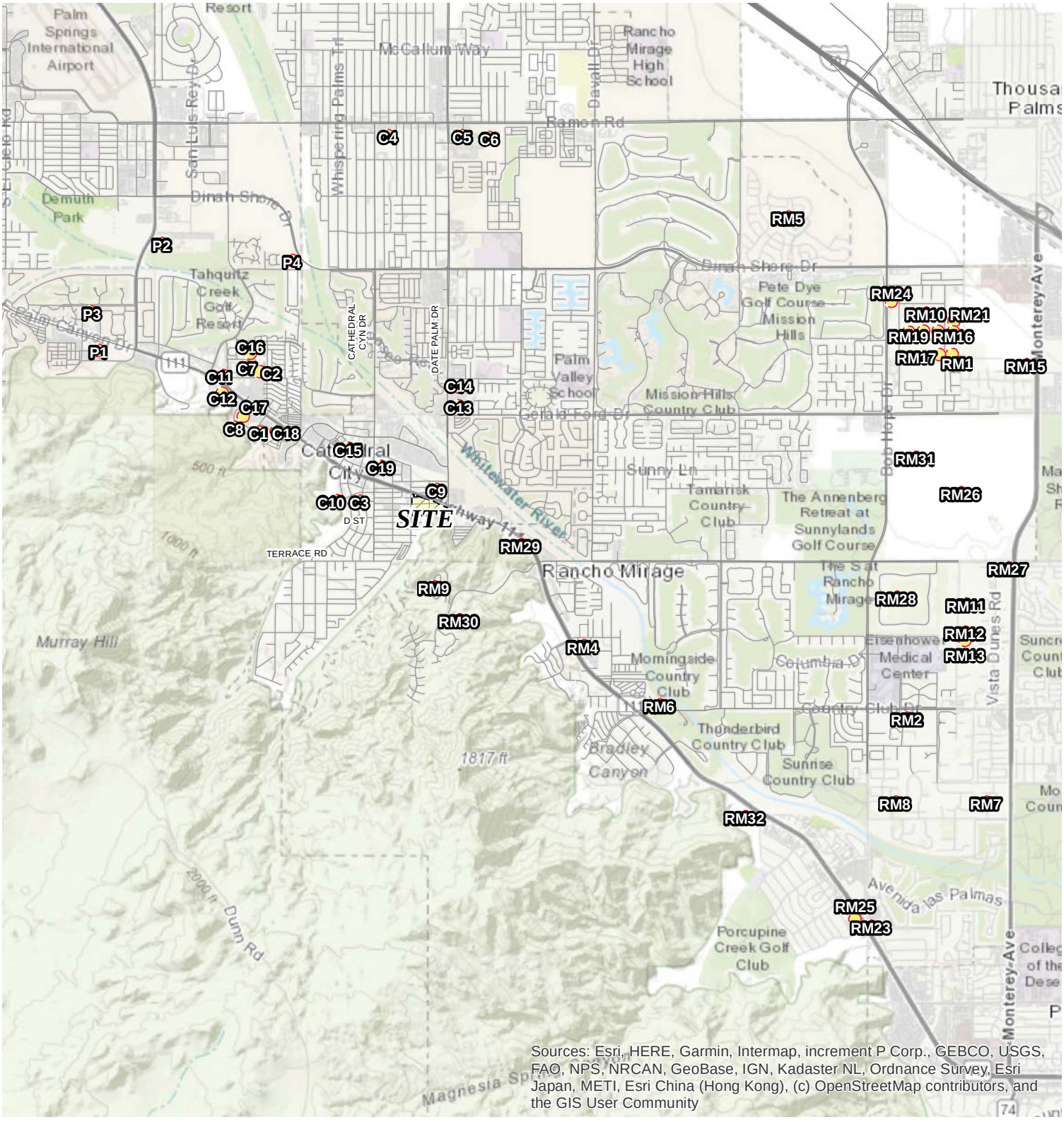


EXHIBIT 4-5: CUMULATIVE DEVELOPMENT MAP



N

12962 - 08 - CD Map.mxd

URBAN CROSSROADS

EXHIBIT 6-1: EAPC (2023) AM PEAK HOUR INTERSECTION VOLUMES

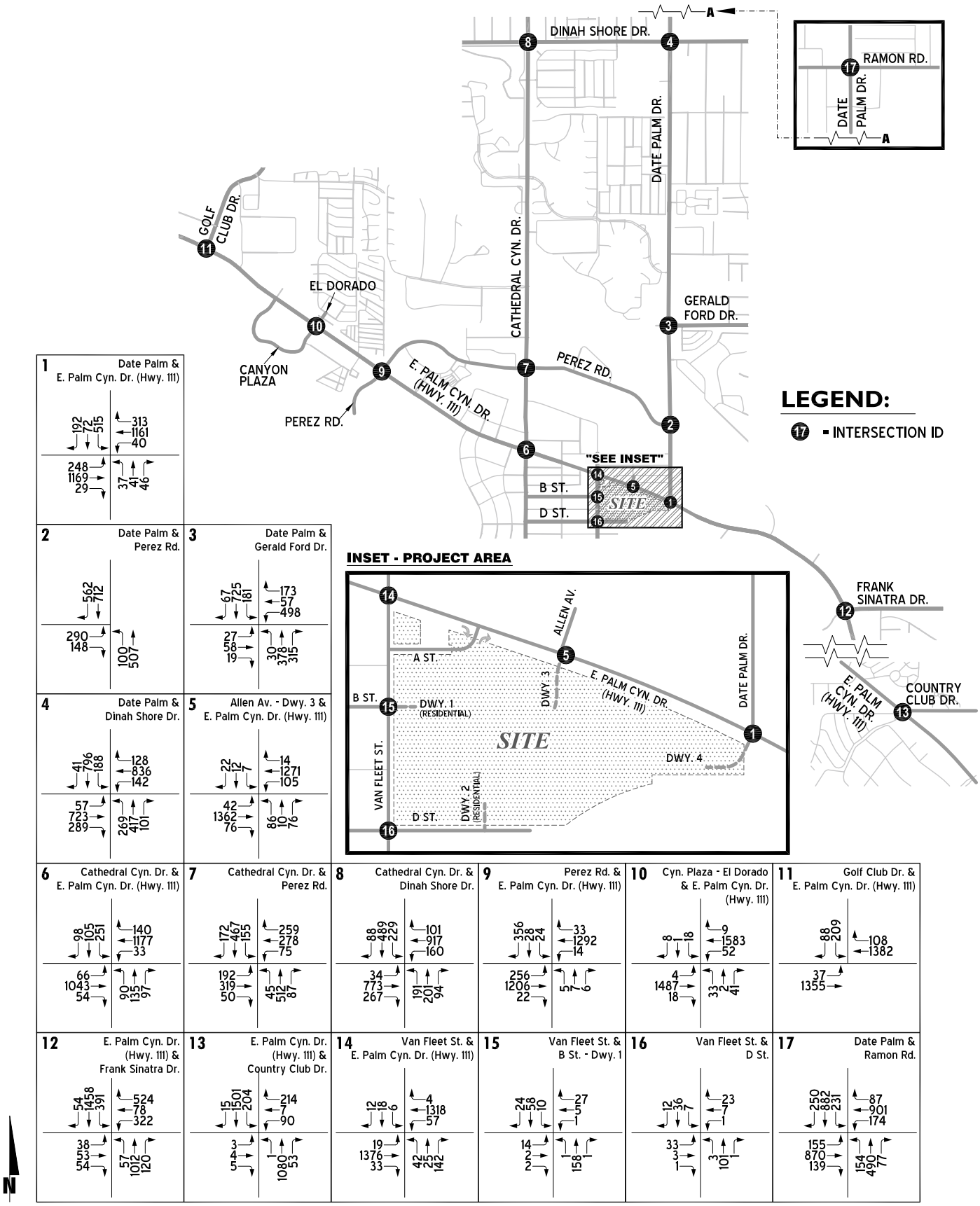
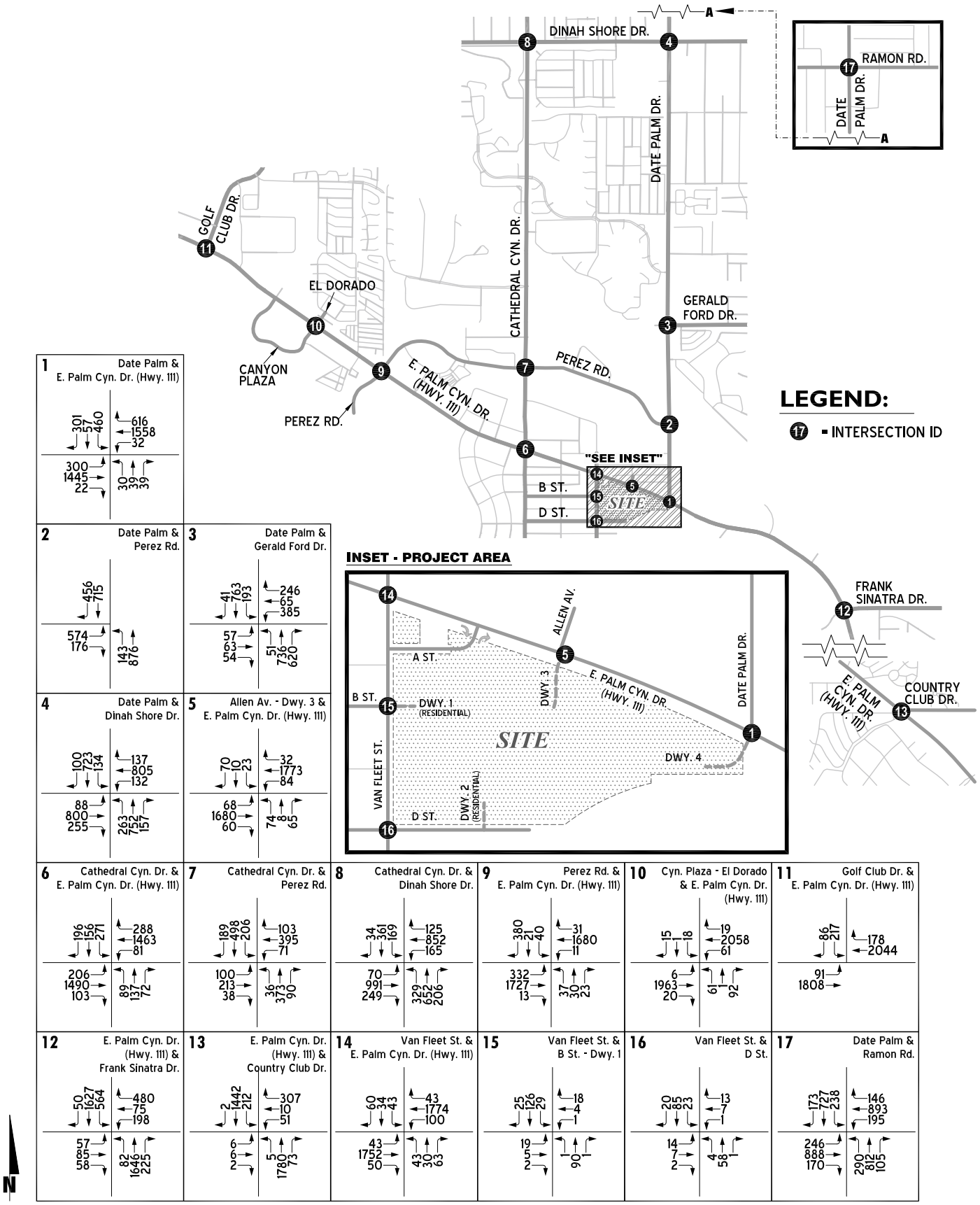
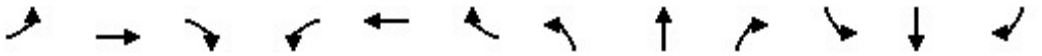


EXHIBIT 6-2: EAPC (2023) PM PEAK HOUR INTERSECTION VOLUMES



APPENDIX F -

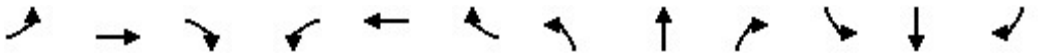
CUMULATIVE CONDITIONS PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	204	100	63	141	69	43	571	45	99	1056	56
Future Volume (veh/h)	66	204	100	63	141	69	43	571	45	99	1056	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	73	227	111	70	157	77	48	634	50	110	1173	62
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	414	372	182	332	371	182	91	1488	116	154	1704	90
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.05	0.31	0.31	0.09	0.34	0.34
Sat Flow, veh/h	1144	1179	577	1041	1178	578	1781	4823	377	1781	4955	262
Grp Volume(v), veh/h	73	0	338	70	0	234	48	446	238	110	806	429
Grp Sat Flow(s),veh/h/ln	1144	0	1756	1041	0	1756	1781	1702	1797	1781	1702	1813
Q Serve(g_s), s	2.2	0.0	6.8	2.5	0.0	4.4	1.1	4.3	4.4	2.5	8.4	8.4
Cycle Q Clear(g_c), s	6.6	0.0	6.8	9.3	0.0	4.4	1.1	4.3	4.4	2.5	8.4	8.4
Prop In Lane	1.00		0.33	1.00		0.33	1.00		0.21	1.00		0.14
Lane Grp Cap(c), veh/h	414	0	553	332	0	553	91	1050	554	154	1171	624
V/C Ratio(X)	0.18	0.00	0.61	0.21	0.00	0.42	0.53	0.42	0.43	0.71	0.69	0.69
Avail Cap(c_a), veh/h	772	0	1102	657	0	1102	215	1151	607	344	1397	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	12.0	16.0	0.0	11.2	19.2	11.4	11.4	18.4	11.7	11.7
Incr Delay (d2), s/veh	0.2	0.0	1.1	0.3	0.0	0.5	4.6	0.3	0.5	6.0	1.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.0	0.5	0.0	1.2	0.5	1.0	1.2	1.1	2.3	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	13.1	16.3	0.0	11.7	23.8	11.7	11.9	24.4	12.8	13.8
LnGrp LOS	B	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		411			304			732			1345	
Approach Delay, s/veh		13.3			12.8			12.6			14.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	16.8		17.0	6.1	18.2		17.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	8.0	14.0		26.0	5.0	17.0		26.0				
Max Q Clear Time (g_c+I1), s	4.5	6.4		8.8	3.1	10.4		11.3				
Green Ext Time (p_c), s	0.1	2.3		2.0	0.0	3.8		1.3				

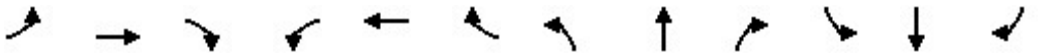
Intersection Summary			
HCM 6th Ctrl Delay		13.4	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	12	15	61	20	206	25	643	37	109	1071	20
Future Volume (veh/h)	12	12	15	61	20	206	25	643	37	109	1071	20
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	13	13	16	66	22	224	27	699	40	118	1164	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	30	119	146	200	36	368	57	1375	78	155	1720	32
Arrive On Green	0.02	0.16	0.16	0.11	0.25	0.25	0.03	0.28	0.28	0.09	0.33	0.33
Sat Flow, veh/h	1781	763	939	1781	144	1463	1781	4942	282	1781	5159	97
Grp Volume(v), veh/h	13	0	29	66	0	246	27	480	259	118	768	418
Grp Sat Flow(s),veh/h/ln	1781	0	1701	1781	0	1607	1781	1702	1820	1781	1702	1853
Q Serve(g_s), s	0.3	0.0	0.6	1.5	0.0	5.9	0.6	5.2	5.2	2.8	8.5	8.5
Cycle Q Clear(g_c), s	0.3	0.0	0.6	1.5	0.0	5.9	0.6	5.2	5.2	2.8	8.5	8.5
Prop In Lane	1.00		0.55	1.00		0.91	1.00		0.15	1.00		0.05
Lane Grp Cap(c), veh/h	30	0	265	200	0	404	57	947	506	155	1135	618
V/C Ratio(X)	0.44	0.00	0.11	0.33	0.00	0.61	0.47	0.51	0.51	0.76	0.68	0.68
Avail Cap(c_a), veh/h	204	0	819	204	0	774	204	1248	667	286	1404	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	0.0	15.8	17.8	0.0	14.4	20.8	13.2	13.2	19.5	12.5	12.5
Incr Delay (d2), s/veh	9.8	0.0	0.2	1.0	0.0	1.5	6.0	0.4	0.8	7.4	1.0	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	0.2	0.0	0.2	0.6	0.0	2.0	0.3	1.5	1.7	1.3	2.4	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	16.0	18.8	0.0	15.9	26.8	13.7	14.0	26.9	13.5	14.3
LnGrp LOS	C	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		42			312			766			1304	
Approach Delay, s/veh		20.6			16.5			14.3			14.9	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	16.1	8.9	10.8	5.4	18.5	4.7	15.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	16.0	5.0	21.0	5.0	18.0	5.0	21.0
Max Q Clear Time (g_c+I1), s	4.8	7.2	3.5	2.6	2.6	10.5	2.3	7.9
Green Ext Time (p_c), s	0.0	2.8	0.0	0.1	0.0	4.1	0.0	1.3

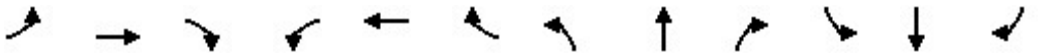
Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	253	100	61	135	158	152	689	27	220	1109	66
Future Volume (veh/h)	99	253	100	61	135	158	152	689	27	220	1109	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	108	275	109	66	147	172	165	749	29	239	1205	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	440	360	99	399	327	207	1432	55	287	1619	97
Arrive On Green	0.08	0.24	0.24	0.06	0.21	0.21	0.12	0.28	0.28	0.16	0.33	0.33
Sat Flow, veh/h	1781	1870	1532	1781	1870	1535	1781	5044	195	1781	4926	294
Grp Volume(v), veh/h	108	275	109	66	147	172	165	505	273	239	833	444
Grp Sat Flow(s),veh/h/ln	1781	1870	1532	1781	1870	1535	1781	1702	1834	1781	1702	1816
Q Serve(g_s), s	3.6	8.0	3.5	2.2	4.1	6.0	5.5	7.6	7.6	7.9	13.2	13.2
Cycle Q Clear(g_c), s	3.6	8.0	3.5	2.2	4.1	6.0	5.5	7.6	7.6	7.9	13.2	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		0.16
Lane Grp Cap(c), veh/h	138	440	360	99	399	327	207	966	521	287	1119	597
V/C Ratio(X)	0.78	0.62	0.30	0.67	0.37	0.53	0.80	0.52	0.52	0.83	0.74	0.74
Avail Cap(c_a), veh/h	147	803	658	147	803	659	265	1237	666	324	1349	720
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	27.4	20.8	19.1	28.1	20.3	21.1	26.0	18.2	18.2	24.6	18.1	18.1
Incr Delay (d2), s/veh	22.3	1.5	0.5	7.6	0.6	1.3	12.2	0.4	0.8	15.2	1.8	3.4
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	2.2	3.2	1.1	1.1	1.6	2.0	2.8	2.6	2.8	4.0	4.3	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	22.2	19.5	35.7	20.9	22.4	38.2	18.7	19.1	39.8	19.9	21.5
LnGrp LOS	D	C	B	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		492			385			943			1516	
Approach Delay, s/veh		27.7			24.1			22.2			23.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	21.2	7.4	18.2	11.1	23.9	8.7	16.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	11.0	22.0	5.0	26.0	9.0	24.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	9.9	9.6	4.2	10.0	7.5	15.2	5.6	8.0
Green Ext Time (p_c), s	0.1	3.7	0.0	1.6	0.1	4.7	0.0	1.2

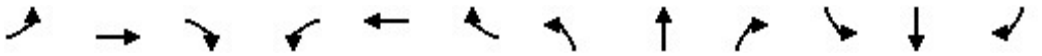
Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	119	77	75	136	68	89	1136	67	79	876	59
Future Volume (veh/h)	98	119	77	75	136	68	89	1136	67	79	876	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	109	132	86	83	151	76	99	1262	74	88	973	66
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	377	299	195	382	332	167	145	1741	102	136	1696	115
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.08	0.35	0.35	0.08	0.35	0.35
Sat Flow, veh/h	1152	1050	684	1161	1166	587	1781	4929	289	1781	4872	330
Grp Volume(v), veh/h	109	0	218	83	0	227	99	871	465	88	679	360
Grp Sat Flow(s),veh/h/ln	1152	0	1734	1161	0	1754	1781	1702	1814	1781	1702	1798
Q Serve(g_s), s	3.6	0.0	4.3	2.6	0.0	4.5	2.3	9.3	9.3	2.0	6.8	6.8
Cycle Q Clear(g_c), s	8.1	0.0	4.3	7.0	0.0	4.5	2.3	9.3	9.3	2.0	6.8	6.8
Prop In Lane	1.00		0.39	1.00		0.33	1.00		0.16	1.00		0.18
Lane Grp Cap(c), veh/h	377	0	493	382	0	499	145	1202	641	136	1185	626
V/C Ratio(X)	0.29	0.00	0.44	0.22	0.00	0.45	0.68	0.72	0.73	0.65	0.57	0.58
Avail Cap(c_a), veh/h	762	0	1074	771	0	1086	255	1379	735	212	1298	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	12.3	15.1	0.0	12.3	18.7	11.8	11.8	18.8	11.1	11.2
Incr Delay (d2), s/veh	0.4	0.0	0.6	0.3	0.0	0.6	5.5	1.6	3.1	5.1	0.5	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	0.8	0.0	1.3	0.6	0.0	1.3	0.9	2.3	2.8	0.9	1.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	12.9	15.4	0.0	13.0	24.3	13.4	14.9	23.9	11.7	12.1
LnGrp LOS	B	A	B	B	A	B	C	B	B	C	B	B
Approach Vol, veh/h		327			310			1435			1127	
Approach Delay, s/veh		14.0			13.6			14.7			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	18.8		15.9	7.4	18.6		15.9				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	17.0		26.0	6.0	16.0		26.0				
Max Q Clear Time (g_c+I1), s	4.0	11.3		10.1	4.3	8.8		9.0				
Green Ext Time (p_c), s	0.0	3.5		1.4	0.0	3.5		1.3				

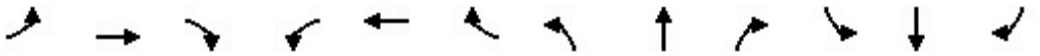
Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	42	53	45	38	252	47	1237	40	161	831	38
Future Volume (veh/h)	42	42	53	45	38	252	47	1237	40	161	831	38
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	46	46	58	49	41	274	51	1345	43	175	903	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	150	189	151	50	337	86	1632	52	218	1980	90
Arrive On Green	0.04	0.20	0.20	0.08	0.24	0.24	0.05	0.32	0.32	0.12	0.40	0.40
Sat Flow, veh/h	1781	752	948	1781	210	1407	1781	5083	162	1781	5007	227
Grp Volume(v), veh/h	46	0	104	49	0	315	51	901	487	175	613	331
Grp Sat Flow(s),veh/h/ln	1781	0	1700	1781	0	1617	1781	1702	1841	1781	1702	1830
Q Serve(g_s), s	1.5	0.0	3.1	1.5	0.0	10.8	1.7	14.4	14.4	5.6	7.8	7.8
Cycle Q Clear(g_c), s	1.5	0.0	3.1	1.5	0.0	10.8	1.7	14.4	14.4	5.6	7.8	7.8
Prop In Lane	1.00		0.56	1.00		0.87	1.00		0.09	1.00		0.12
Lane Grp Cap(c), veh/h	80	0	339	151	0	388	86	1093	591	218	1346	724
V/C Ratio(X)	0.58	0.00	0.31	0.32	0.00	0.81	0.60	0.82	0.82	0.80	0.46	0.46
Avail Cap(c_a), veh/h	151	0	606	151	0	577	182	1157	626	242	1346	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	20.1	25.3	0.0	21.1	27.5	18.4	18.4	25.1	13.1	13.1
Incr Delay (d2), s/veh	6.4	0.0	0.5	1.2	0.0	5.5	6.5	4.8	8.4	16.0	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.2	0.7	0.0	4.4	0.8	5.3	6.4	3.1	2.4	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	0.0	20.6	26.6	0.0	26.6	33.9	23.2	26.9	41.2	13.4	13.6
LnGrp LOS	C	A	C	C	A	C	C	C	C	D	B	B
Approach Vol, veh/h		150			364			1439			1119	
Approach Delay, s/veh		24.7			26.6			24.8			17.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	22.9	9.0	15.8	6.8	27.3	6.6	18.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	20.0	5.0	21.0	6.0	22.0	5.0	21.0
Max Q Clear Time (g_c+I1), s	7.6	16.4	3.5	5.1	3.7	9.8	3.5	12.8
Green Ext Time (p_c), s	0.0	2.5	0.0	0.4	0.0	4.5	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	134	99	22	125	139	272	1197	17	30	947	100
Future Volume (veh/h)	89	134	99	22	125	139	272	1197	17	30	947	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	97	146	108	24	136	151	296	1301	18	33	1029	109
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	437	358	49	358	293	342	2317	32	62	1356	143
Arrive On Green	0.07	0.23	0.23	0.03	0.19	0.19	0.19	0.45	0.45	0.03	0.29	0.29
Sat Flow, veh/h	1781	1870	1532	1781	1870	1531	1781	5190	72	1781	4687	496
Grp Volume(v), veh/h	97	146	108	24	136	151	296	853	466	33	747	391
Grp Sat Flow(s),veh/h/ln	1781	1870	1532	1781	1870	1531	1781	1702	1857	1781	1702	1779
Q Serve(g_s), s	3.3	4.0	3.6	0.8	3.9	5.5	10.0	11.5	11.5	1.1	12.4	12.4
Cycle Q Clear(g_c), s	3.3	4.0	3.6	0.8	3.9	5.5	10.0	11.5	11.5	1.1	12.4	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		0.28
Lane Grp Cap(c), veh/h	124	437	358	49	358	293	342	1520	829	62	985	515
V/C Ratio(X)	0.78	0.33	0.30	0.49	0.38	0.52	0.87	0.56	0.56	0.53	0.76	0.76
Avail Cap(c_a), veh/h	143	783	642	143	783	641	344	1535	838	143	1152	602
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	28.4	19.8	19.6	29.8	21.9	22.5	24.3	12.7	12.7	29.5	20.1	20.1
Incr Delay (d2), s/veh	21.0	0.4	0.5	7.5	0.7	1.4	19.8	0.5	0.8	6.8	2.5	4.8
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	2.0	1.6	1.2	0.4	1.6	1.9	5.6	3.5	3.9	0.5	4.3	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.4	20.2	20.1	37.3	22.6	23.9	44.1	13.2	13.5	36.3	22.6	24.9
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		351			311			1615			1171	
Approach Delay, s/veh		28.3			24.4			18.9			23.7	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	31.7	5.7	18.5	15.9	22.0	8.3	15.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	28.0	5.0	26.0	12.0	21.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	3.1	13.5	2.8	6.0	12.0	14.4	5.3	7.5
Green Ext Time (p_c), s	0.0	7.0	0.0	1.0	0.0	3.4	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

APPENDIX G -

HORIZON YEAR VOLUME DEVELOPMENT

Date Palm Drive Mixed Use

Land Use[1]	Units[2]	ITE LUCode	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Plaza (40-150k)[3]	TSF	821	2.19	1.34	3.53	4.72	5.12	9.84	102.78
Mini-Warehouse	TSF	151	0.05	0.04	0.09	0.07	0.08	0.15	1.45

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = Thousand Square Feet

[3] Peak hour and daily trip rates for LU 821 Shopping Plaza are based on fitted curve equations for total 54,725 sf of retail proposed for entire project.

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Plaza (40-150k)	54.725	TSF	120	73	193	258	280	538	5,625
Pass-by Reduction (40% - PM Peak Hour & Daily)[3]			0	0	0	103	112	215	2,250
Subtotal			*120*	*73*	*193*	*155*	*168*	*323*	*3,375*
Mini-Warehouse	115.054	TSF	6	5	50	8	9	17	167
Total			***126***	***78***	***243***	***163***	***177***	***340***	***3,542***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = Thousand Square Feet

[3] Pass-by reduction percentage is based on the ITE methodology per 2021 Pass-By Tables for ITE Trip Generation Appendices.

Vallarta Shopping Center

Land Use[1]	Units[2]	ITE LUCode	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Plaza (40k-150k)[3]	TSF	821	2.19	1.34	3.53	4.13	4.48	8.61	88.08
Fast Food Restaurant w/ Drive-through Window	TSF	934	22.75	21.86	44.61	17.18	15.85	33.03	467.48

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = Thousand Square Feet

[3] Peak hour and daily trip rates for LU 822 Strip Retail Plaza are based on fitted curve equations for total 127,000 sf of retail proposed for entire project.

Land Use[1]	Intensity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Shopping Plaza (40k-150k)	127.000	TSF	278	170	448	525	569	1,094	11,186
Internal Capture (8% - AM In, 13% - AM Out, 9% - PM In, 6% - PM Out, 7% - Daily)[3]			22	22	44	47	34	81	783
Pass-by Reduction (40% - PM Peak Hour & Daily)[4]			0	0	0	191	214	405	4,161
Subtotal			*256*	*148*	*404*	*287*	*321*	*608*	*6,242*
Fast Food Restaurant w/ Drive-through Window	7.000	TSF	159	153	312	120	111	231	3,272
Internal Capture (14% - AM In, 14% - AM Out, 29% - PM In, 41% - PM Out, 35% - Daily)[3]			22	21	43	35	46	81	1,145
Pass-by Reduction (50% - AM Peak Hour, 55% - PM Peak Hour & Daily)[4]			69	66	135	47	36	83	1,170
Subtotal			*68*	*66*	*134*	*38*	*29*	*67*	*957*
Total			***324***	***214***	***538***	***325***	***350***	***675***	***7,199***

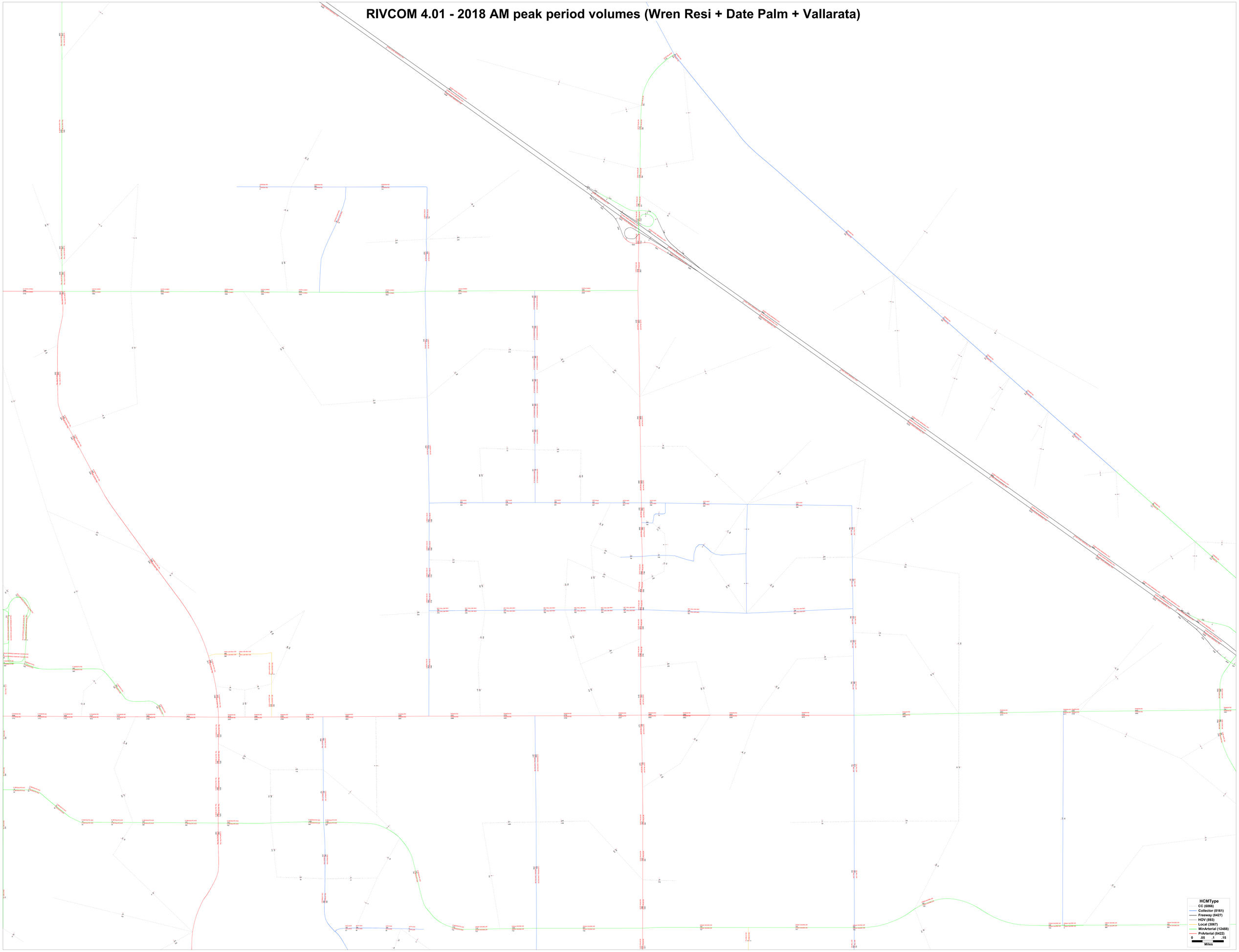
[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = Thousand Square Feet

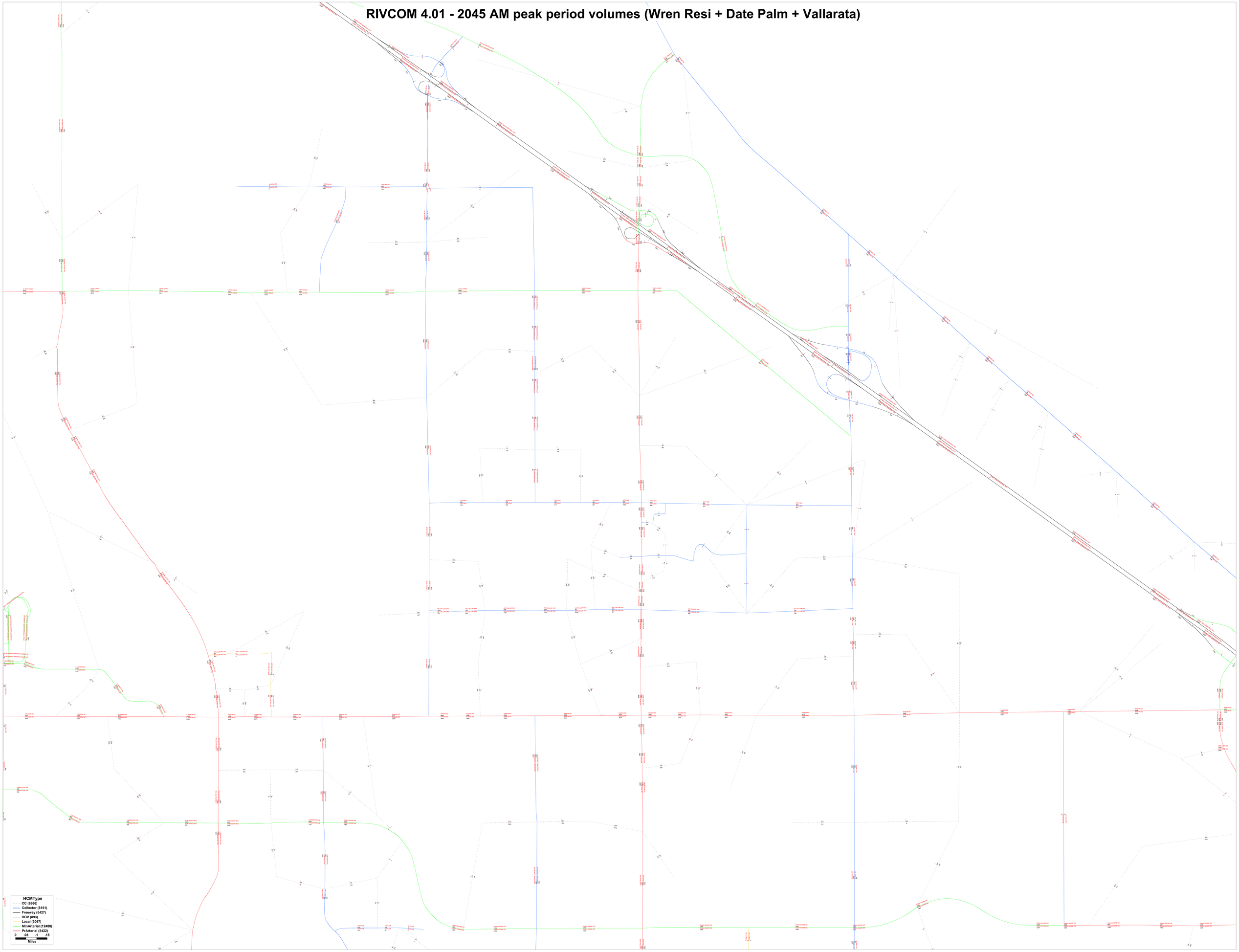
[3] Internal Capture percentage is based on NCHRP Report 684, as recommended in the ITE Trip Generation Handbook, 3rd Edition.

[4] Pass-by reduction percentage is based on the ITE methodology per 2021 Pass-By Tables for ITE Trip Generation Appendices.

RIVCOM 4.01 - 2018 AM peak period volumes (Wren Resi + Date Palm + Vallarata)



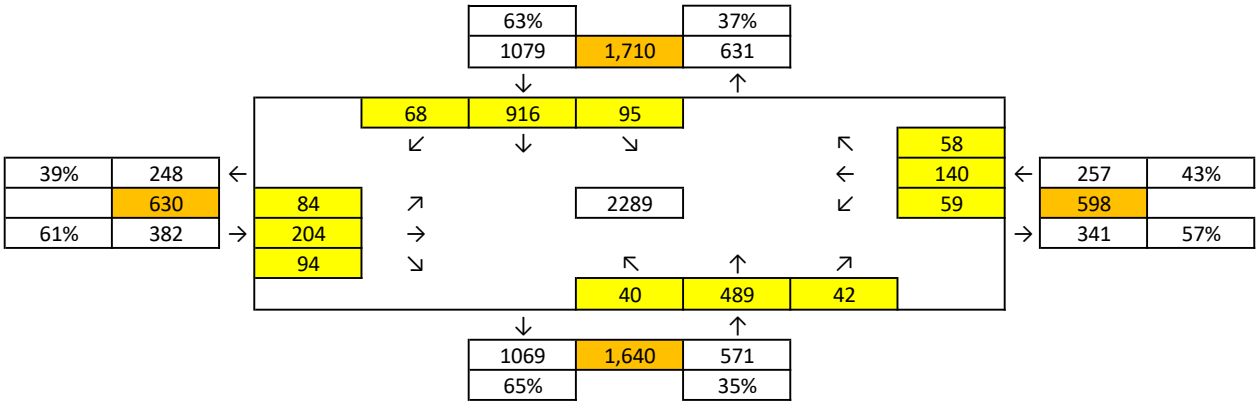
RIVCOM 4.01 - 2045 AM peak period volumes (Wren Resi + Date Palm + Vallarata)



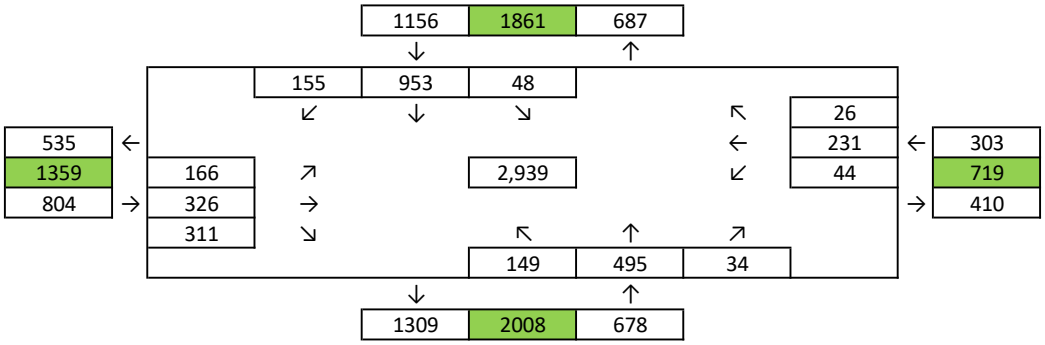
AM Peak Hour Growth

Intersection	Approach	RIVCOM 2018	RIVCOM 2045	RIVCOM 2018 to RIVCOM 2045 Annual Growth Rate	Adjusted 2023 Plus 3 Projects	Adjusted 2045 Plus Project
1	E	967	1218	0.96%	598	719
	S	5661	7292	1.07%	1640	2008
	W	616	1532	5.51%	630	1359
	N	4997	5566	0.42%	1710	1861
2	E	153	163	0.24%	607	638
	S	4383	5355	0.82%	1695	1987
	W	352	350	0.19%	438	455
	N	4212	5188	0.86%	1914	2259
3	E	925	1004	0.32%	831	886
	S	4150	5089	0.84%	1959	2304
	W	1555	1700	0.35%	805	863
	N	5140	5395	0.18%	2073	2153

Scenario: Adjusted 2023 Plus 3 Projects AM
N/S Street: Date Palm Drive
E/W Street: McCallum Way
Intersection #: 1



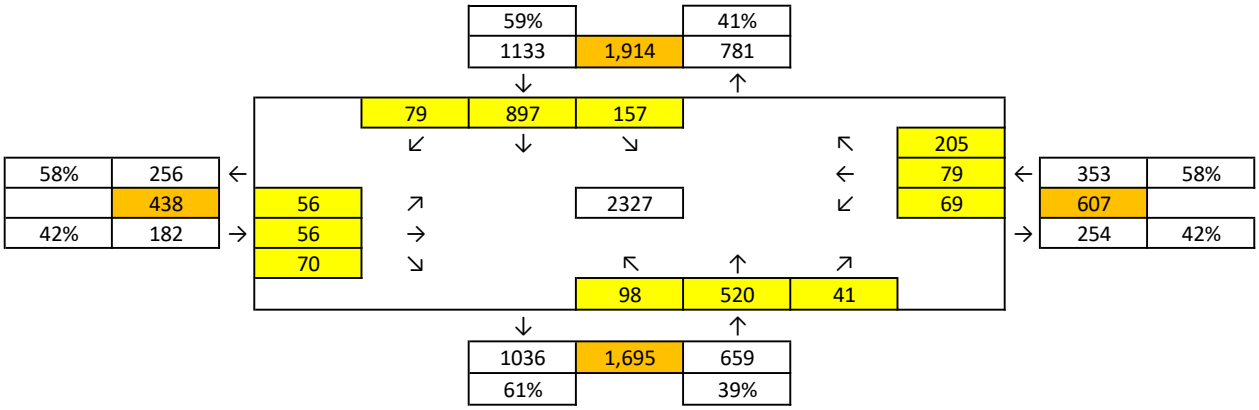
Scenario: 2045+P AM
N/S Street: Date Palm Drive
E/W Street: McCallum Way



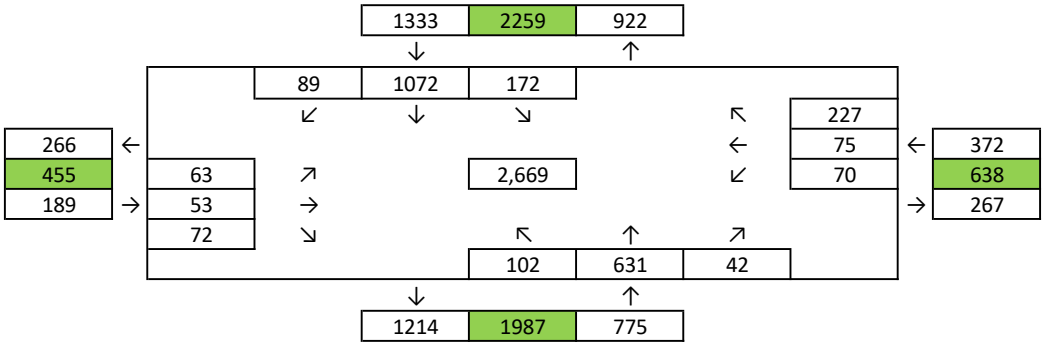
Legend

Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

Scenario: Adjusted 2023 Plus 3 Projects
N/S Street: Date Palm Drive
E/W Street: Rosemount Road
Intersection #: 2

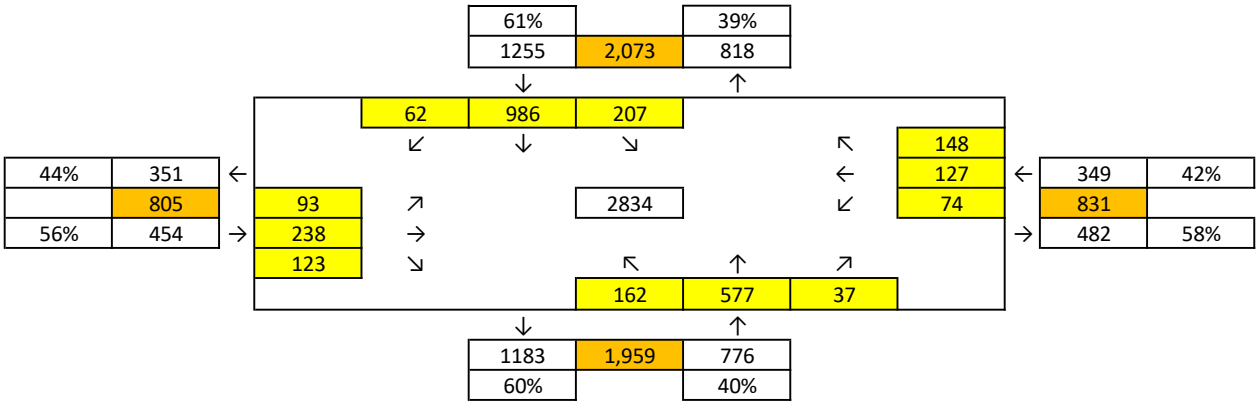


Scenario: 2045 Plus Project
N/S Street: Date Palm Drive
E/W Street: Rosemount Road

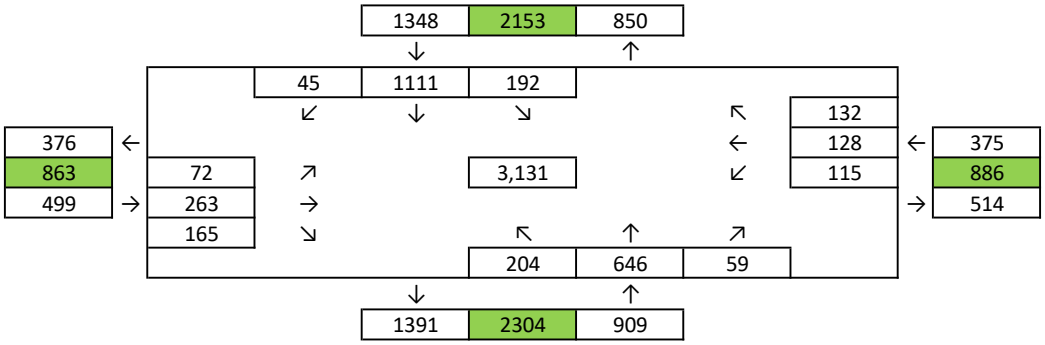


Legend
Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

Scenario: Adjusted 2023 Plus 3 Projects AM
N/S Street: Date Palm Drive
E/W Street: 30th Avenue
Intersection #: 3

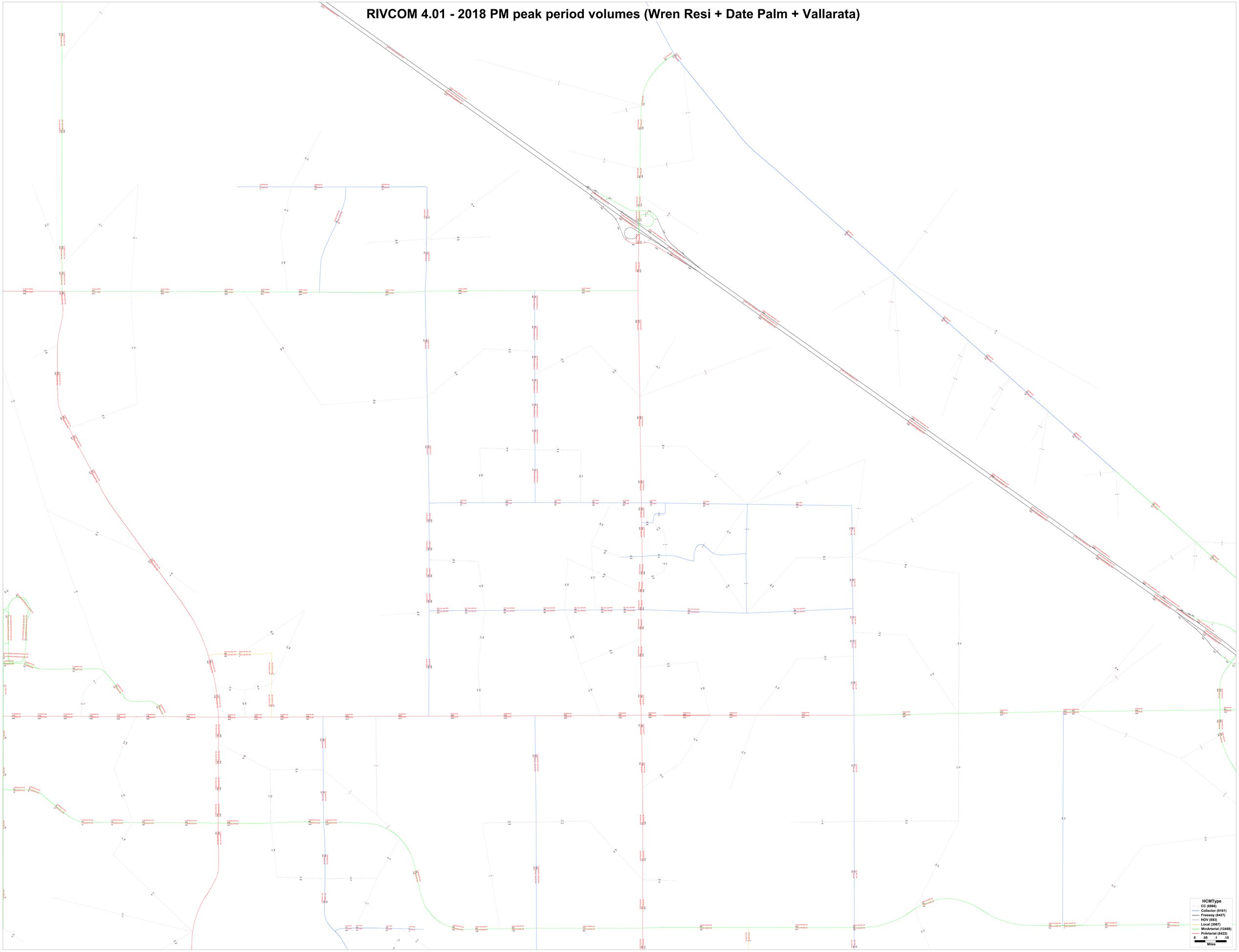


Scenario: 2045 + P AM
N/S Street: Date Palm Drive
E/W Street: 30th Avenue

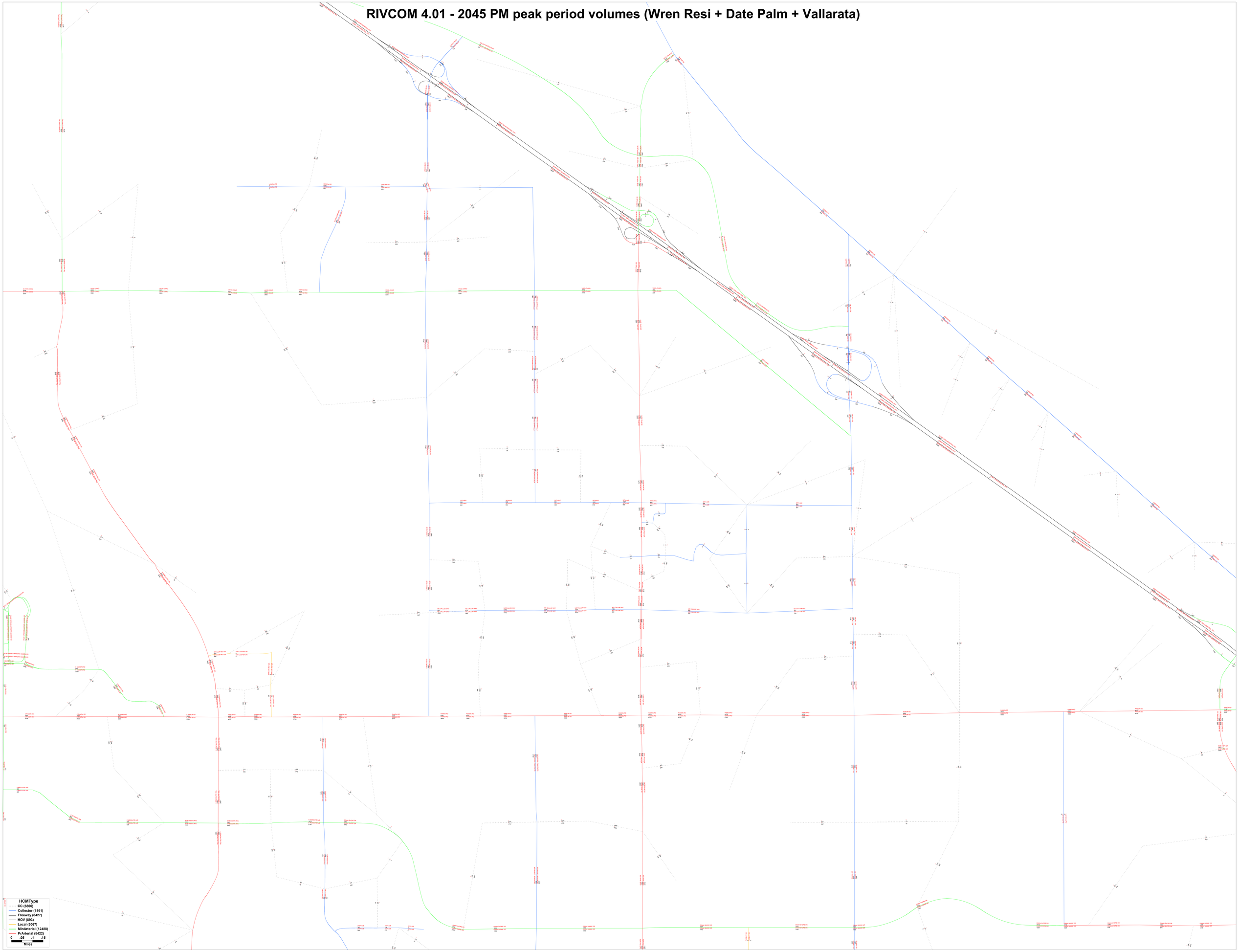


Legend
Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

RIVCOM 4.01 - 2018 PM peak period volumes (Wren Resi + Date Palm + Vallarata)



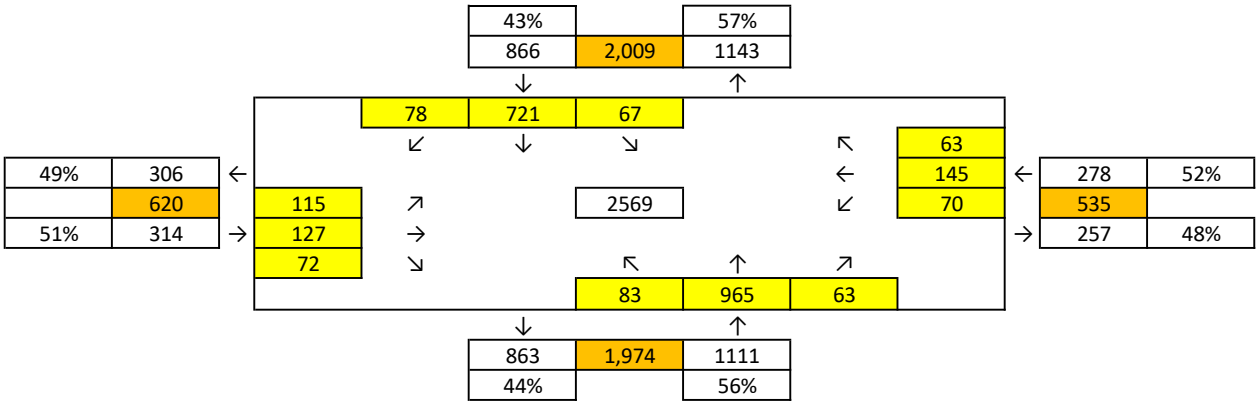
RIVCOM 4.01 - 2045 PM peak period volumes (Wren Resi + Date Palm + Vallarata)



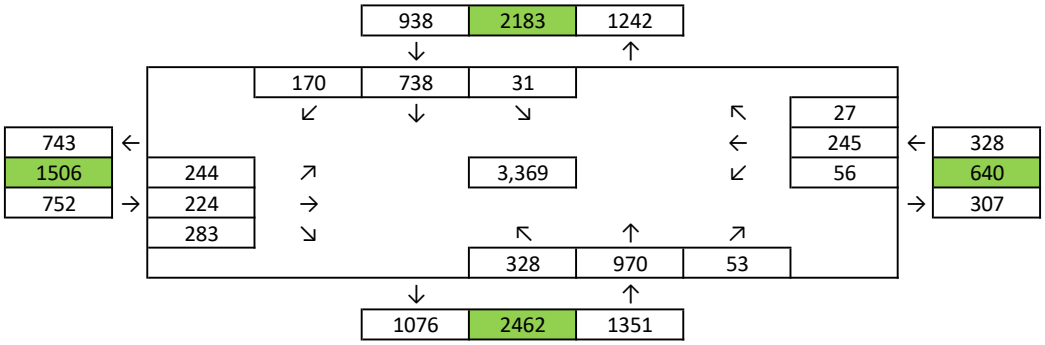
PM Peak Hour Growth

Intersection	Approach	RIVCOM 2018	RIVCOM 2045	RIVCOM 2018 to RIVCOM 2045 Annual Growth Rate	Adjusted 2023 Plus 3 Projects	Adjusted 2045 Plus Project
1	E	1182	1481	0.94%	535	640
	S	7006	9233	1.18%	1974	2462
	W	703	1994	6.80%	620	1506
	N	6281	6980	0.41%	2009	2183
2	E	206	241	0.63%	821	929
	S	5499	6931	0.96%	1969	2368
	W	465	472	0.06%	446	451
	N	5281	6730	1.02%	2346	2847
3	E	1125	1095	0.19%	478	497
	S	5194	6627	1.02%	2,307	2802
	W	1947	2113	0.32%	840	896
	N	6425	7079	0.38%	2,147	2317

Scenario: Adjusted 2023 Plus 3 Projects PM
N/S Street: Date Palm Drive
E/W Street: McCallum Way
Intersection #: 1

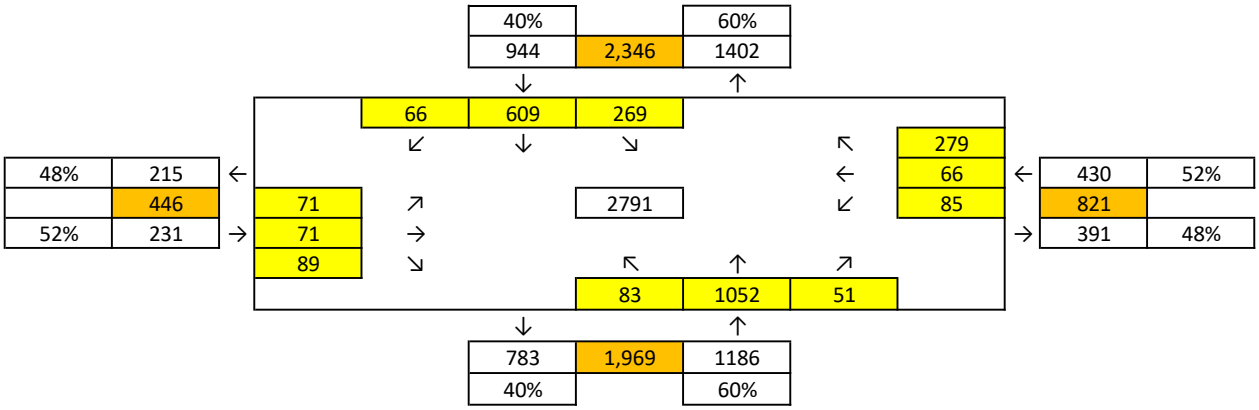


Scenario: 2045+P PM
N/S Street: Date Palm Drive
E/W Street: McCallum Way

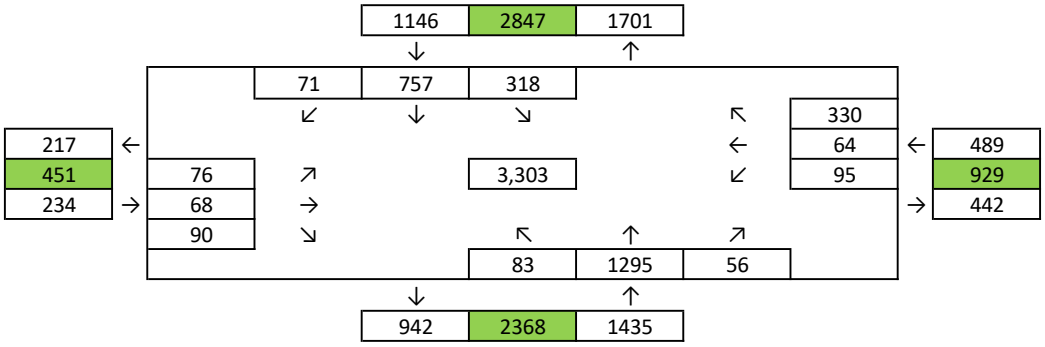


Legend
Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

Scenario: Adjusted 2023 Plus 3 Projects
N/S Street: Date Palm Drive
E/W Street: Rosemount Road
Intersection #: 2

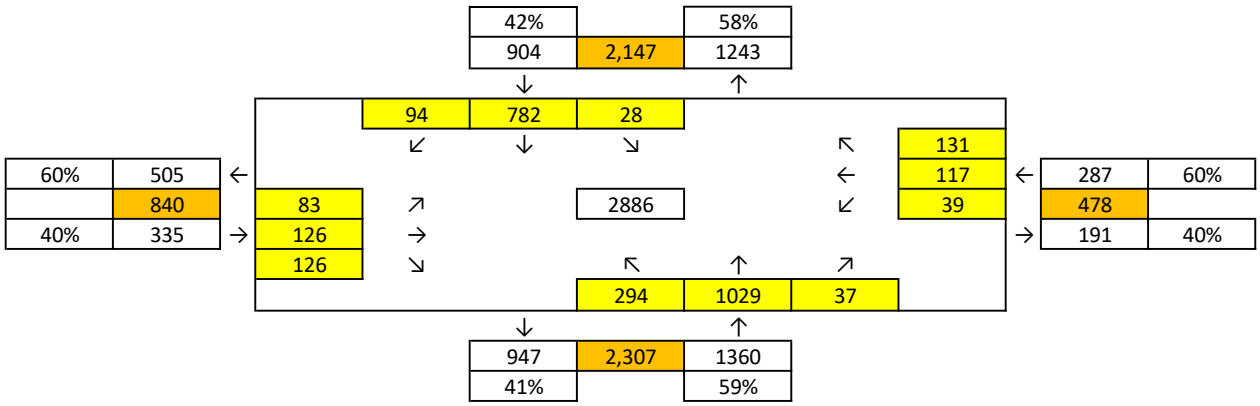


Scenario: 2045 Plus Project
N/S Street: Date Palm Drive
E/W Street: Rosemount Road

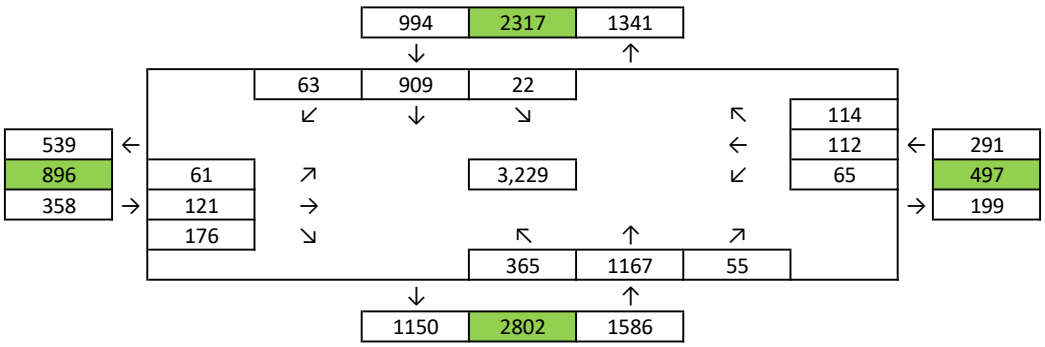


Legend
Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

Scenario: Adjusted 2023 Plus 3 Projects PM
N/S Street: Date Palm Drive
E/W Street: 30th Avenue
Intersection #: 3

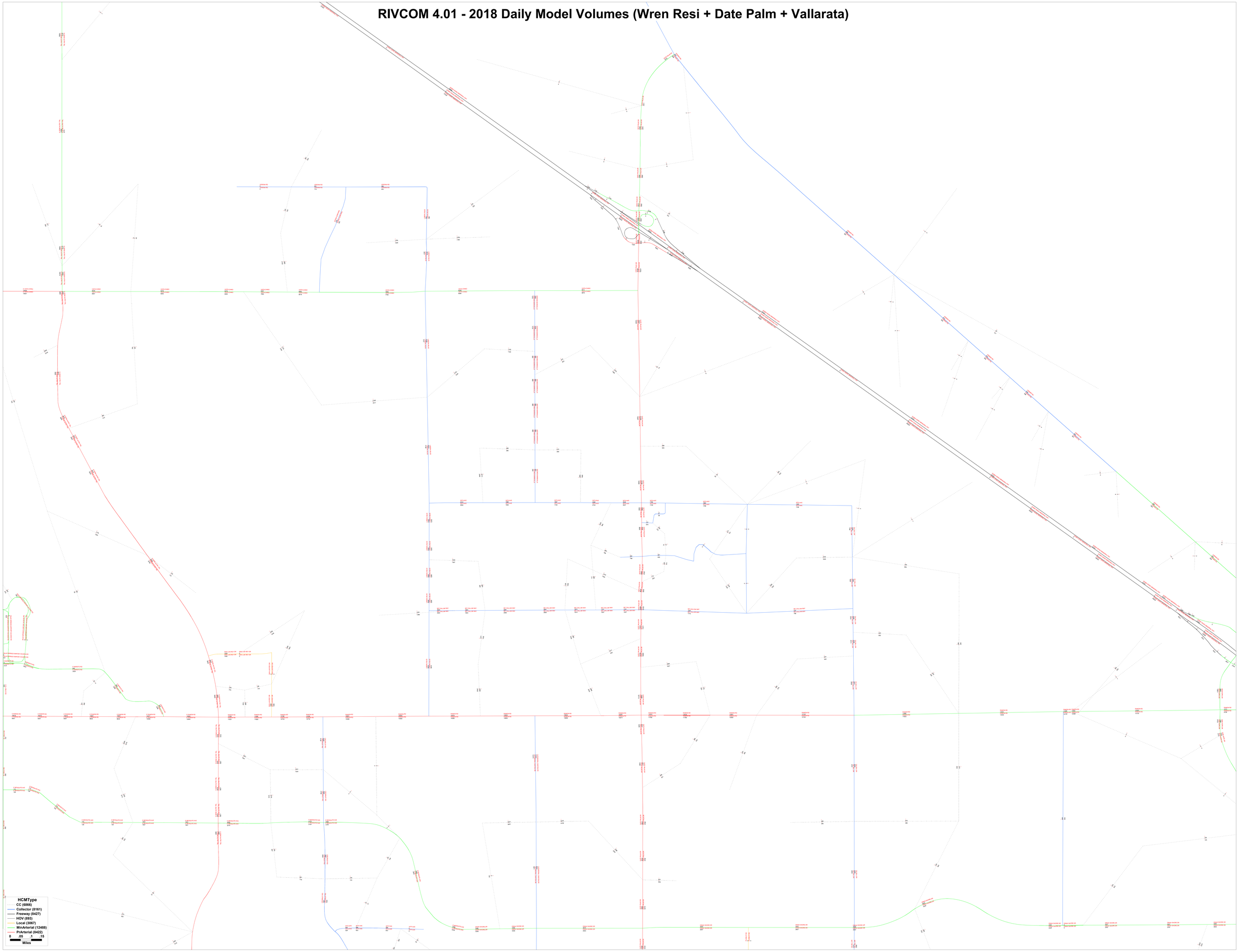


Scenario: 2045 + P PM
N/S Street: Date Palm Drive
E/W Street: 30th Avenue

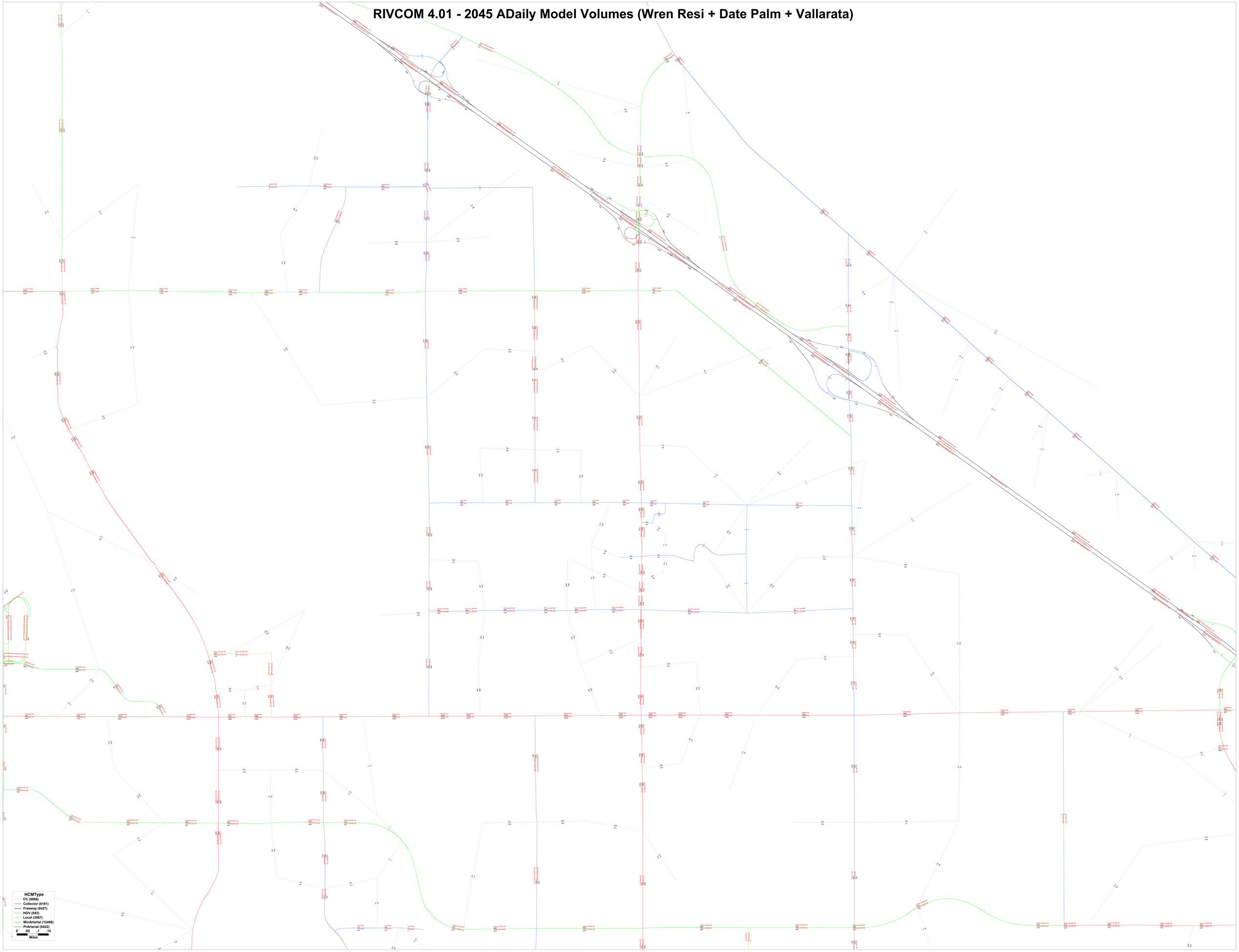


Legend
Existing Turning Movements
Existing Peak Hour Counts per intersection leg
Forecasted Peak Hour per intersection leg

RIVCOM 4.01 - 2018 Daily Model Volumes (Wren Resi + Date Palm + Vallarata)



RIVCOM 4.01 - 2045 ADaily Model Volumes (Wren Resi + Date Palm + Vallarata)



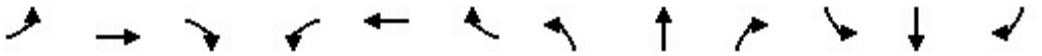
AM Peak Hour Growth

Intersection	Approach	RIVCOM 2018	RIVCOM 2045	RIVCOM 2018 to RIVCOM 2045 Annual Growth Rate	Adjusted 2023 Plus 3 Projects	Adjusted 2045 Plus Project
1	E	967	1218	0.96%	598	719
	S	5661	7292	1.07%	1640	2008
	W	616	1532	5.51%	630	1359
	N	4997	5566	0.42%	1710	1861
2	E	153	163	0.24%	607	638
	S	4383	5355	0.82%	1695	1987
	W	352	350	0.19%	438	455
	N	4212	5188	0.86%	1914	2259
3	E	925	1004	0.32%	831	886
	S	4150	5089	0.84%	1959	2304
	W	1555	1700	0.35%	805	863
	N	5140	5395	0.18%	2073	2153

APPENDIX H -

HORIZON YEAR 2045 NO PROJECT CONDITIONS PEAK HOUR INTERSECTION

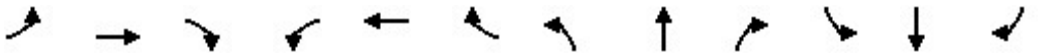
ANALYSIS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	326	311	44	231	26	149	487	34	48	929	155
Future Volume (veh/h)	166	326	311	44	231	26	149	487	34	48	929	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	184	362	346	49	257	29	166	541	38	53	1032	172
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	456	368	352	121	695	78	195	1671	116	85	1234	205
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.11	0.34	0.34	0.05	0.28	0.28
Sat Flow, veh/h	1092	872	834	741	1648	186	1781	4870	339	1781	4383	729
Grp Volume(v), veh/h	184	0	708	49	0	286	166	377	202	53	801	403
Grp Sat Flow(s),veh/h/ln	1092	0	1706	741	0	1834	1781	1702	1805	1781	1702	1708
Q Serve(g_s), s	8.9	0.0	26.3	0.7	0.0	6.8	5.9	5.2	5.3	1.9	14.2	14.2
Cycle Q Clear(g_c), s	15.7	0.0	26.3	27.0	0.0	6.8	5.9	5.2	5.3	1.9	14.2	14.2
Prop In Lane	1.00		0.49	1.00		0.10	1.00		0.19	1.00		0.43
Lane Grp Cap(c), veh/h	456	0	719	121	0	773	195	1168	619	85	958	481
V/C Ratio(X)	0.40	0.00	0.98	0.41	0.00	0.37	0.85	0.32	0.33	0.62	0.84	0.84
Avail Cap(c_a), veh/h	456	0	719	121	0	773	195	1168	619	167	1010	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	18.3	32.0	0.0	12.7	28.0	15.5	15.6	29.9	21.6	21.6
Incr Delay (d2), s/veh	0.6	0.0	29.5	2.2	0.0	0.3	28.7	0.2	0.3	7.3	6.0	11.4
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	2.0	0.0	14.0	0.8	0.0	2.3	3.7	1.6	1.8	0.9	5.6	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	47.8	34.1	0.0	13.0	56.7	15.7	15.9	37.2	27.6	33.0
LnGrp LOS	B	A	D	C	A	B	E	B	B	D	C	C
Approach Vol, veh/h		892			335			745			1257	
Approach Delay, s/veh		41.8			16.1			24.9			29.7	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	26.0		31.0	11.0	22.0		31.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	20.0		27.0	7.0	19.0		27.0				
Max Q Clear Time (g_c+I1), s	3.9	7.3		28.3	7.9	16.2		29.0				
Green Ext Time (p_c), s	0.0	2.5		0.0	0.0	1.8		0.0				

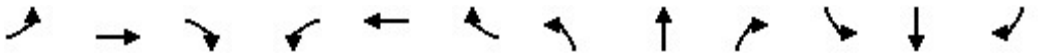
Intersection Summary												
HCM 6th Ctrl Delay			30.5									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	263	165	115	128	132	204	625	59	192	1104	45
Future Volume (veh/h)	72	263	165	115	128	132	204	625	59	192	1104	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	78	286	179	125	139	143	222	679	64	209	1200	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	438	359	158	498	410	266	1415	132	252	1459	60
Arrive On Green	0.06	0.23	0.23	0.09	0.27	0.27	0.15	0.30	0.30	0.14	0.29	0.29
Sat Flow, veh/h	1781	1870	1532	1781	1870	1541	1781	4748	444	1781	5031	205
Grp Volume(v), veh/h	78	286	179	125	139	143	222	485	258	209	812	437
Grp Sat Flow(s),veh/h/ln	1781	1870	1532	1781	1870	1541	1781	1702	1789	1781	1702	1833
Q Serve(g_s), s	2.9	9.3	6.8	4.6	4.0	5.1	8.2	7.9	8.0	7.7	15.0	15.0
Cycle Q Clear(g_c), s	2.9	9.3	6.8	4.6	4.0	5.1	8.2	7.9	8.0	7.7	15.0	15.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.25	1.00		0.11
Lane Grp Cap(c), veh/h	102	438	359	158	498	410	266	1014	533	252	987	531
V/C Ratio(X)	0.77	0.65	0.50	0.79	0.28	0.35	0.84	0.48	0.48	0.83	0.82	0.82
Avail Cap(c_a), veh/h	159	723	592	159	723	595	291	1113	585	265	1062	572
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	31.3	23.3	22.3	30.0	19.6	20.0	27.8	19.3	19.4	28.1	22.3	22.3
Incr Delay (d2), s/veh	11.4	1.7	1.1	22.8	0.3	0.5	17.4	0.4	0.7	18.9	5.0	8.9
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	1.5	3.8	2.3	2.8	1.6	1.7	4.4	2.8	3.0	4.2	5.6	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	25.0	23.4	52.8	19.9	20.5	45.2	19.7	20.1	47.0	27.3	31.2
LnGrp LOS	D	C	C	D	B	C	D	B	C	D	C	C
Approach Vol, veh/h		543			407			965			1458	
Approach Delay, s/veh		27.0			30.2			25.7			31.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	24.1	10.0	19.8	14.0	23.5	7.8	21.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	22.0	6.0	26.0	11.0	21.0	6.0	26.0
Max Q Clear Time (g_c+I1), s	9.7	10.0	6.6	11.3	10.2	17.0	4.9	7.1
Green Ext Time (p_c), s	0.0	3.5	0.0	1.8	0.1	2.5	0.0	1.0

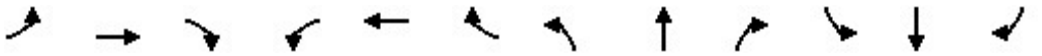
Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	224	283	56	245	27	328	944	53	31	722	170
Future Volume (veh/h)	244	224	283	56	245	27	328	944	53	31	722	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	271	249	314	62	272	30	364	1049	59	34	802	189
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	373	279	351	154	618	68	405	2070	116	62	926	216
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.23	0.42	0.42	0.03	0.23	0.23
Sat Flow, veh/h	1076	745	939	847	1652	182	1781	4944	278	1781	4100	957
Grp Volume(v), veh/h	271	0	563	62	0	302	364	722	386	34	665	326
Grp Sat Flow(s),veh/h/ln	1076	0	1684	847	0	1834	1781	1702	1817	1781	1702	1652
Q Serve(g_s), s	17.4	0.0	21.8	4.2	0.0	8.6	13.8	10.9	10.9	1.3	13.1	13.2
Cycle Q Clear(g_c), s	26.0	0.0	21.8	26.0	0.0	8.6	13.8	10.9	10.9	1.3	13.1	13.2
Prop In Lane	1.00		0.56	1.00		0.10	1.00		0.15	1.00		0.58
Lane Grp Cap(c), veh/h	373	0	630	154	0	686	405	1425	761	62	769	373
V/C Ratio(X)	0.73	0.00	0.89	0.40	0.00	0.44	0.90	0.51	0.51	0.55	0.86	0.87
Avail Cap(c_a), veh/h	373	0	630	154	0	686	410	1425	761	128	783	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	20.5	33.1	0.0	16.3	26.1	14.9	14.9	33.0	25.9	26.0
Incr Delay (d2), s/veh	6.9	0.0	15.2	1.7	0.0	0.4	21.9	0.3	0.6	7.5	9.8	19.4
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	4.7	0.0	9.9	1.0	0.0	3.2	7.5	3.4	3.7	0.7	5.7	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	0.0	35.6	34.7	0.0	16.7	48.0	15.2	15.5	40.5	35.6	45.4
LnGrp LOS	C	A	D	C	A	B	D	B	B	D	D	D
Approach Vol, veh/h		834			364			1472			1025	
Approach Delay, s/veh		34.8			19.8			23.4			38.9	
Approach LOS		C			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	33.1		30.0	19.8	19.7		30.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	27.0		26.0	16.0	16.0		26.0				
Max Q Clear Time (g_c+I1), s	3.3	12.9		28.0	15.8	15.2		28.0				
Green Ext Time (p_c), s	0.0	5.4		0.0	0.0	0.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		29.9	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	121	176	65	112	114	365	1153	55	22	886	63
Future Volume (veh/h)	61	121	176	65	112	114	365	1153	55	22	886	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	66	132	191	71	122	124	397	1253	60	24	963	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	383	312	96	386	317	449	2412	116	48	1256	89
Arrive On Green	0.05	0.20	0.20	0.05	0.21	0.21	0.25	0.48	0.48	0.03	0.26	0.26
Sat Flow, veh/h	1781	1870	1527	1781	1870	1534	1781	4992	239	1781	4868	343
Grp Volume(v), veh/h	66	132	191	71	122	124	397	854	459	24	673	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1527	1781	1870	1534	1781	1702	1827	1781	1702	1807
Q Serve(g_s), s	2.5	4.2	7.9	2.7	3.8	4.8	14.8	12.0	12.0	0.9	12.6	12.7
Cycle Q Clear(g_c), s	2.5	4.2	7.9	2.7	3.8	4.8	14.8	12.0	12.0	0.9	12.6	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.19
Lane Grp Cap(c), veh/h	93	383	312	96	386	317	449	1645	883	48	878	466
V/C Ratio(X)	0.71	0.35	0.61	0.74	0.32	0.39	0.88	0.52	0.52	0.50	0.77	0.77
Avail Cap(c_a), veh/h	129	704	575	129	704	577	567	1873	1005	129	1035	549
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	32.2	23.5	25.0	32.2	23.3	23.7	24.9	12.3	12.3	33.2	23.7	23.7
Incr Delay (d2), s/veh	10.5	0.5	1.9	14.1	0.5	0.8	13.0	0.3	0.5	8.0	2.9	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.7	2.7	1.5	1.6	1.6	7.1	3.7	4.0	0.5	4.6	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	24.0	26.9	46.3	23.7	24.5	37.9	12.6	12.8	41.2	26.6	29.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		389			317			1710			1055	
Approach Delay, s/veh		28.6			29.1			18.5			27.9	
Approach LOS		C			C			B			C	

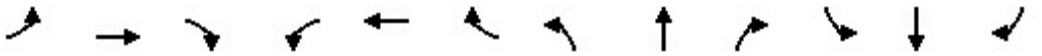
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	37.4	7.7	18.1	21.4	21.8	7.6	18.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	38.0	5.0	26.0	22.0	21.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	2.9	14.0	4.7	9.9	16.8	14.7	4.5	6.8
Green Ext Time (p_c), s	0.0	9.0	0.0	1.1	0.6	3.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

APPENDIX H -

HORIZON YEAR PLUS PROJECT CONDITIONS PEAK HOUR INTERSECTION

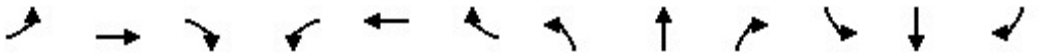
ANALYSIS WORKSHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	326	311	44	231	26	149	495	34	48	953	155
Future Volume (veh/h)	166	326	311	44	231	26	149	495	34	48	953	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	184	362	346	49	257	29	166	550	38	53	1059	172
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	454	367	350	119	693	78	194	1682	115	85	1249	202
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.11	0.35	0.35	0.05	0.28	0.28
Sat Flow, veh/h	1092	872	834	741	1648	186	1781	4876	334	1781	4402	714
Grp Volume(v), veh/h	184	0	708	49	0	286	166	383	205	53	819	412
Grp Sat Flow(s),veh/h/ln	1092	0	1706	741	0	1834	1781	1702	1806	1781	1702	1711
Q Serve(g_s), s	8.9	0.0	26.4	0.6	0.0	6.9	5.9	5.3	5.4	1.9	14.6	14.6
Cycle Q Clear(g_c), s	15.8	0.0	26.4	27.0	0.0	6.9	5.9	5.3	5.4	1.9	14.6	14.6
Prop In Lane	1.00		0.49	1.00		0.10	1.00		0.18	1.00		0.42
Lane Grp Cap(c), veh/h	454	0	717	119	0	771	194	1175	623	85	966	485
V/C Ratio(X)	0.41	0.00	0.99	0.41	0.00	0.37	0.85	0.33	0.33	0.62	0.85	0.85
Avail Cap(c_a), veh/h	454	0	717	119	0	771	194	1175	623	166	1007	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	18.4	32.1	0.0	12.8	28.1	15.5	15.5	30.0	21.7	21.7
Incr Delay (d2), s/veh	0.6	0.0	30.3	2.3	0.0	0.3	29.2	0.2	0.3	7.3	6.7	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	14.2	0.8	0.0	2.4	3.7	1.7	1.8	0.9	5.9	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	0.0	48.7	34.3	0.0	13.1	57.3	15.7	15.8	37.3	28.4	34.2
LnGrp LOS	B	A	D	C	A	B	E	B	B	D	C	C
Approach Vol, veh/h		892			335			754			1284	
Approach Delay, s/veh		42.6			16.2			24.9			30.6	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	26.2		31.0	11.0	22.2		31.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	6.0	20.0		27.0	7.0	19.0		27.0				
Max Q Clear Time (g_c+I1), s	3.9	7.4		28.4	7.9	16.6		29.0				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	1.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		31.1	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	53	72	70	75	227	102	631	42	172	1072	89
Future Volume (veh/h)	63	53	72	70	75	227	102	631	42	172	1072	89
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	58	78	76	82	247	111	686	46	187	1165	97
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	157	211	167	103	311	142	1260	84	234	1486	124
Arrive On Green	0.06	0.22	0.22	0.09	0.25	0.25	0.08	0.26	0.26	0.13	0.31	0.31
Sat Flow, veh/h	1781	723	972	1781	411	1237	1781	4890	326	1781	4803	400
Grp Volume(v), veh/h	68	0	136	76	0	329	111	476	256	187	826	436
Grp Sat Flow(s),veh/h/ln	1781	0	1695	1781	0	1648	1781	1702	1812	1781	1702	1798
Q Serve(g_s), s	2.0	0.0	3.6	2.2	0.0	10.0	3.3	6.4	6.5	5.4	11.8	11.8
Cycle Q Clear(g_c), s	2.0	0.0	3.6	2.2	0.0	10.0	3.3	6.4	6.5	5.4	11.8	11.8
Prop In Lane	1.00		0.57	1.00		0.75	1.00		0.18	1.00		0.22
Lane Grp Cap(c), veh/h	106	0	368	167	0	414	142	877	467	234	1053	556
V/C Ratio(X)	0.64	0.00	0.37	0.46	0.00	0.79	0.78	0.54	0.55	0.80	0.78	0.78
Avail Cap(c_a), veh/h	167	0	668	167	0	649	167	958	510	267	1150	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	17.8	22.9	0.0	18.7	24.1	17.1	17.1	22.5	16.8	16.8
Incr Delay (d2), s/veh	6.3	0.0	0.6	1.9	0.0	3.7	18.2	0.5	1.0	14.1	3.3	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.4	0.9	0.0	3.9	1.9	2.1	2.3	2.9	4.1	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	0.0	18.4	24.8	0.0	22.3	42.3	17.6	18.1	36.6	20.1	23.0
LnGrp LOS	C	A	B	C	A	C	D	B	B	D	C	C
Approach Vol, veh/h		204			405			843			1449	
Approach Delay, s/veh		22.5			22.8			21.0			23.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	17.7	9.0	15.6	8.2	20.5	7.2	17.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	8.0	15.0	5.0	21.0	5.0	18.0	5.0	21.0
Max Q Clear Time (g_c+I1), s	7.4	8.5	4.2	5.6	5.3	13.8	4.0	12.0
Green Ext Time (p_c), s	0.0	2.3	0.0	0.6	0.0	2.7	0.0	1.4

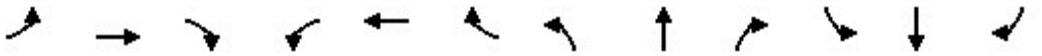
Intersection Summary	
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Intersection: 2: Date Palm Drive & Rosemount Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	T	R	L	T	T
Maximum Queue (ft)	84	108	87	181	120	147	129	135	68	201	229	247
Average Queue (ft)	35	41	40	80	59	79	74	69	21	100	122	137
95th Queue (ft)	68	85	74	149	101	125	119	114	53	171	202	224
Link Distance (ft)		425		430		560	560	560			1210	1210
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100		140		180				100	280		
Storage Blk Time (%)	0	1		1		0		1	0	0		
Queuing Penalty (veh)	0	0		1		0		0	0	0		

Intersection: 2: Date Palm Drive & Rosemount Road

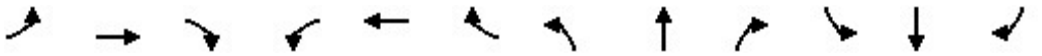
Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	249	180
Average Queue (ft)	147	59
95th Queue (ft)	237	136
Link Distance (ft)	1210	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	14	0
Queuing Penalty (veh)	13	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	263	165	115	128	132	204	646	59	192	1111	45
Future Volume (veh/h)	72	263	165	115	128	132	204	646	59	192	1111	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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	78	286	179	125	139	143	222	702	64	209	1208	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	438	358	158	498	410	266	1422	129	252	1462	59
Arrive On Green	0.06	0.23	0.23	0.09	0.27	0.27	0.15	0.30	0.30	0.14	0.29	0.29
Sat Flow, veh/h	1781	1870	1532	1781	1870	1541	1781	4764	431	1781	5033	204
Grp Volume(v), veh/h	78	286	179	125	139	143	222	500	266	209	817	440
Grp Sat Flow(s),veh/h/ln	1781	1870	1532	1781	1870	1541	1781	1702	1791	1781	1702	1833
Q Serve(g_s), s	2.9	9.3	6.8	4.6	4.0	5.1	8.2	8.1	8.2	7.7	15.1	15.1
Cycle Q Clear(g_c), s	2.9	9.3	6.8	4.6	4.0	5.1	8.2	8.1	8.2	7.7	15.1	15.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.11
Lane Grp Cap(c), veh/h	101	438	358	158	498	410	266	1016	535	252	989	532
V/C Ratio(X)	0.77	0.65	0.50	0.79	0.28	0.35	0.84	0.49	0.50	0.83	0.83	0.83
Avail Cap(c_a), veh/h	159	721	591	159	721	594	291	1111	584	264	1060	571
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	31.4	23.3	22.4	30.1	19.6	20.0	27.9	19.4	19.5	28.2	22.3	22.3
Incr Delay (d2), s/veh	11.5	1.7	1.1	22.9	0.3	0.5	17.5	0.4	0.7	18.9	5.2	9.2
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	1.5	3.8	2.3	2.8	1.6	1.7	4.4	2.9	3.1	4.2	5.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	25.0	23.5	53.0	19.9	20.5	45.4	19.8	20.2	47.1	27.5	31.6
LnGrp LOS	D	C	C	D	B	C	D	B	C	D	C	C
Approach Vol, veh/h		543			407			988			1466	
Approach Delay, s/veh		27.1			30.3			25.7			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	24.1	10.0	19.8	14.1	23.6	7.8	21.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	22.0	6.0	26.0	11.0	21.0	6.0	26.0
Max Q Clear Time (g_c+I1), s	9.7	10.2	6.6	11.3	10.2	17.1	4.9	7.1
Green Ext Time (p_c), s	0.0	3.5	0.0	1.8	0.1	2.4	0.0	1.0

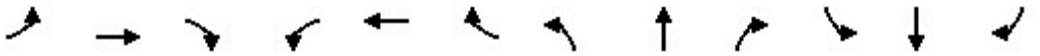
Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	224	283	56	245	27	328	970	53	31	738	170
Future Volume (veh/h)	244	224	283	56	245	27	328	970	53	31	738	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	271	249	314	62	272	30	364	1078	59	34	820	189
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	372	278	351	153	617	68	405	2079	114	62	936	214
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.23	0.42	0.42	0.03	0.23	0.23
Sat Flow, veh/h	1076	745	939	847	1652	182	1781	4952	271	1781	4119	941
Grp Volume(v), veh/h	271	0	563	62	0	302	364	741	396	34	676	333
Grp Sat Flow(s),veh/h/ln	1076	0	1684	847	0	1834	1781	1702	1819	1781	1702	1656
Q Serve(g_s), s	17.4	0.0	21.9	4.1	0.0	8.6	13.8	11.2	11.3	1.3	13.3	13.5
Cycle Q Clear(g_c), s	26.0	0.0	21.9	26.0	0.0	8.6	13.8	11.2	11.3	1.3	13.3	13.5
Prop In Lane	1.00		0.56	1.00		0.10	1.00		0.15	1.00		0.57
Lane Grp Cap(c), veh/h	372	0	629	153	0	685	405	1429	764	62	773	376
V/C Ratio(X)	0.73	0.00	0.90	0.41	0.00	0.44	0.90	0.52	0.52	0.55	0.87	0.88
Avail Cap(c_a), veh/h	372	0	629	153	0	685	409	1429	764	128	782	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	20.6	33.2	0.0	16.4	26.1	15.0	15.0	33.1	26.0	26.0
Incr Delay (d2), s/veh	7.0	0.0	15.4	1.7	0.0	0.4	22.0	0.3	0.6	7.5	10.7	20.9
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	4.7	0.0	9.9	1.0	0.0	3.2	7.5	3.5	3.8	0.7	6.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	0.0	36.0	34.9	0.0	16.8	48.2	15.3	15.6	40.6	36.7	47.0
LnGrp LOS	C	A	D	C	A	B	D	B	B	D	D	D
Approach Vol, veh/h		834			364			1501			1043	
Approach Delay, s/veh		35.1			19.9			23.4			40.1	
Approach LOS		D			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	33.2		30.0	19.8	19.8		30.0				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	5.0	27.0		26.0	16.0	16.0		26.0				
Max Q Clear Time (g_c+I1), s	3.3	13.3		28.0	15.8	15.5		28.0				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.0	0.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		30.3	
HCM 6th LOS		C	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	68	90	95	64	330	83	1295	56	318	757	71
Future Volume (veh/h)	76	68	90	95	64	330	83	1295	56	318	757	71
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	83	74	98	103	70	359	90	1408	61	346	823	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	167	221	121	63	322	116	1556	67	379	2175	203
Arrive On Green	0.06	0.23	0.23	0.07	0.24	0.24	0.06	0.31	0.31	0.21	0.46	0.46
Sat Flow, veh/h	1781	730	967	1781	265	1360	1781	5018	217	1781	4752	443
Grp Volume(v), veh/h	83	0	172	103	0	429	90	955	514	346	588	312
Grp Sat Flow(s),veh/h/ln	1781	0	1696	1781	0	1626	1781	1702	1831	1781	1702	1791
Q Serve(g_s), s	4.1	0.0	7.7	5.1	0.0	21.0	4.4	23.8	23.8	16.8	10.0	10.1
Cycle Q Clear(g_c), s	4.1	0.0	7.7	5.1	0.0	21.0	4.4	23.8	23.8	16.8	10.0	10.1
Prop In Lane	1.00		0.57	1.00		0.84	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	106	0	388	121	0	385	116	1056	568	379	1558	820
V/C Ratio(X)	0.78	0.00	0.44	0.85	0.00	1.11	0.78	0.90	0.90	0.91	0.38	0.38
Avail Cap(c_a), veh/h	121	0	402	121	0	385	201	1076	579	382	1558	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	0.0	29.3	40.9	0.0	33.8	40.8	29.3	29.3	34.1	15.7	15.8
Incr Delay (d2), s/veh	24.7	0.0	0.8	41.3	0.0	80.2	10.6	10.7	17.6	25.8	0.2	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	2.5	0.0	3.2	3.6	0.0	16.7	2.2	10.5	12.4	9.5	3.5	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	0.0	30.1	82.1	0.0	114.0	51.4	40.0	46.9	59.8	15.9	16.1
LnGrp LOS	E	A	C	F	A	F	D	D	D	E	B	B
Approach Vol, veh/h		255			532			1559			1246	
Approach Delay, s/veh		41.7			107.8			42.9			28.1	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.8	31.5	10.0	24.3	9.8	44.6	9.3	25.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	19.0	28.0	6.0	21.0	10.0	37.0	6.0	21.0
Max Q Clear Time (g_c+I1), s	18.8	25.8	7.1	9.7	6.4	12.1	6.1	23.0
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.1	5.7	0.0	0.0

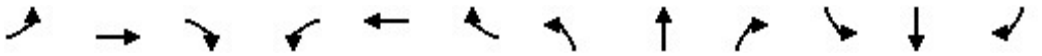
Intersection Summary	
HCM 6th Ctrl Delay	47.3
HCM 6th LOS	D

Intersection: 2: Date Palm Drive & Rosemount Road

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	T	T	R	L	T	T
Maximum Queue (ft)	122	193	190	331	236	327	327	285	177	307	189	180
Average Queue (ft)	53	69	70	148	81	220	192	153	33	177	68	84
95th Queue (ft)	98	138	147	267	185	314	280	235	103	281	160	162
Link Distance (ft)		425		430		560	560	560			1210	1210
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	100		140		180				100	280		
Storage Blk Time (%)	1	4	0	11	0	16		15		2		
Queuing Penalty (veh)	1	3	2	10	0	14		8		4		

Intersection: 2: Date Palm Drive & Rosemount Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	208	113
Average Queue (ft)	98	27
95th Queue (ft)	179	75
Link Distance (ft)	1210	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		140
Storage Blk Time (%)	6	0
Queuing Penalty (veh)	4	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	121	176	65	112	114	365	1167	55	22	909	63
Future Volume (veh/h)	61	121	176	65	112	114	365	1167	55	22	909	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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	66	132	191	71	122	124	397	1268	60	24	988	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	381	311	95	384	315	446	2437	115	47	1289	89
Arrive On Green	0.05	0.20	0.20	0.05	0.21	0.21	0.25	0.49	0.49	0.03	0.26	0.26
Sat Flow, veh/h	1781	1870	1527	1781	1870	1534	1781	4995	236	1781	4877	335
Grp Volume(v), veh/h	66	132	191	71	122	124	397	864	464	24	689	367
Grp Sat Flow(s),veh/h/ln	1781	1870	1527	1781	1870	1534	1781	1702	1827	1781	1702	1809
Q Serve(g_s), s	2.6	4.2	8.0	2.8	3.9	4.9	15.1	12.2	12.2	0.9	13.1	13.1
Cycle Q Clear(g_c), s	2.6	4.2	8.0	2.8	3.9	4.9	15.1	12.2	12.2	0.9	13.1	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.19
Lane Grp Cap(c), veh/h	92	381	311	95	384	315	446	1661	892	47	899	478
V/C Ratio(X)	0.72	0.35	0.61	0.75	0.32	0.39	0.89	0.52	0.52	0.51	0.77	0.77
Avail Cap(c_a), veh/h	127	694	567	127	694	569	534	1846	991	127	1069	568
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	32.7	23.9	25.4	32.7	23.7	24.1	25.3	12.3	12.3	33.6	23.8	23.8
Incr Delay (d2), s/veh	11.3	0.5	2.0	15.1	0.5	0.8	15.0	0.3	0.5	8.1	2.8	5.3
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	1.3	1.7	2.8	1.5	1.6	1.7	7.5	3.8	4.1	0.5	4.8	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	24.4	27.4	47.8	24.1	24.9	40.3	12.6	12.8	41.7	26.6	29.1
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	C	C
Approach Vol, veh/h		389			317			1725			1080	
Approach Delay, s/veh		29.2			29.7			19.0			27.8	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	38.2	7.7	18.3	21.5	22.5	7.6	18.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	38.0	5.0	26.0	21.0	22.0	5.0	26.0
Max Q Clear Time (g_c+I1), s	2.9	14.2	4.8	10.0	17.1	15.1	4.6	6.9
Green Ext Time (p_c), s	0.0	9.1	0.0	1.1	0.5	3.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

APPENDIX J -

INTERSECTION 2 SIGNAL WARRANT WORKSHEETS

Scenario: Project Completion Year 2025 Conditions
Major Approach: Date Palm Drive
Minor Approach: Rosemount Road

WARRANT 3 - PEAK HOUR

(Part A or Part B must be satisfied) SATISFIED ☑ YES ☐ NO

Part A SATISFIED ☐ YES ☑ NO

(All parts 1, 2, and 3 below must be satisfied for the same

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐ YES ☑ NO
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☑ YES ☑ NO
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches	☑ YES ☐ NO

SATISFIED ☑ YES ☐ NO

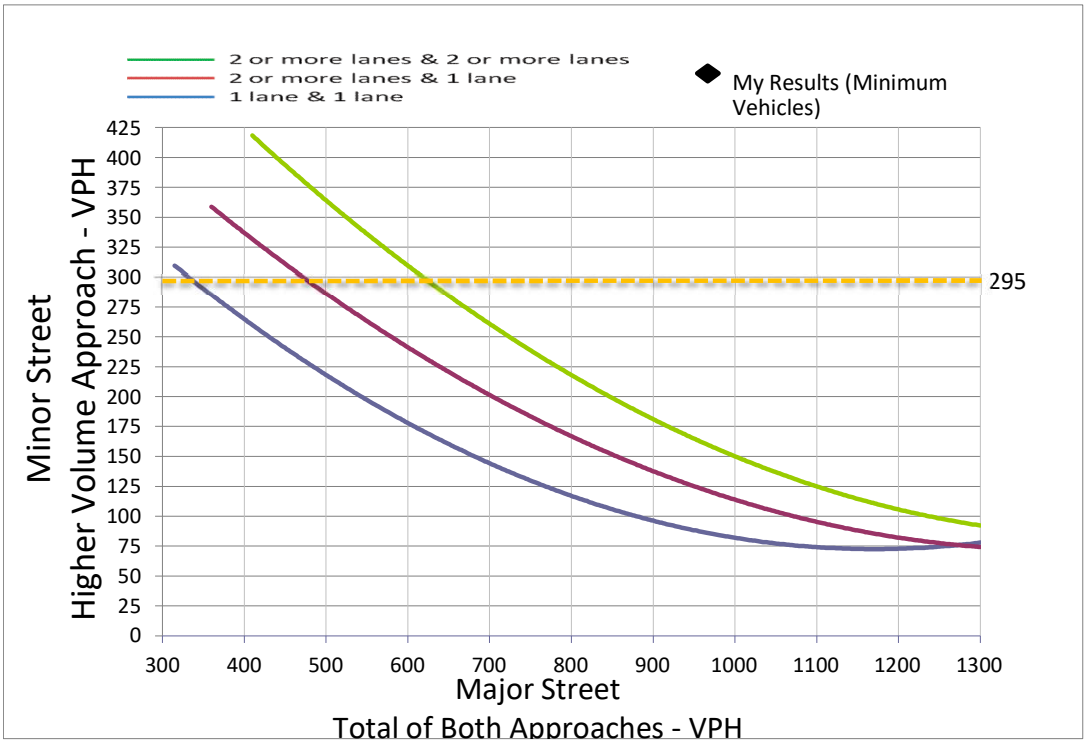
Part B

APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☐	☑	1904 ← ENTER CORRECT HOURS
Higher Approach - Minor Street	☑	☐	295

ENTER PEAK HOUR VOL.

The plotted point falls above the applicable curve in Figure 4C-3 (Urban Areas)	☐ YES ☐ NO
OR The plotted point falls above the applicable curve in Figure 4C-4 (Rural Areas)	☑ YES ☐ NO

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



Scenario: Cumulative Year 2025 Conditions
Major Approach: Date Palm Drive
Minor Approach: Rosemount Road

WARRANT 3 - PEAK HOUR

(Part A or Part B must be satisfied) SATISFIED ☑ YES ☐ NO

Part A SATISFIED ☐ YES ☑ NO

(All parts 1, 2, and 3 below must be satisfied for the same

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐ YES ☑ NO
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☑ YES ☐ NO
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches	☑ YES ☐ NO

SATISFIED ☑ YES ☐ NO

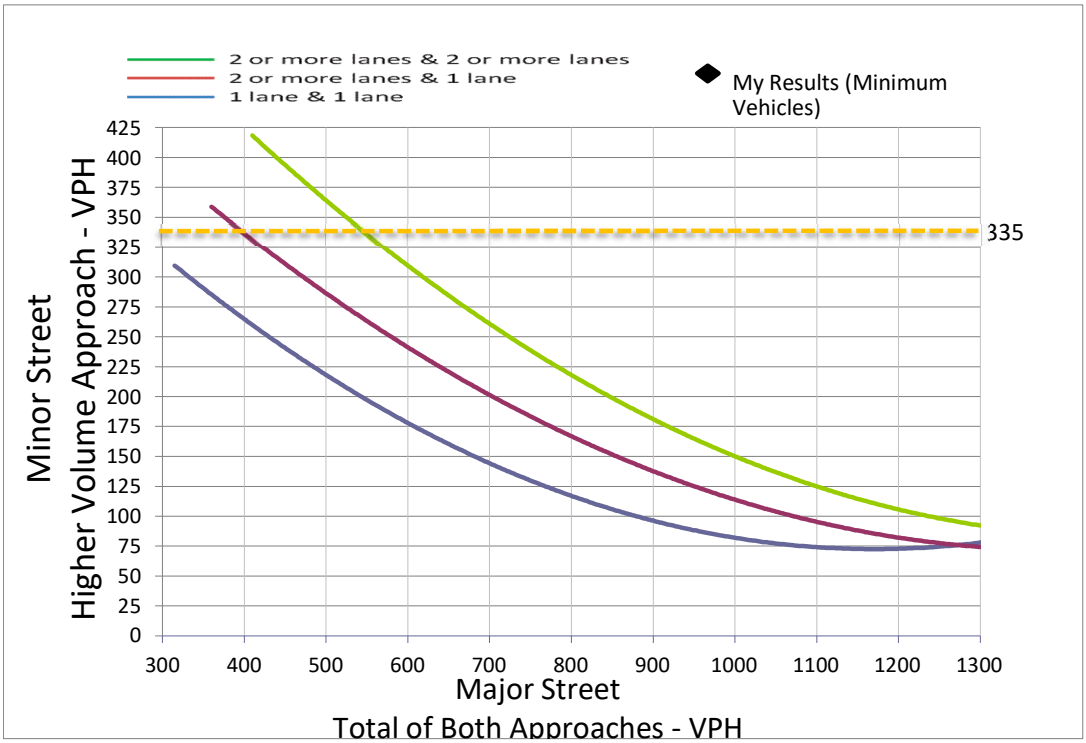
Part B

APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☐	☑	2354 ← ENTER CORRECT HOURS
Higher Approach - Minor Street	☑	☐	335

ENTER PEAK HOUR VOL.

The plotted point falls above the applicable curve in Figure 4C-3 (Urban Areas)	☐ YES ☐ NO
OR The plotted point falls above the applicable curve in Figure 4C-4 (Rural Areas)	☑ YES ☐ NO

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



Scenario: Horizon Year Plus Project Conditions
Major Approach: Date Palm Drive
Minor Approach: Rosemount Road

WARRANT 3 - PEAK HOUR

(Part A or Part B must be satisfied) SATISFIED ☑ YES ☐ NO

Part A SATISFIED ☐ YES ☑ NO

(All parts 1, 2, and 3 below must be satisfied for the same

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐ YES ☑ NO
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☑ YES ☑ NO
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches	☑ YES ☐ NO

SATISFIED ☑ YES ☐ NO

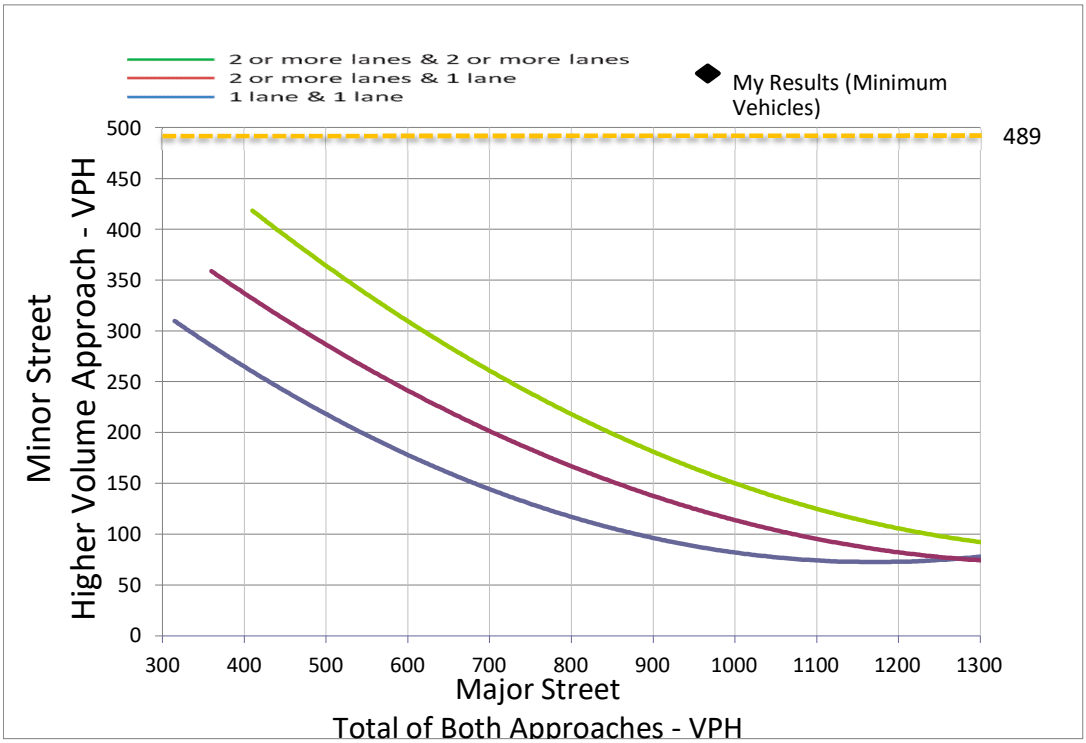
Part B

APPROACH LANES	One	Two or More	
Both Approaches - Major Street	☐	☑	2580 ← ENTER CORRECT HOURS
Higher Approach - Minor Street	☑	☐	489

ENTER PEAK HOUR VOL.

The plotted point falls above the applicable curve in Figure 4C-3 (Urban Areas)	☐ YES ☐ NO
OR The plotted point falls above the applicable curve in Figure 4C-4 (Rural Areas)	☑ YES ☐ NO

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



APPENDIX K -

TRANSIT ROUTE INFORMATION

ROUTE RUTA 4

PALM DESERT MALL
PALM SPRINGS



- ROUTE / RUTA
- POST OFFICE / OFICINA POSTAL
- HOSPITAL
- SCHOOL / ESCUELA
- (M) MALL / CENTRO COMERCIAL
- (S) SENIOR CENTER / CENTRO PARA ADULTOS MAYORES
- (C) CASINO
- AIRPORT / AEROPUERTO
- CITY HALL / AYUNTAMIENTO
- (L) LIBRARY / BIBLIOTECA
- SUNLINE TRANSIT AGENCY
- TIMEPOINT / PUNTO DE TIEMPO
- TRANSFER POINT / PUNTO DE TRANSFERENCIA

ROUTE RUTA 4

PALM DESERT MALL
PALM SPRINGS

EVERY DAY / HOLIDAY
TODOS LOS DÍAS / DÍA FESTIVO

EASTBOUND | *HACIA EL ESTE*

El Cielo @ Kirk Douglas	Vista Chino @ Sunrise Way	Ramon @ Date Palm	Dinah Shore @ Shoppers Ln	Town Center Way @ Hahn
6:10a	6:42a	7:05a	7:20a	7:41a
7:10a	7:42a	8:05a	8:20a	8:41a
8:10a	8:42a	9:05a	9:20a	9:41a
9:10a	9:42a	10:05a	10:20a	10:41a
10:10a	10:43a	11:05a	11:20a	11:43a
11:10a	11:43a	12:05p	12:20p	12:43p
12:10p	12:43p	1:05p	1:20p	1:43p
1:10p	1:43p	2:05p	2:20p	2:43p
2:10p	2:43p	3:05p	3:20p	3:43p
3:10p	3:43p	4:05p	4:20p	4:43p
4:10p	4:43p	5:05p	5:20p	5:43p
5:10p	5:43p	6:07p	6:20p	6:40p
6:10p	6:43p	7:07p	7:20p	7:40p
7:10p	7:43p	8:07p	8:20p	8:40p
8:10p	8:42p	9:03p	9:20p	9:38p

WESTBOUND | *HACIA EL OESTE*

Town Center Way @ Hahn	Dinah Shore @ Shoppers Ln	Date Palm @ Ramon	Sunrise Way @ Vista Chino	Palm Cyn @ Stevens	Indian Canyon @ Ramon	El Cielo @ Kirk Douglas
6:10a	6:30a	6:46a	7:10a	7:25a	7:36a	7:47a
7:10a	7:30a	7:46a	8:10a	8:25a	8:36a	8:47a
8:10a	8:30a	8:46a	9:10a	9:25a	9:36a	9:47a
9:10a	9:30a	9:46a	10:10a	10:25a	10:36a	10:47a
10:10a	10:32a	10:49a	11:13a	11:28a	11:41a	11:53a
11:10a	11:32a	11:49a	12:13p	12:28p	12:41p	12:53p
12:10p	12:32p	12:49p	1:13p	1:28p	1:41p	1:53p
1:10p	1:32p	1:49p	2:13p	2:28p	2:41p	2:53p
2:10p	2:32p	2:49p	3:13p	3:28p	3:41p	3:53p
3:10p	3:32p	3:49p	4:13p	4:28p	4:41p	4:53p
4:10p	4:32p	4:49p	5:13p	5:28p	5:41p	5:53p
5:10p	5:31p	5:48p	6:12p	6:26p	6:40p	6:52p
6:10p	6:31p	6:48p	7:12p	7:26p	7:40p	7:52p
7:10p	7:31p	7:48p	8:12p	8:26p	8:40p	8:52p
8:10p	8:31p	8:47p	9:12p	9:26p	9:39p	9:50p

For the VillageFest Thursday night detour, please see the map on page 36-37.

Para ver el desvío del jueves del VillageFest, por favor vea el mapa en las páginas 36 y 37.