H Traffic Study

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TRAFFIC IMPACT ANALYSIS REPORT

MAVERIK FUELING STATION

Indio, California

July 31, 2024

Prepared for:

Willis Environmental Planning

238 Sychar Road

San Diego, CA 92114

LLG Ref. 2-24-4810-1

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Project Description

- Project site is located on the northeast quadrant of Golf Center Parkway and Avenue 45 in the City of Indio, California. The proposed Project will consist of a gas station with 20 vehicle fueling positions, 4 diesel fueling stations, and a 5,951 square-feet (SF) convenience store. The proposed Project is expected to be constructed and fully occupied by the Year 2026.

- Access to the proposed Project will be provided via one (1) full-access stop-controlled driveway located along Golf Center Parkway and via one (1) full-access stop-controlled driveway located along Avenue 45.

- The proposed Project is expected to generate 6,223 weekday net daily trips (one half arriving, one half departing), with 182 net trips (91 inbound, 91 outbound) produced in the AM peak hour and 161 net trips (81 inbound, 80 outbound) produced in the PM peak hour.

Study Area

- The eight (8) key study intersections listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation. All eight (8) key study intersections are located in the City of Indio.

Key Study Intersections:

1. Golf Center Parkway at Avenue 44
2. Golf Center Parkway at Chandi's Way/Indio Springs Parkway
3. Golf Center Parkway at I-10 WB Ramps
4. Golf Center Parkway at I-10 EB Ramps
5. Jackson Street at Avenue 45
6. Golf Center Parkway at Avenue 45
7. Commerce Street at Avenue 45
8. Golf Center Parkway/Lorraine Street at Highway 111

Cumulative Projects Description

- The fourteen (14) cumulative projects are forecast to generate a combined total of 20,429 weekday daily trips, with 1,360 trips forecast during the AM peak hour and 1,397 trips forecast during the PM peak hour.

Project Traffic Impact Analysis

Existing Traffic Conditions

- For Existing traffic conditions, the intersection of Golf Center Parkway/Lorraine Street at Highway 111 currently operates at an unacceptable LOS during the AM and PM peak hours.

The remaining seven (7) key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

Existing With Ambient Growth With Project Traffic Conditions

- For Existing With Ambient Growth With Project traffic conditions, one (1) of the eight (8) key study intersections is forecast to operate at unacceptable levels of service with the addition of Project traffic based on the LOS standards and criteria mentioned in this report. The remaining seven (7) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours under Existing With Ambient Growth With Project traffic conditions. The intersection forecast to operate at an adverse LOS is as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	Delay (s/v)	LOS	Delay (s/v)	LOS
8. Golf Center Pkwy/Lorraine St at Highway 111	119.7	F	123.0	F

One (1) intersection will operate at deficient levels of service when compared to the LOS criteria detailed in this report. However, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

- For Existing With Ambient Growth With Project With Cumulative Projects traffic conditions, one (1) of the eight (8) key study intersections is forecast to operate at unacceptable levels of service with the addition of Project traffic based on the LOS standards and criteria mentioned in this report. The remaining seven (7) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. The location forecast to operate at an adverse LOS is as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	Delay (s/v)	LOS	Delay (s/v)	LOS
8. Golf Center Pkwy/Lorraine St at Highway 111	127.2	F	117.9	F

One (1) intersection will operate at deficient levels of service when compared to the LOS criteria detailed in this report. However, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Recommended Improvements

Existing With Ambient Growth With Project Traffic Conditions

- The following improvements listed below have been identified to offset the effect of ambient growth traffic and Project traffic, and improve levels of service to an acceptable range for Existing With Ambient Growth With Project traffic conditions:
    - Intersection 8. Golf Center Parkway/Lorraine Street at Highway 111: Convert existing five-phase operation traffic signal to six phase operation with split-phasing on Golf Center Parkway/Lorraine Street.

Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

- The following improvements listed below have been identified to offset the effect of ambient growth traffic, cumulative traffic, and Project traffic, and improve levels of service to an acceptable range for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions:
    - Intersection 8. Golf Center Parkway/Lorraine Street at Highway 111: Convert existing five-phase operation traffic signal to six phase operation with split-phasing on Golf Center Parkway/Lorraine Street. Modify the existing traffic signal and provide southbound right-turn overlap phasing.

Project Fair Share Analysis

Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

- The Project fair share percentage (most adverse time period) for the deficient intersection for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions that require recommended improvements is shown below:
    - 8. Golf Center Parkway/Lorraine Street at Highway 111 25.61%

Project Site Access and Internal Circulation Evaluation

- The two (2) proposed Project driveways are forecast to operate at acceptable LOS D or better during the AM and PM peak hours for all traffic analysis scenarios.

- The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks, trash trucks and large trucks. Based on our review of the site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the Project is impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveways are also deemed adequate

Multimodal Circulation

- Refer to *Section 13.0* for specific details on the Multimodal Circulation assessment.

Vehicle Miles Traveled (VMT) Assessment

- Based on the County's guidelines, the proposed Project satisfies the Small Projects and Local Serving Retail screening criteria. Therefore, this project could be screened from a VMT analysis, and could be presumed to have a less than significant impact on VMT per the County's guidelines.

TRAFFIC IMPACT ANALYSIS REPORT

MAVERIK FUELING STATION

Indio, California

July 31, 2024

1.0 INTRODUCTION

This traffic impact study addresses the potential traffic impacts and circulation needs associated with the proposed Maverik Fueling Station Project (hereinafter referred to as Project). The Project site is located on the northeast quadrant of Golf Center Parkway and Avenue 45 in the City of Indio, California. The proposed Project will consist of a gas station with 20 vehicle fueling positions, 4 diesel fueling stations, and a 5,951 square-feet (SF) convenience store. The proposed Project is expected to be constructed and fully occupied by the Year 2026.

1.1 Scope of Work

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential traffic impacts associated with the proposed Project. The traffic analysis evaluates the existing operating conditions at eight (8) key study intersections within the project vicinity, estimates the trip generation potential of the proposed Project, superimposes the project-related traffic volumes on the circulation system as it currently exists, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection improvement measures are identified.

This traffic report satisfies the traffic impact requirements of the City of Indio. The Scope of Work for this traffic study, which is included in ***Appendix A***, was developed in conjunction with City of Indio Traffic Engineering staff.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at the key study locations on a "typical" weekday for use in the preparation of intersection level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the City of Indio. Based on our research, there are fourteen (14) cumulative projects located in the City of Indio. These fourteen (14) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this project.

This traffic report analyzes existing and future AM peak hour and PM peak hour traffic conditions for a near-term (Year 2026) traffic setting upon completion of the proposed Project. Peak hour traffic forecasts for the Year 2026 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of two percent (2.0%) per year and adding traffic volumes generated by fourteen (14) cumulative projects.

1.2 Study Area

The eight (8) key study intersections selected for evaluation were determined based on the approved Traffic Study Scope of Work and discussions with City of Indio staff. The key study intersections listed below provide both local and regional access to the study area and define the extent of the boundaries for this traffic impact investigation. All eight (8) key study intersections are located in the City of Indio.

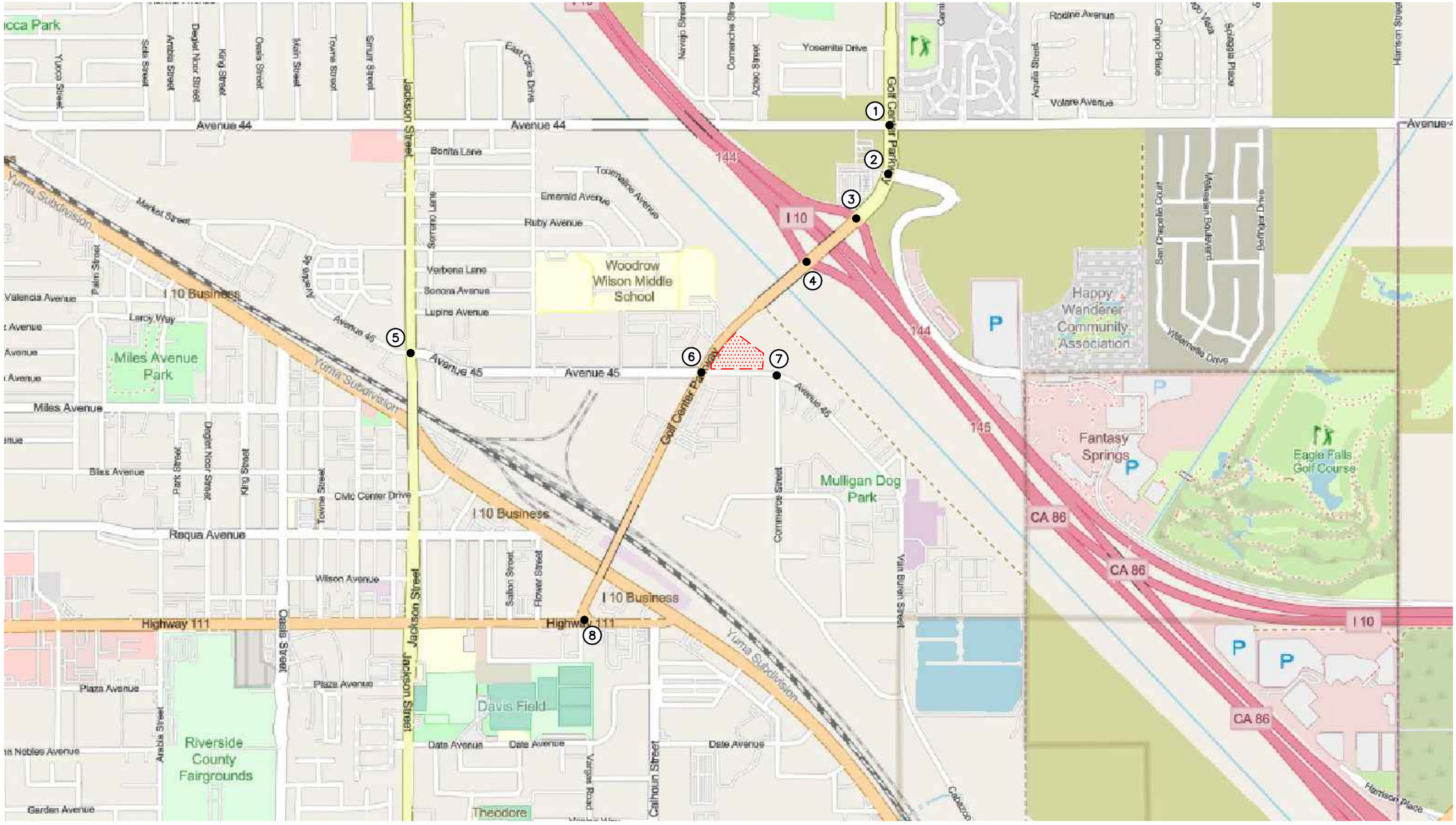
Key Study Intersections:

1. Golf Center Parkway at Avenue 44
2. Golf Center Parkway at Chandi's Way/Indio Springs Parkway
3. Golf Center Parkway at I-10 WB Ramps
4. Golf Center Parkway at I-10 EB Ramps
5. Jackson Street at Avenue 45
6. Golf Center Parkway at Avenue 45
7. Commerce Street at Avenue 45
8. Golf Center Parkway/Lorraine Street at Highway 111

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the proposed Project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service.

Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated Project traffic generation/distribution/assignment,
- Estimated cumulative projects traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions,
- AM and PM peak hour capacity analyses for existing with ambient growth to the Year 2026 with Project traffic conditions,
- AM and PM peak hour capacity analyses for existing with ambient growth to the Year 2026 with Project with cumulative projects traffic conditions (i.e., cumulative traffic conditions),
- Area-Wide Traffic Improvements,
- Site Access and Internal Circulation Evaluation,
- Multimodal Circulation, and
- SB 743 VMT Assessment.



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SOURCE: OPEN STREETS

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

NO SCALE

FIGURE 1-1

VICINITY MAP

MAVERIK FUELING STATION, INDIO

2.0 PROJECT DESCRIPTION AND LOCATION

The Project site is located northeast quadrant of Golf Center Parkway and Avenue 45 in the City of Indio, California. ***Figure 2-1*** presents an aerial depiction of the existing site. As presented in *Figure 2-1,* the project site is currently vacant.

Figure 2-2 presents the proposed site plan for the proposed Project, prepared by Site Design Collaborative. Review of the proposed site plan indicates that the proposed Project will consist of a gas station with 20 vehicle fueling positions, 4 diesel fueling stations, and a 5,951 SF convenience store. The proposed Project is expected to be completed and fully occupied by the Year 2026.

2.1 Site Access

As shown in *Figure 2-2*, access to the proposed Project will be provided via one (1) full-access stop-controlled driveway located along Golf Center Parkway and via one (1) full-access stop-controlled driveway located along Avenue 45.

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SOURCE: GOOGLE

KEY

= PROJECT SITE

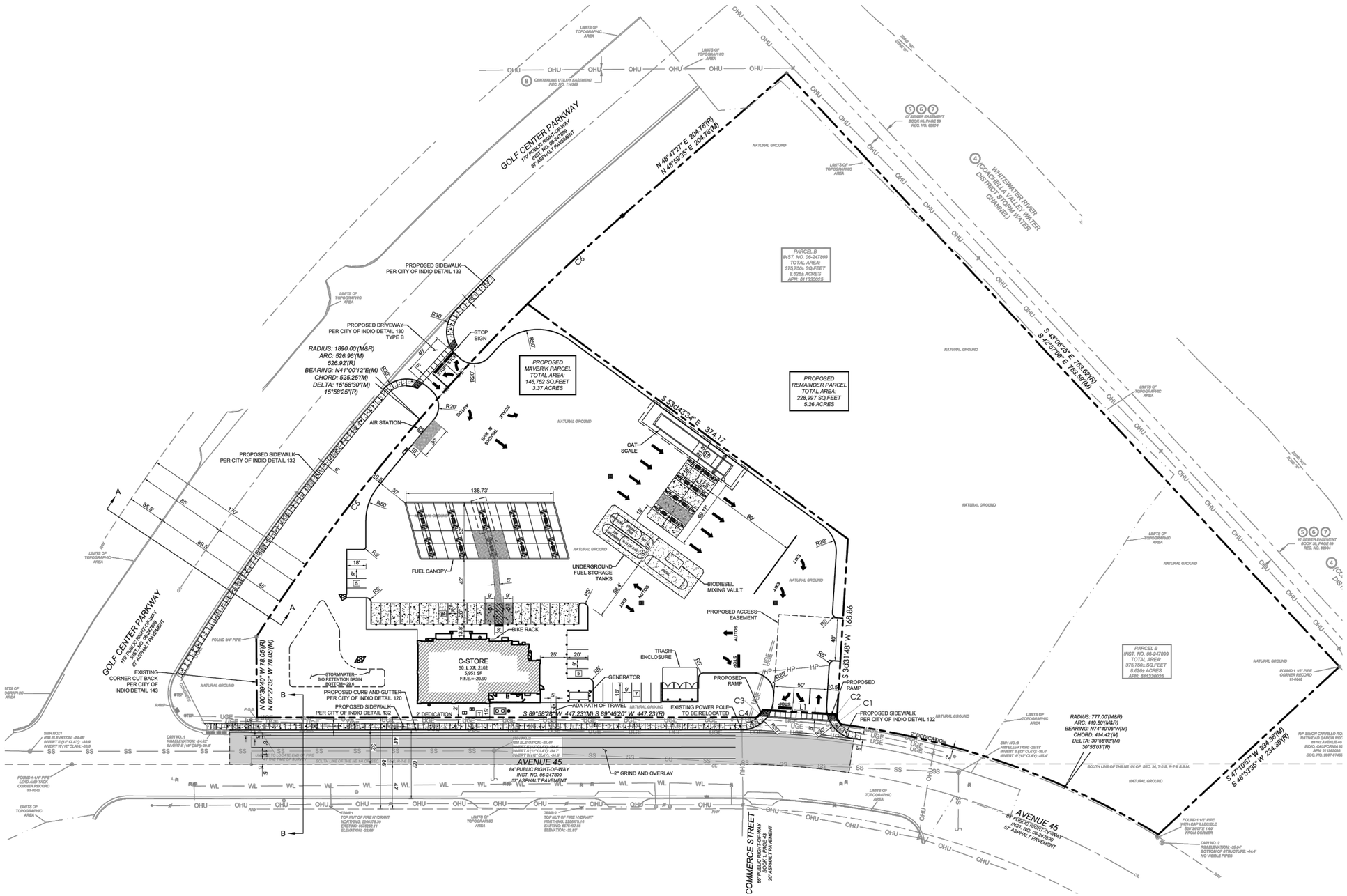
LLG

N NO SCALE

FIGURE 2-1

EXISTING SITE AERIAL

MAVERIK FUELING STATION, INDIO



SOURCE: SITE DESIGN COLLABORATIVE

NO SCALE

FIGURE 2-2

PROPOSED SITE PLAN

MAVERIK FUELING STATION, INIO

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3.0 EXISTING CONDITIONS

3.1 Existing Street Network

The principal local network of streets serving the proposed Project includes Golf Center Parkway, Avenue 45, Jackson Street, and Highway 111. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Golf Center Parkway is a four-lane, divided roadway north of Avenue 45, and a two-lane undivided roadway south of Avenue 45, oriented in the general north-south direction. Golf Center Parkway borders the Project site to the west and will provide access to the project site. On-street parking is generally not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Golf Center Parkway is 45 miles per hour (mph). A traffic signal controls the key study intersections of Golf Center Parkway at Avenue 44, Chandi's Way/Indio Springs Parkway, I-10 Westbound Ramps, I-10 Eastbound Ramps, Avenue 45 and Highway 111.

Avenue 45 is a two-lane divided roadway west of Jackson Street, a four-lane divided roadway between Jackson Street and Golf Center Parkway, a four-lane undivided roadway between Golf Center parkway and Commerce Street, and a three-lane divided roadway east of Commerce Street, oriented in the east-west direction. Avenue 45 borders the Project site to the south and will provide access to the project site. On-street parking is generally not permitted on either side of the roadway between Jackson Street and Golf Center Parkway. On-street parking is permitted along the south side of Avenue 45 in the vicinity of the Project site and on both sides of the street east of Commerce Street. The posted speed limit on Avenue 45 is 35 mph west of Jackson Street, 45 mph between Jackson Street and Golf Center Parkway, and 40 mph east of Golf Center Parkway. A traffic signal controls the key study intersections of Avenue 45 at Jackson Street and Golf Center Parkway. The intersection of Avenue 45 at Commerce Street is stop controlled.

Jackson Street is a four-lane, divided roadway, oriented in the north-south direction, located to the west of the project site. On-street parking is generally not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Jackson Street is 40 miles per hour (mph). A traffic signal controls the key study intersection of Jackson Street at Avenue 45.

Highway 111 is a four-lane, divided roadway, oriented in the east-west direction, located to the south of the project site. On-street parking is generally not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Highway 111 is 35 mph. A traffic signal controls the key study intersection of Highway 111 at Golf Center Parkway.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. The number of travel lanes and intersection controls for the key area intersections are identified.

3.2 Existing Public Transit

The SunLine Transit Agency operates within the study area. A description of the transit services within the Project vicinity are described below:

Route 8:

- Route 8 provides service from North Indio to Thermal/Mecca; via Showcase at Monroe, 5th at Vine, 62nd at Buchanan, and 66th at Date Palm.
- The route traverses the Cities of Indio and Coachella, as well as census designated places Thermal and Mecca.
- During the weekday and weekend AM and PM peak hours, Route 8 has an approximate headway of 60 minutes in the northbound and southbound directions.

Route 10:

- Route 10 is a commuter link that provides service from the SunLine Indio Facility to California State University San Bernardino Palm Desert Campus, Beaumont, California State University San Bernardino, and the San Bernardino Transit Center.
- The route traverses the Cities of Indio, Beaumont, and San Bernardino.
- During the weekday and weekend AM and PM peak hours, Route 10 has one bus in the eastbound and westbound directions.

Route 800:

- Route 800 provides "school tripper" services for Indio; via 111 at Golf Center, Jackson at Ave 42, and Ave 39 at Jefferson.
- The route traverses the City of Indio.
- During the weekday AM peak hour, Route 800 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

Route 802:

- Route 802 provides service for Indio; via Ave 39 at Jefferson, Ave 42 at Jackson, and 111 at Golf Center.
- The route traverses the City of Indio.
- During the weekday PM peak hour, Route 802 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

Route 803:

- Route 803 provides "school tripper" services for Indio; via Ave 44 at Jackson, Jackson at Ave 42, and Ave 39 at Jefferson.
- The route traverses the City of Indio.
- During the weekday AM peak hour, Route 803 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

3.3 Existing Bicycle and Pedestrian Facilities

The State transportation system recognizes four primary bikeway facilities: Bicycle Paths (Class I), Bicycle Lanes (Class II), Bicycle Routes (Class III) and Cycle Tracks (Class IV). Bicycle Paths (Class I) are exclusive car free facilities for exclusive use by bicyclists, pedestrians and those using non-motorized modes of travel, that are typically not located within a roadway area. Bicycle Lanes

(Class II) are part of the street design that is dedicated only for bicycles and identified by a striped lane separating vehicle lanes from bicycle lanes. Bicycle Routes (Class III) provide shared use with motor vehicle traffic within the same travel lane. Designated by signs, bike routes provide continuity to other bike facilities or designated preferred routes through corridors with high demand. Cycle Tracks (Class IV) are exclusive bike facilities that combine the experience of a separated path with the on-street infrastructure of a conventional bike lane and is physically separated from motor traffic and distinct from the sidewalk.

A Class II bike lane is currently provided along Golf Center Parkway in the vicinity of the proposed Project and along Avenue 45, west of Golf Center Parkway.

Pedestrian connection to the surrounding commercial developments, as well as nearby public transit stops, is provided via existing sidewalks along the west side of Golf Center Parkway. The project will construct a sidewalk along the western Project frontage on Golf Center Parkway and the southern Project frontage on Avenue 45.

3.4 Existing Traffic Volumes

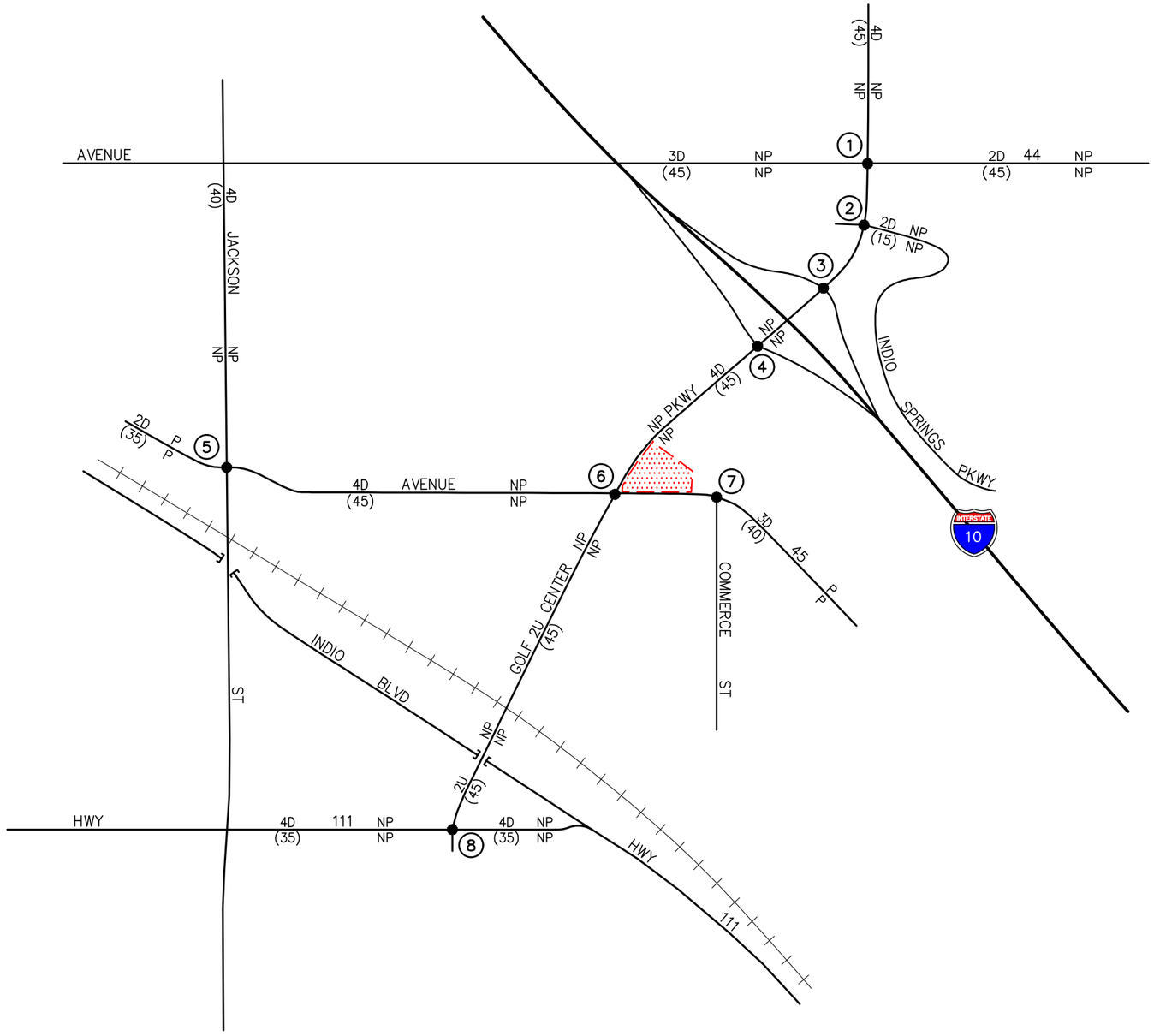
Eight (8) key study intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential project-related traffic will pass through these intersections and their analysis will reveal the expected relative impacts of the project. These key study intersections were selected for evaluation based on discussions with City of Indio staff.

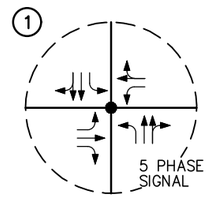
Existing AM and PM peak hour traffic volumes for the eight (8) key study intersections evaluated in this report were obtained from manual peak hour turning movement counts with truck classifications conducted by *Counts Unlimited, Inc.* in May 2024. ***Figures 3-2*** and ***3-3*** illustrate the existing AM and PM peak hour traffic volumes at the eight (8) key study intersections evaluated in this report, respectively. The traffic volumes illustrated in *Figures 3-2* and *3-3* are comprised of passenger vehicles, large 2-axle trucks, 3-axle trucks and 4+-axle trucks. The truck traffic turning movements were converted to passenger car equivalents (P.C.E.'s) using approved factors. P.C.E. factors of 1.5, 2.0 and 3.0 were utilized for large 2-axle trucks, 3-axle trucks and 4+-axle trucks, respectively.

Appendix B contains the detailed peak hour count sheets for the key intersections evaluated in this report.

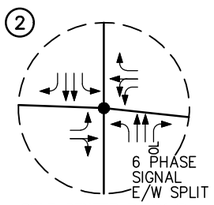
3.5 Level of Service (LOS) Analysis Methodologies

In conformance with County of Riverside requirements, AM peak hour and PM peak hour operating conditions for the signalized and unsignalized intersections and unsignalized driveways were evaluated using the *Highway Capacity Manual 7* (HCM 7) methodology. It should be noted that per the City of Indio traffic impact analysis guidelines, the existing peak hour factor has been utilized for the Existing analysis scenario, the Existing With Ambient Growth With Project analysis scenario, and the Existing With Ambient Growth With Project With Cumulative Projects analysis scenario.

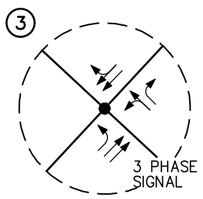




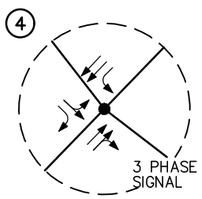
GOLF CENTER PKWY @ AVENUE 44



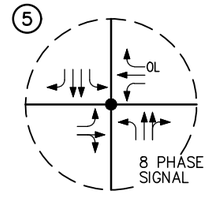
GOLF CENTER PKWY @ INDIO SPRINGS PKWY



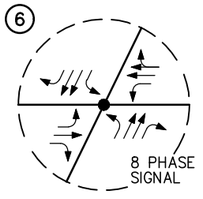
GOLF CENTER PKWY @ I-10 WB RAMPS



GOLF CENTER PKWY @ I-10 EB RAMPS



JACKSON ST @ AVENUE 45



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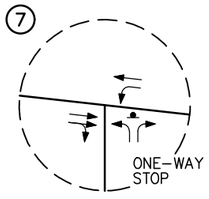
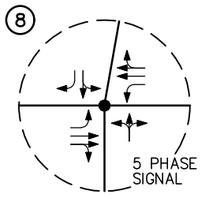


COMMERCE ST @ AVENUE 45



GOLF CENTER PKWY @ HWY 111

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LLG

N NO SCALE

KEY

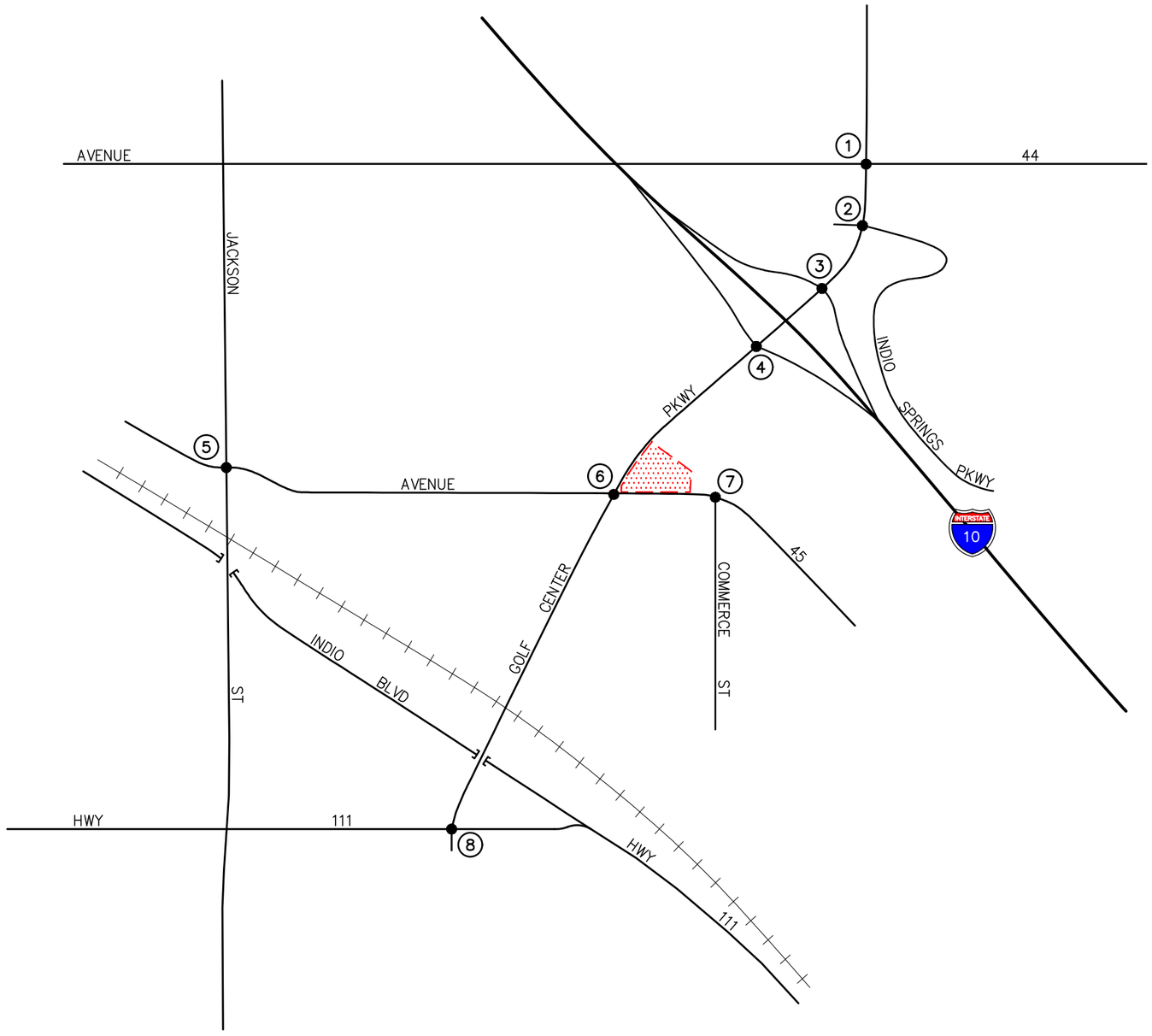
(#) = STUDY INTERSECTION
= APPROACH LANE ASSIGNMENT
= TRAFFIC SIGNAL, = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED

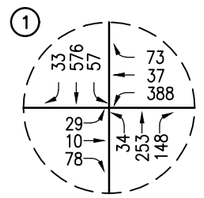
2 = NUMBER OF TRAVEL LANES
(XX) = POSTED SPEED LIMIT (MPH)
OL = OVERLAP
= PROJECT SITE

FIGURE 3-1

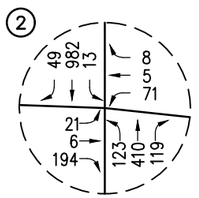
EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

MAVERIK FUELING STATION, INDIO

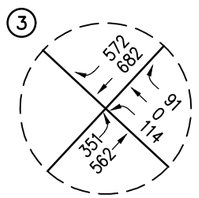




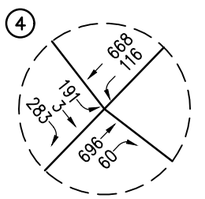
GOLF CENTER PKWY @
AVENUE 44



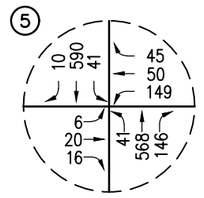
GOLF CENTER PKWY @
INDIO SPRINGS PKWY



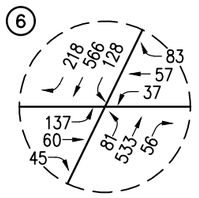
GOLF CENTER PKWY @
I-10 WB RAMPS



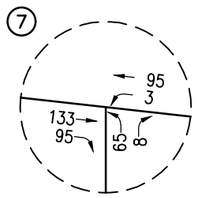
GOLF CENTER PKWY @
I-10 EB RAMPS



JACKSON ST @
AVENUE 45



GOLF CENTER PKWY @
AVENUE 45



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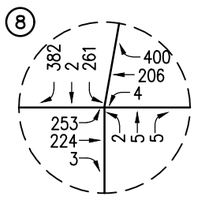

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KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

NO SCALE

FIGURE 3-2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

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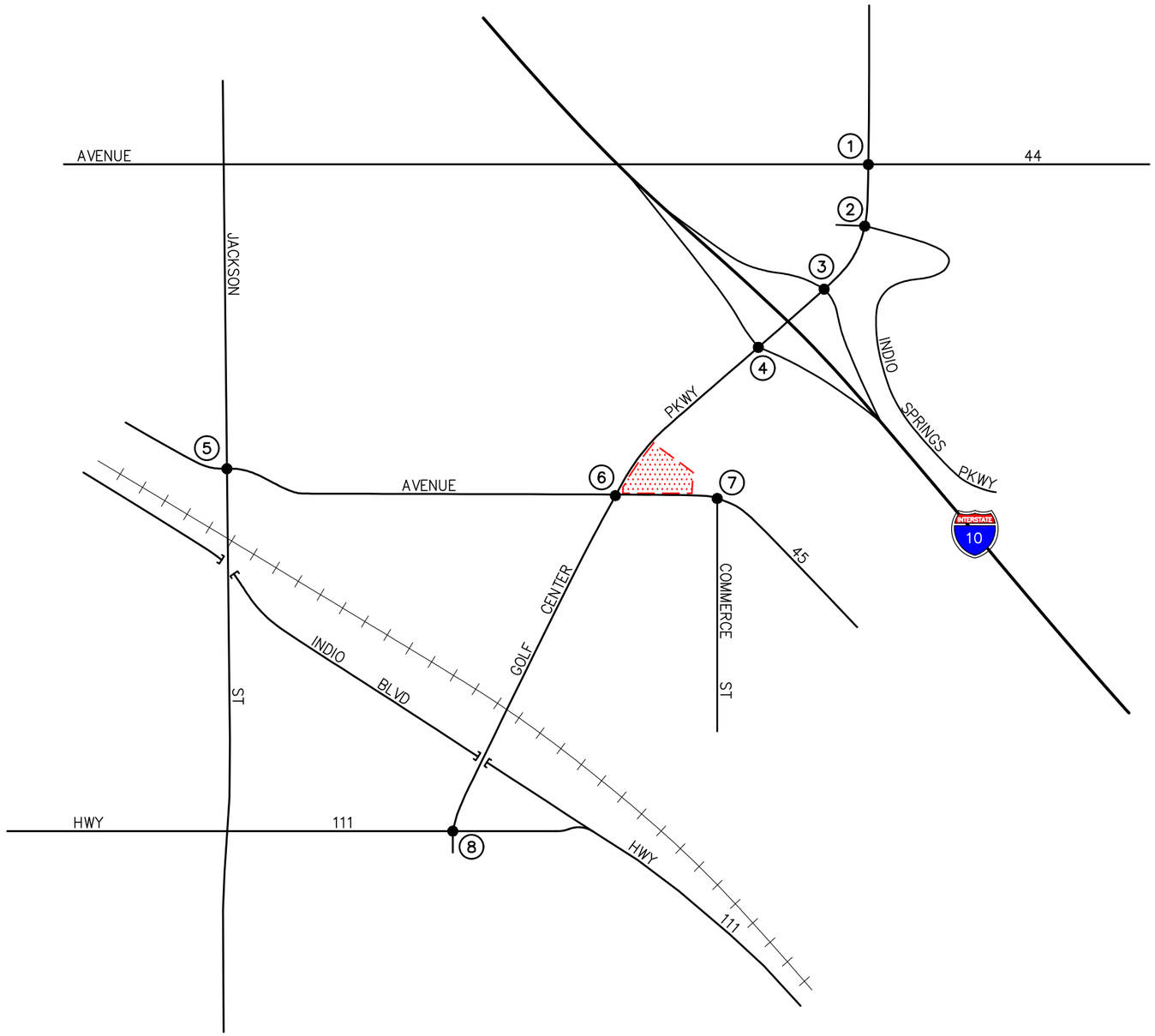

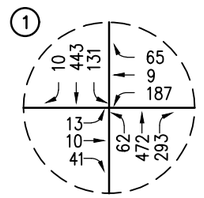

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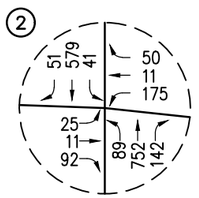

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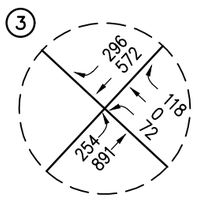

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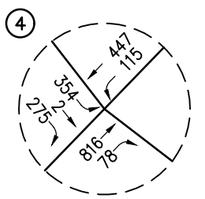

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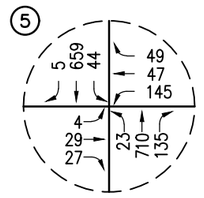

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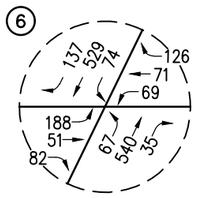
AVENUE 45



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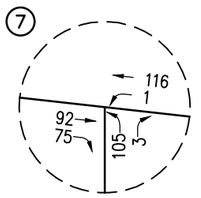

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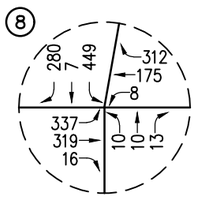

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KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 3-3

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

3.5.1 *Highway Capacity Manual 7 (HCM 7) Method of Analysis (Signalized Intersections)*

Based on the HCM operations method of analysis, level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometries, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

In Chapter 19 of the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In contrast, in previous versions of the HCM (1994 and earlier), delay included only stopped delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative categories of Level of Service that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in ***Table 3-1***.

3.5.2 *Highway Capacity Manual 7 (HCM 7) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay.

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in ***Table 3-2***.

3.6 Impact Criteria and Thresholds

Based on the City of Indio level of service and impact criteria, LOS "D" is the minimum acceptable LOS required at the key study intersections.

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)[1]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[1] Source: *Highway Capacity Manual 7*, Chapter 19: Signalized Intersections.

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY) [2]

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

[2] Source: *Highway Capacity Manual 7*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations and/or rates to the Project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway segments and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. If necessary, the need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 11th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2021].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project. As shown, the trip generation potential of the proposed Project was estimated using ITE Land Use 945: Gasoline Service Station with Convenience Store (5.5 – 10k SF) trip rates. Review of the lower portion of *Table 5-1* shows that the proposed Project is expected to generate 6,223 weekday net daily trips (one half arriving, one half departing), with 182 net trips (91 inbound, 91 outbound) produced in the AM peak hour and 161 net trips (81 inbound, 80 outbound) produced in the PM peak hour.

It should be noted that the aforementioned overall trip generation includes adjustments for pass-by per the *Trip Generation Manual, 11th Edition*, published by ITE, to account for trips that are already in the everyday traffic stream on the adjoining streets (i.e. Golf Center Parkway) and will stop as they pass by the Project site as a matter of convenience on their path to another destination. The pass-by reduction factors utilized are summarized in the footnotes of *Table 5-1*.

5.2 Project Traffic Distribution and Assignment

The Project directional trip distribution pattern for the Project is presented in ***Figure 5-1***. Project traffic volumes both entering and exiting the Project site have been distributed and assigned to the adjacent street system based on the following considerations:

- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- existing intersection traffic volumes, and
- ingress/egress availability at the project site.

The anticipated AM and PM peak hour Project traffic volumes at the eight (8) key study intersections and two (2) proposed Project driveways are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignment presented in the above-mentioned figures reflect the Project trip distribution characteristics shown in *Figure 5-1* and the Project trip generation forecast presented in *Table 5-1*.

TABLE 5-1

PROJECT TRIP GENERATION RATES AND FORECAST[3]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ 945: Gasoline Service Station with Convenience Store (5.5 – 10k SF) (TE/VFP)	345.75	50%	50%	31.60	50%	50%	26.90
Proposed Project Generation Forecast:							
▪ Maverik Fueling Station (24 VFP)	8,298	379	379	758	323	323	646
Pass-By (Daily: 25%, AM: 76%, PM: 75%)[4]	-2,075	-288	-288	-576	-242	-243	-485
Total Net Proposed Project Trip Generation	***6,223***	***91***	***91***	***182***	***81***	***80***	***161***

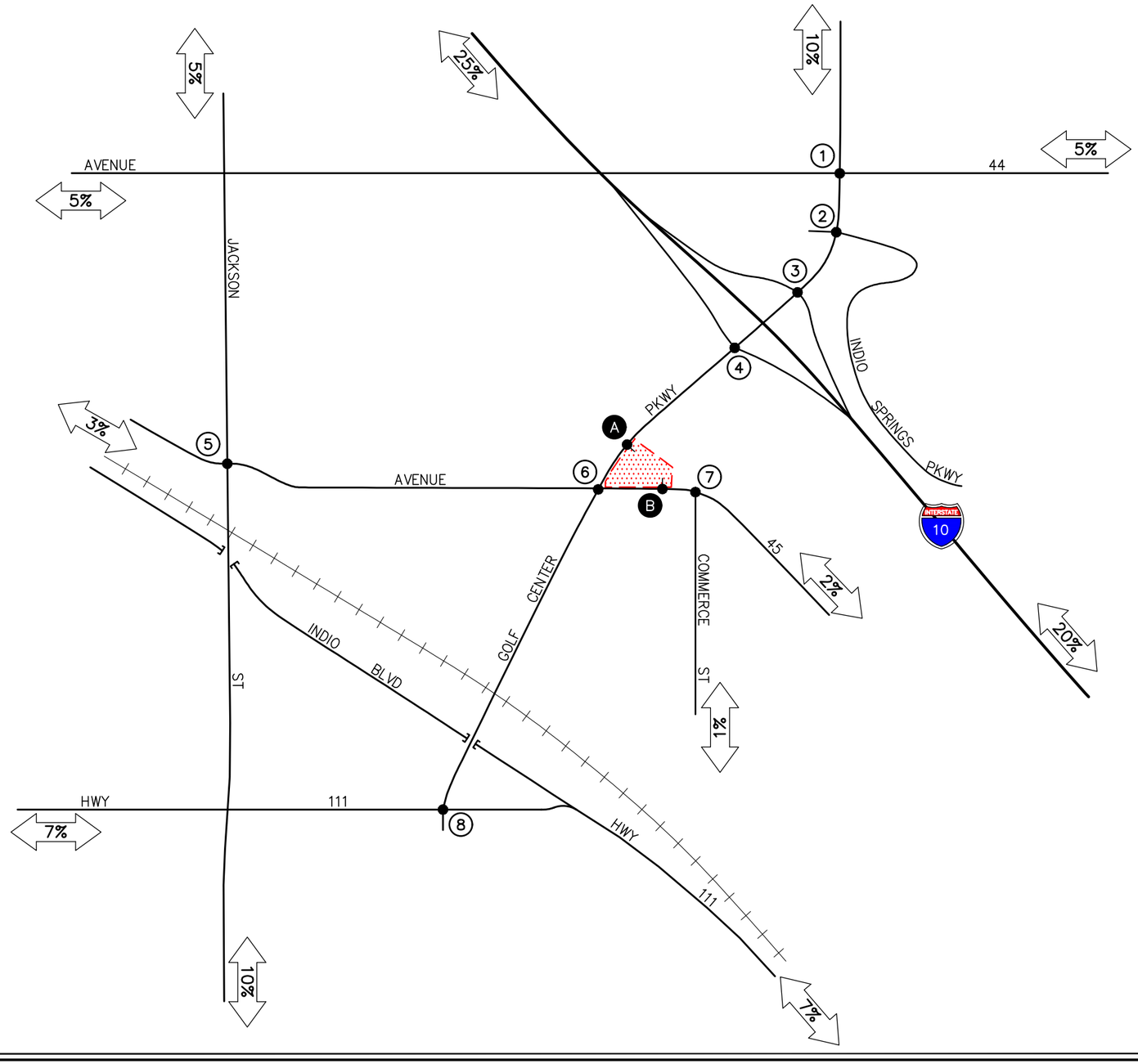
Note:

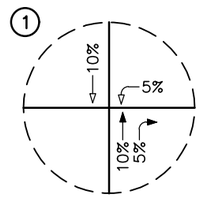
▪ TE/VFP = Trip End per Vehicle Fueling Position

[3] Source*: Trip Generation, 11th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)].

[4] Pass-By Trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used (Source: *Trip Generation Manual, 11th Edition*, ITE 2021):

▪ 945: Gasoline Service Station with Convenience Store: Daily/AM peak hour/PM peak hour = 25% (assumed) / 76% / 75%





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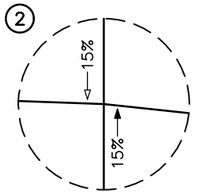

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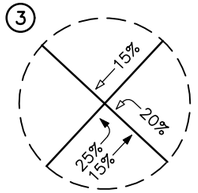

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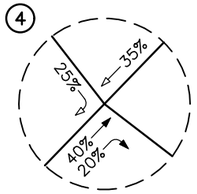

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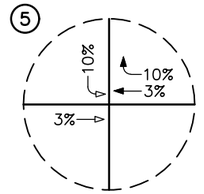

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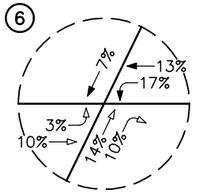

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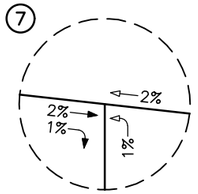

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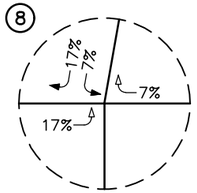

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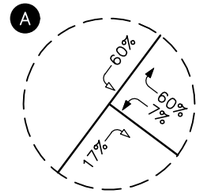

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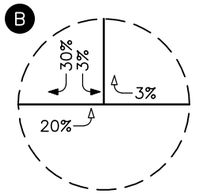

PROJECT DWY NO. 2 @
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N NO SCALE

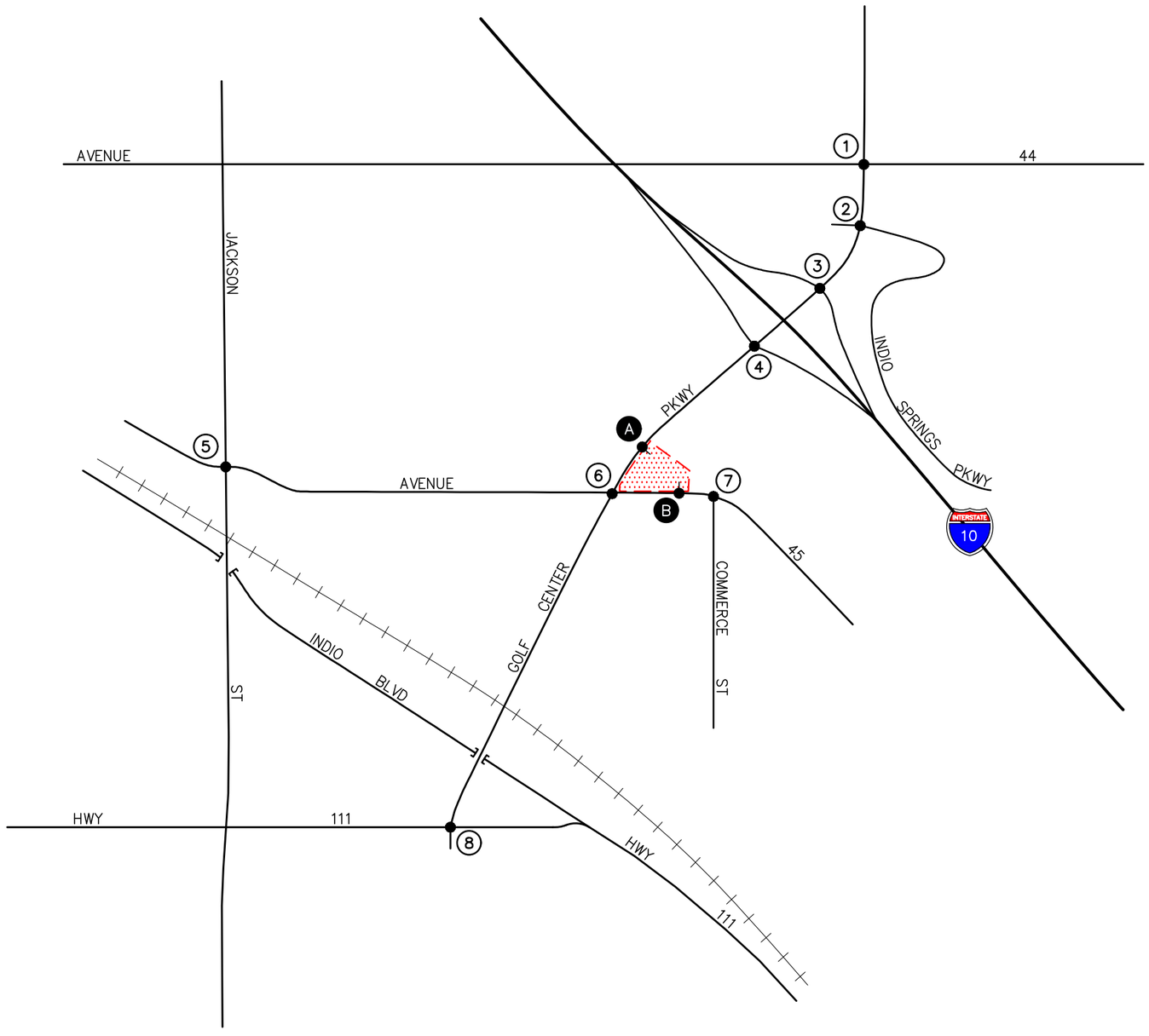
KEY

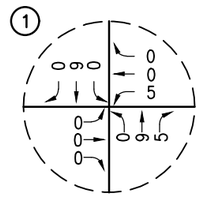
(#) = STUDY INTERSECTION
⟵ = INBOUND PERCENTAGE
⟵ = OUTBOUND PERCENTAGE
▭ = PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

MAVERIK FUELING STATION, INDIO





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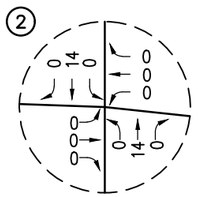

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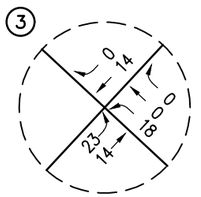

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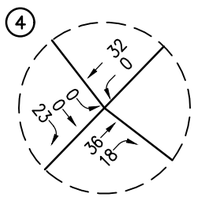

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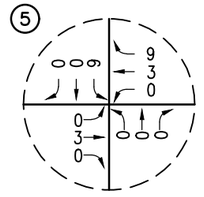

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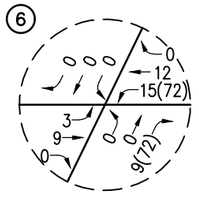

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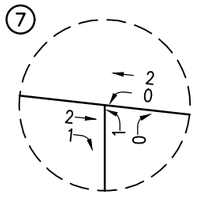

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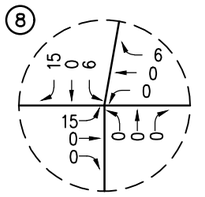

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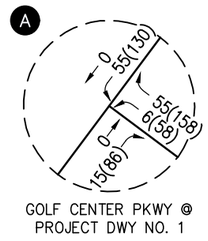

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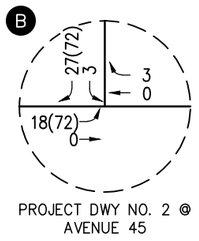

PROJECT DWY NO. 2 @
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KEY

(#) = STUDY INTERSECTION
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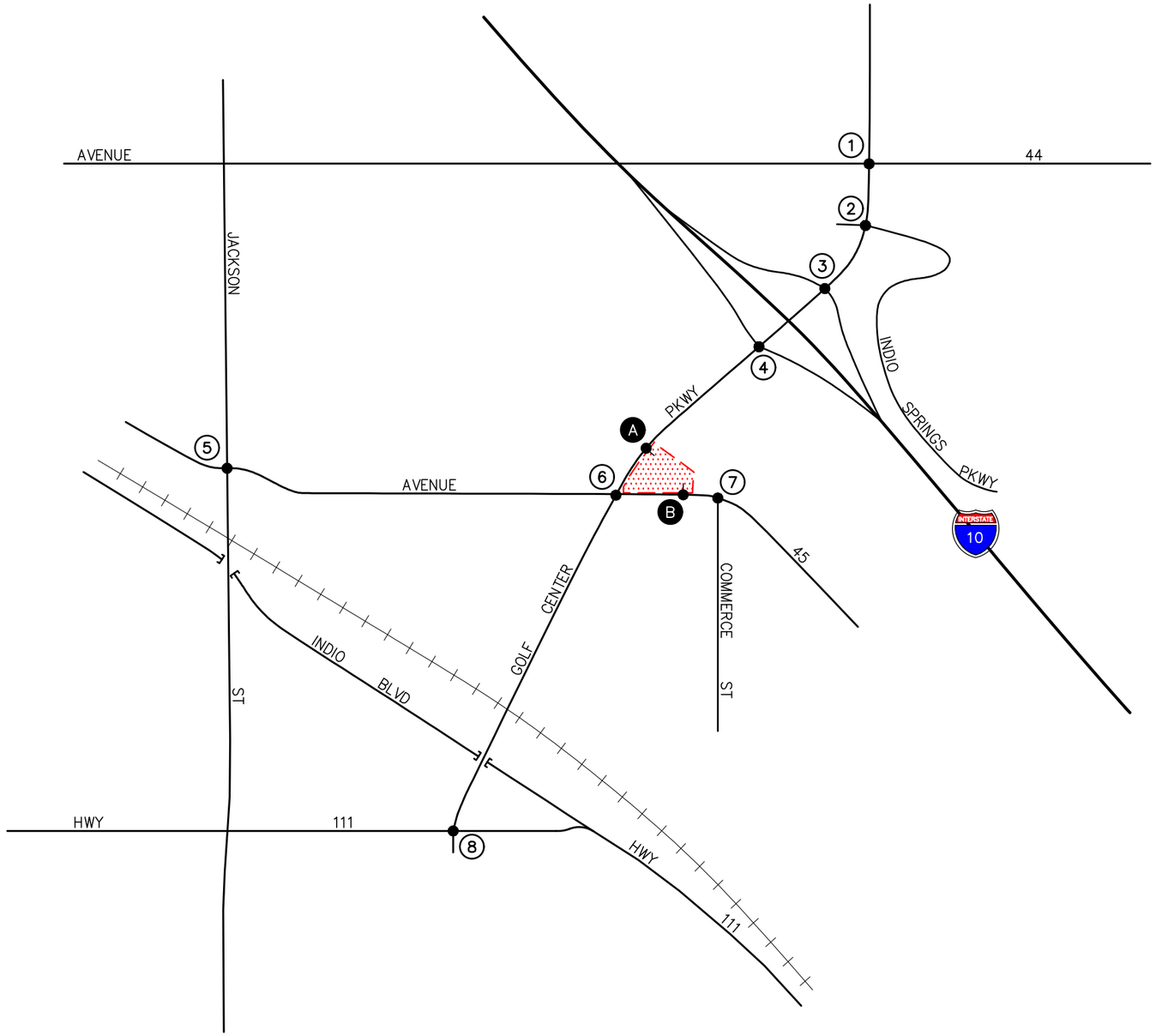
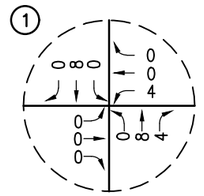
FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO





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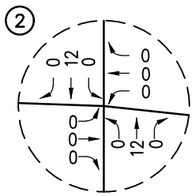

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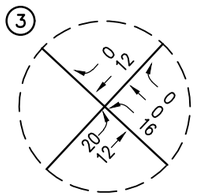

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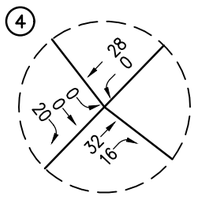

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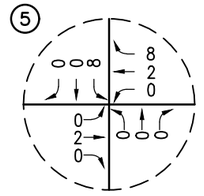

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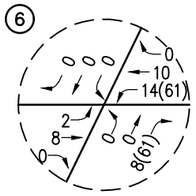
AVENUE 45



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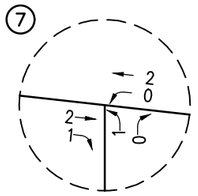
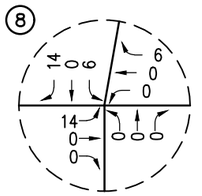


COMMERCE ST @
AVENUE 45



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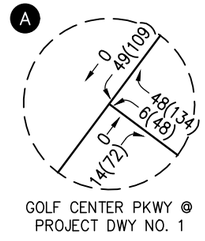

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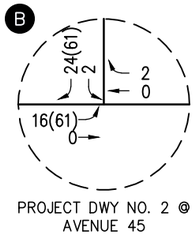

PROJECT DWY NO. 2 @
AVENUE 45

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N NO SCALE

KEY

(#) = STUDY INTERSECTION

(XX) = PASS-BY

= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR PROJECT TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

For future traffic conditions, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. Consistent with prior traffic studies conducted in the City of Indio, the future growth in traffic volumes has been calculated at two percent (2.0%) per year. Applied to existing Year 2024 traffic volumes results in four percent (4.0%) increase growth in existing volumes to horizon Year 2026.

6.2 Cumulative Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the Project, the status of other known development projects (cumulative projects) has been researched in the City of Indio. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development. Based on our research, there are fourteen (14) cumulative projects in the City of Indio that have either been built, but not yet fully occupied, or are being processed for approval. These fourteen (14) cumulative projects have been included as part of the cumulative background setting.

Table 6-1 provides the location and a brief description for each of the fourteen (14) cumulative projects. ***Figure 6-1*** graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the fourteen (14) cumulative projects. As shown in *Table 6-2*, the fourteen (14) cumulative projects are forecast to generate a combined total of 20,429 weekday daily trips, with 1,360 trips forecast during the AM peak hour and 1,397 trips forecast during the PM peak hour.

The anticipated AM peak hour and PM peak hour cumulative projects traffic volumes at the key study intersections are presented in ***Figures 6-2*** and ***6-3***, respectively. The traffic volume assignments presented in the above-mentioned figures reflect the traffic generation forecast presented in *Table 6-2*.

6.3 Year 2026 Traffic Volumes

Figures 6-4 and ***6-5*** present the AM and PM peak hour Existing With Ambient Growth With Project traffic volumes at the eight (8) key study intersections, respectively.

Figures 6-6 and ***6-7*** present the AM and PM peak hour Existing With Ambient Growth With Project With Cumulative Projects traffic volumes at the eight (8) key study intersections, respectively.

TABLE 6-1
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[5]

No.	Cumulative Project	Location/Address	Description
City of Indio			
1.	Starbucks	82710 Highway 11 Avenue	1,330 SF Coffee shop with drive thru
2.	West End Materials Supply	South of Enterprise Way and Commerce Street intersection	4,000 SF office/retail 9,030 SF warehouse 16,740 SF storage building
3.	Golden Triangle BP	West corner of Market Street and Fleming Way intersection	27,000 SF warehouse building
4.	The Greens	Northeast corner of Jackson Street and Avenue 42 intersection	3,750 SF coffee shop with drive thru 3,996 SF restaurant 4,562 SF fast food restaurant with drive thru 980 SF coffee shop with drive thru
5.	FIND Food Bank	83765 Citrus Avenue	39,680 SF warehouse 12,090 SF two-story office
6.	West Coast Self Storage	Northeast corner of Drive Carreon Boulevard and Calhoun Street intersection	62,000 SF self-storage
7.	Tower Market	Northwest corner of Monroe Street and Carreon Boulevard intersection	6 VFP Gas Station 5,578 SF convenience store
8.	Indio Canyon	South of Avenue 43 and Calhoun Street intersection	1,200 DU Multi Family Residential
9.	Indio Gas Station Urban Plaza	Southwest corner of Indio Boulevard and Flower Street intersection	8 VFP Gas Station 2,038 SF convenience store
10.	Indio Public Safety Campus	Northeast corner of Jackson Street and Drive Carreon Boulevard	22,596 SF government office 7,336 SF dispatch center 13,445 SF Fire Station
11.	Palmera	North corner and Southeast corner of Requa Avenue and Rubidoux Street intersection	241 DU multi-family residential 105 DU townhomes
12.	City Hall and Library	Northwest corner of Civic Center Drive and Smurr Street intersection	Demolition of existing Civic Center Campus Construction of 38,285 SF City Hall and 7,064 SF Library

Notes:
- SF = Square-feet
- DU = Dwelling units
- VFP = Vehicle Fueling Position

[5] Source: City of Indio Planning Department.

TABLE 6-1
LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[6]

No.	Cumulative Project	Location/Address	Description
City of Indio			
13.	Skyline	Northwest corner of Bliss Avenue and Oasis Street intersection	7,618 SF commercial 61 DU multifamily apartments
14.	Ashai 30-Unit Building	45733 Oasis Street	40 DU multifamily apartments 3,031 SF commercial

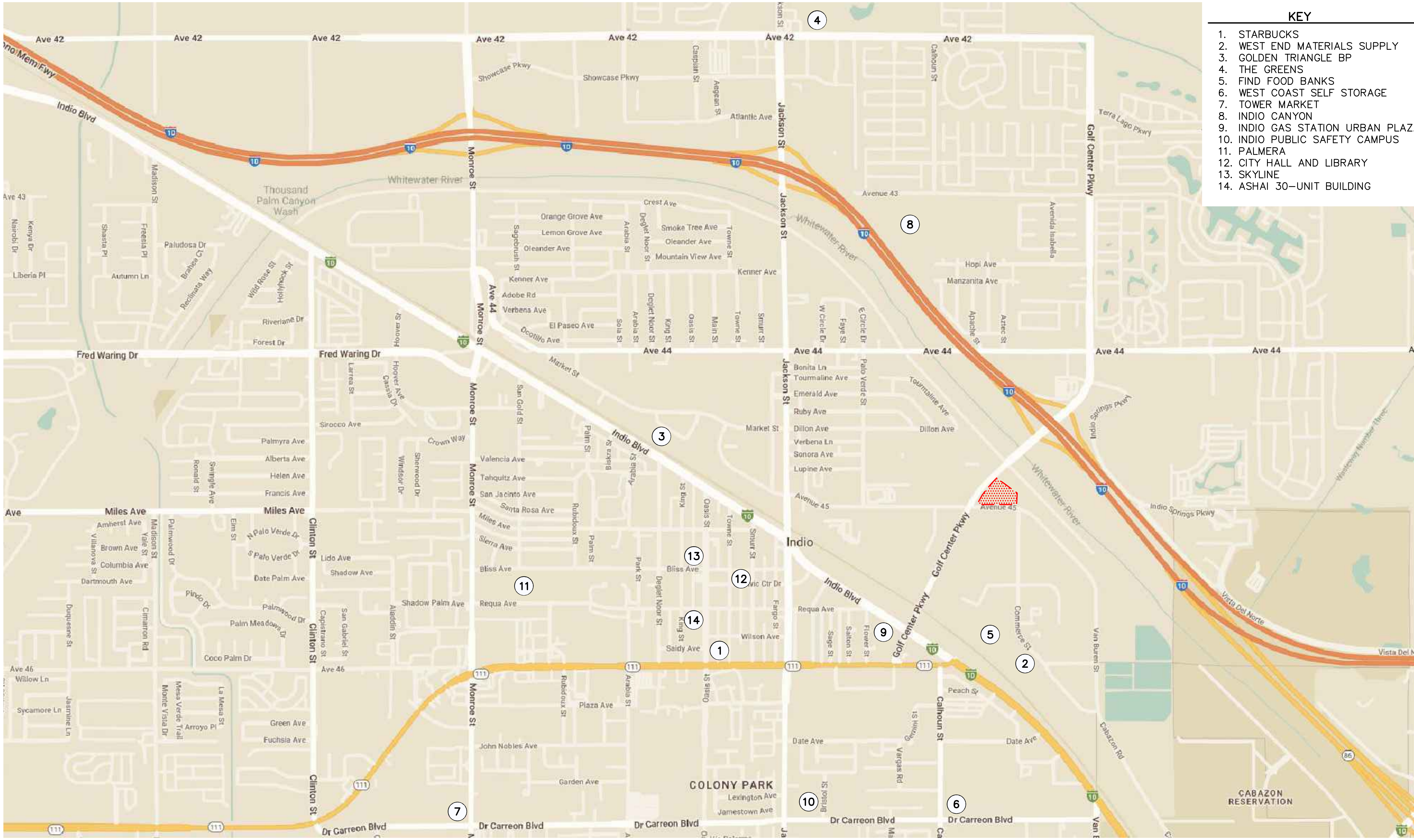
Notes:
- SF = Square-feet
- DU = Dwelling units
- VFP = Vehicle Fueling Position

[6] Source: City of Indio Planning Department.

TABLE 6-2
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[7]

Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1. Starbucks	177	14	14	28	6	7	13
2. West End Materials Supply	97	9	2	11	5	9	14
3. Golden Triangle BP	46	4	1	5	1	4	5
4. The Greens	2,936	123	114	237	72	62	134
5. FIND Food Bank	199	21	4	25	5	19	24
6. West Coast Self Storage	90	4	2	6	4	5	9
7. Tower Market	1,556	38	38	76	36	35	71
8. Indio Canyon	8,088	115	365	480	386	226	612
9. Indio Gas Station Urban Plaza	1,591	26	25	51	33	32	65
10. Indio Public Safety Campus	741	79	27	106	15	42	57
11. Palmera	2,332	33	105	138	111	66	177
12. City Hall and Library	1,374	101	34	135	44	79	123
13. Skyline	784	16	24	40	35	26	61
14. Ashai 30-Unit Building	418	8	14	22	19	13	32
Cumulative Projects Total Trip Generation Potential	**20,429**	**591**	**769**	**1,360**	**772**	**625**	**1,397**

[7] Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).



KEY

1. STARBUCKS
2. WEST END MATERIALS SUPPLY
3. GOLDEN TRIANGLE BP
4. THE GREENS
5. FIND FOOD BANKS
6. WEST COAST SELF STORAGE
7. TOWER MARKET
8. INDIO CANYON
9. INDIO GAS STATION URBAN PLAZA
10. INDIO PUBLIC SAFETY CAMPUS
11. PALMERA
12. CITY HALL AND LIBRARY
13. SKYLINE
14. ASHAI 30–UNIT BUILDING

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LLG NO SCALE

KEY

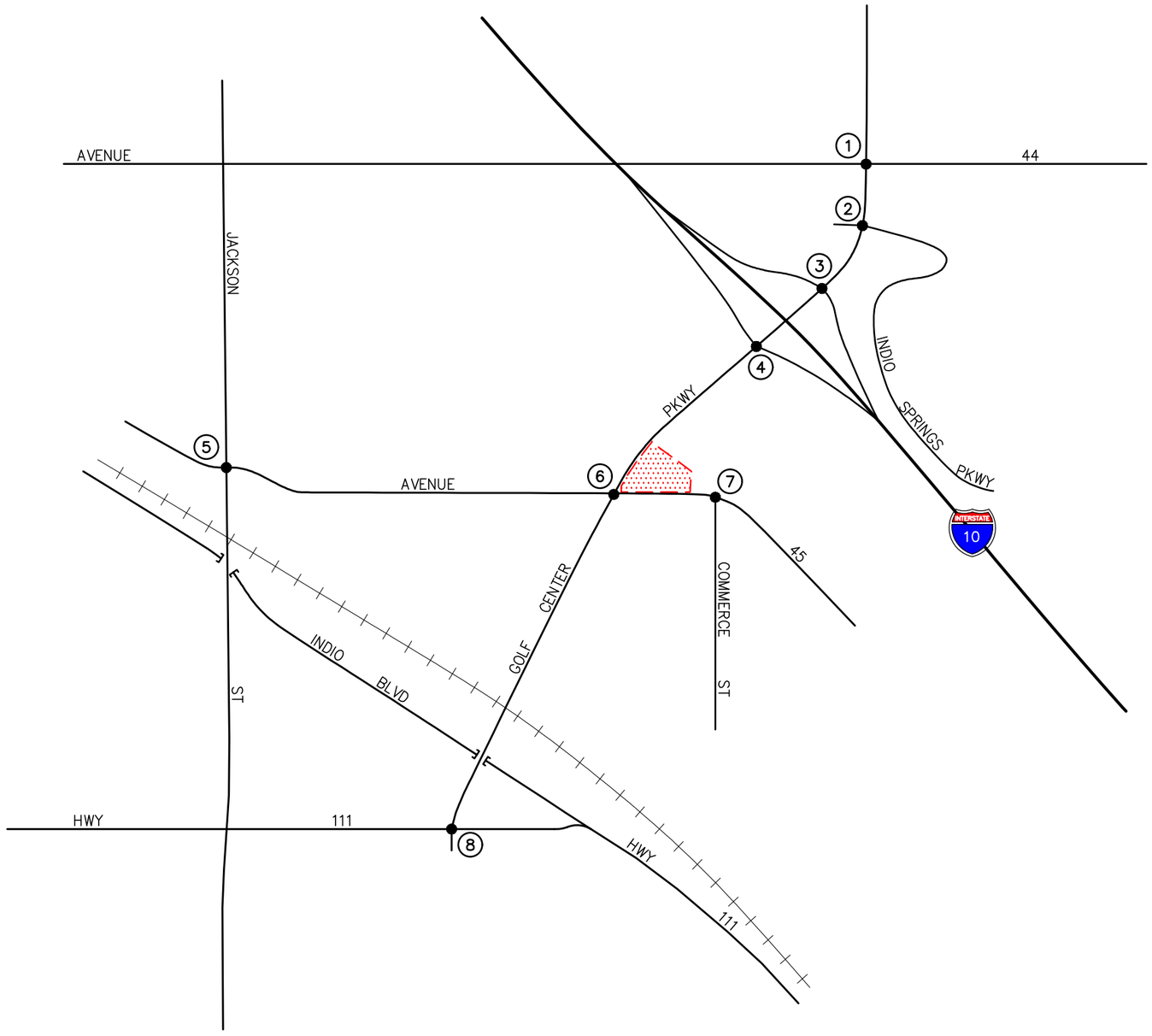
(#) = LOCATION OF CUMULATIVE PROJECT

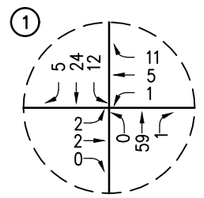
= PROJECT SITE

FIGURE 6–1

CUMULATIVE PROJECT LOCATION MAP

MAVERIK FUELING STATION, INDIO





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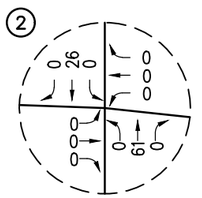
AVENUE 44



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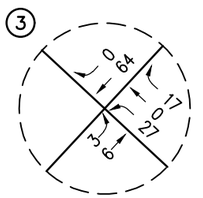

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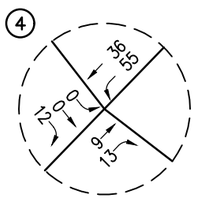

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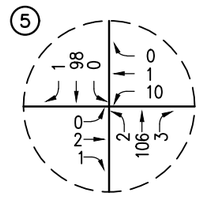

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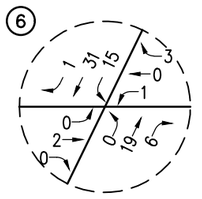

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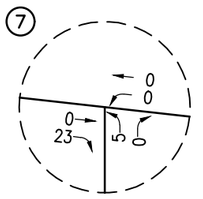

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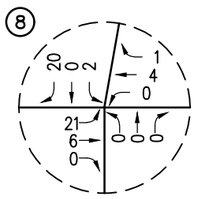

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LLG

N NO SCALE

KEY

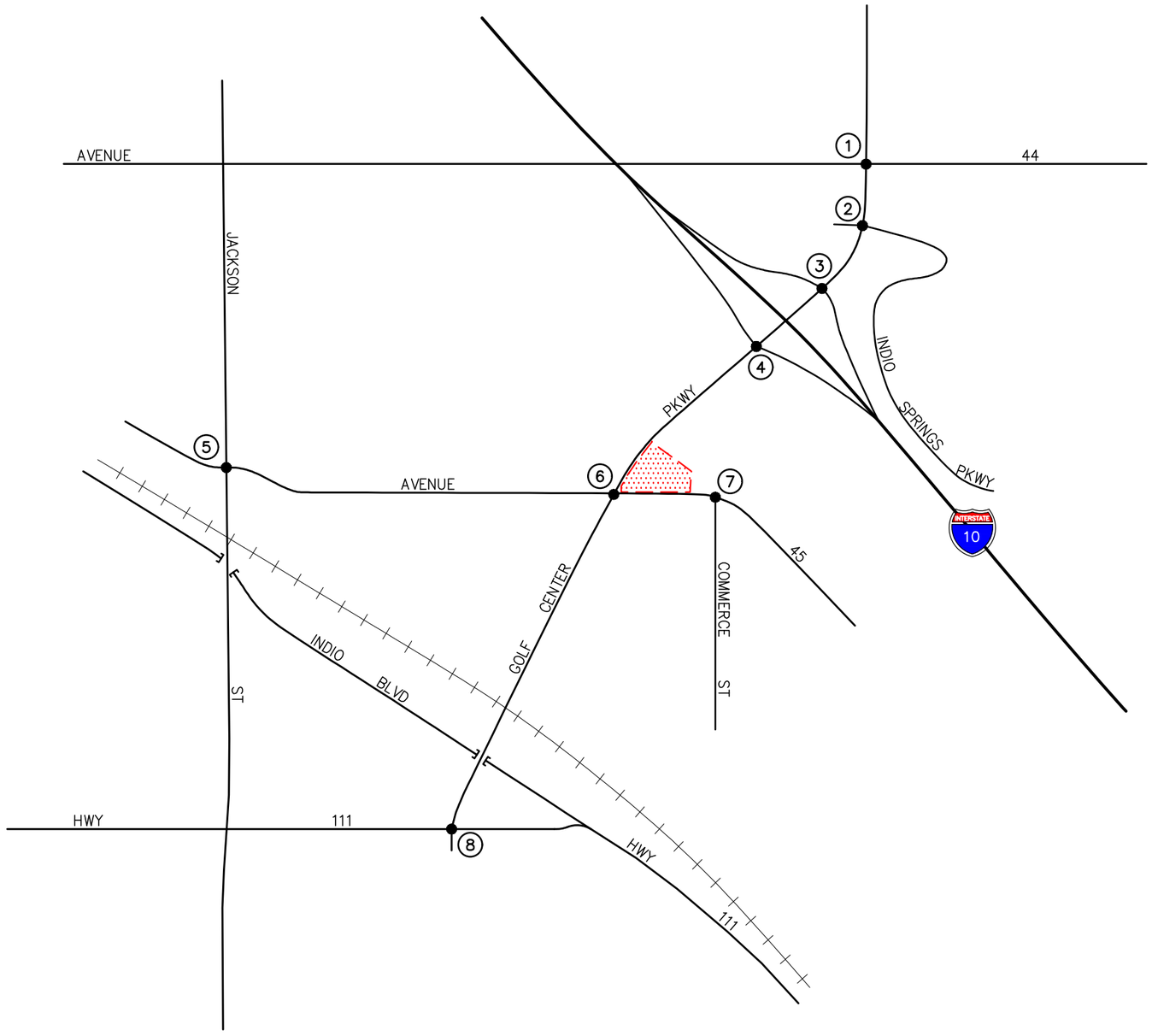
(#) = STUDY INTERSECTION

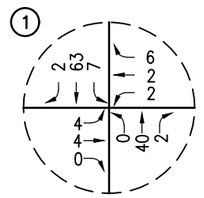
= PROJECT SITE

FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO





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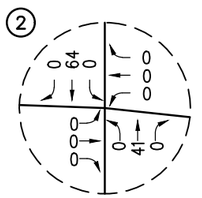

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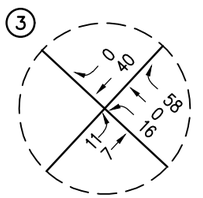

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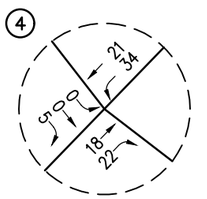

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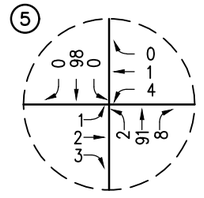
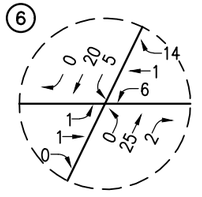


JACKSON ST @
AVENUE 45



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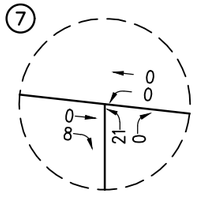

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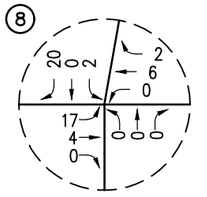

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N NO SCALE

KEY

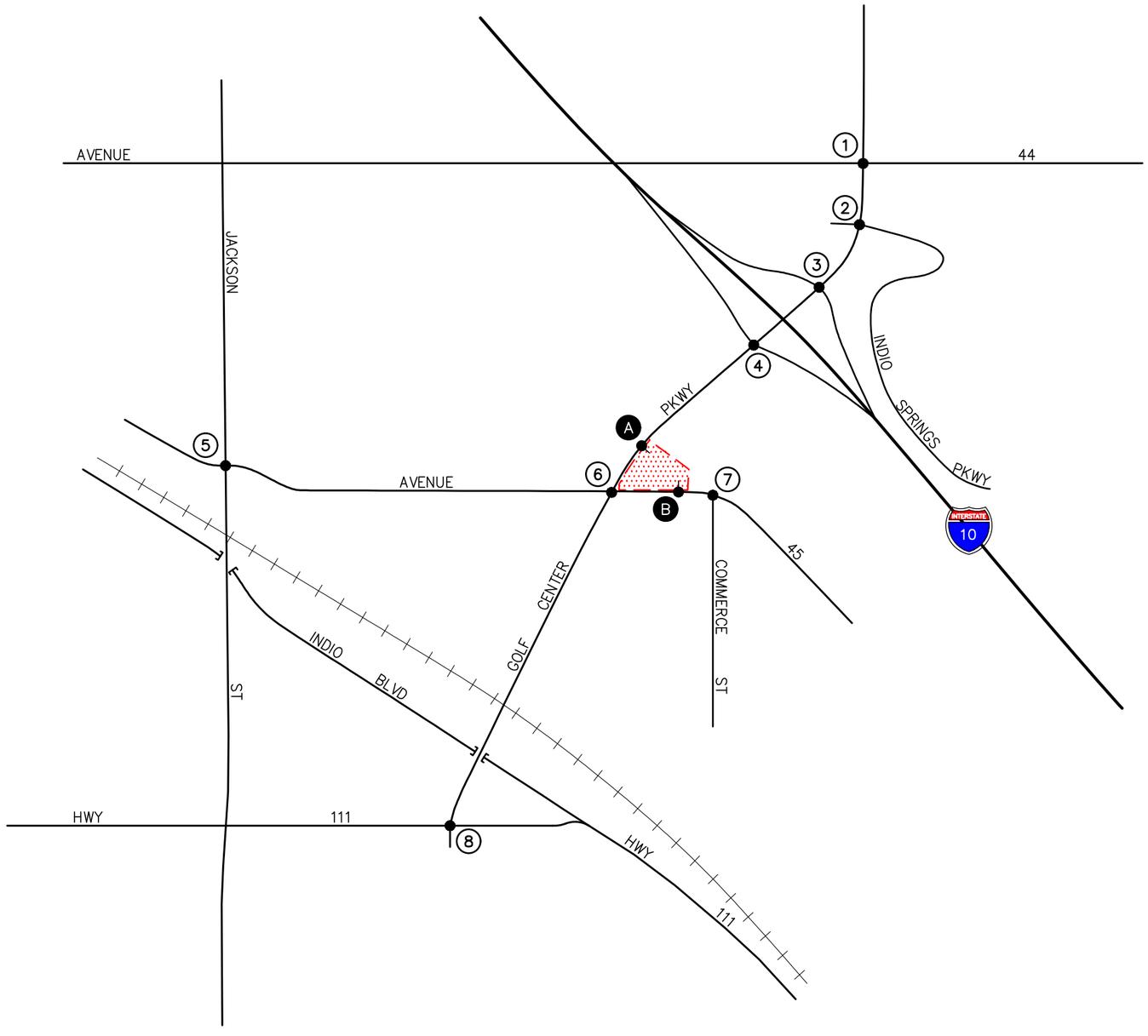
(#) = STUDY INTERSECTION

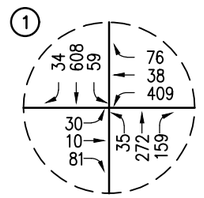
= PROJECT SITE

FIGURE 6-3

PM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO





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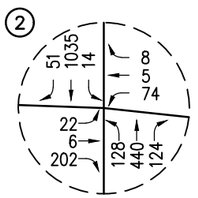

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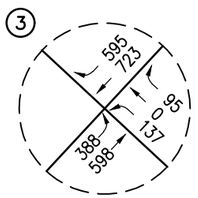

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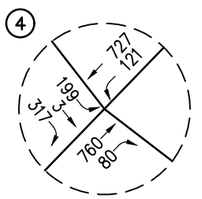

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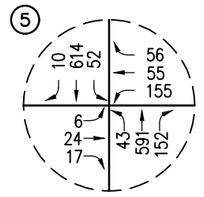

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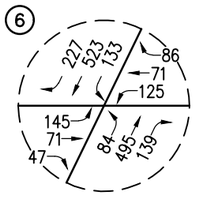

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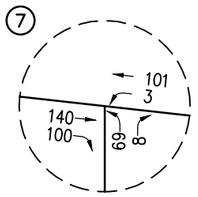

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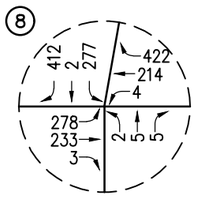

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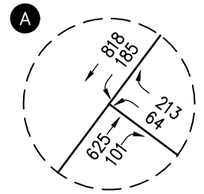

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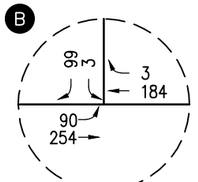


PROJECT DWY NO. 2 @
AVENUE 45

KEY

(#) = STUDY INTERSECTION

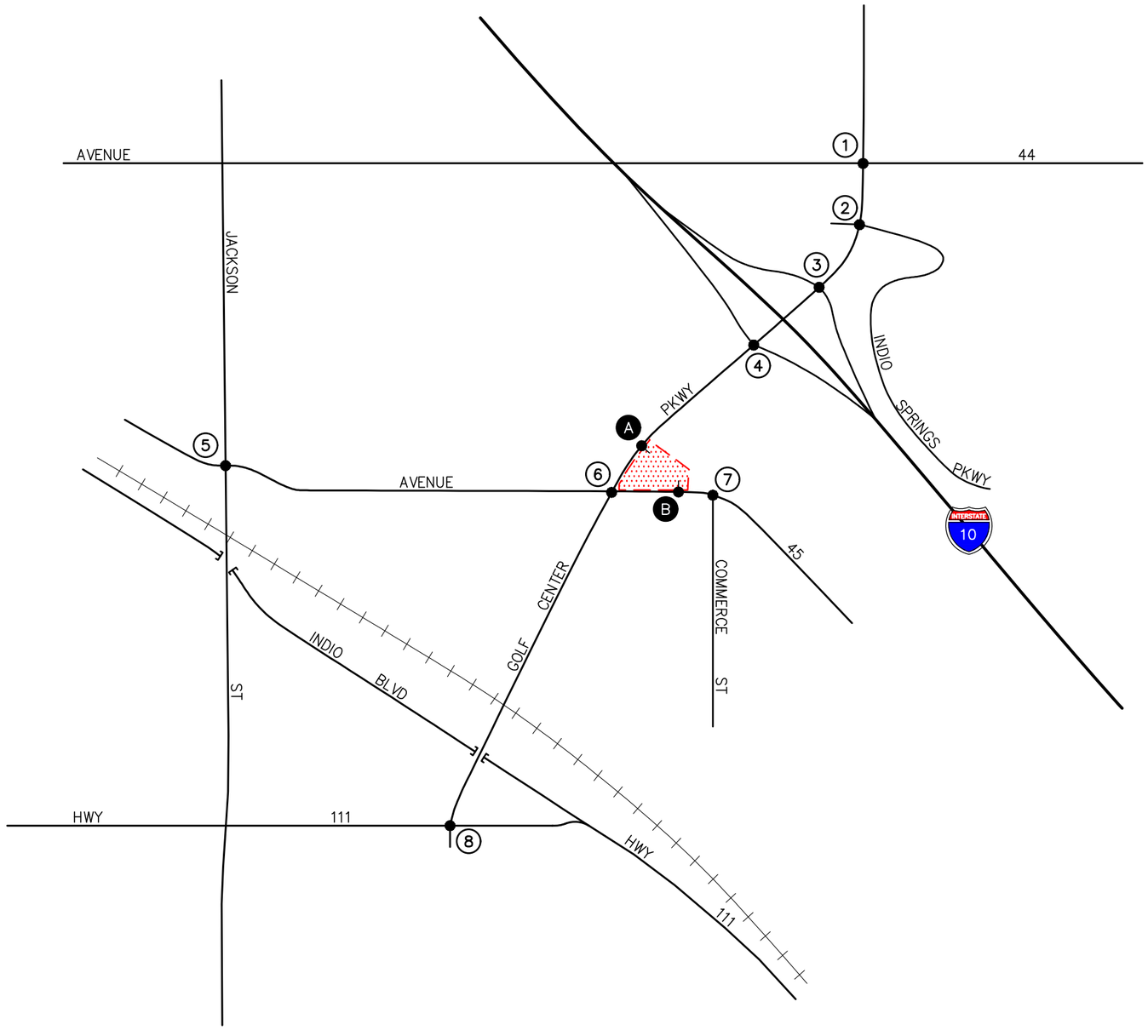
= PROJECT SITE

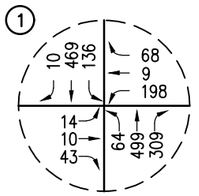
NO SCALE

FIGURE 6-4

EXISTING WITH AMBIENT GROWTH WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO





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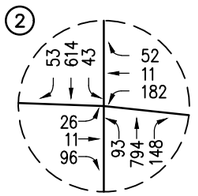
AVENUE 44



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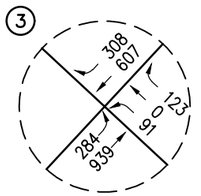

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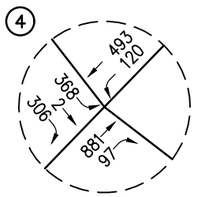

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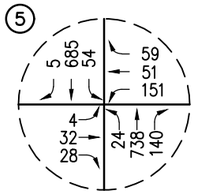
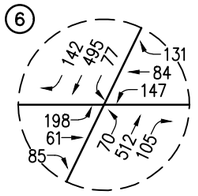


JACKSON ST @
AVENUE 45



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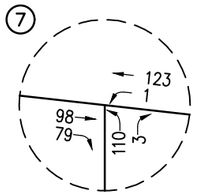
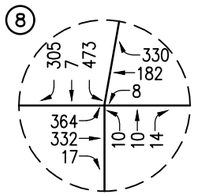


COMMERCE ST @
AVENUE 45



GOLF CENTER PKWY @
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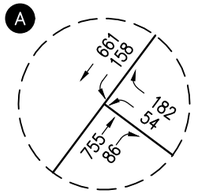

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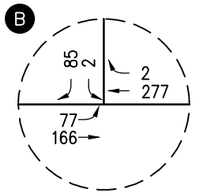


PROJECT DWY NO. 2 @
AVENUE 45

LLG

N NO SCALE

KEY

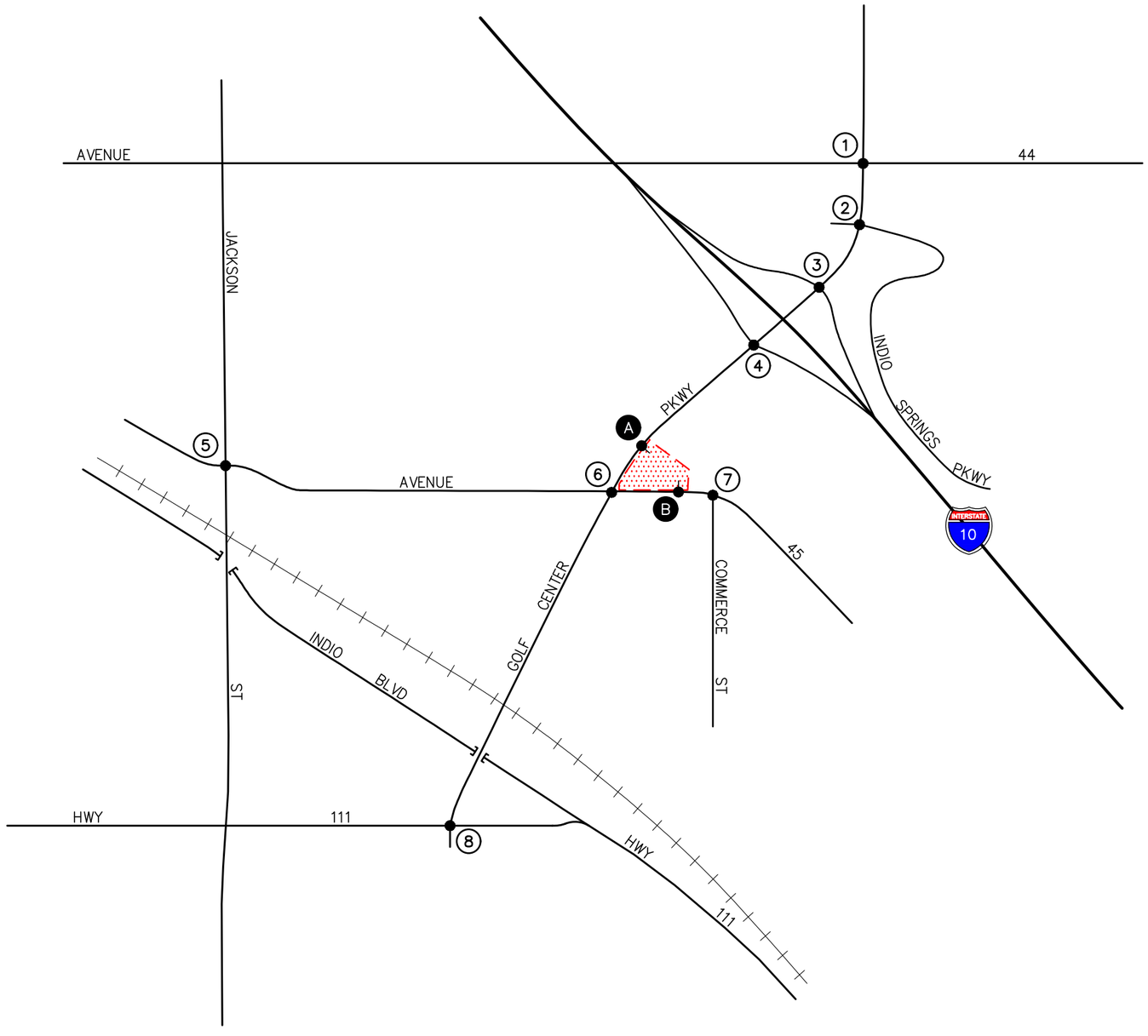
(#) = STUDY INTERSECTION

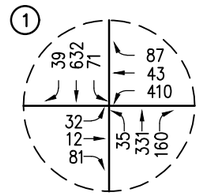
= PROJECT SITE

FIGURE 6-5

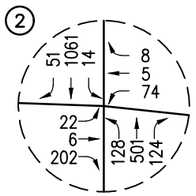
EXISTING WITH AMBIENT GROWTH WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

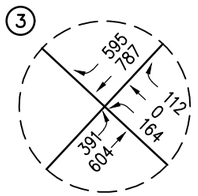




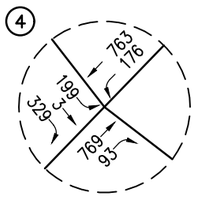
GOLF CENTER PKWY @
AVENUE 44



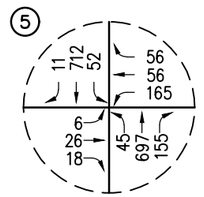
GOLF CENTER PKWY @
INDIO SPRINGS PKWY



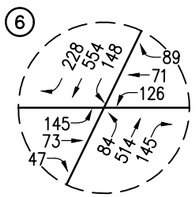
GOLF CENTER PKWY @
I-10 WB RAMPS



GOLF CENTER PKWY @
I-10 EB RAMPS



JACKSON ST @
AVENUE 45



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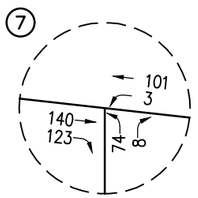
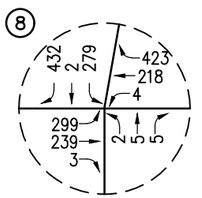
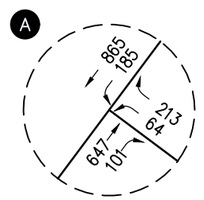


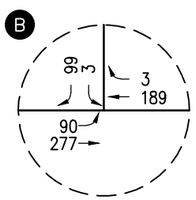
COMMERCE ST @
AVENUE 45



GOLF CENTER PKWY @
HWY 111



GOLF CENTER PKWY @
PROJECT DWY NO. 1



PROJECT DWY NO. 2 @
AVENUE 45

LLG

N NO SCALE

KEY

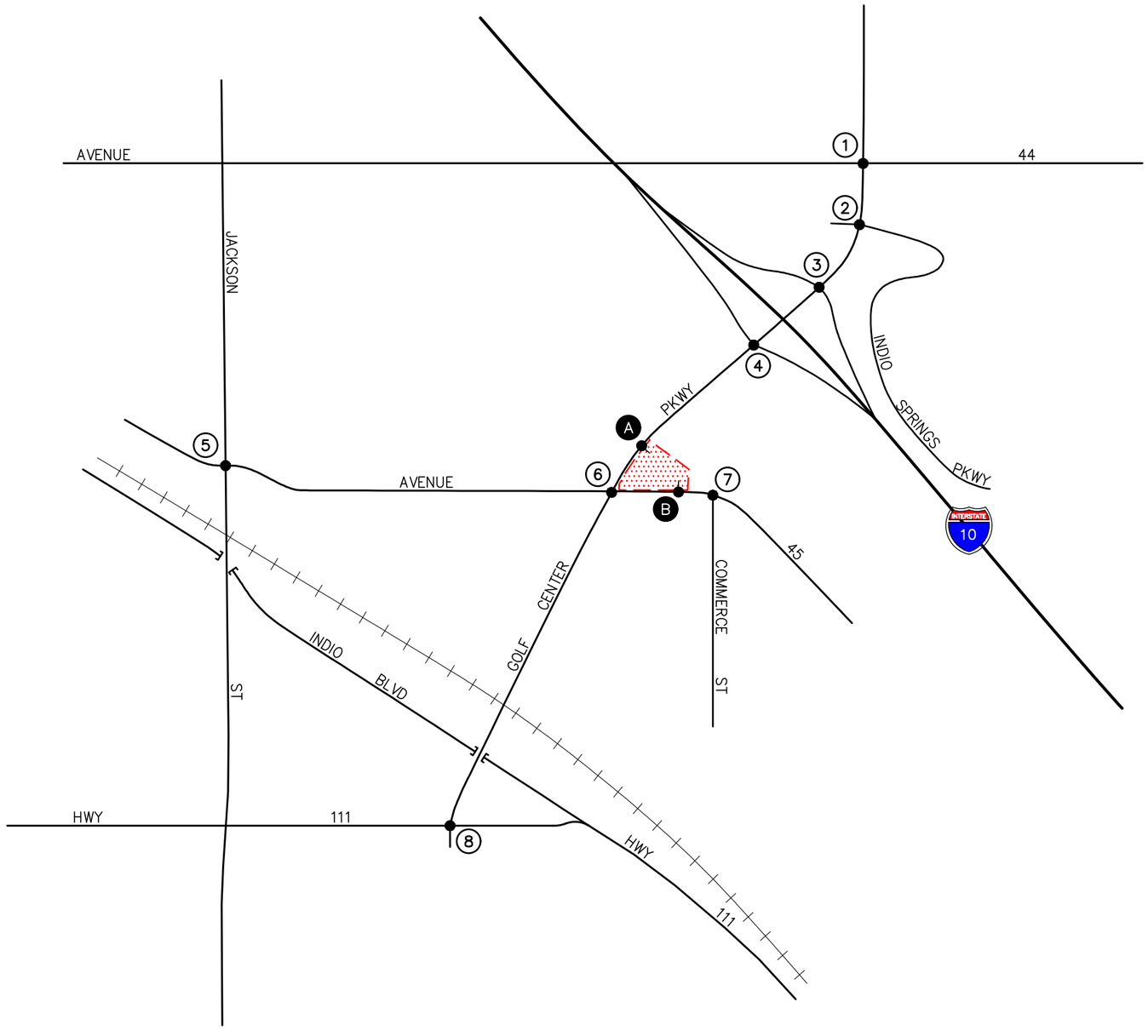
(#) = STUDY INTERSECTION

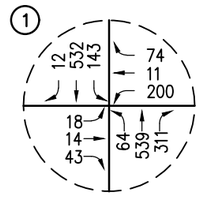
= PROJECT SITE

FIGURE 6-6

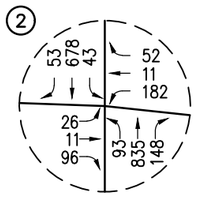
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS AM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

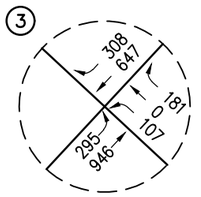




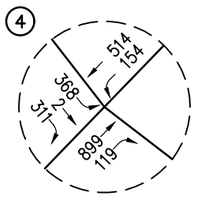
GOLF CENTER PKWY @
AVENUE 44



GOLF CENTER PKWY @
INDIO SPRINGS PKWY



GOLF CENTER PKWY @
I-10 WB RAMPS



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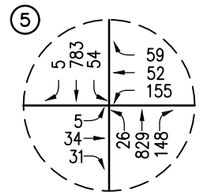
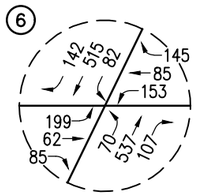
I-10 EB RAMPS



JACKSON ST @
AVENUE 45



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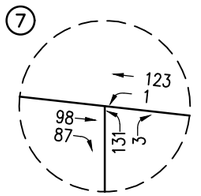
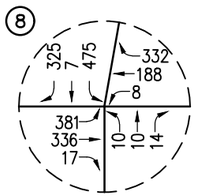
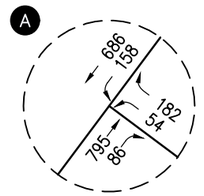


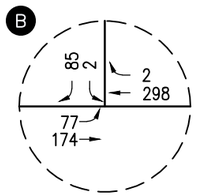
COMMERCE ST @
AVENUE 45



GOLF CENTER PKWY @
HWY 111



GOLF CENTER PKWY @
PROJECT DWY NO. 1



PROJECT DWY NO. 2 @
AVENUE 45

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

NO SCALE

FIGURE 6-7

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PM PEAK HOUR TRAFFIC VOLUMES

MAVERIK FUELING STATION, INDIO

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

The relative impact of the proposed Project during the AM peak hour and PM peak hour was evaluated based on analysis of future operating conditions at the key study intersections, without, then with, the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential impacts of the Project at each key intersection was then evaluated using the following traffic impact criteria.

- Based on the City of Indio level of service and impact criteria, LOS "D" is the minimum acceptable LOS required at the key study intersections.

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which HCM calculations have been performed at the key study intersections for existing and near-term (Year 2026) traffic conditions:

A. Existing Traffic Conditions;
B. Existing With A.G. (Ambient Growth) to the Year 2026 With Project Traffic Conditions;
C. Scenario (B) with Improvements, if necessary;
D. Existing With A.G. (Ambient Growth) to the Year 2026 With Project With Cumulative Projects Traffic Conditions; and
E. Scenario (D) with Improvements, if necessary.

8.0 EXISTING WITH A.G. WITH PROJECT TRAFFIC CONDITIONS

Table 8-1 summarizes the peak hour level of service results at the eight (8) key study intersections for "Existing With Ambient Growth With Project" traffic conditions. The first column (1) of HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) lists Existing With Ambient Growth (Year 2026) With Project traffic conditions. The third column (3) shows the increase in delay value and indicates whether the traffic associated with Project will result in a deficiency based on the LOS standards and criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

8.1 Existing Traffic Conditions

Review of column (1) of *Table 8-1* indicates that for Existing traffic conditions, the intersection of Golf Center Parkway/Lorraine Street at Highway 111 currently operates at an unacceptable LOS during the AM and PM peak hours. The remaining seven (7) key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

Appendix C presents the Existing HCM/LOS calculations for the eight (8) key study intersections.

8.2 Existing With Ambient Growth With Project Traffic Conditions

Review of column (2) of *Table 8-1* indicates that one (1) of the eight (8) key study intersections is forecast to operate at unacceptable levels of service with the addition of Project traffic based on the LOS standards and criteria mentioned in this report. The remaining seven (7) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours under Existing With Ambient Growth With Project traffic conditions. The intersection forecast to operate at an adverse LOS is as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	Delay (s/v)	LOS	Delay (s/v)	LOS
8. Golf Center Pkwy/Lorraine Street at Highway 111	119.7	F	123.0	F

Review of column (3) indicates that one (1) intersection will operate at deficient levels of service when compared to the LOS criteria detailed in this report. However, as shown in column (4) of *Table 8-1*, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Appendix C presents the Existing With Ambient Growth With Project HCM/LOS calculations for the eight (8) key study intersections.

TABLE 8-1

EXISTING WITH AMBIENT GROWTH WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[8]

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2026) With Project Traffic Conditions		(3) Deficiency		(4) Existing With A.G. (Year 2026) With Project With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
1. Golf Center Parkway at Avenue 44	AM	LOS D	20.8	C	21.7	C	0.9	No	--	--
	PM		14.1	B	14.5	B	0.4	No	--	--
2. Golf Center Parkway at Chandi's Way/Indio Springs Parkway	AM	LOS D	23.6	C	24.6	C	1.0	No	--	--
	PM		19.2	B	19.4	B	0.2	No	--	--
3. Golf Center Parkway at I-10 WB Ramps	AM	LOS D	24.8	C	29.0	C	4.2	No	--	--
	PM		14.5	B	15.4	B	0.9	No	--	--
4. Golf Center Parkway at I-10 EB Ramps	AM	LOS D	18.4	B	19.3	B	0.9	No	--	--
	PM		21.3	C	21.9	C	0.6	No	--	--
5. Jackson Street at Avenue 45	AM	LOS D	17.9	B	18.8	B	0.9	No	--	--
	PM		16.7	B	17.4	B	0.7	Yes	--	--
6. Golf Center Parkway at Avenue 45	AM	LOS D	20.0	B	21.0	C	1.0	No	--	--
	PM		22.0	C	22.0	C	0.0	No	--	--
7. Commerce Street at Avenue 45	AM	LOS D	10.4	B	10.5	B	0.1	No	--	--
	PM		10.7	B	10.8	B	0.1	No	--	--
8. Golf Center Parkway/Lorraine Street at Highway 111	AM	LOS D	**100.3**	**F**	**119.7**	**F**	**19.4**	**Yes**	52.1	D
	PM		**92.0**	**F**	**123.0**	**F**	**31.0**	**Yes**	49.8	D

Notes:

- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- s/v = seconds per vehicle

[8] **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

9.0 EXISTING WITH A.G. WITH PROJECT WITH CUMULATIVE TRAFFIC CONDITIONS

Table 9-1 summarizes the peak hour level of service results at the eight (8) key study intersections for "Existing With Ambient Growth With Project With Cumulative Projects" traffic conditions. The first column (1) of HCM/LOS values in *Table 9-1* presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) lists Existing With Ambient Growth (Year 2026) With Project With Cumulative Projects traffic conditions. The third column (3) shows the increase in delay value and indicates whether the traffic associated with Project will result in a deficiency based on the LOS standards and criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

9.1 Existing With A.G. With Project With Cumulative Projects Traffic Conditions

Review of column (2) of *Table 9-1* indicates that one (1) of the eight (8) key study intersections is forecast to operate at unacceptable levels of service with the addition of Project traffic based on the LOS standards and criteria mentioned in this report. The remaining seven (7) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. The location forecast to operate at an adverse LOS is as follows:

	AM Peak Hour		PM Peak Hour	
Key Intersection	Delay (s/v)	LOS	Delay (s/v)	LOS
8. Golf Center Pkwy/Lorraine Street at Highway 111	127.2	F	117.9	F

Review of column (3) indicates that one (1) intersection will operate at deficient levels of service when compared to the LOS criteria detailed in this report. However, as shown in column (4) of *Table 9-1*, the implementation of recommended improvements at the deficient location improves this intersection to acceptable service levels.

Appendix C also presents the Existing With Ambient Growth With Project With Cumulative Projects HCM/LOS calculations for the eight (8) key study intersections.

TABLE 9-1

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[9]

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2026) With Project With Cumulative Traffic Conditions		(3) Deficiency		(4) Existing With A.G. (Year 2026) With Project With Cumulative With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
1. Golf Center Parkway at Avenue 44	AM	LOS D	20.8	C	22.0	C	1.2	No	--	--
	PM		14.1	B	14.8	B	0.7	No	--	--
2. Golf Center Parkway at Chandi's Way/Indio Springs Parkway	AM	LOS D	23.6	C	24.6	C	1.0	No	--	--
	PM		19.2	B	19.4	B	0.2	No	--	--
3. Golf Center Parkway at I-10 WB Ramps	AM	LOS D	24.8	C	36.2	D	11.4	No	--	--
	PM		14.5	B	17.7	B	3.2	No	--	--
4. Golf Center Parkway at I-10 EB Ramps	AM	LOS D	18.4	B	21.2	C	2.8	No	--	--
	PM		21.3	C	23.0	C	1.7	No	--	--
5. Jackson Street at Avenue 45	AM	LOS D	17.9	B	19.4	B	1.5	No	--	--
	PM		16.7	B	18.1	B	1.4	No	--	--
6. Golf Center Parkway at Avenue 45	AM	LOS D	20.0	B	21.1	C	1.1	No	--	--
	PM		22.0	C	23.8	C	1.8	No	--	--
7. Commerce Street at Avenue 45	AM	LOS D	10.4	B	10.7	B	0.3	No	--	--
	PM		10.7	B	11.1	B	0.4	No	--	--
8. Golf Center Parkway/Lorraine Street at Highway 111	AM	LOS D	**100.3**	**F**	**127.2**	**F**	**26.9**	**Yes**	34.2	D
	PM		**92.0**	**F**	**117.9**	**F**	**25.9**	**Yes**	42.6	D

Notes:

- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- s/v = seconds per vehicle

[9] **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

10.0 RECOMMENDED IMPROVEMENTS

For the intersections where future traffic volumes are expected to result in poor operating conditions, this report recommends (identifies) improvements, which change the geometry to increase capacity. These capacity improvements usually involve roadway widening and/or restriping to reconfigure or add lanes to various approaches of a key intersection. The proposed improvements are expected to address deficient levels of service.

Figures 10-1 and ***10-2*** present the recommended traffic improvements for the key study intersections for Existing With Ambient Growth With Project traffic conditions and Existing With Ambient Growth With Project With Cumulative Projects traffic conditions, respectively. These improvements are discussed in more detail in the sections below.

10.1 Existing With Ambient Growth With Project Traffic Conditions

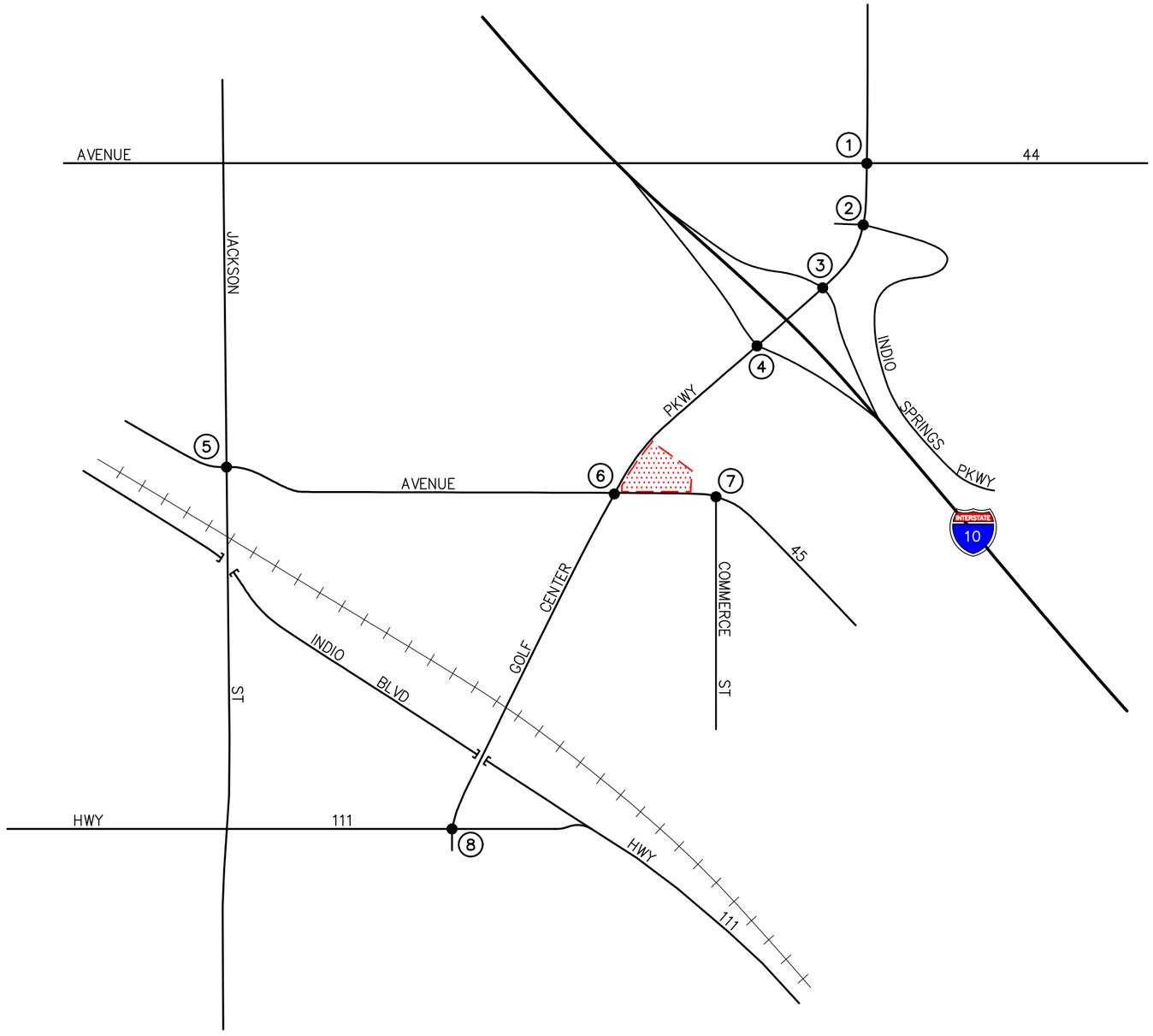
The following improvements listed below have been identified to offset the effect of ambient growth traffic and Project traffic, and improve levels of service to an acceptable range for Existing With Ambient Growth With Project traffic conditions:

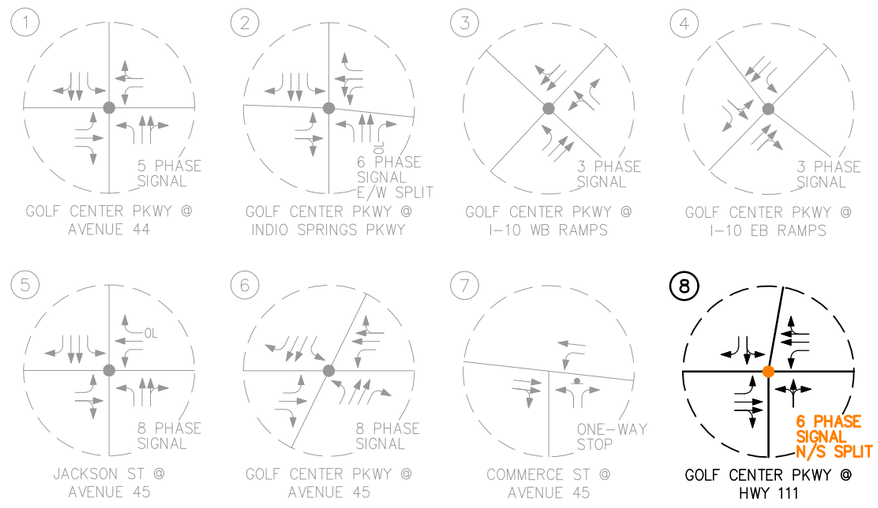
- Intersection 8. Golf Center Parkway/Lorraine Street at Highway 111: Convert existing five-phase operation traffic signal to six phase operation with split-phasing on Golf Center Parkway/Lorraine Street.

10.2 Existing With A.G. With Project With Cumulative Projects Traffic Conditions

The following improvements listed below have been identified to offset the effect of ambient growth traffic, cumulative traffic, and Project traffic, and improve levels of service to an acceptable range for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions:

- Intersection 8. Golf Center Parkway/Lorraine Street at Highway 111: Convert existing five-phase operation traffic signal to six phase operation with split-phasing on Golf Center Parkway/Lorraine Street. Modify the traffic signal and provide southbound right-turn overlap phasing.





LLG

N NO SCALE

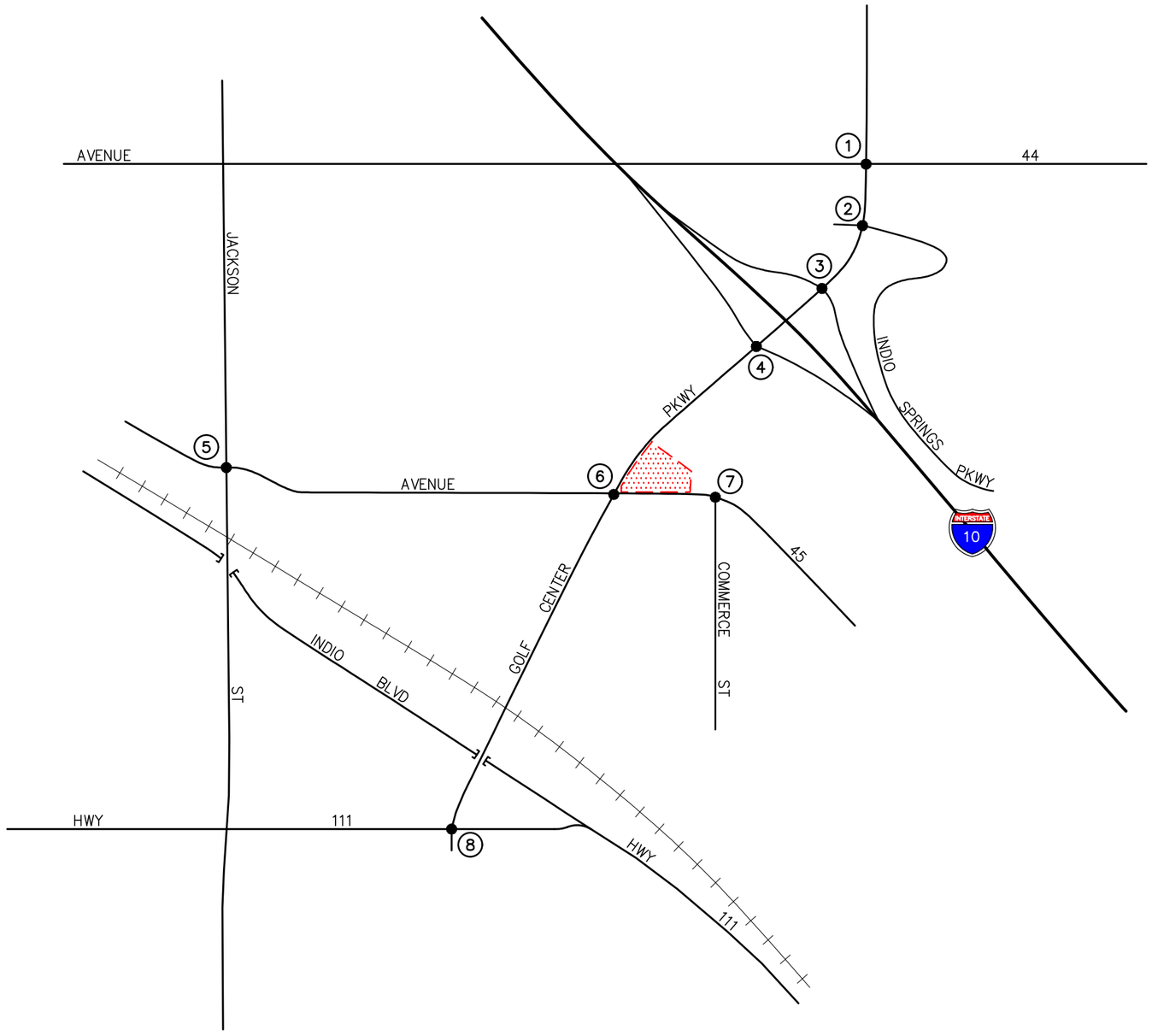
KEY

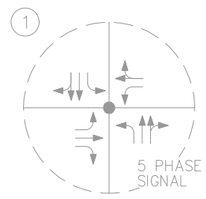
(#) = STUDY INTERSECTION
= APPROACH LANE ASSIGNMENT
= RECOMMENDED IMPROVEMENTS
= TRAFFIC SIGNAL, = STOP SIGN
OL = OVERLAP
= PROJECT SITE

FIGURE 10-1

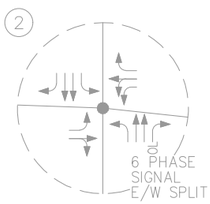
EXISTING WITH AMBIENT GROWTH WITH PROJECT RECOMMENDED IMPROVEMENTS

MAVERIK FUELING STATION, INDIO

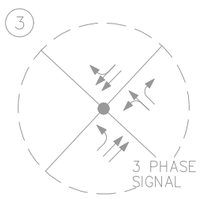




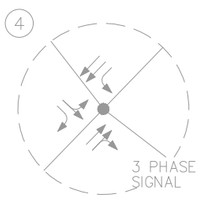
GOLF CENTER PKWY @ AVENUE 44



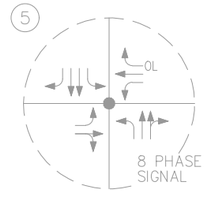
GOLF CENTER PKWY @ INDIO SPRINGS PKWY



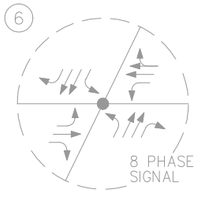
GOLF CENTER PKWY @ I-10 WB RAMPS



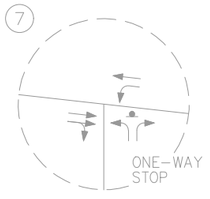
GOLF CENTER PKWY @ I-10 EB RAMPS



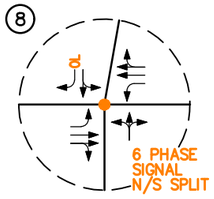
JACKSON ST @ AVENUE 45



GOLF CENTER PKWY @ AVENUE 45



COMMERCE ST @ AVENUE 45



GOLF CENTER PKWY @ HWY 111

n:\4800\2244810 - maverik gas station and c-store project, indio\dwg\4810 f10-2.dwg LDP 15:28:35 07-30-2024 aguilar

LLG

N NO SCALE

KEY

(#) = STUDY INTERSECTION
= APPROACH LANE ASSIGNMENT
= RECOMMENDED IMPROVEMENTS
= TRAFFIC SIGNAL, = STOP SIGN
OL = OVERLAP
= PROJECT SITE

FIGURE 10-2

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS RECOMMENDED IMPROVEMENTS

MAVERIK FUELING STATION, INDIO

11.0 PROJECT FAIR SHARE ANALYSIS

The transportation impacts associated with the development of the proposed Project were determined based on the future conditions analysis with the proposed Project. The key study locations forecast to operate at adverse levels of service under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions are discussed previously in *Section 10.0.* As such, the proposed Project's "fair share" of the recommended improvements has been calculated for the key study locations that are adversely impacted.

11.1 Existing With A.G. With Project With Cumulative Projects Traffic Conditions

Table 11-1 presents the AM and PM Project fair share percentages at the key study intersections that are forecast to operate at adverse levels of service for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. The first column (1) of *Table 11-1* presents the Project only traffic volumes. The second column (2) presents the existing traffic volumes at the intersection. The third column (3) presents the Existing With Ambient Growth With Project With Cumulative Projects traffic volumes. The fourth column (4) represents the Project fair share based on the following formula:

- Project Fair Share (4) = Column (1)/[Column (3) – Column (2)]*100

The Project fair share percentage (most adverse time period) for the deficient intersection for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions that require recommended improvements is shown below:

- 8. Golf Center Parkway/Lorraine Street at Highway 111 25.61%

TABLE 11-1
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS
TRAFFIC CONDITIONS FAIR SHARE CONTRIBUTION

Key Intersection	Impacted Time Period	(1) Project Only Volume	(2) Existing Volume	(3) Existing With A.G. (Year 2026) With Project With Cumulative Volume	(4) Project Fair Share Responsibility
8. Golf Center Parkway/Lorraine Street at Highway 111	AM	42	1,747	1,911	**25.61%**
	PM	40	1,936	2,103	23.95%

Notes:

- Project Fair Share (4) = Column (1) / [Column (3) – Column (2)]
- **Bold Project Fair Share Responsibility** is based on worse case

12.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

12.1 Level of Service Analysis for Project Access Locations

Table 12-1 summarizes the intersection operations at the two (2) proposed Project driveways for future traffic conditions with the proposed Project. As shown in column (1), the two (2) proposed Project driveways are forecast to operate at acceptable LOS D or better during the AM and PM peak hours under Existing With Ambient Growth With Project traffic conditions.

As shown in column (2), the two (2) proposed Project driveways are forecast to operate at acceptable LOS D or better during the AM and PM peak hours under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions.

Appendix D contains the detailed HCM/LOS calculation worksheets for the project driveways.

12.2 Internal Circulation Evaluation

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks, trash trucks and large trucks. Based on our review of the site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the Project is impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveways are also deemed adequate.

TABLE 12-1
PROJECT DRIVEWAY PEAK HOUR LEVELS OF SERVICE SUMMARY

Key Driveway		Control Type	Time Period	(1) Existing With A.G. (Year 2026) With Project Traffic Conditions		(2) Existing With A.G. (Year 2026) With Project With Cumulative Projects Traffic Conditions	
				Delay (s/v)	LOS	Delay (s/v)	LOS
A.	Golf Center Parkway at Project Driveway No. 1	One-Way Stop	AM	25.4	D	26.8	D
			PM	22.8	C	24.2	C
B.	Project Driveway No. 2 at Avenue 45	One-Way Stop	AM	9.5	B	9.5	B
			PM	9.7	B	9.8	B

Notes:

- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- s/v = seconds per vehicle

13.0 MULTIMODAL CIRCULATION

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate for drivers, pedestrians, and bicyclists.

Figure 13-1 illustrates the multimodal transportation (vehicular, pedestrian, bicycle) aspects of the Project site, including connections between sidewalks, signalized crosswalks, unsignalized crossings, and existing bicycle facilities.

Pedestrian connection to the surrounding commercial developments, as well as nearby public transit stops, is provided via existing sidewalks along the west side of Golf Center Parkway. The Project will construct sidewalks along the western Project frontage on Golf Center Parkway and the southern Project frontage on Avenue 45.

Consistent with the City of Indio General Plan *Planned Bicycle Network (Figure 4-1)*, Golf Center Parkway has an existing Class 2 Bike Lane. Avenue 45 west of Golf Center Parkway also has an existing Class 2 Bike Lane.

The Project will construct/protect/maintain the existing sidewalks and bike signage along the Project frontage, and if necessary, repair or reconstruct sidewalks/crossings along the Project frontage per the City's request.

Public transit bus service is provided in the Project area by SunLine Transit Agency. A description of the transit services within the Project vicinity are described below:

Route 8:

- Route 8 provides service from North Indio to Thermal/Mecca; via Showcase at Monroe, 5th at Vine, 62nd at Buchanan, and 66th at Date Palm.
- The route traverses the Cities of Indio and Coachella, as well as census designated places Thermal and Mecca.
- During the weekday and weekend AM and PM peak hours, Route 8 has an approximate headway of 60 minutes in the northbound and southbound directions.

Route 10:

- Route 10 is a commuter link that provides service from the SunLine Indio Facility to California State University San Bernardino Palm Desert Campus, Beaumont, California State University San Bernardino, and the San Bernardino Transit Center.
- The route traverses the Cities of Indio, Beaumont, and San Bernardino.
- During the weekday and weekend AM and PM peak hours, Route 10 has one bus in the eastbound and westbound directions.

Route 800:

- Route 800 provides "school tripper" services for Indio; via 111 at Golf Center, Jackson at Ave 42, and Ave 39 at Jefferson.

- The route traverses the City of Indio.
- During the weekday AM peak hour, Route 800 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

Route 802:

- Route 802 provides service for Indio; via Ave 39 at Jefferson, Ave 42 at Jackson, and 111 at Golf Center.
- The route traverses the City of Indio.
- During the weekday PM peak hour, Route 802 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

Route 803:

- Route 803 provides "school tripper" services for Indio; via Ave 44 at Jackson, Jackson at Ave 42, and Ave 39 at Jefferson.
- The route traverses the City of Indio.
- During the weekday AM peak hour, Route 803 offers two buses with an approximate headway of 5 minutes in the northbound and southbound directions.

SOURCE: GOOGLE

KEY

- = SIDEWALKS
- = SIGNALIZED CROSSING
- = UNSIGNALIZED CROSSING
- = CLASS 2 BIKE LANE
- = EXISTING
- = FUTURE TO BE CONSTRUCTED BY PROJECT

LLG

NO SCALE

FIGURE 13–1

MULTIMODAL PLAN

MAVERIK FUELING STATION, INDIO

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14.0 VEHICLE MILES TRAVELED (VMT) ASSESSMENT

On December 28, 2018, the California Natural Resources Agency adopted revised CEQA Guidelines. Among the changes to the guidelines was the removal of vehicle delay and LOS from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled. Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3. The City of Indio currently does not have its own Vehicle Miles Traveled (VMT) guidelines and therefore utilizes County of Riverside guidelines for VMT assessments. Specifically, the *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* has been utilized and provides screening criteria and methodology for VMT analysis. Under the Vehicle Miles Traveled (VMT) methodology, screening is used to determine if a project will be required to conduct a detailed VMT analysis. The following section discusses the various screening methods outlined in the aforementioned County of Riverside guidelines and outlines whether the proposed Project will screen-out.

Small Projects Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> *"This applies to projects with low trip generation per existing CEQA exemptions or based on the County Greenhouse Gas Emissions Screening Tables, resulting in a 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO2e) per year screening level threshold. Presumed to cause a less-than-significant impact:*
>
> - *Single Family Housing projects less than or equal to 110 Dwelling Units; or*
> - *Multi Family (low rise) Housing projects less than or equal to 147 Dwelling Units; or*
> - *Multi Family (mid-rise) Housing projects less than or equal to 194 Dwelling Units; or*
> - *General Office Building with area less than or equal to 165,000 SF; or*
> - *Retail buildings with area less than or equal to 60,000 SF; or*
> - *Warehouse (unrefrigerated) buildings with area less than or equal to 208,000 SF; or*
> - *General Light Industrial buildings with area less than or equal to 179,000 SF; or*
> - *Project GHG emissions less than 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO2e) as determined by a methodology acceptable to the Transportation Department; or*
> - *Unless specified above, project trip generation is less than 110 trips per day per the ITE Manual or other acceptable source determined by Riverside County."*

- Based on the above, the proposed Project will screen-out under this screening criteria, since the proposed Project is less than 60,000 SF of retail.

Projects Near High Quality Transit Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> *"High quality transit provides a viable option for many to replace automobile trips with transit trips resulting in an overall reduction in VMT. Presumed to cause a less-than-significant impact:*
>
> - *Within a ½ mile of an existing major transit stop; and*
> - *Maintains a service internal frequency of 15 minutes or less during the morning and afternoon peak commute periods."*

- Based on the above, the proposed Project will not screen-out since it is not near high quality transit.

Local-Serving Retail Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> "*The introduction of new Local-serving retail has been determined to reduce VMT by shortening trips that will occur. Presumed to cause a less-than-significant impact:*
>
> - *No single store on site exceeds 50,000 SF; and*
> - *Project is local-serving as determined by the Transportation Department."*

- Based on the above, the proposed Project will screen-out since it is local-serving retail less than 50,000 SF.

Local Essential Service Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> *"As with Local-Serving Retail, the introduction of new Local Essential Service shortens non-discretionary trips by putting those goods and services closer to residents, resulting in an overall reduction in VMT. Presumed to cause a less-than-significant impact if:*
>
> - *Project is local-serving as determined by the Transportation Department; and*
> - *Local-serving and Day care center; or*
> - *Police or Fire facility; or*

- *Medical/Dental office building under 50,000 square feet; or*
- *Government offices (in-person services such as post office, library, and utilities); or*
- *Local or Community Parks."*

➢ Based on the above, the proposed Project will not screen-out since it is not a local essential service project.

Map-Based Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> *"This method eliminates the need for complex analyses, by following existing VMT data to serve as a basis for screening smaller developments. Note that screening is limited to residential and office projects. Presumed to cause a less-than-significant impact:*
>
> - *Area of development is under threshold as shown on screening map as allowed by the Transportation Department."*

➢ Based on the above, the proposed Project will not screen-out since map-based screening is not applicable to the proposed Project's land use type.

Redevelopment Projects Screening

The *County of Riverside Transportation Analysis Guidelines for Level of Service, Vehicle Miles Traveled (dated December 2020)* states:

> *"Projects with lower VMT than existing on-site uses, can under limited circumstances, be presumed to have a non-significant impact. In the event this screening does not apply, projects should be analyzed as though there is no existing uses on site (project analysis cannot take credit for existing VMT). Presumed to cause a less-than-significant impact:*
>
> - *Project replaces an existing VMT-generating land use and does not result in a net overall increase in VMT. "*

➢ Based on the above, the proposed Project will not screen-out since it is a new development project and not a redevelopment project.

14.1 VMT Analysis Conclusion

Based on the County's guidelines, the proposed Project satisfies the Small Projects and Local Serving Retail screening criteria. Therefore, this project could be screened from a VMT analysis, and could be presumed to have a less than significant impact on VMT per the County's guidelines.