APPENDIX E

Cathedral City General Plan Update

Transportation Analysis

Cathedral City, California

February 13, 2019

Prepared for

Cathedral City
68-700 Avenida Lalo Guerrero
Cathedral City, CA 92234

Prepared by

Urban Crossroads, Inc.
260 E. Baker Street, Suite 200
Costa Mesa, CA 92626
949-336-597

Cathedral City General Plan Update

TRANSPORTATION ANALYSIS
CATHEDRAL CITY, CALIFORNIA

PREPARED BY:

John Kain, AICP
jkain@urbanxroads.com
(949) 336-5990

Marlie Whiteman, PE
mwhiteman@urbanxroads.com
(949) 336-5991

Janette Cachola
jcachola@urbanxroads.com
(949) 336-5989

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CALTRANS	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CV	Coachella Valley
CVAG	Coachella Valley Association of Governments
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
LSEV	Low Speed Electric Vehicle
NEV	Neighborhood Electric Vehicle
OPR	Governor's Office of Planning and Research, California
PHF	Peak Hour Factor
Project	Cathedral City General Plan Update
RivTAM	Riverside County Transportation Analysis Model
SB 743	California Senate Bill 743 (Steinberg, 2013)
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
TIA	Traffic Impact Analysis
v/c	Volume-to-Capacity Ratio
VMT	Vehicle Miles Travelled
vphg	Vehicles Per Hour of Green

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1 INTRODUCTION

This report presents the results of the transportation analysis (TA) for the proposed Cathedral City General Plan Update ("Project"). This traffic study has been prepared in support of the update of the Cathedral City General Plan and Circulation and Mobility Element. The Circulation and Mobility Element emphasizes the upgrade and maintenance of a transportation system for the City that responds to the demands of the current and planned land uses, as set forth in the Land Use Element. The study identifies the improvements necessary to maintain the desired service levels throughout the City for the General Plan Buildout conditions.

Cathedral City is located in the Coachella Valley portion of Riverside County, between Palm Springs and Rancho Mirage as shown on Exhibit 1-1. The City encompasses approximately 22.5 square miles and is traversed east-west by Interstate 10 in the northern part of the City and State Highway 111 (Palm Canyon Drive) in the southern part of the City.

1.1 PROJECT OVERVIEW

The proposed Project is the preparation of the Cathedral City General Plan Circulation and Mobility Element, encompassing approximately 14,425 acres. Cathedral City is bordered by unincorporated county to the north and east; City of Palm Springs to the south and west; Desert Hot Springs to the northwest; and City of Rancho Mirage to the south and east.

Approximately 53% of the land within the current city boundaries is currently planned for residential land uses, of which 54% is vacant. Commercial and industrial land uses are also planned to expand, as approximately 69% of commercial and 85% of industrial / business park land is vacant. The remaining land (30 percent) is occupied by educational, public use, utilities, golf courses, and local parks and recreation land uses. In 2018, Cathedral City had approximately 21,219 households and 54,791 people.

Residential housing in the City includes apartments, senior facilities, active adult communities, tract/master plan developments, and low density single-family homes. Mixed use areas include residential over commercial. The City is traversed east-west by Interstate 10, with lands north of I-10 being governed by Specific Plans. Over time, the City will make continuing transportation investments where necessary to provide infrastructure for a vibrant, healthy, accessible and interconnected community.

The Cathedral City General Plan update process began in late 2017 and has been through an extensive planning and analysis process. The development of the TA and Circulation and Mobility Element started with a detailed review of the existing conditions. The existing or baseline condition describes the transportation network and operating conditions that exist today. However, the General Plan Circulation and Mobility Element is forward looking and it is used to identify the transportation infrastructure needed to support City's vision as proposed by Cathedral City General Plan Land Use Element.

Components of the proposed Circulation and Mobility Element have been created to encourage travel via modes other than standard automobiles; including bicycle/pedestrian, public transit,

and neighborhood electric vehicles (NEVs)/golf carts. These layered transportation networks have been refined to provide a comprehensive plan for circulation in Cathedral City. As a result of this General Plan update process, a number of recommendations related to the Circulation and Mobility Element have also been developed. These recommendations include further stratification of the roadway classifications, along with additional roadway cross-sections.

The Circulation and Mobility Element emphasizes the upgrade and maintenance of a transportation system for the City that responds to the demands of the current and planned land uses, as set forth in the Land Use Element. The traffic associated with the planned General Plan land use is evaluated throughout the City with respect to daily traffic volumes and accessibility. Additionally, peak hour intersection analysis has been performed at selected key intersections.

The Cathedral City General Plan Circulation and Mobility Element is not contained in a vacuum—state and regional programs have helped shape the Plan and its goals and policies; in turn, the Plan's goals and policies work together to meet the intent of various programs. Six of these key programs are summarized in Section 3 of this report; following each summary is a discussion of the Cathedral City Circulation Plan's relationship to the program.

Both existing conditions and General Plan Buildout conditions have been evaluated with respect to daily traffic volumes, peak hour traffic volumes and intersection operations analysis. The Riverside County Transportation Analysis Model (RivTAM), North City Specific Plan (NCSP) traffic analysis and North City Extended Specific Plan (NCESP) traffic analysis have been used to forecast the General Plan Buildout traffic volumes. The overall goal of this analysis is to identify improvements necessary to maintain acceptable level of service for the transportation system with the proposed General Plan.

1.2 ANALYSIS SCENARIOS

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

- Existing (2017/2018)
- General Plan Buildout (2040)

1.2.1 EXISTING (2017/2018) CONDITIONS

Information for Existing (2017/2018) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.2.2 GENERAL PLAN BUILDOUT (2040) CONDITIONS

The 2040 scenarios account for full occupancy of residential and non-residential land uses included in the proposed General Plan Land Use Element. Buildout of the proposed land use plan is projected to accommodate approximately 53,965 dwelling units and 167,831 people (over 100% increase in housing and population over existing conditions). The buildout scenarios potentially increase employment by well over 100% and greatly improve the jobs/housing balance within the City.

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

The traffic forecasts reflect the area-wide growth anticipated between Existing (2017/2018) conditions and General Plan Buildout (2040) conditions. The traffic model zone structure is designed to provide information on a larger scale than would be necessary to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the General Plan Buildout peak hour forecasts were refined using the model-derived long-range forecasts, base year model forecasts, along with existing peak hour traffic count data collected at each analysis location in 2017/2018. Reasonableness of model-distributed turning movements was also evaluated. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the General Plan Buildout peak hour forecasts. Lastly, the traffic forecasts for General Plan Buildout traffic conditions were reviewed to ensure a minimum percentage growth over Existing conditions as a part of the refinement process.

The peak hour intersection operations for General Plan Buildout (2040) traffic conditions were compared to determine additional improvement needs to provide acceptable level of service in comparison to the currently adopted General Plan.

1.3 STUDY AREA

The traffic study area focuses on the backbone infrastructure needed to support the transportation goals of the City. The study area defined on Exhibit 1-1 for this analysis is based on a review of the key roadway facilities as shown. This TA has been prepared consistent with Cathedral City's traffic study requirements.

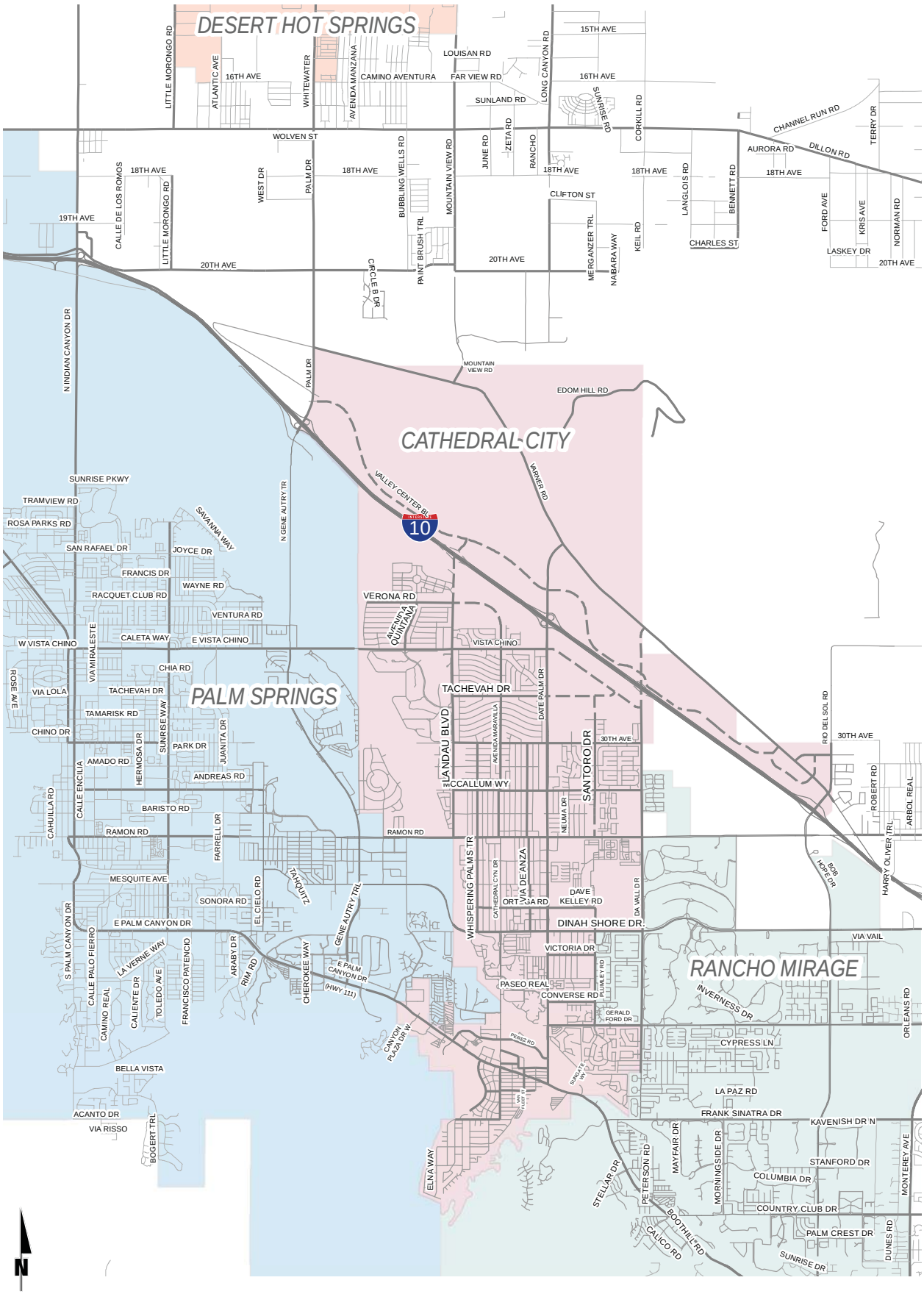
1.3.1 ROADWAY SEGMENTS

The roadway segment analysis locations are used primarily for long-range planning purposes, and they are not precise measures of capacity. The ultimate capacity of a roadway is based upon a number of factors. These factors include the relationships between peak hour and daily traffic volumes, the roadway design features (access spacing, intersection geometries, etc.), and the proportions and amount of turning movements at key intersections (along with the amount of traffic crossing the roadway, or turning onto or off of the roadway at intersecting roadways).

1.3.2 INTERSECTIONS

The 41 study area intersections documented in Section 3 were selected for this assessment based on consultation with Cathedral City staff.

EXHIBIT 1-1: LOCATION MAP



1.4 CIRCULATION SYSTEM AND RECOMMENDED IMPROVEMENTS

Exhibit 1-2 shows the recommended General Plan Roadway Classifications for Cathedral City. In comparison to the 2009 adopted General Plan Circulation Element, the recommended Circulation Plan includes roadway classifications with the following changes and updates:

- New road classifications and alignments for the North City Specific Plan and North City Extended Specific Plan.
- Three new Arterial Highway designations address bike lane and buffer options.
- Four new Major Highway designations account for conditions with and without bike lanes, street parking and buffers.
- Two new Secondary Highway designations address striped medians and conditions with and without bike lanes, shared NEV/bike lanes, street parking and buffers.
- Three new Collector designations provide for striped medians and conditions with and without bike lanes, street parking and buffers.

Exhibit 1-3 shows the proposed roadway cross-sections for General Plan facilities. Compared to the currently adopted roadway cross-sections, the proposed cross-sections provide the following changes:

- The proposed cross-sections explicitly account for bike lanes / shared NEV lanes.
- Proposed new cross-sections doing a better job of accounting for existing built road features (otherwise known as updating the plan to reality or actual conditions).
- The new cross-sections are responsive to Complete Streets and Sustainable Communities strategies which focus on safely serving all transportation users (motorists, delivery services, cyclists, pedestrians, low speed, electric vehicle users, etc).
- Current recommendations take into account existing volumes, CVAG volume projections, and previous traffic projections prepared for the North City and North City Extended Specific Plans area. Previously analyzed network features are retained in undeveloped areas of the City.

Cathedral Canyon Drive from Perez Road to Ramon Road is recommended to be identified as a special study corridor for transportation / mobility. It is recommended that Cathedral City study this corridor and monitor its operations on an ongoing basis to develop recommendations for improvements to balance the needs regarding mobility, safety, parking, and the area's appearance.

EXHIBIT 1-2: PROPOSED CITY OF CATHEDRAL CITY GENERAL PLAN CIRCULATION ELEMENT

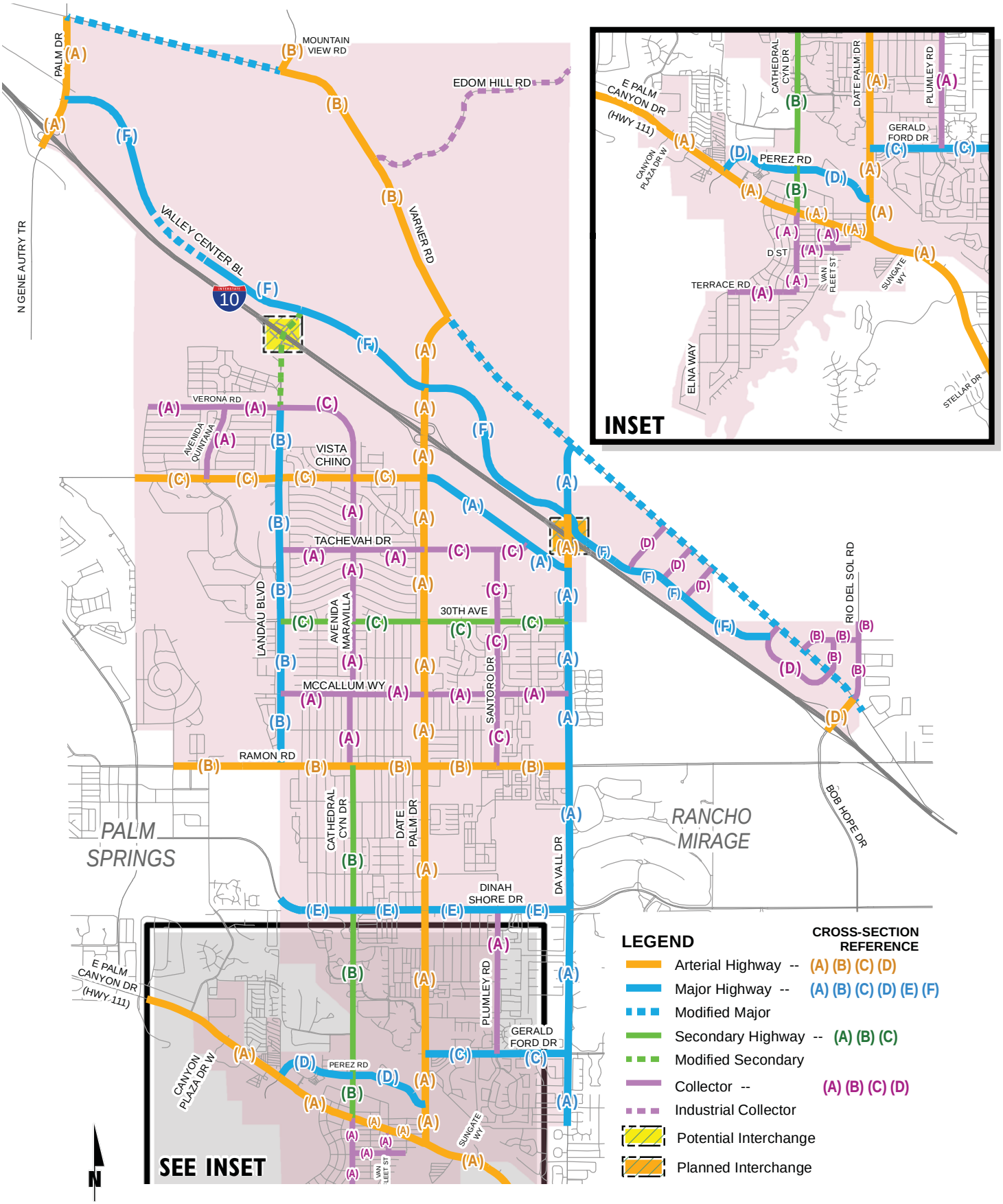


EXHIBIT 1-3 (Page 1 of 3): PROPOSED CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CROSS SECTIONS

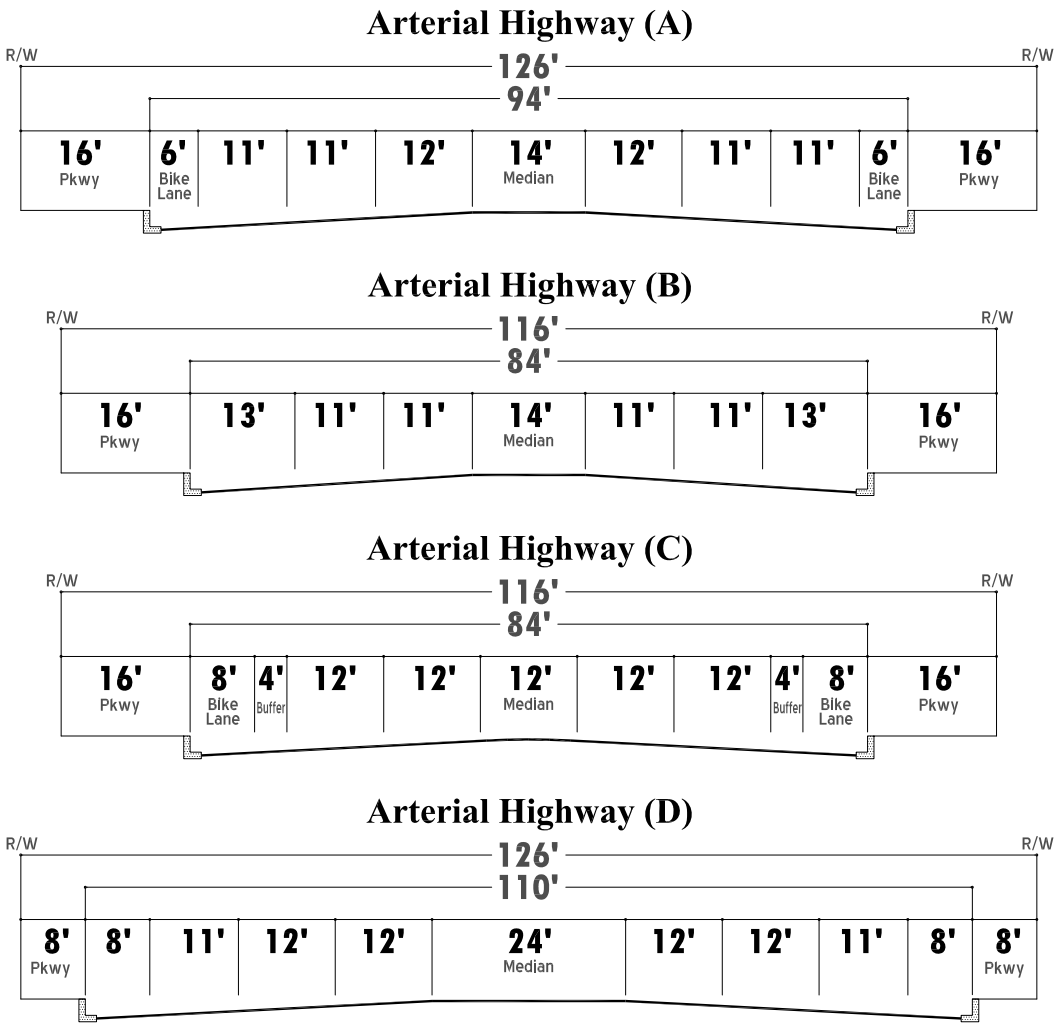
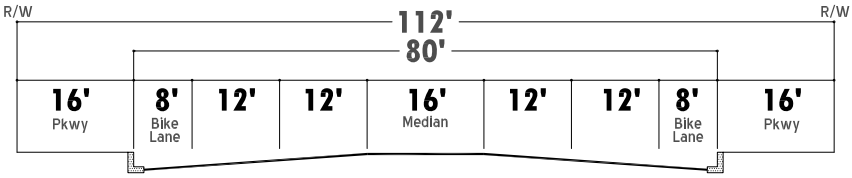
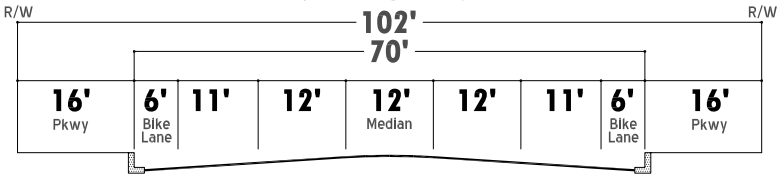


EXHIBIT 1-3 (Page 2 of 3): PROPOSED CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CROSS SECTIONS

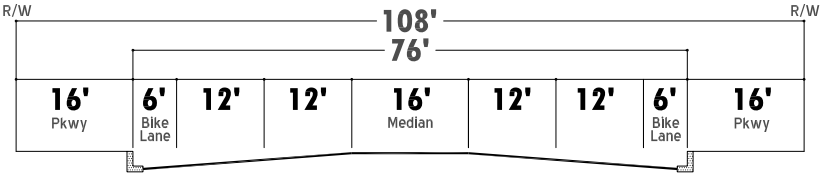
Major Highway (A)



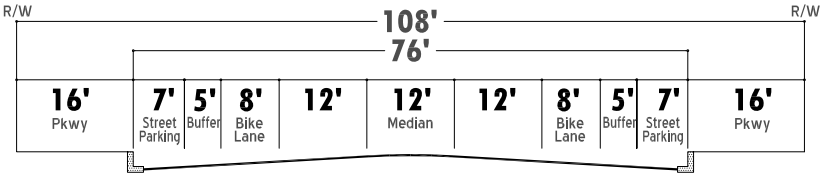
Major Highway (B)



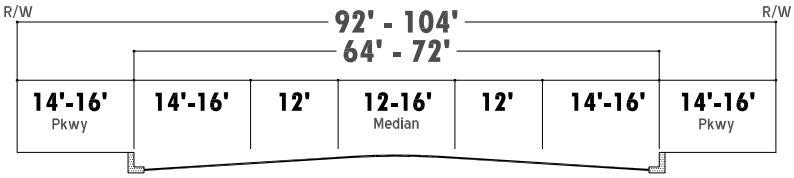
Major Highway (C)



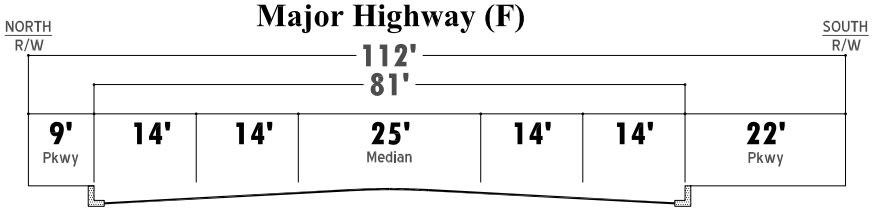
Major Highway (D)



Major Highway (E)



Major Highway (F)



Modified Major

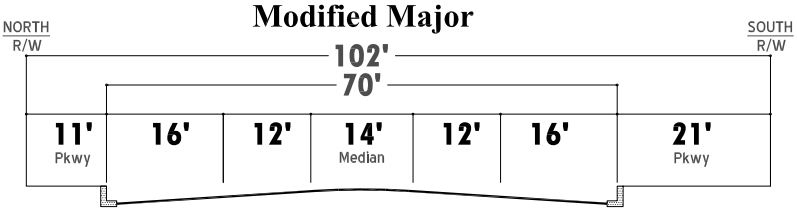
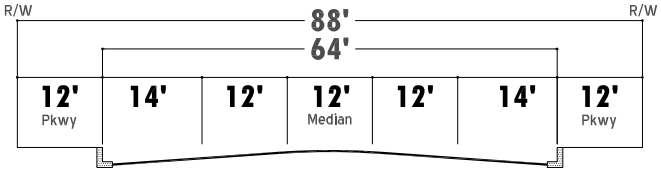
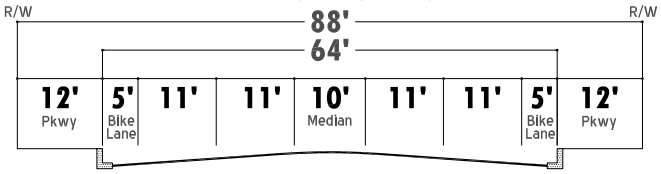


EXHIBIT 1-3 (Page 3 of 3): PROPOSED CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CROSS SECTIONS

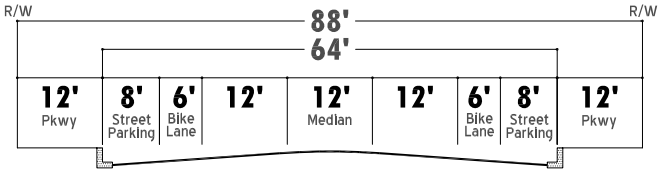
Secondary Highway (A)



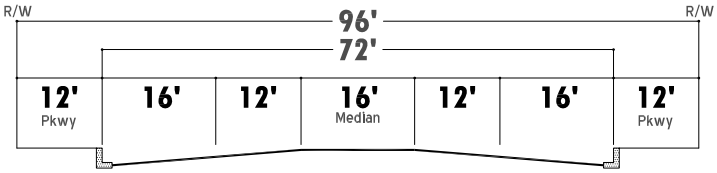
Secondary Highway (B)



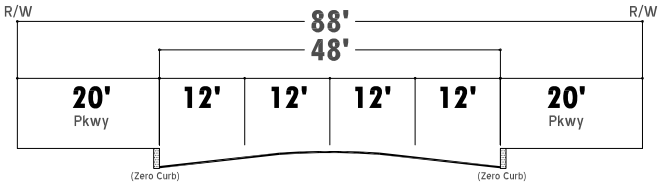
Secondary Highway (C)



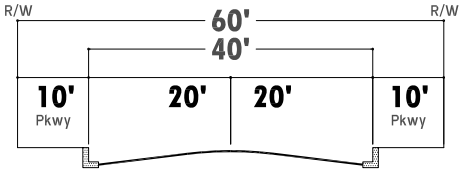
Modified Secondary Highway



Industrial Collector



Collector (A)



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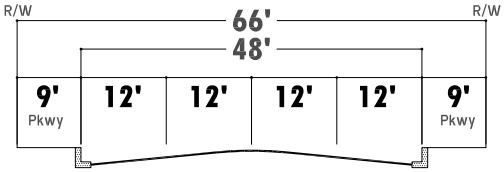

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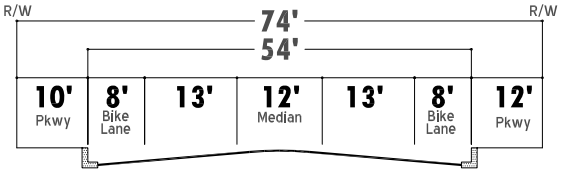
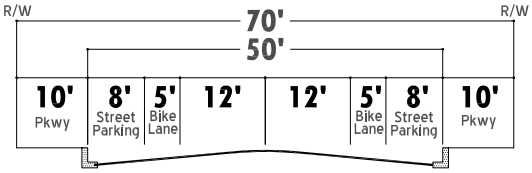


Collector (D)



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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with Cathedral City traffic study guidelines.

2.1 LEVEL OF SERVICE

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

2.2 INTERSECTION CAPACITY ANALYSIS

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

2.2.1 SIGNALIZED INTERSECTIONS

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

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM 6

The traffic modeling and signal timing optimization software package Synchro (Version 9) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis.

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

2.2.2 UNSIGNALIZED INTERSECTIONS

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

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

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

Source: HCM

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole. None of the General Plan study area intersections are unsignalized.

2.3 ROADWAY SEGMENT ANALYSIS

The roadway segment operations have been evaluated using the Cathedral City General Plan Circulation Element capacities (see Table III-5). Roadway segments within the study area should maintain D or better, consistent with the minimum LOS standards for the adjacent intersections. The daily roadway segment capacities for each type of roadway are summarized in Table 2-3.

These roadway capacities are “rule of thumb” estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. As such, where the ADT-based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

TABLE 2-3: ROADWAY SEGMENT CAPACITY LOS THRESHOLDS[1]

Facility Type	Number of Lanes	Level of Service Capacity[1]		
		C	D	E
Collector	2-lane Undivided	12,000	15,000	18,000
Secondary Highway	4-lane Undivided	20,000	25,000	30,000
Major Highway	4-lane Divided	24,000	31,000	38,000
Arterial Highway	6-lane Divided	38,000	48,500	59,000
Freeway	8-lane Divided	132,000	161,000	190,000

[1] The upper limit of LOS D was assumed as the "design" capacity for Cathedral City. All capacities are based upon improvements to full City standards under optimum operating conditions. Capacity can be significantly reduced by a high incidence of pedestrian traffic and turning movements. Substandard vertical and horizontal alignment, or any combination which might restrict sight distance will also reduce capacity.

2.4 MINIMUM LEVEL OF SERVICE (LOS)

For planning and design purposes, Cathedral City has established Level of Service D as the minimum peak hour system performance standard for Cathedral City circulation network. The City of Cathedral City current and proposed General Plan state that "For General Plan purposes, the upper level of LOS D is assumed to be the "acceptable" level-of-service for a given roadway in the City." (1)

The County of Riverside maintains a Congestion Management Program (CMP), most recently updated in 2011, to monitor and improve the County's regional network of roadways. For CMP streets or highways, the County accepts LOS E. If any CMP roadway falls below this standard, the City must go through a procedure to prepare a "deficiency plan" or risk losing a portion of the gasoline taxes it receives for road purposes from the State. I-10, Highway 111, and Ramon Road are a part of the CMP system. Where a LOS of E or worse exists along roadway segments and intersections along these CMP roadways, the City will attempt to take every reasonable measure to improve operating conditions.

Where the average daily volume (ADT) based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis is undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. While this traffic study recognizes LOS D is the City's target LOS for roadway segments, a review of the more detailed peak hour intersection analysis is necessary to determine whether roadway widening along the segment is necessary. For the purposes of this analysis, if the peak hour intersection operations on either side of the roadway segment are anticipated to operate at LOS D or better, then additional roadway segment widening is not recommended. Therefore, for the purposes of this analysis, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes. Furthermore, it is likely that a roadway segment can have a volume-to-capacity ratio of up to 1.20 if the adjacent intersections are anticipated to operate at acceptable LOS, without the need for additional widening.

2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. Based on Cathedral City's adopted criteria, intersections which operate at LOS "E" or LOS "F" require mitigation to provide acceptable (LOS "D" or better) levels of service.

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3 EXISTING SETTING

This section provides a summary of the existing circulation network, 2017 and 2018 daily and peak hour volumes, the 2009 Cathedral City General Plan circulation network, regional policies which provide context for the General Plan Update, existing and currently planned facilities which support active transportation (walking, bicycling, and low-speed electric vehicles), and a review of existing peak hour intersection operations.

3.1 STUDY AREA

The study locations for the Cathedral City General Plan Transportation Analysis were selected in coordination with project team members, including Cathedral City staff. Exhibit 3-1 presents the study area for the Cathedral City General Plan Transportation Analysis.

The study area includes forty-one intersection analysis locations and thirty-seven roadway segment analysis locations listed on Table 3-1.

3.2 EXISTING CIRCULATION NETWORK

Exhibit 3-2 illustrates the study area intersection lanes and traffic controls for study area intersection analysis locations. Exhibit 3-2 also identifies the number of through traffic lanes for existing study area roadway segments.

Weekday AM and weekday PM peak hour counts data were collected in spring 2018, in order to represent typical peak season weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

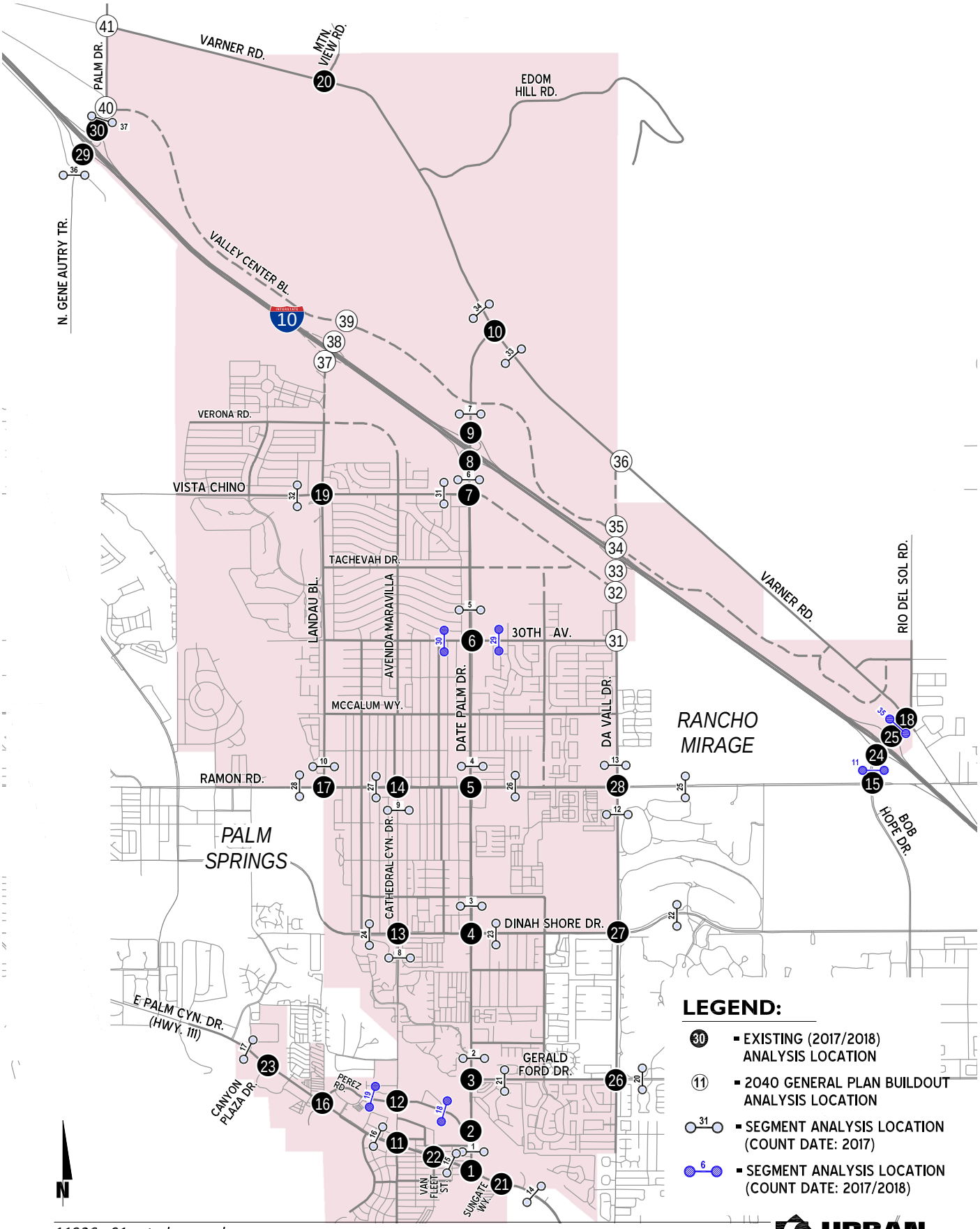
The following peak hours were selected for analysis:

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

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic (e.g., between ramp-to-arterial intersections, etc.). Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibits 3-3 and 3-4, respectively.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are listed on Table 3-2. Existing ADT volumes are also shown on Exhibit 3-5.

EXHIBIT 3-1: SEGMENTS AND INTERSECTIONS ANALYZED



11326 - 01 - study area.dwg

URBAN CROSSROADS

TABLE 3-1: CCGP INTERSECTION AND ROADWAY SEGMENT ANALYSIS LOCATIONS

Peak Hour Intersection Analysis Locations (30)

Intersections			
1	Date Palm / Hwy 111	16	Perez Rd. / Hwy 111
2	Date Palm / Perez Rd.	17	Landau Bl. / Ramon Rd.
3	Date Palm / Gerald Ford Dr.	18	Bob Hope Dr. / Varner Rd.
4	Date Palm / Dinah Shore Dr.	19	Landau Bl. / Vista Chino
5	Date Palm / Ramon Rd.	20	Mountain View Rd. / Varner Rd.
6	Date Palm / 30th Av.	21	Sungate Wy. / Hwy 111
7	Date Palm / Vista Chino	22	Van Fleet St. / Hwy 111
8	Date Palm / I-10 EB Ramps	23	Canyon Plaza Dr. / Hwy 111
9	Date Palm / I-10 WB Ramps	24	Bob Hope Dr. / I-10 EB Ramps
10	Date Palm / Varner Rd.	25	Bob Hope Dr. / I-10 WB Ramps
11	Cathedral Cyn. Dr. / Hwy 111	26	Da Vall Dr. / Gerald Ford Dr.
12	Cathedral Cyn. Dr. / Perez Rd.	27	Da Vall Dr. / Dinah Shore Dr.
13	Cathedral Cyn. Dr. / Dinah Shore Dr.	28	Da Vall Dr. / Ramon Rd.
14	Cathedral Cyn. Dr.-Avenida Maravilla / Ramon Rd.	29	Gene Autry Tr. / I-10 EB Ramps
15	Bob Hope Dr. / Ramon Rd.	30	Gene Autry Tr.-Palm Dr. / I-10 WB Ramps

24-Hour Roadway Segment Analysis Locations (37)

Roadway Segments			
1	Date Palm Dr., north of Palm Canyon Dr.	20	Gerald Ford Dr., east of Da Vall Dr.
2	Date Palm Dr., north of Gerald Ford Dr.	21	Gerald Ford Dr., east of Date Palm Dr.
3	Date Palm Dr., north Dinah Shore Dr.	22	Dinah Shore Dr., west of Bob Hope Dr.
4	Date Palm Dr., north of Ramon Rd.	23	Dinah Shore Dr., east of Date Palm Dr.
5	Date Palm Dr., north of 30th Av.	24	Dinah Shore Dr., west of Cathedral Cyn. Dr.
6	Date Palm Dr., north of Vista Chino	25	Ramon Rd., west of Bob Hope Dr.
7	Date Palm Dr., north of I-10 WB Ramps	26	Ramon Rd., east of Date Palm Dr.
8	Cathedral Cyn. Dr., south of Dinah Shore Dr.	27	Ramon Rd., west of Cathedral Cyn. Dr.
9	Cathedral Cyn. Dr., south of Ramon Rd.	28	Ramon Rd., west of Landau Bl.
10	Landau Bl., north of Ramon Rd.	29	30th Av., east of Date Palm Dr.
11	Bob Hope Dr., north of Ramon Rd.	30	30th Av., west of Date Palm Dr.
12	Davall Rd., south of Ramon Rd.	31	Vista Chino, west of Date Palm Dr.
13	Davall Rd., north of Ramon Rd.	32	Vista Chino, west of Landau Bl.
14	Hwy. 111, east of Sungate Wy.	33	Varner Rd., east of Date Palm Dr.
15	Hwy. 111, west of Date Palm Drive	34	Varner Rd., west of Date Palm Dr.
16	Hwy. 111, west of Cathedral Cyn. Dr.	35	Bob Hope Dr., north of I-10 WB Ramps
17	Hwy. 111, west of Canyon Plaza Dr. W.	36	Gene Autry Tr., south of I-10 EB Ramps
18	Perez Rd., west of Date Palm Dr.	37	Gene Autry Tr. - Palm Dr., north of I-10 WB Ramps
19	Perez Rd., west of Cathedral Cyn. Dr.		

EXHIBIT 3-2: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

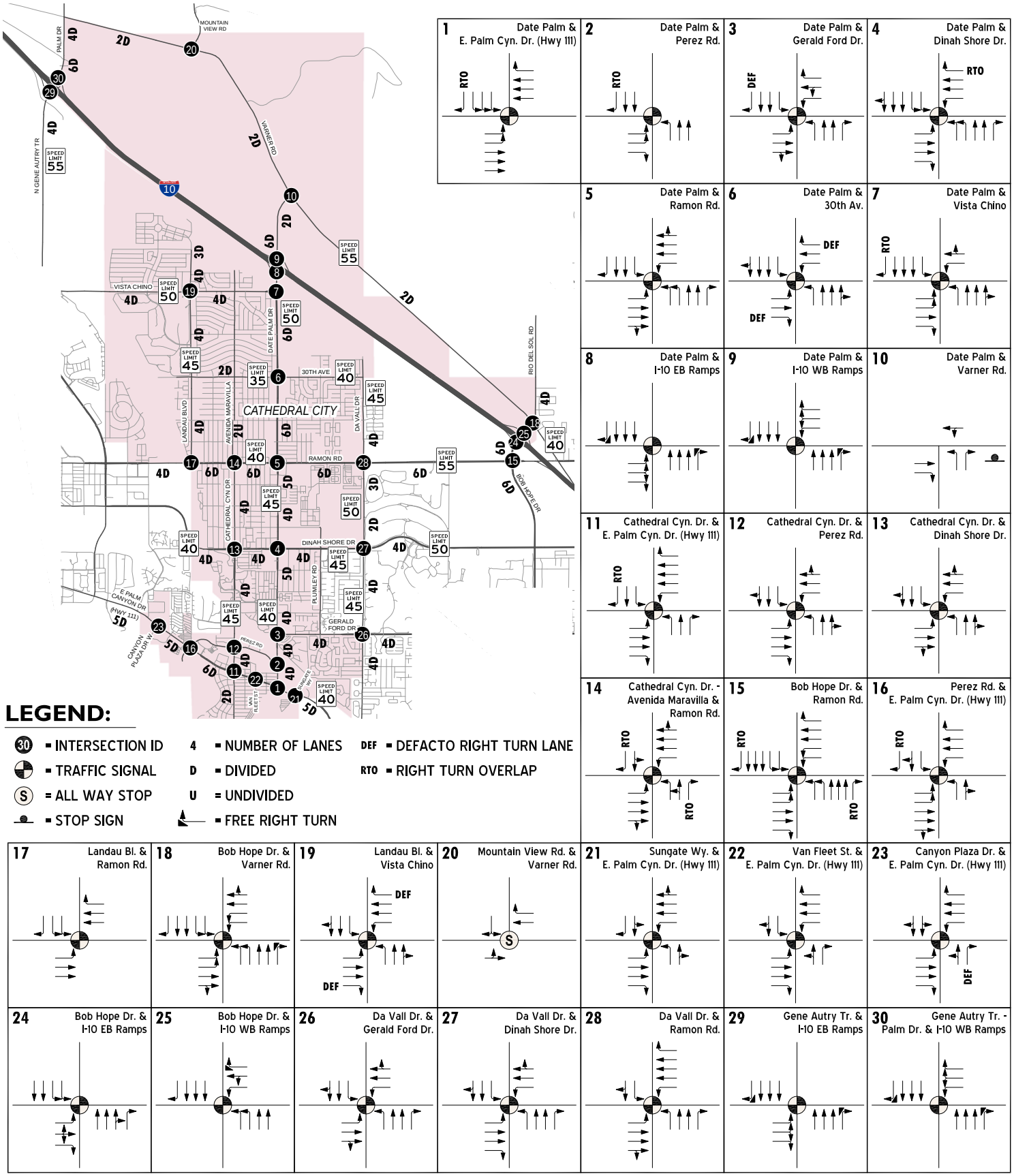
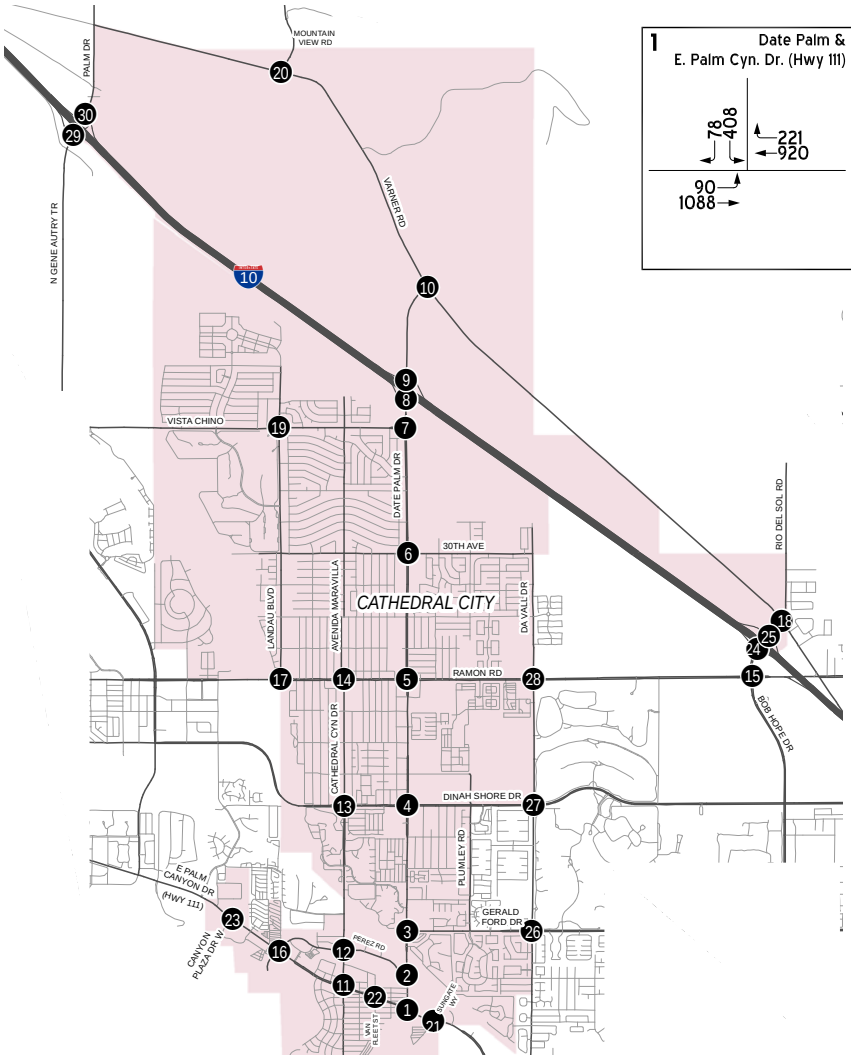
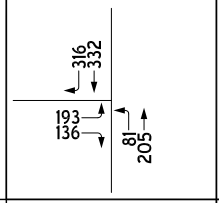


EXHIBIT 3-3: EXISTING (2017/2018) AM PEAK HOUR INTERSECTION VOLUMES

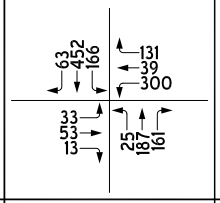


1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)

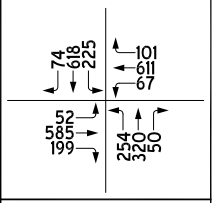
2 Date Palm & Perez Rd.



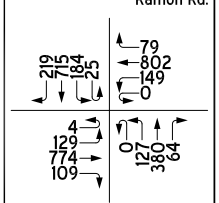
3 Date Palm & Gerald Ford Dr.



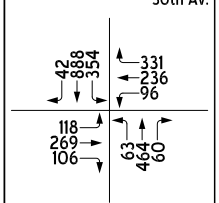
4 Date Palm & Dinah Shore Dr.



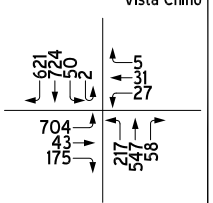
5 Date Palm & Ramon Rd.



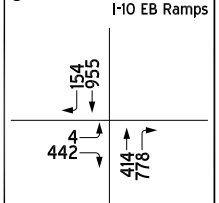
6 Date Palm & 30th Av.



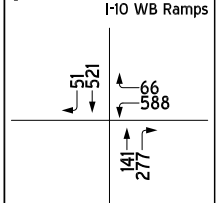
7 Date Palm & Vista Chino



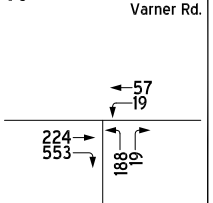
8 Date Palm & I-10 EB Ramps



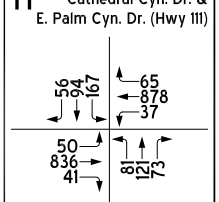
9 Date Palm & I-10 WB Ramps



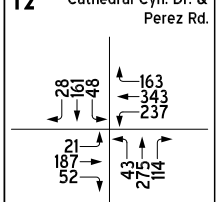
10 Date Palm & Varner Rd.



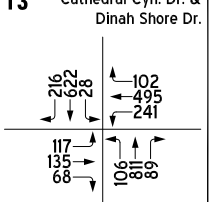
11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)



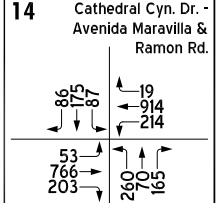
12 Cathedral Cyn. Dr. & Perez Rd.



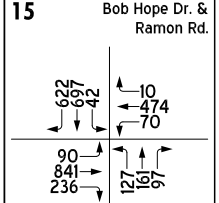
13 Cathedral Cyn. Dr. & Dinah Shore Dr.



14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.



15 Bob Hope Dr. & Ramon Rd.



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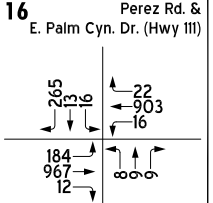

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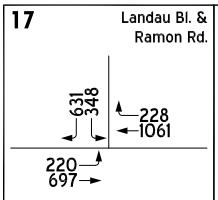
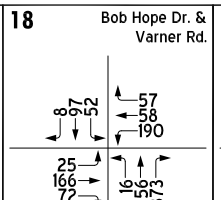
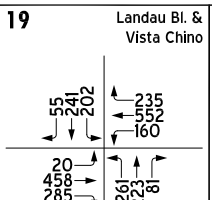


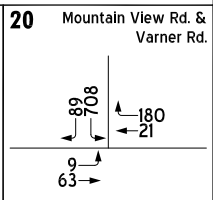
18 Bob Hope Dr. & Varner Rd.



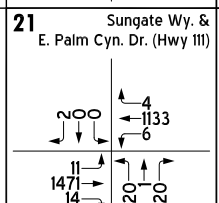
19 Landau Bl. & Vista Chino



20 Mountain View Rd. & Varner Rd.



21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)



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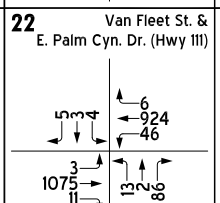
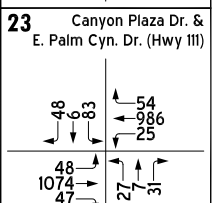
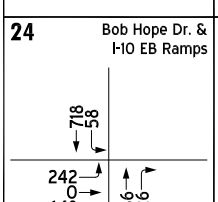


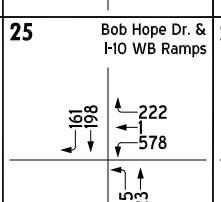
23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)



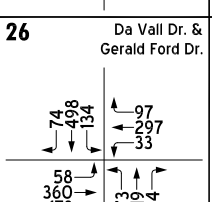
24 Bob Hope Dr. & I-10 EB Ramps



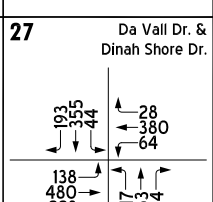
25 Bob Hope Dr. & I-10 WB Ramps



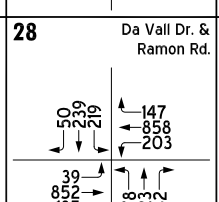
26 Da Vall Dr. & Gerald Ford Dr.



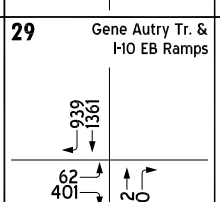
27 Da Vall Dr. & Dinah Shore Dr.



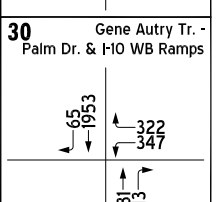
28 Da Vall Dr. & Ramon Rd.



29 Gene Autry Tr. & I-10 EB Ramps



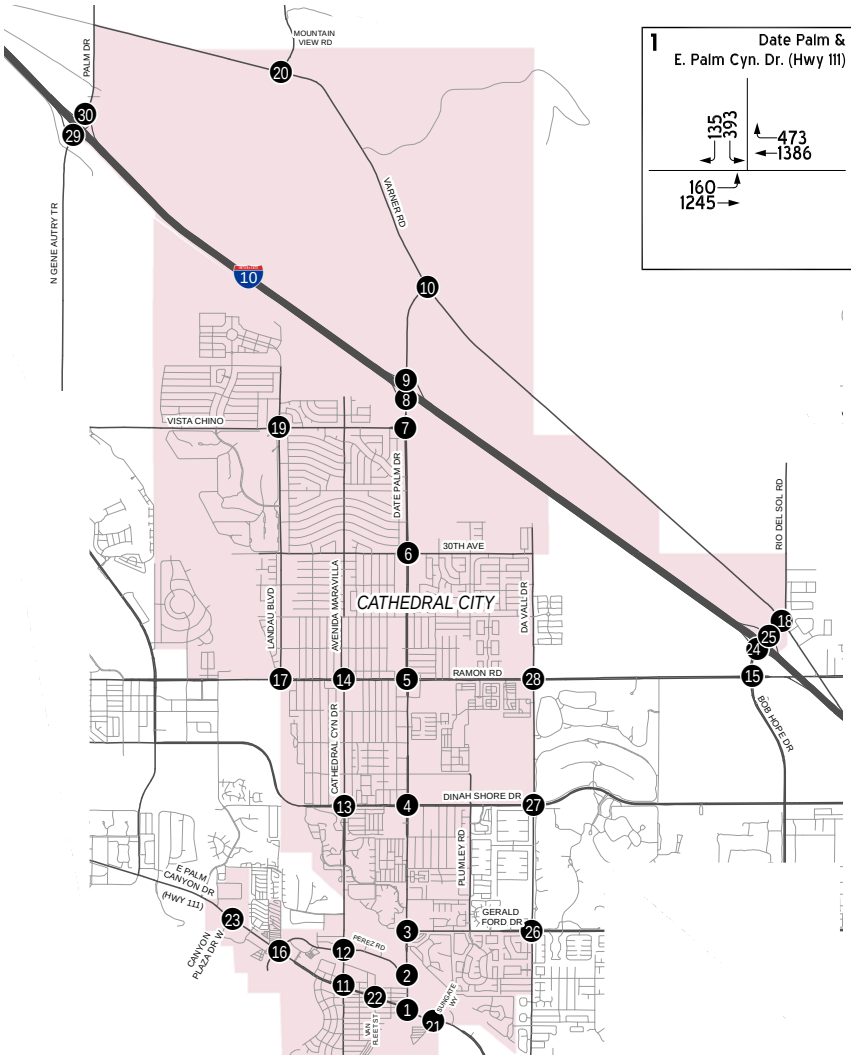
30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps



LEGEND:

30 = INTERSECTION ID

EXHIBIT 3-4: EXISTING (2017/2018) PM PEAK HOUR INTERSECTION VOLUMES



1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)

	135 393	473 1386
160 1245		

2 Date Palm & Perez Rd.

	274 384	
408 174		111 574

3 Date Palm & Gerald Ford Dr.

	47 415 141	172 55 229
60 50 30		23 601 307

4 Date Palm & Dinah Shore Dr.

	81 550 132	113 609 80
95 633 205		286 629 67

5 Date Palm & Ramon Rd.

	146 539 199 17	132 785 167 1
5 207 781 135		9 233 617 85

6 Date Palm & 30th Av.

	84 577 167	245 182 41
76 137 95		105 741 52

7 Date Palm & Vista Chino

	551 631 57 0	25 28 43
712 50 181		183 626 70

8 Date Palm & I-10 EB Ramps

	100 956	
2 283		662 686

9 Date Palm & I-10 WB Ramps

	28 246	142 810
		271 393

10 Date Palm & Varner Rd.

		264 29
105 245		394 19

11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)

	88 133 134	144 1176 62
124 1120 85		70 110 57

12 Cathedral Cyn. Dr. & Perez Rd.

	39 232 169	143 327 169
39 367 77		70 234 210

13 Cathedral Cyn. Dr. & Dinah Shore Dr.

	234 747 55	47 305 133
251 471 120		119 779 117

14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.

	80 96 70	22 931 180
99 1062 158		404 118 250

15 Bob Hope Dr. & Ramon Rd.

	509 359 74	30 354 59
56 792 195		293 574 210

16 Perez Rd. & E. Palm Cyn. Dr. (Hwy 111)

	352 8 28	14 1295 6
289 1296 3		24 14 11

LEGEND:

30 = INTERSECTION ID

17 Landau Bl. & Ramon Rd.

	396 268	299 895
454 1164		

18 Bob Hope Dr. & Varner Rd.

	20 202 94	65 190 311
6 87 30		89 94 237

19 Landau Bl. & Vista Chino

	51 145 133	158 539 95
45 673 323		332 175 95

20 Mountain View Rd. & Varner Rd.

	27 279	602 62
29 42		

21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)

	18 0 2	4 1841 12
8 1608 20		24 0 12

22 Van Fleet St. & E. Palm Cyn. Dr. (Hwy 111)

	11 6 19	18 1369 75
9 1297 13		9 9 68

23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)

	98 14 183	157 1475 37
66 1307 35		45 14 60

24 Bob Hope Dr. & I-10 EB Ramps

	636 122	
155 1 306		622 38

25 Bob Hope Dr. & I-10 WB Ramps

	304 239	157 2 519
		514 263

26 Da Vall Dr. & Gerald Ford Dr.

	54 261 95	123 384 46
48 333 89		130 389 37

27 Da Vall Dr. & Dinah Shore Dr.

	88 201 37	94 569 58
82 465 147		204 276 66

28 Da Vall Dr. & Ramon Rd.

	24 94 134	185 835 97
45 817 83		159 249 73

29 Gene Autry Tr. & I-10 EB Ramps

	419 820	
62 196		1251 349

30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps

	96 966	747 273
		996 317

TABLE 3-2: 2017 & 2018 24-HOUR ROADWAY SEGMENT COUNTS

Roadway Segment	Count Date	Source	ADT
1 Date Palm Dr., north of Palm Canyon Dr.	4/3/2017	CVAG	17,226
2 Date Palm Dr., north of Gerald Ford Dr.	3/13/2017	CVAG	25,454
3 Date Palm Dr., north Dinah Shore Dr.	3/13/2017	CVAG	28,383
4 Date Palm Dr., north of Ramon Rd.	3/13/2017	CVAG	27,250
5 Date Palm Dr., north of 30th Av.	3/13/2017	CVAG	27,295
6 Date Palm Dr., north of Vista Chino	3/14/2017	CVAG	32,806
7 Date Palm Dr., north of I-10 WB Ramps	3/14/2017	CVAG	8,410
8 Cathedral Cyn. Dr., south of Dinah Shore Dr.	4/12/2017	CVAG	19,450
9 Cathedral Cyn. Dr., south of Ramon Rd.	3/16/2017	CVAG	16,052
10 Landau Bl., north of Ramon Rd.	4/12/2017	CVAG	19,070
11 Bob Hope Dr., north of Ramon Rd.	3/13/2018	UXR	22,023
12 Da Vall Rd., south of Ramon Rd.	3/13/2017	CVAG	8,014
13 Da Vall Rd., north of Ramon Rd.	3/13/2017	CVAG	8,704
14 Hwy. 111, east of Sungate Wy.	4/3/2017	CVAG	47,023
15 Hwy. 111, west of Date Palm Drive	4/3/2017	CVAG	42,655
16 Hwy. 111, west of Cathedral Cyn. Dr.	4/3/2017	CVAG	36,787
17 Hwy. 111, west of Canyon Plaza Dr. W.	4/3/2017	CVAG	45,550
18 Perez Rd., west of Date Palm Dr.	3/13/2018	UXR	11,570
19 Perez Rd., west of Cathedral Cyn. Dr.	3/13/2018	UXR	10,587
20 Gerald Ford Dr., east of Da Vall Dr.	3/9/2017	CVAG	13,862
21 Gerald Ford Dr., east of Date Palm Dr.	3/13/2017	CVAG	13,452
22 Dinah Shore Dr., west of Bob Hope Dr.	3/6/2017	CVAG	20,800
23 Dinah Shore Dr., east of Date Palm Dr.	3/13/2017	CVAG	22,490
24 Dinah Shore Dr., west of Cathedral Cyn. Dr.	4/12/2017	CVAG	29,053
25 Ramon Rd., west of Bob Hope Dr.	3/13/2017	CVAG	31,064
26 Ramon Rd., east of Date Palm Dr.	3/13/2017	CVAG	31,058
27 Ramon Rd., west of Cathedral Cyn. Dr.	3/16/2017	CVAG	38,712
28 Ramon Rd., west of Landau Bl.	3/16/2017	CVAG	40,908
29 30th Av., east of Date Palm Dr.	3/13/2018	UXR	9,402
30 30th Av., west of Date Palm Dr.	3/13/2018	UXR	7,663
31 Vista Chino, west of Date Palm Dr.	3/14/2017	CVAG	24,370
32 Vista Chino, west of Landau Bl.	4/22/2017	CVAG	26,134
33 Varner Rd., east of Date Palm Dr.	3/14/2017	CVAG	4,753
34 Varner Rd., west of Date Palm Dr.	3/14/2017	CVAG	16,209
35 Bob Hope Dr., north of I-10 WB Ramps	3/13/2018	UXR	12,983
36 Gene Autry Tr., south of I-10 EB Ramps	4/3/2017	CVAG	31,782
37 Gene Autry Tr. - Palm Dr., north of I-10 WB Ramps	3/20/2017	CVAG	29,920

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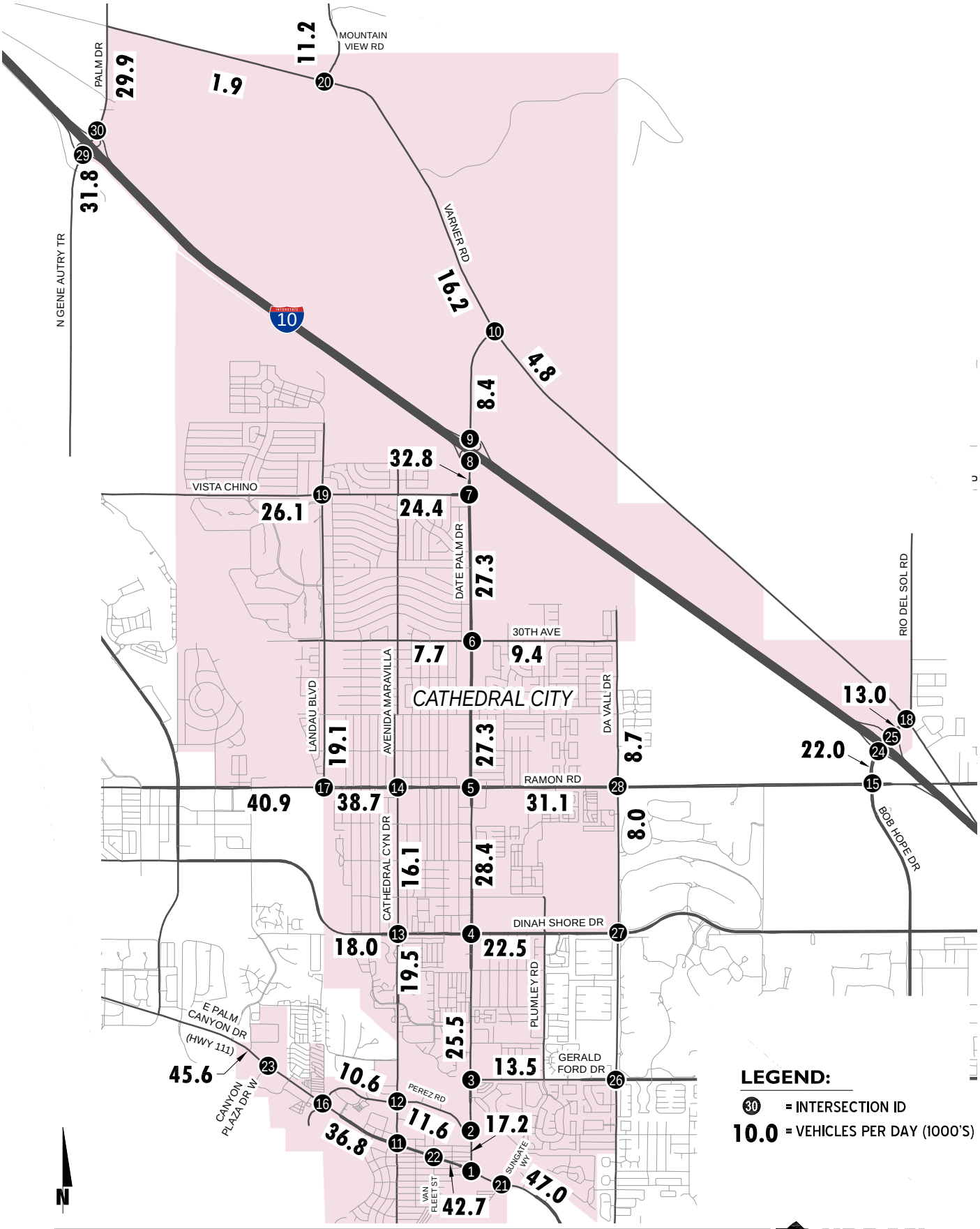
EXHIBIT 3-5: EXISTING (2017/2018) AVERAGE DAILY TRAFFIC (ADT) VOLUMES



3.3 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) was prepared by the Southern California Association of Governments (SCAG) to address regional issues, goals, objectives, and policies. The 2016 RTP/SCS includes $556.5 billion in transportation investments in the context of the following major initiatives:

- **PRESERVING THE TRANSPORTATION SYSTEM WE ALREADY HAVE (FIX-IT-FIRST)** - The 2016 RTP/SCS calls for the investment of $275.5 billion toward transit and passenger rail systems, the State Highway System, and regionally significant local streets and roads.
- **EXPANDING OUR REGIONAL TRANSIT SYSTEM TO GIVE PEOPLE MORE ALTERNATIVES TO DRIVING ALONE** - This includes significant expansions of the Metro subway and Light Rail Transit (LRT) system, new Bus Rapid Transit (BRT) routes, new streetcar services, and new Metrolink extensions to further connect communities in the Inland Empire. Other improvements are planned for local bus, rapid bus, and express service, as well as implementing and expanding transit signal priority; increased bicycle carrying capacity on transit and rail vehicles; real-time passenger information systems, and implementing first/last mile strategies to extend the effective reach of transit.
- **IMPROVING HIGHWAY AND ARTERIAL CAPACITY** - The 2016 RTP/SCS calls for investing $54.2 billion in capital improvements and $103.0 billion in operations and maintenance of the State Highway System and regionally significant local streets and roads throughout the region.
- **MANAGING DEMANDS ON THE TRANSPORTATION SYSTEM** - The 2016 RTP/SCS calls for investing $6.9 billion toward Transportation Demand Management (TDM) strategies throughout the region. These strategies focus on reducing the number of drive-alone trips and overall vehicle miles traveled (VMT) through ridesharing, which includes carpooling, vanpooling and supportive policies for ridesourcing services such as Uber and Lyft; redistributing or eliminating vehicle trips from peak demand periods through incentives for telecommuting and alternative work schedules; and reducing the number of drive-alone trips through increased use of transit, rail, bicycling, walking and other alternative modes of travel.
- **OPTIMIZING THE PERFORMANCE OF THE TRANSPORTATION SYSTEM** - The 2016 RTP/SCS earmarks $9.2 billion for Transportation System Management (TSM) improvements. These include extensive advanced ramp metering, enhanced incident management, bottleneck removal to improve flow (e.g., auxiliary lanes), expansion and integration of the traffic signal synchronization network, data collection to monitor system performance, integrated and dynamic corridor congestion management, and other Intelligent Transportation System (ITS) improvements.
- **PROMOTING WALKING, BIKING AND OTHER FORMS OF ACTIVE TRANSPORTATION** - The 2016 RTP/SCS plans for continued progress in developing our regional bikeway network, assumes all local active transportation plans will be implemented, and dedicates resources to maintain and repair thousands of miles of dilapidated sidewalks. The Plan invests $12.9 billion in active transportation strategies. The Plan also considers new strategies and approaches beyond those proposed in 2012. To promote short trips, these include improving sidewalk quality, local bike networks and neighborhood mobility areas.
- **LEVERAGING TECHNOLOGY** - Advances in communications, computing and engineering—from shared mobility innovations to zero-emission vehicles—can lead to a more efficient transportation system with more mobility options for everyone. Communications technology,

meanwhile, can improve the movement of passenger vehicles and connected transit vehicles. As part of the 2016 RTP/SCS, SCAG has focused location-based strategies specifically on increasing the efficiency of Plug-in Hybrid Electric Vehicles (PHEV) in the region.

- **FOCUSING NEW GROWTH AROUND TRANSIT** - The 2016 RTP/SCS plans for focusing new growth around transit includes policies such as identifying regional strategic areas for infill and investment; structuring the Plan on centers development; developing "Complete Communities"; developing nodes on a corridor; planning for additional housing and jobs near transit; planning for changing demand in types of housing; continuing to protect stable, existing single-family areas; ensuring adequate access to open space and preservation of habitat; and incorporating local input and feedback on future growth. These policies support the development of High Quality Transit Areas (HQTAs) within one-half mile of a fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes or less during peak commuting hours, and Neighborhood Mobility Areas (NMAs) intended to provide sustainable transportation options for residents of the region who lack convenient access to high-frequency transit but make many short trips within their urban neighborhoods. NMAs are conducive to active transportation and include a "Complete Streets" approach to roadway improvements to encourage replacing single- and multi-occupant automobile use with biking, walking, skateboarding, neighborhood electric vehicles and senior mobility devices.
- **IMPROVING AIR QUALITY AND REDUCING GREENHOUSE GASES** - The SCAG region must achieve specific federal air quality standards. It also is required by state law to lower regional greenhouse gas emissions. California law requires the region to reduce per capita greenhouse gas emissions in the SCAG region by eight percent by 2020—compared with 2005 levels—and by 13 percent by 2035. The strategies, programs and projects outlined in the 2016 RTP/SCS are projected to result in greenhouse gas emissions reductions in the SCAG region that meet or exceed these targets.
- **PRESERVING NATURAL LANDS** - The 2016 RTP/SCS recommends redirecting growth from high value habitat areas to existing urbanized areas. This strategy avoids growth in sensitive habitat areas, builds upon the conservation framework and complements an infill-based approach.

3.4 TRANSPORTATION PROJECT PRIORITIZATION STUDY

As the recognized transportation planning agency with the Riverside County Transportation Commission (RCTC), it is the responsibility of the Coachella Valley Association of Governments (CVAG) to identify and prioritize transportation projects in the Coachella Valley. This is accomplished through the creation of the Transportation Project Prioritization Study (TPPS). The 2016 RTP includes the majority of projects seen within the TPPS.

The TPPS serves as a methodological way to provide CVAG direction in determining funding for regional arterials by prioritizing the eligible study segments. The TPPS uses distinct evaluation criteria and scores to form a ranking list of the regionally significant roadway segments for the nine municipalities and the County of Riverside in the Coachella Valley area. The ranking list is used to determine which roadways have the greatest need evaluated from current conditions and is used in funding decisions.

TPPS projects within Cathedral City are listed in Table 3-3.

TABLE 3-3: TPPS PROJECTS WITHIN CATHEDRAL CITY

RANK	BLD. PROJ. NUMBER	STREET NAME	SGMT	BUILDABLE PROJECT DESCRIPTION	POINTS
51	B-435	E PALM CYN DR	PLCN11A	Cathedral Canyon Dr to Date Palm Dr - PLCN11A	10.00
51	B-451	LANDAU BLVD	LAN2, LAN3	Verona Rd to Future Landau Blvd I-10 IC (Incl. Br. Over RR and Future Landau Blvd I-10 IC)(Missing Link) - LAN2 LAN3	10.00
51	B-452	LANDAU BLVD	LAN4	Future I-10 IC to Varner Rd (missing link) - LAN4	10.00
87	B-054	VISTA CHINO	VC7	Date Palm Dr to Da Vall Dr - VC7	9.00
87	B-059	RAMON RD	RAM7	Br. at Whitewater Rvr - RAM7	9.00
87	B-180	VARNER RD	VRNR1	Palm Dr to Mountain View Rd - VRNR1	9.00
87	B-459	PALM DR	PD1	I-10 IC to Varner Rd - PD1	9.00
120	B-420	DA VALL DR	DVALL5, DVALL6	Vista Chino to Varner Rd (Incl. Br. Over RR, Future DaVall I-10 IC, and Br. At Long Cyn Chnl) - DVALL4 DVALL5 DVALL6	8.50
123	B-181	VARNER RD	VRNR2	Mountain View Rd to Date Palm Dr - VRNR2	8.00
123	B-182	VARNER RD	VRNR3	Date Palm Dr to Ramon Rd - VRNR3	8.00
123	B-324	CATHEDRAL CYN DR	CTHCN2	E Palm Canyon Dr to N side of Whitewater Br. (Incl. Cath Cyn Br.) - CTHCN2	8.00
123	B-436	E PALM CYN DR	PLCN11B	Date Palm Dr to E Cath. City limits - PLCN11B	8.00
123	B-450	LANDAU BLVD	LAN1	Vista Chino to Verona Rd - LAN1	8.00
164	B-053	VISTA CHINO	VC5	E side of Whitewater Rvr to Landau Blvd - VC5	7.00
164	B-334	DA VALL DR	DVALL1	Dinah Shore to Ramon Rd - DVALL1	7.00
190	B-419	DA VALL DR	DVALL2, DVALL3, DVALL4	Ramon Rd to Vista Chino - DVALL2 DVALL3 DVALL4	6.67
192	B-165	MOUNTAIN VIEW RD	MTV3	20th Ave to Varner Rd - MTV3	6.00
192	B-236	DATE PALM DR	DPLM0A	Hwy 111 (E Palm Cyn Dr) to Gerald Ford Dr (Incl. at Cath. Cyn Br., doesn't Incl. WW Br.) - DPLM0A	6.00
192	B-237	DATE PALM DR	DPLM0B	Gerald Ford Dr to Dinah Shore Dr - DPLM0B	6.00
192	B-238	DATE PALM DR	DPLM0C	Dinah Shore Dr to Ramon Rd - DPLM0C	6.00
192	B-327	CATHEDRAL CYN DR	CTHCN5	Dinah Shore Dr to Ramon Rd - CTHCN5	6.00
214	B-433	DATE PALM DR	DPLM1, DPLM2	Ramon Rd to 30th Ave - DPLM1 DPLM2	5.50
228	B-323	CATHEDRAL CYN DR	CTHCN1	Terrace Rd to E Palm Canyon Dr - CTHCN1	4.00
228	B-326	CATHEDRAL CYN DR	CTHCN4	N side of Whitewater Br. to Dinah Shore Dr - CTHCN4	4.00
228	B-434	DATE PALM DR	DPLM3	30th Ave to Vista Chino - DPLM3	4.00

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3.5 COACHELLA VALLEY ACTIVE TRANSPORTATION PLAN

The Coachella Valley Association of Governments (CVAG) Active Transportation Plan (ATP) was developed in 2016 as an update to previous non-motorized transportation plans. It provides bike, walk, and neighborhood electric vehicle (NEV) access throughout the CVAG region.

The 2016 ATP identifies approximately 750 miles of regionally significant bikeways and pedestrian facilities throughout Coachella Valley, in addition to the planned active transportation facilities that primarily serve local users.

3.6 CV LINK

CVAG's CV Link Master Plan envisions a multi-modal transportation facility which could ultimately connect eight of the nine cities in the Coachella Valley and three tribal land reservations. Bicycles, pedestrians, and low-speed electric vehicles (LSEVs) will use the corridor to access employment, shopping, schools, friends, and recreational opportunities. LSEVs include golf carts and Neighborhood Electric Vehicles (NEVs) that can travel up to 25 mph.

The CV Link Corridor Transportation Analysis (Urban Crossroads, Inc., October 2016) included the evaluation of automobile, bicycle, pedestrian, and LSEV volumes and level of service for the intersection of Date Palm Drive at Perez Road.

3.7 EXISTING TRANSIT SERVICE

Cathedral City is currently served by the SunLine Transit Agency (STA), a public transit agency serving various jurisdictions throughout Coachella Valley. The existing bus routes provided within the City are shown on Exhibit 3-6.

Transit service is periodically reviewed and updated by STA to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. It should also be noted that SunDial service provides special services for people with disabilities and seniors (60+).

3.8 2009 CATHEDRAL CITY GENERAL PLAN CIRCULATION ELEMENT

The 2009 General Plan Circulation Element is depicted in Exhibit 3-7, and Exhibit 3-8 presents the 2009 Cathedral City Roadway Cross-sections.

East Palm Canyon Drive (Highway 111) is the major arterial connecting most of the commercial centers of the Coachella Valley, and is designated as an Arterial Highway (126-foot ROW) on the Cathedral City General Plan. The route runs north-west to south-east diagonally within the study area. Highway 111 currently provides two to three through travel lanes in each direction. Highway 111 is designated as a Riverside County CMP roadway.

U.S. Interstate-10 (the I-10 Freeway) is built as an eight-lane divided freeway within the study area. I-10 provides essential inter-city and inter-regional access and is a critical part of the local road network. Within the study area, Interstate-10 has access from four existing interchanges at Palm Drive / Gene Autry Trail, Date Palm Drive, Da Vall Drive, and Bob Hope Drive with a southbound on ramp only at Ramon Road just outside the City.

EXHIBIT 3-6: EXISTING TRANSIT ROUTES AND BUS STOPS

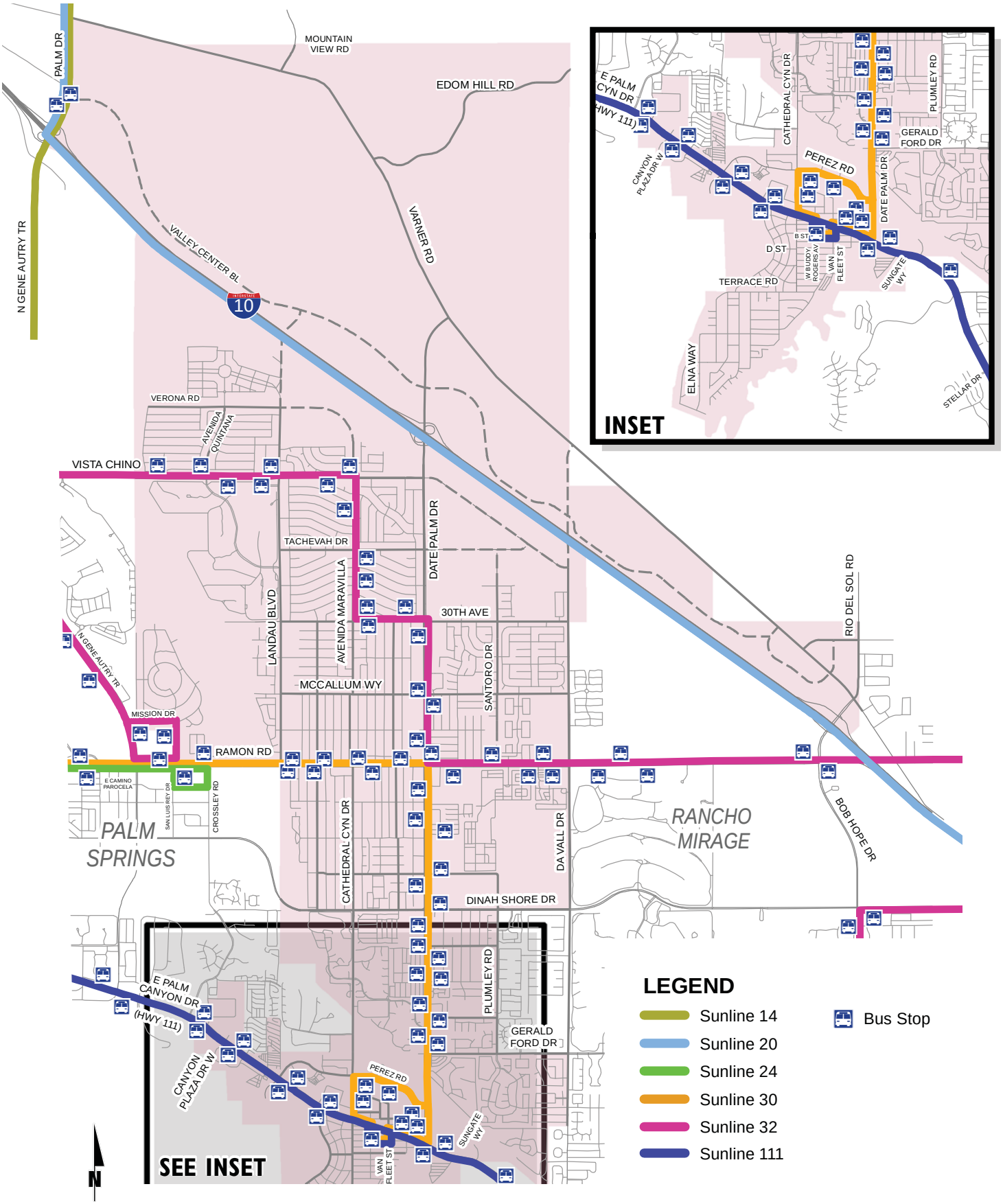


EXHIBIT 3-7: CURRENTLY ADOPTED (2009) CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CLASSIFICATIONS

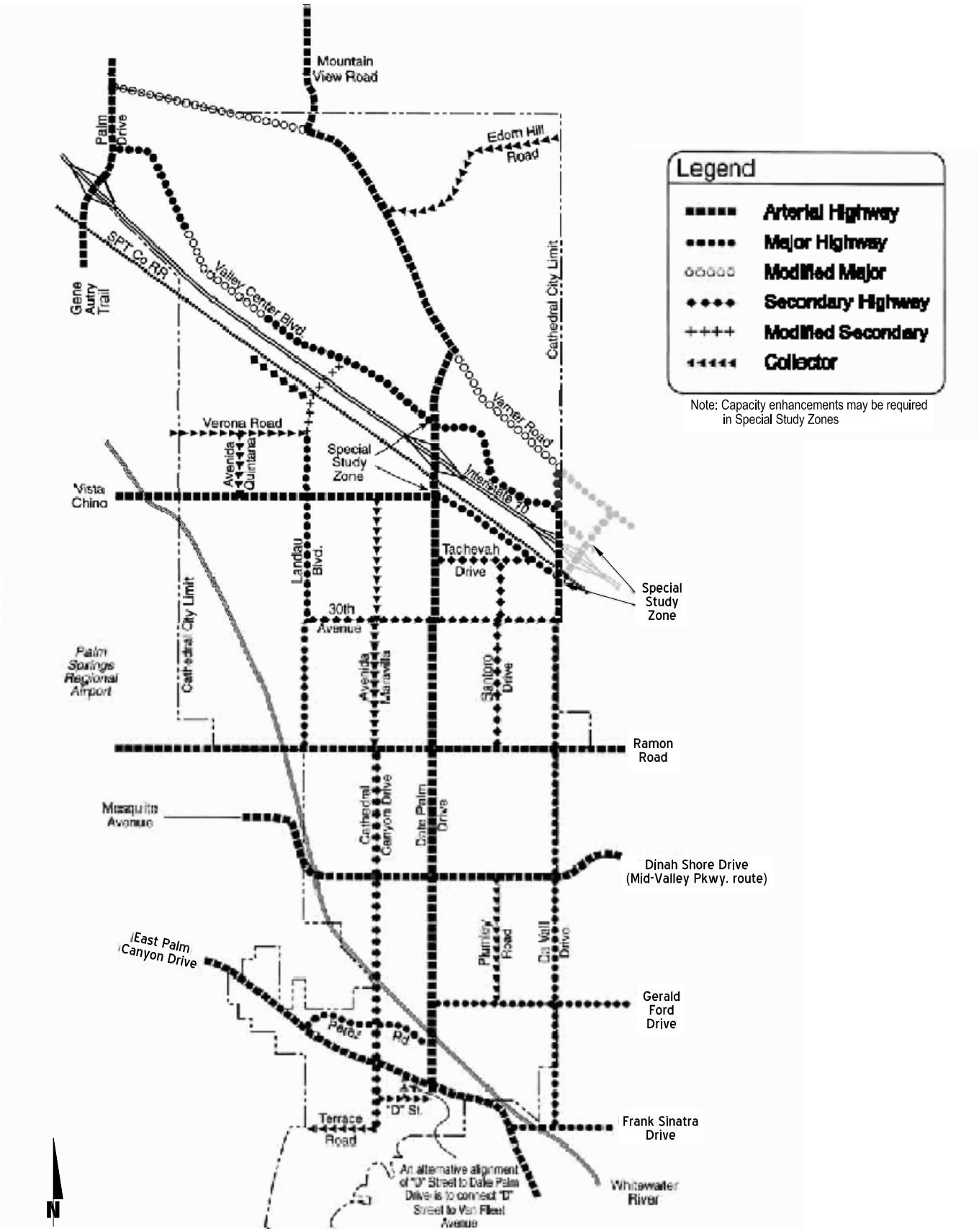
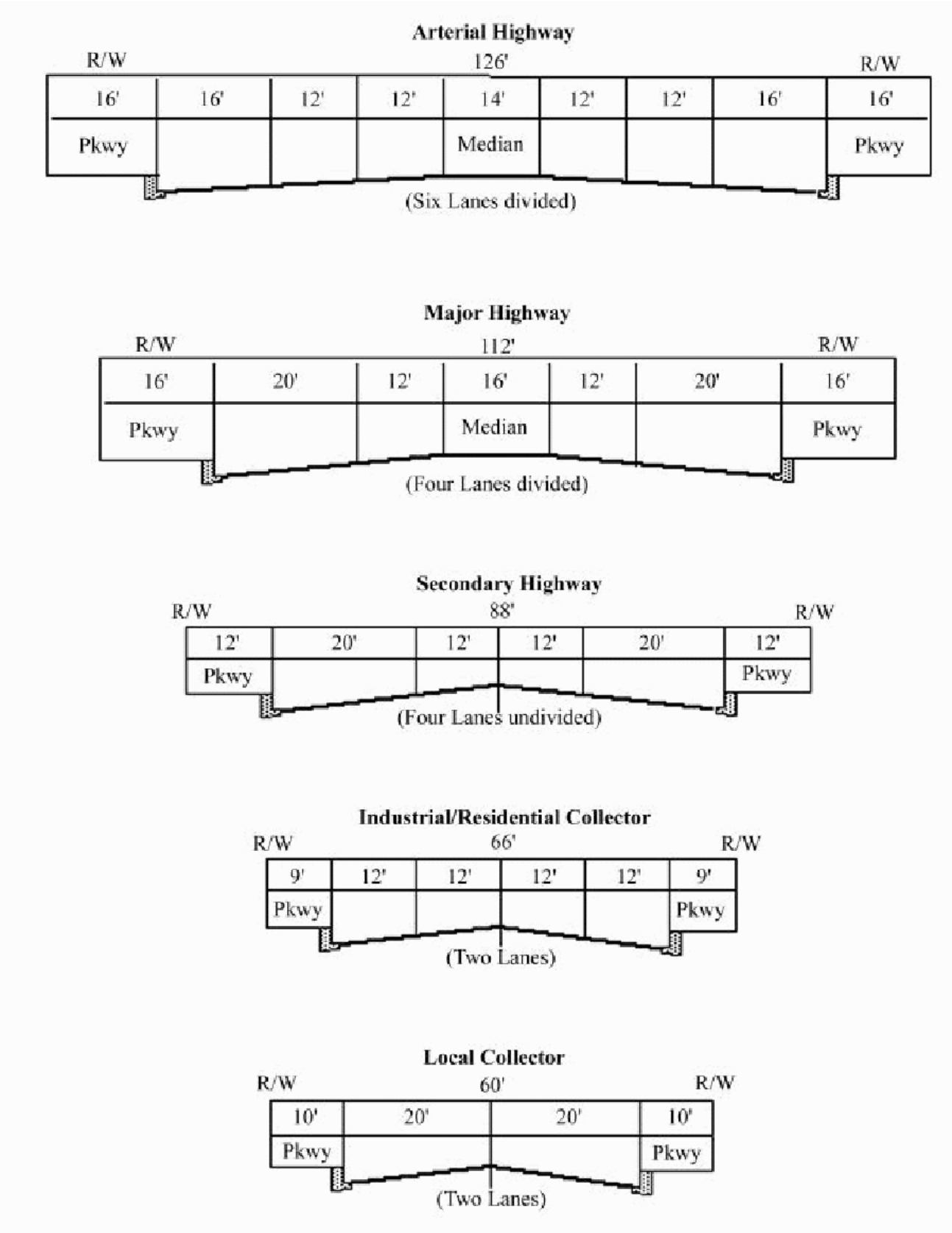


EXHIBIT 3-8: CURRENTLY ADOPTED (2009) CITY OF CATHEDRAL CITY GENERAL PLAN STREET CROSS SECTIONS



Gene Autry Trail / Palm Drive is designated as an Arterial Highway within Cathedral City. It exists from north of Varner Road to south of the I-10 Freeway, primarily as a 4-lane divided road (expanding to 6-lanes in the immediate vicinity of the I-10 Freeway.

Edom Hill Road exists as a 2-lane divided road, and is designated as a Collector on the Cathedral City General Plan.

Mountain View Road is designated as an Arterial Highway, and exists north of Varner Road.

Da Vall Drive is designated as an Arterial Highway (126-foot right of way or ROW) in the interchange area (from 30th Avenue to Valley Center Boulevard). South of 30th Avenue and north of Valley Center Boulevard, Da Vall Drive is a Major Highway with 112-footROW. Da Vall Drive exists from just north of 30th Avenue to Frank Sinatra Drive, with one to two lanes in each direction.

Landau Boulevard is designated as a north-south Major Highway between Verona Road and Ramon Road. North of Verona Road, Landau Boulevard curves northeasterly, crossing the I-10 Freeway as a Secondary Highway to connect with Valley Center Boulevard. The North City SP includes a proposed Landau Boulevard Interchange at I-10, consistent with the 2016 RTP. The new interchange is proposed to be a partial cloverleaf design with a six-lane bridge over the freeway. Landau Boulevard currently exists from Verona Road to Ramon Road. At the intersection of Landau Boulevard at Verona Road, the north leg continues as Rio Vista Drive, which curves northwesterly into a neighborhood. A Landau Boulevard alignment intersects with Rio Vista Drive north of Verona Road. Four lanes are currently provided from Vista Chino to Ramon Road.

Avenida Maravilla / Cathedral Canyon Drive is designated as a Collector from Vista Chino to Ramon Road. It exists as a north-south 2-lane undivided roadway. From Ramon Road to Terrace Road, Cathedral Canyon Drive is designated a Secondary Highway, and exists as a 4-lane divided road north of Palm Canyon Drive. South of Palm Canyon Drive, Cathedral Canyon Drive exists as a 2-lane divided facility.

Date Palm Drive is designated as a north-south Arterial Highway. It exists as a divided roadway, with existing directional lanes varying from one to three lanes.

Santoro Drive is designated as a north-south Secondary Highway.

Avenida Quintana and **Plumley Road** are designated as Collectors.

Varner Road is designated as a Modified Major from Palm Drive to Mountain View Road, and from Date Palm Drive to Da Vall Drive. From Mountain View Road to Date Palm Drive, Varner Road is designated as an Arterial Highway. The roadway currently exists as a 2-lane divided facility.

Valley Center Boulevard is a future facility that is designated as a Modified Major or a Major Highway throughout the study area.

Verona Road is designated as a Collector.

Vista Chino is designated as an east-west Arterial Highway west of Date Palm Drive, and as a Major Highway east of Date Palm Drive. The roadway currently exists as a 4-lane divided facility west of Date Palm Drive.

Tacheva Drive and **30th Avenue** are designated as Secondary Highways.

Ramon Road is a six (6) lane divided roadway east of Landau Boulevard. West of Landau Boulevard, Ramon Road is a four (4) lane divided roadway. Ramon Road is designated as an Arterial Highway in the Currently Adopted General Plan.

Dinah Shore Drive is designated as an Arterial Highway between Date Palm Drive and Monterey Avenue. The roadway currently includes two through lanes in each direction. **The Mid-Valley Parkway** was conceived through CVAG to provide an additional intercity, high capacity connector to better link the cities of the upper Coachella Valley. In Cathedral City, the Mid-Valley Parkway (four-lane divided) is included along Dinah Shore Drive.

Gerald Ford Drive is designated as a Major Highway with 112-foot ROW. The roadway currently has two through lanes in each direction within the study area.

Perez Road is designated as a Major Highway.

3.9 TRUCK ROUTES

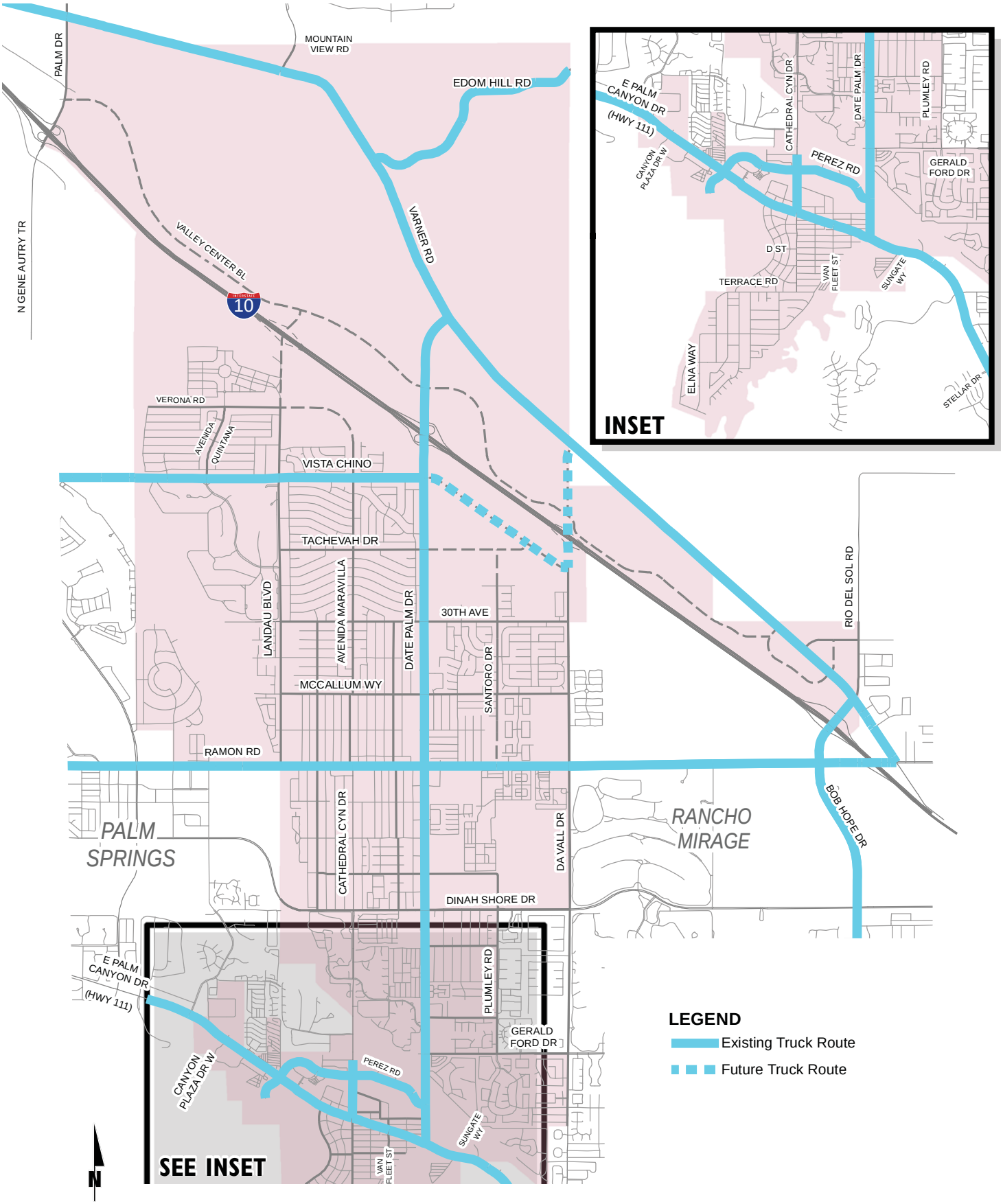
Existing truck routes are shown on Varner Road, Edom Hill Road, Date Palm Drive, Bob Hope Drive, Vista Chino, Ramon Road, Perez Road, a section of Cathedral Canyon Drive, and Highway 111. The network of potential truck routes shown on Exhibit 3-9 works in conjunction with the proposed Cathedral City General Plan roadway network to provide a framework for truck routes that serve key commercial areas.

The truck routing issue involves several components. First, truck drivers do not always have good information about the approved truck routes or the truck restricted routes. In some cases, truck routes are not consistent from one jurisdiction to another, leading to driver confusion. Some routes are also not well signed. Truck drivers often use internet sourced maps to determine routing, which may be misleading because not all “major” routes on map sources actually allow trucks. Some may in fact be truck restricted but there is no easy way for the drivers to know this information. Finally, in some cases all of these factors lead trucks to use a route that should not be used due to adjacent sensitive land uses such as residential or schools, or they use routes that are not adequate for heavy vehicle activity due to physical design features such as horizontal and vertical curves, or pavement condition.

To support the demand for truck activities, two additional truck routes have been identified for Cathedral City:

- Da Vall Drive from Vista Chino to Varner Road
- Vista Chino from Date Palm Drive to Da Vall Drive

EXHIBIT 3-9: CITY OF CATHEDRAL CITY TRUCK ROUTES



Cathedral City will follow the procedures specified in the California Vehicle Code in order to establish additional truck routes within the City.

3.10 LEVEL OF SERVICE DEFINITIONS AND INTERSECTION ANALYSIS METHODOLOGIES

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

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

3.10.1 SIGNALIZED INTERSECTIONS

Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 3-4.

TABLE 3-4: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or long cycle lengths.	80.01 and up	F	F

Source: HCM, 6th Edition

Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. The LOS analysis for signalized intersections has been performed using optimized signal timing for existing traffic conditions. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis. Signal timing for study area intersections have been requested and utilized. Where signal timing was unavailable, the local accepted standards were utilized in lieu of actual signal timing.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour.

3.10.2 Unsignalized Intersections

The Cathedral City requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM 6. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 3-5).

TABLE 3-5: UNSIGNALIZED INTERSECTION DESCRIPTION OF LOS

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

Source: HCM, 6th Edition

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

3.11 Traffic Signal Warrant Analysis Methodology

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. Both the *FHWA's MUTCD* and the *MUTCD 2014 California Supplement* indicate

that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 criteria are basically identical for both the *FHWA's MUTCD* and the *MUTCD 2014 California Supplement*. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

3.12 CATHEDRAL CITY INTERSECTION LEVEL OF SERVICE STANDARD

Pursuant to the currently adopted Cathedral City General Plan, the upper level of LOS D is considered acceptable within the City. Locations at LOS E or F experience unacceptable operations.

3.13 EXISTING INTERSECTION LEVEL OF SERVICE

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented above. The intersection operations analysis results are summarized in Table 3-6 which indicates that all of the study area intersections are currently operating at acceptable LOS during the peak hours, with the exception of the following:

- Date Palm Drive / Varner Road (#10) – LOS F PM peak hour only
- Cathedral Canyon Drive / Ramon Road (#14) – LOS E AM and PM peak hours
- Landau Boulevard / Ramon Road (#17) – LOS E AM peak hour only
- Mountain View Road / Varner Road (#20) – LOS F AM peak hour only

The intersection operations analysis worksheets are included in Appendix 3-2 of this TA.

3.14 EXISTING TRAFFIC SIGNAL WARRANTS

The traffic signal warrant analysis has been performed for unsignalized study area intersections, with traffic signal warrant worksheets included in Appendix 3.3 of this TA. As shown in Appendix 3.3 the existing unsignalized intersection of Date Palm / Varner Road (#10) appears to meet traffic signal warrants under existing conditions. In addition, the existing unsignalized intersection of Mountain View Road / Varner Road (#20) almost meets traffic signal warrants under existing conditions. Monitoring of Mountain View Road / Varner Road is recommended to determine if the signal warrant is satisfied as ambient or potential nearby development growth occurs.

TABLE 3-6: INTERSECTION ANALYSIS FOR EXISTING (2018) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (Secs)		Level of Service[2]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Date Palm / E. Palm Cyn. Dr. (Hwy 111)	TS	0	0	0	3	0	1>	2	3	0	0	3	1	11.7	10.7	B	B
2	Date Palm / Perez Rd.	TS	1	2	0	0	2	1>	2	0	1	0	0	0	12.3	13.1	B	B
3	Date Palm / Gerald Ford Dr.	TS	1	2	1	1	2	d	1	2	0	1.5	0.5	1	38.7	43.0	D	D
4	Date Palm / Dinah Shore Dr.	TS	2	2	1	2	3	0	1	2	1	1	2	1>	28.5	29.3	C	C
5	Date Palm / Ramon Rd.	TS	2	2	1	1	2	1	1	3	0	1	3	0	32.0	38.6	C	D
6	Date Palm / 30th Av.	TS	1	3	0	1	3	0	1	1	d	1	1	d	46.1	34.3	D	C
7	Date Palm / Vista Chino	TS	1	3	0	1	3	1>	2	1	1	1	1	0	32.7	28.5	C	C
8	Date Palm / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	10.4	6.3	B	A
9	Date Palm / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	13.6	13.8	B	B
10	Date Palm / Varner Rd.	CSS	1	0	1	0	0	0	0	1	1	0	1	0	13.5	**50.6**	B	**F**
11	Cathedral Cyn. Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	1	1	1	1>	1	2	1	1	3	1	17.0	21.0	B	C
12	Cathedral Cyn. Dr. / Perez Rd.	TS	1	2	0	1	2	0	1	2	1	1	2	0	35.8	38.6	D	D
13	Cathedral Cyn. Dr. / Dinah Shore Dr.	TS	1	2	0	1	2	0	1	2	0	1	2	0	42.3	52.0	D	D
14	Cathedral Cyn. Dr. - Avenida Maravilla / Ramon	TS	1.5	0.5	1>	0.5	0.5	1>	1	3	0	1	3	0	**63.6**	**60.5**	**E**	**E**
15	Bob Hope Dr. / Ramon Rd.	TS	2	3	1>	2	3	1>	2	2	1	2	2	1	40.2	34.1	D	C
16	Perez Rd. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	1	0.5	1.5>	2	3	0	1	2	1	27.1	32.5	C	C
17	Landau Bl. / Ramon Rd.	TS	0	0	0	2	0	1	1	2	0	0	2	1	**77.7**	40.1	**E**	D
18	Bob Hope Dr. / Varner Rd.	TS	2	2	1>>	2	2	1	2	2	0	2	2	0	41.9	42.2	D	D
19	Landau Bl. / Vista Chino	TS	1	2	0	1	2	0	1	2	d	1	2	d	35.6	38.1	D	D
20	Mountain View Rd. / Varner Rd.	AWS	0	0	0	0	1!	0	0	1	0	0	1	1	**100.7**	27.6	**F**	D
21	Sungate Wy. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	0.5	0.5	1	1	2	1	1	3	0	15.9	34.2	B	C
22	Van Fleet St. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	1	1	1	0	1	2	1	1	2	1	15.6	36.9	B	D
23	Canyon Plaza Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	d	0.5	1.5	0	1	2	1	1	2	1	16.4	42.2	B	D
24	Bob Hope Dr. / I-10 EB Ramps	TS	0	2.5	1.5	2	2	0	1	1!	1	0	0	0	14.0	10.5	B	B
25	Bob Hope Dr. / I-10 WB Ramps	TS	2	2	0	0	3	1	0	0	0	1.5	0.5	1>>	13.0	18.7	B	B
26	Da Vall Dr. / Gerald Ford Dr.	TS	1	2	1	1	2	0	1	2	0	1	2	0	27.4	26.0	C	C
27	Da Vall Dr. / Dinah Shore Dr.	TS	1	2	1	1	2	0	1	2	1	1	2	0	31.3	27.5	C	C
28	Da Vall Dr. / Ramon Rd.	TS	1	2	1	1	1	0	1	3	0	1	3	1	38.3	24.5	D	C
29	Gene Autry Tr. / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	5.9	4.6	A	A
30	Gene Autry Tr.-Palm Dr. / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	10.0	9.7	A	A

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

L = Left; T = Through; R = Right; 1! = Shared Left/Through/Right Lane; 0.5 = Shared Lane; > = Right-Turn Overlap Phasing; >> = Free-Right Turn Lane; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual 6th Edition (HCM6), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. Delay and level of service is calculated using Synchro 10.1 analysis software.

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

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

R:\UXRjobs_11100-11500\11326\Excel\[11326 - LOS Results.xlsx]Existing

4 PROJECTED FUTURE TRAFFIC

Traffic projections for General Plan Buildout (2040) conditions were derived from the Riverside County Transportation Analysis Model (RivTAM), as well as the North City Specific Plan (NCSP) traffic analysis and North City Extended Specific Plan (NCESP) traffic analysis. RivTAM has been updated in the CVAG region for consistency with the SCAG draft 2016 RTP for the Transportation Project Prioritization Study (TPPS) 2040 project using accepted procedures for model forecast refinement and smoothing. RivTAM was prepared for the Riverside County Transportation Department in cooperation with Southern California Association of Governments. (3)

A brief overview of the RivTAM travel demand forecasting process and key driving travel demand is provided below.

4.1 RIVTAM 2040 PLUS TPPS – CVAG MODEL OVERVIEW

The RivTAM 2040 Plus TPPS – CVAG Model includes the following steps / processes:

- Socio-economic data (SED) based trip generation
- Trip distribution
- Mode choice (split)
- Traffic assignment

The SED that drives the RivTAM trip generation, trip distribution, and mode choice processes includes a number of variables. Data is required regarding population, number of households, household income (stratified into 3 generalized levels), vehicle ownership, and employment (disaggregated into a total of 12 different categories) for existing traffic model baseline (2008) and future (2040) conditions.

The general modeling steps or processes include the following:

4.1.1 TRIP GENERATION

- Detailed socioeconomic data
- Multinomial Nested Logit vehicle availability model
- Census household classification models
- Cross-classification trip production models
- Regression trip attraction models on household and NAICS employment data
- Total person trips including non-motorized trips, stratified into 14 trip types

4.1.2 TRIP DISTRIBUTION

- Gamma curves of covariant impedance
- Intermediate Stops Model for HBWS

- Calibrated friction factors by trip purpose, income group (for work trips), and time period (peak, off-peak), 28 curves in total
- Logsum from mode choice used in home-based work direct trips
- Intermediate stop choice models allocate home-based work strategic trips to intermediate stops after mode choice

4.1.3 MODE CHOICE

- Nested Logit models
- Separate models for each trip purpose, stratified by peak and off-peak periods
- Includes non-motorized trips
- Model transit trips by mode and access/egress types

4.1.4 TRIP ASSIGNMENT

- Volume Delay Functions
- 4 time period equilibrium assignments
- 3 auto classes
- 3 classes of heavy-duty trucks
- External trips from external model
- Ports trips from LA and LB ports
- Airport trips from airport demand model
- Simultaneous highway assignments with transit vehicles
- Transit assignments by access mode

RivTAM 2040 Plus TPPS-CVAG model relies on regional model procedures for trip generation, trip distribution, and mode choice. Trip generation estimates are based on socioeconomic data. SED refers to general measures of human activity such as population, employment, housing, etc.

Traffic is assigned to the roadway system on the basis of travel time and cost. Traffic is assigned separately for the AM, mid-day, PM, and nighttime periods of the day, to allow for more accurate representation of the effects of congestion on the choice of travel routes by drivers. The post model refinements incorporate current (2018) traffic count data, existing model validation data (traffic estimates), future (raw) model forecasts (estimates), and North City Specific Plan (NCSP) traffic projections as well as North City Extended Specific Plan (NCESP) traffic projections. The goal of the future traffic volume forecast refinement or post model refinement processing is to utilize all available data to prepare the best possible estimate of future traffic conditions.

4.2 LAND USE DATA AND TRIP GENERATION

The General Plan Buildout land use data has been provided by Terra Nova Planning & Research, Inc. Exhibit 4-1 illustrates the currently adopted General Plan land use by Traffic Analysis Zone (TAZ). Proposed General Plan land use by TAZ is shown on Exhibit 4-2.

EXHIBIT 4-1: CATHEDRAL CITY
CURRENTLY ADOPTED GENERAL PLAN LAND USE BY TAZ

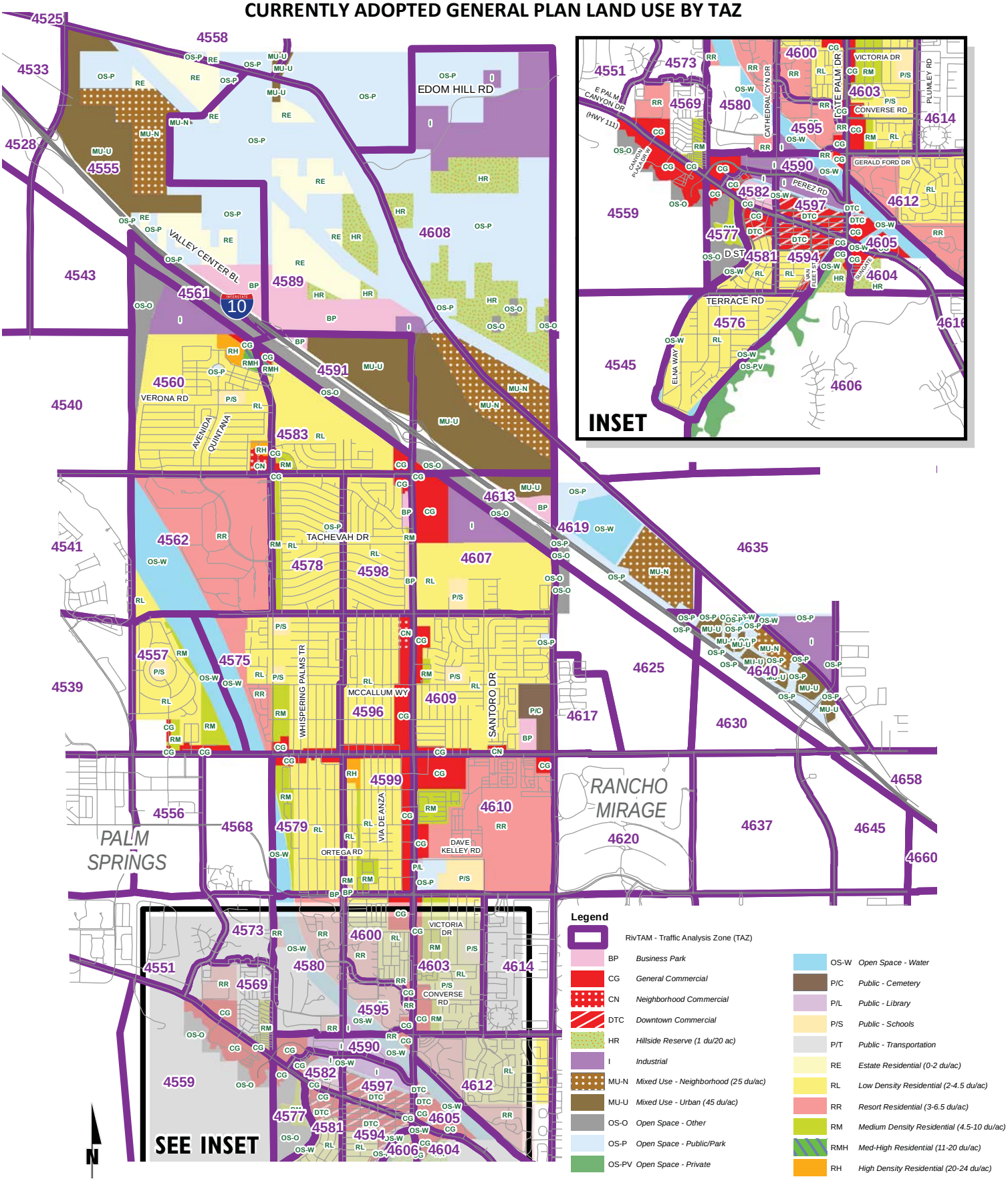
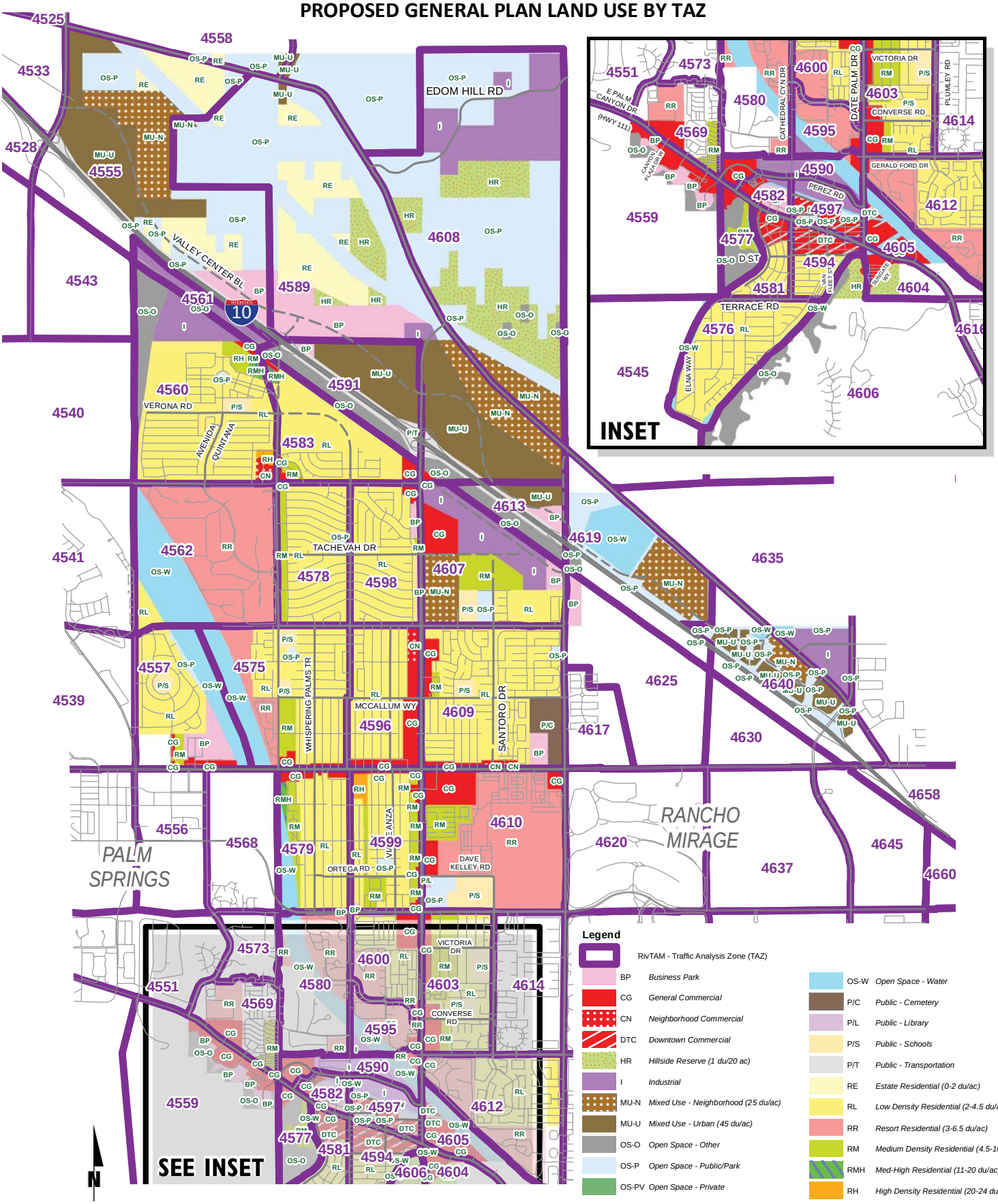


EXHIBIT 4-2: CATHEDRAL CITY PROPOSED GENERAL PLAN LAND USE BY TAZ



Trip generation represents the amount of traffic which is both attracted to and produced by a land use. Determining traffic generation for an area of the City is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given site.

For the purpose of comparing trip activity between future land use scenarios, trip rates are generally based upon the Institute of Transportation Engineers (ITE) *Trip Generation* manual, 10th Edition, 2017. The specific land uses in Cathedral City do not necessarily correlate directly to ITE trip generation categories. For example, trip generation rates for mixed-use areas are based upon an anticipated mix of residential and non-residential uses, combined with an estimate of the potential trip capture that occurs when homes are located directly above commercial use (for example). Table 4-1 shows the trip generation rates used for this analysis.

Table 4-2 shows the land use by TAZ for currently adopted General Plan conditions and trip generation for AM peak hour, PM peak hour, and daily conditions. There are 42 RivTAM TAZs representing Cathedral City. The land use and trip generation summary for proposed General Plan conditions is shown on Table 4-3.

General Plan buildout trip generation for currently adopted and proposed scenarios is anticipated to increase from existing conditions by over 100%. The proposed General Plan trip generation includes a decrease of approximately 6,500 daily trips from the currently adopted General Plan trip generation.

Trip generation calculations have also been performed for two additional General Plan alternatives. Appendix 4.1 contains a land use trip generation summary for Alternative 1 – More Intense General Plan, and Alternative 2 – Less Intense General Plan.

4.3 General Plan Buildout (2040) Forecasting Methodology

Traffic projections for General Plan Buildout conditions were developed using RivTAM 2040 Plus TPPS-CVAG model projections, North City Specific Plan (NCSP) traffic forecasts, and North City Extended Specific Plan (NCESP) traffic projections using accepted procedures for volume forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing (2018) conditions, and General Plan Buildout (2040) conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the General Plan Buildout peak hour forecasts were refined using RivTAM and NCSP/NCESP long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in 2018.

The North City Specific Plan and North City Extended Specific Plan areas add over 10,000 homes to the City.

Lastly, the traffic forecasts for General Plan Buildout (2040) traffic conditions were reviewed to ensure a minimum growth over Existing (2018) traffic conditions as a part of the refinement process.

TABLE 4-1: TRIP GENERATION RATES, LAND USE SUMMARY & TRIP GENERATION COMPARISON RESULTS

Trip Generation Rates[1]

Land Use	ITE LU Code	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Gen. Lt. Industrial	110	TSF	0.62	0.08	0.70	0.08	0.55	0.63	4.96
Single Family Detached	210	DU	0.19	0.55	0.74	0.62	0.37	0.99	9.44
Multifamily Housing (Low-Rise)	220	DU	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Business Park	770	TSF	0.24	0.16	0.40	0.19	0.23	0.42	12.44
Downtown Commercial	--[3]	TSF	2.46	1.36	3.82	1.97	2.43	4.40	65.33
General Commercial	--[3]	TSF	0.58	0.36	0.94	1.83	1.98	3.81	37.75
Neighborhood Commercial	--[3]	TSF	1.91	1.03	2.94	4.17	4.34	8.51	90.08
Mixed Use - Neighborhood Non-Residential	--[3]	TSF	1.60	0.97	2.57	1.57	1.67	3.24	34.19
Mixed Use - Neighborhood Residential	--[3]	DU	0.19	0.43	0.62	0.22	0.15	0.37	3.53
Mixed Use - Urban Non-Residential	--[3]	TSF	1.59	0.97	2.56	1.12	1.41	2.53	28.64
Mixed Use - Urban Residential	--[3]	DU	0.18	0.44	0.62	0.44	0.27	0.71	6.77

LAND USE SUMMARY COMPARISON

LAND USE	EXISTING BUILT/OCCUPIED Quantity	CURRENTLY ADOPTED GENERAL PLAN Quantity	PROPOSED GENERAL PLAN Quantity	*DELTA (PROPOSED-APPROVED) Quantity*
Hillside Reserve (1 du/20 ac)	0 DU	28 DU	22 DU	*-6 DU*
Estate Residential (0-2 du/ac)	0 DU	631 DU	631 DU	*0 DU*
Low Density Residential (2-4.5 du/ac)	12,235 DU	14,769 DU	14,339 DU	*-430 DU*
Resort Residential (3-6.5 du/ac)	7,659 DU	9,755 DU	9,745 DU	*-10 DU*
Medium Density Residential (4.5-10 du/ac)	4,018 DU	4,966 DU	5,342 DU	*376 DU*
Med-High Density Residential (11-20 du/ac)	0 DU	212 DU	321 DU	*109 DU*
High Density Residential (20-24 du/ac)	220 DU	947 DU	692 DU	*-255 DU*
Mixed Use - Neighborhood Residential	0 DU	4,475 DU	4,983 DU	*508 DU*
Mixed Use - Urban Residential	0 DU	18,181 DU	18,181 DU	*0 DU*
Residential Subtotal	**24,132 DU**	**53,964 DU**	**54,256 DU**	***292 DU***
Neighborhood Commercial	141 TSF	276 TSF	311 TSF	*35 TSF*
General Commercial	3,809 TSF	6,134 TSF	5,096 TSF	*-1,038 TSF*
Downtown Commercial	520 TSF	1,092 TSF	897 TSF	*-195 TSF*
Mixed Use - Neighborhood Non-Residential	0 TSF	3,027 TSF	3,371 TSF	*344 TSF*
Mixed Use - Urban Non-Residential	0 TSF	3,081 TSF	3,081 TSF	*0 TSF*
Commercial Subtotal	**4,470 TSF**	**13,610 TSF**	**12,756 TSF**	***-854 TSF***
Industrial	1,639 TSF	9,501 TSF	11,547 TSF	*2,046 TSF*
Business Park	847 TSF	4,872 TSF	6,497 TSF	*1,625 TSF*
Business Park/Industrial Subtotal	**2,486 TSF**	**14,373 TSF**	**18,044 TSF**	***3,671 TSF***

Trip Generation Comparison Results

Scenario	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing Built and Occupied Estimated Trips	9,542	15,717	25,259	23,779	19,409	43,188	436,474
Proposed General Plan Estimated Trips	34,816	38,634	73,450	51,392	48,440	99,832	1,052,619
DELTA (Proposed - Existing Built)	**25,274**	**22,917**	**48,191**	**27,613**	**29,031**	**56,644**	**616,145**
Currently Adopted General Plan Estimated Trips	33,551	38,353	71,904	52,502	48,723	101,225	1,059,205
Proposed General Plan Estimated Trips	34,816	38,634	73,450	51,392	48,440	99,832	1,052,619
DELTA (Proposed - Currently Adopted)	**1,265**	**281**	**1,546**	**-1,110**	**-283**	**-1,393**	**-6,586**

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

[2] DU = Dwelling Unit; TSF = Thousand Square Feet

[3] Trip rates have been calculated based on anticipated mix of land uses and various trip generation rates.

NOTE: Open space and public use (Parks, school, cemetery, and library) data not included.

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TABLE 4-2: CURRENTLY ADOPTED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4555	Business Park	770	975 TSF	234	156	390	185	224	409	12,129
	Estate Residential (0-2 du/ac)	210	265 DU	50	146	196	164	98	262	2,502
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	985 TSF	1,576	955	2,531	1,546	1,645	3,191	33,677
	- Neighborhood Residential	-	1,456 DU	277	626	903	320	218	538	5,140
	Mixed Use - Urban									
	- Urban Non-Residential	-	964 TSF	1,533	935	2,468	1,080	1,359	2,439	27,609
	- Urban Residential	-	5,692 DU	1,025	2,504	3,529	2,504	1,537	4,041	38,535
	Subtotal			4,695	5,322	10,017	5,799	5,081	10,880	119,592
4557	Business Park	770	0 TSF							
	General Commercial	-	150 TSF	87	54	141	275	297	572	5,663
	Low Density Residential (2-4.5 du/ac)	210	490 DU	93	270	363	304	181	485	4,626
	Medium Density Residential (4.5-10 du/ac)	210	765 DU	145	421	566	474	283	757	7,222
	Subtotal			325	745	1,070	1,053	761	1,814	17,511
4558	Estate Residential (0-2 du/ac)	210	6 DU	1	3	4	4	2	6	57
	Mixed Use - Urban									
	- Urban Non-Residential	-	19 TSF	30	18	48	21	27	48	544
	- Urban Residential	-	110 DU	20	48	68	48	30	78	745
	Subtotal			51	69	120	73	59	132	1,346
4559	Business Park	770	0 TSF							
	General Commercial	-	624 TSF	362	225	587	1,142	1,236	2,378	23,556
	Subtotal			362	225	587	1,142	1,236	2,378	23,556
4560	General Commercial	-	34 TSF	20	12	32	62	67	129	1,284
	Neighborhood Commercial	-	103 TSF	197	106	303	430	447	877	9,278
	Industrial	110	1,118 TSF	693	89	782	89	615	704	5,545
	High Density Residential (20-24 du/ac)	220	491 DU	54	172	226	172	103	275	3,594
	Low Density Residential (2-4.5 du/ac)	210	1,811 DU	344	996	1,340	1,123	670	1,793	17,096
	Medium Density Residential (4.5-10 du/ac)	210	0 DU							
	Med-High Density Residential (11-20 du/ac)	220	136 DU	15	48	63	48	29	77	996
	Subtotal			1,323	1,423	2,746	1,924	1,931	3,855	37,793
4561	Industrial	110	0 TSF							
4562	Low Density Residential (2-4.5 du/ac)	210	113 DU	21	62	83	70	42	112	1,067
	Resort Residential (3-6.5 du/ac)	210	3,088 DU	587	1,698	2,285	1,915	1,143	3,058	29,151
	Subtotal			608	1,760	2,368	1,985	1,185	3,170	30,218
4569	General Commercial	-	212 TSF	123	76	199	388	420	808	8,003
	Medium Density Residential (4.5-10 du/ac)	210	268 DU	51	147	198	166	99	265	2,530
	Resort Residential (3-6.5 du/ac)	210	247 DU	47	136	183	153	91	244	2,332
	Subtotal			221	359	580	707	610	1,317	12,865
4575	General Commercial	-	124 TSF	72	45	117	227	246	473	4,681
	Low Density Residential (2-4.5 du/ac)	210	1,114 DU	212	613	825	691	412	1,103	10,516
	Medium Density Residential (4.5-10 du/ac)	210	362 DU	69	199	268	224	134	358	3,417
	Resort Residential (3-6.5 du/ac)	210	567 DU	108	312	420	352	210	562	5,352
	Subtotal			461	1,169	1,630	1,494	1,002	2,496	23,966

TABLE 4-2: CURRENTLY ADOPTED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4576	Low Density Residential (2-4.5 du/ac)	210	1,015 DU	193	558	751	629	376	1,005	9,582
4577	General Commercial	-	78 TSF	45	28	73	143	154	297	2,945
	Medium Density Residential (4.5-10 du/ac)	210	196 DU	37	108	145	122	73	195	1,850
	Subtotal			82	136	218	265	227	492	4,795
4578	Low Density Residential (2-4.5 du/ac)	210	1,000 DU	190	550	740	620	370	990	9,440
	Medium Density Residential (4.5-10 du/ac)	210	507 DU	96	279	375	314	188	502	4,786
	Subtotal			286	829	1,115	934	558	1,492	14,226
4579	Business Park	770	28 TSF	7	4	11	5	6	11	348
	General Commercial	-	155 TSF	90	56	146	284	307	591	5,851
	Low Density Residential (2-4.5 du/ac)	210	747 DU	142	411	553	463	276	739	7,052
	Medium Density Residential (4.5-10 du/ac)	210	525 DU	100	289	389	326	194	520	4,956
	Med-High Density Residential (11-20 du/ac)	220	0 DU							
	Subtotal			339	760	1,099	1,078	783	1,861	18,207
4580	Resort Residential (3-6.5 du/ac)	210	881 DU	167	485	652	546	326	872	8,317
4581	General Commercial	-	98 TSF	57	35	92	179	194	373	3,700
	Downtown Commercial	-	143 TSF	352	194	546	282	347	629	9,342
	Low Density Residential (2-4.5 du/ac)	210	239 DU	45	131	176	148	88	236	2,256
	Subtotal			454	360	814	609	629	1,238	15,298
4582	Business Park	770	320 TSF	77	51	128	61	74	135	3,981
	General Commercial	-	128 TSF	74	46	120	234	253	487	4,832
	Industrial	110	110 TSF	68	9	77	9	61	70	546
	Subtotal			219	106	325	304	388	692	9,359
4583	General Commercial	-	174 TSF	101	63	164	318	345	663	6,569
	Low Density Residential (2-4.5 du/ac)	210	991 DU	188	545	733	614	367	981	9,355
	Medium Density Residential (4.5-10 du/ac)	210	125 DU	24	69	93	78	46	124	1,180
	Med-High Density Residential (11-20 du/ac)	220	76 DU	8	27	35	27	16	43	556
	Subtotal			321	704	1,025	1,037	774	1,811	17,660
4589	Business Park	770	2,536 TSF	609	406	1,015	482	583	1,065	31,548
	General Commercial	-	42 TSF	24	15	39	77	83	160	1,586
	Hillside Reserve (1 du/20 ac)	210	4 DU	1	2	3	2	1	3	38
	Industrial	110	243 TSF	151	19	170	19	134	153	1,205
	Estate Residential (0-2 du/ac)	210	360 DU	68	198	266	223	133	356	3,398
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	749 TSF	1,198	727	1,925	1,176	1,251	2,427	25,608
	- Neighborhood Residential	-	1,108 DU	211	476	687	244	166	410	3,911
	Mixed Use - Urban									
	- Urban Non-Residential	-	960 TSF	1,526	931	2,457	1,075	1,354	2,429	27,494
	- Urban Residential	-	5,667 DU	1,020	2,493	3,513	2,493	1,530	4,023	38,366
	Subtotal			4,808	5,267	10,075	5,791	5,235	11,026	133,154
4590	General Commercial	-	266 TSF	154	96	250	487	527	1,014	10,042
	Industrial	110	810 TSF	502	65	567	65	446	511	4,018
	Resort Residential (3-6.5 du/ac)	210	18 DU	3	10	13	11	7	18	170
	Subtotal			659	171	830	563	980	1,543	14,230

TABLE 4-2: CURRENTLY ADOPTED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4591	Business Park	770	89 TSF	21	14	35	17	20	37	1,107
	Mixed Use - Urban									
	- Urban Non-Residential	-	647 TSF	1,029	628	1,657	725	912	1,637	18,530
	- Urban Residential	-	3,816 DU	687	1,679	2,366	1,679	1,030	2,709	25,834
	Subtotal		810	1,737	2,321	4,058	2,421	1,962	4,383	45,471
4594	Downtown Commercial	-	438 TSF	1,077	596	1,673	863	1,064	1,927	28,615
	Low Density Residential (2-4.5 du/ac)	210	137 DU	26	75	101	85	51	136	1,293
	Subtotal			1,103	671	1,774	948	1,115	2,063	29,908
4595	General Commercial	-	41 TSF	24	15	39	75	81	156	1,548
	Industrial	110	152 TSF	94	12	106	12	84	96	754
	Resort Residential (3-6.5 du/ac)	210	525 DU	100	289	389	326	194	520	4,956
	Subtotal			218	316	534	413	359	772	7,258
4596	General Commercial	-	554 TSF	321	199	520	1,014	1,097	2,111	20,914
	Neighborhood Commercial	-	131 TSF	250	135	385	546	569	1,115	11,800
	Low Density Residential (2-4.5 du/ac)	210	876 DU	166	482	648	543	324	867	8,269
	Subtotal			737	816	1,553	2,103	1,990	4,093	40,983
4597	Downtown Commercial	-	437 TSF	1,075	594	1,669	861	1,062	1,923	28,549
	Industrial	110	567 TSF	352	45	397	45	312	357	2,812
	Subtotal			1,427	639	2,066	906	1,374	2,280	31,361
4598	Business Park	770	317 TSF	76	51	127	60	73	133	3,943
	General Commercial	-	64 TSF	37	23	60	117	127	244	2,416
	Low Density Residential (2-4.5 du/ac)	210	1,023 DU	194	563	757	634	379	1,013	9,657
	Medium Density Residential (4.5-10 du/ac)	210	31 DU	6	17	23	19	11	30	293
	Subtotal			313	654	967	830	590	1,420	16,309
4599	Business Park	770	38 TSF	9	6	15	7	9	16	473
	General Commercial	-	654 TSF	379	235	614	1,197	1,295	2,492	24,689
	High Density Residential (20-24 du/ac)	220	456 DU	50	160	210	160	96	256	3,338
	Low Density Residential (2-4.5 du/ac)	210	743 DU	141	409	550	461	275	736	7,014
	Medium Density Residential (4.5-10 du/ac)	210	597 DU	113	328	441	370	221	591	5,636
	Subtotal			692	1,138	1,830	2,195	1,896	4,091	41,150
4600	General Commercial	-	250 TSF	145	90	235	458	495	953	9,438
	Low Density Residential (2-4.5 du/ac)	210	409 DU	78	225	303	254	151	405	3,861
	Resort Residential (3-6.5 du/ac)	210	395 DU	75	217	292	245	146	391	3,729
	Subtotal			298	532	830	957	792	1,749	17,028
4603	General Commercial	-	370 TSF	215	133	348	677	733	1,410	13,968
	Low Density Residential (2-4.5 du/ac)	210	556 DU	106	306	412	345	206	551	5,249
	Medium Density Residential (4.5-10 du/ac)	210	966 DU	184	531	715	599	357	956	9,119
	Subtotal			505	970	1,475	1,621	1,296	2,917	28,336
4604	General Commercial	-	161 TSF	93	58	151	295	319	614	6,078
	Hillside Reserve (1 du/20 ac)	210	1 DU		1	1	1		1	9
	Subtotal			93	59	152	296	319	615	6,087
4605	General Commercial	-	275 TSF	160	99	259	503	545	1,048	10,381
	Downtown Commercial	-	74 TSF	182	101	283	146	180	326	4,834
	Subtotal			342	200	542	649	725	1,374	15,215

TABLE 4-2: CURRENTLY ADOPTED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
				AM Peak Hour			PM Peak Hour				
TAZ	Land Use	ITE LU Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4606	General Commercial	-	25 TSF	15	9	24	46	50	96	944
	Hillside Reserve (1 du/20 ac)	210	1 DU		1	1	1		1	9
	Subtotal			15	10	25	47	50	97	953
4607	Business Park	770	0 TSF							
	General Commercial	-	717 TSF	416	258	674	1,312	1,420	2,732	27,067
	Industrial	110	811 TSF	503	65	568	65	446	511	4,023
	Low Density Residential (2-4.5 du/ac)	210	956 DU	182	526	708	593	354	947	9,025
	Medium Density Residential (4.5-10 du/ac)	210	0 DU							
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	0 TSF							
	- Neighborhood Residential	-	0 DU							
	Subtotal			1,101	849	1,950	1,970	2,220	4,190	40,115
4608	Hillside Reserve (1 du/20 ac)	210	22 DU	4	12	16	14	8	22	208
	Industrial	110	4,491 TSF	2,784	359	3,143	359	2,470	2,829	22,275
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	512 TSF	819	497	1,316	804	855	1,659	17,505
	- Neighborhood Residential	-	757 DU	144	326	470	167	114	281	2,672
	Subtotal			3,751	1,194	4,945	1,344	3,447	4,791	42,660
4609	Business Park	770	283 TSF	68	45	113	54	65	119	3,521
	General Commercial	-	271 TSF	157	98	255	496	537	1,033	10,230
	Neighborhood Commercial	-	42 TSF	80	43	123	175	182	357	3,783
	Low Density Residential (2-4.5 du/ac)	210	1,822 DU	346	1,002	1,348	1,130	674	1,804	17,200
	Medium Density Residential (4.5-10 du/ac)	210	69 DU	13	38	51	43	26	69	651
	Subtotal			664	1,226	1,890	1,898	1,484	3,382	35,385
4610	General Commercial	-	667 TSF	387	240	627	1,221	1,321	2,542	25,179
	Medium Density Residential (4.5-10 du/ac)	210	555 DU	105	305	410	344	205	549	5,239
	Resort Residential (3-6.5 du/ac)	210	2,993 DU	569	1,646	2,215	1,856	1,107	2,963	28,254
	Public - Schools									
	Subtotal			1,061	2,191	3,252	3,421	2,633	6,054	58,672
4612	General Commercial	-	0 TSF							
	Low Density Residential (2-4.5 du/ac)	210	727 DU	138	400	538	451	269	720	6,863
	Resort Residential (3-6.5 du/ac)	210	1,041 DU	198	573	771	645	385	1,030	9,827
	Subtotal			336	973	1,309	1,096	654	1,750	16,690
4613	Business Park	770	286 TSF	69	46	115	54	66	120	3,558
	Mixed Use - Urban									
	- Urban Non-Residential	-	161 TSF	256	156	412	180	227	407	4,611
	- Urban Residential	-	948 DU	171	417	588	417	256	673	6,418
	Subtotal			496	619	1,115	651	549	1,200	14,587
4619	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	593 TSF	949	575	1,524	931	990	1,921	20,275
	- Neighborhood Residential	-	876 DU	166	377	543	193	131	324	3,092
	Subtotal			1,115	952	2,067	1,124	1,121	2,245	23,367
4625	Business Park	770	0 TSF							
4635	Industrial	110	1,199 TSF	743	96	839	96	659	755	5,947

TABLE 4-2: CURRENTLY ADOPTED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
TAZ	Land Use	ITE LU Code	Quantity[2]		AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
4640	Mixed Use - Neighborhood										
	- Neighborhood Non-Residential	-	188	TSF	301	182	483	295	314	609	6,428
	- Neighborhood Residential	-	278	DU	53	120	173	61	42	103	981
	Mixed Use - Urban										
	- Urban Non-Residential	-	306	TSF	487	297	784	343	431	774	8,764
	- Urban Residential	-	1,804	DU	325	794	1,119	794	487	1,281	12,213
	Subtotal				1,166	1,393	2,559	1,493	1,274	2,767	28,386
4670	Mixed Use - Urban										
	- Urban Non-Residential	-	24	TSF	38	23	61	27	34	61	687
	- Urban Residential	-	144	DU	26	63	89	63	39	102	975
	Subtotal				64	86	150	90	73	163	1,662
TOTAL					**33,551**	**38,353**	**71,904**	**52,502**	**48,723**	**101,225**	**1,059,205**

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

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TABLE 4-3: PROPOSED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4555	Business Park	770	975 TSF	234	156	390	185	224	409	12,129
	Estate Residential (0-2 du/ac)	210	265 DU	50	146	196	164	98	262	2,502
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	985 TSF	1,576	955	2,531	1,546	1,645	3,191	33,677
	- Neighborhood Residential	-	1,456 DU	277	626	903	320	218	538	5,140
	Mixed Use - Urban									
	- Urban Non-Residential	-	964 TSF	1,533	935	2,468	1,080	1,359	2,439	27,609
	- Urban Residential	-	5,692 DU	1,025	2,504	3,529	2,504	1,537	4,041	38,535
	Subtotal			4,695	5,322	10,017	5,799	5,081	10,880	119,592
4557	Business Park	770	678 TSF	163	108	271	129	156	285	8,434
	General Commercial	-	150 TSF	87	54	141	275	297	572	5,663
	Low Density Residential (2-4.5 du/ac)	210	483 DU	92	266	358	299	179	478	4,560
	Medium Density Residential (4.5-10 du/ac)	210	122 DU	23	67	90	76	45	121	1,152
	Subtotal			365	495	860	779	677	1,456	19,809
4558	Estate Residential (0-2 du/ac)	210	6 DU	1	3	4	4	2	6	57
	Mixed Use - Urban									
	- Urban Non-Residential	-	19 TSF	30	18	48	21	27	48	544
	- Urban Residential	-	110 DU	20	48	68	48	30	78	745
	Subtotal			51	69	120	73	59	132	1,346
4559	Business Park	770	386 TSF	93	62	155	73	89	162	4,802
	General Commercial	-	374 TSF	217	135	352	684	741	1,425	14,119
	Subtotal			310	197	507	757	830	1,587	18,921
4560	General Commercial	-	34 TSF	20	12	32	62	67	129	1,284
	Neighborhood Commercial	-	103 TSF	197	106	303	430	447	877	9,278
	Industrial	110	1,118 TSF	693	89	782	89	615	704	5,545
	High Density Residential (20-24 du/ac)	220	236 DU	26	83	109	83	50	133	1,728
	Low Density Residential (2-4.5 du/ac)	210	1,811 DU	344	996	1,340	1,123	670	1,793	17,096
	Medium Density Residential (4.5-10 du/ac)	210	215 DU	41	118	159	133	80	213	2,030
	Med-High Density Residential (11-20 du/ac)	220	136 DU	15	48	63	48	29	77	996
	Subtotal			1,336	1,452	2,788	1,968	1,958	3,926	37,957
4561	Industrial	110	740 TSF	459	59	518	59	407	466	3,670
4562	Low Density Residential (2-4.5 du/ac)	210	113 DU	21	62	83	70	42	112	1,067
	Resort Residential (3-6.5 du/ac)	210	3,088 DU	587	1,698	2,285	1,915	1,143	3,058	29,151
	Subtotal			608	1,760	2,368	1,985	1,185	3,170	30,218
4569	General Commercial	-	212 TSF	123	76	199	388	420	808	8,003
	Medium Density Residential (4.5-10 du/ac)	210	268 DU	51	147	198	166	99	265	2,530
	Resort Residential (3-6.5 du/ac)	210	247 DU	47	136	183	153	91	244	2,332
	Subtotal			221	359	580	707	610	1,317	12,865
4575	General Commercial	-	124 TSF	72	45	117	227	246	473	4,681
	Low Density Residential (2-4.5 du/ac)	210	1,110 DU	211	611	822	688	411	1,099	10,478
	Medium Density Residential (4.5-10 du/ac)	210	362 DU	69	199	268	224	134	358	3,417
	Resort Residential (3-6.5 du/ac)	210	567 DU	108	312	420	352	210	562	5,352
	Subtotal			460	1,167	1,627	1,491	1,001	2,492	23,928

TABLE 4-3: PROPOSED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4576	Low Density Residential (2-4.5 du/ac)	210	1,015 DU	193	558	751	629	376	1,005	9,582
4577	General Commercial	-	78 TSF	45	28	73	143	154	297	2,945
	Medium Density Residential (4.5-10 du/ac)	210	196 DU	37	108	145	122	73	195	1,850
	Subtotal			82	136	218	265	227	492	4,795
4578	Low Density Residential (2-4.5 du/ac)	210	1,000 DU	190	550	740	620	370	990	9,440
	Medium Density Residential (4.5-10 du/ac)	210	507 DU	96	279	375	314	188	502	4,786
	Subtotal			286	829	1,115	934	558	1,492	14,226
4579	Business Park	770	9 TSF	2	1	3	2	2	4	112
	General Commercial	-	155 TSF	90	56	146	284	307	591	5,851
	Low Density Residential (2-4.5 du/ac)	210	795 DU	151	437	588	493	294	787	7,505
	Medium Density Residential (4.5-10 du/ac)	210	382 DU	73	210	283	237	141	378	3,606
	Med-High Density Residential (11-20 du/ac)	220	109 DU	12	38	50	38	23	61	798
	Subtotal			328	742	1,070	1,054	767	1,821	17,872
4580	Resort Residential (3-6.5 du/ac)	210	881 DU	167	485	652	546	326	872	8,317
4581	General Commercial	-	98 TSF	57	35	92	179	194	373	3,700
	Downtown Commercial	-	143 TSF	352	194	546	282	347	629	9,342
	Low Density Residential (2-4.5 du/ac)	210	239 DU	45	131	176	148	88	236	2,256
	Subtotal			454	360	814	609	629	1,238	15,298
4582	Business Park	770	320 TSF	77	51	128	61	74	135	3,981
	General Commercial	-	128 TSF	74	46	120	234	253	487	4,832
	Industrial	110	110 TSF	68	9	77	9	61	70	546
	Subtotal			219	106	325	304	388	692	9,359
4583	General Commercial	-	174 TSF	101	63	164	318	345	663	6,569
	Low Density Residential (2-4.5 du/ac)	210	991 DU	188	545	733	614	367	981	9,355
	Medium Density Residential (4.5-10 du/ac)	210	125 DU	24	69	93	78	46	124	1,180
	Med-High Density Residential (11-20 du/ac)	220	76 DU	8	27	35	27	16	43	556
	Subtotal			321	704	1,025	1,037	774	1,811	17,660
4589	Business Park	770	2,536 TSF	609	406	1,015	482	583	1,065	31,548
	General Commercial	-	42 TSF	24	15	39	77	83	160	1,586
	Hillside Reserve (1 du/20 ac)	210	4 DU	1	2	3	2	1	3	38
	Industrial	110	243 TSF	151	19	170	19	134	153	1,205
	Estate Residential (0-2 du/ac)	210	360 DU	68	198	266	223	133	356	3,398
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	749 TSF	1,198	727	1,925	1,176	1,251	2,427	25,608
	- Neighborhood Residential	-	1,108 DU	211	476	687	244	166	410	3,911
	Mixed Use - Urban									
	- Urban Non-Residential	-	960 TSF	1,526	931	2,457	1,075	1,354	2,429	27,494
	- Urban Residential	-	5,667 DU	1,020	2,493	3,513	2,493	1,530	4,023	38,366
	Subtotal			4,808	5,267	10,075	5,791	5,235	11,026	133,154
4590	General Commercial	-	266 TSF	154	96	250	487	527	1,014	10,042
	Industrial	110	810 TSF	502	65	567	65	446	511	4,018
	Resort Residential (3-6.5 du/ac)	210	18 DU	3	10	13	11	7	18	170
	Subtotal			659	171	830	563	980	1,543	14,230

TABLE 4-3: PROPOSED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4591	Business Park	770	89 TSF	21	14	35	17	20	37	1,107
	Mixed Use - Urban									
	- Urban Non-Residential	-	647 TSF	1,029	628	1,657	725	912	1,637	18,530
	- Urban Residential	-	3,816 DU	687	1,679	2,366	1,679	1,030	2,709	25,834
	Subtotal		810	1,737	2,321	4,058	2,421	1,962	4,383	45,471
4594	Downtown Commercial	-	346 TSF	851	471	1,322	682	841	1,523	22,604
	Low Density Residential (2-4.5 du/ac)	210	302 DU	57	166	223	187	112	299	2,851
	Subtotal			908	637	1,545	869	953	1,822	25,455
4595	General Commercial	-	41 TSF	24	15	39	75	81	156	1,548
	Industrial	110	152 TSF	94	12	106	12	84	96	754
	Resort Residential (3-6.5 du/ac)	210	525 DU	100	289	389	326	194	520	4,956
	Subtotal			218	316	534	413	359	772	7,258
4596	General Commercial	-	554 TSF	321	199	520	1,014	1,097	2,111	20,914
	Neighborhood Commercial	-	131 TSF	250	135	385	546	569	1,115	11,800
	Low Density Residential (2-4.5 du/ac)	210	876 DU	166	482	648	543	324	867	8,269
	Subtotal			737	816	1,553	2,103	1,990	4,093	40,983
4597	Downtown Commercial	-	334 TSF	822	454	1,276	658	812	1,470	21,820
	Industrial	110	567 TSF	352	45	397	45	312	357	2,812
	Subtotal			1,174	499	1,673	703	1,124	1,827	24,632
4598	Business Park	770	317 TSF	76	51	127	60	73	133	3,943
	General Commercial	-	64 TSF	37	23	60	117	127	244	2,416
	Low Density Residential (2-4.5 du/ac)	210	1,023 DU	194	563	757	634	379	1,013	9,657
	Medium Density Residential (4.5-10 du/ac)	210	31 DU	6	17	23	19	11	30	293
	Subtotal			313	654	967	830	590	1,420	16,309
4599	Business Park	770	38 TSF	9	6	15	7	9	16	473
	General Commercial	-	177 TSF	103	64	167	324	350	674	6,682
	High Density Residential (20-24 du/ac)	220	456 DU	50	160	210	160	96	256	3,338
	Low Density Residential (2-4.5 du/ac)	210	737 DU	140	405	545	457	273	730	6,957
	Medium Density Residential (4.5-10 du/ac)	210	828 DU	157	455	612	513	306	819	7,816
	Subtotal			459	1,090	1,549	1,461	1,034	2,495	25,266
4600	General Commercial	-	250 TSF	145	90	235	458	495	953	9,438
	Low Density Residential (2-4.5 du/ac)	210	409 DU	78	225	303	254	151	405	3,861
	Resort Residential (3-6.5 du/ac)	210	395 DU	75	217	292	245	146	391	3,729
	Subtotal			298	532	830	957	792	1,749	17,028
4603	General Commercial	-	370 TSF	215	133	348	677	733	1,410	13,968
	Low Density Residential (2-4.5 du/ac)	210	556 DU	106	306	412	345	206	551	5,249
	Medium Density Residential (4.5-10 du/ac)	210	966 DU	184	531	715	599	357	956	9,119
	Subtotal			505	970	1,475	1,621	1,296	2,917	28,336
4604	General Commercial	-	161 TSF	93	58	151	295	319	614	6,078
	Hillside Reserve (1 du/20 ac)	210	1 DU		1	1	1		1	9
	Subtotal			93	59	152	296	319	615	6,087
4605	General Commercial	-	275 TSF	160	99	259	503	545	1,048	10,381
	Downtown Commercial	-	74 TSF	182	101	283	146	180	326	4,834
	Subtotal			342	200	542	649	725	1,374	15,215

TABLE 4-3: PROPOSED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results											
		ITE LU		AM Peak Hour			PM Peak Hour				
TAZ	Land Use	Code	Quantity[2]	In	Out	Total	In	Out	Total	Daily
4606	General Commercial	-	25 TSF	15	9	24	46	50	96	944
	Hillside Reserve (1 du/20 ac)	210	1 DU		1	1	1		1	9
	Subtotal			15	10	25	47	50	97	953
4607	Business Park	770	244 TSF	59	39	98	46	56	102	3,035
	General Commercial	-	384 TSF	223	138	361	703	760	1,463	14,496
	Industrial	110	2,117 TSF	1,313	169	1,482	169	1,164	1,333	10,500
	Low Density Residential (2-4.5 du/ac)	210	335 DU	64	184	248	208	124	332	3,162
	Medium Density Residential (4.5-10 du/ac)	210	716 DU	136	394	530	444	265	709	6,759
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	344 TSF	550	334	884	540	574	1,114	11,761
	- Neighborhood Residential	-	508 DU	97	218	315	112	76	188	1,793
	Subtotal			2,442	1,476	3,918	2,222	3,019	5,241	51,506
4608	Hillside Reserve (1 du/20 ac)	210	16 DU	3	9	12	10	6	16	151
	Industrial	110	4,491 TSF	2,784	359	3,143	359	2,470	2,829	22,275
	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	512 TSF	819	497	1,316	804	855	1,659	17,505
	- Neighborhood Residential	-	757 DU	144	326	470	167	114	281	2,672
	Subtotal			3,750	1,191	4,941	1,340	3,445	4,785	42,603
4609	Business Park	770	283 TSF	68	45	113	54	65	119	3,521
	General Commercial	-	271 TSF	157	98	255	496	537	1,033	10,230
	Neighborhood Commercial	-	77 TSF	147	79	226	321	334	655	6,936
	Low Density Residential (2-4.5 du/ac)	210	1,817 DU	345	999	1,344	1,127	672	1,799	17,152
	Medium Density Residential (4.5-10 du/ac)	210	69 DU	13	38	51	43	26	69	651
	Subtotal			730	1,259	1,989	2,041	1,634	3,675	38,490
4610	General Commercial	-	667 TSF	387	240	627	1,221	1,321	2,542	25,179
	Medium Density Residential (4.5-10 du/ac)	210	555 DU	105	305	410	344	205	549	5,239
	Resort Residential (3-6.5 du/ac)	210	2,993 DU	569	1,646	2,215	1,856	1,107	2,963	28,254
	Public - Schools									
	Subtotal			1,061	2,191	3,252	3,421	2,633	6,054	58,672
4612	General Commercial	-	22 TSF	13	8	21	40	44	84	831
	Low Density Residential (2-4.5 du/ac)	210	727 DU	138	400	538	451	269	720	6,863
	Resort Residential (3-6.5 du/ac)	210	1,031 DU	196	567	763	639	381	1,020	9,733
	Subtotal			347	975	1,322	1,130	694	1,824	17,427
4613	Business Park	770	286 TSF	69	46	115	54	66	120	3,558
	Mixed Use - Urban									
	- Urban Non-Residential	-	161 TSF	256	156	412	180	227	407	4,611
	- Urban Residential	-	948 DU	171	417	588	417	256	673	6,418
	Subtotal			496	619	1,115	651	549	1,200	14,587
4619	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	593 TSF	949	575	1,524	931	990	1,921	20,275
	- Neighborhood Residential	-	876 DU	166	377	543	193	131	324	3,092
	Subtotal			1,115	952	2,067	1,124	1,121	2,245	23,367
4625	Business Park	770	336 TSF	81	54	135	64	77	141	4,180
4635	Industrial	110	1,199 TSF	743	96	839	96	659	755	5,947

TABLE 4-3: PROPOSED GENERAL PLAN LAND USE TRIP GENERATION SUMMARY

Trip Generation Results										
TAZ	Land Use	ITE LU Code	Quantity[2]	AM Peak Hour			PM Peak Hour			Daily
				In	Out	Total	In	Out	Total	
4640	Mixed Use - Neighborhood									
	- Neighborhood Non-Residential	-	188 TSF	301	182	483	295	314	609	6,428
	- Neighborhood Residential	-	278 DU	53	120	173	61	42	103	981
	Mixed Use - Urban									
	- Urban Non-Residential	-	306 TSF	487	297	784	343	431	774	8,764
	- Urban Residential	-	1,804 DU	325	794	1,119	794	487	1,281	12,213
	Subtotal			1,166	1,393	2,559	1,493	1,274	2,767	28,386
4670	Mixed Use - Urban									
	- Urban Non-Residential	-	24 TSF	38	23	61	27	34	61	687
	- Urban Residential	-	144 DU	26	63	89	63	39	102	975
	Subtotal			64	86	150	90	73	163	1,662
TOTAL				**34,816**	**38,634**	**73,450**	**51,392**	**48,440**	**99,832**	**1,052,619**

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

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5 GENERAL PLAN BUILDOUT (2040) TRAFFIC CONDITIONS

This section discusses the analysis of General Plan Buildout (2040) traffic forecasts, intersection operations and roadway segment capacities. Currently adopted General Plan and proposed General Plan conditions are evaluated. The currently adopted General Plan scenario includes the addition of more recently approved Specific Plans (North City Specific Plan and North City Extended Specific Plan), along with other updates in the region.

5.1 CURRENTLY ADOPTED GENERAL PLAN BUILDOUT (2040) TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed forecast volumes. The weekday ADT which can be expected for currently adopted General Plan Buildout (2040) traffic conditions are shown on Exhibit 5-1. Weekday AM and PM peak hour volumes are shown on Exhibits 5-2 and 5-3, respectively.

5.2 CURRENTLY ADOPTED GENERAL PLAN BUILDOUT INTERSECTION OPERATIONS ANALYSIS

As shown in Table 5-1, study area intersections are anticipated to operate at an acceptable LOS during the peak hours in the year 2040, with the exception of the following:

- Cathedral Canyon Drive / Dinah Shore Drive (#13) – LOS E AM peak hour / LOS F PM peak hour
- Cathedral Canyon Drive - Avenida Maravilla / Ramon Road (#14) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for currently adopted General Plan Buildout (2040) traffic conditions are included in Appendix 5.1 of this TA.

5.3 ROADWAY IMPROVEMENTS

Changes in roadway classifications for individual roadways are shown on Table 5.2. These changes in roadway classifications account for existing built road features, more explicitly show non-automotive accommodations, and provide consistency with adjacent jurisdiction plans. The proposed roadway system is tested via the proposed General Plan intersection operations analysis presented in Section 5.5. Non-automotive mode plans are addressed in the separate document Cathedral City Draft Local Active Transportation Plan.

Overall roadway classifications are proposed to be modified to account for existing built road features and Complete Streets and Sustainable Communities strategies, focusing on safely serving all transportation users. The proposed General Plan roadway classifications include the following changes and updates:

- New road classifications and alignments for the North City Extended Specific Plan.
- Three new Arterial Highway designations address bike lane and buffer options.
- Four new Major Highway designations account for conditions with and without bike lanes, street parking and buffers.

EXHIBIT 5-1: CURRENTLY ADOPTED GENERAL PLAN BUILDOUT (2040) AVERAGE DAILY TRAFFIC (ADT) VOLUMES

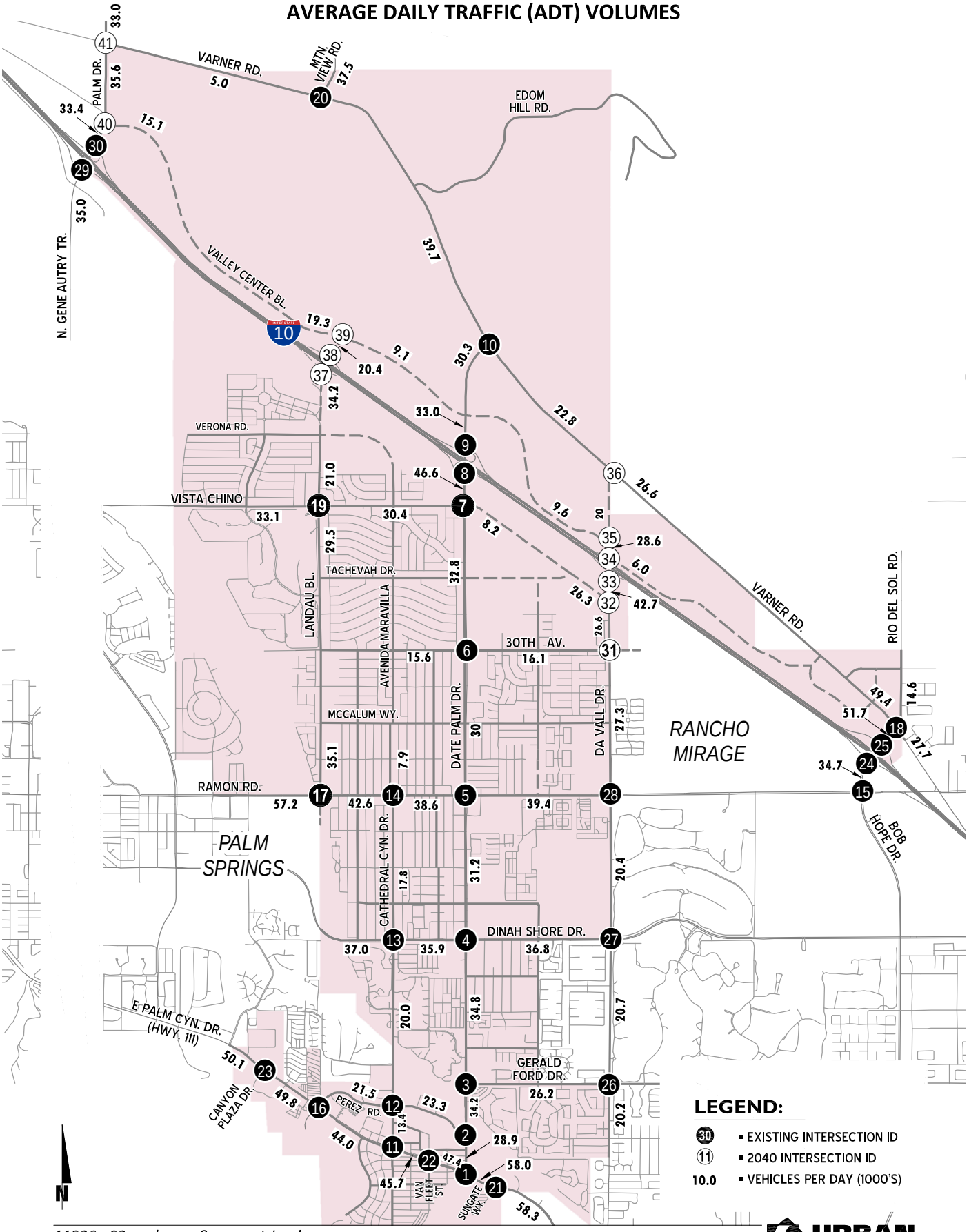
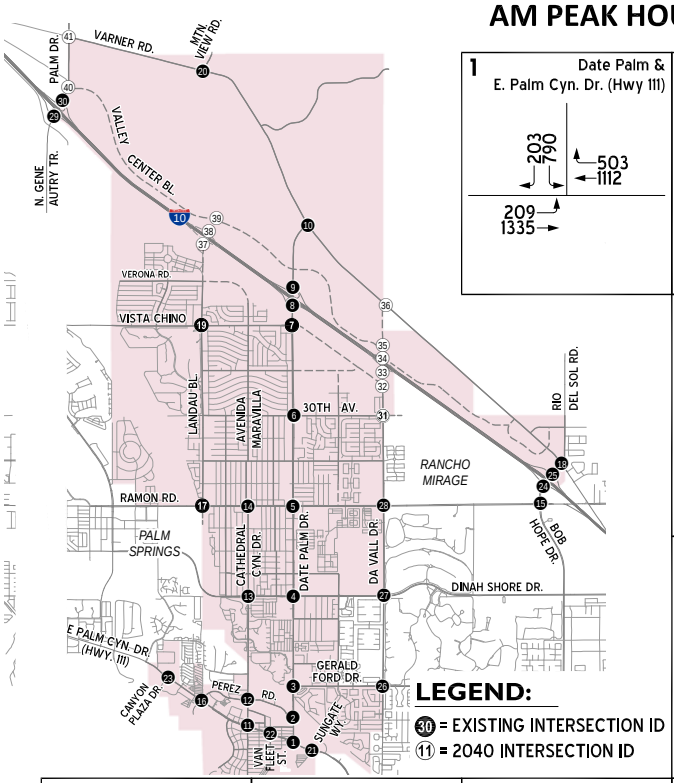


EXHIBIT 5-2: CURRENTLY ADOPTED GENERAL PLAN BUILDOUT (2040) AM PEAK HOUR INTERSECTION VOLUMES



1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)

203	790	503
		1112
209	1335	

2 Date Palm & Perez Rd.

458	853	
423	168	118
		576

3 Date Palm & Gerald Ford Dr.

69	904	155
904	283	43
		516
36	58	14
28	681	308

4 Date Palm & Dinah Shore Dr.

109	931	308
931	322	1022
		212
115	978	354
405	486	143

5 Date Palm & Ramon Rd.

225	1013	92
1013	278	882
		244
180	851	189
239	555	138

6 Date Palm & 30th Av.

94	161	378
161	389	541
		107
137	461	194
91	559	138

7 Date Palm & Vista Chino

971	1092	208
1092	93	61
		85
780	208	275
333	785	77

8 Date Palm & I-10 EB Ramps

744	1460	
104	696	
1018	805	

9 Date Palm & I-10 WB Ramps

57	1287	447
		917
592	530	

10 Date Palm & Varner Rd.

		401
		93
708	1173	
485	324	

11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)

112	104	172
104	234	1016
		51
106	1108	46
90	134	83

12 Cathedral Cyn. Dr. & Perez Rd.

125	346	185
346	119	417
		261
66	350	84
51	304	126

13 Cathedral Cyn. Dr. & Dinah Shore Dr.

238	685	163
685	81	645
		273
131	697	230
198	893	244

14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.

95	193	21
193	96	1006
		236
59	946	248
286	77	182

15 Bob Hope Dr. & Ramon Rd.

765	1163	30
1163	64	1130
		270
314	1495	560
168	645	130

16 Perez Rd. & E. Palm Cyn. Dr. (Hwy 111)

292	14	50
14	18	1093
		28
203	1302	19
9	10	10

17 Landau Bl. & Ramon Rd.

1228	54	461
54	512	1169
		27
603	883	79
97	75	48

18 Bob Hope Dr. & Varner Rd.

75	175	167
175	122	444
		438
133	593	1054
1420	465	512

19 Landau Bl. & Vista Chino

92	497	439
497	390	880
		265
54	741	528
495	430	168

20 Mountain View Rd. & Varner Rd.

98	1931	875
		37
10	233	

21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)

11	3	5
3	6	1546
		7
13	2096	16
22	2	22

22 Van Fleet St. & E. Palm Cyn. Dr. (Hwy 111)

61	20	118
20	50	1166
		51
58	1421	13
15	24	95

23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)

53	7	60
7	92	1225
		33
53	1419	52
30	8	35

24 Bob Hope Dr. & I-10 EB Ramps

1271	498	
918	3	721
801	188	

25 Bob Hope Dr. & I-10 WB Ramps

608	1059	915
		9
		710
237	1482	

26 Da Vall Dr. & Gerald Ford Dr.

121	682	168
682	209	601
		110
84	731	310
93	280	67

27 Da Vall Dr. & Dinah Shore Dr.

290	671	82
671	109	909
		73
198	903	315
144	424	119

28 Da Vall Dr. & Ramon Rd.

62	595	321
595	515	1288
		326
49	1186	224
120	404	218

29 Gene Autry Tr. & I-10 EB Ramps

1033	1497	
93	528	
731	253	

30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps

110	2148	668
		382
		596
		228

31 Da Vall Dr. & 30th Av.

205	724	10
724	10	10
		10
203	10	285
293	555	10

32 Da Vall Dr. & Vista Chino

613	941	
704	85	
155	855	

33 Da Vall Dr. & I-10 EB Ramps

988	462	
112	566	
1079	480	

34 Da Vall Dr. & I-10 WB Ramps

62	947	471
		503
357	834	

35 Da Vall Dr. & Valley Center Bl.

34	668	16
668	50	5
		70
62	31	271
180	829	296

36 Da Vall Dr. & Varner Rd.

		234
		224
603	510	
191	716	

37 Landau Bl. & I-10 EB Ramps

854	370	
103	386	
506	546	

38 Landau Bl. & I-10 WB Ramps

177	529	193
		695
272	337	

39 Landau Bl. & Valley Center Bl.

		56
		87
100	619	
416	114	

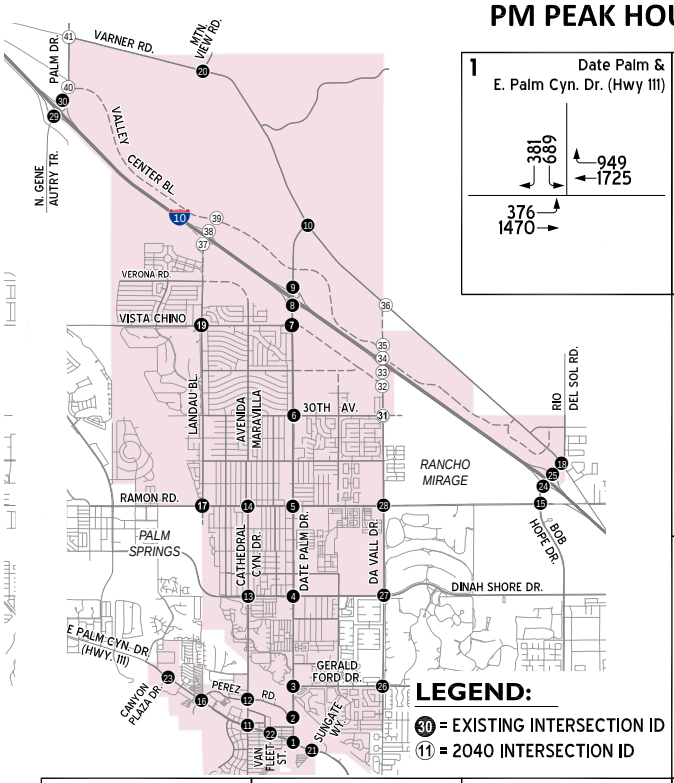
40 Palm Dr. & Valley Center Bl.

87	1980	103
1980	234	28
		262
22	4	16
16	1003	245

41 Palm Dr. & Varner Rd.

179	2144	14
2144	64	22
		99
63	51	58
98	902	128

EXHIBIT 5-3: CURRENTLY ADOPTED GENERAL PLAN BUILDOUT (2040) PM PEAK HOUR INTERSECTION VOLUMES



1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)
381 689 949 1725 376 1470

2 Date Palm & Perez Rd.
490 928 699 191 172 1009

3 Date Palm & Gerald Ford Dr.
52 816 219 226 111 339 66 55 33 25 1018 621

4 Date Palm & Dinah Shore Dr.
119 761 179 216 1031 209 151 936 352 404 953 222

5 Date Palm & Ramon Rd.
174 658 249 169 1202 215 280 947 246 364 936 152

6 Date Palm & 30th Av.
91 827 233 253 399 97 154 412 166 196 1179 68

7 Date Palm & Vista Chino
848 940 73 169 61 76 777 187 327 331 1076 118

8 Date Palm & I-10 EB Ramps
845 1278 194 583 1284 824

9 Date Palm & I-10 WB Ramps
171 1180 672 943 730 748

10 Date Palm & Varner Rd.
800 344 543 925 1041 216

11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)
159 147 206 276 1616 85 187 1532 94 77 121 75

12 Cathedral Cyn. Dr. & Perez Rd.
146 329 186 234 625 186 193 483 169 179 513 231

13 Cathedral Cyn. Dr. & Dinah Shore Dr.
262 822 111 102 1118 261 277 859 323 241 657 192

14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.
124 149 116 34 1255 312 146 1275 179 456 152 275

15 Bob Hope Dr. & Ramon Rd.
792 670 108 79 1228 206 223 1705 416 494 1017 359

16 Perez Rd. & E. Palm Cyn. Dr. (Hwy 111)
388 9 31 41 1729 17 318 1676 9 27 15 13

17 Landau Bl. & Ramon Rd.
877 98 424 407 1216 48 1023 1508 10 133 99 29

18 Bob Hope Dr. & Varner Rd.
116 541 181 93 619 425 107 553 1531 1191 180 437

19 Landau Bl. & Vista Chino
104 401 275 311 687 178 98 776 586 510 562 224

20 Mountain View Rd. & Varner Rd.
30 1612 1783 114 32 46

21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)
20 5 3 5 2675 14 11 2119 29 27 5 14

22 Van Fleet St. & E. Palm Cyn. Dr. (Hwy 111)
94 39 107 66 1906 83 48 1727 20 14 36 75

23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)
108 15 202 173 1930 46 73 1738 39 50 15 66

24 Bob Hope Dr. & I-10 EB Ramps
1073 901 652 7 497 1073 246

25 Bob Hope Dr. & I-10 WB Ramps
1064 1433 662 4 541 579 1146

26 Da Vall Dr. & Gerald Ford Dr.
75 354 114 156 752 122 92 678 224 362 661 114

27 Da Vall Dr. & Dinah Shore Dr.
184 545 93 185 1203 84 119 1104 166 289 726 74

28 Da Vall Dr. & Ramon Rd.
94 477 326 786 1362 194 124 1273 165 263 603 126

29 Gene Autry Tr. & I-10 EB Ramps
461 902 103 277 1395 384

30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps
156 1063 756 300 1059 439

31 Da Vall Dr. & 30th Av.
174 802 10 10 10 10 183 10 318 457 889 10

32 Da Vall Dr. & Vista Chino
834 1037 995 128 236 1019

33 Da Vall Dr. & I-10 EB Ramps
1409 362 68 462 1231 783

34 Da Vall Dr. & I-10 WB Ramps
142 1233 466 538 538 761

35 Da Vall Dr. & Valley Center Bl.
76 847 25 50 33 244 58 12 284 335 758 134

36 Da Vall Dr. & Varner Rd.
633 615 486 316 382 484

37 Landau Bl. & I-10 EB Ramps
973 391 106 349 811 717

38 Landau Bl. & I-10 WB Ramps
225 638 274 726 353 564

39 Landau Bl. & Valley Center Bl.
180 232 152 631 644 194

40 Palm Dr. & Valley Center Bl.
41 893 291 254 40 309 18 33 17 10 1472 333

41 Palm Dr. & Varner Rd.
73 901 39 20 33 91 222 15 233 225 1495 24

TABLE 5-1: INTERSECTION ANALYSIS FOR CURRENTLY ADOPTED GENERAL PLAN BUILDOUT (2040) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (Secs)		Level of Service[2]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Date Palm / E. Palm Cyn. Dr. (Hwy 111)	TS	0	0	0	3	0	1>	2	3	0	0	3	1	15.8	27.2	B	C
2	Date Palm / Perez Rd.	TS	1	2	0	0	2	1>	2	0	1	0	0	0	13.3	16.9	B	B
3	Date Palm / Gerald Ford Dr.	TS	1	2	1	1	2	d	1	2	0	1.5	0.5	1	42.4	53.9	D	D
4	Date Palm / Dinah Shore Dr.	TS	2	2	1	2	3	0	**2**	**3**	1	1	2	1>	43.5	42.8	D	D
5	Date Palm / Ramon Rd.	TS	2	**3**	1	1	**3**	1	**2**	3	**1**	1	3	**1**	42.0	41.9	D	D
6	Date Palm / 30th Av.	TS	**2**	3	0	**2**	3	0	1	**2**	**1**	1	**2**	**1**	49.2	40.0	D	D
7	Date Palm / Vista Chino	TS	**2**	3	0	1	**2**	**2>**	2	1	1	1	1	0	39.4	34.7	D	C
8	Date Palm / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	12.9	8.6	B	A
9	Date Palm / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	14.9	14.7	B	B
10	Date Palm / Varner Rd.	**TS**	**2**	0	1	0	0	0	0	1	**1>**	**1**	1	0	34.8	45.5	C	D
11	Cathedral Cyn. Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	1	1	1	1>	1	2	1	1	3	1	17.4	47.5	B	D
12	Cathedral Cyn. Dr. / Perez Rd.	TS	1	2	0	1	2	0	1	2	1	1	2	0	37.2	49.5	D	D
13	Cathedral Cyn. Dr. / Dinah Shore Dr.	TS	1	2	0	1	2	0	1	2	0	1	2	0	**64.1**	**>80**	**E**	**F**
14	Cathedral Cyn. Dr. - Avenida Maravilla / Ramon R	TS	1.5	0.5	1>	0.5	0.5	1>	1	3	0	1	3	0	**>80**	**>80**	**F**	**F**
15	Bob Hope Dr. / Ramon Rd.	TS	2	3	**1>>**	2	3	**1>>**	2	**3**	**1>**	2	**3**	1	48.3	39.8	D	D
16	Perez Rd. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	1	0.5	1.5>	2	3	0	1	2	1	27.8	34.2	C	C
17	Landau Bl. / Ramon Rd.	TS	**1**	**1**	0	2	**0.5**	**1.5**	**2**	**3**	0	**1**	**3**	**1>**	42.0	48.8	D	D
18	Bob Hope Dr. / Varner Rd.	TS	2	2	1>>	2	**3**	1	2	2	**2>>**	2	2	0	54.4	44.2	D	D
19	Landau Bl. / Vista Chino	TS	**2**	2	0	1	2	0	1	2	**1>**	1	2	**1**	54.2	47.5	D	D
20	Mountain View Rd. / Varner Rd.	**TS**	0	0	0	**2**	0	**1**	0	1	0	0	1	**2**	42.4	38.0	D	D
21	Sungate Wy. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	0.5	0.5	1	1	2	1	1	3	0	16.7	37.3	B	D
22	Van Fleet St. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	1	1	1	0	1	2	1	1	2	1	16.4	40.5	B	D
23	Canyon Plaza Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	d	0.5	1.5	0	1	2	1	1	2	1	24.0	51.8	C	D
24	Bob Hope Dr. / I-10 EB Ramps	TS	0	2.5	1.5	2	**3**	0	1	1!	1	0	0	0	28.4	31.1	C	C
25	Bob Hope Dr. / I-10 WB Ramps	TS	2	**3**	0	0	3	1	0	0	0	1.5	0.5	1>>	13.5	45.0	B	D
26	Da Vall Dr. / Gerald Ford Dr.	TS	**2**	2	1	**2**	2	**1**	**2**	2	**1**	**2**	2	**1**	33.8	36.0	C	D
27	Da Vall Dr. / Dinah Shore Dr.	TS	**2**	2	1	**2**	2	**1**	**2**	2	1	**2**	2	**1**	36.2	38.2	D	D
28	Da Vall Dr. / Ramon Rd.	TS	**2**	2	1	**2**	**2**	**1**	**2**	3	**1>**	**2**	3	**1>**	41.0	46.1	D	D
29	Gene Autry Tr. / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	6.7	5.8	A	A
30	Gene Autry Tr.-Palm Dr. / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	16.0	10.2	B	B
31	Da Vall Dr. / 30th Av.	**TS**	**1**	**2**	0	**1**	**2**	0	1	1	d	0.5	0.5	d	18.8	50.6	B	D
32	Da Vall Dr. / Vista Chino	**TS**	**1**	**2**	0	0	**2**	**1>**	**2**	0	**1**	0	0	0	17.9	34.9	B	C
33	Da Vall Dr. / I-10 SB Ramps	**TS**	0	**2**	**2**	**1**	**2**	**0**	0	**1!**	**1**	0	0	0	44.4	19.7	D	B
34	Da Vall Dr. / I-10 NB Ramps	**TS**	**2**	**2**	0	0	**2**	**1**	0	0	0	**2**	0	**1**	31.7	45.6	C	D
35	Da Vall Dr. / Valley Center Bl.	**TS**	**2**	**2**	0	**1**	**2**	0	**1**	**2**	**1**	**1**	**2**	0	17.7	20.2	B	C
36	Da Vall Dr. / Varner Rd.	**TS**	**1**	**1!**	**1**	0	0	0	0	**2**	0	**1**	**2**	**0**	43.0	53.0	D	D
37	Landau Bl. / I-10 SB Ramps	**TS**	0	**3**	0	**1**	**3**	0	**0.5**	**0.5**	**1**	0	0	0	38.7	54.2	D	D
38	Landau Bl. / I-10 NB Ramps	**TS**	**1**	**3**	0	0	**3**	0	0	0	0	**0.5**	**0.5**	**1**	44.2	51.8	D	D
39	Landau Bl. / Valley Center Bl.	**TS**	**1**	0	**1**	0	0	0	0	**2**	**1>**	**1**	**2**	0	13.6	23.4	B	C
40	Palm Dr. / Valley Center Bl.	TS	1	2	**1**	**2**	2	0	**1**	**2**	0	1	**1**	**1**	29.8	31.3	C	C
41	Palm Dr. / Varner Rd.	TS	1	2	0	1	2	0	**1**	1	0	**1**	1	0	40.2	30.1	D	C

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

L = Left; T = Through; R = Right; 1! = Shared Left/Through/Right Lane; 0.5 = Shared Lane; > = Right-Turn Overlap Phasing;

>> = Free-Right Turn Lane; d= Defacto Right Turn Lane; **1** = Lane Improvement

[2] Per the Highway Capacity Manual 6th Edition (HCM6), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. Delay and level of service is calculated using Synchro 10.1 analysis software.

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

[3] TS = Traffic Signal

R:\UXRjobs_11100-11500\11326\Excel\[11326 - LOS Results.xlsx]2040 Adopted

TABLE 5-2: GENERAL PLAN UPDATE, CHANGES IN ROADWAY CLASSIFICATIONS

Roadway	Segment	Currently Adopted (2009) General Plan Buildout Roadway Classification	Proposed General Plan Buildout Roadway Classification
Landau Bl.	• b/w Verona Rd. & Ramon Rd.	• Major Highway	• Major Highway (B)
Cathedral Cyn. Dr.	• b/w Ramon Rd. & Hwy. 111 • s/o Hwy. 111	• Major Highway • Major Highway	• Secondary Highway (B) • Collector (A)
Santoro Dr.	• b/w Tachevah Dr. & Ramon Rd.	• Secondary Highway	• Collector (C)
Varner Rd.	• b/w Mountain View Rd. & Date Palm Dr.	• Arterial Highway	• Arterial Highway (B)
Valley Center Bl.	• b/w Palm Dr. & Future Valley Center Bl. (Modified Major Hwy.) • e/o Future Valley Center Bl. (Modified Major Hwy.)	• Major Highway • Major Highway	• Major Highway (F) • Major Highway (F)
Verona Rd.	• b/w Landau Bl. & Ave. Maravilla	• N/A	• Collector (C)
Vista Chino	• west of Date Palm Dr.	• Arterial Highway	• Arterial Highway (C)
Tachevah Dr.	• b/w Landau Bl. & Date Palm Dr. • east of Date Palm Dr.	• N/A • Secondary Highway	• Collector (A) • Collector (C)
30th Av.	• b/w Landau Bl. & Da Vall Dr.	• Secondary Highway	• Secondary Highway (C)
McCallum Wy.	• b/w Landau & Da Vall Dr.	• N/A	• Collector (A)
Ramon Rd.	• within City Limits	• Arterial Highway	• Arterial Highway (B)
Dinah Shore Dr.	• within City Limits	• Arterial Highway	• Major Highway (E)
Gerald Ford Dr.	• b/w Date Palm Dr. & Da Vall Dr.	• Major Highway	• Major Highway (C)
Perez Rd.	• b/w Hwy. 111 & Date Palm Dr.	• Major Highway	• Major Highway (D)
Edom Hill Rd.	• within City Limits	• Collector	• Industrial Collector

R:\UXRjobs_11100-11500\11326\Excel\[11326 - LOS Results.xlsx]Class & X-section

- Two new Secondary Highway designations address striped medians and conditions with and without bike lanes, shared NEV/bike lanes, street parking and buffers.
- Three new Collector designations provide for striped medians and conditions with and without bike lanes, street parking and buffers.

Exhibit 1-3 (previously presented) shows the proposed roadway cross-sections for General Plan facilities. Specifically, in comparison to the currently adopted roadway cross-sections, the proposed cross-sections provide the following changes:

- The proposed cross-sections explicitly account for bike lanes / shared NEV lanes.
- The new cross-sections are responsive to Complete Streets and Sustainable Communities strategies which focus on safely serving all transportation users (motorists, delivery services, cyclists, pedestrians, low speed, electric vehicle users, etc).
- Current recommendations take into account existing volumes, CVAG volume projections, and previous traffic projections prepared for the North City Specific Plan areas. Previously analyzed network features are retained in undeveloped areas of the City.

Proposed Arterial Highway classifications are shown on Exhibit 5-4. Four Arterial Highway cross-sections are utilized in Cathedral City, with right-of-way widths ranging from 116’ to 126’.

Arterial Highways include Palm Drive, Mountain View Road, Date Palm Drive, Da Vall Drive (in the I-10 freeway interchange vicinity), Varner Road, Vista Chino, Ramon Road, and Palm Canyon Drive (Highway 111).

Exhibit 5-5 shows the proposed Major and Modified Major classifications. Seven Major Highway or Modified Major cross-sections are utilized in Cathedral City, with right-of-way widths ranging from 92’ to 112’.

Landau Boulevard, Da Vall Drive, portions of Varner Road, Valley Center Boulevard, portions of Vista Chino, Dinah Shore Drive, Gerald Ford Drive, and Perez Road are classified as Major and Modified Major facilities.

Proposed Secondary, Modified Secondary, and Collector classifications are shown on Exhibit 5-6. Four Secondary Highway and Modified Secondary Highway cross-sections are utilized in Cathedral City, with right-of-way widths ranging from 88’ to 96’.

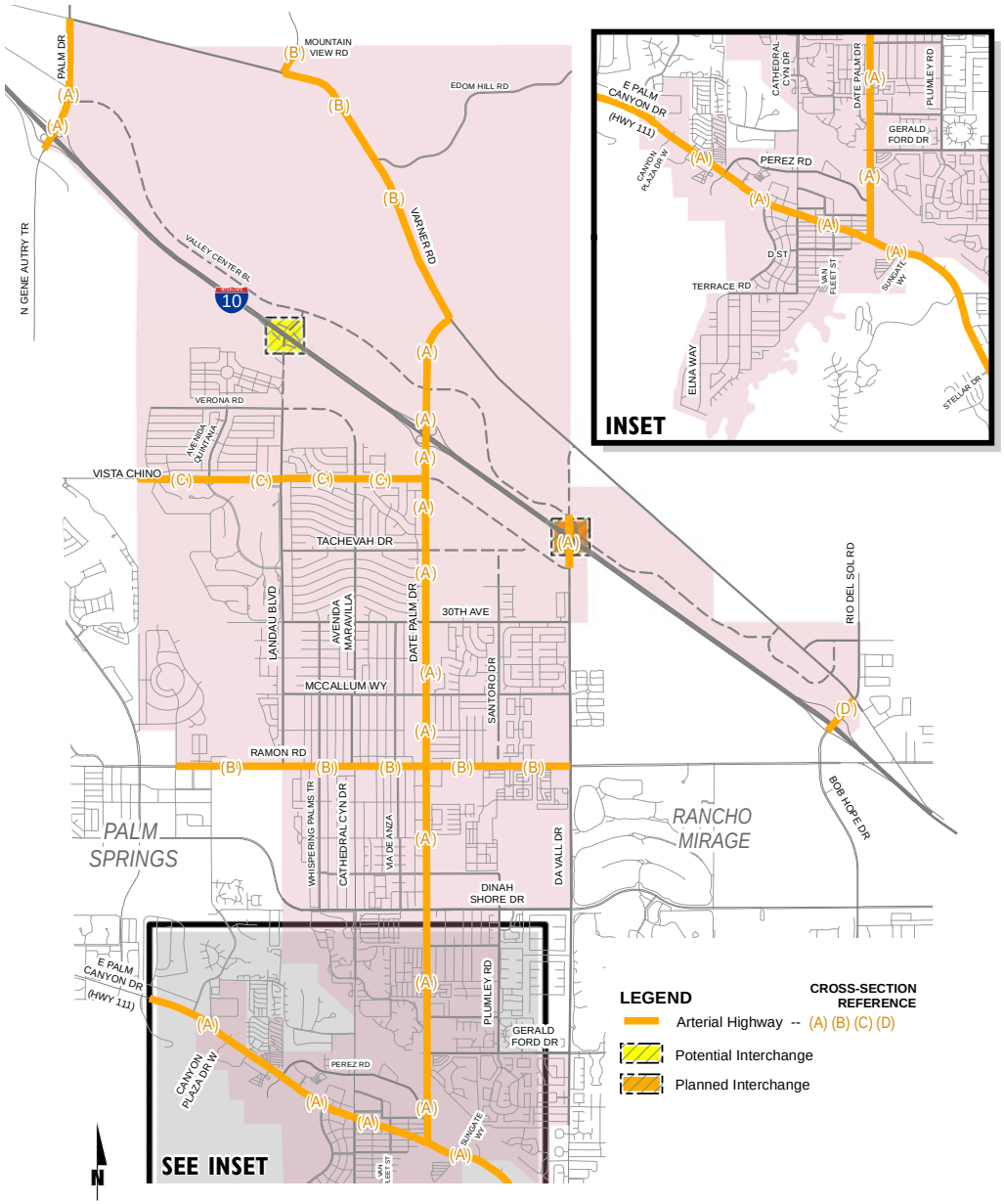
Secondary Highway and Modified Secondary Highway facilities include Landau Boulevard in the vicinity of the I-10 freeway, Cathedral Canyon Drive, and 30th Avenue.

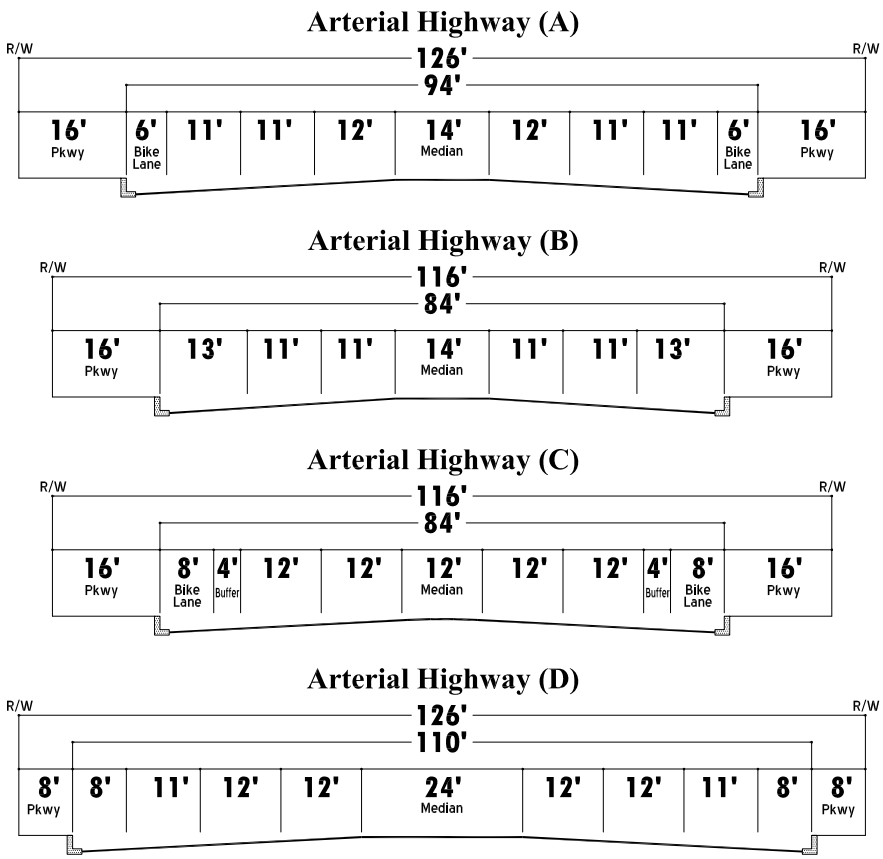
Five Collector cross-sections are utilized in Cathedral City, with right-of-way widths ranging from 60’ to 88’.

Cathedral City General Plan Transportation Analysis

EXHIBIT 5-4: PROPOSED GENERAL PLAN ARTERIAL CLASSIFICATIONS

EXHIBIT 2: CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CLASSIFICATIONS





11326 - 02 - Roadway Classification.mxd

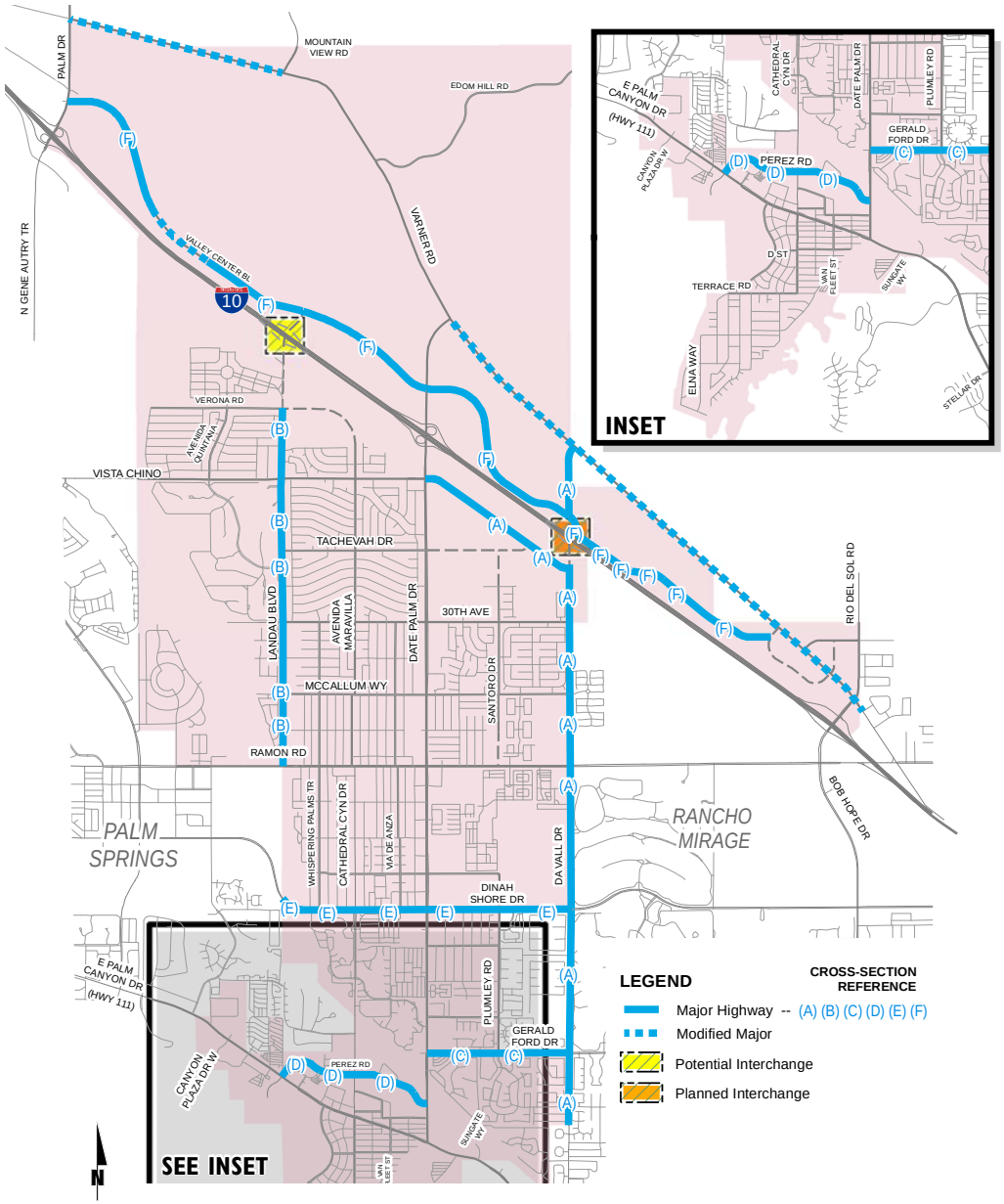
11326 - 01 - study area.dwg

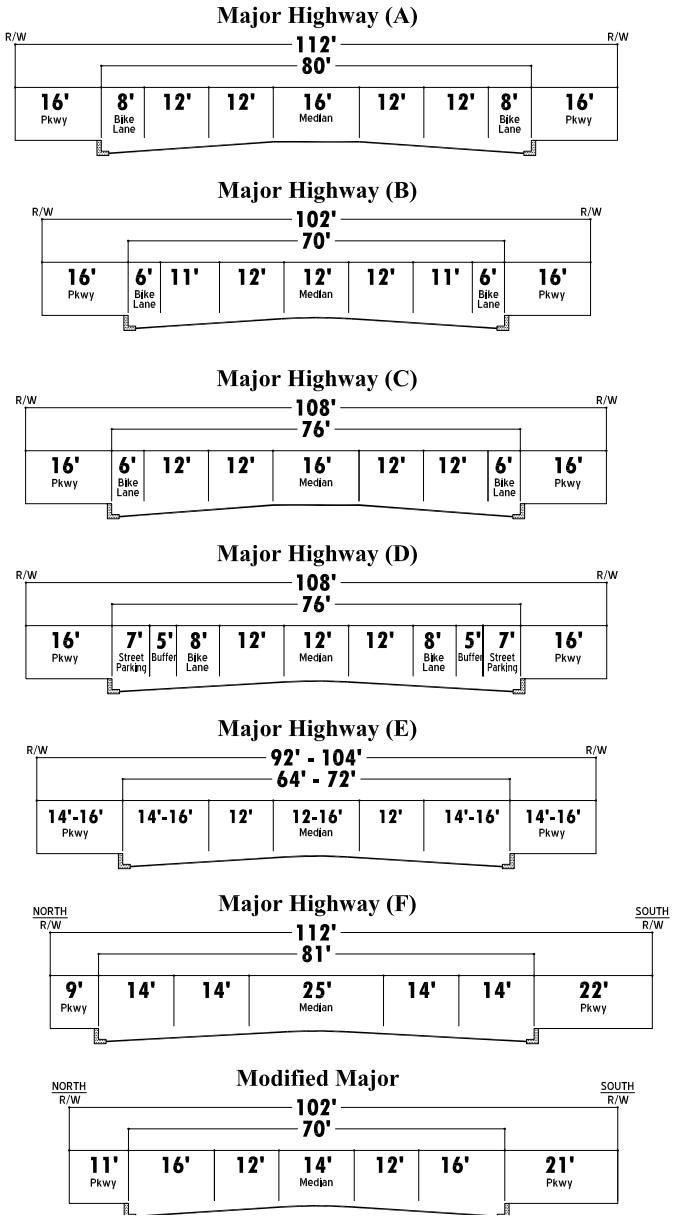
URBAN CROSSROADS

Cathedral City General Plan Transportation Analysis

EXHIBIT 5-5: PROPOSED GENERAL PLAN MAJOR AND MODIFIED MAJOR CLASSIFICATIONS

EXHIBIT 2: CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CLASSIFICATIONS





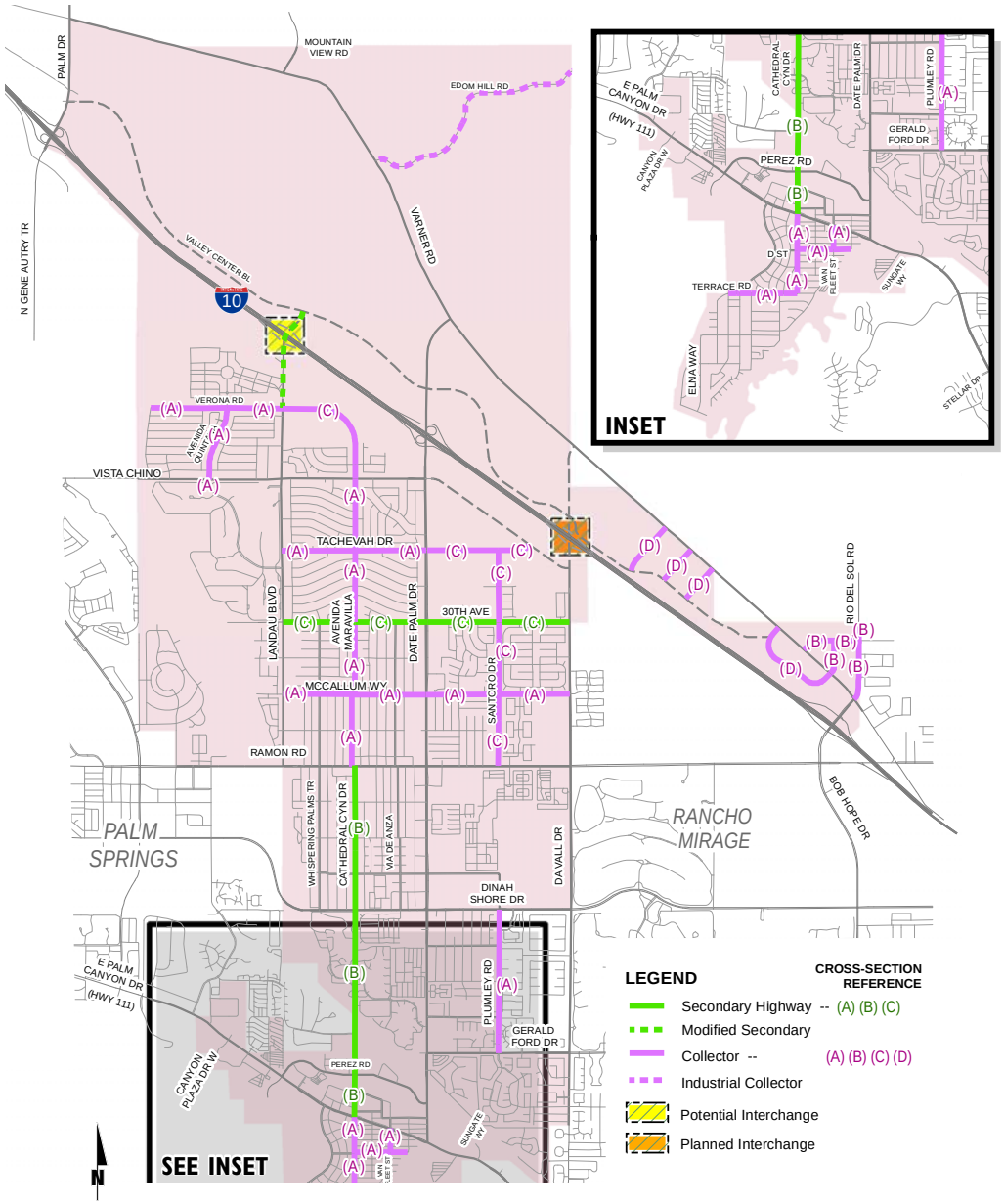
11326 - 02 - Roadway Classification.mxd

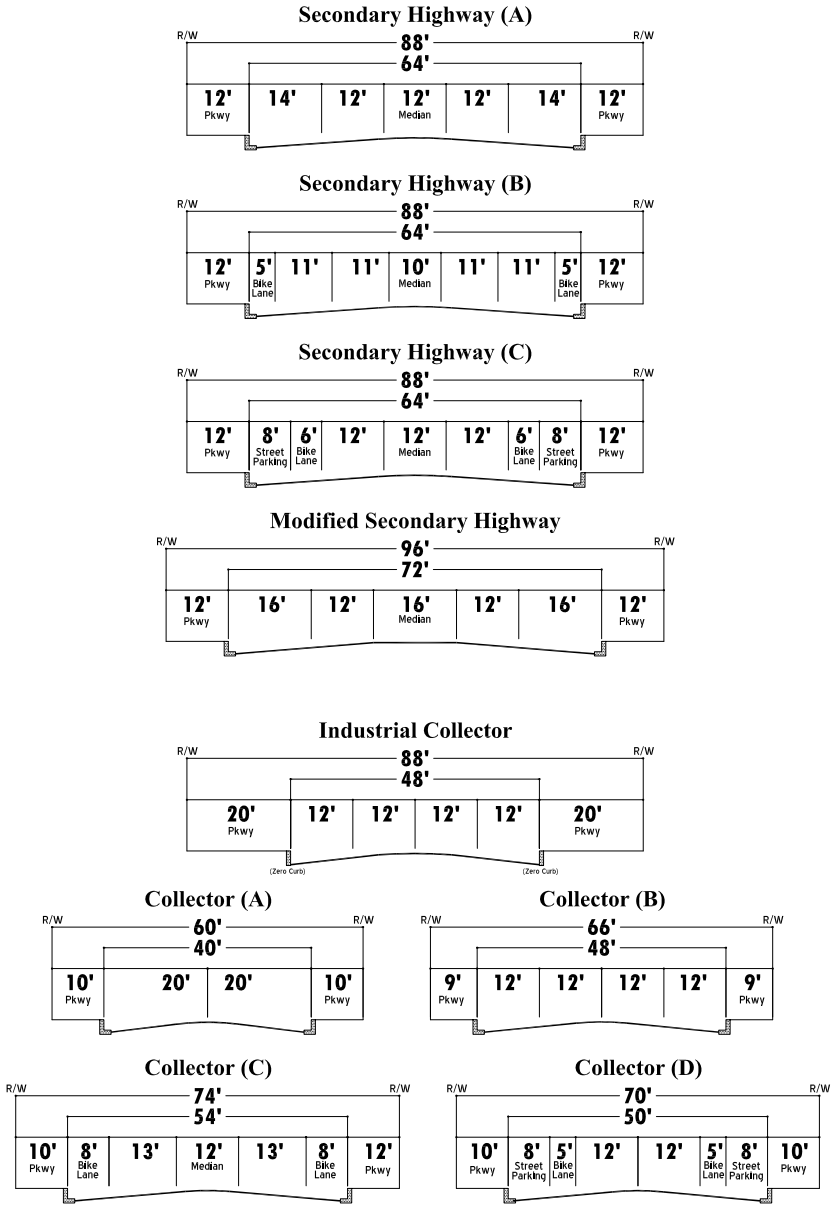
11326 - 01 - study area.dwg

Cathedral City General Plan Transportation Analysis

EXHIBIT 5-6: PROPOSED GENERAL PLAN SECONDARY, MODIFIED SECONDARY, AND COLLECTOR CLASSIFICATIONS

EXHIBIT 2: CITY OF CATHEDRAL CITY GENERAL PLAN ROADWAY CLASSIFICATIONS





11326 - 02c - Secondary & Collector.mxd

11326 - 01 - study area.dwg

URBAN CROSSROADS

5.4 PROPOSED GENERAL PLAN BUILDOUT (2040) TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed forecast volumes with the Proposed General Plan. The weekday ADT which can be expected for proposed General Plan Buildout (2040) traffic conditions are shown on Exhibit 5-7. Weekday AM and PM peak hour volumes are shown on Exhibits 5-8 and 5-9, respectively.

5.5 PROPOSED GENERAL PLAN BUILDOUT (2040) ROADWAY SEGMENT CAPACITY ANALYSIS

The currently adopted General Plan Circulation Element provides roadway volume capacity values presented previously on Table 2-3. The roadway segment capacities are approximate figures only, and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand.

Due to the variation in roadway cross-sections in the Proposed General Plan, roadway segment capacities have been adjusted for individual types of roadway classifications. These capacities are used in Table 5-3. Table 5-3 provides a summary of the proposed General Plan Buildout (2040) conditions roadway segment capacity analysis based on the roadway segment capacities and thresholds.

As shown on Table 5-3, all study area roadway segments are projected to operate at an acceptable LOS for proposed General Plan Buildout (2040) conditions based on the planning level daily roadway capacity thresholds with the exception the following:

- Landau Boulevard, north of Ramon Road (#10) – LOS E
- Highway 111, east of Sungate Way (#14) – LOS E
- Perez Road, west of Date Palm Drive (#18) – LOS F
- Perez Road, west of Cathedral Canyon Drive (#19) – LOS F
- Dinah Shore Drive, east of Date Palm Drive (#23) – LOS E
- Ramon Road, west of Landau Boulevard (#28) – LOS E
- 30th Avenue, east of Date Palm Drive (#29) – LOS F
- 30th Avenue, west of Date Palm Drive (#30) – LOS E

As noted in Section 2.3 *Roadway Segment Capacity Analysis*, daily roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic.

Where the ADT-based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis have been undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

EXHIBIT 5-7: PROPOSED GENERAL PLAN BUILDOUT (2040) AVERAGE DAILY TRAFFIC (ADT) VOLUMES

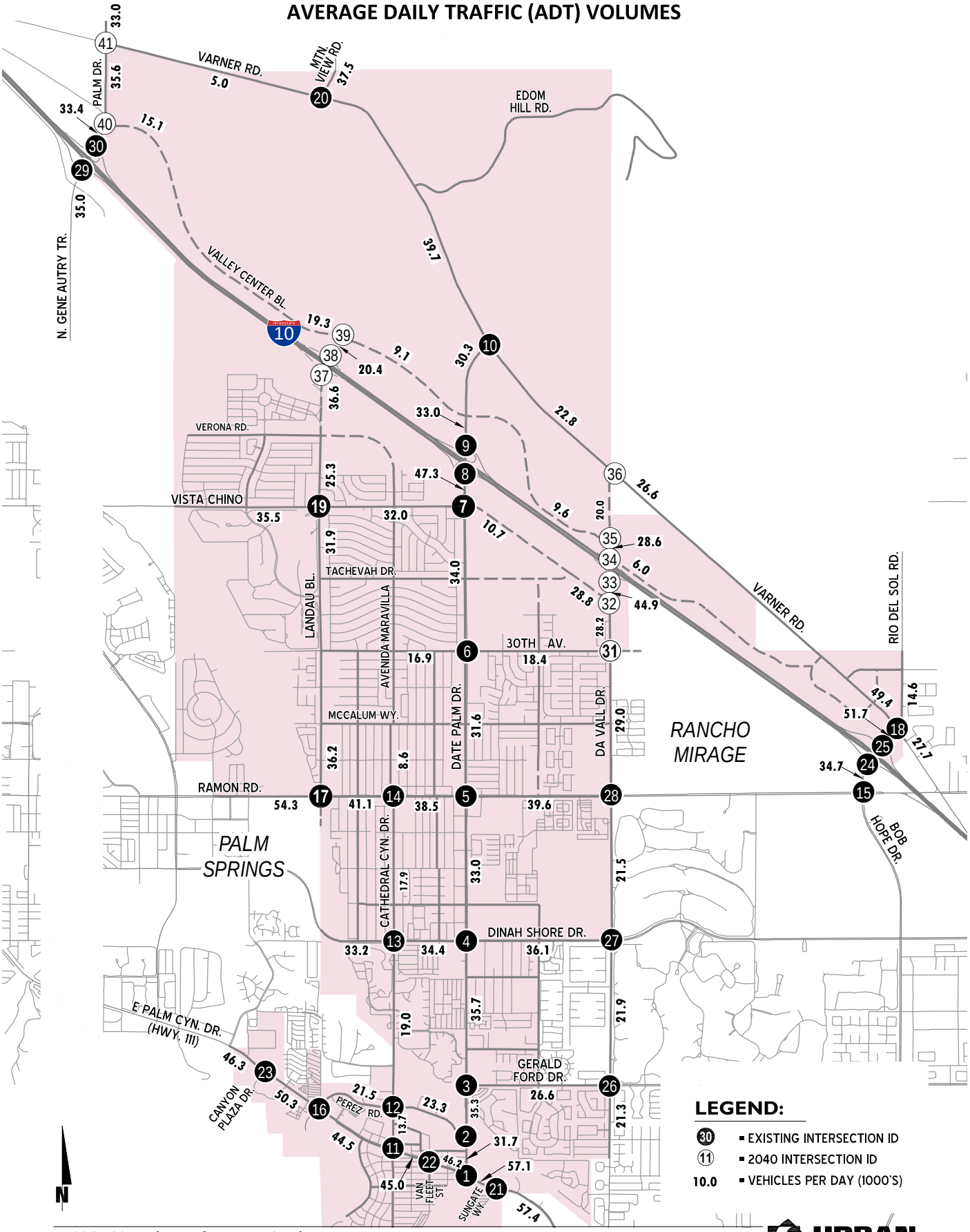
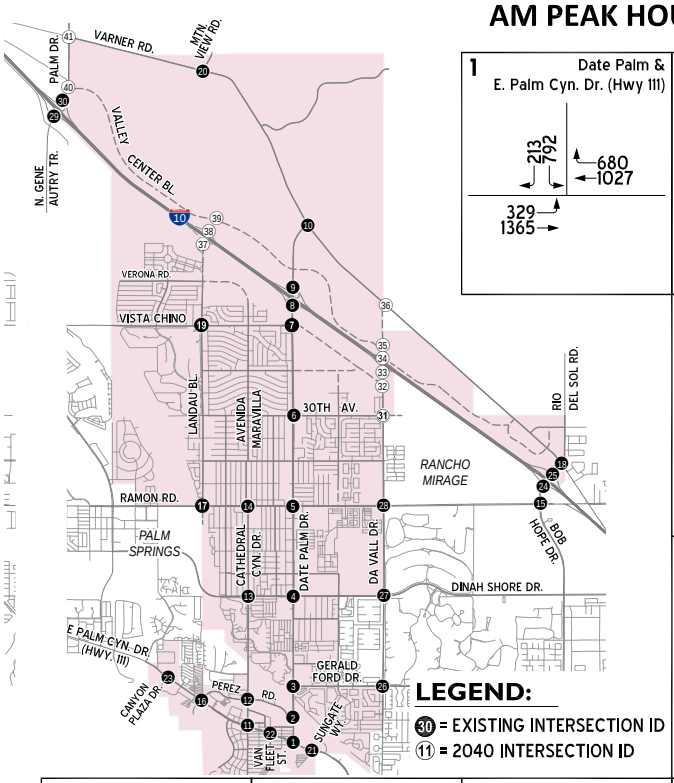


EXHIBIT 5-8: PROPOSED GENERAL PLAN BUILDOUT (2040) AM PEAK HOUR INTERSECTION VOLUMES



1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)

	213 / 792	680 / 1027
329 / 1365		

2 Date Palm & Perez Rd.

	363 / 935	
353 / 150		90 / 942

3 Date Palm & Gerald Ford Dr.

	69 / 897 / 303	155 / 43 / 516
36 / 58 / 14		28 / 974 / 308

4 Date Palm & Dinah Shore Dr.

	109 / 944 / 337	291 / 1022 / 212
107 / 978 / 354		405 / 779 / 143

5 Date Palm & Ramon Rd.

	225 / 1022 / 311	125 / 882 / 227
170 / 826 / 120		239 / 839 / 133

6 Date Palm & 30th Av.

	94 / 1203 / 469	403 / 662 / 107
137 / 529 / 194		91 / 806 / 198

7 Date Palm & Vista Chino

	971 / 1132 / 168	273 / 123 / 136
780 / 274 / 400		346 / 741 / 179

8 Date Palm & I-10 EB Ramps

	744 / 1452	
104 / 819		1005 / 839

9 Date Palm & I-10 WB Ramps

	57 / 1287	447 / 909
		592 / 517

10 Date Palm & Varner Rd.

		401 / 93
708 / 1173		485 / 324

11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)

	157 / 104 / 234	172 / 1026 / 51
218 / 1138 / 46		90 / 134 / 83

12 Cathedral Cyn. Dr. & Perez Rd.

	125 / 391 / 74	185 / 417 / 261
66 / 350 / 84		51 / 416 / 126

13 Cathedral Cyn. Dr. & Dinah Shore Dr.

	238 / 685 / 81	163 / 635 / 273
131 / 664 / 230		198 / 1013 / 236

14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.

	95 / 193 / 96	21 / 1029 / 236
59 / 819 / 248		286 / 197 / 182

15 Bob Hope Dr. & Ramon Rd.

	765 / 1163 / 64	30 / 1130 / 270
314 / 1495 / 560		168 / 645 / 130

16 Perez Rd. & E. Palm Cyn. Dr. (Hwy 111)

	292 / 14 / 18	50 / 1148 / 28
203 / 1445 / 19		9 / 10 / 10

17 Landau Bl. & Ramon Rd.

	1286 / 54 / 510	461 / 1176 / 27
602 / 749 / 79		97 / 75 / 48

18 Bob Hope Dr. & Varner Rd.

	75 / 175 / 122	167 / 444 / 438
133 / 593 / 1054		1420 / 465 / 512

19 Landau Bl. & Vista Chino

	102 / 535 / 425	490 / 904 / 265
129 / 897 / 528		515 / 591 / 168

20 Mountain View Rd. & Varner Rd.

	98 / 1931	875 / 37
10 / 233		

21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)

	11 / 3 / 6	5 / 1638 / 7
13 / 2128 / 16		22 / 2 / 22

22 Van Fleet St. & E. Palm Cyn. Dr. (Hwy 111)

	61 / 20 / 50	118 / 1091 / 51
58 / 1571 / 13		15 / 24 / 95

23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)

	53 / 7 / 92	60 / 1290 / 33
53 / 1548 / 52		30 / 8 / 35

24 Bob Hope Dr. & I-10 EB Ramps

	1271 / 498	
918 / 3 / 721		801 / 188

25 Bob Hope Dr. & I-10 WB Ramps

	608 / 1059	915 / 9 / 710
		237 / 1482

26 Da Vall Dr. & Gerald Ford Dr.

	121 / 712 / 209	168 / 601 / 110
89 / 746 / 310		93 / 400 / 67

27 Da Vall Dr. & Dinah Shore Dr.

	290 / 701 / 109	82 / 892 / 73
198 / 918 / 315		144 / 549 / 119

28 Da Vall Dr. & Ramon Rd.

	95 / 625 / 515	321 / 1281 / 326
54 / 1161 / 224		120 / 529 / 218

29 Gene Autry Tr. & I-10 EB Ramps

	1033 / 1497	
93 / 528		731 / 253

30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps

	110 / 2148	668 / 382
		596 / 228

31 Da Vall Dr. & 30th Av.

	311 / 757 / 45	30 / 34 / 20
203 / 51 / 305		353 / 620 / 15

32 Da Vall Dr. & Vista Chino

	804 / 1075	
739 / 126		235 / 860

33 Da Vall Dr. & I-10 EB Ramps

	1151 / 462	
112 / 728		1099 / 500

34 Da Vall Dr. & I-10 WB Ramps

	62 / 947	471 / 666
		377 / 834

35 Da Vall Dr. & Valley Center Bl.

	34 / 668 / 50	16 / 5 / 70
62 / 31 / 271		180 / 829 / 296

36 Da Vall Dr. & Varner Rd.

		234 / 224
603 / 510		191 / 716

37 Landau Bl. & I-10 EB Ramps

	957 / 370	
103 / 493		521 / 561

38 Landau Bl. & I-10 WB Ramps

	177 / 529	193 / 798
		287 / 337

39 Landau Bl. & Valley Center Bl.

		56 / 87
100 / 619		416 / 114

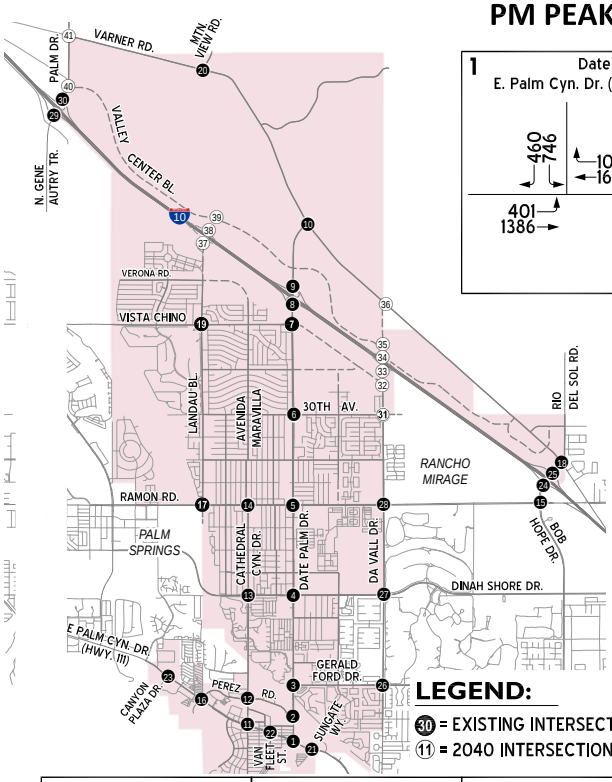
40 Palm Dr. & Valley Center Bl.

	87 / 1980 / 234	103 / 28 / 262
22 / 4 / 16		16 / 1003 / 245

41 Palm Dr. & Varner Rd.

	179 / 2144 / 64	14 / 22 / 99
63 / 51 / 58		98 / 902 / 128

EXHIBIT 5-9: PROPOSED GENERAL PLAN BUILDOUT (2040) PM PEAK HOUR INTERSECTION VOLUMES



1 Date Palm & E. Palm Cyn. Dr. (Hwy 111)

	460 / 746	1020 / 1604
401 / 1386		

2 Date Palm & Perez Rd.

	490 / 114	
499 / 191		172 / 1105

3 Date Palm & Gerald Ford Dr.

52 / 96 / 229	91	226 / 111 / 359
66 / 55 / 33		25 / 909 / 621

4 Date Palm & Dinah Shore Dr.

119 / 974 / 155		183 / 1031 / 209
151 / 936 / 324		304 / 944 / 222

5 Date Palm & Ramon Rd.

160 / 761 / 294		209 / 1272 / 262
233 / 983 / 246		314 / 942 / 153

6 Date Palm & 30th Av.

91 / 872 / 243		293 / 458 / 161
179 / 422 / 191		196 / 1153 / 93

7 Date Palm & Vista Chino

848 / 879 / 108		209 / 110 / 116
777 / 197 / 339		395 / 1121 / 148

8 Date Palm & I-10 EB Ramps

	845 / 1274	
194 / 561		1329 / 864

9 Date Palm & I-10 WB Ramps

	171 / 1180	672 / 939
		730 / 793

10 Date Palm & Varner Rd.

		800 / 344
543 / 925		1041 / 216

11 Cathedral Cyn. Dr. & E. Palm Cyn. Dr. (Hwy 111)

253 / 147 / 187		226 / 1604 / 85
187 / 1493 / 94		77 / 121 / 75

12 Cathedral Cyn. Dr. & Perez Rd.

146 / 263 / 186		234 / 625 / 186
193 / 483 / 169		179 / 463 / 231

13 Cathedral Cyn. Dr. & Dinah Shore Dr.

262 / 836 / 111		102 / 971 / 181
277 / 692 / 323		241 / 645 / 154

14 Cathedral Cyn. Dr. - Avenida Maravilla & Ramon Rd.

124 / 213 / 116		34 / 1124 / 262
146 / 1294 / 179		444 / 152 / 275

15 Bob Hope Dr. & Ramon Rd.

792 / 670 / 108		79 / 1228 / 206
223 / 1705 / 416		494 / 1017 / 359

16 Perez Rd. & E. Palm Cyn. Dr. (Hwy 111)

388 / 9 / 31		41 / 1810 / 17
318 / 1637 / 9		27 / 15 / 13

17 Landau Bl. & Ramon Rd.

886 / 98 / 510		407 / 1057 / 48
1020 / 1417 / 10		133 / 99 / 29

18 Bob Hope Dr. & Varner Rd.

116 / 541 / 181		93 / 619 / 425
107 / 553 / 1531		1191 / 180 / 437

19 Landau Bl. & Vista Chino

214 / 532 / 297		358 / 753 / 178
98 / 776 / 586		530 / 606 / 224

20 Mountain View Rd. & Varner Rd.

	30 / 1612	1783 / 114
32 / 46		

21 Sungate Wy. & E. Palm Cyn. Dr. (Hwy 111)

20 / 5 / 3		5 / 2625 / 14
11 / 2092 / 29		27 / 5 / 14

22 Van Fleet St. & E. Palm Cyn. Dr. (Hwy 111)

94 / 39 / 107		66 / 1904 / 83
48 / 1668 / 20		14 / 36 / 75

23 Canyon Plaza Dr. & E. Palm Cyn. Dr. (Hwy 111)

108 / 15 / 202		173 / 1820 / 46
73 / 1529 / 39		50 / 15 / 66

24 Bob Hope Dr. & I-10 EB Ramps

	1073 / 901	
652 / 7 / 497		1073 / 246

25 Bob Hope Dr. & I-10 WB Ramps

	1064 / 1433	662 / 4 / 541
		579 / 1146

26 Da Vall Dr. & Gerald Ford Dr.

	75 / 418 / 114	156 / 772 / 122
97 / 683 / 224		362 / 696 / 114

27 Da Vall Dr. & Dinah Shore Dr.

	184 / 609 / 93	185 / 1170 / 84
119 / 1080 / 166		289 / 766 / 74

28 Da Vall Dr. & Ramon Rd.

126 / 541 / 326		786 / 1374 / 194
134 / 1239 / 165		263 / 643 / 126

29 Gene Autry Tr. & I-10 EB Ramps

	461 / 902	
103 / 277		1395 / 384

30 Gene Autry Tr. - Palm Dr. & I-10 WB Ramps

	156 / 1063	756 / 300
		1059 / 439

31 Da Vall Dr. & 30th Av.

	174 / 846 / 35	57 / 20 / 30
183 / 44 / 350		477 / 914 / 15

32 Da Vall Dr. & Vista Chino

	859 / 1039	
1102 / 195		241 / 1086

33 Da Vall Dr. & I-10 EB Ramps

	1421 / 362	
68 / 477		1258 / 930

34 Da Vall Dr. & I-10 WB Ramps

	142 / 1233	466 / 550
		565 / 761

35 Da Vall Dr. & Valley Center Bl.

76 / 847 / 25		50 / 33 / 244
58 / 12 / 284		335 / 758 / 134

36 Da Vall Dr. & Varner Rd.

		633 / 615
486 / 316		382 / 484

37 Landau Bl. & I-10 EB Ramps

	983 / 391	
106 / 359		898 / 809

38 Landau Bl. & I-10 WB Ramps

	225 / 638	274 / 736
		440 / 564

39 Landau Bl. & Valley Center Bl.

		180 / 232
152 / 631		644 / 194

40 Palm Dr. & Valley Center Bl.

	41 / 893 / 291	254 / 40 / 309
18 / 33 / 17		10 / 1472 / 333

41 Palm Dr. & Varner Rd.

	73 / 901 / 39	20 / 33 / 91
222 / 15 / 233		225 / 1495 / 24

TABLE 5-3: ROADWAY SEGMENT ANALYSIS FOR PROPOSED GENERAL PLAN BUILDOUT (2040) CONDITIONS

ID	Roadway	Segment	Roadway Designation	Through Travel Lanes[1]	Capacity[2]	ADT[3]	Volume/ Capacity Ratio
1	Date Palm Dr.	north of Palm Canyon Dr.	Arterial (A)	6	59,000	31,700	0.54
2		north of Gerald Ford Dr.	Arterial (A)	6	59,000	35,700	0.61
3		north Dinah Shore Dr.	Arterial (A)	6	59,000	33,000	0.56
4		north of Ramon Rd.	Arterial (A)	6	59,000	31,600	0.54
5		north of 30th Av.	Arterial (A)	6	59,000	34,000	0.58
6		north of Vista Chino	Arterial (A)	6	59,000	47,300	0.80
7		north of I-10 WB Ramps	Arterial (A)	6	59,000	33,000	0.56
8	Cathedral Cyn. Dr.	south of Dinah Shore Dr.	Secondary (B)	4	30,000	19,000	0.63
9		south of Ramon Rd.	Secondary (B)	4	30,000	17,900	0.60
10	Landau Bl.	north of Ramon Rd.	Major (B)	4	38,000	36,200	**0.95**
11	Bob Hope Dr.	north of Ramon Rd.	Arterial (D)	6	59,000	34,700	0.59
12	Davall Rd.	south of Ramon Rd.	Major (A)	4	38,000	21,500	0.57
13		north of Ramon Rd.	Major (A)	4	38,000	29,000	0.76
14	Hwy. 111	east of Sungate Wy.	Arterial (A)	6	59,000	57,400	**0.97**
15		west of Date Palm Drive	Arterial (A)	6	59,000	46,200	0.78
16		west of Cathedral Cyn. Dr.	Arterial (A)	6	59,000	44,500	0.75
17		west of Canyon Plaza Dr. W.	Arterial (A)	6	59,000	46,300	0.78
18	Perez Rd.	west of Date Palm Dr.	Major (D)	2	19,000 [5]	23,300	**1.23**
19		west of Cathedral Cyn. Dr.	Major (D)	2	19,000 [5]	21,500	**1.13**
20	Gerald Ford Dr.	east of Da Vall Dr.	Major (C)	4	38,000	23,500	0.62
21		east of Date Palm Dr.	Major (C)	4	38,000	26,600	0.70
22	Dinah Shore Dr.	west of Bob Hope Dr.	Major (E)	4	39,000 [4]	32,200	0.83
23		east of Date Palm Dr.	Major (E)	4	39,000 [4]	36,100	**0.93**
24		west of Cathedral Cyn. Dr.	Major (E)	4	39,000 [4]	33,200	0.85
25	Ramon Rd.	west of Bob Hope Dr.	Arterial (B)	6	59,000	48,500	0.82
26		east of Date Palm Dr.	Arterial (B)	6	59,000	39,600	0.67
27		west of Cathedral Cyn. Dr.	Arterial (B)	6	59,000	41,100	0.70
28		west of Landau Bl.	Arterial (B)	6	59,000	54,300	**0.92**
29	30th Av.	east of Date Palm Dr.	Collector (C)	2	18,000	18,400	**1.02**
30		west of Date Palm Dr.	Collector (A)	2	18,000	16,900	**0.94**
31	Vista Chino	west of Date Palm Dr.	Arterial (C)	4	40,000 [4]	34,400	0.86
32		west of Landau Bl.	Arterial (C)	4	40,000 [4]	35,500	0.89
33	Varner Rd.	east of Date Palm Dr.	Modified Major	4	38,000	22,800	0.60
34		west of Date Palm Dr.	Arterial (B)	6	59,000	39,700	0.67
35	Bob Hope Dr.	north of I-10 WB Ramps	Arterial (D)	6	59,000	51,700	0.88
36	Gene Autry Tr. - Palm Dr.	south of I-10 EB Ramps	Arterial (A)	6	59,000	35,000	0.59
37		north of I-10 WB Ramps	Arterial (A)	6	59,000	33,400	0.57

[1] Existing Number of Through lanes

[2] LOS "E" Capacity per Cathedral City Roadway Segment Capacity LOS Thresholds

[3] Average Daily Traffic (ADT) expressed in vehicles per day.

[4] Estimated capacity for 4-lane Arterial capacity.

[5] Estimated capacity for 2-lane Major capacity.

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5.6 PROPOSED GENERAL PLAN BUILDOUT (2040) INTERSECTION OPERATIONS ANALYSIS

As shown in Table 5-4, study area intersections are anticipated to operate at an acceptable LOS during the peak hours, with the exception of the following:

- Cathedral Canyon Drive / Dinah Shore Drive (#13) – LOS E AM peak hour / LOS F PM peak hour
- Cathedral Canyon Drive - Avenida Maravilla / Ramon Road (#14) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for proposed General Plan Buildout (2040) traffic conditions are included in Appendix 5.2 of this TA.

5.7 LONG RANGE DEFICIENCIES AND RECOMMENDATIONS

The intersections of Cathedral Canyon Drive at Dinah Shore Drive and Cathedral Canyon Drive - Avenida Maravilla at Ramon Road are anticipated to operate at unacceptable level of service for currently adopted General Plan and proposed General Plan buildout conditions. The intersections are constrained by existing development, and intersection geometry / signalization changes have not been identified to reasonably improve operations. In addition, the intersection of Cathedral Canyon Drive - Avenida Maravilla at Ramon Road experiences unacceptable operations for existing (2018) conditions.

With the exception of sections of Cathedral Canyon Drive as identified below, intersections within Cathedral City experience LOS D or better operations, and LOS D continues to be recommended as the LOS standard.

Cathedral Canyon Drive from Perez Road to Ramon Road is recommended to be identified as a special study corridor for transportation / mobility. The existing unacceptable level of service at the intersection of Cathedral Canyon Drive at Ramon Road is anticipated to continue whether the currently adopted General Plan or proposed General Plan governs the long range condition. Intersections along Cathedral Canyon Drive are constrained by existing development, and mobility enhancements for all modes are desirable and have been considered. Sections of Cathedral Canyon Drive (from Dinah Shore Drive to Ramon Road) provide direct access to/from single family home driveways. Parallel roads to the east and west of Cathedral Canyon Drive provide limited alternative access through residential areas, but are discontinuous. Intersection geometry / signalization changes have not been identified to reasonably improve operations.

It is recommended that Cathedral City study this corridor and monitor its operations on an ongoing basis to develop recommendations for improvements. Specific tasks would involve identifying a corridor's strengths, weaknesses, and opportunities for improvements. This special study could serve as a valuable step in achieving the City's desire to implement long-term community and citywide mobility and parking improvement projects. Recommendations should balance the needs to improve mobility, safety, parking, and the area's appearance.

TABLE 5-4: INTERSECTION ANALYSIS FOR PROPOSED GENERAL PLAN BUILDOUT (2040) CONDITIONS

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (Secs)		Level of Service[2]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Date Palm / E. Palm Cyn. Dr. (Hwy 111)	TS	0	0	0	3	0	1>	2	3	0	0	3	1	18.4	41.4	B	D
2	Date Palm / Perez Rd.	TS	1	2	0	0	2	1>	***1***	0	1	0	0	0	14.0	26.9	B	C
3	Date Palm / Gerald Ford Dr.	TS	1	2	1	1	2	d	1	2	0	1.5	0.5	1	43.7	54.4	D	D
4	Date Palm / Dinah Shore Dr.	TS	2	2	1	2	3	0	**2**	***2***	1	1	2	1>	44.4	42.0	D	D
5	Date Palm / Ramon Rd.	TS	2	**3**	1	1	**3**	1	**2**	3	**1**	1	3	**1**	45.6	43.2	D	D
6	Date Palm / 30th Av.	TS	**2**	3	0	**2**	3	0	1	**2**	**1**	1	**2**	**1**	48.0	46.4	D	D
7	Date Palm / Vista Chino	TS	**2**	3	0	1	**2**	**2>**	2	1	***1>***	1	***2***	***1***	54.0	39.8	D	D
8	Date Palm / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	27.5	6.9	C	A
9	Date Palm / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	14.8	14.7	B	B
10	Date Palm / Varner Rd.	**TS**	**2**	0	1	0	0	0	0	1	**1>**	**1**	1	0	34.8	45.5	C	D
11	Cathedral Cyn. Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	1	1	1	1>	1	2	1	1	3	1	31.3	43.1	C	D
12	Cathedral Cyn. Dr. / Perez Rd.	TS	1	2	0	1	2	0	1	***1***	***1***	1	***1***	***1***	39.2	54.8	D	D
13	Cathedral Cyn. Dr. / Dinah Shore Dr.	TS	1	2	0	1	2	0	1	2	0	1	2	0	**65.4**	**>80**	**E**	**F**
14	Cathedral Cyn. Dr. - Avenida Maravilla / Ramon R	TS	1.5	0.5	1>	0.5	0.5	1>	1	3	0	1	3	0	**>80**	**>80**	**F**	**F**
15	Bob Hope Dr. / Ramon Rd.	TS	2	3	**1>>**	2	3	**1>>**	2	**3**	**1>**	2	**3**	1	48.3	39.8	D	D
16	Perez Rd. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	1	0.5	1.5>	2	3	0	1	2	1	28.3	38.9	C	D
17	Landau Bl. / Ramon Rd.	TS	**1**	**1**	0	2	**0.5**	**1.5**	**2**	**3**	0	**1**	**3**	**1>**	45.3	49.0	D	D
18	Bob Hope Dr. / Varner Rd.	TS	2	2	1>>	2	**3**	1	2	2	**2>>**	2	2	0	54.4	44.2	D	D
19	Landau Bl. / Vista Chino	TS	**2**	2	0	***2***	2	0	1	2	**1>**	1	2	***1>***	54.7	45.6	D	D
20	Mountain View Rd. / Varner Rd.	**TS**	0	0	0	**2**	0	**1**	0	1	0	0	1	**2**	42.4	38.0	D	D
21	Sungate Wy. / E. Palm Cyn. Dr. (Hwy 111)	TS	1	1	0	0.5	0.5	1	1	2	1	1	3	0	18.0	34.0	B	C
22	Van Fleet St. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	1	1	1	0	1	2	1	1	2	1	16.7	39.7	B	D
23	Canyon Plaza Dr. / E. Palm Cyn. Dr. (Hwy 111)	TS	0.5	0.5	d	0.5	1.5	0	1	2	1	1	2	1	33.4	52.6	C	D
24	Bob Hope Dr. / I-10 EB Ramps	TS	0	2.5	1.5	2	**3**	0	1	1!	1	0	0	0	28.4	31.1	C	C
25	Bob Hope Dr. / I-10 WB Ramps	TS	2	**3**	0	0	3	1	0	0	0	1.5	0.5	1>>	13.5	45.0	B	D
26	Da Vall Dr. / Gerald Ford Dr.	TS	**2**	2	1	**2**	2	**1**	**2**	2	**1**	**2**	2	**1**	34.3	36.6	C	D
27	Da Vall Dr. / Dinah Shore Dr.	TS	**2**	2	1	**2**	2	**1**	**2**	2	1	**2**	2	**1**	36.6	39.0	D	D
28	Da Vall Dr. / Ramon Rd.	TS	**2**	2	1	**2**	**2**	**1**	**2**	3	**1>**	**2**	3	**1>**	42.8	46.1	D	D
29	Gene Autry Tr. / I-10 EB Ramps	TS	0	3	1>>	0	3	1>>	1	1!	1	0	0	0	6.7	5.8	A	A
30	Gene Autry Tr.-Palm Dr. / I-10 WB Ramps	TS	0	3	1>>	0	3	1>>	0	0	0	1	1!	1	16.0	10.2	B	B
31	Da Vall Dr. / 30th Av.	**TS**	**1**	**2**	0	**1**	**2**	0	1	1	d	0.5	0.5	d	29.2	54.3	C	D
32	Da Vall Dr. / Vista Chino	**TS**	**1**	**2**	0	0	**2**	**1>**	**2**	0	**1**	0	0	0	25.7	44.7	C	D
33	Da Vall Dr. / I-10 SB Ramps	**TS**	0	**2**	**2**	**1**	**2**	**0**	0	**1!**	**1**	0	0	0	54.8	20.1	D	C
34	Da Vall Dr. / I-10 NB Ramps	**TS**	**2**	**2**	0	0	**2**	**1**	0	0	0	**2**	0	**1**	34.1	46.3	C	D
35	Da Vall Dr. / Valley Center Bl.	**TS**	**2**	**2**	0	**1**	**2**	0	**1**	**2**	**1**	**1**	**2**	0	17.7	20.2	B	C
36	Da Vall Dr. / Varner Rd.	**TS**	**1**	**1!**	**1**	0	0	0	0	**2**	0	**1**	**2**	**0**	43.0	53.0	D	D
37	Landau Bl. / I-10 SB Ramps	**TS**	0	**3**	***1***	**1**	**3**	0	**0.5**	**0.5**	**1**	0	0	0	53.8	54.4	D	D
38	Landau Bl. / I-10 NB Ramps	**TS**	**1**	**3**	0	0	**3**	0	0	0	0	**0.5**	**0.5**	**1**	48.9	54.2	D	D
39	Landau Bl. / Valley Center Bl.	**TS**	**1**	0	**1**	0	0	0	0	**2**	**1>**	**1**	**2**	0	13.6	23.4	B	C
40	Palm Dr. / Valley Center Bl.	TS	1	2	**1**	**2**	2	0	**1**	**2**	0	1	**1**	**1**	29.8	31.3	C	C
41	Palm Dr. / Varner Rd.	TS	1	2	0	1	2	0	**1**	1	0	**1**	1	0	40.2	30.1	D	C

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

L = Left; T = Through; R = Right; 1! = Shared Left/Through/Right Lane; 0.5 = Shared Lane; > = Right-Turn Overlap Phasing;

>> = Free-Right Turn Lane; d= Defacto Right Turn Lane; **1** = Lane Improvement; ***1*** = Lane Configuration Change in comparison to Adopted Improvements

[2] Per the Highway Capacity Manual 6th Edition (HCM6), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. Delay and level of service is calculated using Synchro 10.1 analysis software.

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

[3] TS = Traffic Signal

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6 VEHICLE MILES TRAVELLED (VMT)

Vehicle Miles Travelled (VMT) is a key measure of effectiveness with regard to various initiatives intended to reduce emissions, including Green House Gas (GHG) emissions. The California Air Pollution Control Officers Association (CAPCOA) publishes a resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures. According to the August, 2010 publication Quantifying Greenhouse Gas Mitigation Measures the Land Use and Circulation and Mobility Element's policies can be a means of reducing VMT. The CAPCOA report recognizes that land use planning provides the best opportunity to influence GHG emissions through a reduction in overall VMT. This is accomplished by reducing the distance people travel in combination with a substantial increase in local job opportunities. In addition to the land use based VMT reductions, further reductions (while limited) are possible by providing alternative transportation options.

While the CAPCOA report is primarily focused on the quantification of project-level mitigation measures, the VMT estimates for the City have been calculated using the Riverside County Transportation Analysis Model (RivTAM), with consideration of the relationship between residential and non-residential uses, trip balancing effects, internal capture, etc. The VMT takes into account land use patterns and trip generation, as well as the interaction of these trips within the City and between the City and surrounding areas.

Table 6-1 provides a summary of the VMT for currently adopted General Plan and proposed General Plan conditions. As shown on Table 6-1, the City has a projected total of approximately 7,346,153 VMT per day for currently adopted General Plan conditions, and approximately 7,257,944 VMT per day for proposed General Plan Buildout conditions.

TABLE 6-1: CATHEDRAL CITY VMT

General Plan Buildout (2040) Scenario	Daily VMT	VMT / Service Population	VMT / Trip
Currently Adopted General Plan	7,346,153	27.86	6.94
Proposed General Plan	7,257,944	26.21	6.90

The decrease in average daily VMT for the proposed General Plan in comparison to currently adopted General Plan VMT is due to a reduction in trip generation, combined with a shift in the relationship between residential and non-residential uses. This translates into a per capita and per trip VMT reduction of approximately one half of one percent.

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7 REFERENCES

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6. *Cathedral City Annexation and North City Extended Specific Plan Traffic Impact Study.* **Endo Engineering.** s.l. : Cathedral City, January 2013.
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