

Appendix G
Traffic Study

TRAFFIC IMPACT ANALYSIS REPORT
HIGHWAY 111 AND DUNE PALMS ROAD
MIXED-USE PROJECT
La Quinta, California
January 26, 2023

Prepared for:
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EXECUTIVE SUMMARY

Project Description

- The project site consists of a vacant parcel of land generally located north of Highway 111 and east of Dune Palms Road in the City of La Quinta, California. The proposed Project will consist of a maximum of 180 apartments, a maximum 4,900 SF Chick-fil-A Restaurant with drive-through window (with storage for approximately 48 vehicles) and a 3,596 SF Express Car Wash with a 115-foot wash tunnel. The proposed Project is expected to be completed and fully occupied by the Year 2026. Access to the proposed Project will be provided via two (2) full-access stop-controlled driveways located along Dune Palms Road and via one (1) right-turn in/out only driveway located along Highway 111.
- The proposed Project is expected to generate 3,678 net daily trips (one half arriving, one half departing), with 222 net trips (97 inbound, 125 outbound) produced in the AM peak hour and 244 net trips (135 inbound, 109 outbound) produced in the PM peak hour.

Study Area

- The key study intersections listed below provide both local and regional access to the study area and defines the extent of the boundaries for this traffic impact investigation:

Key Study Intersections:

1. Dune Palms Road at Blackhawk Way/Westward Ho Drive
 2. Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1
 3. Washington Street at Highway 111
 4. Adams Street at Highway 111
 5. La Quinta Drive at Highway 111
 6. Dune Palms Road at Highway 111
 7. Costco Drive at Highway 111
 8. Jefferson Street at Highway 111
 9. Dune Palms Road at Avenue 48
 10. Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2
 11. Existing Shopping Center Driveway at Highway 111
- The following six (6) key roadway segments were selected for evaluation based on discussions with City of La Quinta staff.

Roadway Segments:

- A. Dune Palms Road north of Corporate Centre Drive
- B. Dune Palms Road between Corporate Centre Drive and Highway 111
- C. Highway 111 between Washington Street and Adams Street
- D. Highway 111 between La Quinta Drive and Dune Palms Road
- E. Highway 111 between Dune Palms Road and Costco Drive
- F. Dune Palms Road between Highway 111 and Avenue 48

Cumulative Projects Description

- The thirteen (13) cumulative projects are forecast to generate a combined total of 20,686 weekday daily trips, with 1,016 trips forecast during the AM peak hour and 1,429 trips forecast during the PM peak hour.

Traffic Impact Analysis

Existing Traffic Conditions

- Under Existing traffic conditions, all eleven (11) key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.
- All six (6) key roadway segments currently operate at acceptable levels of service on a daily basis when compared to the LOS standards defined in this report.

Existing With Ambient Growth With Project Traffic Conditions

- The proposed Project ***will not*** adversely impact the eleven (11) key study intersections when compared to the LOS criteria defined in this report. The eleven (11) key study intersections currently operate and are forecast to continue to operate in the Year 2026 at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic and ambient growth traffic.
- The proposed Project ***will not*** adversely impact the six (6) key roadway segments when compared to the LOS criteria defined in this report. The six (6) key roadway segments currently operate and are forecast to continue to operate in the Year 2026 at an acceptable LOS on a daily basis with the addition of Project generated traffic to existing traffic and ambient growth traffic.

Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

- The proposed Project ***will not*** adversely impact the eleven (11) key study intersections when compared to the LOS criteria defined in this report. The eleven (11) key study intersections are forecast to continue to operate in the Year 2026 at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic, ambient growth traffic and cumulative traffic.
- The proposed Project ***will not*** adversely impact the six (6) key roadway segments when compared to the LOS criteria defined in this report. The six (6) key roadway segments are forecast to continue to operate in the Year 2026 at an acceptable LOS on a daily basis with the addition of Project generated traffic to existing traffic, ambient growth traffic and cumulative traffic

Site Access and Internal Circulation Evaluation

- The three (3) Project driveways (i.e. key study intersections #2, #10 and #11) are forecast to operate at acceptable levels of service during the AM peak hour and PM peak hour under Existing With Ambient Growth With Project traffic conditions and under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so without undue congestion.
- Adequate storage will be provided to accommodate the forecast 95th percentile queues under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions for all inbound and outbound movements at the three (3) project driveways.
- The on-site circulation layout of the proposed Project on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks and trash trucks. Based on our review of the project site plan, the overall layout does not create significant vehicle-pedestrian conflict points and project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways
- Based on drive-through queuing observations, service times and processing rates, adequate storage is provided for the Chick-fil-A drive-through lane and the Express Car Wash. Vehicles are not anticipated to queue throughout the Project site. Refer to *Section 10.4* for further details regarding the Drive-Through Queuing Analysis, including Chick-fil-A's drive-through operations plan.

Project-Specific Access Improvements

- The following Project features will be constructed in conjunction with the proposed Project to ensure that adequate ingress and egress to the Project site is provided:
 - **Intersection No. 2 – Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Restripe the northbound approach to reduce the storage for the existing northbound left-turn lane from 95 feet to 70 feet to accommodate the proposed southbound left-turn lane at Project Driveway No. 2. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane. Restripe the eastbound right-turn lane to an eastbound shared through/right-turn lane.
 - **Intersection No. 10 – Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Widen and/or restripe the northbound approach to provide a 60-foot northbound left-turn lane. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane.

Recommended Improvements

- The results of the intersection and roadway segment analyses for Existing With Ambient Growth With Project traffic conditions and Existing With Ambient Growth With Project With Cumulative Projects traffic conditions indicate that the eleven (11) key study intersections and six (6) key roadway segments are forecast to continue to operate at acceptable service levels. As there are no deficiencies, no traffic improvements are required.

Vehicle Miles Traveled (VMT) Analysis

- The proposed Project consists of a maximum of 180 apartments, which is less than the “*Small Projects*” threshold of 200 DU multifamily (low-rise) housing. In addition, the proposed commercial buildings are approximately 4,900 SF and 3,956 SF, which are less than the “*Local Serving Projects*” threshold of less than 50,000 SF. Therefore, this project could be screened from a VMT analysis and would not have a significant transportation related CEQA impact, per the *City of La Quinta Vehicle Miles Traveled Analysis Policy (June 2021)*.

TRAFFIC IMPACT ANALYSIS REPORT
HIGHWAY 111 AND DUNE PALMS ROAD
MIXED-USE PROJECT

La Quinta, California
January 26, 2023

1.0 INTRODUCTION

This traffic impact study addresses the potential traffic impacts and circulation needs associated with the proposed Highway 111 and Dune Palms Road Mixed-Use Project, which consists of a maximum of 180 apartments, a maximum 4,900 SF Chick-fil-A Restaurant with drive-through window (with storage for approximately 48 vehicles) and a 3,596 SF Express Car Wash with a 115-foot wash tunnel. The project site is generally located north of Highway 111 and east of Dune Palms Road in La Quinta, California.

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 Highway 111 and Dune Palms Road Mixed-Use Project (hereinafter referred to as Project).

1.1 Scope of Work

The traffic analysis evaluates the existing operating conditions at eleven (11) 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 (near-term) without and with the proposed Project. Where necessary, intersection improvement measures are identified.

This traffic report satisfies the *City of La Quinta Traffic Impact Study Guidelines – Engineering Bulletin #06-13 (dated October 2017)* and the *City of La Quinta Vehicle Miles Traveled Analysis Policy (dated June 2021)*. The Scope of Work for this traffic study, which is included in **Appendix A** was developed in conjunction with City of La Quinta Public Works Department staff.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing traffic information has been collected at the key study intersections and key roadway segments on a “typical” weekday for use in the preparation of intersection and roadway segment 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 La Quinta and the City of Indio. Based on our research, there are nine (9) cumulative projects in the City of La Quinta and four (4) cumulative projects in the City of Indio. These thirteen (13) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this project.

This traffic report analyzes existing and future daily, AM peak hour and PM peak hour traffic conditions for a near-term (Year 2026) traffic setting upon completion of the proposed Project. Daily and 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 thirteen (13) cumulative projects.

1.2 Study Area

The eleven (11) key study intersections selected for evaluation were determined based on discussions with City of La Quinta staff. The key study intersections listed below provide both local and regional access to the study area and defines the extent of the boundaries for this traffic impact investigation.

Key Study Intersections:

1. Dune Palms Road at Blackhawk Way/Westward Ho Drive
2. Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1
3. Washington Street at Highway 111
4. Adams Street at Highway 111
5. La Quinta Drive at Highway 111
6. Dune Palms Road at Highway 111
7. Costco Drive at Highway 111
8. Jefferson Street at Highway 111
9. Dune Palms Road at Avenue 48
10. Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2
11. Existing Shopping Center Driveway at Highway 111

The following six (6) key roadway segments were selected for evaluation based on discussions with City of La Quinta staff.

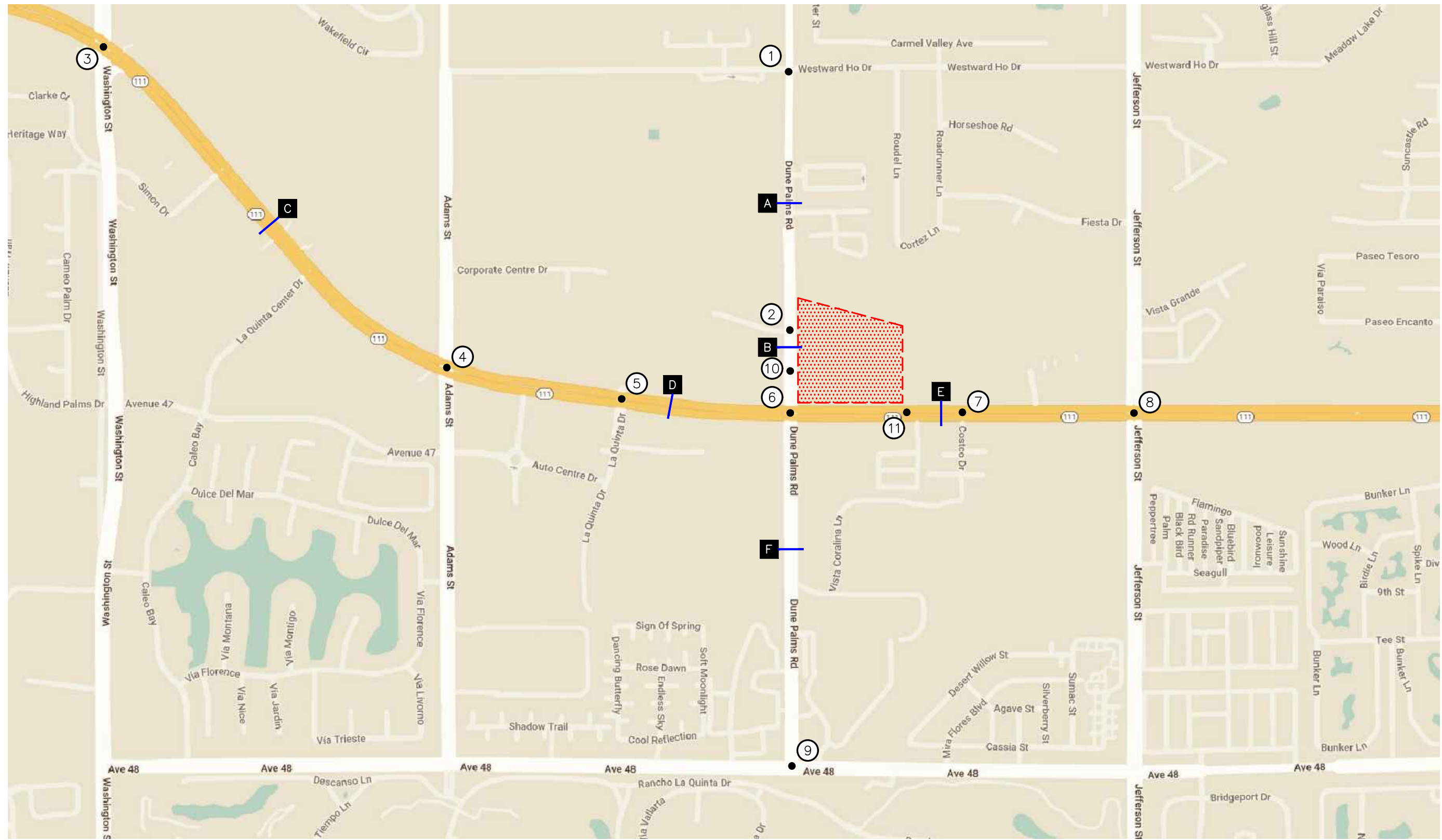
Key Roadway Segments:

- A. Dune Palms Road north of Corporate Centre Drive
- B. Dune Palms Road between Corporate Centre Drive and Highway 111
- C. Highway 111 between Washington Street and Adams Street
- D. Highway 111 between La Quinta Drive and Dune Palms Road
- E. Highway 111 between Dune Palms Road and Costco Drive
- F. Dune Palms Road between Highway 111 and Avenue 48

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 and/or roadway segment 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,
- Daily, AM, and PM peak hour capacity analyses for existing conditions,
- Daily, AM, and PM peak hour capacity analyses for existing with ambient growth to the Year 2026 with project traffic conditions,
- Daily, 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),
- Site Access and Internal Circulation Evaluation,
- Drive-Through Queuing Evaluation,
- Recommended Improvements, and
- Vehicle Miles Traveled (VMT) Assessment.



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SOURCE: GOOGLE

KEY




-  = STUDY INTERSECTION
-  = STUDY ROADWAY SEGMENT
-  = PROJECT SITE

FIGURE 1-1

VICINITY MAP

HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



2.0 PROJECT DESCRIPTION AND LOCATION

The project site consists of a vacant parcel of land generally located north of Highway 111 and east of Dune Palms Road in the City of La Quinta, California. *Figure 2-1* presents an aerial depiction of the existing site. As presented in *Figure 2-1*, the site is currently vacant.

Figure 2-2 presents the proposed site plan for the proposed Project. Review of the proposed site plan indicates that the proposed Project will consist of a maximum of 180 apartments, a maximum 4,900 SF Chick-fil-A Restaurant with drive-through window (with storage for approximately 48 vehicles) and a 3,596 SF Express Car Wash with a 115-foot wash tunnel. The proposed Project is expected to be completed and fully occupied by the Year 2026.

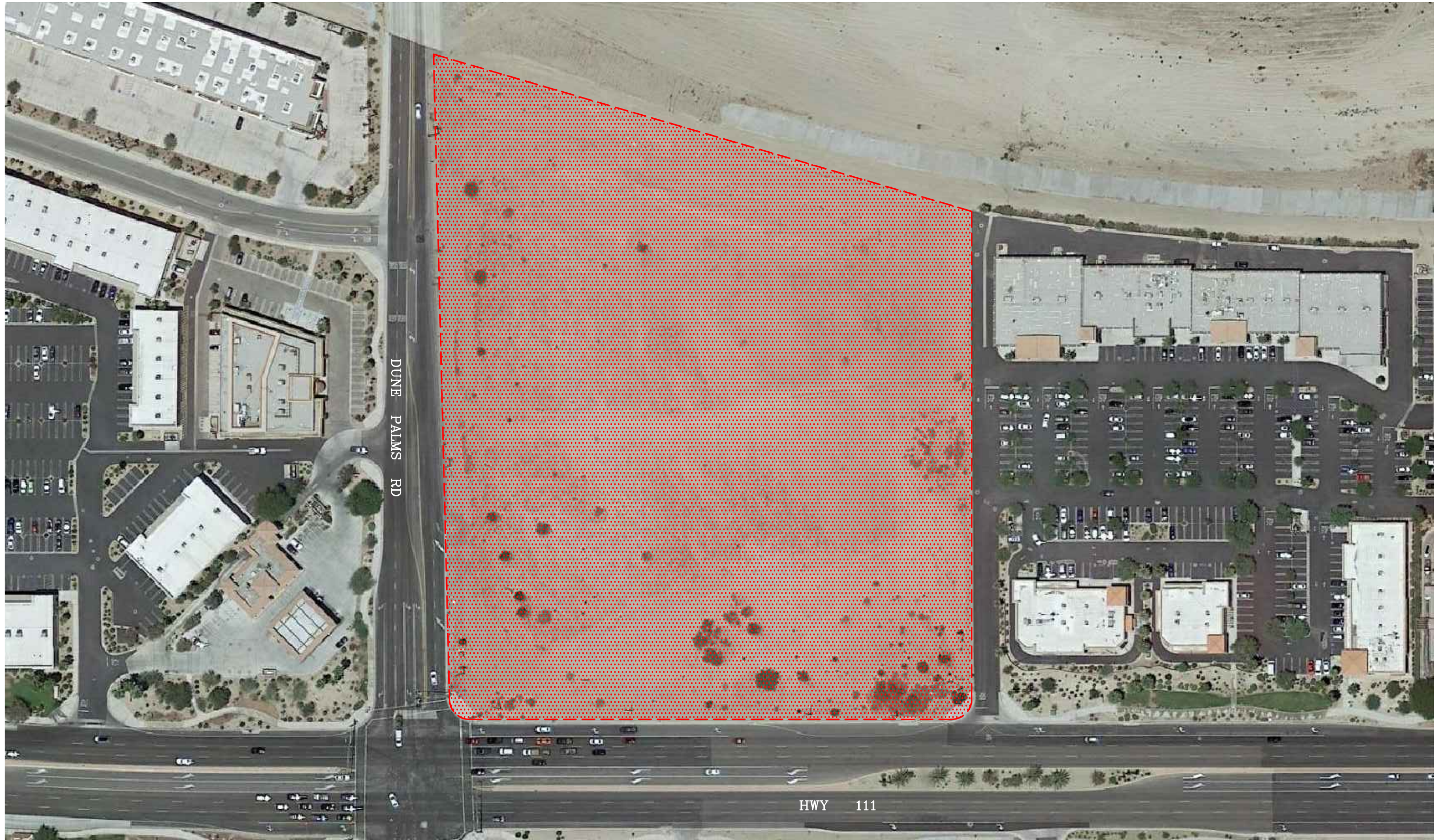
2.1 Site Access

As shown in *Figure 2-2*, access to the proposed Project will be provided via two (2) full-access stop-controlled driveways located along Dune Palms Road and via one (1) right-turn in/out only driveway located along Highway 111.

2.2 Project Specific Access Improvements

The following Project features will be constructed in conjunction with the proposed Project to ensure that adequate ingress and egress to the Project site is provided:

- **Intersection No. 2 – Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Restripe the northbound approach to reduce the storage for the existing northbound left-turn lane from 95 feet to 70 feet to accommodate the proposed southbound left-turn lane at Project Driveway No. 2. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane. Restripe the eastbound right-turn lane to an eastbound shared through/right-turn lane.
- **Intersection No. 10 – Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Widen and/or restripe the northbound approach to provide a 60-foot northbound left-turn lane. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane.



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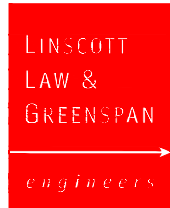
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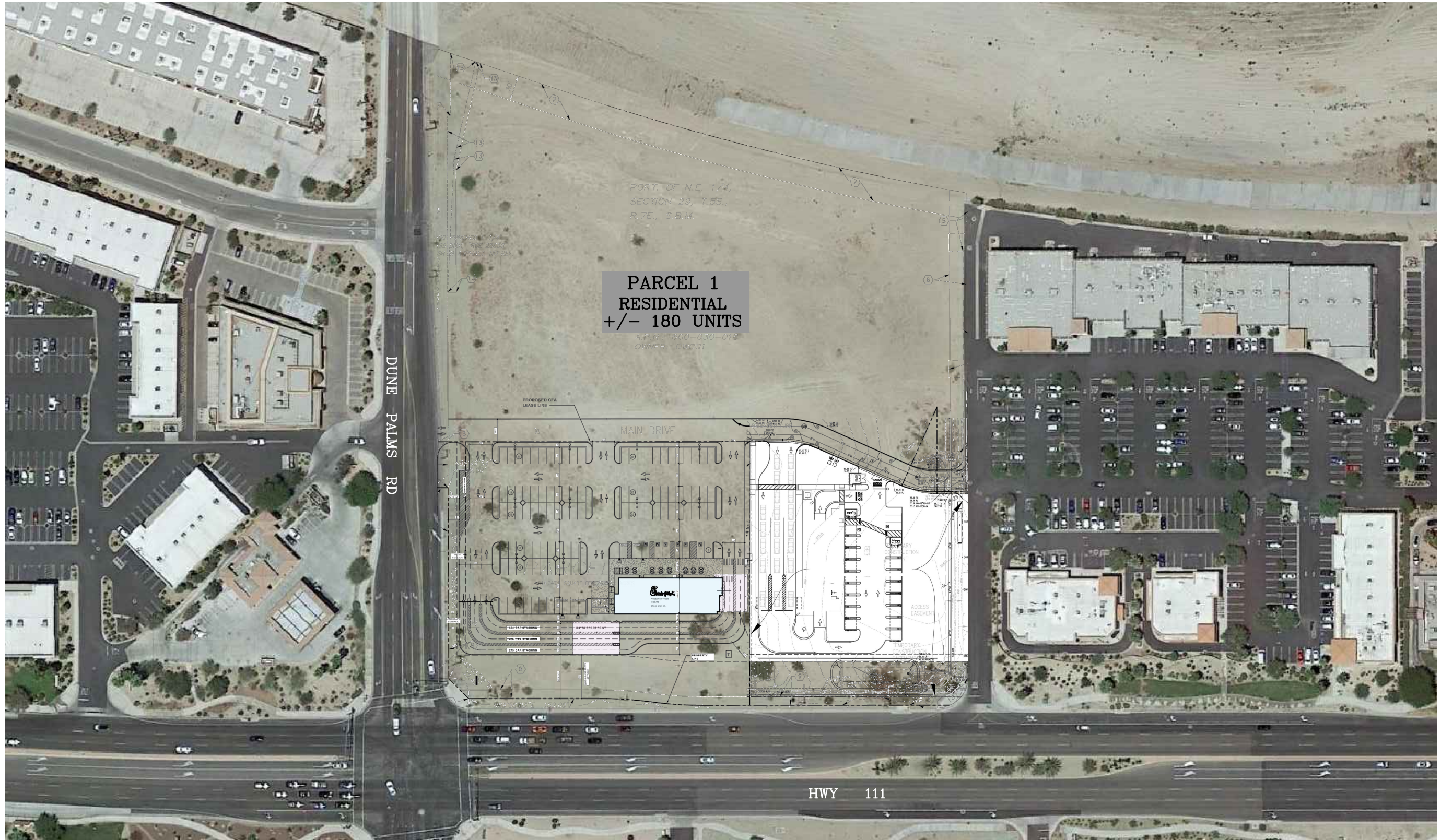
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FIGURE 2-1

EXISTING SITE AERIAL

HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA





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3.0 EXISTING CONDITIONS

3.1 Existing Street Network

Adams Street, Dune Palms Road, Jefferson Street, Highway 111, and Avenue 48 provide regional and local access to the project site. The following discussion provides a brief synopsis of these key streets. The descriptions are based on an inventory of existing roadway conditions.

Adams Street is a four-lane, divided roadway, oriented in the north-south direction. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Adams Street is 45 miles per hour (mph). A traffic signal controls the key study intersection of Adams Street at Highway 111.

Dune Palms Road is a three-lane, undivided roadway north of the Speedway Driveway and a four-lane, divided roadway south of the Speedway Driveway. Dune Palms Road is oriented in the north-south direction, located west of the Project site. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Dune Palms Road is 45 mph. A traffic signal controls the key study intersections of Dune Palms Road at Blackhawk Way/Westward Ho Drive, Highway 111 and Avenue 48. The key study intersection at Corporate Centre Drive is stop-controlled.

Jefferson Street is a six-lane, divided roadway, oriented in the north-south direction. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Jefferson Street is 55 mph. A traffic signal controls the key study intersection of Jefferson Street at Highway 111.

Highway 111 is a six-lane, divided roadway, oriented in the east-west direction, located south of the Project site. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Highway 111 is 45 mph. A traffic signal controls the key study intersection of Highway 111 at Washington Street, Adams Street, La Quinta Drive, Dune Palms Road, Costco Drive, and Jefferson Street.

Avenue 48 is a four-lane, divided roadway oriented in the east-west direction. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Avenue 48 is 50 mph. A traffic signal controls the key study intersection of Avenue 48 at Dune Palms Road.

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 Traffic Volumes

The eleven (11) key study intersections and six (6) key roadway segments 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 and key roadway segments were selected for evaluation based on discussions with City of La Quinta staff.

Existing daily, AM peak hour, and PM peak hour traffic volumes for the eleven (11) key study intersections and six (6) key roadway segments evaluated in this report were obtained from manual peak hour turning movement counts conducted by *Counts Unlimited, Inc.* in December 2022. In conformance with City of La Quinta guidelines, the counts have been increased by 5% to compensate for variations in seasonal population.

Figures 3-2 and **3-3** illustrate the existing AM and PM peak hour traffic volumes at the eleven (11) key study intersections evaluated in this report, respectively. **Figure 3-3** also presents the existing average daily traffic volumes for six (6) key roadway segments in the vicinity of the proposed Project. **Appendix B** contains the detailed peak hour count sheets for the key intersections and key roadway segments evaluated in this report.

3.3 Level of Service (LOS) Analysis Methodologies

In conformance with City of La Quinta requirements, existing AM and PM peak hour operating conditions for the signalized and unsignalized intersections were evaluated using the *Highway Capacity Manual 7* (HCM 7) methodology. Per the City of La Quinta traffic impact analysis guidelines, the existing peak hour factor has been utilized for the Existing and Existing With Ambient Growth With Project analysis scenarios, while a peak hour factor of 0.95 was utilized for the Existing With Ambient Growth With Project With Cumulative Projects analysis scenario.

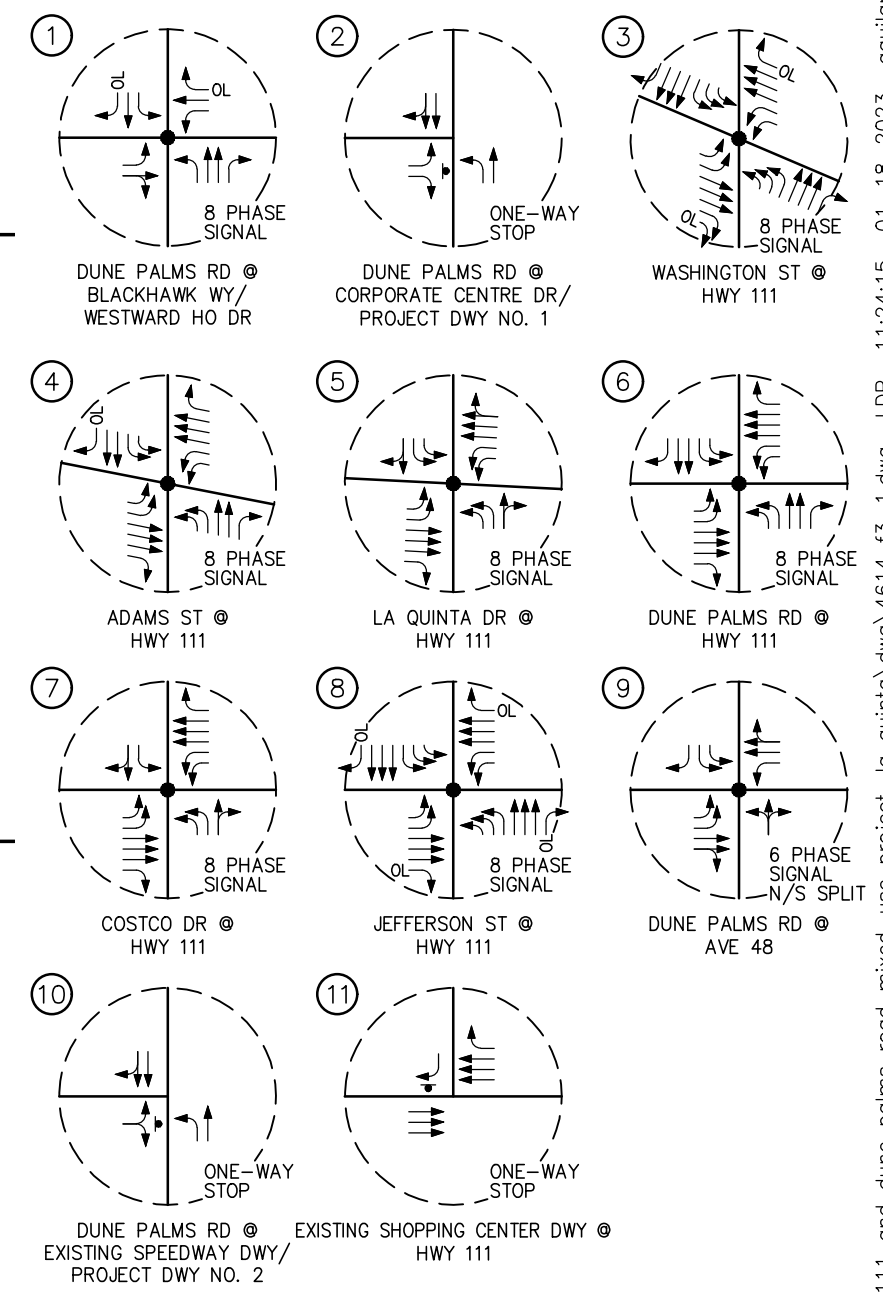
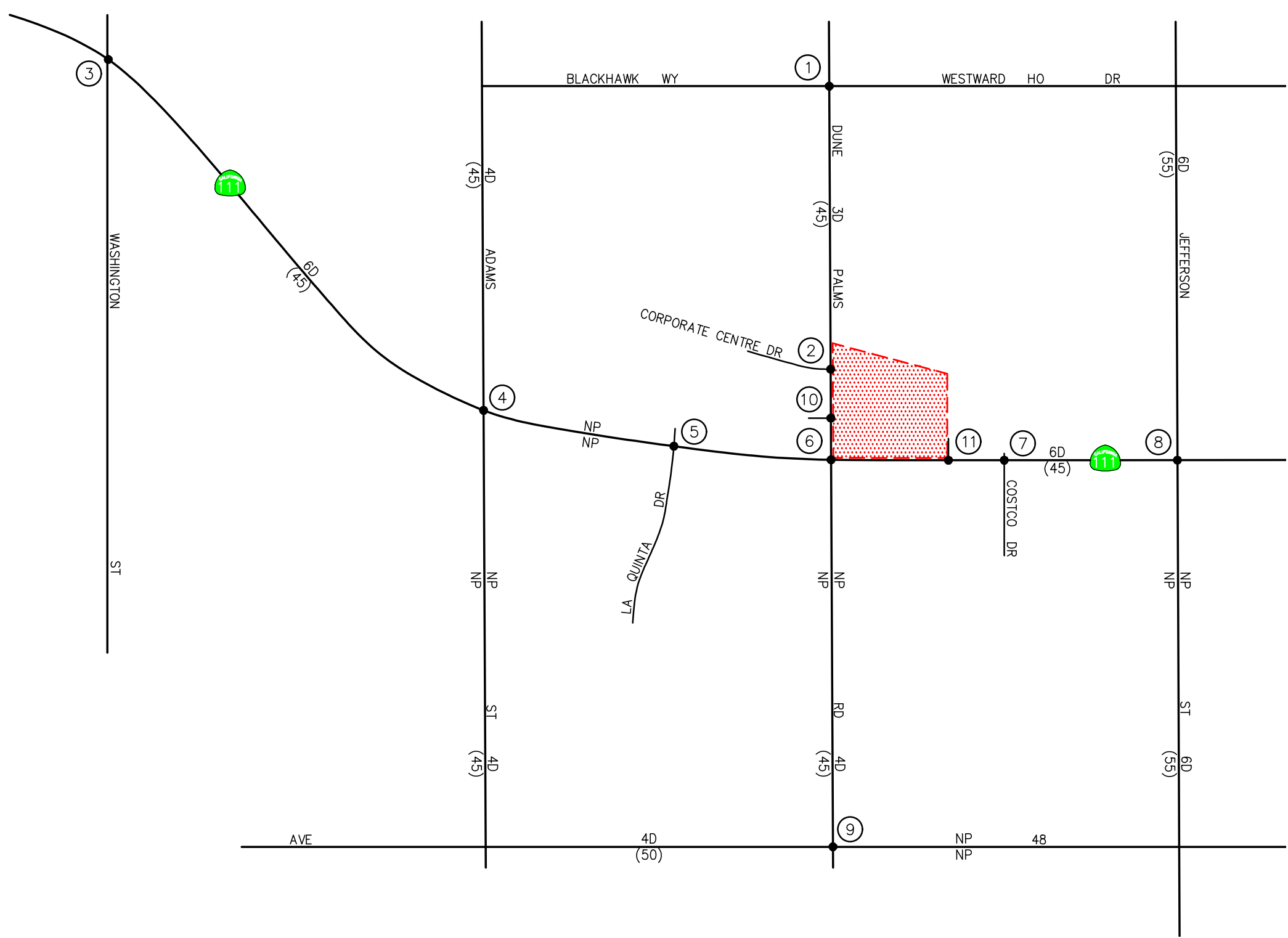
3.3.1 Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

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**.

3.3.2 Highway Capacity Manual (HCM) 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



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
- [Red Hatched Box] = PROJECT SITE

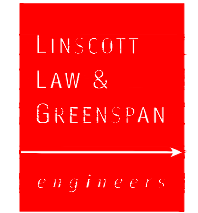
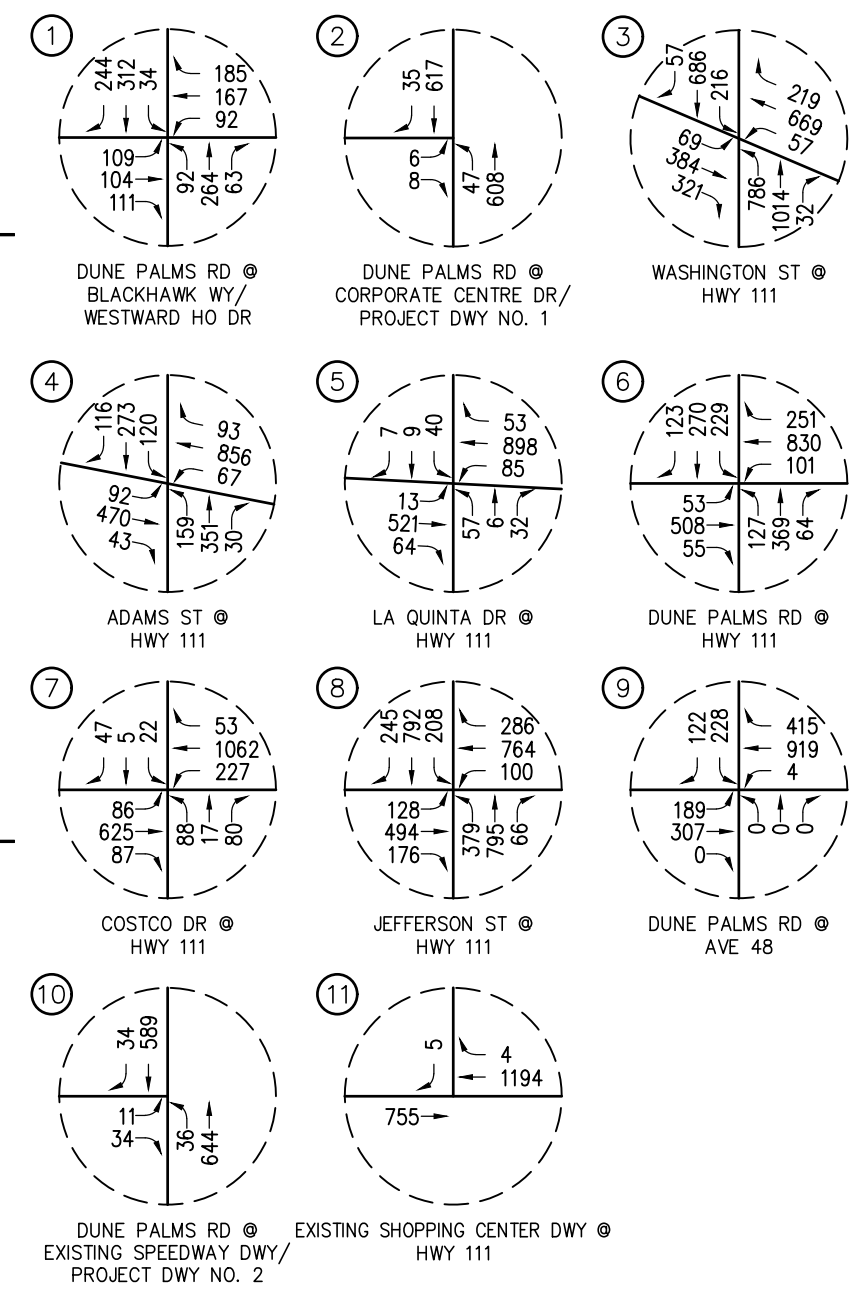
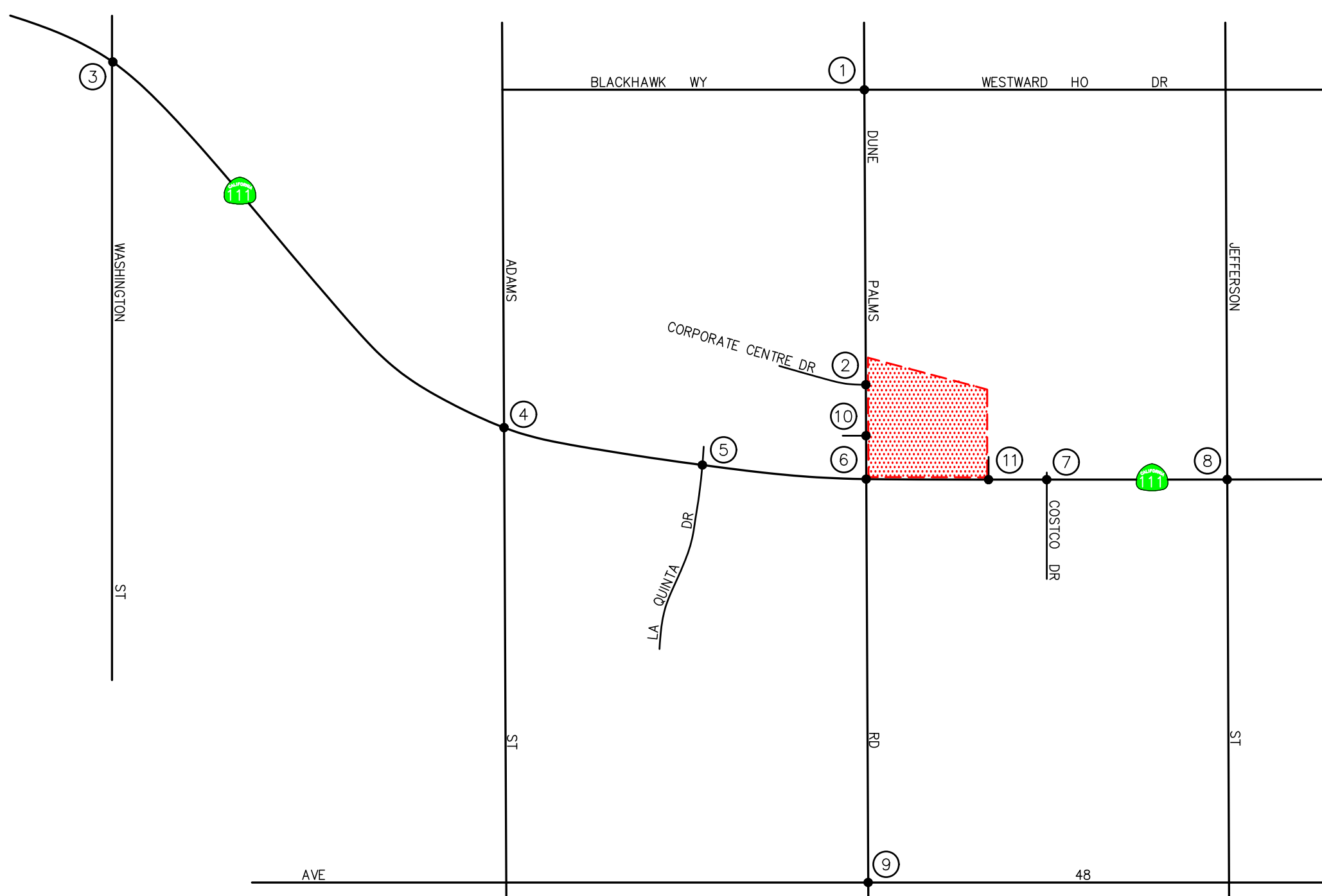
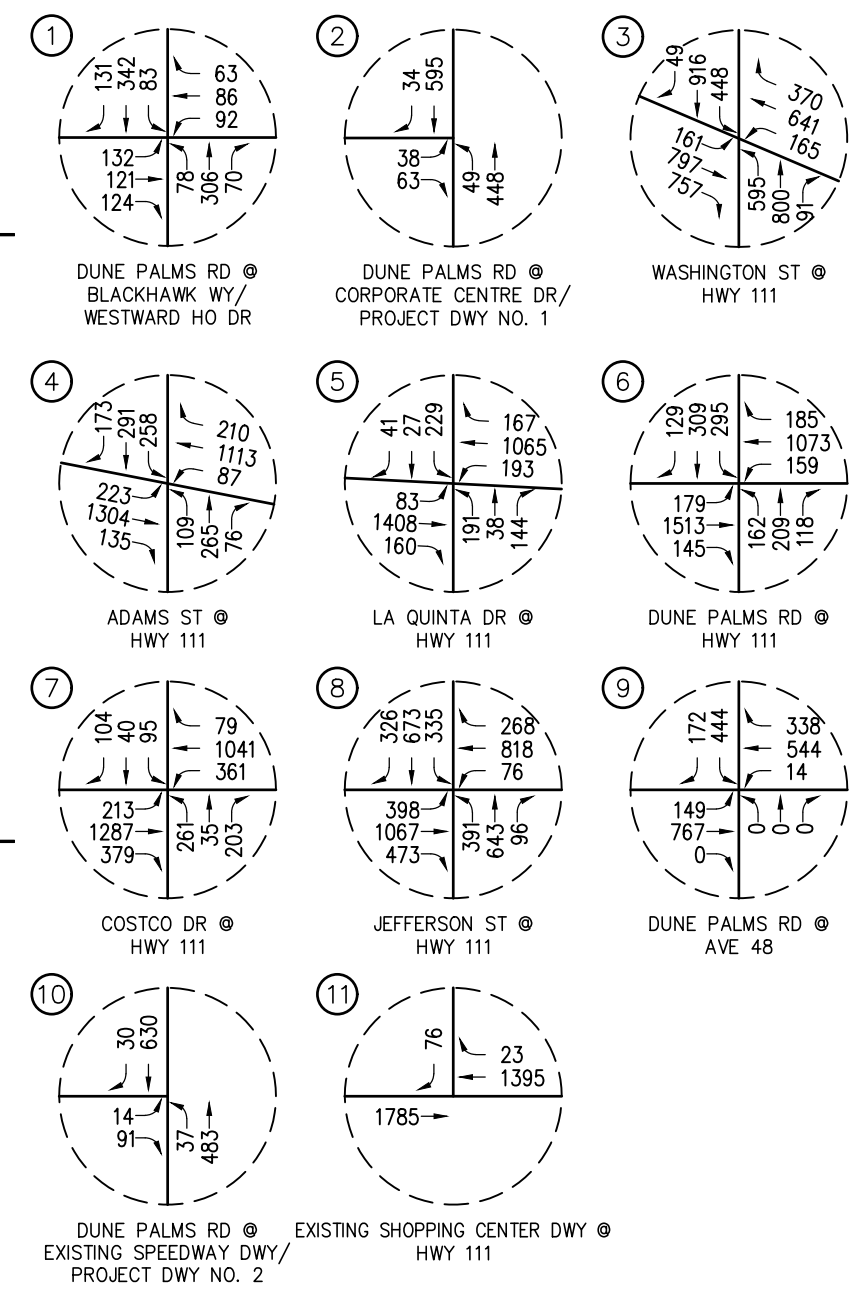
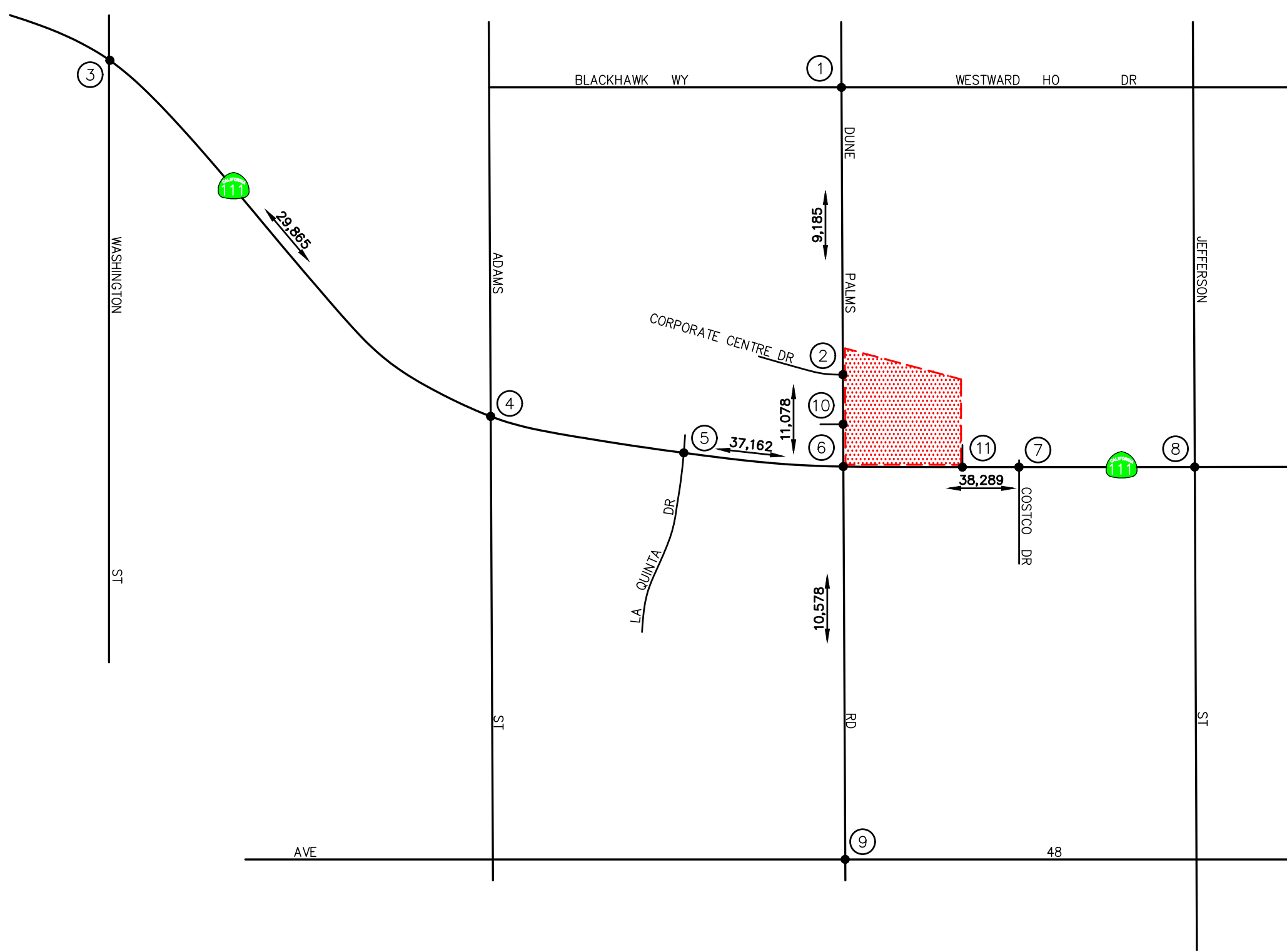


FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA





KEY

- # = STUDY INTERSECTION
- xx,xxx = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE

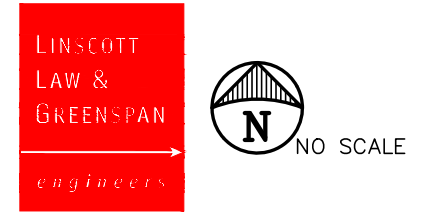


FIGURE 3-3

EXISTING PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

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for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

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*.

All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based solely on control delay. The HCM control delay value range for all-way stop-controlled intersections is shown in *Table 3-2*.

3.3.3 Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)

Daily operating conditions for the key study roadway segments have been investigated according to the Volume to Capacity (V/C) ratio of each roadway segment. The V/C relationship is used to estimate the LOS of the roadway segment with the volume based on the 24-hour traffic volumes and the capacity based on the City's classification of each roadway. The six qualitative categories of Level of Service have been defined along with the corresponding Volume to Capacity (V/C) value range and are shown in *Table 3-3*. The roadway segments' daily capacities of each street classification according to the *City of La Quinta Engineering Bulletin #06-13* are presented in *Table 3-4*.

Although the arterial segment V/C analysis provides a general assessment of overall system performance, the performance is measured on the ability to serve peak hour traffic demands. To identify deficient arterial segments, the segments that are identified as deficient under daily conditions are evaluated under peak hour conditions to evaluate the capability of serving forecast peak hour throughput. Arterial segments that operate deficiently under peak hour conditions are candidates for improvements.

3.4 Impact Criteria and Thresholds

3.4.1 Intersections

The City of La Quinta has established LOS “D” as the minimum level of service for signalized intersections. Unsignalized intersections shall have a LOS “D” or better for all critical movements at an all-way stop-controlled intersection and a LOS “E” for a side street on a two-way stop-controlled intersection.

Per the City of La Quinta Circulation Element, at intersections along roadways contained in the Riverside County Congestion Management Program (CMP) System of Highways and Roadways, the minimum level of service required is to be not worse than LOS E. Within the City of La Quinta, Highway 111 is designated as a CMP facility. Therefore, LOS E operations are considered acceptable at intersections located along Highway 111.

Based on the above, the following summarizes the LOS required for each key study intersection:

<u>LOS “D” Requirements</u>
1. Dune Palms Road at Blackhawk Way/Westward Ho Drive 9. Dune Palms Road at Avenue 48
<u>LOS “E” Requirements</u>
2. Dune Palms Road at Corporate Centre Drive/Project Driveway 1 3. Washington Street at Highway 111 4. Adams Street at Highway 111 5. La Quinta Drive at Highway 111 6. Dune Palms Road at Highway 111 7. Costco Drive at Highway 111 8. Jefferson Street at Highway 111 10. Dune Palms Road at Existing Speedway Driveway/Project Driveway 2 11. Existing Shopping Center Driveway at Highway 111

A potentially significant project traffic impact is defined to occur at any signalized intersection if the project trips will result in the LOS for that intersection exceeding the following criteria:

- LOS “E” and an increase in delay of 2 seconds or more
- LOS “F” and an increase in delay of 1 second or more

A potentially significant impact at an unsignalized study intersection is defined to occur when, with project traffic included, an intersection has a projected LOS “F” on a side street for two-way stop-controlled intersections or LOS “E” or worse for the intersection at an all-way stop-controlled intersection **and** the addition of project traffic results in an addition of 3 seconds or more of delay for any movement.

3.4.2 Roadway Segments

The City of La Quinta has established LOS “D” as the minimum level of service for its roadway segments.

A potentially significant project traffic impact is defined to occur on any road segment if the segment is projected to be operating at LOS “E” or LOS “F” with project traffic included and the peak hour V/C in the peak direction is increased by 0.02 or more by addition of project traffic.

TABLE 3-1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM 7 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 7 METHODOLOGY) ^{2,3}

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.

³ Source: *Highway Capacity Manual 7*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

TABLE 3-3
LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS (V/C METHODOLOGY)⁴

Level of Service (LOS)	Volume to Capacity Ratio (V/C)	Level of Service Description
A	≤ 0.600	EXCELLENT. Describes primarily free flow operations at average travel speeds, usually about 90% of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	0.601 – 0.700	VERY GOOD. Represents reasonably unimpeded operations at average travel speeds, usually about 70% of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
C	0.701 – 0.800	GOOD. Represents stable conditions; however, ability to maneuver and change lanes in mid-block location may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50% of the average free flow speed for the arterial class. Motorists will experience appreciable tension while driving.
D	0.801 – 0.900	FAIR. Borders on a range in which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40% of free flow speed.
E	0.901 – 1.000	POOR. Characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
F	> 1.000	FAILURE. Characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with resultant high approach delays. Adverse progression is frequently a contributor to this condition.

⁴ Source: *Transportation Research Board (TRBV) 2000.*

**TABLE 3-4
DAILY ROADWAY SEGMENT CAPACITIES⁵**

Roadway Classification	Maximum Two-Way Traffic Volume (ADT) Level of Service
8-lane Augmented Major Arterial	76,000
6-lane Major Arterial	61,100
4-lane Primary Arterial	42,600
4-lane Secondary Arterial	28,000
2-lane Modified Secondary Arterial	19,000
2-lane Collector Street	14,000
2-lane Local Street	9,000

⁵ Source: *City of La Quinta Engineering Bulletin #06-13*.

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]. In addition, the express wash trip generation was based on empirical data collected at an existing express wash facility.

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and also presents the project's forecast peak hour and daily traffic volumes. As shown, the trip generation potential of the proposed Project was estimated using ITE Land Use 220: Multi-Family Housing Low Rise Not Close To Rail Transit trip rates and ITE Land Use 934: Fast-Food Restaurant With Drive-Thru Window trip rates. In addition, the express wash trip rates are based on driveway traffic counts conducted on Friday (2/7/2014) at Victorville Speedwash (12147 Industrial Boulevard, Victorville).

As shown in the last row of *Table 5-1*, the proposed Project is expected to generate 3,678 net daily trips (one half arriving, one half departing), with 222 net trips (97 inbound, 125 outbound) produced in the AM peak hour and 244 net trips (135 inbound, 109 outbound) produced in the PM peak hour.

It should be noted that the aforementioned overall Project 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. Highway 111 and Dune Palms Road) 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 for all land uses are summarized in the footnotes of *Table 5-1*.

5.2 Project Traffic Distribution and Assignment

Figures 5-1 and **5-2** present the traffic distribution pattern for the proposed residential and retail project components, respectively. 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 traffic volumes associated with the proposed Project are presented in **Figures 5-3** and **5-4**, respectively. *Figure 5-4* also illustrates the added proposed Project daily traffic volumes on key roadway segments. The traffic volume assignments presented in **Figures 5-3** and **5-4** reflect the traffic distribution characteristics shown in **Figures 5-1** and **5-2** and the traffic generation forecast presented in *Table 5-1*.

TABLE 5-1
PROJECT TRAFFIC GENERATION FORECAST⁶

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<u>Generation Rates:</u>							
▪ 220: Multi-Family Housing Low Rise Not Close To Rail Transit (TE/DU)	6.74	24%	76%	0.40	63%	37%	0.51
▪ 934: Fast-Food Restaurant With Drive-Thru Window (TE/TSF)	467.48	51%	49%	44.61	52%	48%	33.03
▪ Empirical Trip Generation Estimation for Speed Wash (TE/LFWT) ⁷	8.663	0.275	0.204	0.479	0.450	0.463	0.913
<u>Proposed Project Generation Forecast</u>							
▪ Multi-Family Apartments (180 DU)	1,213	17	55	72	58	34	92
▪ Chick-fil-A with Drive-Thru Window (4,900 TSF)	2,291	112	107	219	84	78	162
Pass-By (Daily: 25%, AM: 50%, PM: 55%) ⁸	<u>-573</u>	<u>-56</u>	<u>-54</u>	<u>-110</u>	<u>-46</u>	<u>-43</u>	<u>-89</u>
<i>Subtotal</i>	<i>1,718</i>	<i>56</i>	<i>53</i>	<i>109</i>	<i>38</i>	<i>35</i>	<i>73</i>
▪ Express Car Wash (115 Feet of Tunnel)	996	32	23	55	52	53	105
Pass-By (Daily: 25%, AM: 25%, PM: 25%) ⁹	<u>-249</u>	<u>-8</u>	<u>-6</u>	<u>-14</u>	<u>-13</u>	<u>-13</u>	<u>-26</u>
<i>Subtotal</i>	<i>747</i>	<i>24</i>	<i>17</i>	<i>41</i>	<i>39</i>	<i>40</i>	<i>79</i>
Total Gross Proposed Project Trip Generation Forecast	4,500	161	185	346	194	165	359
Total Pass-By	-822	-64	-60	-124	-59	-56	-115
Total Net Proposed Project Trip Generation Forecast	3,678	97	125	222	135	109	244

Notes:

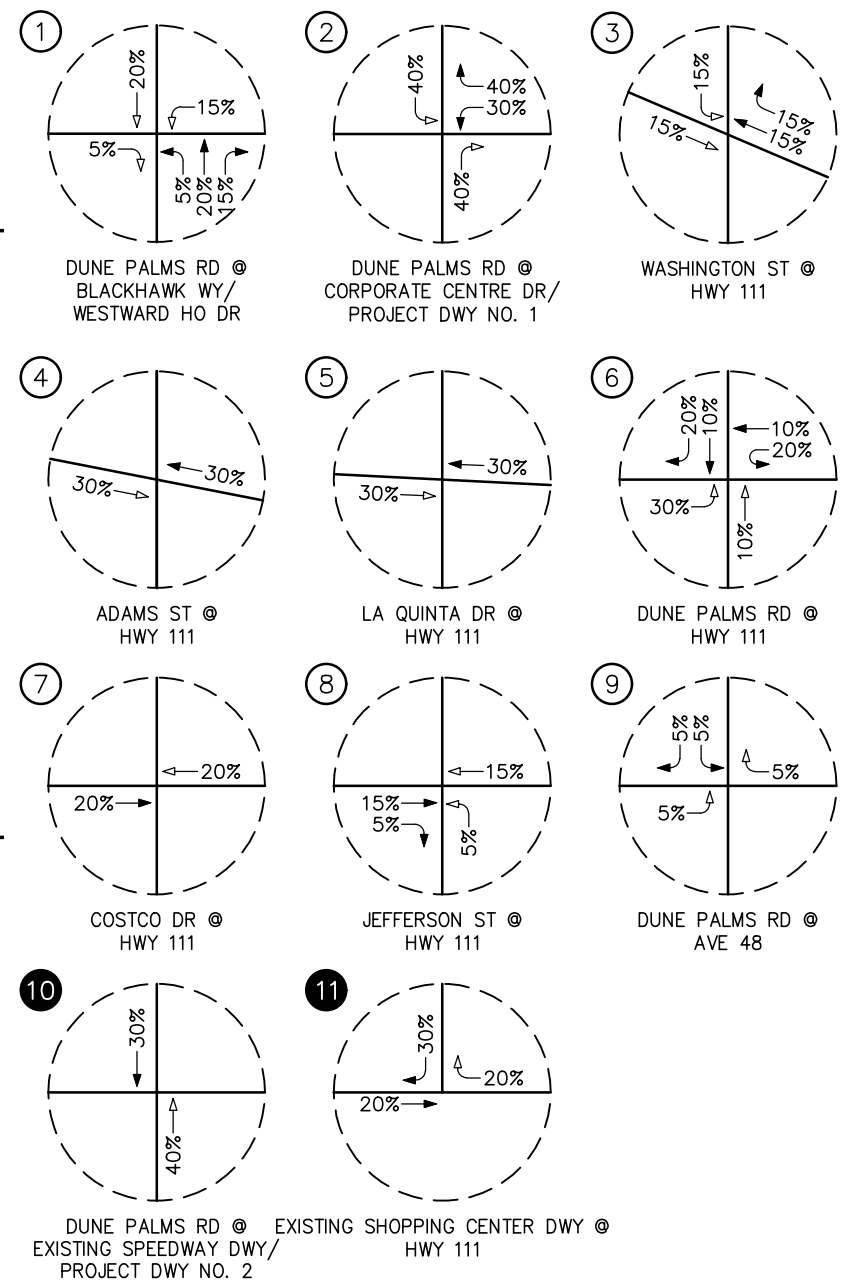
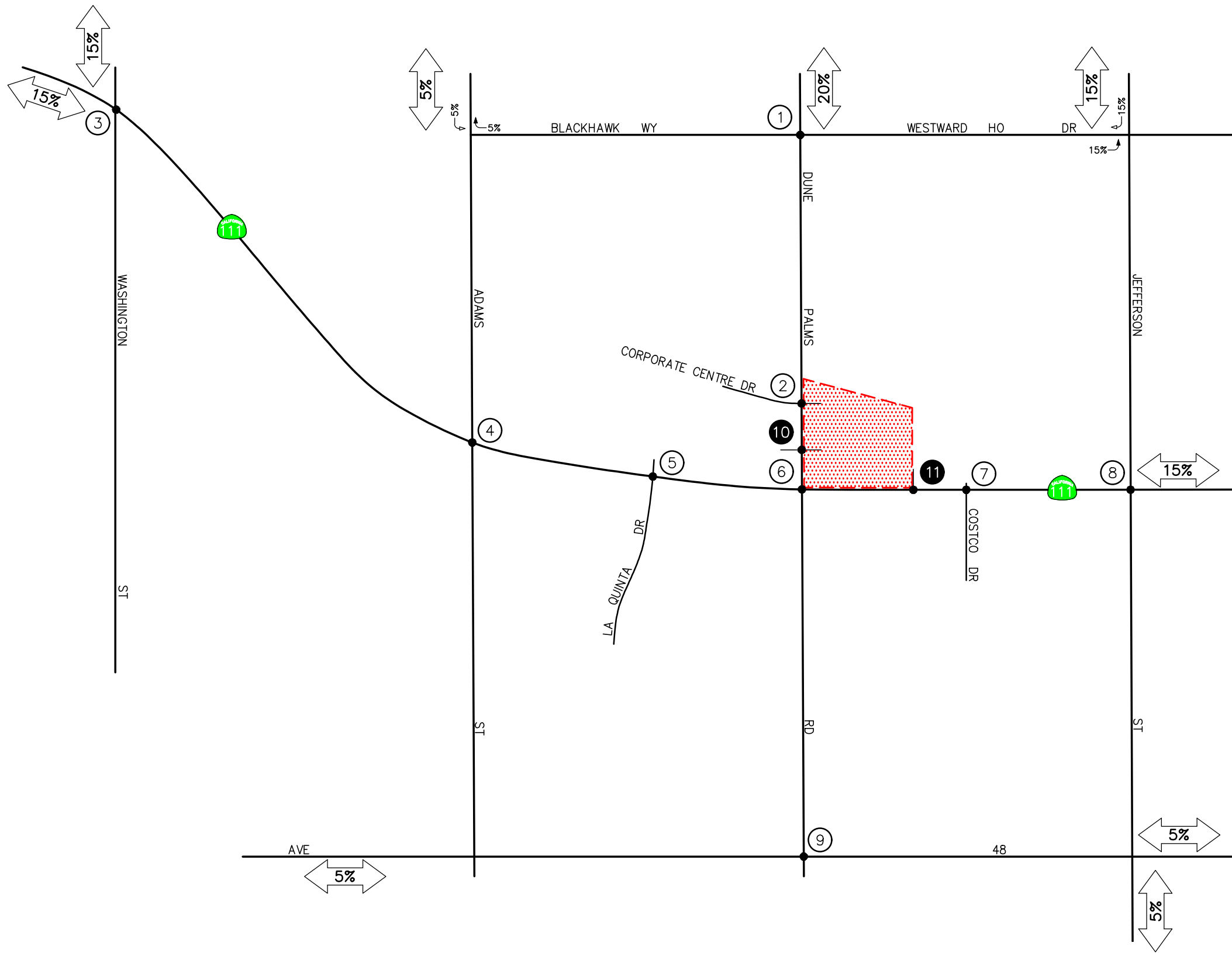
- TE/DU = Trip End per Dwelling Unit
- TE/TSF = Trip End per Thousand Square Feet
- TE/LFWT = Trip End per Linear Feet of Wash Tunnel

⁶ Source: *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)].

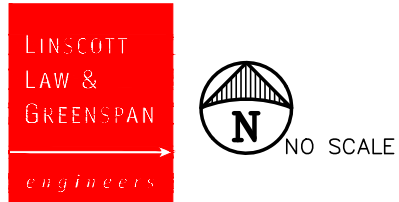
⁷ Based on driveway traffic counts conducted on Friday (2/7/2014) at Victorville Speedwash (12147 Industrial Boulevard, Victorville).

⁸ Source: *Trip Generation Handbook, 11th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)]. Pass-by reductions for fast-food restaurant with drive-through window consist of the following: 25% daily (estimated), 50% AM and 55% PM.

⁹ Pass-by reductions for the express car wash consist of the following: 25% daily (estimated), 25% AM (estimated) and 25% PM (estimated).

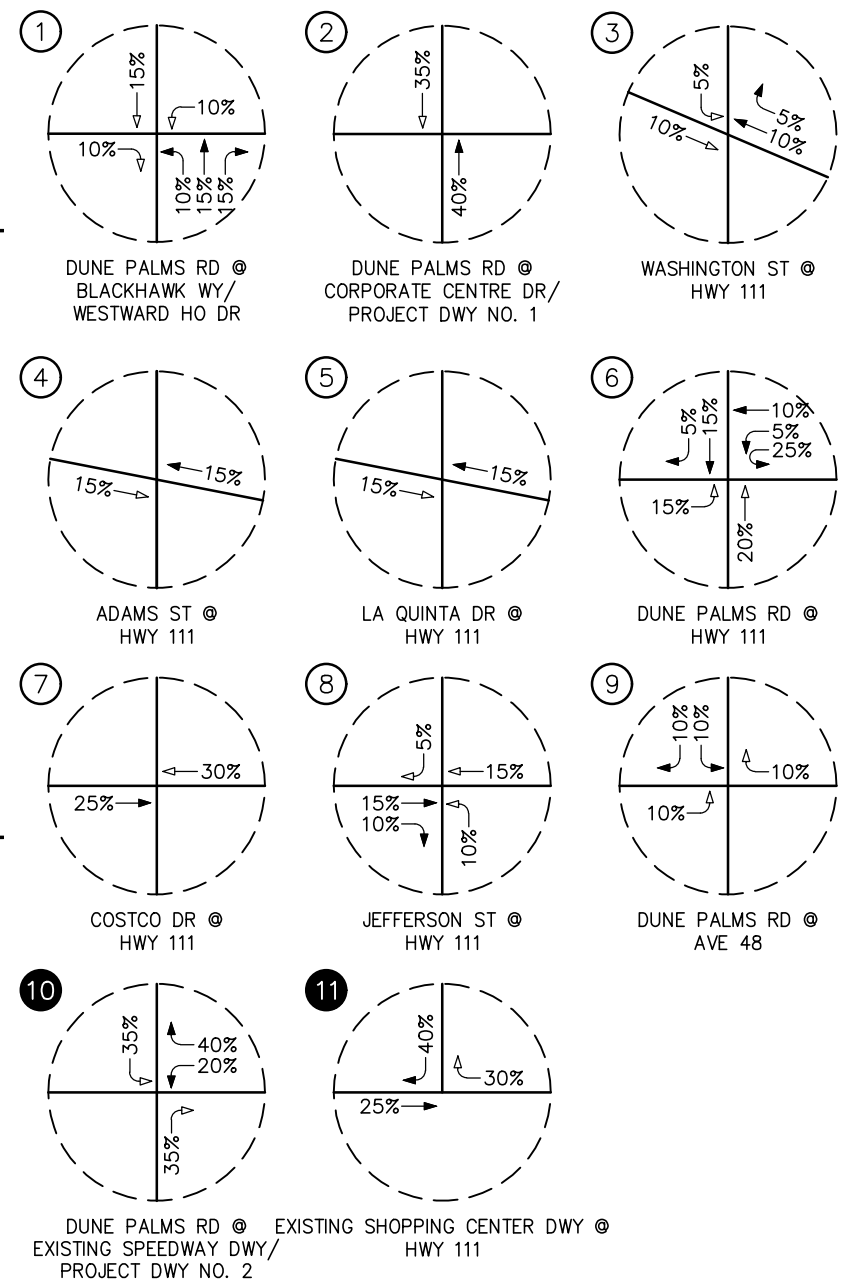
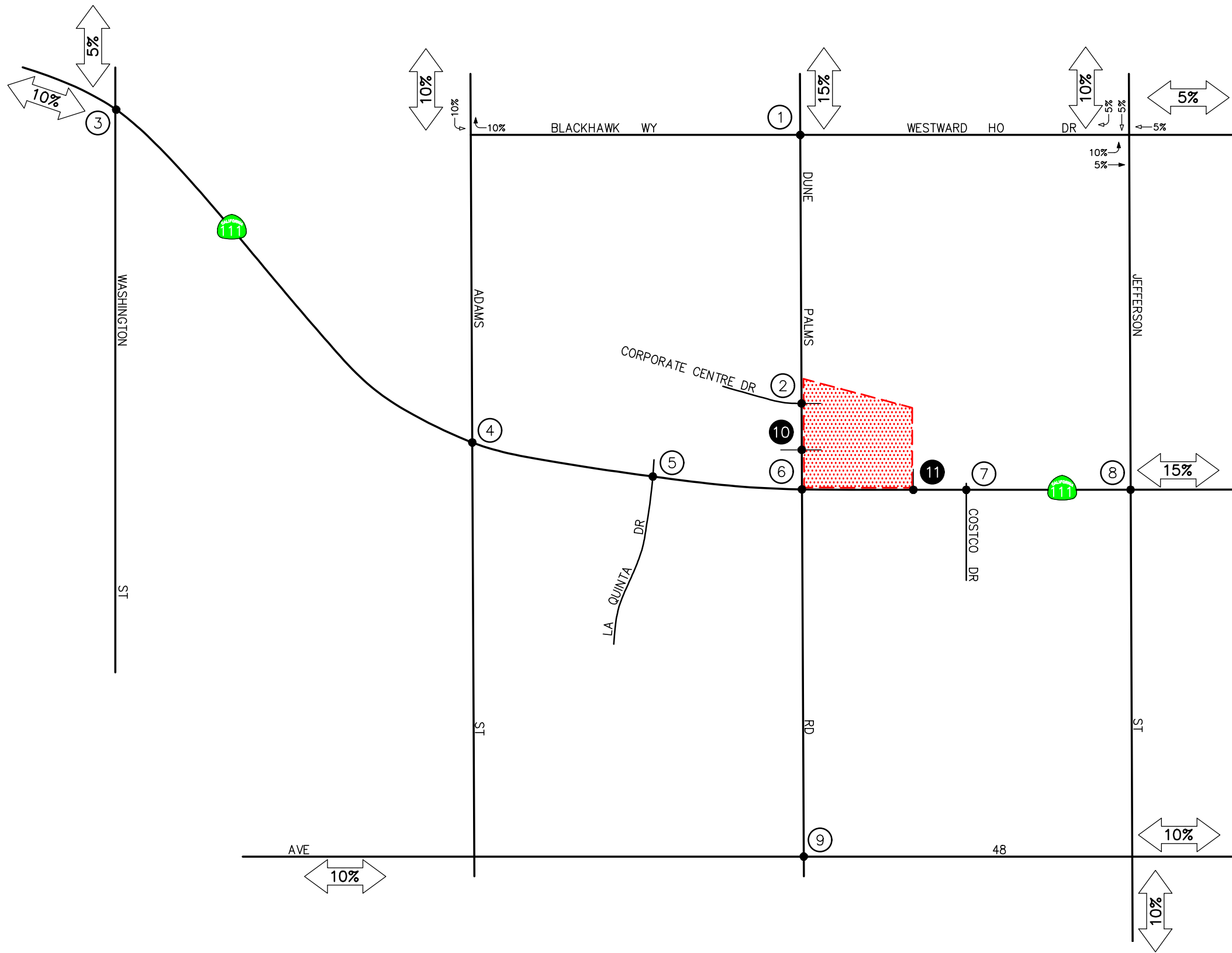


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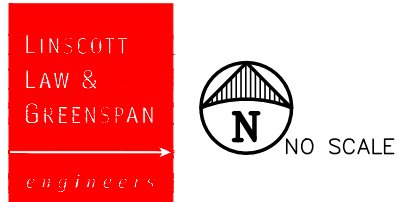


KEY
 # = STUDY INTERSECTION
 ← = INBOUND PERCENTAGE
 → = OUTBOUND PERCENTAGE
 [Red Hatched Box] = PROJECT SITE

FIGURE 5-1
PROJECT TRAFFIC DISTRIBUTION PATTERN – RESIDENTIAL
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



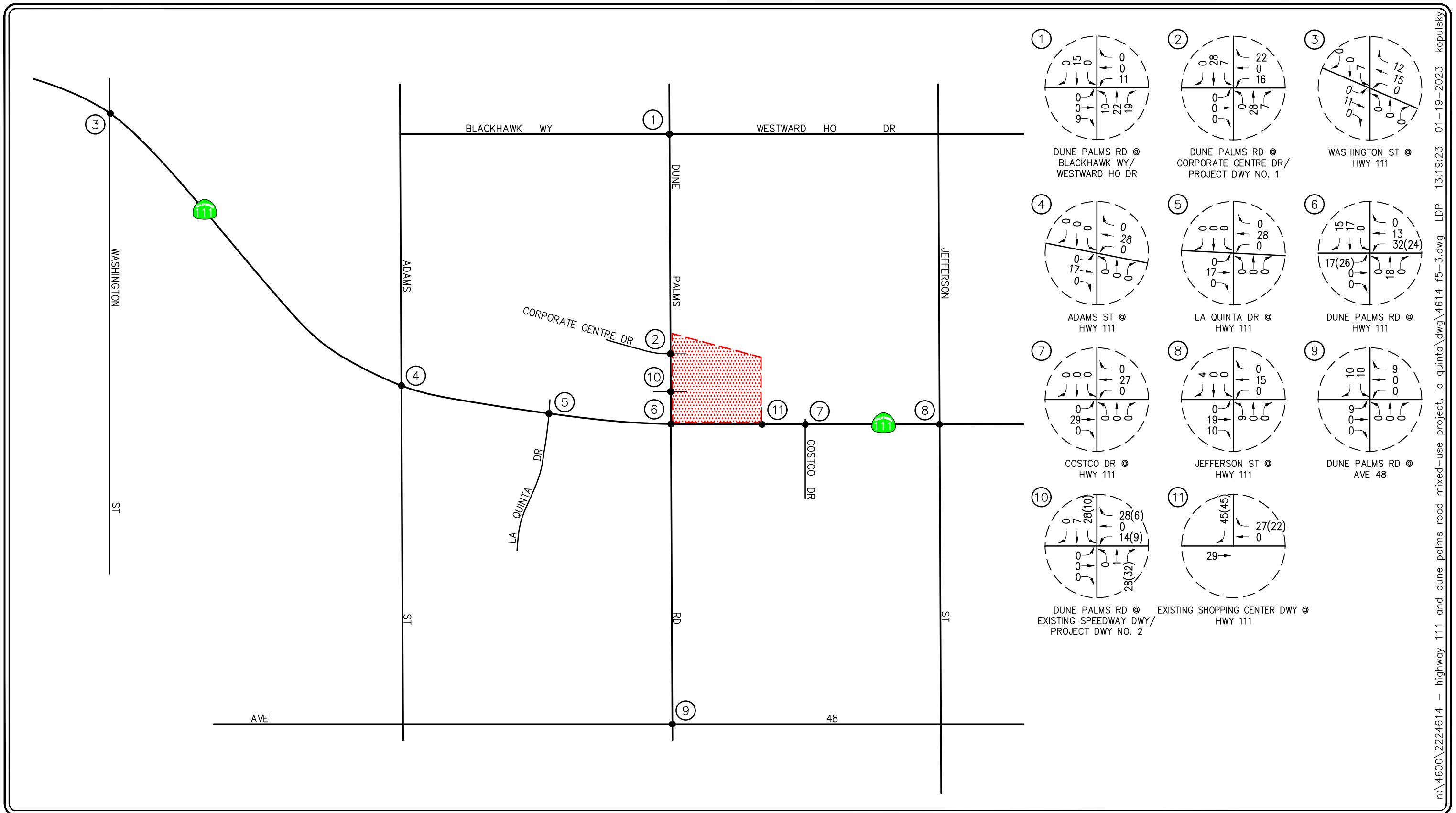
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KEY
 # = STUDY INTERSECTION
 ← = INBOUND PERCENTAGE
 → = OUTBOUND PERCENTAGE
 [Red Hatched Box] = PROJECT SITE

FIGURE 5-2

PROJECT TRAFFIC DISTRIBUTION PATTERN - RETAIL
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



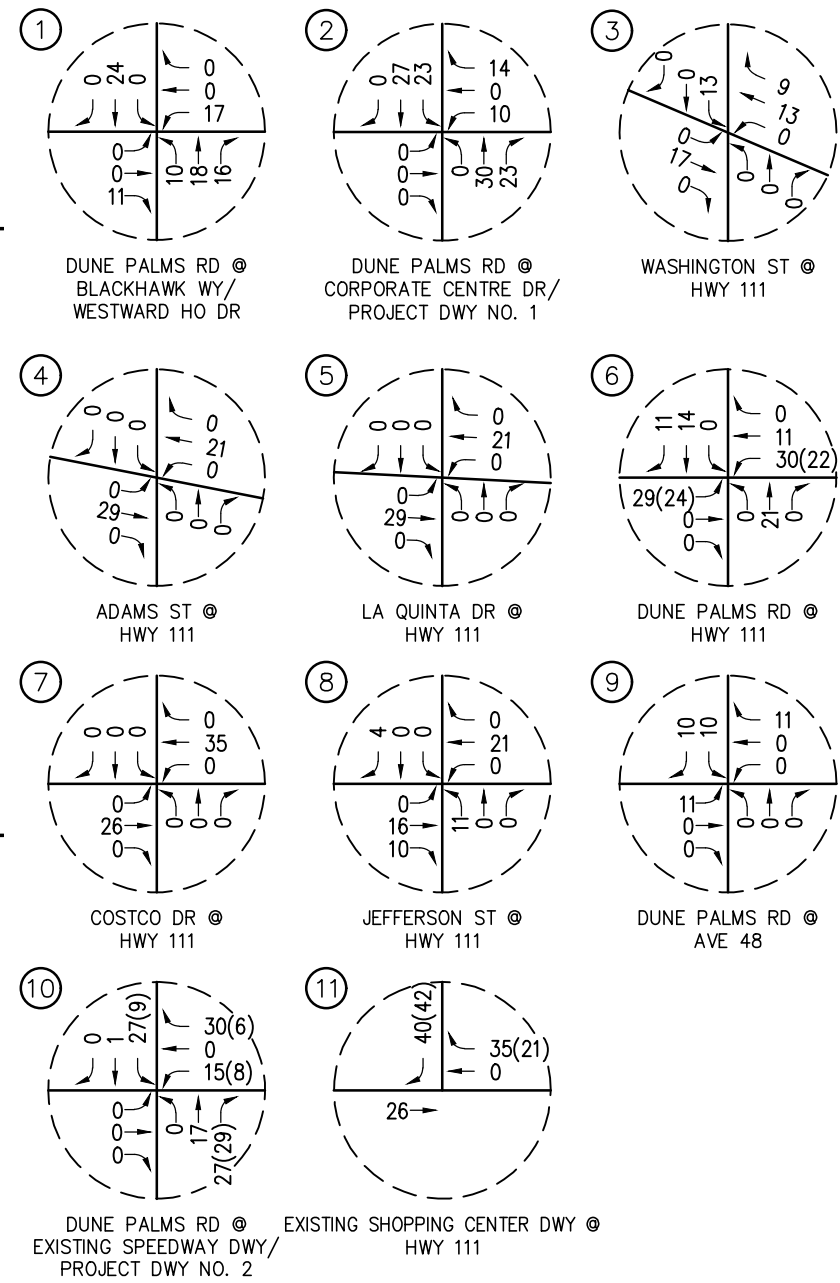
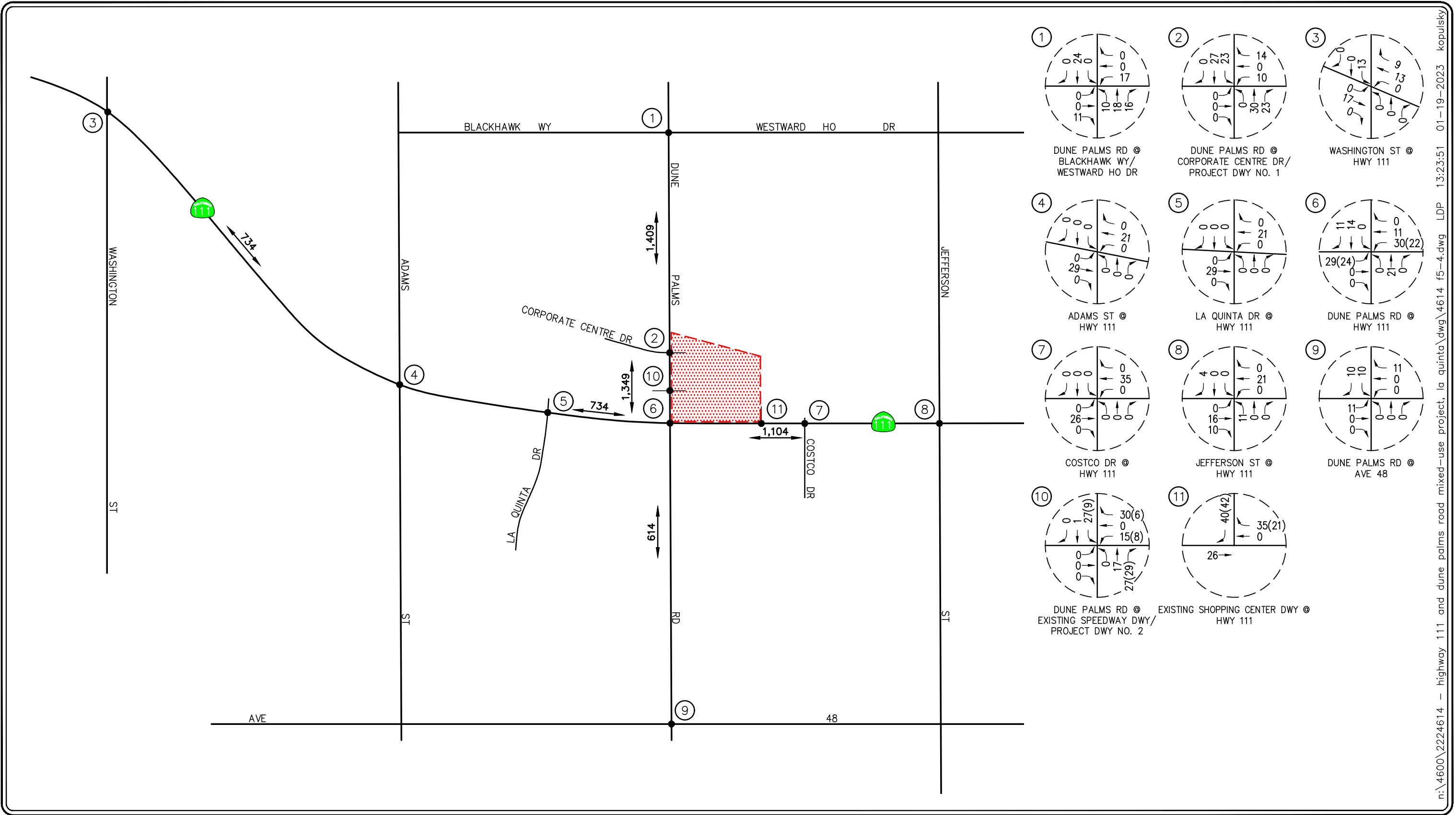
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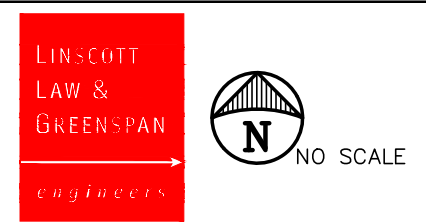
KEY
 # STUDY INTERSECTION
 (XX) = PASS-BY TRIPS
 [Red Hatched Box] = PROJECT SITE

FIGURE 5-3

AM PEAK HOUR PROJECT TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



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KEY

- # = STUDY INTERSECTION
- (XX) = PASS-BY TRIPS
- XX,XXX = DAILY TRAFFIC VOLUMES
- [Red Hatched Box] = PROJECT SITE

FIGURE 5-4
PM PEAK HOUR AND DAILY PROJECT TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

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 La Quinta, the future growth in traffic volumes has been calculated at two percent (2.0%) per year. Applied to existing Year 2022 traffic volumes results in an eight percent (8.0%) 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 at the Cities of La Quinta and 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 nine (9) cumulative projects in the City of La Quinta and four (4) cumulative projects in the City of Indio that have either been built, but not yet fully occupied, or are being processed for approval. These thirteen (13) 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 thirteen (13) 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 thirteen (13) cumulative projects. As shown in *Table 6-2*, the thirteen (13) cumulative projects are forecast to generate a combined total of 20,686 weekday daily trips, with 1,016 trips forecast during the AM peak hour and 1,429 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. *Figure 6-3* also presents the cumulative projects average daily traffic volumes for the six (6) key roadway segments in the vicinity of the proposed Project. 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 eleven (11) key study intersections, respectively. *Figure 6-5* also presents the existing with ambient growth with project average daily traffic volumes for the six (6) key roadway segments in the vicinity of the proposed Project.

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 eleven (11) key study intersections, respectively. *Figure 6-7* also presents the existing with ambient growth with project with cumulative projects average daily traffic volumes for the six (6) key roadway segments in the vicinity of the proposed Project.

TABLE 6-1
DESCRIPTION OF CUMULATIVE PROJECTS¹⁰

No.	Cumulative Project	Location/Address	Description
<i>City of La Quinta</i>			
1.	Pavilion Palms Shopping Center	NWC of Avenue 50 and Jefferson Street	125,000 SF shopping center
2.	Centre at La Quinta	SEC of Avenue 47 and Adams Street	133 DU multifamily and 120 room hotel
3.	Jefferson Street Apartments	SEC of Jefferson Street and Palm Circle Drive	42 DU multifamily
4.	St. Francis Parish Hall	47225 Washington Street	27,334 SF church
5.	Caleo Bay Park Commercial Building	47875 Caleo Bay Drive	8,337 SF commercial building
6.	Panera Drive-Through	78902 CA-111	4,335 SF drive-through restaurant
7.	Troutdale Village	NEC of Avenue 50 and Washington Street	284 DU multifamily
8.	Point Happy Homes	SWC of Clarke Court and Bradshaw Trail	29 DU single family
9.	Hampton Inn	SEC of La Quinta Drive at Auto Centre Drive	125 room hotel
<i>City of Indio</i>			
10.	Arroyo Crossing Phase I and II	West of Jefferson Street between Highway 111 and Avenue 48	Phase I - 184 DU multifamily affordable housing and 10,000 SF office Phase II - 216 DU multifamily affordable housing
11.	Canopy at Citrus	NEC of Jefferson Street and Avenue 50	25,250 SF commercial and 62 DU multifamily
12.	Crossings	North of Avenue 50 between Jefferson Street and Madison Street	103 DU single family
13.	Ventana	80500 Avenue 50	103 DU single family

Notes:

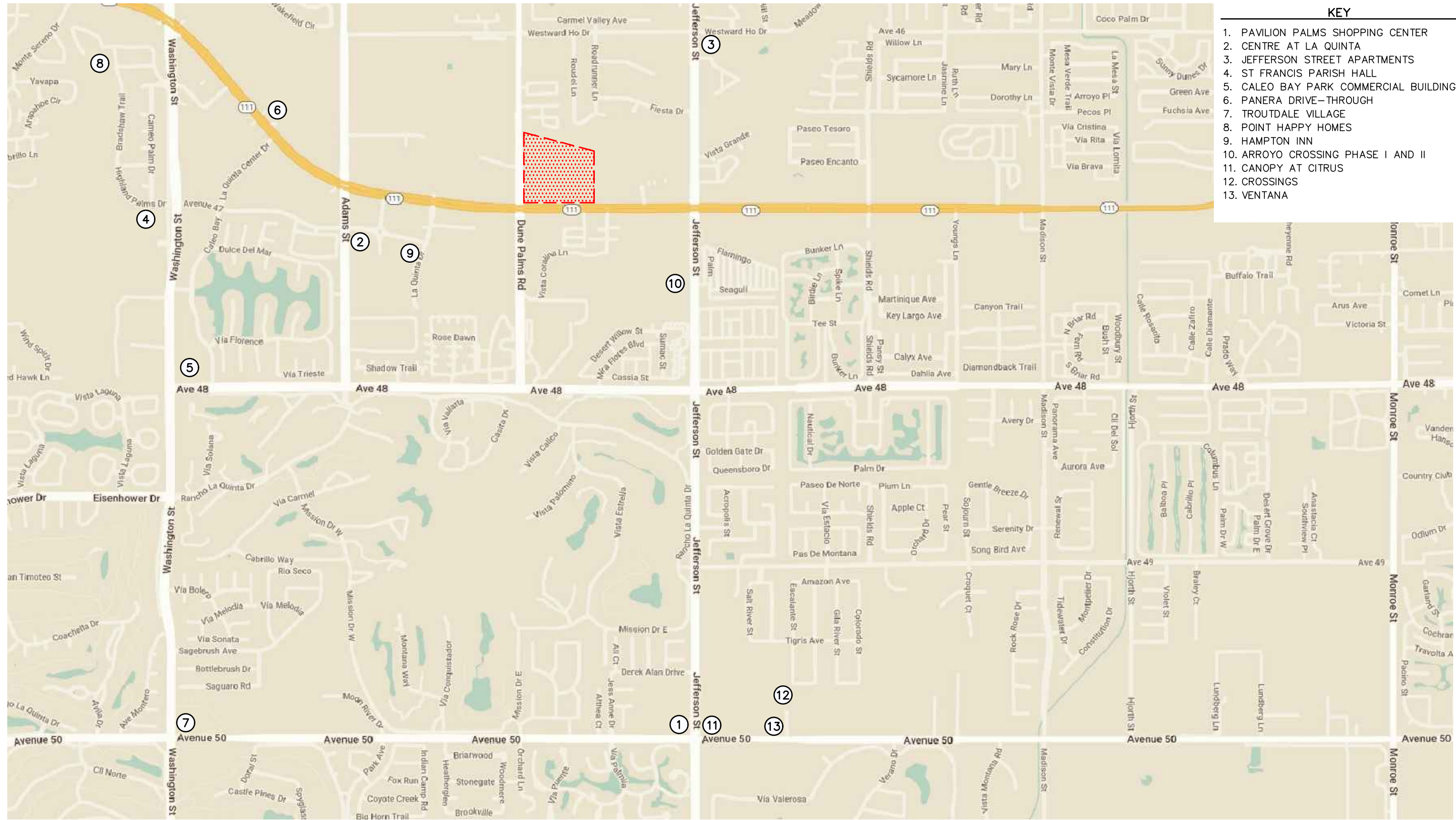
- SF = Square-feet
- DU = Dwelling units
- VFP = Vehicle Fueling Positions

¹⁰ Source: City of La Quinta and City of Indio Planning Departments.

**TABLE 6-2
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST¹¹**

Cumulative Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1. Pavilion Palms Shopping Center	7,596	121	73	194	191	198	389
2. Centre at La Quinta	1,855	44	64	108	79	60	139
3. Jefferson Street Apartments	283	4	13	17	13	8	21
4. St. Francis Parish Hall	208	6	3	9	6	7	13
5. Caleo Bay Park Commercial Building	409	11	7	18	17	16	33
6. Panera Drive-Through	1,520	49	47	96	33	31	64
7. Troutdale Village	1,914	27	87	114	91	54	145
8. Point Happy Homes	273	5	15	20	17	10	27
9. Hampton Inn	999	32	26	58	38	36	74
10. Arroyo Crossing Phase I and II	2,032	55	104	159	111	87	198
11. Canopy at Citrus	1,655	38	41	79	70	62	132
12. Crossings	971	19	53	72	61	36	97
13. Ventana	971	19	53	72	61	36	97
Cumulative Projects Total Trip Generation Potential	20,686	430	586	1,016	788	641	1,429

¹¹ Unless otherwise noted, Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).



- KEY**
1. PAVILION PALMS SHOPPING CENTER
 2. CENTRE AT LA QUINTA
 3. JEFFERSON STREET APARTMENTS
 4. ST FRANCIS PARISH HALL
 5. CALEO BAY PARK COMMERCIAL BUILDING
 6. PANERA DRIVE-THROUGH
 7. TROUTDALE VILLAGE
 8. POINT HAPPY HOMES
 9. HAMPTON INN
 10. ARROYO CROSSING PHASE I AND II
 11. CANOPY AT CITRUS
 12. CROSSINGS
 13. VENTANA

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SOURCE: GOOGLE

KEY



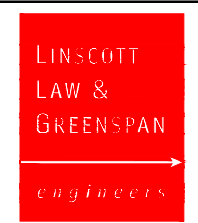
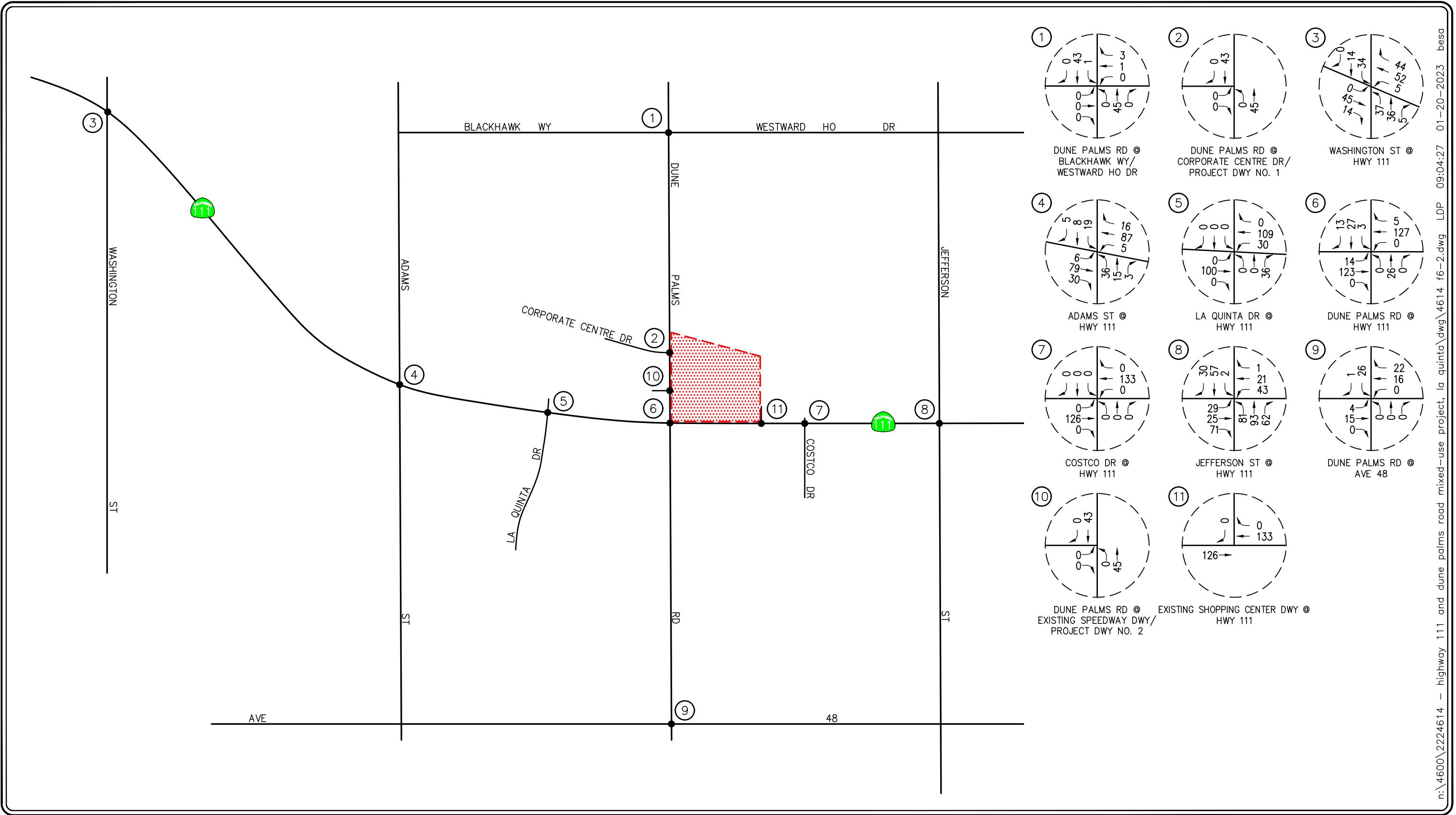
-  = CUMULATIVE PROJECTS LOCATION
-  = PROJECT SITE

FIGURE 6-1

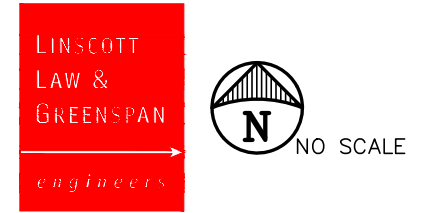
CUMULATIVE PROJECT LOCATION MAP

HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA





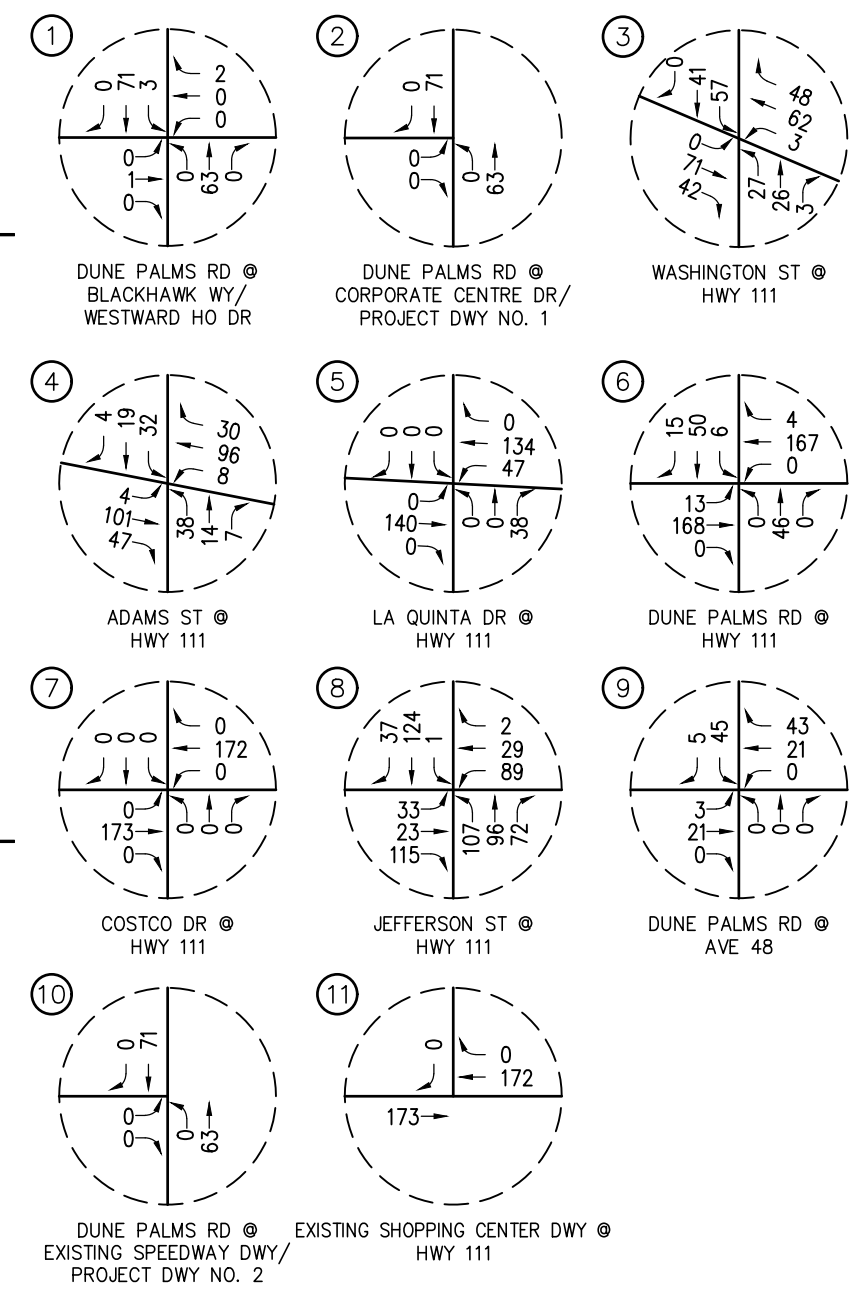
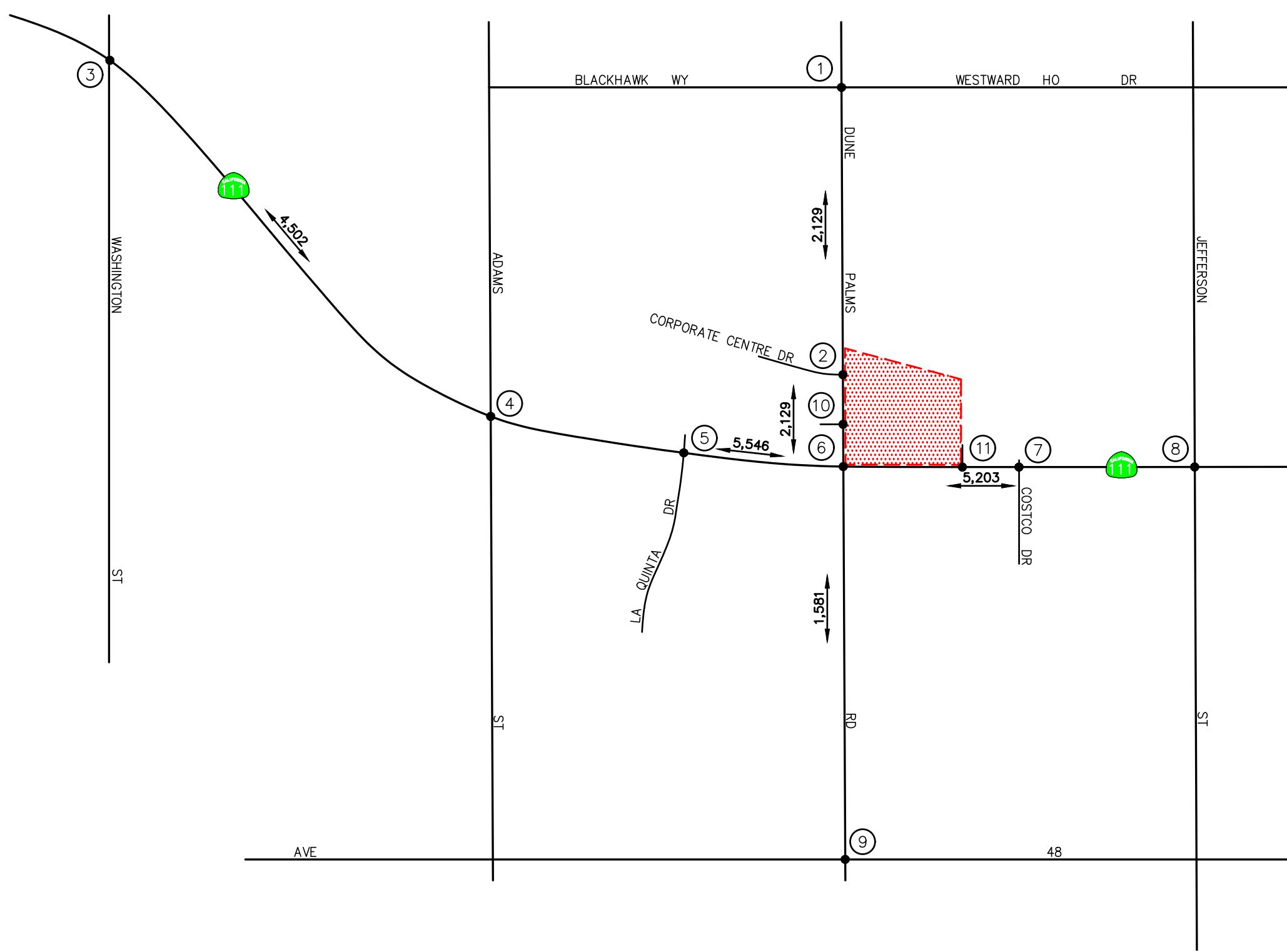
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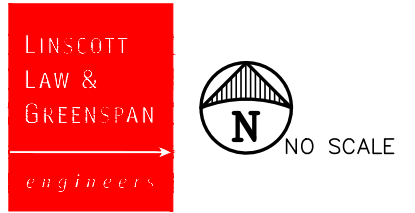
KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE

FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

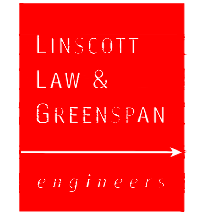
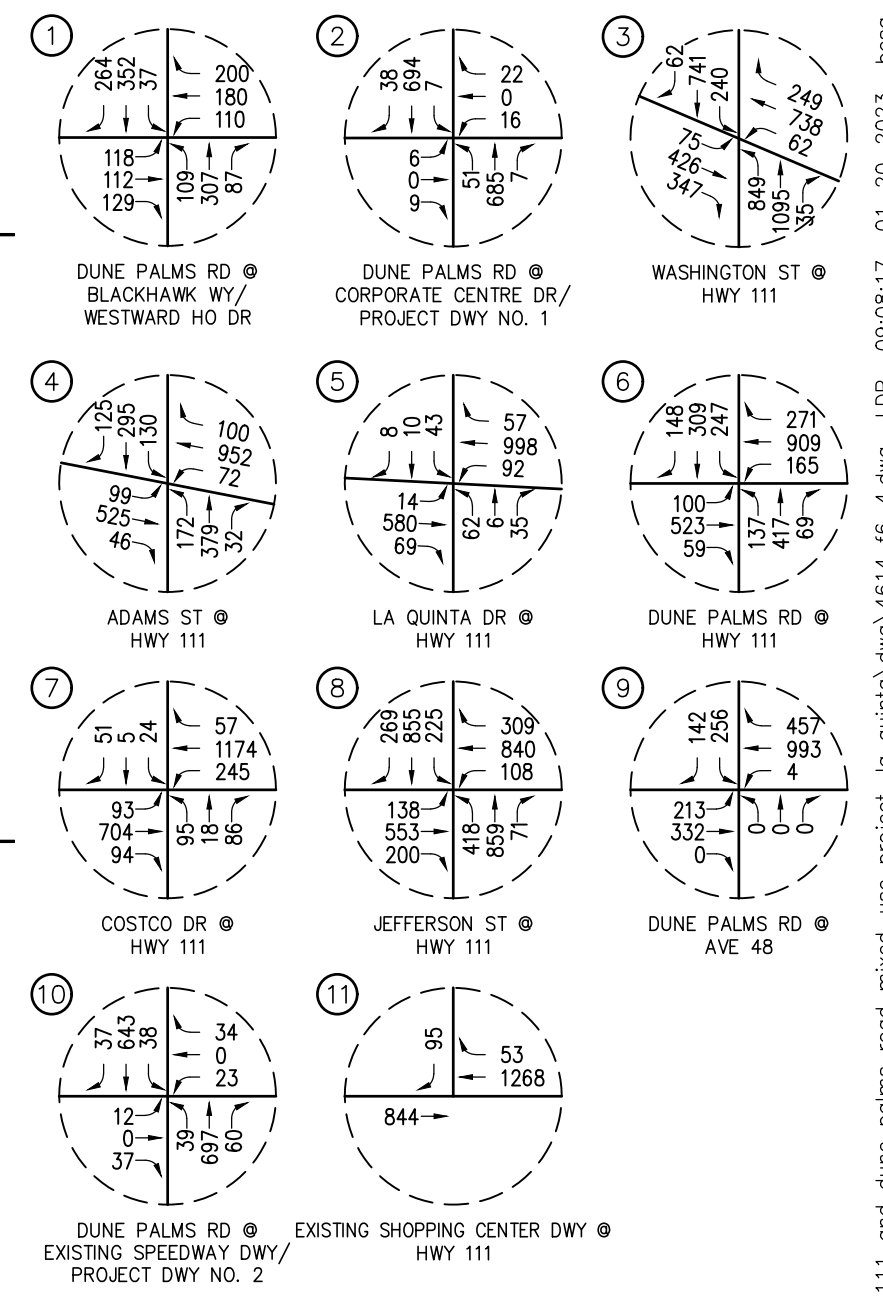
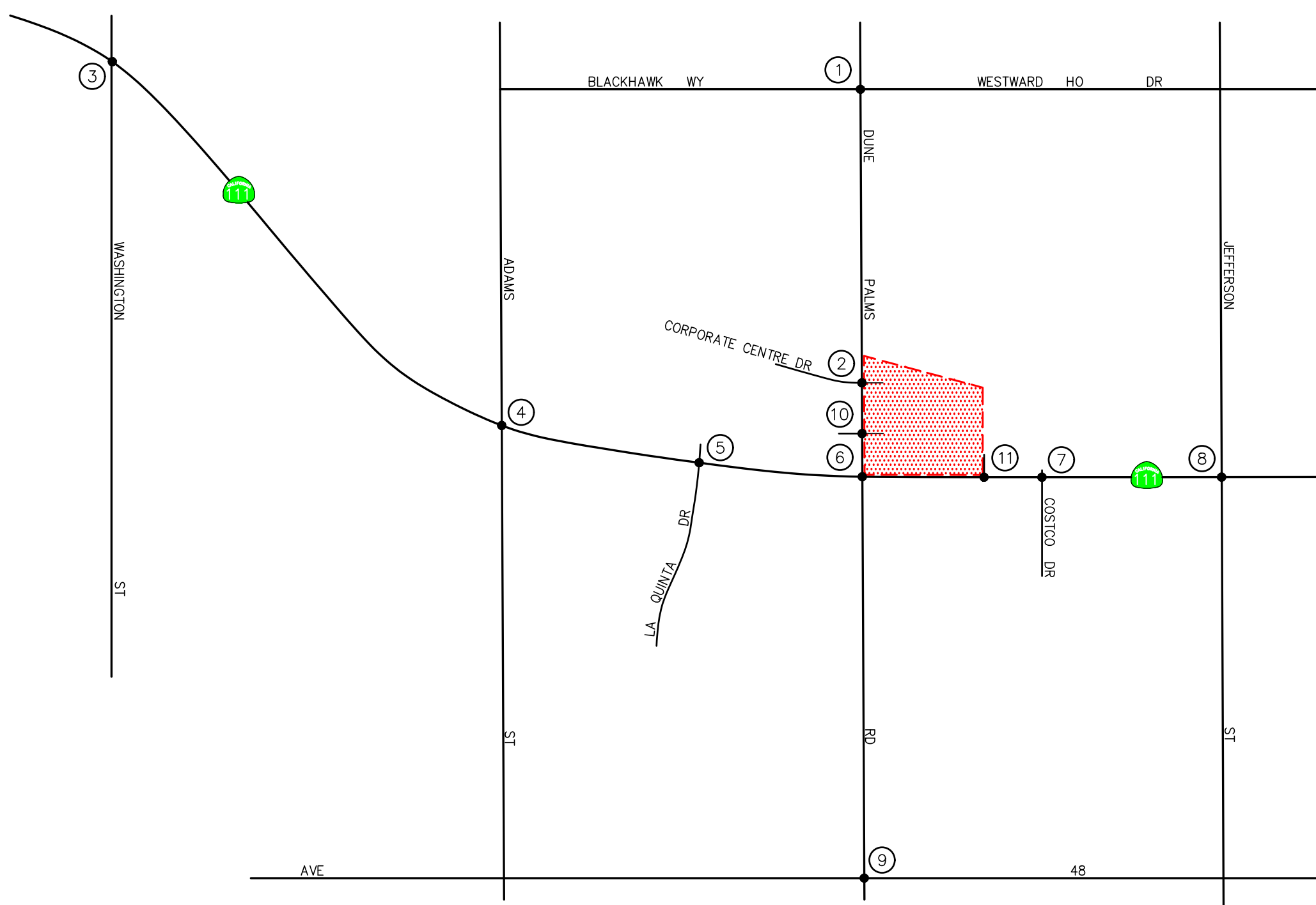


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KEY
 # = STUDY INTERSECTION
 xx,xxx = DAILY TRAFFIC VOLUMES
 [Red Hatched Box] = PROJECT SITE

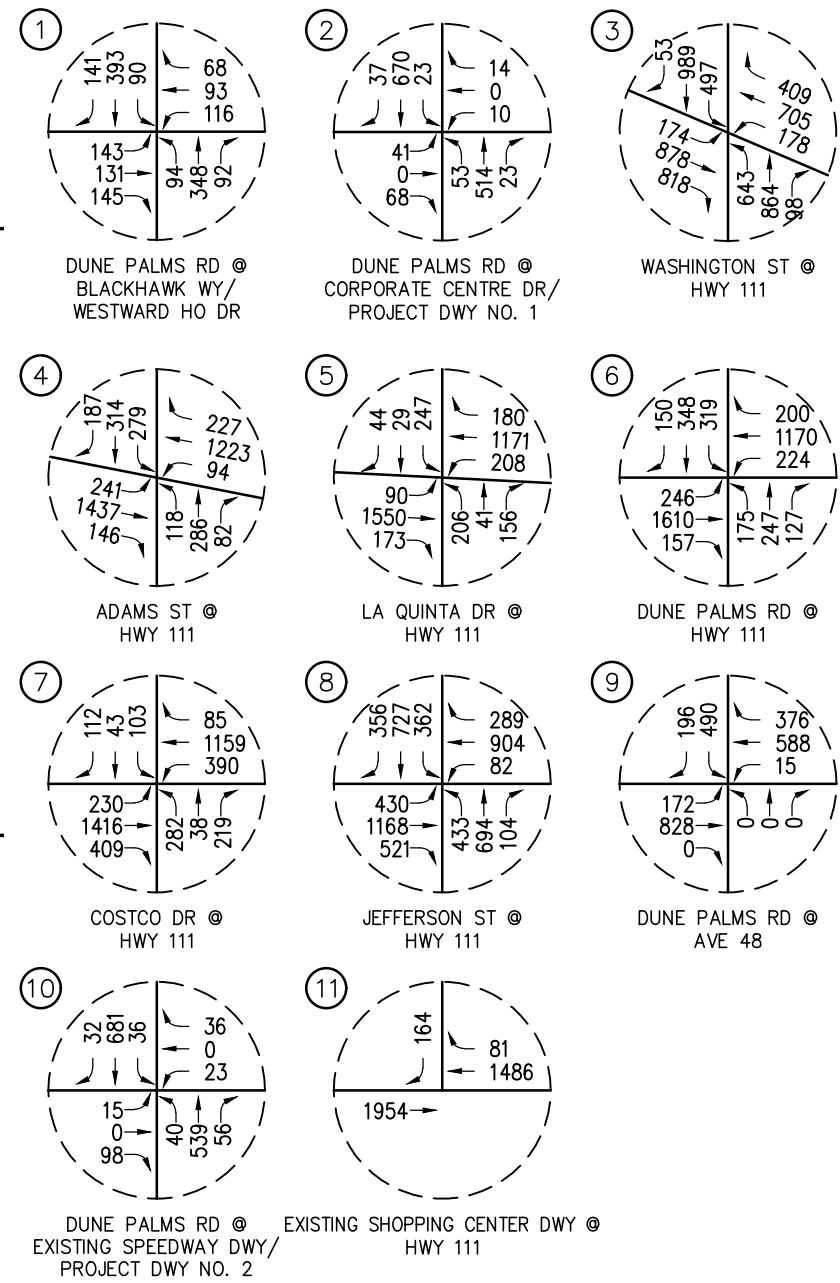
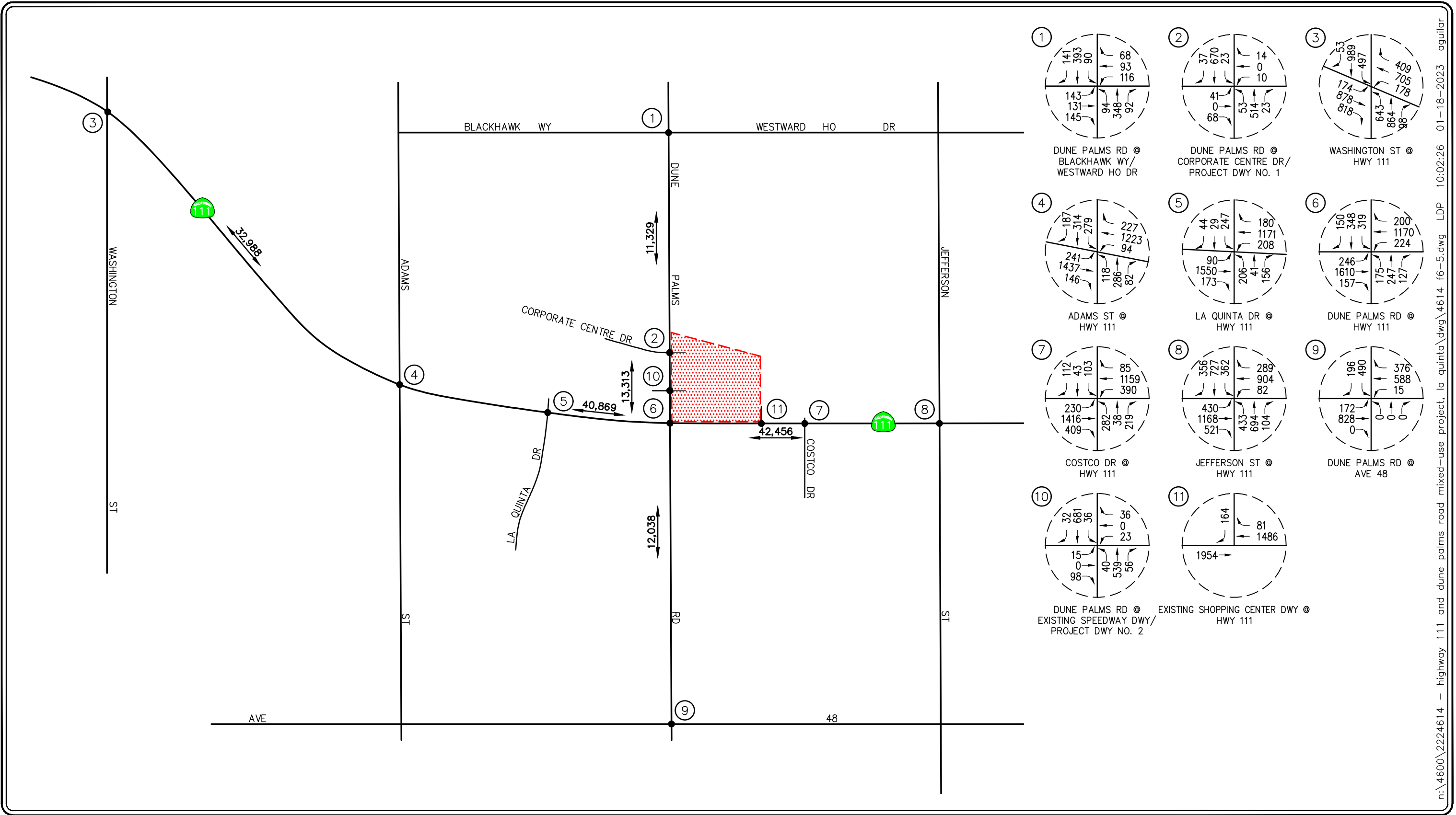
FIGURE 6-3
PM PEAK HOUR AND DAILY CUMULATIVE PROJECTS TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE

FIGURE 6-4
EXISTING WITH AMBIENT GROWTH WITH PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

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n:\4600\2224614 - highway 111 and dune palms road mixed-use project, la quinta\dwg\4614 f6-5.dwg LDP 10:02:26 01-18-2023 aguilars

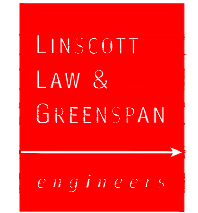
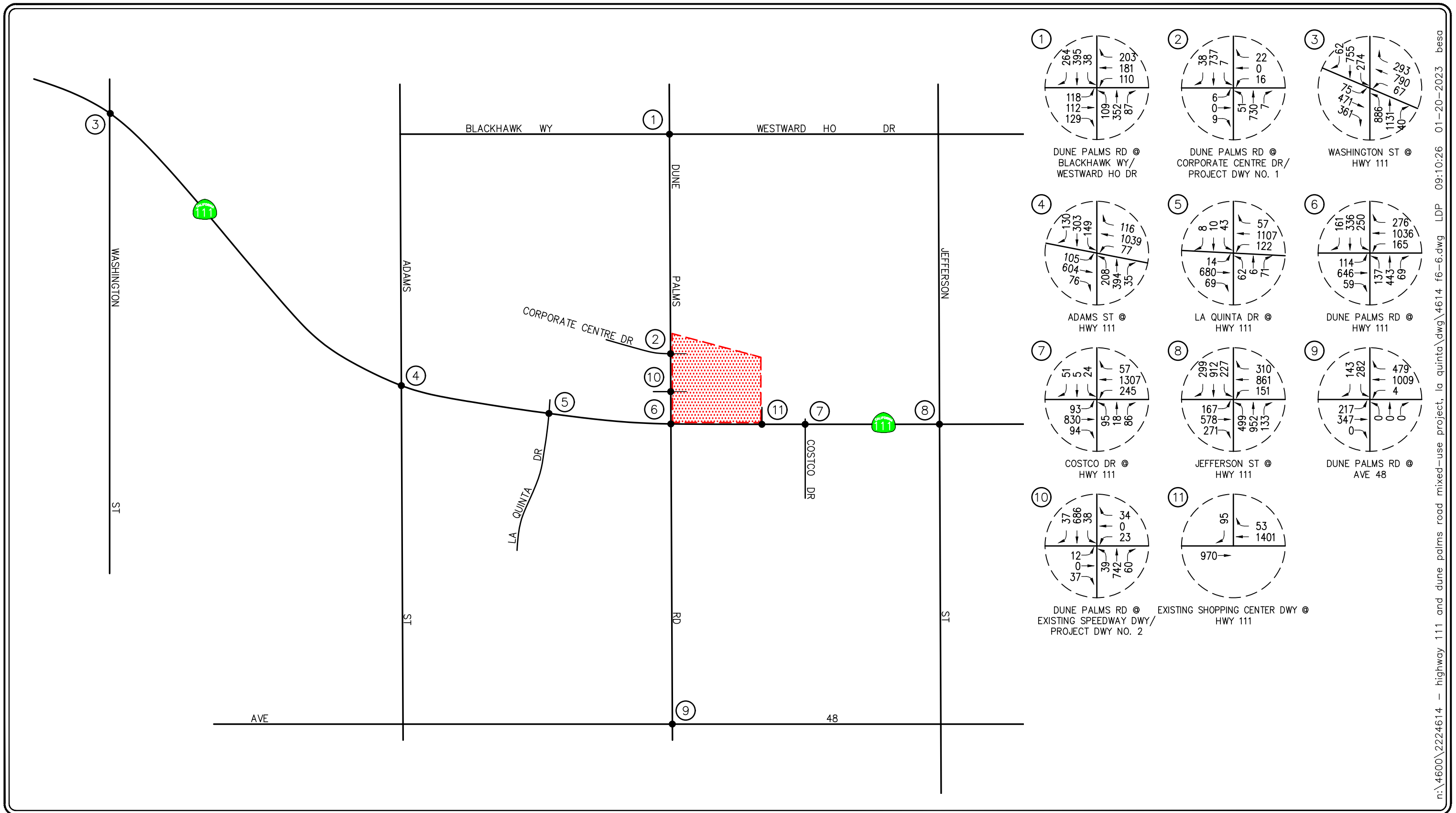
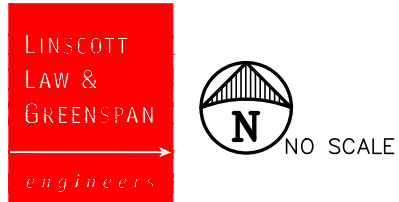


FIGURE 6-5
EXISTING WITH AMBIENT GROWTH WITH PROJECT
PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

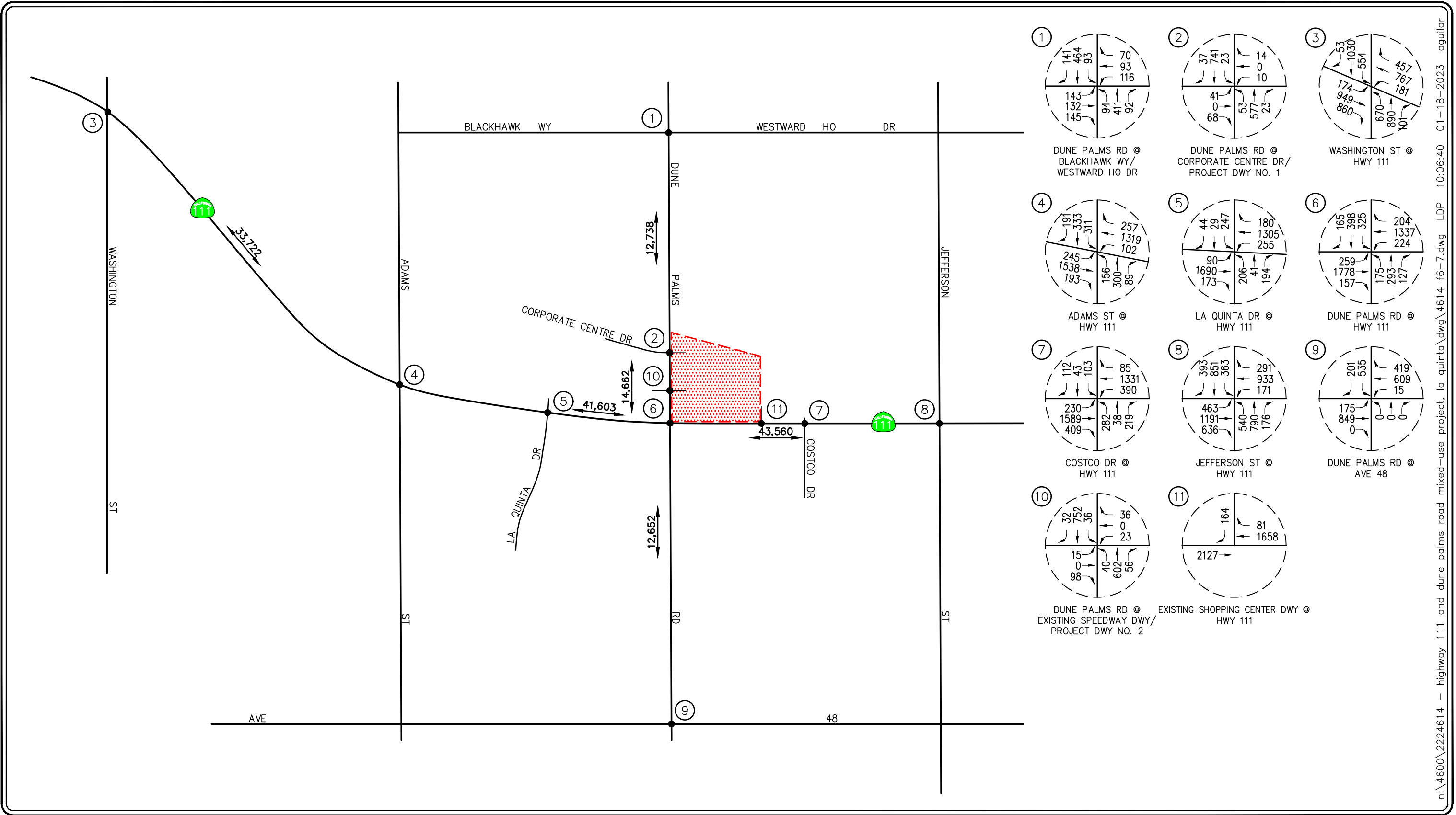


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KEY
 # = STUDY INTERSECTION
 [Red Hatched Box] = PROJECT SITE

FIGURE 6-6
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS AM PEAK HOUR TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA



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KEY
 # = STUDY INTERSECTION
 xx,xxx = DAILY TRAFFIC VOLUMES
 [Red Hatched Box] = PROJECT SITE

FIGURE 6-7
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE
PROJECTS PM PEAK HOUR AND DAILY TRAFFIC VOLUMES
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

The relative impact of the proposed Project during the daily, AM peak hour and PM peak hour was evaluated based on analysis of future operating conditions at the key study intersections (i.e. AM and PM peak hours) and key roadway segments (i.e. daily), 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 and roadway segment. The significance of the potential impacts of the Project at each key intersection and key roadway segment was then evaluated using the following traffic impact criteria.

7.1.1 Intersections

The City of La Quinta has established LOS “D” as the minimum level of service for signalized intersections. Unsignalized intersections shall have a LOS “D” or better for all critical movements at an all-way stop-controlled intersection and a LOS “E” for a side street on a two-way stop-controlled intersection.

Per the City of La Quinta Circulation Element, at intersections along roadways contained in the Riverside County Congestion Management Program (CMP) System of Highways and Roadways, the minimum level of service required is to be not worse than LOS E. Within the City of La Quinta, Highway 111 is designated as a CMP facility. Therefore, LOS E operations are considered acceptable at intersections located along Highway 111.

Based on the above, the following summarizes the LOS required for each key study intersection:

<u>LOS “D” Requirements</u>
1. Dune Palms Road at Blackhawk Way/Westward Ho Drive 9. Dune Palms Road at Avenue 48
<u>LOS “E” Requirements</u>
2. Dune Palms Road at Corporate Centre Drive/Project Driveway 1 3. Washington Street at Highway 111 4. Adams Street at Highway 111 5. La Quinta Drive at Highway 111 6. Dune Palms Road at Highway 111 7. Costco Drive at Highway 111 8. Jefferson Street at Highway 111 10. Dune Palms Road at Existing Speedway Driveway/Project Driveway 2 11. Existing Shopping Center Driveway at Highway 111

A potentially significant project traffic impact is defined to occur at any signalized intersection if the project trips will result in the LOS for that intersection exceeding the following criteria:

- LOS “E” and an increase in delay of 2 seconds or more
- LOS “F” and an increase in delay of 1 second or more

A potentially significant impact at an unsignalized study intersection is defined to occur when, with project traffic included, an intersection has a projected LOS “F” on a side street for two-way stop-controlled intersections or LOS “E” or worse for the intersection at an all-way stop-controlled intersection and the addition of project traffic results in an addition of 3 seconds or more of delay for any movement.

7.1.2 Roadway Segments

The City of La Quinta has established LOS “D” as the minimum level of service for its roadway segments.

A potentially significant project traffic impact is defined to occur on any road segment if the segment is projected to be operating at LOS “E” or LOS “F” with project traffic included and the peak hour V/C in the peak direction is increased by 0.02 or more by addition of project traffic

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which level of service calculations have been performed at the key study intersections and key roadway segments 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 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Existing With Ambient Growth With Project Traffic Conditions

Table 8-1 summarizes the peak hour level of service results at the eleven (11) 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. The second column (2) lists Existing With Ambient Growth With Project traffic conditions. The third column (3) shows the increase in delay value due to the added peak hour project trips and indicates whether the Project will cause an operational deficiency based on the LOS criteria defined in this report. The fourth column (4) indicates the anticipated operating conditions with implementation of recommended improvements.

8.1.1 Existing Traffic Conditions

Review of column (1) of *Table 8-1* indicates that for Existing traffic conditions, all eleven (11) key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

8.1.2 Existing With Ambient Growth With Project Traffic Conditions

Review of columns (2) and (3) of *Table 8-1* indicates that traffic associated with the proposed Project ***will not*** adversely impact the eleven (11) key study intersections when compared to the LOS criteria defined in this report. The eleven (11) key study intersections currently operate and are forecast to continue to operate in the Year 2026 at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic and ambient growth traffic.

8.2 Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

Table 8-2 summarizes the peak hour level of service results at the eleven (11) 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 8-2* presents a summary of existing AM and PM peak hour traffic. The second column (2) lists Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. The third column (3) shows the increase in delay value due to the added peak hour project trips and indicates whether the Project will cause an operational deficiency based on the LOS criteria defined in this report. The fourth column (4) indicates the anticipated operating conditions with implementation of recommended improvements.

Review of columns (2) and (3) of *Table 8-2* indicates that traffic associated with the proposed Project ***will not*** adversely impact the eleven (11) key study intersections when compared to the LOS criteria defined in this report. The eleven (11) key study intersections are forecast to continue to operate in the Year 2026 at an acceptable LOS during the AM and PM peak hours with the addition of Project generated traffic to existing traffic, ambient growth traffic and cumulative traffic.

Appendix C presents the Existing, Existing With Ambient Growth With Project and Existing With Ambient Growth With Project With Cumulative Projects HCM/LOS calculations for the eleven (11) key study intersections.

TABLE 8-1
EXISTING WITH AMBIENT GROWTH WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY¹²

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. Dune Palms Road at Blackhawk Way/Westward Ho Drive	AM	LOS D	35.5	D	46.3	D	10.8	No	--	--
	PM		37.5	D	41.5	D	4.0	No	--	--
2. Dune Palms Road at Corporate Centre Drive/Project Dwy 1	AM	LOS E	15.9	C	23.8	C	7.9	No	--	--
	PM		13.8	B	17.1	C	3.3	No	--	--
3. Washington Street at Highway 111	AM	LOS E	28.1	C	28.5	C	0.4	No	--	--
	PM		27.8	C	28.5	C	0.7	No	--	--
4. Adams Street at Highway 111	AM	LOS E	24.1	C	24.3	C	0.2	No	--	--
	PM		23.1	C	23.9	C	0.8	No	--	--
5. La Quinta Drive at Highway 111	AM	LOS E	11.7	B	12.0	B	0.3	No	--	--
	PM		22.4	C	24.0	C	1.6	No	--	--
6. Dune Palms Road at Highway 111	AM	LOS E	25.4	C	27.1	C	1.7	No	--	--
	PM		24.4	C	26.6	C	2.2	No	--	--

Notes:

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

¹² **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-1 (CONTINUED)
EXISTING WITH AMBIENT GROWTH WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY¹³

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
7. Costco Drive at Highway 111	AM	LOS E	17.7	B	18.1	B	0.4	No	--	--
	PM		26.6	C	29.2	C	2.6	No	--	--
8. Jefferson Street at Highway 111	AM	LOS E	33.7	C	35.1	D	1.4	No	--	--
	PM		35.9	D	39.7	D	3.8	No	--	--
9. Dune Palms Road at Avenue 48	AM	LOS D	20.3	C	22.9	C	2.6	No	--	--
	PM		21.6	C	22.8	C	1.2	No	--	--
10. Dune Palms Road at Existing Speedway Dwy/Project Dwy 2	AM	LOS E	14.8	B	27.7	D	12.9	No	--	--
	PM		13.8	B	18.5	C	4.7	No	--	--
11. Existing Shopping Center Dwy at Highway 111	AM	LOS E	16.1	C	23.1	C	7.0	No	--	--
	PM		20.5	C	33.9	D	13.4	No	--	--

Notes:

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

¹³ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-2
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY¹⁴

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. Dune Palms Road at Blackhawk Way/Westward Ho Drive	AM	LOS D	35.5	D	33.7	C	0.0	No	--	--
	PM		37.5	D	36.3	D	0.0	No	--	--
2. Dune Palms Road at Corporate Centre Drive/Project Dwy 1	AM	LOS E	15.9	C	16.9	C	1.0	No	--	--
	PM		13.8	B	16.8	C	3.0	No	--	--
3. Washington Street at Highway 111	AM	LOS E	28.1	C	28.0	C	0.0	No	--	--
	PM		27.8	C	29.2	C	1.4	No	--	--
4. Adams Street at Highway 111	AM	LOS E	24.1	C	24.2	C	0.1	No	--	--
	PM		23.1	C	24.4	C	1.3	No	--	--
5. La Quinta Drive at Highway 111	AM	LOS E	11.7	B	13.1	B	1.4	No	--	--
	PM		22.4	C	26.3	C	3.9	No	--	--
6. Dune Palms Road at Highway 111	AM	LOS E	25.4	C	25.9	C	0.5	No	--	--
	PM		24.4	C	26.9	C	2.5	No	--	--

Notes:

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

¹⁴ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-2 (CONTINUED)

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY¹⁵

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
7. Costco Drive at Highway 111	AM	LOS E	17.7	B	17.2	B	0.0	No	--	--
	PM		26.6	C	29.3	C	2.7	No	--	--
8. Jefferson Street at Highway 111	AM	LOS E	33.7	C	35.8	D	2.1	No	--	--
	PM		35.9	D	52.3	D	16.4	No	--	--
9. Dune Palms Road at Avenue 48	AM	LOS D	20.3	C	23.0	C	2.7	No	--	--
	PM		21.6	C	23.7	C	2.1	No	--	--
10. Dune Palms Road at Existing Speedway Dwy/Project Dwy 2	AM	LOS E	14.8	B	18.3	C	3.5	No	--	--
	PM		13.8	B	16.9	C	3.1	No	--	--
11. Existing Shopping Center Dwy at Highway 111	AM	LOS E	16.1	C	22.1	C	6.0	No	--	--
	PM		20.5	C	45.6	E	25.1	No	--	--

Notes:

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

¹⁵ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

9.0 ROADWAY SEGMENT ANALYSIS

9.1 Existing With Ambient Growth With Project Traffic Conditions

Table 9-1 summarizes the roadway segment level of service results at the six (6) key roadway segments for “Existing With Ambient Growth With Project” traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the arterial classification, and the third column (3) shows the existing LOS “E” capacity. The fourth column (4) presents a summary of existing daily traffic conditions. The fifth column (5) lists existing with ambient growth with project daily traffic conditions. Column (5) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will result in an adverse level of service based on the LOS standards defined in this report.

9.1.1 Existing Traffic Conditions

Review of column (4) of *Table 9-1* indicates that all six (6) key roadway segments currently operate at acceptable levels of service on a daily basis when compared to the LOS standards defined in this report.

9.1.2 Existing With Ambient Growth With Project Traffic Conditions

Review of column (5) of *Table 9-1* indicates that traffic associated with the proposed Project ***will not*** adversely impact the six (6) key roadway segments when compared to the LOS criteria defined in this report. The six (6) key roadway segments currently operate and are forecast to continue to operate in the Year 2026 at an acceptable LOS on a daily basis with the addition of Project generated traffic to existing traffic and ambient growth traffic.

9.2 Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

Table 9-2 summarizes the roadway segment level of service results at the six (6) key roadway segments for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. The first column (1) shows the number of lanes, the second column (2) shows the arterial classification, and the third column (3) shows the existing LOS “E” capacity. The fourth column (4) presents a summary of existing daily traffic conditions. The fifth column (5) lists existing with ambient growth with project with cumulative projects daily traffic conditions. Column (5) also shows the increase in V/C ratio value due to the added daily project trips and indicates whether the traffic associated with the Project will result in an adverse level of service based on the LOS standards defined in this report.

Review of column (5) of *Table 9-2* indicates that traffic associated with the proposed Project ***will not*** adversely impact the six (6) key roadway segments when compared to the LOS criteria defined in this report. The six (6) key roadway segments are forecast to continue to operate in the Year 2026 at an acceptable LOS on a daily basis with the addition of Project generated traffic to existing traffic, ambient growth traffic and cumulative traffic.

TABLE 9-1
EXISTING WITH AMBIENT GROWTH WITH PROJECT CONDITIONS DAILY ROADWAY SEGMENT ANALYSIS SUMMARY

Key Roadway Segment	(1) Lanes	(2) Type of Arterial	(3) LOS E Capacity (VPD)	(4) Existing Traffic Conditions			(5) Existing With A.G. (Year 2026) With Project Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Adverse (Yes/No)
				A. <u>Dune Palms Road</u> , north of Corporate Centre Drive	3D	Primary	30,800	9,185	0.298	A	11,329
B. <u>Dune Palms Road</u> , between Corporate Centre Drive and Highway 111	3D	Primary	30,800	11,078	0.360	A	13,313	0.432	A	0.072	No
C. <u>Highway 111</u> , between Washington Street and Adams Street	6D	Major	61,100	29,865	0.489	A	32,988	0.540	A	0.051	No
D. <u>Highway 111</u> , between La Quinta Drive and Dune Palms Road	6D	Major	61,100	37,162	0.608	B	40,869	0.669	B	0.061	No
E. <u>Highway 111</u> , between Dune Palms Road and Costco Drive	6D	Major	61,100	38,289	0.627	B	42,456	0.695	B	0.068	No
F. <u>Dune Palms Road</u> , between Highway 111 and Avenue 48	4D	Primary	42,600	10,578	0.248	A	12,038	0.283	A	0.035	No

Notes:

- VPD = Vehicles Per Day
- D = Divided
- U = Undivided
- V/C = Volume to Capacity Ratio
- LOS = Level of Service, please refer to *Table 3-3* for the LOS definitions.
- **Bold V/C ratios and LOS values** indicate unacceptable service levels.

TABLE 9-2

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS CONDITIONS DAILY ROADWAY SEGMENT ANALYSIS SUMMARY

Key Roadway Segment	(1) Lanes	(2) Type of Arterial	(3) LOS E Capacity (VPD)	(4) Existing Traffic Conditions			(5) Existing With A.G. (Year 2026) With Project With Cumulative Traffic Conditions				
				Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Adverse (Yes/No)
				A. <u>Dune Palms Road</u> , north of Corporate Centre Drive	3D	Primary	30,800	9,185	0.298	A	12,738
B. <u>Dune Palms Road</u> , between Corporate Centre Drive and Highway 111	3D	Primary	30,800	11,078	0.360	A	14,662	0.476	A	0.116	No
C. <u>Highway 111</u> , between Washington Street and Adams Street	6D	Major	61,100	29,865	0.489	A	33,722	0.552	A	0.063	No
D. <u>Highway 111</u> , between La Quinta Drive and Dune Palms Road	6D	Major	61,100	37,162	0.608	B	41,603	0.681	B	0.073	No
E. <u>Highway 111</u> , between Dune Palms Road and Costco Drive	6D	Major	61,100	38,289	0.627	B	43,560	0.713	C	0.086	No
F. <u>Dune Palms Road</u> , between Highway 111 and Avenue 48	4D	Primary	42,600	10,578	0.248	A	12,652	0.297	A	0.049	No

Notes:

- VPD = Vehicles Per Day
- D = Divided
- U = Undivided
- V/C = Volume to Capacity Ratio
- LOS = Level of Service, please refer to *Table 3-3* for the LOS definitions.
- **Bold V/C ratios and LOS values** indicate unacceptable service levels.

10.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

10.1 Level of Service Analysis for Project Access Locations

As shown in *Figure 2-2*, access to the proposed Project will be provided via two (2) full-access stop-controlled driveways located along Dune Palms Road and via one (1) right-turn in/out only driveway located along Highway 111.

As shown previously in *Tables 8-1* and *8-2*, the three (3) Project driveways (i.e. key study intersections #2, #10 and #11) are forecast to operate at acceptable levels of service during the AM peak hour and PM peak hour under Existing With Ambient Growth With Project traffic conditions and under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. As such, project access will be adequate. Motorists entering and exiting the Project site will be able to do so without undue congestion.

10.2 Project Driveway Queuing Analysis

Table 10-1 presents the project driveway queuing analysis results for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. Review of *Table 10-1* indicates that adequate storage will be provided to accommodate the forecast 95th percentile queues under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions for all inbound and outbound movements at the three (3) project driveways.

10.3 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 and trash trucks. Based on our review of the project site plan, the overall layout does not create significant vehicle-pedestrian conflict points and project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways.

**TABLE 10-1
PROJECT DRIVEWAY PEAK HOUR QUEUING ANALYSIS¹⁶**

Key Intersection	Provided Storage (feet)	Existing With A.G. (Year 2026) With Project With Cumulative Traffic Conditions				
		AM Peak Hour		PM Peak Hour		
		Max. Queue (feet)	Adequate Storage (Yes / No)	Max. Queue (feet)	Adequate Storage (Yes / No)	
2. Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1	<i>Northbound Left -Turn</i>	70' ¹⁷	25'	Yes	25'	Yes
	<i>Southbound Left -Turn</i>	60'	25'	Yes	25'	Yes
	<i>Eastbound Left -Turn</i>	120'	25'	Yes	25'	Yes
	<i>Eastbound Shared Through/Right-Turn</i>	170'	25'	Yes	25'	Yes
	<i>Westbound Shared Left/Through/Right-Turn</i>	TBD	25'	Yes	25'	Yes
10. Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2	<i>Northbound Left -Turn</i>	60'	25'	Yes	25'	Yes
	<i>Southbound Left -Turn</i>	60'	25'	Yes	25'	Yes
	<i>Eastbound Shared Left/Through/Right-Turn</i>	30'	25'	Yes	25'	Yes
	<i>Westbound Shared Left/Through/Right-Turn</i>	TBD	25'	Yes	25'	Yes
11. Existing Shopping Center Driveway at Highway 111	<i>Southbound Right-Turn</i>	230'	34'	Yes	113'	Yes
	<i>Westbound Right-Turn</i>	340'	25'	Yes	25'	Yes

Notes:

- TBD = To Be Determined

¹⁶ Queue is based on the 95th Percentile Queue and is reported in total queue length (feet) per lane for unsignalized intersections.

¹⁷ It should be noted that the existing storage for the northbound left-turn lane at key study intersection #2 is 95 feet. It is recommended that the storage for this left turn lane be reduced by 25 feet to a total of 70 feet in order to accommodate the proposed 60-foot southbound left-turn lane at key study intersection #10.

10.4 Drive-Through Queuing Analysis

The following sections evaluate the adequacy of storage provided for the Chick-fil-A drive-through lane and the Express Car Wash.

10.4.1 Chick-fil-A Drive-Through

To confirm the adequacy of storage provided for the proposed Chick-fil-A drive-through lane, existing queuing observations were conducted at the following three (3) existing Chick-fil-A restaurants.

- Chick-fil-A Irvine, located at 4127 Campus Drive
- Chick-fil-A San Juan Capistrano, located at 31872 Del Obispo Street
- Chick-fil-A Yucaipa, located at 31479 Avenue E

Drive-through queuing observations were conducted at the three (3) locations on two weekdays (Thursday and Friday) and on a Saturday during the morning, mid-day and evening service periods, generally between the hours of 7:00 AM and 9:00 AM, 11:00 AM and 2:00 PM, and 4:00 PM and 7:00 PM. The queuing observations for the Irvine Chick-fil-A and San Juan Capistrano Chick-fil-A were conducted by Transportation Studies Inc. (TSI) on Thursday December 9, 2021, Friday December 10, 2021 and Saturday December 11, 2021. The queuing observations for the Yucaipa Chick-fil-A were conducted by TSI on Thursday December 16, 2021, Friday December 17, 2021 and Saturday December 18, 2021. The vehicular queues observed at the three (3) sites were recorded at 5-minute intervals.

Tables 10-2, 10-3 and 10-4 summarize the Queue Frequency that was observed at the three sites for the weekday (Thursday), weekday (Friday) and weekend (Saturday) peak periods, respectively. Our evaluation of this data indicates that on average during the weekday (Thursday) peak periods, an average queue of 12 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 19 vehicles, a 95th percentile queue of approximately 23 vehicles and a max queue of approximately 27 vehicles. Similarly, our evaluation of this data indicates that on average during the weekday (Friday) peak periods, an average queue of 12 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 18 vehicles, a 95th percentile queue of approximately 22 vehicles and a max queue of approximately 31 vehicles. In addition, our evaluation of this data also indicates that on average during the weekend (Saturday) peak periods, an average queue of 9 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 15 vehicles, a 95th percentile queue of approximately 18 vehicles and a max queue of approximately 27 vehicles. It should be noted that the 85th percentile queue is generally utilized when designing/sizing the length of the proposed drive-through lane.

In conclusion, the three (3) study sites experienced an 85th percentile queue range between 15 vehicles and 19 vehicles. As stated previously, the proposed Project will provide storage for up to 48 vehicles within the proposed drive-through lane without encroaching into the drive aisle. Therefore, the 85th percentile expected queues can be accommodated without interfering with internal circulation or causing congestion to the drive aisles. It should be noted that the proposed 48 vehicle

storage drive-through lane can also accommodate the observed 95th percentile queues (i.e. queue range between 18 vehicles and 23 vehicles). Lastly, it should be noted that the proposed 48 vehicle storage drive-through lane can also accommodate the observed maximum queue of 31 vehicles, which only occurred one time and only at one site throughout the survey days.

Even though it is anticipated that the proposed drive-through lane will accommodate all potential queues on site, Chick-fil-A staff will implement the following program, on an as-needed basis during their peak operating times, to further ensure that vehicles will not queue back onto the public streets. The program consists of the following as provided by Chick-fil-A management staff:

- “Our restaurants are staffed so that if the drive-thru queuing begins stacking onto the street, team members go out and assist with ordering via Chick-fil-A’s iPad ordering system. Our operators use the iPad ordering during our peak hours of 11:30 am to 1:30 pm and any additional time when needed. The iPad ordering system allows team members to take orders, receive payment, and assist with traffic movement within the parking lot.
- Based on data from our other comparable stores, the iPad ordering system increases the Chick-fil-A drive thru speed of service by 30% than the typical speaker box. Putting people forward in the drive-through is one of our biggest competitive advantages in the market because it personally connects our team members with our valued guest. We want to continue this momentum by building a platform to supporting current and future innovations that increase capacity and put our people forward to care for our guest in every interaction. Our customers enjoy the face to face ordering over the standard drive-thru experience.”
- Along with face-to-face ordering, Chick-fil-A implemented a dual drive-through concept from the entrance of the drive-through to the pick-up window. The outer drive-through lane can be used for full order take and meal delivery, mobile pick up lane, or for a pickup point for smaller orders. The Operator has the flexibility to use the second lane as they see fit (during peak demand). Chick-fil-A team members will take orders and deliver orders in both lanes, hence the importance of the canopies to provide shade for the team members. Appropriate safety signage and protocols are placed throughout the drive-thru.
- It should be noted that Chick-fil-A team members will control the drive-through area after the pick-up window ensuring that only one vehicle will leave at a time after they receive their order.

Appendix D presents the drive-through queuing study data for the three (3) existing sites.

10.4.2 Express Car Wash

The Express Wash will have the capacity to stack twenty-one (21) vehicles from the pay station without encroaching into the internal drive aisles. Based on information provided by the operator, the express wash can process up to 120 vehicles per hour. Given the trip generation demand forecasted during the peak hours and the processing rate, minimal queuing is anticipated. Therefore, we conclude that adequate storage is provided for the Express Wash and vehicles are not anticipated to interfere with internal circulation.

TABLE 10-2
WEEKDAY (THURSDAY) QUEUING ANALYSIS SUMMARY

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	Site #1 4127 Campus Dr, Irvine, CA	Site #2 31872 Del Obispo St, San Juan Cap, CA	Site #3 31479 Avenue E, Yucaipa, CA	Total	Frequency	Percentage
0	5	3	0	8	8	2.5%
1	5	2	0	7	15	4.6%
2	0	5	0	5	20	6.2%
3	6	5	2	13	33	10.2%
4	6	5	8	19	52	16.0%
5	3	0	2	5	57	17.6%
6	3	4	8	15	72	22.2%
7	1	8	3	12	84	25.9%
8	3	5	6	14	98	30.2%
9	2	10	7	19	117	36.1%
10	2	12	7	21	138	42.6%
11	1	10	12	23	161	49.7%
12	4	4	7	15	176	54.3%
13	6	10	5	21	197	60.8%
14	4	6	8	18	215	66.4%
15	4	4	4	12	227	70.1%
16	4	4	9	17	244	75.3%
17	9	5	3	17	261	80.6%
18	7	2	2	11	272	84.0%
19	8	1	4	13	285	88.0%
20	4	0	3	7	292	90.1%
21	4	2	0	6	298	92.0%
22	3	1	2	6	304	93.8%
23	5	0	3	8	312	96.3%
24	6	0	1	7	319	98.5%
25	1	0	0	1	320	98.8%
26	0	0	1	1	321	99.1%
27	2	0	1	3	324	100.0%
Total	108	108	108	324	--	--
Average	14.0	10.0	12.0	12.0	--	--
85th Percentile	22.0	15.0	18.0	19.0	--	--
95th Percentile	24.0	18.0	23.0	23.0	--	--
Max	27.0	22.0	27.0	27.0	--	--

**TABLE 10-3
WEEKDAY (FRIDAY) QUEUING ANALYSIS SUMMARY**

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	Site #1 4127 Campus Dr, Irvine, CA	Site #2 31872 Del Obispo St, San Juan Cap, CA	Site #3 31479 Avenue E, Yucaipa, CA	Total	Frequency	Percentage
0	0	3	0	3	3	0.9%
1	0	1	0	1	4	1.2%
2	0	5	2	7	11	3.4%
3	2	4	2	8	19	5.9%
4	1	2	2	5	24	7.4%
5	0	2	6	8	32	9.9%
6	2	5	3	10	42	13.0%
7	4	5	8	17	59	18.2%
8	5	10	5	20	79	24.4%
9	0	10	6	16	95	29.3%
10	6	9	8	23	118	36.4%
11	4	9	9	22	140	43.2%
12	10	7	6	23	163	50.3%
13	6	4	13	23	186	57.4%
14	6	5	6	17	203	62.7%
15	8	7	4	19	222	68.5%
16	5	8	8	21	243	75.0%
17	10	1	4	15	258	79.6%
18	15	2	4	21	279	86.1%
19	6	1	3	10	289	89.2%
20	1	2	0	3	292	90.1%
21	8	1	2	11	303	93.5%
22	3	1	2	6	309	95.4%
23	2	3	1	6	315	97.2%
24	0	0	2	2	317	97.8%
25	1	0	0	1	318	98.1%
26	1	1	0	2	320	98.8%
27	2	0	0	2	322	99.4%
28	0	0	1	1	323	99.7%
29	0	0	0	0	323	99.7%
30	0	0	0	0	323	99.7%
31	0	0	1	1	324	100.0%
Total	108	108	108	324	--	--
Average	15.0	11.0	12.0	12.0	--	--
85th Percentile	21.0	16.0	17.0	18.0	--	--
95th Percentile	23.0	21.0	22.0	22.0	--	--
Max	27.0	26.0	31.0	31.0	--	--

**TABLE 10-4
WEEKEND (SATURDAY) QUEUING ANALYSIS SUMMARY**

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	Site #1 4127 Campus Dr, Irvine, CA	Site #2 31872 Del Obispo St, San Juan Cap, CA	Site #3 31479 Avenue E, Yucaipa, CA	Total	Frequency	Percentage
0	0	6	0	6	6	1.9%
1	3	1	3	7	13	4.0%
2	2	9	1	12	25	7.7%
3	3	4	5	12	37	11.4%
4	2	7	7	16	53	16.4%
5	4	7	7	18	71	21.9%
6	6	6	12	24	95	29.3%
7	4	7	20	31	126	38.9%
8	10	13	4	27	153	47.2%
9	2	3	10	15	168	51.9%
10	6	6	7	19	187	57.7%
11	7	10	5	22	209	64.5%
12	7	9	5	21	230	71.0%
13	10	9	6	25	255	78.7%
14	8	4	5	17	272	84.0%
15	7	2	2	11	283	87.3%
16	4	2	5	11	294	90.7%
17	6	2	1	9	303	93.5%
18	4	1	0	5	308	95.1%
19	3	0	1	4	312	96.3%
20	3	0	1	4	316	97.5%
21	3	0	0	3	319	98.5%
22	2	0	1	3	322	99.4%
23	0	0	0	0	322	99.4%
24	1	0	0	1	323	99.7%
25	0	0	0	0	323	99.7%
26	0	0	0	0	323	99.7%
27	1	0	0	1	324	100.0%
Total	108	108	108	324	--	--
Average	12.0	8.0	9.0	9.0	--	--
85th Percentile	18.0	13.0	13.0	15.0	--	--
95th Percentile	21.0	15.0	16.0	18.0	--	--
Max	27.0	18.0	22.0	27.0	--	--

11.0 RECOMMENDED IMPROVEMENTS

For the intersections and roadway segments 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.

11.1 Project-Specific Access Improvements

The following Project features will be constructed in conjunction with the proposed Project to ensure that adequate ingress and egress to the Project site is provided:

- **Intersection No. 2 – Dune Palms Road at Corporate Centre Drive/Project Driveway No. 1:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Restripe the northbound approach to reduce the storage for the existing northbound left-turn lane from 95 feet to 70 feet to accommodate the proposed southbound left-turn lane at Project Driveway No. 2. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane. Restripe the eastbound right-turn lane to an eastbound shared through/right-turn lane.
- **Intersection No. 10 – Dune Palms Road at Existing Speedway Driveway/Project Driveway No. 2:** Construct the east leg of the intersection and provide a westbound shared left-turn/through/right-turn lane. Widen and/or restripe the northbound approach to provide a 60-foot northbound left-turn lane. Widen and/or restripe the southbound approach to provide a 60-foot southbound left-turn lane.

Figure 11-1 illustrates the project-specific access improvements discussed above.

11.2 Existing With Ambient Growth With Project Traffic Conditions

11.2.1 Intersections

The results of the intersection analysis for Existing With Ambient Growth With Project traffic conditions indicate that the eleven (11) key study intersections are forecast to continue to operate at acceptable service levels. As there are no deficiencies, no traffic improvements are required under this traffic scenario.

11.2.2 Roadway Segments

The results of the roadway segment analysis for Existing With Ambient Growth With Project traffic conditions indicate that the six (6) key roadway segments are forecast to continue to operate at acceptable service levels. As there are no deficiencies, no traffic improvements are required under this traffic scenario.

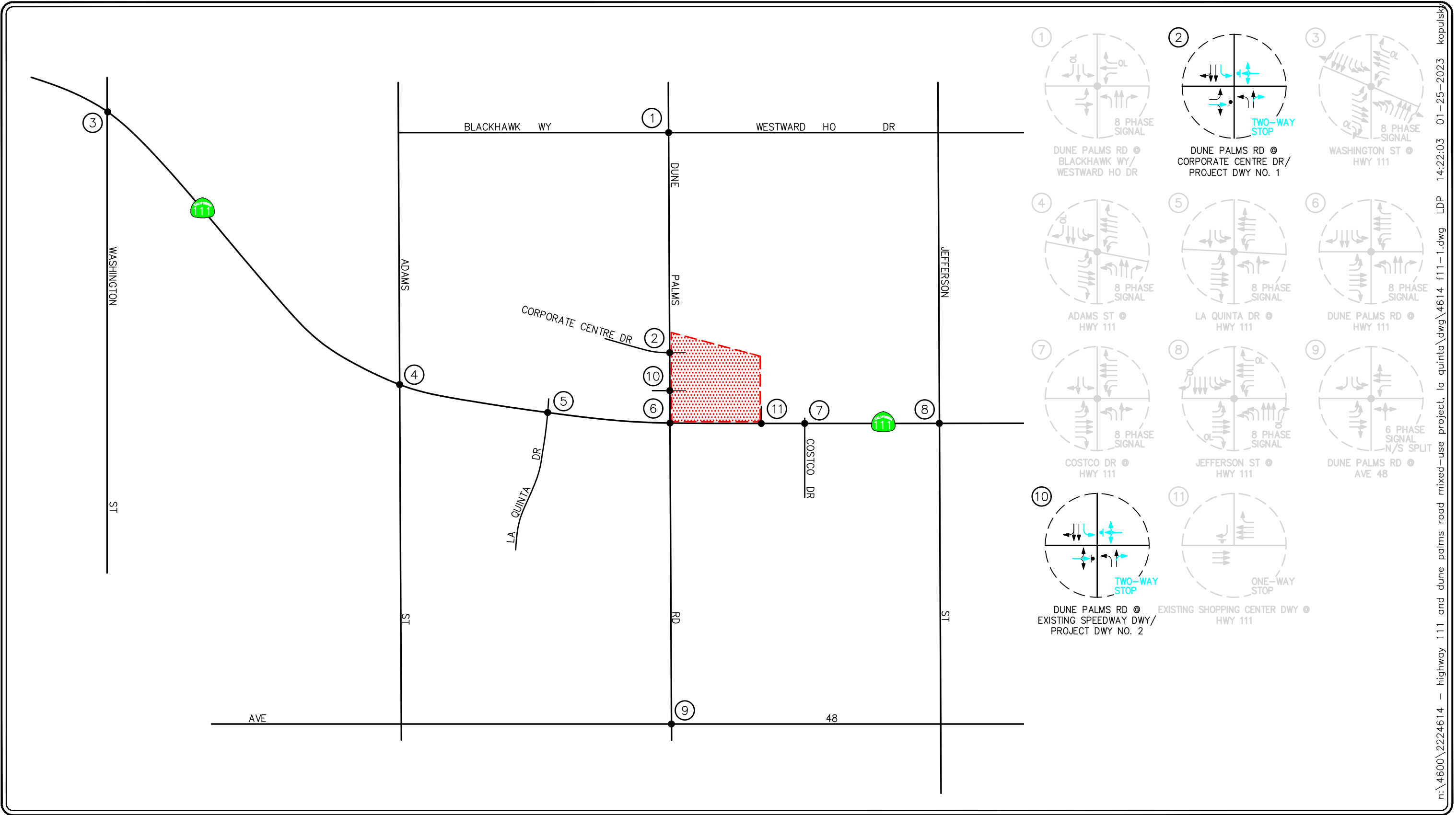
11.3 Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

11.3.1 Intersections

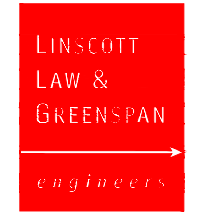
The results of the intersection analysis for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions indicate that the eleven (11) key study intersections are forecast to continue to operate at acceptable service levels. As there are no deficiencies, no traffic improvements are required under this traffic scenario.

11.3.2 Roadway Segments

The results of the roadway segment analysis for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions indicate that the six (6) key roadway segments are forecast to continue to operate at acceptable service levels. As there are no deficiencies, no traffic improvements are required under this traffic scenario.



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KEY
 = PROJECT SPECIFIC IMPROVEMENTS
 = PROJECT SITE

FIGURE 11-1

PROJECT SPECIFIC IMPROVEMENTS
 HIGHWAY 111 AND DUNE PALMS ROAD MIXED-USE PROJECT, LA QUINTA

12.0 VEHICLE MILES TRAVELED (VMT) ANALYSIS

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 La Quinta recently adopted new traffic impact criteria in June 2020 (revised in June 2021) to be consistent with the CEQA revisions. These new guidelines are contained within the *City of La Quinta Vehicle Miles Traveled Analysis Policy*, dated revised June 2021 and provide screening criteria and methodology for VMT analysis.

The City of La Quinta has developed a SB 743 VMT Impact Screening Criteria to serve as a screening tool for potential VMT impacts associated with select land use projects in the city. As such, the following guidance summarizes the potential project screening that would result in the project not having a significant transportation related CEQA impact, as shown in *Step 1: Project Type Screening*:

Small Projects

This applies to projects with low trip generation per existing CEQA exemptions or results in a 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO_{2e}) per year screening level threshold, based on the County of Riverside Climate Action plan and South Coast Air Quality Management District's draft interim guidance for assessing project-level greenhouse gas impacts.

- Single Family Housing projects less than or equal to 140 dwelling units (DU); or
- ***Multi Family (low-rise) Housing projects less than or equal to 200 DU; or***
- Multi Family (mid-rise) Housing projects less than or equal to 245 DU; or
- General Office Building with are less than or equal to 160,000 SF; or
- Retail buildings with are less than or equal to 70,000 SF; or
- Warehouse (unrefrigerated) buildings with are less than or equal to 410,000 SF; or
- General Light Industrial buildings with are less than or equal to 170,000 SF; or
- Small Infill Projects; or
- Transportation Projects that reduce or do not increase VMT; or
- Project GHG emissions less than 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO_{2e}) as determined by a methodology acceptable to the Design and Development 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 the City.

Local Serving Projects

Projects that introduce local serving land uses are determined to shorten non-discretionary trips by putting goods and services closer to residents, resulting in an overall reduction in VMT. These land uses can be presumed to have a less than significant impact, absent substantial evidence to the contrary. Local serving land uses are listed below:

- ***Local-serving retail projects less than 50,000 square feet***
- Local-serving K-12 schools
- Local parks
- Day care centers
- Local-serving gas stations
- Local-serving banks
- Local-serving hotels (e.g. non-destination hotels)
- Local-serving public facilities
- Student housing projects
- Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS
- Affordable housing

12.1 VMT Analysis Conclusion

The proposed Project consists of a maximum of 180 apartments, which is less than the “*Small Projects*” threshold of 200 DU multifamily (low-rise) housing. In addition, the proposed commercial buildings are approximately 4,900 SF and 3,956 SF, which are less than the “*Local Serving Projects*” threshold of less than 50,000 SF. Therefore, this project could be screened from a VMT analysis and would not have a significant transportation related CEQA impact, per the *City of La Quinta Vehicle Miles Traveled Analysis Policy (June 2021)*.