La Quinta Square

TRAFFIC IMPACT ANALYSIS

OCTOBER 2014

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EXECUTIVE SUMMARY

Introduction

This report documents the results of a traffic impact analysis completed for a proposed mixed-use development at 78611 Highway 111 in La Quinta, CA. The purpose of this impact analysis is to identify potential impacts to transportation facilities as a result of the proposed development. This study was performed in accordance with the scope of work approved by the City of La Quinta.

Project Description

The project site, which is currently composed of a vacant building and parking area, is proposed to be developed with a 17,020 square-foot market, an 8,500 square-foot retail building, and a 3,750 square-foot fast-food restaurant with drive through. It is assumed that the fast-food restaurant is an In-N-Out, which has different traffic patterns than a typical fast-food restaurant. The existing vacant building and parking area would be removed to provide space for the new development. Primary access to the site will be provided directly from Highway 111 by a right-in, right-out drive, and from Simon Drive via two full access driveways. It is anticipated that the site will be fully built out by the year 2015.

Study Area Intersections and Analysis Scenarios

The following intersections are included in this evaluation:

1. Highway 111 @ Washington Street
2. Highway 111 @ Simon Drive
3. Highway 111 @ La Quinta Center Drive
4. Highway 111 @ Adams Street
5. Highway 111 @ La Quinta Drive
6. Highway 111 @ Dune Palms Road
7. Highway 111 @ Depot Drive
8. Highway 111 @ Jefferson Street
9. Washington Street @ Fred Waring Drive
10. Washington Street @ Miles Avenue
11. Washington Street @ Simon Drive
12. Highway 111 @ Project Driveway
13. Simon Drive @ Project Driveway (South)
14. Simon Drive @ Project Driveway (East)

The following roadway segments are included in the existing evaluation:

- Highway 111
  - Mountain Cove Drive to Washington Street
  - Washington Street to Simon Drive
  - Simon Drive to La Quinta Center Drive
  - La Quinta Center Drive to Adams Street
  - Adams Street to La Quinta Drive
  - La Quinta Drive to Dune Palms Road
  - Dune Palms Road to Depot Drive
  - Depot Drive to Jefferson Street
- Washington Street
  - Fred Waring Drive to Miles Avenue
  - Miles Avenue to Highway 111
  - Highway 111 to Simon Drive
  - Simon Drive to Avenue 48

Consistent with the City of La Quinta guidelines and requirements, this analysis was conducted for the study facilities for the following scenarios:

A. Existing (2013) Conditions
B. Background (2015) Conditions
C. Background (2015) plus Proposed Project Conditions
D. Cumulative (2035) Conditions
E. Cumulative (2035) plus Proposed Project Conditions

Significant Impact Criteria

Change in traffic is considered to be a significant traffic impact when one of the following conditions occurs:

Intersections

- For all analysis scenarios, a potentially significant project specific 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 established criteria:
  - existing intersections already operating at LOS E have a significant impact if there is an increase in delay of 2 seconds or more
  - existing intersections already operating at LOS F have a significant impact if there is an increase in delay of 1 second or more
- For all analysis scenarios, a potentially significant project specific traffic impact is defined to occur at an unsignalized study intersection when, with project traffic included, an intersection has a projected LOS 'F' on a side street for two-way stop control 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. Delay shall be calculated for all unsignalized intersections to demonstrate this condition.

Roadway Segments

- For existing plus project and project opening year analysis scenarios, 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 of LOS F with project traffic included and the peak hour volume-to-capacity ratio (v/c) in the peak direction is increased by 0.02 or more by addition of project traffic at existing plus project or at project opening year(s).
- For cumulative condition analysis scenarios, a potentially significant project specific traffic impact is defined to occur on any studied road segment if the project would cause the existing LOS to fall to worse than LOS D for cumulative growth volumes. A potentially significant project is also defined to occur on any studied road segment that is already operating at LOS E or LOS F, if the project traffic will increase the peak hour v/c in the peak direction by more than 0.02 with cumulative traffic volumes.

Summary of Findings

Significant findings of this study include:

- The proposed project is estimated to generate 4,832 total new daily trips, with 93 trips occurring during the AM peak-hour, and 414 new trips occurring during the PM peak-hour.

Existing Conditions

- All study area intersections and roadway segments operate at acceptable levels of service under existing conditions.

Background (2015) Conditions

- All study area intersections and roadway segments operate at acceptable levels of service for the Background (2015) conditions.
- No significant impacts were found for Background (2015) Plus Project conditions.

Cumulative (2035) Conditions

- Four study area intersections and one study area roadway segment fall below acceptable LOS in the Cumulative (2035) scenario.
- One additional roadway segment falls below acceptable LOS in the Cumulative (2035) Plus Project scenario.
- The project was found to have five locations with significant impacts under Cumulative (2035) conditions:
    - Highway 111 @ Depot Drive (pm peak)
    - Highway 111 @ Jefferson Street (pm peak)
    - Fred Waring Rd @ Washington Street (am & pm peak)
    - Miles Avenue @ Washington Street (pm peak)
    - Washington Street from Miles Avenue to Highway 111 (daily)
- In addition, the intersection of Highway 111 and Simon Drive was determined to need improvements based on needs identified by the City regarding operations and safety associated with the current configuration of the northbound and southbound approaches.

Mitigations

- The project would contribute its fair share (5.07%) towards restriping the northbound and southbound approaches and completing a traffic signal modification to provide exclusive left-turn lanes in both directions at the intersection of Highway 111 and Simon Drive.
- The project would contribute its fair share (1.88%) towards adding an exclusive westbound right-turn lane and associated right-turn overlap phase at the intersection of Washington Street and Miles Avenue.
- At the other locations where impacts were determined, physical improvements are considered infeasible and the City's implementation of Transportation System Management, Transportation Demand Management, and Intelligent Transportation System programs, as defined in the GPEIR, would be considered mitigation for the project impacts.

Site Access, On-Site Circulation, and Parking

- Three driveways provide access to the proposed site; one right-in, right-out only at Highway 111 and two full access driveways along Simon Drive, one east of the site and one south of the site.
- All of these access points were found to operate at acceptable conditions during all scenarios.
- An eastbound right-turn auxiliary deceleration lane is warranted at the Highway 111 access drive, requiring a deceleration length of 248 feet with a 150 foot taper. A deceleration lane has been incorporated as part of the site plan; however, the length of the pocket is slightly shorter than the required distance identified due to adjacent physical constraints.

- Internal to the site there is a main drive aisle that connects the three access driveways and provides stacking distance for vehicles exiting the site.
- The parking layouts and drive aisles are aligned to provide circulation through the site and minimize conflicts.
- The location of the In-N-Out drive through entrance and exit are placed in locations that minimize conflicts with vehicles parking or using other buildings on site.
- The drive through layout for the In-N-Out building provides distance for stacking approximately 20 vehicles which would accommodate the expected demand the majority of the time based on stacking information obtained from other studies.
- Truck turning movements on-site would need to be verified but it seems that aisle widths and curb layouts would allow truck access.
- The site plan provides the required number of parking stalls based on the proposed land uses.
- Overall, the proposed site plan provides good access and circulation that would accommodate the proposed uses.

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INTRODUCTION

This report documents the results of a traffic impact analysis completed for a proposed mixed-use development (the "proposed project" or "project") at the corner of Simon Drive and Highway 111 in La Quinta, California. The purpose of this impact analysis is to identify potential impacts to transportation facilities as a result of the proposed project. This study was performed in accordance with the scope of work approved by the City of La Quinta.

Consistent with the City of La Quinta requirements[1], this LOS analysis was conducted for the study facilities for the following scenarios:

A. Existing (2013) Conditions
B. Background (2015) Conditions
C. Background (2015) plus Proposed Project Conditions
D. Cumulative (2035) Conditions
E. Cumulative (2035) plus Proposed Project Conditions

The remaining sections of this report document the proposed project, analysis methodologies, impacts and mitigation, and general study conclusions.

PROPOSED DEVELOPMENT

The site is proposed to be developed with a 17,020 square-foot market, an 8,500 square-foot retail building, and a 3,750 square-foot fast-food restaurant with drive through. It is assumed that the fast-food restaurant is an In-N-Out, which has different traffic patterns than a typical fast-food restaurant. Primary access to the site will be provided directly from Highway 111 by a right-in, right-out drive and via two full access driveways along Simon Drive, one on the east side of the site and one on the south side of the site. It is anticipated that the site will be fully built out by the year 2015.

The project location is shown in **Figure 1**, and the proposed project site plan with project access locations is shown in **Figure 2**.

EXISTING (2013) CONDITIONS

The project site is located on the corner of Highway 111 and Simon Drive in La Quinta, CA and is approximately 3.9 acres in size. The site is currently composed of a vacant building and parking area, and is therefore not currently generating any traffic. The existing vacant building and parking area would be removed to provide room for the new development.

The following intersections are included in the existing evaluation:

1. Highway 111 @ Washington Street
2. Highway 111 @ Simon Drive
3. Highway 111 @ La Quinta Center Drive
4. Highway 111 @ Adams Street
5. Highway 111 @ La Quinta Drive
6. Highway 111 @ Dune Palms Road
7. Highway 111 @ Depot Drive
8. Highway 111 @ Jefferson Street
9. Washington Street @ Fred Waring Drive
10. Washington Street @ Miles Avenue
11. Washington Street @ Simon Drive

[1] City of La Quinta Engineering Bulletin #06-13, Traffic Impact Study Guidelines, December 19, 2012.

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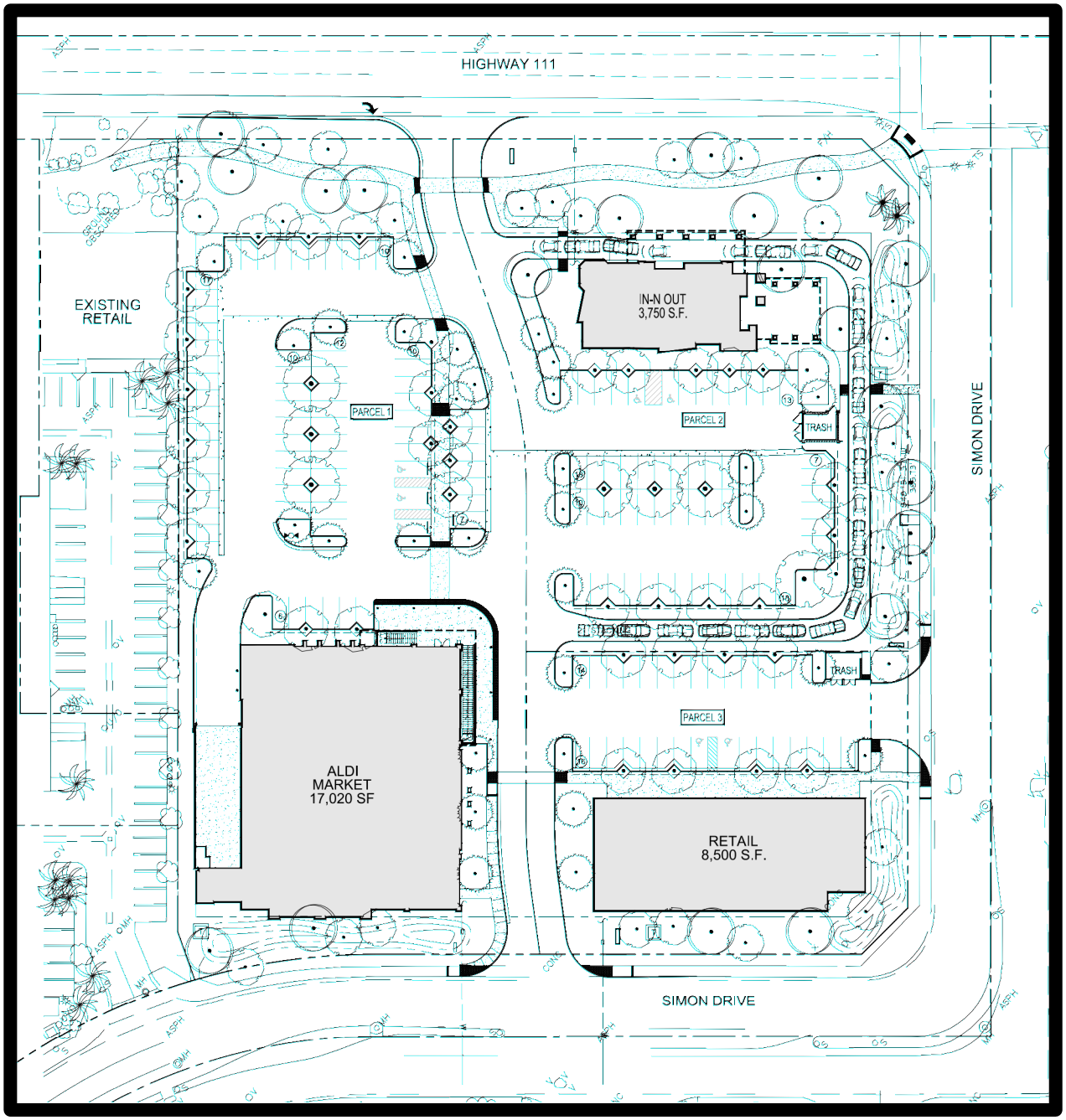
FIGURE 1
PROJECT LOCATION



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NOT TO SCALE

SOURCE: PREST-VUKSIC ARCHITECTS, AUGUST 15, 2014

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FIGURE 2

PROJECT SITE PLAN

The following roadway segments are included in the existing evaluation

- Highway 111
  - Mountain Cove Drive to Washington Street
  - Washington Street to Simon Drive
  - Simon Drive to La Quinta Center Drive
  - La Quinta Center Drive to Adams Street
  - Adams Street to La Quinta Drive
  - La Quinta Drive to Dune Palms Road
  - Dune Palms Road to Depot Drive
  - Depot Drive to Jefferson Street
- Washington Street
  - Fred Waring Drive to Miles Avenue
  - Miles Avenue to Highway 111
  - Highway 111 to Simon Drive
  - Simon Drive to Avenue 48

Figure 3 illustrates the study facilities, existing traffic control, and existing lane configurations.

Project Area Roadways

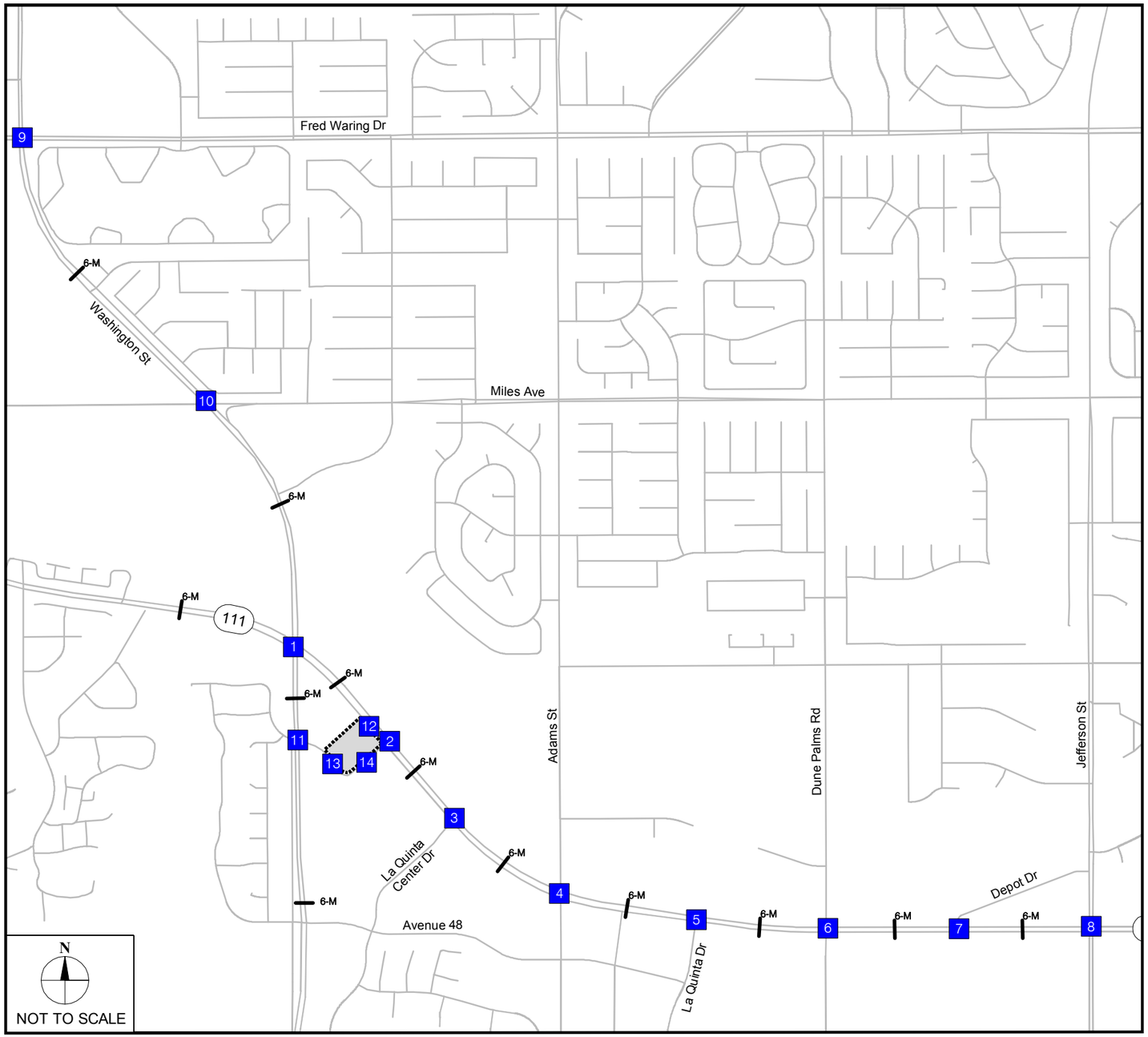
The following are descriptions of the primary roadways in the vicinity of the project.

Highway 111 is classified as a major arterial that provides east-west connectivity between La Quinta and surrounding communities. Highway 111 is the primary route for traveling between the multiple cities in the vicinity and also provides access to major retail destinations. Highway 111 currently serves approximately 29,000 vehicles per day[2] (vpd), with three travel lanes in each direction in the vicinity of the project site.

Washington Street is currently classified as an augmented major arterial roadway in the vicinity of the project site located west of the project site and providing north-south connections. This facility currently accommodates approximately 35,000 vpd[2] with three travel lanes in each direction. There is no direct access to the project site from Washington Street, but it is an important roadway for access to the site via Simon Drive.

The proposed project is bound by **Simon Drive** to the east and south. Simon Drive is a minor facility whose primary function is to provide access to commercial uses located to the south of Highway 111, including the project site. It has one travel lane in each direction and an existing full access driveway at the project site.

[2] Based on 24-hour volume counts collected Thursday December 5, 2013.



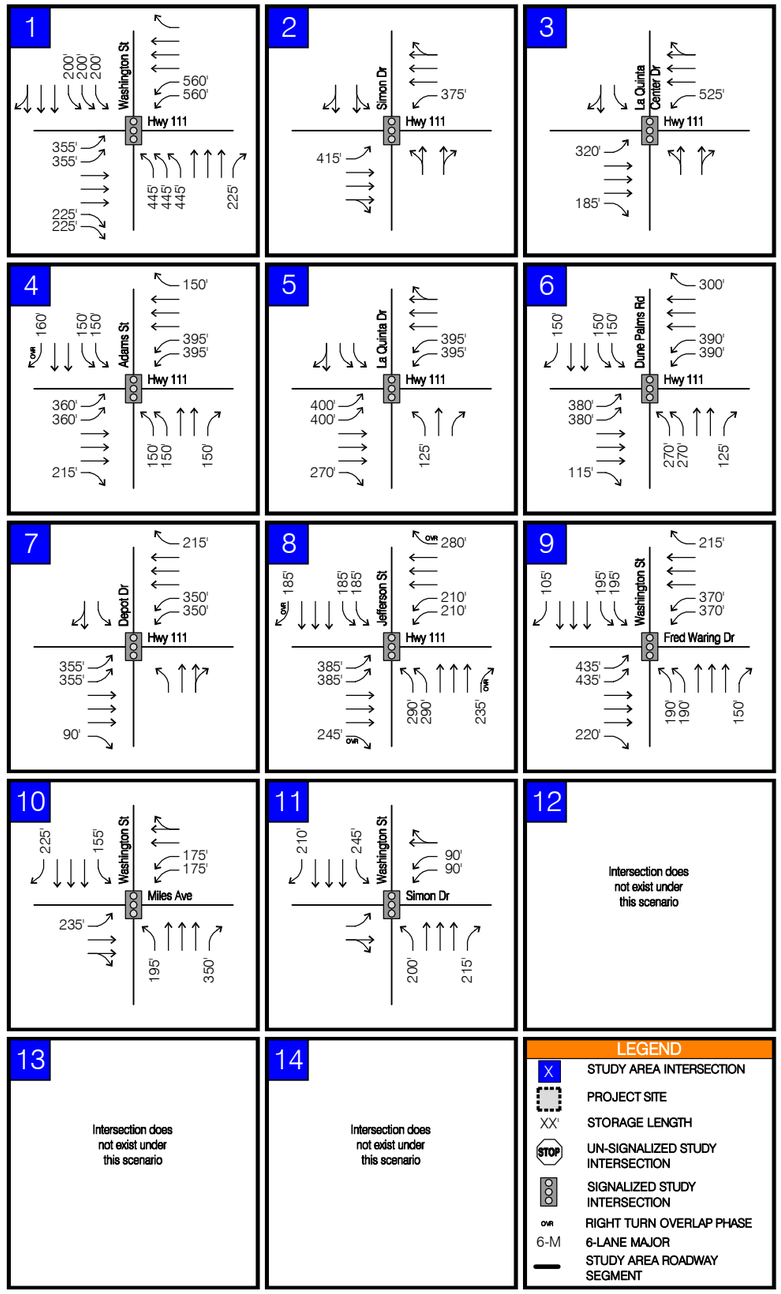


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FIGURE 3
EXISTING CONDITIONS - LANE GEOMETRY AND TRAFFIC CONTROL
LA QUINTA SQUARE, LA QUINTA, CA

Existing Traffic Volume Counts

Weekday AM, mid-day and PM peak-period intersection turning movement traffic counts were conducted for each of the study intersections on Thursday, December 5, 2013. These counts were conducted between the hours of 7:00 a.m. and 9:00 a.m., 11:00 a.m. and 1:00 p.m. and 4:00 p.m. and 6:00 p.m. Since counts were performed in December, which is the peak season for traffic volumes in La Quinta, no seasonal adjustments were required. Existing (2013) peak-hour turn movement volumes are presented in **Figure 4**. Twenty-four hour two-way traffic volume counts were also taken along segments of Highway 111 and Washington Street on Thursday, December 5, 2013. The traffic count data sheets are provided in **Appendix A.**

Traffic Impact Analysis Methodology

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual, 2010* (HCM) and by using the Highway Capacity Software (HCS) analysis software.

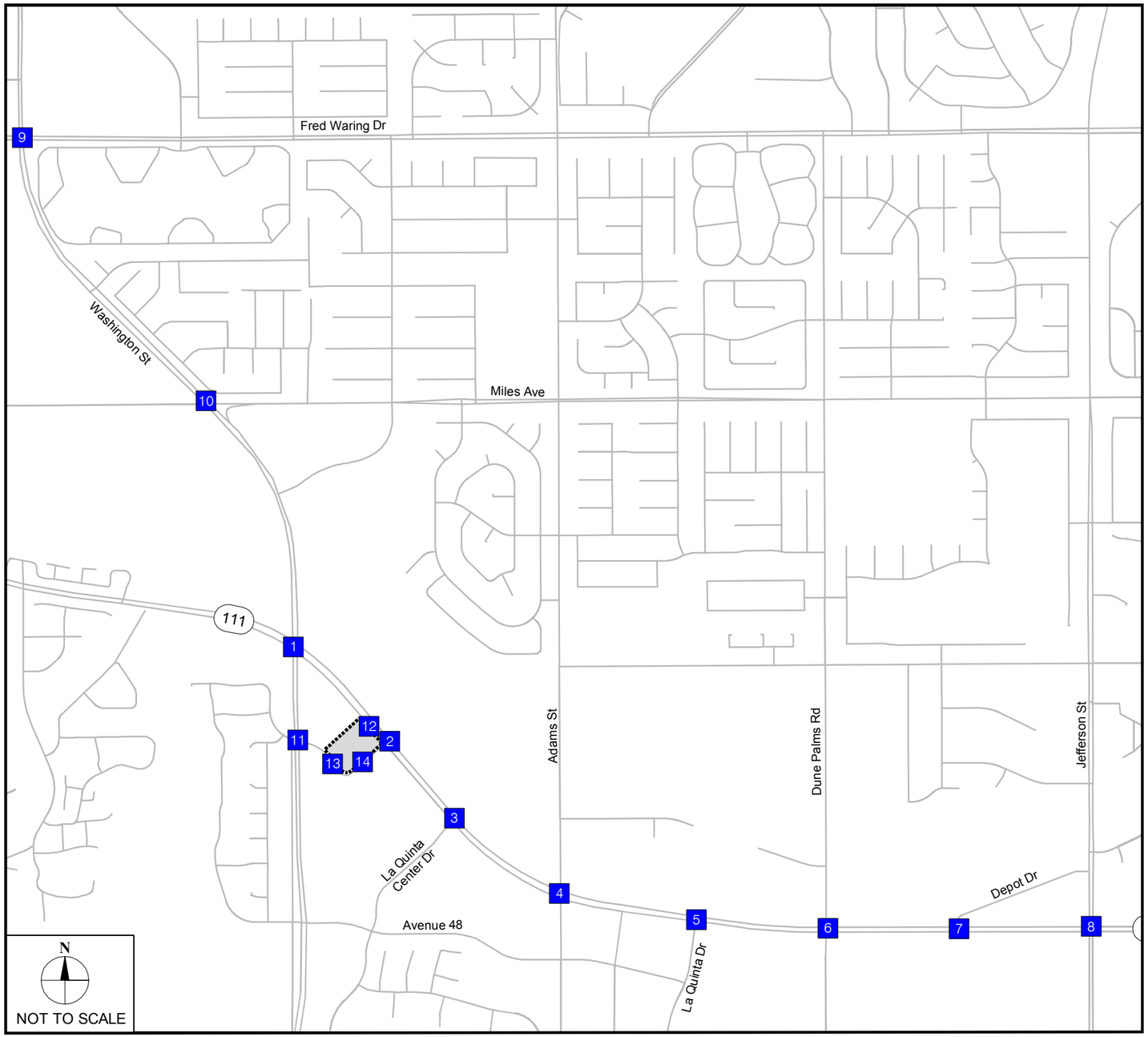
The City of La Quinta Traffic Impact Study Guidelines requirements include average stopped delay thresholds associated with each level of service interval for signalized intersections provided by the HCM. Table 1 presents signalized intersection LOS definitions as defined by the HCM. Similarly, v/c ratio thresholds associated with each level of service interval for roadway segments are included in **Table 2**.

Table 1 – Signalized Intersection Level of Service Criteria

Level of Service (LOS)	Average Control Delay per Vehicle (sec / veh)
A	≤ 10.0
B	10 – 20
C	20 – 35
D	35 – 55.0
E	55 – 80
F	>80
Source: Highway Capacity Manual 2010, December 2010.	

Table 2 – Roadway Segment Level of Service Criteria

Level of Service (LOS)	v/c Ratio
A	≤ 0.600
B	0.601 – 0.700
C	0.701 – 0.800
D	0.801 – 0.900
E	0.901 – 1.000
F	>1.000
Source: Highway Capacity Manual, Transportation Research Board – Special Report 209, 1997.	



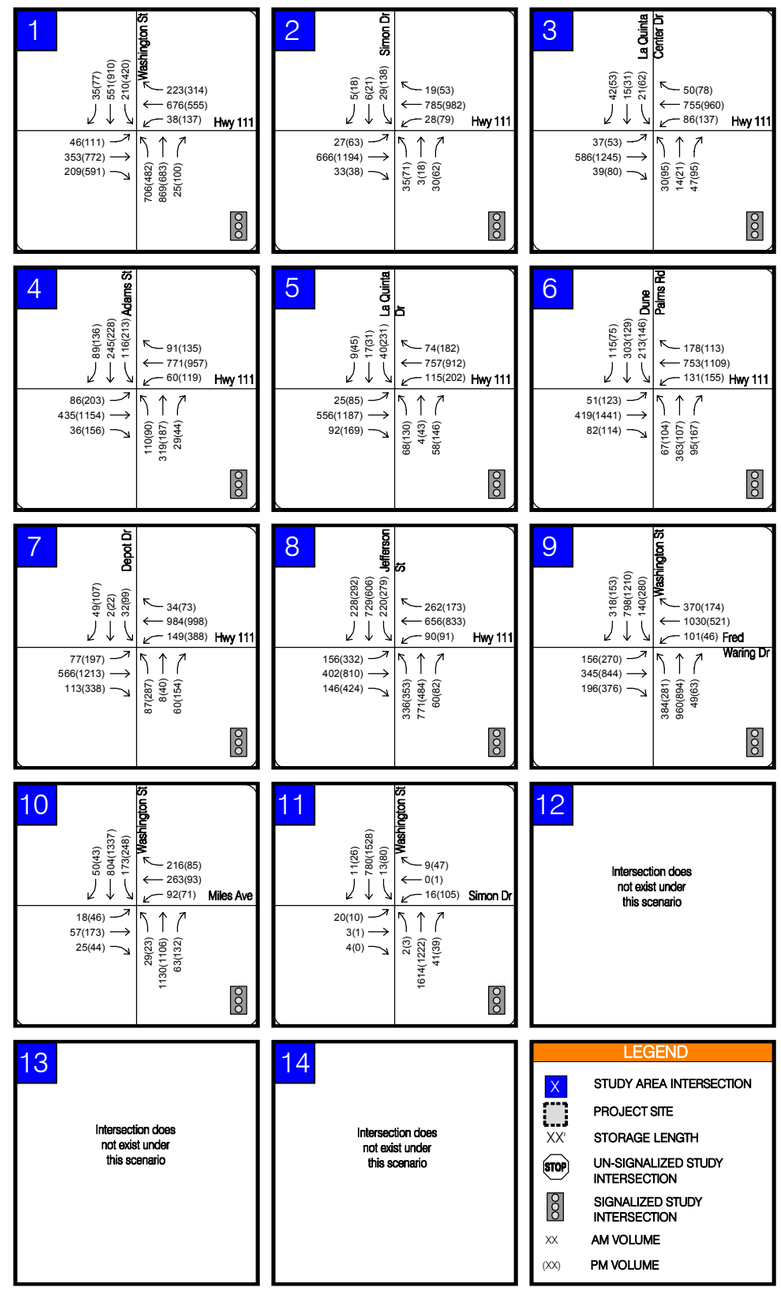


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FIGURE 4
EXISTING CONDITIONS - PEAK HOUR TRAFFIC VOLUMES
LA QUINTA SQUARE, LA QUINTA, CA

Intersection Level of Service

The City of La Quinta requires that signalized intersections shall have an overall intersection delay equivalent to a LOS D or better. However, 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 LOS E. Within the City of La Quinta, Highway 111 is designated as a CMP facility[3]. Therefore, intersections in the study area along Highway 111 shall have an overall intersection delay equivalent to LOS E or better.

Table 3 presents the peak-hour intersection operating conditions for this analysis scenario.

Table 3 – Existing (2013) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Highway 111 @ Washington Street	Signal	36.1	D	34.3	C
2	Highway 111 @ Simon Drive	Signal	12.1	B	17.6	B
3	Highway 111 @ La Quinta Center Drive	Signal	16.8	B	19.8	B
4	Highway 111 @ Adams Street	Signal	22.7	C	23.2	C
5	Highway 111 @ La Quinta Drive	Signal	19.2	B	23.6	C
6	Highway 111 @ Dune Palms Road	Signal	25.2	C	22.9	C
7	Highway 111 @ Depot Drive	Signal	18.2	B	24.1	C
8	Highway 111 @ Jefferson Street	Signal	27.2	C	31.1	C
9	Washington Street @ Fred Waring Drive	Signal	37.2	D	36.1	D
10	Washington Street @ Miles Avenue	Signal	31.1	C	27.7	C
11	Washington Street @ Simon Drive	Signal	17.0	B	18.5	B
Bold = Substandard						

As indicated in Table 3, the study intersections operate from LOS B to LOS D during the AM and PM peak-hours. Analysis worksheets for this scenario are provided in **Appendix B**.

Roadway Segment Level of Service

The City of La Quinta also requires that the volume to capacity (v/c) ratio shall not exceed 0.90 for all roadway segments being analyzed.

Table 4 presents the roadway segment operating conditions for this analysis scenario. The volume shown in the ADT column of this table is based on the existing 24-hour traffic volume counts.

[3] La Quinta 2035 General Plan, Page II-42.

Table 4 – Existing (2013) Roadway Segment Levels of Service

Roadway Segment	Roadway Designation	Number of Lanes	Capacity	ADT	V/C Ratio	LOS
Highway 111						
Mountain Cove Drive to Washington Street	Major	6	61,100	30,869	0.505	A
Washington Street to Simon Drive	Major	6	61,100	29,162	0.477	A
Simon Drive to La Quinta Center Drive	Major	6	61,100	30,919	0.506	A
La Quinta Center Drive to Adams Street	Major	6	61,100	33,256	0.544	A
Adams Street to La Quinta Drive	Major	6	61,100	25,781	0.422	A
La Quinta Drive to Dune Palms Road	Major	6	61,100	34,991	0.573	A
Dune Palms Road to Depot Drive	Major	6	61,100	35,844	0.587	A
Depot Drive to Jefferson Street	Major	6	61,100	36,980	0.605	B
Washington Street						
Fred Waring Drive to Miles Avenue	Major	6	61,100	27,182	0.445	A
Miles Avenue to Highway 111	Major	6	61,100	32,480	0.532	A
Highway 111 to Simon Drive	Major	6	61,100	34,873	0.571	A
Simon Drive to Avenue 48	Major	6	61,100	34,366	0.562	A

As indicated in Table 4, all study roadway segments operate at LOS A or B.

Transit Services

SunLine Transit Agency operates two bus transit routes in the vicinity of the proposed development site. These routes are Line 70 and Line 111.

Line 70 runs primarily north and south with the majority of the route on Washington Street and Adams Street. This bus route does not pass directly in front of the project site, but has bus stops at the intersection of Highway 111 and Adams Street, less than a half-mile from the project site, and currently offers 45 minute service in each direction (i.e. headways) during typical weekdays.

Line 111 runs primarily east and west with a majority of the route on Highway 111. This route does pass directly in front of the project site fronting on Highway 111, and offers 20 minute service headways in each direction during typical weekdays. The closest bus stops to the project site are located just west of the northwest corner of Highway 111 and Simon Drive and just east of the southeast corner of Highway 111 and Washington Street.

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation

The number of trips anticipated to be generated by the proposed project were derived using data included in the *Trip Generation Manual, 9th Edition,* published by the Institute of Transportation Engineers (ITE), and other empirical trip generation data (for In-N-Out trip generation only). As previously described, the project site, which is currently composed of a vacant building and parking area, is proposed to be developed with a 17,020 square-foot market, an 8,500 square-foot retail building, and a 3,750 square-foot fast-food restaurant with drive through. The existing vacant building and parking area are not currently generating trips so no credits are applicable for existing use.

It is assumed that the fast-food restaurant is an In-N-Out, which has different traffic patterns than a typical fast-food restaurant. Special trip rates were established for the In-N-Out building based on other studies done for In-N-Out establishments. Data from ten sites across California was obtained from previous traffic studies and trip rates were calculated based on data provided in these studies. Trip generation information from these studies is provided in **Appendix C**. In-N-Out restaurants are not open during the AM peak-hour and no trips were assumed. The PM peak-hour rate was determined to be 1.5-times the ITE rate for a fast-food restaurant with drive-through. The daily rate was calculated assuming that 8% of daily traffic would be generated during the PM peak-hour. Mid-day rates were determined using the average trip rates of data provided in the studies.

Table 5 presents the trip generation data for the proposed project. Appropriate trip reductions have been incorporated for the fast-food restaurant with drive-through land use only. This reduction accounts for trips already assumed to have been on the adjacent roadway network (pass-by). These pass-by trips are not included as new trips on the roadway, only as new trips at the site driveway. A pass-by trip reduction of 25% was assumed in the study, which is lower than the pass-by reductions for a fast-food restaurant with drive-through window suggested by ITE in the Trip Generation Handbook, 2nd Edition. This value was estimated based on the data collected from other In-N-Out restaurant studies and recognizes that In-N-Out restaurants are viewed more as a destination then typical fast-food restaurants.

To remain conservative with the analysis all trips generated by the proposed development were assumed to enter and exit via automobile.

Table 5 – Proposed Project Trip Generation

Land Use (ITE Code)	Size (Units/ksf)	Total Daily Trips	AM Peak-Hour					MD Peak-Hour					PM Peak-Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips		%	Trips	%	Trips
Shopping Center (820)	8.50	1,368	35	62	22	38	13	35	62	22	38	13	115	48	55	52	60
Supermarket (850)	17.02	1,742	58	62	36	38	22	58	62	36	38	22	161	51	82	49	79
In-N-Out (Fast Food Restaurant w/d.t.)	3.75	2,296	0		0		0	333	51	170	49	163	184	52	96	48	88
Subtotal Raw Trips:		**5,406**	**93**		**58**		**35**	**426**		**228**		**198**	**460**		**233**		**227**
Pass-By Reductions Percentage[1] (Daily, MD and PM)	25%	-574	0		0		0	-83		-43		-41	-46		-24		-22
Net New External Trips		**4,832**	**93**		**58**		**35**	**343**		**185**		**157**	**414**		**209**		**205**

Source: Trip Generation Manual, 9th Edition, ITE and independent traffic evaluations of In-N-Out restaurants.
[1] Applied to Fast-Food use only.

As shown in Table 5, the proposed project is estimated to generate 4,832 total new daily trips, with 93 new trips occurring during the AM peak-hour, 343 new trips occurring during the mid-day peak-hour and 414 new trips occurring during the PM peak-hour.

Proposed Project Trip Distribution and Assignment

The distribution and assignment of project traffic to the surrounding roadway network was performed based on surrounding land uses and the anticipated interaction with the project, as well as the amount of traffic currently using the roadways. The proposed retail land use is expected to distribute trips to/from adjacent residential uses and traffic along Highway 111. The project trip distribution percentages are illustrated in **Figure 5**. The percentages shown in Figure 5 were established using the existing daily traffic volume patterns and the location of residential neighborhoods and Highway 111. The trip generation was then assigned to the network using the trip distribution. Adjustments were made to account for pass-by trips. The resulting AM and PM peak-hour traffic volume assignment attributed to the proposed project are illustrated in **Figure 6**. The pass-by trip adjustment summary is provided in **Appendix D**.

BACKGROUND GROWTH METHODOLOGY

Background growth rates were calculated for individual intersections and roadway segments based on the 2010 and 2035 volumes provided in the City of La Quinta General Plan Environmental Impact Report (GPEIR). The volume difference from 2010 to 2035 was calculated at each roadway segment and intersection approach and the corresponding annual growth rate for each location was determined. These annual growth rates were used to project future background traffic volumes at study area intersections and along study area roadway segments. The calculated annual intersection and segment growth rates are provided in **Appendix E**.

BACKGROUND (2015) CONDITIONS

Background conditions for this analysis were established as 2015, the year during which the proposed project is anticipated to be completed and fully occupied. To achieve year 2015 traffic conditions, two years of background traffic growth were applied to the Existing (2013) conditions based on the annual intersection and roadway segment growth rates shown in **Appendix E**. In addition, traffic from the Washington Park Specific Plan Adjacent Tract 2 development was added to the background conditions. The Washington Park development consists of a multiplex cinema and commercial retail use and is located just south of the proposed project at the intersection of Washington Street and 47th Street.

Figure 7 provides the AM and PM traffic volumes for this analysis scenario. **Table 6** provides a summary of the intersection analysis and **Table 7** provides a summary of the roadway segment analysis for this analysis scenario.

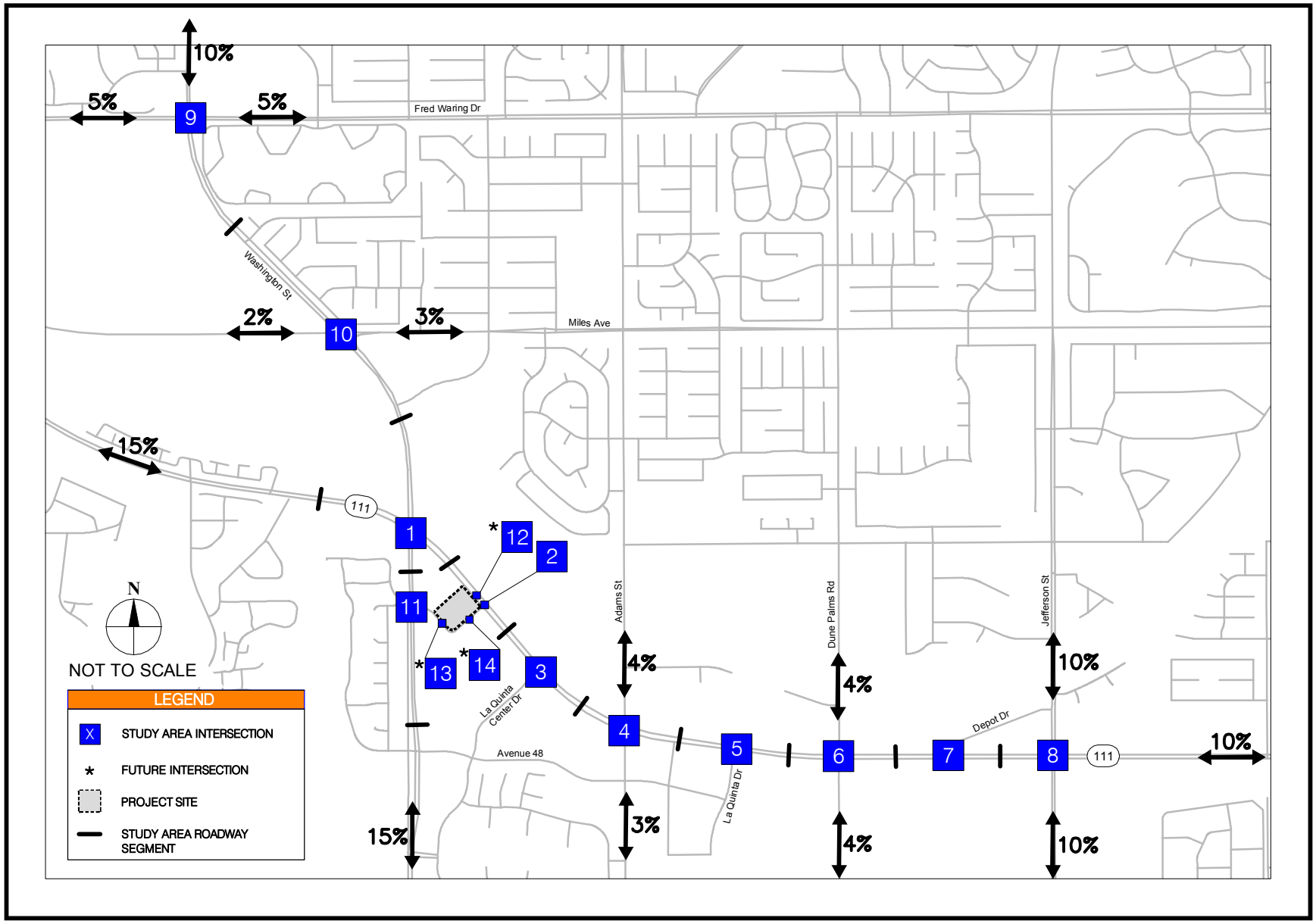

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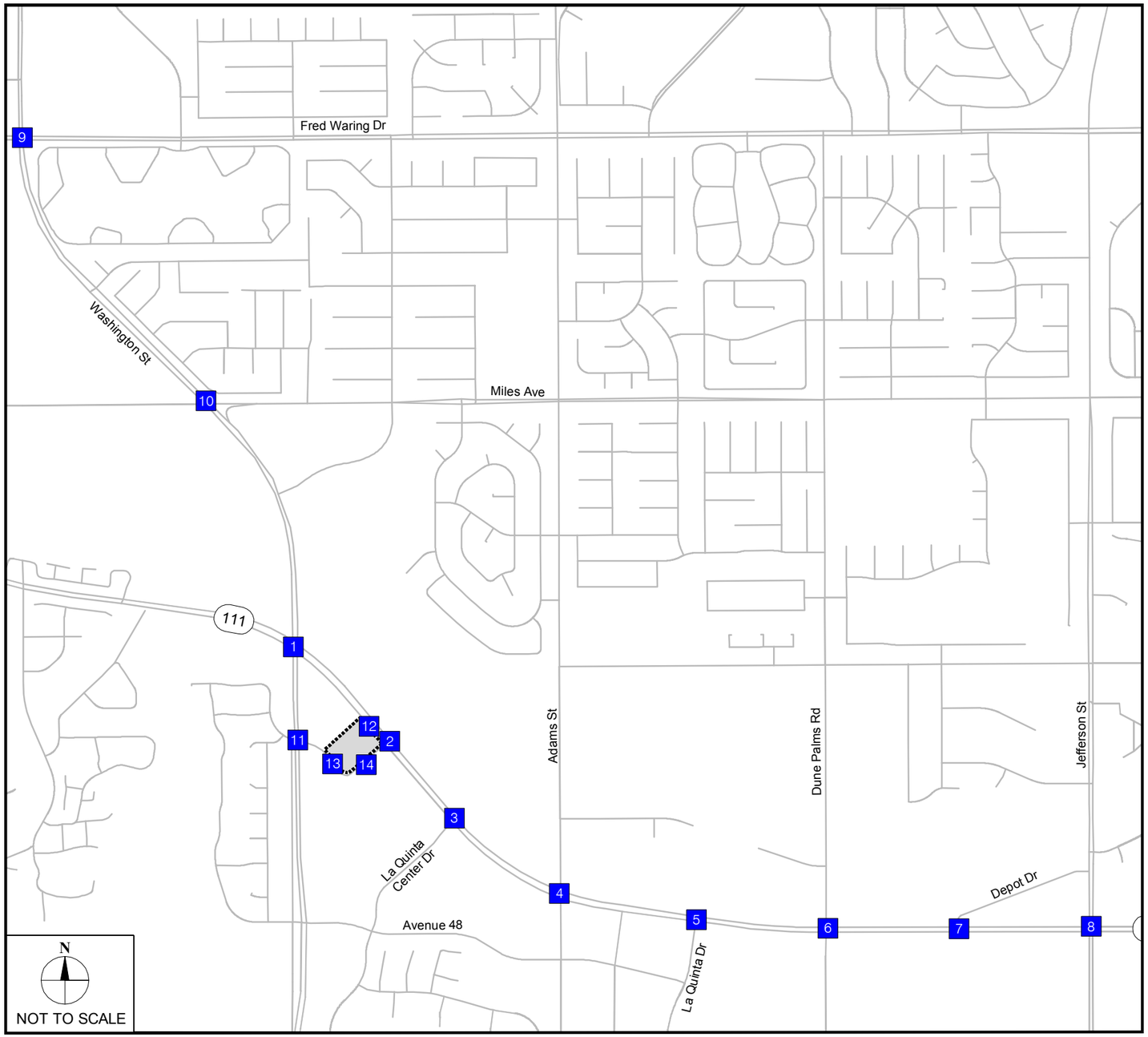
FIGURE 5
PROJECT DISTRIBUTION
LA QUINTA SQUARE, LA QUINTA, CA



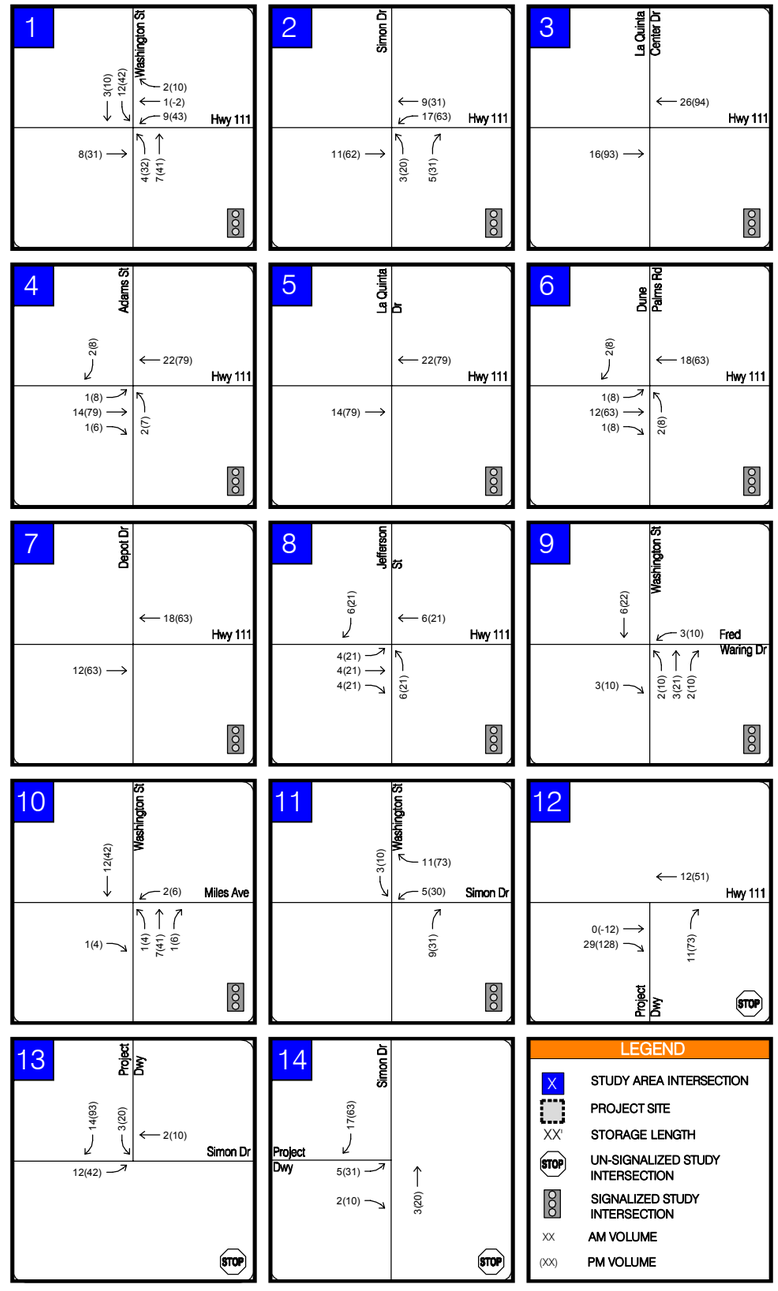


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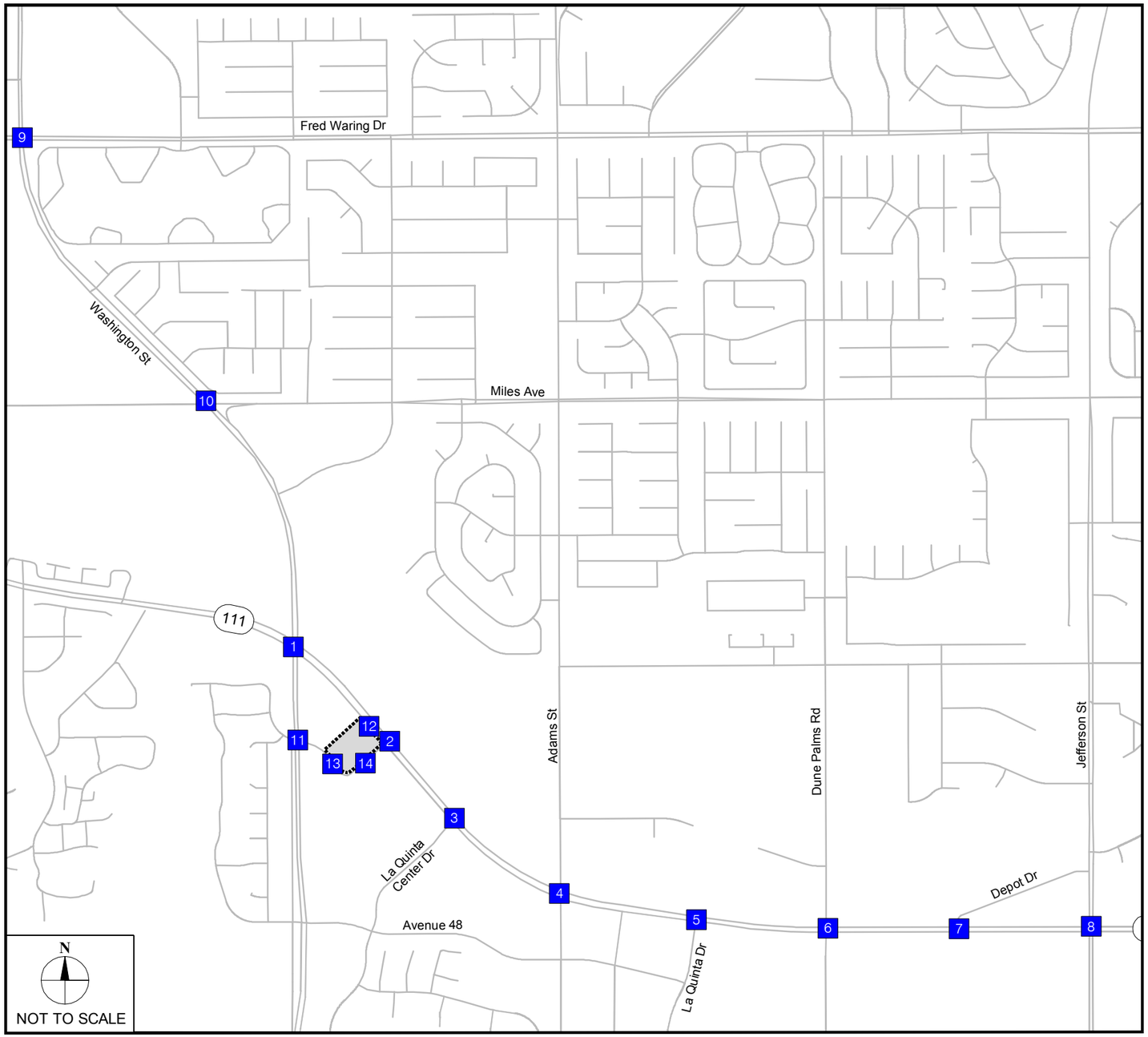
FIGURE 6
PROJECT TRIP ASSIGNMENT
LA QUINTA SQUARE, LA QUINTA, CA



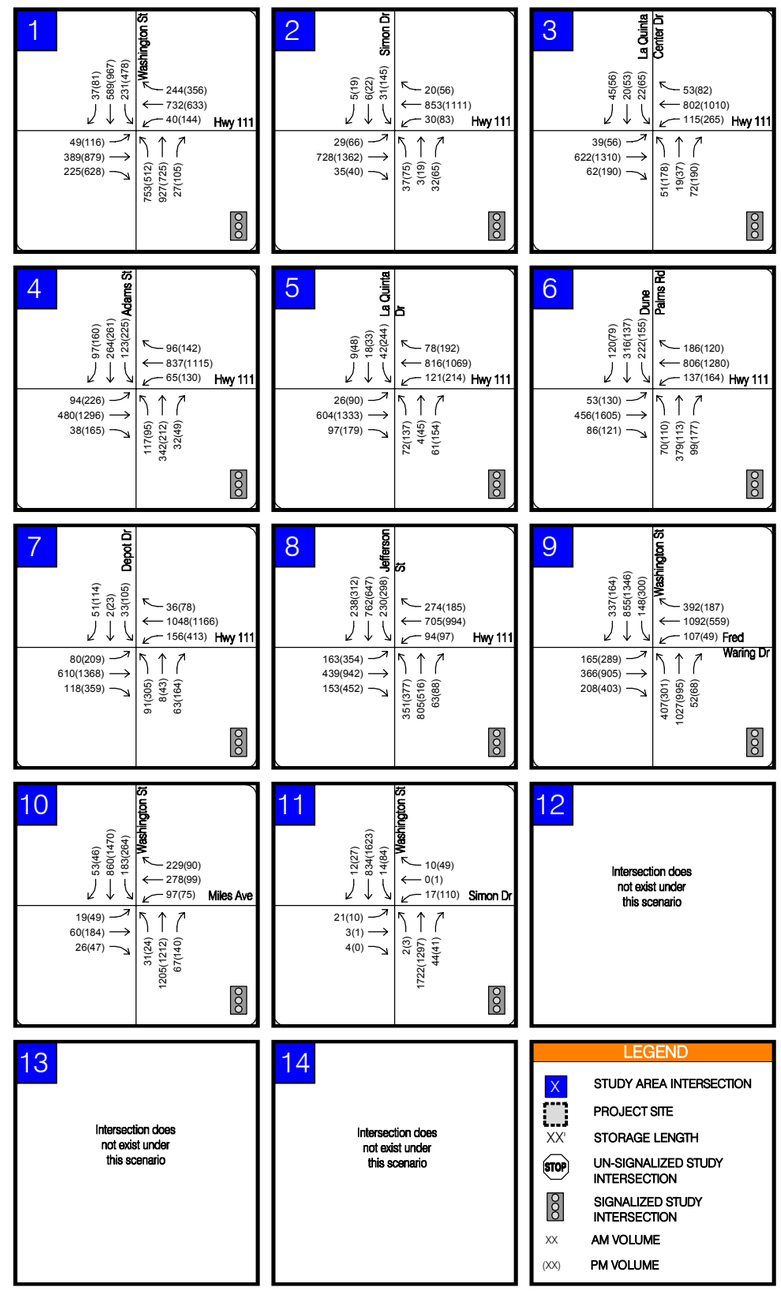


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FIGURE 7
BACKGROUND (2015) CONDITIONS - PEAK HOUR TRAFFIC VOLUMES
LA QUINTA SQUARE, LA QUINTA, CA

Table 6 – Background (2015) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Highway 111 @ Washington Street	Signal	38.0	D	36.1	D
2	Highway 111 @ Simon Drive	Signal	12.3	B	18.8	B
3	Highway 111 @ La Quinta Center Drive	Signal	17.2	B	22.4	C
4	Highway 111 @ Adams Street	Signal	23.5	C	24.4	C
5	Highway 111 @ La Quinta Drive	Signal	19.6	B	28.4	C
6	Highway 111 @ Dune Palms Road	Signal	26.4	C	24.7	C
7	Highway 111 @ Depot Drive	Signal	18.7	B	27.3	C
8	Highway 111 @ Jefferson Street	Signal	28.8	C	33.1	C
9	Washington Street @ Fred Waring Drive	Signal	43.5	D	42.9	D
10	Washington Street @ Miles Avenue	Signal	34.3	C	32.6	C
11	Washington Street @ Simon Drive	Signal	18.1	B	19.4	B

As indicated in Table 6 the study intersections operate at LOS D or better during the AM and PM peak-hours. The analysis worksheets for this scenario are provided in **Appendix F**.

Table 7 – Background (2015) Roadway Segment Levels of Service

Roadway Segment	Roadway Designation	Number of Lanes	Capacity	ADT	V/C Ratio	LOS
Highway 111						
Mountain Cove Drive to Washington Street	Major	6	61,100	33,275	0.545	A
Washington Street to Simon Drive	Major	6	61,100	31,826	0.521	A
Simon Drive to La Quinta Center Drive	Major	6	61,100	33,668	0.551	A
La Quinta Center Drive to Adams Street	Major	6	61,100	36,303	0.594	A
Adams Street to La Quinta Drive	Major	6	61,100	27,622	0.452	A
La Quinta Drive to Dune Palms Road	Major	6	61,100	37,022	0.606	B
Dune Palms Road to Depot Drive	Major	6	61,100	37,983	0.622	B
Depot Drive to Jefferson Street	Major	6	61,100	39,146	0.641	B
Washington Street						
Fred Waring Drive to Miles Avenue	Major	6	61,100	28,777	0.471	A
Miles Avenue to Highway 111	Major	6	61,100	34,381	0.563	A
Highway 111 to Simon Drive	Major	6	61,100	36,412	0.596	A
Simon Drive to Avenue 48	Major	6	61,100	35,887	0.587	A

As indicated in Table 7 the study area roadway segments operate at LOS A or B.

BACKGROUND (2015) PLUS PROPOSED PROJECT CONDITIONS

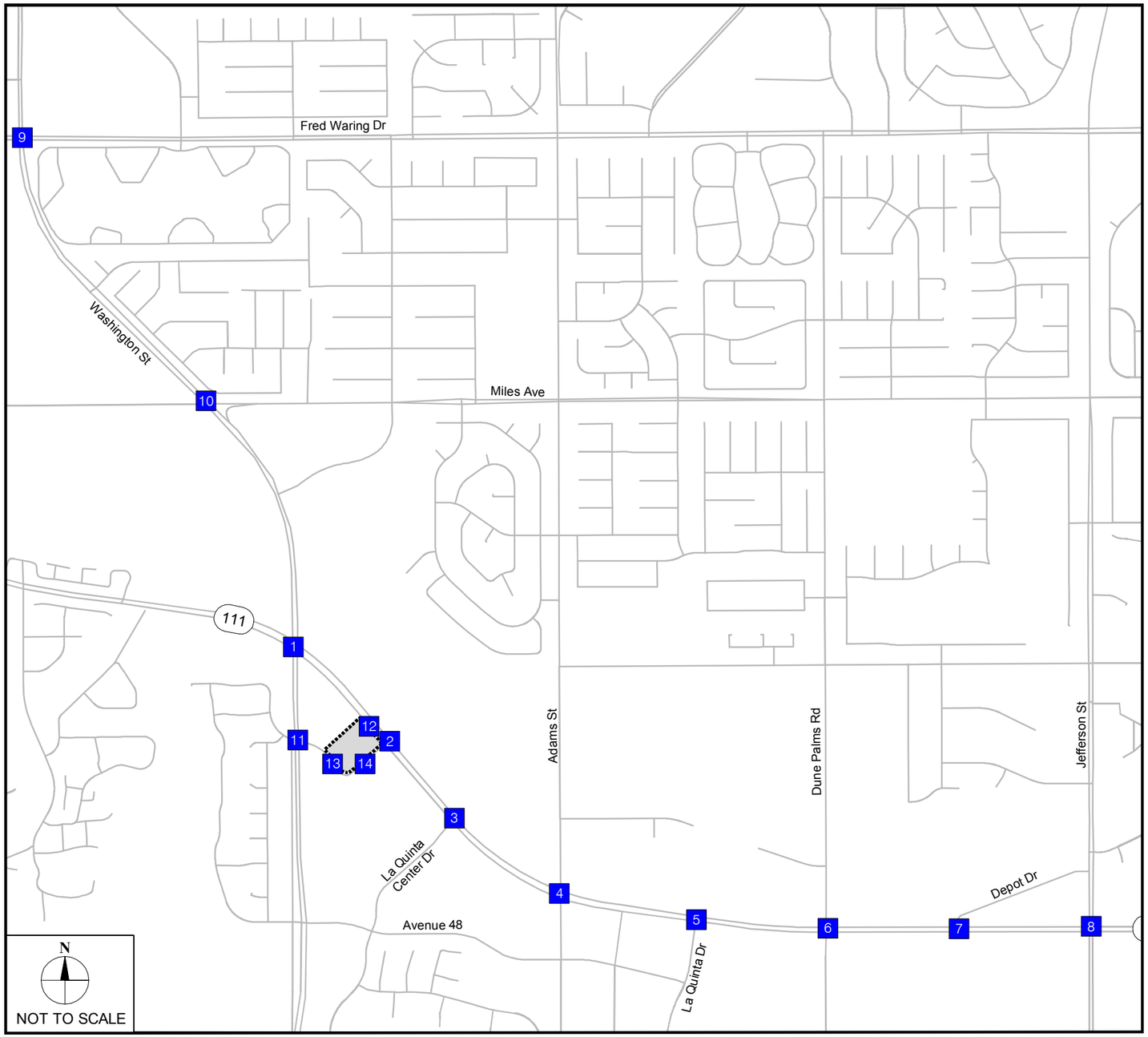
Peak-hour traffic associated with the proposed project was added to the Background (2015) traffic volumes and levels of service were determined at the study intersections. **Figure 8** provides the AM and PM traffic volumes for this analysis scenario. **Table 8** provides a summary of the intersection operating conditions for this analysis scenario and baseline Background (2015) for comparison purposes; **Table 9** provides a summary of the roadway segment operations.

Table 8 – Background (2015) and Background (2015) Plus Proposed Project Intersection Levels of Service

#	Intersection	Analysis Scenario[+]	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Highway 111 @ Washington Street	Back.	Signal	38.0	D	36.1	D
		Back.+PP		38.3	D	37.3	D
2	Highway 111 @ Simon Drive	Back.	Signal	12.3	B	18.8	B
		Back.+PP		12.5	B	20.2	C
3	Highway 111 @ La Quinta Center Drive	Back.	Signal	17.2	B	22.4	C
		Back.+PP		17.3	B	24.3	C
4	Highway 111 @ Adams Street	Back.	Signal	23.5	C	24.4	C
		Back.+PP		23.5	C	25.1	C
5	Highway 111 @ La Quinta Drive	Back.	Signal	19.6	B	28.4	C
		Back.+PP		19.8	B	34.0	C
6	Highway 111 @ Dune Palms Road	Back.	Signal	26.4	C	24.7	C
		Back.+PP		26.4	C	25.8	C
7	Highway 111 @ Depot Drive	Back.	Signal	18.7	B	27.3	C
		Back.+PP		18.9	B	27.5	C
8	Highway 111 @ Jefferson Street	Back.	Signal	28.8	C	33.1	C
		Back.+PP		29.3	C	34.8	C
9	Washington Street @ Fred Waring Drive	Back.	Signal	43.5	D	42.9	D
		Back.+PP		43.8	D	44.8	D
10	Washington Street @ Miles Avenue	Back.	Signal	34.3	C	32.6	C
		Back.+PP		34.6	C	34.6	C
11	Washington Street @ Simon Drive	Back.	Signal	18.1	B	19.4	B
		Back.+PP		18.4	B	21.5	C
12	Highway 111 @ Project Driveway	Back.	OWSC (NBR)	Does not exist			
		Back.+PP		9.5	A	12.3	B
13	Simon Drive @ Project Driveway	Back.	OWSC (SB)	Does not exist			
		Back.+PP		8.6	A	10.1	B
14	Simon Drive @ Project Driveway	Back.	OWSC (EB)	Does not exist			
		Back.+PP		9.3	A	11.1	B

[+] Back. = Background (2015), Back. + PP = Background (2015) plus Proposed Project

As indicated in Table 8, the study intersections continue to operate at LOS D or better during the AM and PM peak-hours with the addition of project traffic under background (2015) conditions. The analysis worksheets for this scenario are provided in **Appendix G**.



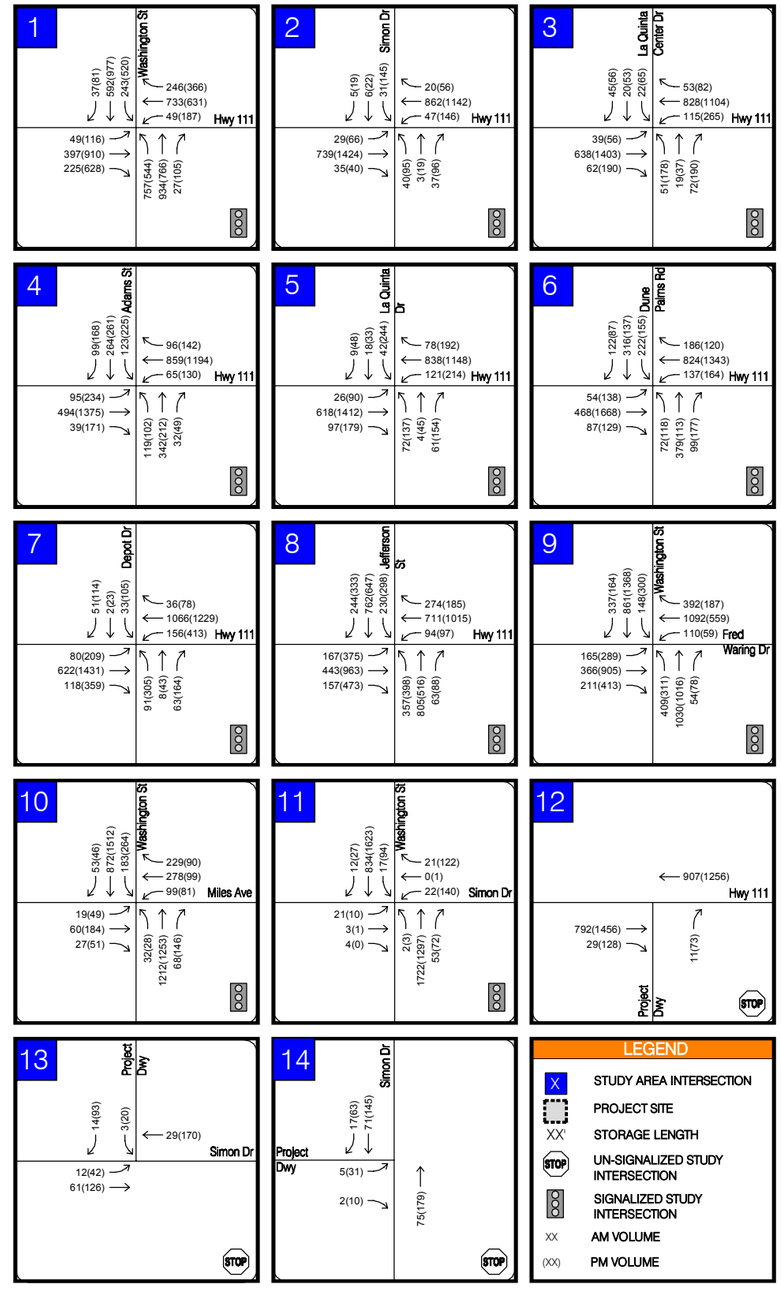


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FIGURE 8
BACKGROUND (2015) WITH PROJECT CONDITIONS - PEAK HOUR TRAFFIC VOLUMES
LA QUINTA SQUARE, LA QUINTA, CA

Table 9 – Background (2015) and Background (2015) Plus Proposed Project Roadway Segment Levels of Service

Roadway Segment	Analysis Scenario	Capacity	ADT	V/C Ratio	LOS
Highway 111					
Mountain Cove Drive to Washington Street	Back.	61,100	33,275	0.545	A
	Back.+PP		34,000	0.556	A
Washington Street to Simon Drive	Back.	61,100	31,826	0.521	A
	Back.+PP		34,967	0.572	A
Simon Drive to La Quinta Center Drive	Back.	61,100	33,668	0.551	A
	Back.+PP		35,842	0.587	A
La Quinta Center Drive to Adams Street	Back.	61,100	36,303	0.594	A
	Back.+PP		38,478	0.630	B
Adams Street to La Quinta Drive	Back.	61,100	27,622	0.452	A
	Back.+PP		29,458	0.482	A
La Quinta Drive to Dune Palms Road	Back.	61,100	37,022	0.606	B
	Back.+PP		38,858	0.636	B
Dune Palms Road to Depot Drive	Back.	61,100	37,983	0.622	B
	Back.+PP		39,433	0.645	B
Depot Drive to Jefferson Street	Back.	61,100	39,146	0.641	B
	Back.+PP		40,595	0.664	B
Washington Street					
Fred Waring Drive to Miles Avenue	Back.	61,100	28,777	0.471	A
	Back.+PP		29,744	0.487	A
Miles Avenue to Highway 111	Back.	61,100	34,381	0.563	A
	Back.+PP		36,072	0.590	A
Highway 111 to Simon Drive	Back.	61,100	36,412	0.596	A
	Back.+PP		38,104	0.624	B
Simon Drive to Avenue 48	Back.	61,100	35,887	0.587	A
	Back.+PP		36,611	0.599	A

As indicated in Table 9, the study area roadway segments continue to operate at LOS A or B with the addition of project traffic under Background (2015) conditions.

CUMULATIVE (2035) CONDITIONS

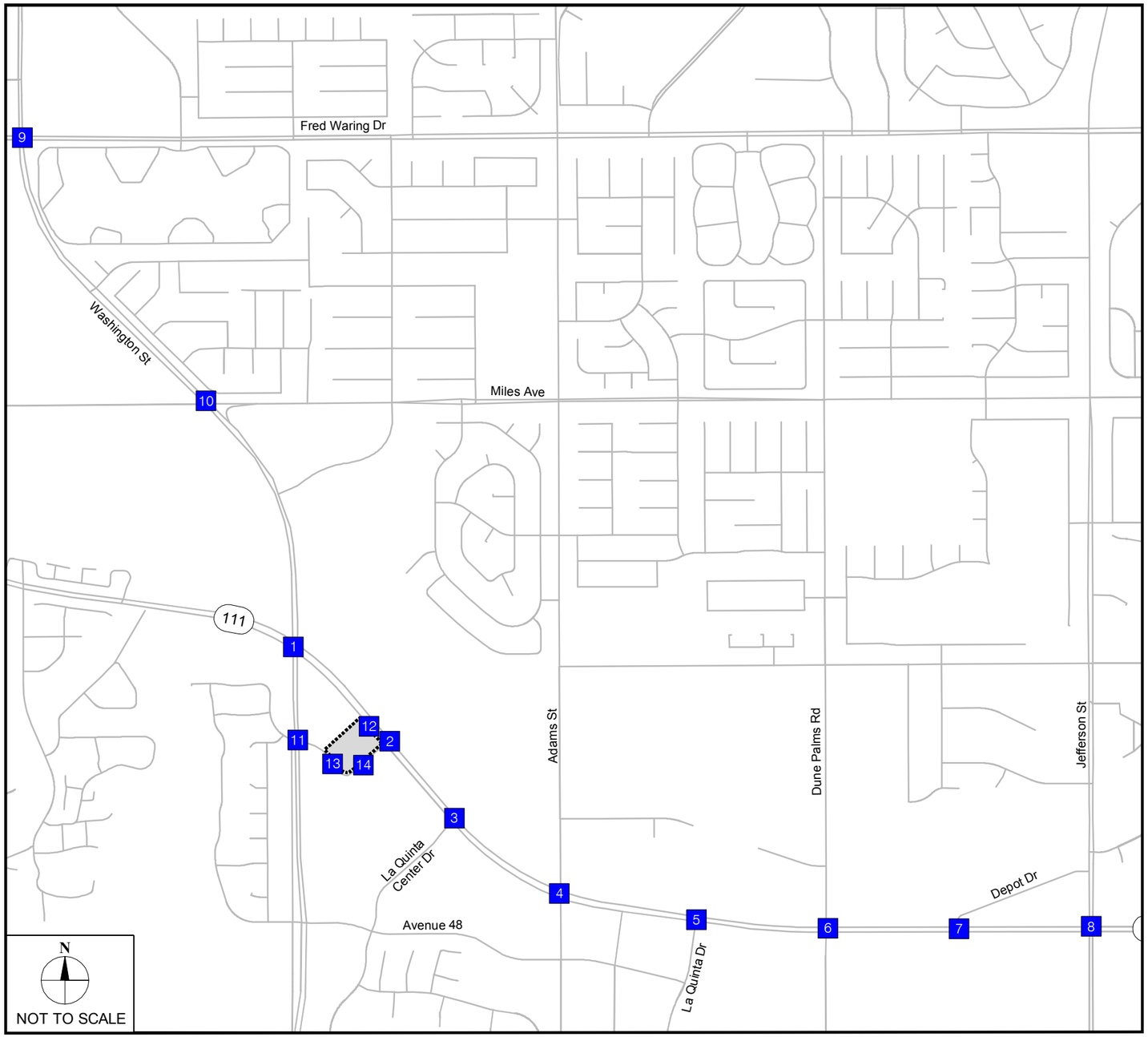
Cumulative conditions for this analysis were established as 2035, consistent with the GPEIR. It is noted in the City guidelines that for the cumulative scenario, improvements fully funded by the City's Capital Improvement Program (CIP), the Development Impact Fee Program (DIF) and the Transportation Uniform Mitigation Fee Program (TUMF) are assumed to be in place. The

To achieve year 2035 traffic volumes, twenty-two (22) years of background traffic growth were applied to the Existing (2013) conditions based on the annual roadway segment growth rates shown in **Appendix E**. The growth rates were established using the growth shown between 2010 and 2035 conditions in the GPEIR. **Figure 9** provides the AM and PM traffic volumes for this analysis scenario. **Table 10** provides a summary of the intersection analysis and **Table 11** provides a summary of the roadway segment analysis.

Table 10 – Cumulative (2035) Intersection Levels of Service

#	Intersection	Traffic Control	AM Peak-Hour		PM Peak-Hour	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1	Highway 111 @ Washington Street	Signal	51.1	D	63.2	E
2	Highway 111 @ Simon Drive	Signal	14.5	B	21.5	C
3	Highway 111 @ La Quinta Center Drive	Signal	25.5	C	23.7	C
4	Highway 111 @ Adams Street	Signal	28.2	C	43.4	D
5	Highway 111 @ La Quinta Drive	Signal	31.2	C	52.9	D
6	Highway 111 @ Dune Palms Road	Signal	30.5	C	43.5	D
7	Highway 111 @ Depot Drive	Signal	31.0	C	**147.0**	**F**
8	Highway 111 @ Jefferson Street	Signal	45.0	D	**111.4**	**F**
9	Washington Street @ Fred Waring Drive	Signal	**117.2**	**F**	**186.6**	**F**
10	Washington Street @ Miles Avenue	Signal	49.6	D	**218.1**	**F**
11	Washington Street @ Simon Drive	Signal	23.9	C	21.3	C
Bold = Substandard						

As indicated in Table 10, four study intersections operate at LOS F during at least one peak hour under Cumulative (2035) baseline conditions. The analysis worksheets for this scenario are provided in **Appendix H**.



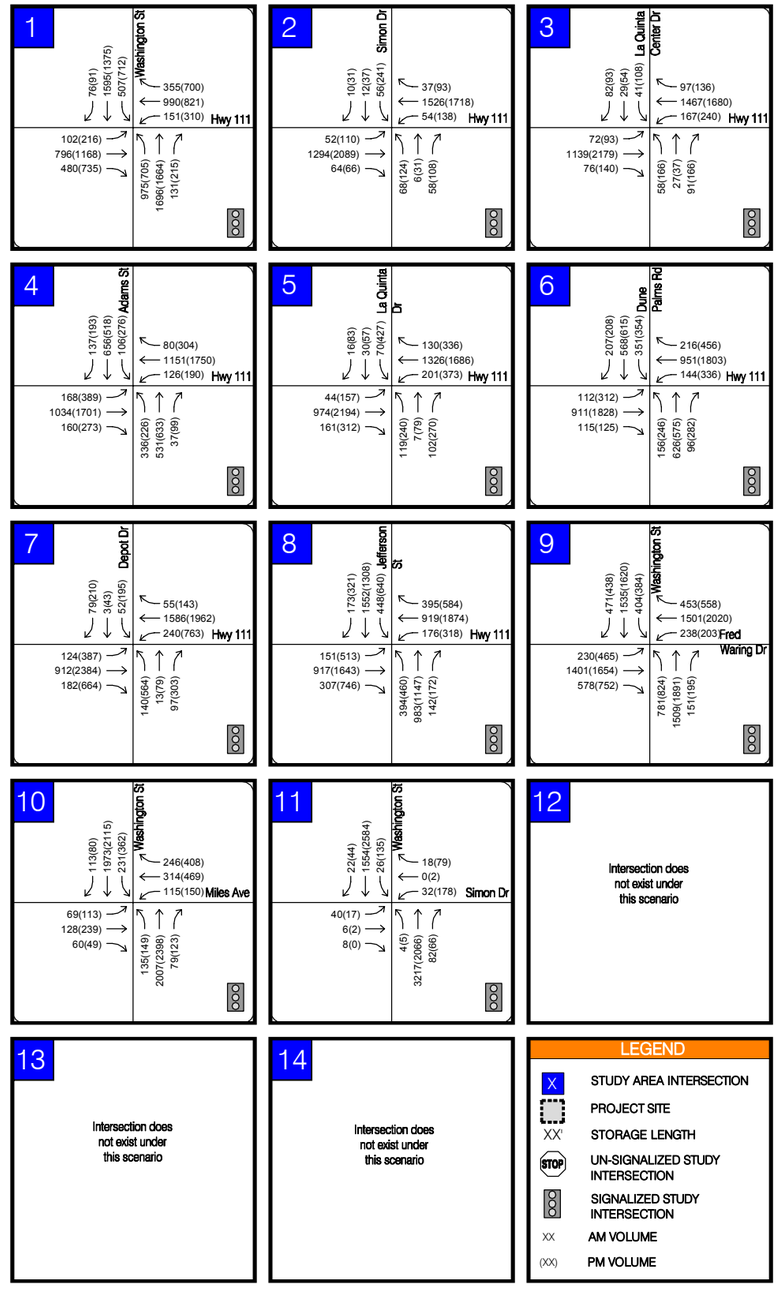


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FIGURE 9
CUMULATIVE (2035) CONDITIONS - PEAK HOUR TRAFFIC VOLUMES
LA QUINTA SQUARE, LA QUINTA, CA

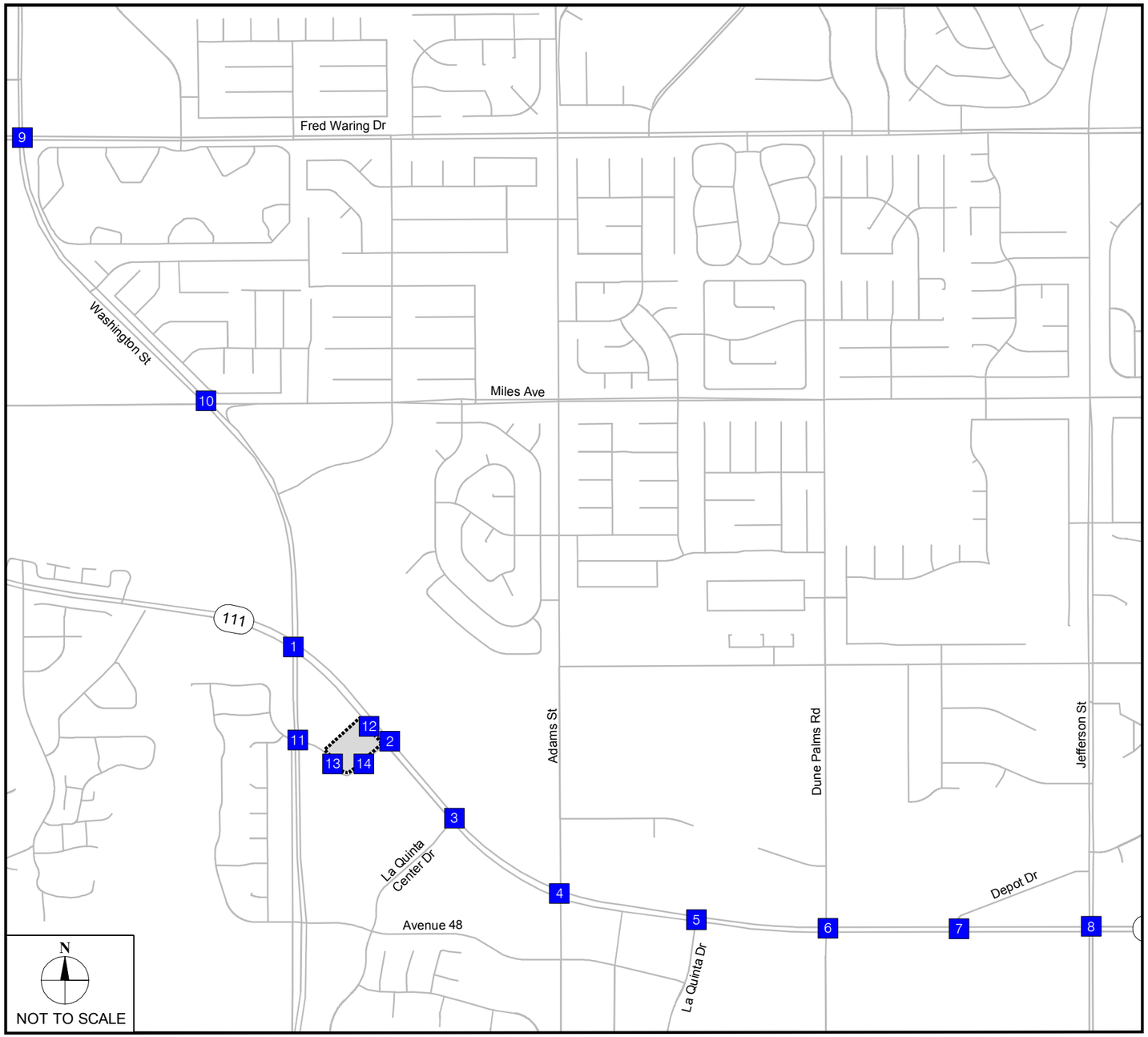
Table 11 – Cumulative (2035) Roadway Segment Levels of Service

Roadway Segment	Roadway Designation	Number of Lanes	Capacity	ADT	V/C Ratio	LOS
Highway 111						
Mountain Cove Drive to Washington Street	Major	6	61,100	51,784	0.848	D
Washington Street to Simon Drive	Major	6	61,100	48,920	0.801	C
Simon Drive to La Quinta Center Drive	Major	6	61,100	51,867	0.849	D
La Quinta Center Drive to Adams Street	Major	6	61,100	55,788	0.913	E
Adams Street to La Quinta Drive	Major	6	61,100	32,286	0.528	A
La Quinta Drive to Dune Palms Road	Major	6	61,100	43,820	0.717	C
Dune Palms Road to Depot Drive	Major	6	61,100	46,125	0.755	C
Depot Drive to Jefferson Street	Major	6	61,100	47,586	0.779	C
Washington Street						
Fred Waring Drive to Miles Avenue	Major	6	61,100	64,210	**1.051**	**F**
Miles Avenue to Highway 111	Major	6	61,100	54,141	0.886	D
Highway 111 to Simon Drive	Major	6	61,100	52,119	0.853	D
Simon Drive to Avenue 48	Major	6	61,100	51,362	0.841	D
Bold = Substandard						

As indicated in Table 11, one study area roadway segment operates at LOS F under Cumulative (2035) baseline conditions.

CUMULATIVE (2035) PLUS PROPOSED PROJECT CONDITIONS

Peak-hour traffic associated with the proposed project was added to the Cumulative (2035) traffic volumes and levels of service were determined at the study intersections. **Figure 10** Provides the AM and PM traffic volumes for this analysis scenario. **Table 12** provides a summary of the intersection analysis for this analysis scenario and baseline cumulative (2035) for comparison purposes; **Table 13** provides a summary of the roadway segment analysis.



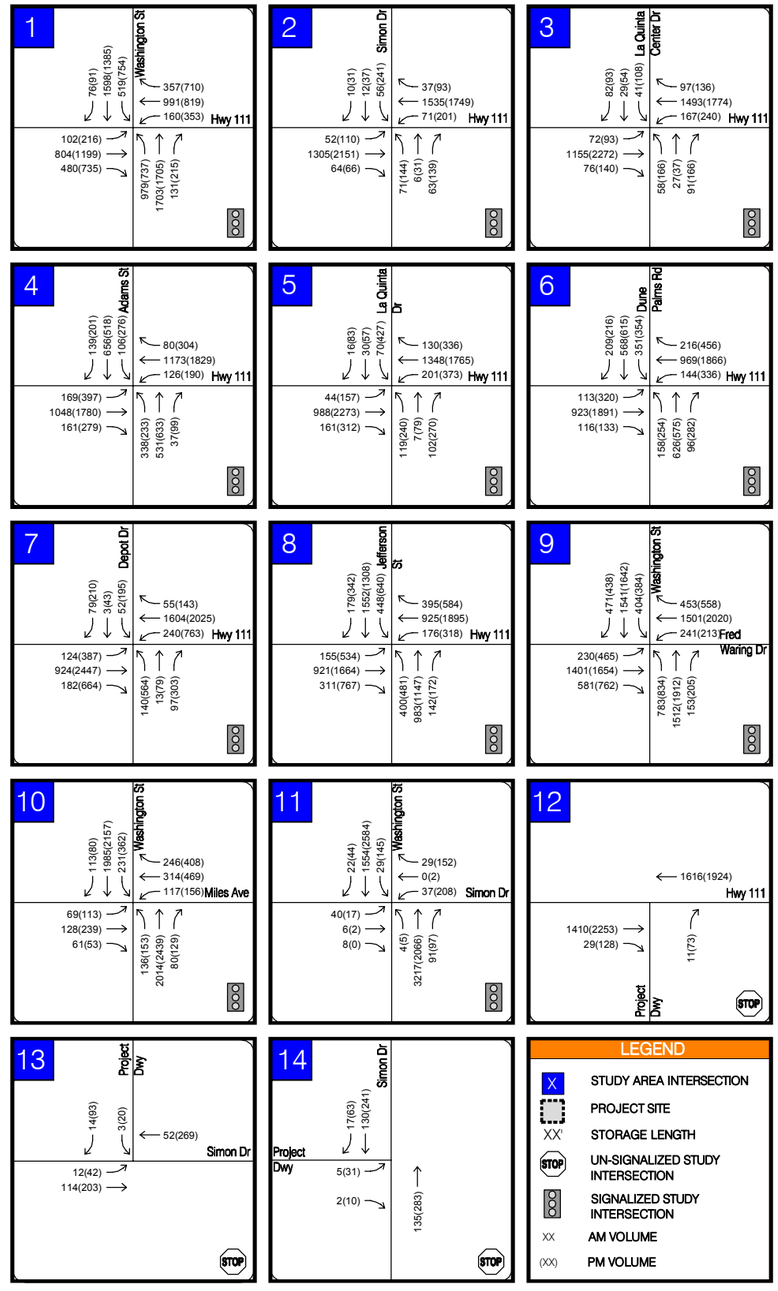


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FIGURE 10
CUMULATIVE (2035) WITH PROJECT CONDITIONS - PEAK HOUR TRAFFIC VOLUMES
LA QUINTA SQUARE, LA QUINTA, CA

Table 12 – Cumulative (2035) and Cumulative (2035) Plus Proposed Project Intersection Levels of Service

#	Intersection	Analysis Scenario[+]	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Highway 111 @ Washington Street	Cumul.	Signal	51.1	D	63.2	E
		Cumul.+PP		51.7	D	71.3	E
2	Highway 111 @ Simon Drive	Cumul.	Signal	14.5	B	21.5	C
		Cumul.+PP		14.6	B	27.2	C
3	Highway 111 @ La Quinta Center Drive	Cumul.	Signal	25.5	C	23.7	C
		Cumul.+PP		27.0	C	24.6	C
4	Highway 111 @ Adams Street	Cumul.	Signal	28.2	C	43.4	D
		Cumul.+PP		28.3	C	46.3	D
5	Highway 111 @ La Quinta Drive	Cumul.	Signal	31.2	C	52.9	D
		Cumul.+PP		32.9	C	55.1	E
6	Highway 111 @ Dune Palms Road	Cumul.	Signal	30.5	C	43.5	D
		Cumul.+PP		30.5	C	45.5	D
7	Highway 111 @ Depot Drive	Cumul.	Signal	31.0	C	**147.0**	**F**
		Cumul.+PP		32.5	C	**153.6**	**F**
8	Highway 111 @ Jefferson Street	Cumul.	Signal	45.0	D	**111.4**	**F**
		Cumul.+PP		45.3	D	**116.4**	**F**
9	Washington Street @ Fred Waring Drive	Cumul.	Signal	**117.2**	**F**	**186.6**	**F**
		Cumul.+PP		**118.5**	**F**	**189.9**	**F**
10	Washington Street @ Miles Avenue	Cumul.	Signal	49.6	D	**218.1**	**F**
		Cumul.+PP		49.8	D	**224.6**	**F**
11	Washington Street @ Simon Drive	Cumul.	Signal	23.9	C	21.3	C
		Cumul.+PP		24.0	C	29.3	C
12	Highway 111 @ Project Driveway	Cumul.	OWSC (NBR)	Intersection Does Not Exist			
		Cumul.+PP		9.8	A	11.2	B
13	Simon Drive @ Project Driveway	Cumul.	OWSC (SB)	Intersection Does Not Exist			
		Cumul.+PP		8.8	A	11.1	B
14	Simon Drive @ Project Driveway	Cumul.	OWSC (EB)	Intersection Does Not Exist			
		Cumul.+PP		10.0	A	13.2	B

[+] Cumul. = Cumulative (2035), Cumul. + PP = Cumulative (2035) plus Proposed Project **Bold = Substandard**

As indicated in Table 12, the four study intersections operating at LOS F without the project would have increase in delay with project traffic, but no additional intersections would degrade to substandard LOS. The analysis worksheets for this scenario are provided in **Appendix I**.

Table 13 – Cumulative (2035) and Cumulative (2035) Plus Proposed Project Roadway Segment Levels of Service

Roadway Segment	Analysis Scenario	Capacity	ADT	V/C Ratio	LOS
Highway 111					
Mountain Cove Drive to Washington Street	Cumul.	61,100	51,784	0.848	D
	Cumul.+PP		52,508	0.859	D
Washington Street to Simon Drive	Cumul.	61,100	48,920	0.801	C
	Cumul.+PP		52,061	0.852	D
Simon Drive to La Quinta Center Drive	Cumul.	61,100	51,867	0.849	D
	Cumul.+PP		54,042	0.884	D
La Quinta Center Drive to Adams Street	Cumul.	61,100	55,788	0.913	E
	Cumul.+PP		57,962	0.949	E
Adams Street to La Quinta Drive	Cumul.	61,100	32,286	0.528	A
	Cumul.+PP		34,122	0.558	A
La Quinta Drive to Dune Palms Road	Cumul.	61,100	43,820	0.717	C
	Cumul.+PP		45,656	0.747	C
Dune Palms Road to Depot Drive	Cumul.	61,100	46,125	0.755	C
	Cumul.+PP		47,574	0.779	C
Depot Drive to Jefferson Street	Cumul.	61,100	47,586	0.779	C
	Cumul.+PP		49,036	0.803	D
Washington Street					
Fred Waring Drive to Miles Avenue	Cumul.	61,100	64,210	**1.051**	**F**
	Cumul.+PP		65,176	**1.067**	**F**
Miles Avenue to Highway 111	Cumul.	61,100	54,141	0.886	D
	Cumul.+PP		55,832	**0.914**	**E**
Highway 111 to Simon Drive	Cumul.	61,100	52,119	0.853	D
	Cumul.+PP		53,811	0.881	D
Simon Drive to Avenue 48	Cumul.	61,100	51,362	0.841	D
	Cumul.+PP		52,086	0.852	D

As indicated in Table 13, one study area roadway segment continues to operate at LOS F with the addition of project traffic and the segment of Washington Street between Miles Avenue and Highway 111 drops below LOS D with the addition of project traffic.

TRAFFIC IMPACTS AND MITIGATION

Consistent with the City of La Quinta requirements[4], this analysis was conducted for the study facilities for the following scenarios:

A. Existing (2013) Conditions
B. Background (2015) Conditions
C. Background (2015) plus Proposed Project Conditions
D. Cumulative (2035) Conditions
E. Cumulative (2035) plus Proposed Project Conditions

Potentially Significant Impact Criteria

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below a specific threshold. The City of La Quinta standards[4] specify a standard of **LOS D** as the minimum level of service for intersections and roadway segments. However, 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 **LOS E**. Within the City of La Quinta, Highway 111 is designated as a CMP facility[5].

Change in traffic is considered to be a significant traffic impact when one of the following conditions occurs:

Intersections

- For all analysis scenarios, a potentially significant project specific 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 established criteria:
  - existing intersections already operating at LOS E have a significant impact if there is an increase in delay of 2 seconds or more
  - existing intersections already operating at LOS F have a significant impact if there is an increase in delay of 1 second or more
- For all analysis scenarios, a potentially significant project specific traffic impact is defined to occur at an unsignalized study intersection when, with project traffic included, an intersection has a projected LOS 'F' on a side street for two-way stop control 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. Delay shall be calculated for all unsignalized intersections to demonstrate this condition.

Roadway Segments

- For existing plus project and project opening year analysis scenarios, 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 of LOS F with project traffic included and the peak hour volume-to-capacity ratio (v/c) in the peak direction is increased by 0.02 or more by addition of project traffic at existing plus project or at project opening year(s).
- For cumulative condition analysis scenarios, a potentially significant project specific traffic impact is defined to occur on any studied road segment if the project would cause the existing LOS to fall to worse than LOS D for cumulative growth volumes. A potentially significant project is also defined to occur on any studied road segment that is already operating at LOS E or LOS F, if the project traffic will increase the peak hour v/c in the peak direction by more than 0.02 with cumulative traffic volumes.

[4] City of La Quinta Engineering Bulletin #06-13, Traffic Impact Study Guidelines, December 19, 2012.
[5] La Quinta 2035 General Plan, Page II-42.

The following is a discussion of the impacts and associated mitigations required for each of the analysis scenarios.

For projects that create significant impacts to City facilities, a percentage of fair share shall be determined for each location impacted:

- Fair share for intersections shall be calculated as a the ratio of the increase in peak hour turning movement volumes from the project divided by the sum of the existing peak hour turning movements plus peak hour turning movement volumes generated by the cumulative development projects.
- Fair share for street segments shall be calculated as the ratio of the increase in average daily trips from the project divided by the sum of the existing average daily trips plus average daily trips generated by the cumulative development projects.
- Fair share cost of mitigation shall be calculated using the Project Fair Share percentage (calculated in the previous bullets) multiplied by the total cost of mitigation.

Potentially Significant Impact to Intersections

The significant impact criteria were applied to determine potential impacts at the study area intersections and roadway segments.

No impacts were found for Background (2015) conditions.

Impacts were found at the following locations for Cumulative (2035) conditions:

- Highway 111 @ Depot Drive (pm peak)
- Highway 111 @ Jefferson Street (pm peak)
- Fred Waring Rd @ Washington Street (am & pm peak)
- Miles Avenue @ Washington Street (pm peak)
- Washington Street from Miles Avenue to Highway 111 (daily)

In addition, the City has determined an immediate need for improvements at the intersection of Highway 111 and Simon Drive to improve north-south flow at the signal. Although intersection operations show an acceptable LOS, the City has been aware that the northbound and southbound left-turns do not have a separate left-turn phase and in order to operate efficiently will need to be restriped to provide separate left-turn lanes that are correctly aligned and associated separate left-turn phases. Currently the intersection has shared through-left lanes for these approaches that cause confusion and congestion. Further, the northbound and southbound through lanes are offset across the intersection which causes a safety concern.

Since these impacts occur during the Cumulative (2035) conditions, possible mitigations need to be coordinated with the City of La Quinta to ensure consistency with the City's roadway network plan established in the GPEIR. There are a few intersections that can be improved to mitigate poor LOS or that the City has identified as mitigations that will be completed. However, several of these locations are built out to their ultimate classification or assumed to be built out to their ultimate classification under the Cumulative (2035) conditions and the addition of additional auxiliary or through lanes is not feasible due to right-of-way constraints.

At locations where additional physical improvements are not feasible, Transportation System Management (TSM) programs and overall Traffic Demand Management (TDM) efforts are defined in the EIR. TDM programs are designed to reduce the number of vehicles on the roadway by increasing vehicle occupancy, carpooling, vanpooling and transit ridership. TSM programs and projects supply travelers with real time travel information to help them make smart travel choices. This can include Intelligent Transportation Systems (ITS) projects for the most efficient traffic signal coordination along corridors and for informing motorist of routes around

traffic congestion through dynamic message signs. The following is a list of specific forms of TSM and TDM programs mentioned in the EIR.

- Implement additional intelligent transportation systems
  - Traffic signal coordination in "real time"
  - Transit Signal Priority
  - Dynamic Message Signs
- Continue with the City's established minimum driveway spacing and access restrictions, and use of speed change lanes
- Construct raised median islands with minimum openings
- Add bus stop amenities and improve peak period headways along the Sunline Transit Agency's major transit routes
- Implement peak season bicycling, carpool and vanpool incentives with major employers

Impacts and Mitigations

Background (2015) plus Proposed Project Conditions
As reflected in **Table 8**, the addition of the proposed project does not result in significant impacts as defined by the City. Accordingly, no mitigations are required.

Cumulative (2035) plus Proposed Project Conditions
As reflected in **Table 12** and **Table 13**, the addition of the proposed project results in a significant impact at four intersections and one roadway segment as defined by The City of La Quinta. In addition, the intersection of Highway 111 and Simon Drive was determined to have operational issues that the City would like to be addressed as part of the proposed project. The following is a discussion of the project impacts and associated mitigations.

Impact:

I1. Intersection 2, Highway 111 and Simon Drive
As stated previously, the City recognizes the need for separate northbound and southbound left-turn lanes and signal phases for these movements. The current configuration has several operational and safety concerns that the City has documented a need for improvements.

I2. Intersection 7, Highway 111 and Depot Drive
This intersection operates at LOS F during the PM peak hour in the baseline cumulative scenario. With the addition of project traffic the intersection delay increases by more than one second which constitutes a significant impact.

I3. Intersection 8, Highway 111 and Jefferson Street
This intersection operates at LOS F during the PM peak hour in the baseline cumulative scenario. With the addition of project traffic the intersection delay increases by more than one second which constitutes a significant impact.

I4. Intersection 9, Washington Street and Fred Waring Drive
This intersection operates at LOS F during both the AM and PM peak hours in the baseline cumulative scenario. With the addition of project traffic the intersection delay increases by more than one second during both peaks which constitutes a significant impact.

I5. Intersection 10, Washington Street and Miles Avenue
This intersection operates at LOS F during the PM peak hour in the baseline cumulative scenario. With the addition of project traffic the intersection delay increases by more than one second which constitutes a significant impact.

I6. Roadway Segment Washington Street from Miles Avenue to Highway 111
The addition of project traffic causes the LOS of this segment of Washington Street to go below LOS D which constitutes a significant impact.

Mitigation:

M1. Intersection 2, Highway 111 and Simon Drive
Restripe the northbound and southbound approaches to include a separate left-turn lane and a shared through-right lane in each direction. The signal would also require a modification to provide separate northbound and southbound left-turn signal phases. The project would contribute its fair share to this improvement.

M2. Intersection 7, Highway 111 and Depot Drive
This intersection was not included in the GPEIR evaluation, but the addition of a second eastbound right-turn lane or third westbound left turn lane was determined to be needed to bring overall intersection delay down below significant impact threshold levels. However, adding these lanes would require significant alterations to the roadway and adjacent properties and are not considered feasible mitigations. As no physical improvement is determined to be feasible, TSM and TDM programs planned to be implemented by the City will help improve operations at this location.

M3. Intersection 8, Highway 111 and Jefferson Street
The GPEIR identified adding a fourth northbound through lane, a third southbound left-turn lane and a fourth southbound through lane as possible mitigations. However, due to right-of-way constraints these mitigations are considered infeasible as noted in the GPEIR. As no physical improvement is determined to be feasible, TSM and TDM programs planned to be implemented by the City will help improve operations at this location.

M4. Intersection 9, Washington Street and Fred Waring Drive
The GPEIR identified adding left-turn, right-turn and through lanes at this intersection as possible mitigations. However, due to right-of-way constraints these mitigations are considered infeasible. The GPEIR determined that there is a need to design and implement an ITS Master Plan in coordination with the cities of Palm Desert and Indian Wells to assist traffic flow. The project would contribute its fair share to these programs.

M5. Intersection 10, Washington Street and Miles Avenue
Addition of a dedicated westbound right-turn lane and converting the existing westbound shared through-right lane to a through only lane, as well as adding a westbound right-turn overlap phase would improve operations at this location. While the resulting LOS would not be at acceptable LOS D or better, this improvement would mitigate the increase in delay caused by project traffic. Although project traffic does not contribute westbound right-turn movements at this location, this improvement helps the intersection as a whole operate more efficiently. The project would contribute its fair share to this improvement.

M6. Roadway Segment Washington Street from Miles Avenue to Highway 111
Additional lanes would be required to bring the segment LOS up to acceptable levels in the cumulative plus project scenario. However, the roadway is already built out at its maximum classification per the GPEIR with three through lanes in each direction and any other physical mitigations for this segment are considered infeasible. TSM and TDM programs planned to be implemented by the City will help improve operations at this location.

The LOS results for the two intersections where mitigation is feasible are shown in **Table 14**. This table includes the LOS with and without mitigation and reflects Cumulative (2035) Plus Project conditions. Analysis worksheets for this scenario are provided in **Appendix J**.

Table 14 – Cumulative (2035) Plus Project Level of Service with and without Mitigation

#	Intersection	Analysis Scenario	Traffic Control	AM Peak-Hour		PM Peak-Hour	
				Delay (sec)	LOS	Delay (sec)	LOS
2	Highway 111 @ Simon Drive	Without Mitigation	Signal	14.6	B	27.2	C
		With Mitigation		24.1	C	39.2	D
10	Washington Street @ Miles Avenue	Without Mitigation	Signal	49.8	D	**224.6**	**F**
		With Mitigation		39.5	D	**188.2**	**F**

The project would be responsible for its fair share contribution to the improvements at these two locations. The calculated fair share percentages are shown in **Table 15**.

Table 15 – Intersection Fare Share Percentages

#	Intersection	Peak Hour Turning Movement Volumes		Peak Hour Fare Share Percentage
		Project	Total	
2	Highway 111 @ Simon Drive	252	4,966	5.07%
10	Washington Street @ Miles Avenue	127	6,755	1.88%

As mentioned previously, the GPEIR states that the City will develop and implement Transportation Systems Management (TSM) and Transportation Demand Management (TDM) strategies in both land use and transportation planning to improve LOS at locations where physical improvements are not feasible. Consistent with the GPEIR, those programs would serve as mitigation measures to the other intersections with impacts under Cumulative (2035) conditions.

OTHER CONSIDERATIONS

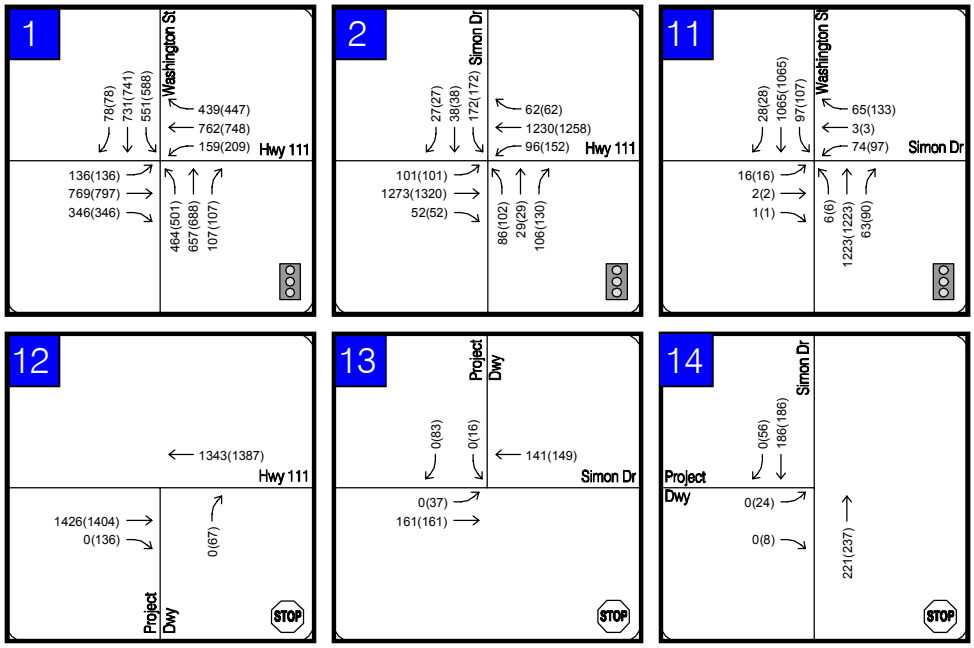
Midday Volume Analysis

A midday analysis for the Background (2015) and Cumulative (2035) scenarios was also completed for intersections in close proximity to the project site to ensure that the proposed project did not have any significant midday peak hour roadway impacts. The Background (2015) and Background (2015) Plus Project volumes are shown in **Figure 11**. The Cumulative (2035) and Cumulative (2035) Plus Project volumes are shown in **Figure 12**. The midday level of service is shown in **Table 16**.

Table 16 – Midday Intersection Levels of Service

#	Intersection	Analysis Scenario	Traffic Control	Analysis Year			
				2015		2035	
				Delay (sec)	LOS	Delay (sec)	LOS
1	Highway 111 @ Washington Street	Without PP	Signal	34.9	C	48	D
		With PP		36.0	D	51.2	D
2	Highway 111 @ Simon Drive	Without PP	Signal	20.0	C	28	C
		With PP		22.0	C	32.5	C
11	Washington Street @ Simon Drive	Without PP	Signal	19.9	B	19.8	B
		With PP		20.6	C	25	C
12	Highway 111 @ Project Driveway (NBR)	Without PP	OWSC (NBR)	Intersection Does Not Exist			
		With PP		11.6	B	10.6	B
13	Simon Drive @ Project Driveway (SB)	Without PP	OWSC (SB)	Intersection Does Not Exist			
		With PP		9.9	A	10.7	B
14	Simon Drive @ Project Driveway (EB)	Without PP	OWSC (EB)	Intersection Does Not Exist			
		With PP		11.8	B	13.9	B

As shown in Table 16, the three site access locations and adjacent intersections would all operate at LOS D or better during the midday peak hour.



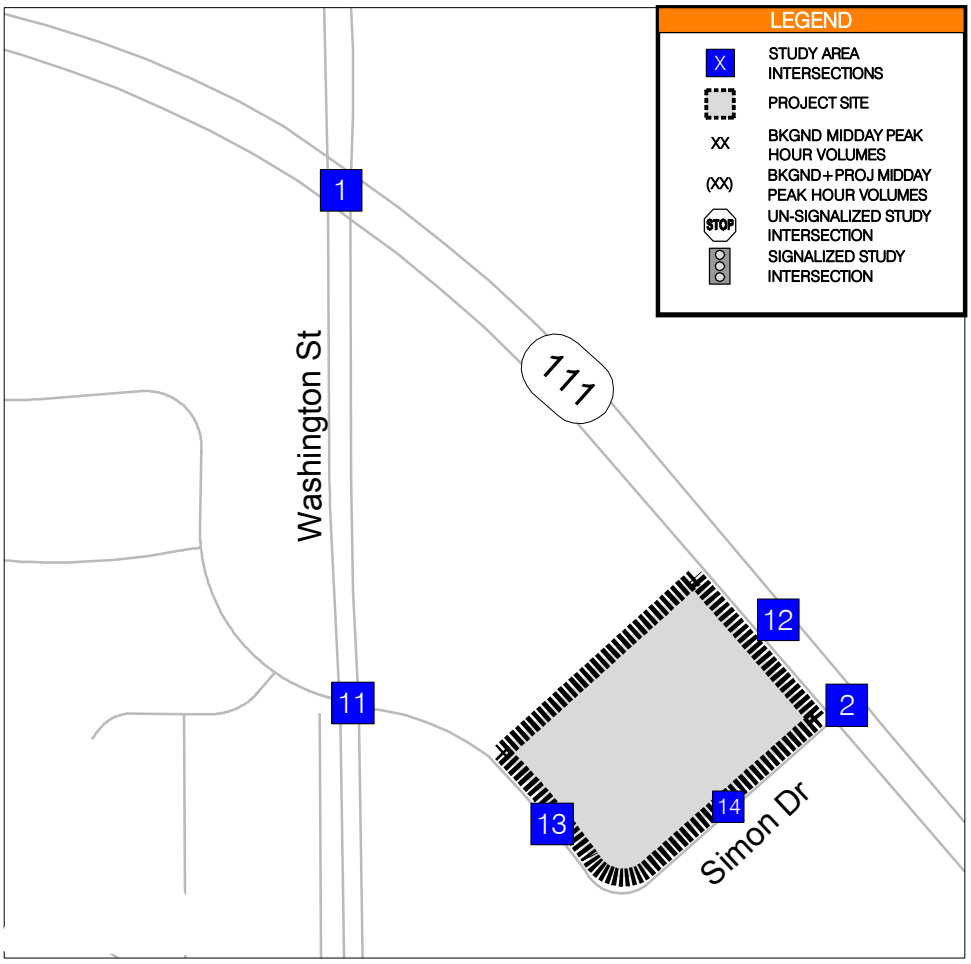


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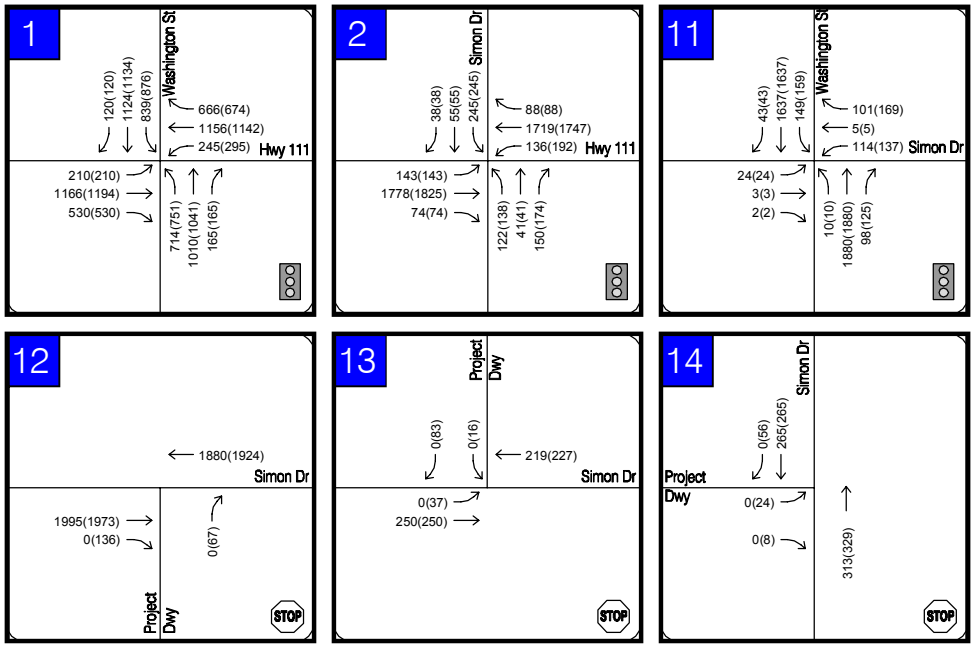
FIGURE 11

BACKGROUND (2015) WITH AND WITHOUT PROJECT - MIDDAY PEAK HOUR VOLUMES



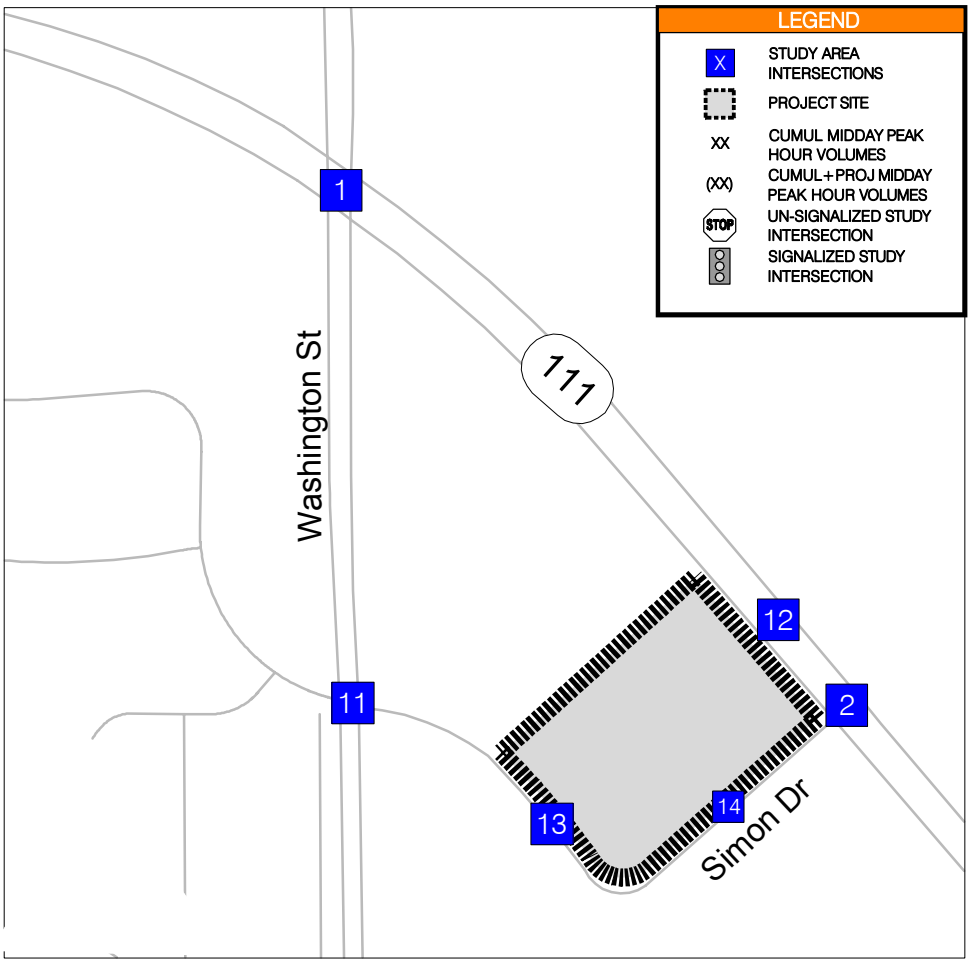


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FIGURE 12

CUMULATIVE (2035) WITH AND WITHOUT PROJECT - MIDDAY PEAK HOUR VOLUMES

Intersection Queuing Evaluation

Consistent with the City of La Quinta requirements, existing and proposed auxiliary lanes should be reviewed for capacity. Cumulative and Cumulative plus Project scenario queuing impacts have been evaluated and quantified by comparing the calculated queues for critical study intersection movements. For this evaluation, the relative queues without and with the addition of the proposed project are the primary focus.

For the queuing analysis, the anticipated 95th percentile vehicle queues for critical movements affected by the addition of the proposed project were evaluated. Results of the queuing evaluation are presented in **Table 17**. Analysis sheets that include the anticipated vehicle queues are presented in **Appendix K.**

As presented in Table 17, the addition of the proposed project adds additional queuing to several of the study locations. However, many of these projected queues are still shorter than the total available queuing storage. With that said, there are six left-turning movements in the vicinity of the project site that will have 95th percentile queues longer than the available storage. Four of these will be longer than the available queue length in the cumulative only scenario, without the addition of project traffic. The other two, occurring at the westbound left turn at Highway 111 and Simon Drive and the westbound left turn at Washington Street and Simon Drive, will have queues which are shorter than the available storage in the baseline cumulative scenario but that are longer than the available storage in the cumulative plus project scenario.

The proposed mitigation at Highway 111 and Simon Drive would modify the northbound and southbound approaches to provide separate left-turn and through-right lanes. The northbound left-turn storage can be set to accommodate the anticipated queue when that mitigation is implemented. The available storage for the southbound left-turn is limited by the parking lot configuration to the north.

At the other locations where queues were found to be exceeding the available storage length, the left-turn pocket is constrained by the opposing direction's left-turn pocket for the adjacent intersection. As a result, the turn pocket lengths cannot be extended without sacrificing storage at the adjacent intersection. Due to these constraints, no physical improvements were determined to be feasible to address the queues at these locations.

Site Access, Circulation and Parking

The proposed site plan provides three driveways: one right-in, right-out only at Highway 111 and two full access driveways along Simon Drive. All of these access points were found to operate at acceptable conditions during all scenarios. Internal to the site there is a main drive aisle that connects the two access driveways and provides stacking distance for vehicles exiting the site. The parking layouts and drive aisles are aligned to provide circulation through the site and minimize conflicts. The location of the fast-food restaurants drive through entrances and exits are placed in locations that minimize conflicts with vehicles parking or using other buildings on site. For the In-N-Out building, the drive through layout provides distance for stacking approximately 20 vehicles which would accommodate the expected demand the majority of the time based on stacking information obtained from other studies. As noted in the site plan being submitted as part of the overall submittal package, the layout provides the required number of parking stalls based on the proposed land uses. Truck turning movements on-site would need to be verified, but it seems that aisle widths and curb layouts would allow truck access. Overall, the site plan provides good access and circulation that would accommodate the proposed uses.

Table 17 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	Available Storage**	95% Queue+ (feet)		
			AM Peak-Hour	MD Peak-Hour	PM Peak-Hour
Highway 111 @ Washington Street	**NBL**				
Cumulative (2035)		890	660	340	470
Cumulative (2035) Plus Project			668	368	523
	SBL				
Cumulative (2035)		200	**248**	**458**	**483**
Cumulative (2035) Plus Project			**255**	**505**	**553**
	EBL				
Cumulative (2035)		710	78	145	175
Cumulative (2035) Plus Project			78	145	175
	WBL				
Cumulative (2035)		1120	118	178	350
Cumulative (2035) Plus Project			128	245	470
Highway 111 @ Simon Drive	**NBL**				
Cumulative (2035)		-	53	**145**	**138**
Cumulative (2035) Plus Project			53 *	110 *	145 *
	SBL				
Cumulative (2035)		130	45	**275**	**368**
Cumulative (2035) Plus Project			43 *	**205 ***	**260 ***
	EBL				
Cumulative (2035)		415	43	178	143
Cumulative (2035) Plus Project			43	178	143
	WBL				
Cumulative (2035)		375	45	165	195
Cumulative (2035) Plus Project			60	328	**453**
Washington Street @ Simon Drive	**NBL**				
Cumulative (2035)		200	8	10	8
Cumulative (2035) Plus Project			8	10	8
	SBL				
Cumulative (2035)		240	45	213	**325**
Cumulative (2035) Plus Project			53	**243**	**380**
	EBL				
Cumulative (2035)		60	73	28	28
Cumulative (2035) Plus Project			73	28	28
	WBL				
Cumulative (2035)		180	28	68	163
Cumulative (2035) Plus Project			33	83	**205**

Source: *HCS + Signals Version 5.4, 2008.*
* Modeled with the proposed mitigation
** Storage shown is cumulative storage and not per lane
+ 95th percentile queues are presented as cumulative total storage (not per lane) with the addition of the proposed project.

Intersection Auxiliary Lane Evaluation

Right and left turn deceleration lanes at site access drives are warranted when there are a significant number of vehicles turning into the project site during the peak hour and the adjacent street has a primary or secondary arterial or higher order street classification. The threshold ingress volume for a left-turn deceleration lane is 25 vehicles or more during the peak hour. The threshold ingress volume for a right-turn deceleration lane is 50 vehicles or more during the peak hour.

There is left-in and right-in access to the project site provided by Simon Drive. The street classification of Simon Drive in the vicinity of the project is a minor street; since Simon Drive is classified as a minor street, no left or right deceleration lane is required at this access drive.

There is right-in only access to the project site provided by Highway 111. Highway 111 is classified as a major arterial with a posted speed limit of 50 mph in the vicinity of the project site. The estimated right-turn ingress volume at this access drive during the evening peak hour is 129 vehicles, which is greater than 50. Therefore, a right-in deceleration lane is warranted at this location. According to the City of La Quinta guidelines and requirements a major street with a posted speed limit of 50mph should have a right-turn deceleration length of 248 feet and a transition length of 150 feet. These recommendations are based on the assumption that motorists will decrease their travel speed by 10 mph prior to entering the transition taper and will decelerate at 6.5 ft/sec. The right-turn deceleration lengths also assume that the right-turn is free flow and that the motorist's final speed will be 10 mph as they turn the corner; thus no storage length is required in the instance of right-turns. These requirements and recommendations are summarized in **Table 18**.

Table 18 – Deceleration Lane Recommendations

Intersection / Analysis Scenario	Ingress Movement	Peak-Hour Volume			Threshold Volume for Turn Type	Primary or Secondary Arterial	Posted Speed Limit (mph)	Deceleration Length (ft)	Transition Length (ft)	Storage Length (ft)
		AM Peak-Hour	MID Peak Hour	PM Peak-Hour						
Highway 111 @ Project Driveway	**EBR**	29	136	128	50	Yes	50	248	150	0
Highway 111 @ Simon Drive	**NBL**	40	102	95	25	Yes	50	397	150	150
	WBL	47	152	146	25	Yes	50	397	150	250
Simon Drive @ Project Driveway (S)	**EBL**	12	37	42	25	No	25	-	-	-
	WBR	0	0	0	50	No	25	-	-	-
Simon Drive @ Project Driveway (E)	**NBL**	0	0	0	25	No	25	-	-	-
	SBR	17	56	63	50	No	25	-	-	-

Highway 111 currently provides a shoulder adjacent to the proposed site that could be re-striped to function as this right-turn in conjunction with the proposed new driveway. There is approximately 250 feet between the proposed new driveway and an existing right-in, right-out only driveway providing access to the adjacent lot to the west. While this does not provide enough room to incorporate both the transition and deceleration length as presented in Table 18, it does provide room for turning vehicles to move out of the way of through traffic. Moving the proposed driveway further east to provide appropriate transition and deceleration length would create additional concerns with the traffic signal immediately east and the onsite circulation patterns. Therefore, a deceleration lane on Highway 111 is being proposed for the site within the constrained area between the proposed driveway and the adjacent right-in, right-out driveway to the west.

At Highway 111 and Simon Drive, the existing westbound left-turn pocket is greater than 250 feet and provides enough storage for the anticipated demand. When the northbound left-turn pocket is striped as part

of the intersection improvement discusses in this report, the storage length should be at least 150-feet.

Standard Deviation Trip Generation Analysis

In addition to average peak hour trip generation rates, increases to incorporate plus one standard deviation in trip generation rates was also looked at because of the proposed retail and restraint land uses for the site. This was done as a worst case sensitivity analysis to identify marginal traffic issues with potential additional traffic volumes. The resulting trip generation with standard deviation is provided for informational purposes and not used in analysis. The standard deviations used for this analysis are shown in **Table 19**.

Table 19 – Trip generation standard deviation values

Land Use (ITE Code)	AM Standard Deviation	PM Standard Deviation	Daily Standard Deviation
Supermarket (850)	2.64	4.81	31.73
Shopping Center (820)	1.31	2.74	21.25
Fast Food (934)	28.63	19.73	242.52

The original trip generation shown in **Table 5** used the fitted curve equation for estimating trips generated for shopping center land use and not the average trip generation rate. When calculating the potential trip generation for the plus one standard deviation scenario, the average rate plus one standard deviation was used for the shopping center land use. However, it was found that using this rate resulted in a smaller trip generation than what was originally calculated using the fitted curve equation. Therefore, the larger, fitted curve trip generation was used for this analysis.

Also, the rate used for the In-N-Out fast food restaurant was determined based on other studies done for In-N-Out establishments, and no standard deviation information is available. The standard deviation for Fast Food Restaurant with Drive-Through, ITE land use code 934, was used to calculate the trip generation for the In-N-Out restaurant for the plus one standard deviation scenario.

The plus one standard deviation proposed project trip generation can be found in **Table 20**.

Table 20 – Plus one standard deviation proposed project trip generation

Land Use (ITE Code)	Size (# Units/ksf)	Total Daily Trips	AM Peak-Hour					PM Peak-Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips
Shopping Center (820)	8.5	1368	35	62%	22	38%	13	115	48%	55	52%	60
Supermarket (850)	17.02	2280	103	62%	64	38%	39	243	51%	124	49%	119
In-N-Out (Fast Food Restaurant w/d.t.)	3.75	3205	0		0		0	258	52%	134	48%	124
Subtotal Raw Trips:			**6853**	**138**		**86**		**52**	**616**		**313**	
Pass-By Reductions Percentage[1] (Daily, PM)	25%	-801						-65		-34		-31
Net New External Trips			**6052**	**138**		**86**		**52**	**551**		**279**	

Source: Trip Generation Manual, 9th Edition, ITE and independent traffic evaluations of In-N-Out restaurants.
[1] Per Trip Generation Handbook, Second Edition, ITE.

SUMMARY AND RECOMMANDATIONS

The project site, which is currently composed of a vacant building and parking area, is proposed to be developed with a 17,020 square-foot market, an 8,500 square-foot retail building, and a 3,750 square-foot fast-food restaurant with drive through. It is assumed that the fast-food restaurant is an In-N-Out, which has different traffic patterns than a typical fast-food restaurant. The existing vacant building and parking area would be removed to provide space for the new development. Primary access to the site will be provided directly from Highway 111 by a right-in, right-out drive, and via two full access driveways along Simon Drive, one to the east of the site, and one to the south of the site. It is anticipated that the site will be fully built out by the year 2015.

The following intersections are included in this evaluation:

1. Highway 111 @ Washington Street
2. Highway 111 @ Simon Drive
3. Highway 111 @ La Quinta Center Drive
4. Highway 111 @ Adams Street
5. Highway 111 @ La Quinta Drive
6. Highway 111 @ Dune Palms Road
7. Highway 111 @ Depot Drive
8. Highway 111 @ Jefferson Street
9. Washington Street @ Fred Waring Drive
10. Washington Street @ Miles Avenue
11. Washington Street @ Simon Drive
12. Highway 111 @ Project Driveway (NBR)
13. Simon Drive @ Project Driveway (SB)
14. Simon Drive @ Project Driveway (EB)

The following roadway segments are included in the existing evaluation

- Highway 111
  - Mountain Cove Drive to Washington Street
  - Washington Street to Simon Drive
  - Simon Drive to La Quinta Center Drive
  - La Quinta Center Drive to Adams Street
  - Adams Street to La Quinta Drive
  - La Quinta Drive to Dune Palms Road
  - Dune Palms Road to Depot Drive
  - Depot Drive to Jefferson Street
- Washington Street
  - Fred Waring Drive to Miles Avenue
  - Miles Avenue to Highway 111
  - Highway 111 to Simon Drive
  - Simon Drive to Avenue 48

Consistent with the City of La Quinta guidelines and requirements, this analysis was conducted for the study facilities for the following scenarios:

A. Existing (2013) Conditions
B. Background (2015) Conditions
C. Background (2015) Plus Proposed Project Conditions
D. Cumulative (2035) Conditions
E. Cumulative (2035) Plus Proposed Project Conditions

Summary of Findings

Significant findings of this study include:

- The proposed project is estimated to generate 4,832 total new daily trips, with 93 trips occurring during the AM peak-hour, and 414 new trips occurring during the PM peak-hour.

Existing Conditions

- All study area intersections and roadway segments operate at acceptable levels of service for the existing conditions.

Background (2015) Conditions

- All study area intersections and roadway segments operate at acceptable levels of service for the Background (2015) conditions.
- No significant impacts were found for Background (2015) conditions.

Cumulative (2035) Conditions

- Four study area intersections and one study area roadway segment fall below acceptable LOS in the Cumulative (2035) scenario.
- One additional roadway segment falls below acceptable LOS in the Cumulative (2035) Plus Project scenario.
- The project was found to have five locations with significant impacts under Cumulative (2035) conditions:
    - Highway 111 @ Depot Drive (pm peak)
    - Highway 111 @ Jefferson Street (pm peak)
    - Fred Waring Rd @ Washington Street (am & pm peak)
    - Miles Avenue @ Washington Street (pm peak)
    - Washington Street from Miles Avenue to Highway 111 (daily)
- In addition, the intersection of Highway 111 and Simon Drive was determined to need improvements based on needs identified by the City regarding operations and safety associated with the current configuration of the northbound and southbound approaches.

Mitigations

- The project would contribute its fair share (5.07%) towards restriping the northbound and southbound approaches and completing a traffic signal modification to provide exclusive left-turn lanes in both directions at the intersection of Highway 111 and Simon Drive.
- The project would contribute its fair share (1.88%) towards adding an exclusive westbound right-turn lane and associated right-turn overlap phase at the intersection of Washington Street and Miles Avenue.
- At the other locations where impacts were determined, physical improvements are considered infeasible and the City's implementation of Transportation System Management, Transportation Demand Management, and Intelligent Transportation System programs, as defined in the GPEIR, would be considered mitigation for the project impacts.

Site Access, On-Site Circulation, and Parking

- Three driveways provide access to the proposed site; one right-in, right-out only at Highway 111 and two full access driveways along Simon Drive, one east of the site and one south of the site.
- All of these access points were found to operate at acceptable conditions during all scenarios.
- An eastbound right-turn auxiliary deceleration lane is warranted at the Highway 111 access drive, requiring a deceleration length of 248 feet with a 150 foot taper. A deceleration lane has been

incorporated as part of the site plan; however, the length of the pocket is slightly shorter than the required distance identified due to adjacent physical constraints.

- Internal to the site there is a main drive aisle that connects the three access driveways and provides stacking distance for vehicles exiting the site.
- The parking layouts and drive aisles are aligned to provide circulation through the site and minimize conflicts.
- The location of the In-N-Out drive through entrance and exit are placed in locations that minimize conflicts with vehicles parking or using other buildings on site.
- The drive through layout for the In-N-Out building provides distance for stacking approximately 20 vehicles which would accommodate the expected demand the majority of the time based on stacking information obtained from other studies.
- Truck turning movements on-site would need to be verified but it seems that aisle widths and curb layouts would allow truck access.
- The site plan provides the required number of parking stalls based on the proposed land uses.
- Overall, the proposed site plan provides good access and circulation that would accommodate the proposed uses.

Appendix A:

Traffic Count Data Sheets

Appendix B:

Analysis Worksheets for
Existing (2013) Conditions

Appendix C:

Other In-N-Out
Trip Generation Studies

Appendix D:

Pass-By Trip
Assignment Figure

Appendix E:

Intersection and Roadway Segment Growth Rates

Appendix F:

Analysis Worksheets for
Background (2015) Conditions

Appendix G:

Analysis Worksheets for
Background (2015) Plus Project Conditions

Appendix H:

Analysis Worksheets for
Cumulative (2035) Conditions

Appendix I:

Analysis Worksheets for
Cumulative (2035) Plus Project Conditions

Appendix J:

Analysis Worksheets for Mitigated Conditions

Appendix K:

Intersection Queuing Worksheets