Transportation Impact Analysis

Costco/Komar Development

La Quinta, California

October 2005

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Table of Contents

List of Figures

List of Tables

Section 1

Executive Summary

Executive Summary

Costco Wholesale and Komar Investments are proposing a new development on 26.37 acres of land located near the southwest quadrant of the State Highway 111/Jefferson Street intersection, in La Quinta, California. This development consists of a 149,739 square foot Costco Wholesale warehouse (including a 5,200 square foot tire center that is included in the 149,739 square feet warehouse, and a fuel station) and an 83,700 square foot Komar Shopping Center. The nine out-parcels included in the Komar development are set for a use that has not been designated at this time. For the purpose of this report, it is assumed that these will include restaurants and additional retail development. The proposed site vicinity map is shown in Figure 1.

The Costco Wholesale and Komar Shopping Center (Costco/Komar) site will be accessed via Highway 111 with a signalized full access at Depot Drive and one right-in/right-out driveway. The full movement driveway on Highway 111 has been aligned with Depot Drive located on the north side of the highway. The second driveway is located on the east side of the proposed development. The City of La Quinta will require the developer to provide a reciprocal easement of access at a location on the western edge of the Costco/Komar development. The exact location and details of the access will be worked out as development of the property to the west occurs. Significant effort has been invested to develop a site plan and roadway network that provides safe and efficient traffic operations to the development and on the surrounding infrastructure. The findings of the intersection operational analysis documented in this study are summarized in the table on the next page.

Summary of Mitigation Recommendations for Site Development

The main site driveway at the signalized intersection of Depot Drive and Highway 111 will require both dual left-turn lanes and a right-turn lane on Highway 111. A right-turn lane will also be required on Highway 111 at the right-in/right-out only driveway at the east side of the proposed development. A series of roadway improvements are planned along Highway 111 in the near term and will involve widening Highway 111 to six lanes, with dual left-turn lanes and separate right-turn lanes at all of the major intersections from Adams Street to the west and Jefferson Street to the east. It is proposed that the Costco/Komar development will occur prior to the planned Highway 111 improvements. As such, Costco/Komar will provide road improvements to Highway 111 along the site frontage as part of the development. The improvements will include three through lanes in the eastbound direction, a right-turn lane at both site driveways and a dual left turn lane at Highway 111/Depot Drive.

The two proposed site access driveways are designed to accommodate the estimated site-generated traffic and to ensure efficient on-site circulation. Future on-site shrubbery and landscaping should be trimmed and maintained to ensure adequate sight distance for vehicles entering and exiting the site via the site-access roadways.

Following are the intersections that were found to be impacted by the proposed development:

Year 2006 Total Traffic Conditions

- *Highway 111/Dune Palms:* – estimated to operate at LOS F with a 0.06 increase in the V/C ratio due to the development. The planned improvements to widen Highway 111 in 2006 will improve the intersection to LOS D.

- *Highway 111/Jefferson Street:* – estimated to operate at LOS E with a 0.212 increase in the V/C ratio due to the development. The planned improvements to widen Highway 111 and Jefferson Street in 2006 and modification of the traffic signal to provide southbound right-turn overlap phasing will improve the intersection to LOS D.
- *Jefferson Street/Miles Avenue (unsignalized):* - estimated to operate at LOS F. The planned improvements to widen Jefferson Street in 2006 and provision for a signal will improve the intersection to LOS D.

Year 2020 Full Buildout Total Traffic Conditions

- *Washington Street/Highway 111* – estimated to operate at LOS F with a 0.056 increase in the V/C ratio due to the development. The following improvements will be required to improve the intersection to LOS D:
    - Westbound - Add a separate westbound right-turn lane
    - Eastbound - Modify the eastbound right-turn lane to function as a free-flow lane and add new southbound receiving/merging lane on Washington Street on the south side of the intersection.
    - Northbound – Add a third left-turn lane.
    - Southbound - Add a third left-turn lane and a fourth through lane (also requires a new southbound receiving lane on Washington Street on the south side of the intersection).

  Implementation of the mitigation measures for this intersection may not be feasible due the substantial construction cost, and right-of-way restrictions. Further, because the project's contribution of trips to this intersection is minimal in comparison to the total number of trips at this location, it may not be legally feasible to require that these improvements, which are regional in nature, be addressed by the proposed development. If the City determines that these measures cannot be feasibly imposed upon this project, the intersection would operate at LOS F, and the impact of the proposed project would remain significant.

  Mitigation specific to the project-specific incremental impact associated with the proposed development may be possible via re-striping the westbound #3 through-lane of Highway 111 to allow a separate westbound right-turn lane. This mitigation action would not achieve a level of service D but would adequately mitigate the project-specific incremental impact upon this intersection. This action would require Caltrans review and approval prior to implementation. While this improvement will mitigate the incremental impact associated with the proposed project, the intersection will continue to operate at a LOS F.
- *Highway 111/La Quinta Drive* - estimated to operate at a LOS E with a 0.027 increase in the V/C ratio. A separate eastbound right-turn lane would be required to improve the intersection operation to LOS D.

  The City has confirmed that this improvement will be constructed by the City of La Quinta, using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Dune Palms Rd* – estimated to operate at a LOS E with a 0.041 increase in V/C. A second southbound left-turn lane would be required to improve the intersection operation to LOS D.

  A commercial development (Sam's Club) is currently in process southwest of this intersection and will be responsible for constructing northbound dual left turn lanes at this intersection. If Caltrans does not require the southbound improvement as part of the Sam's Club improvements, and the improvements are not otherwise completed by other development, the City has confirmed that the City of La Quinta will complete the improvements using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Jefferson St* – estimated to operate at a LOS D without the Costco/Komar development, and a LOS E with a 0.156 increase in V/C with the Costco/Komar development. A separate westbound right-turn lane, and provision for eastbound right-turn overlap phasing would be required to improve the intersection operation to LOS D.

  These proposed mitigation improvements are located in the City of Indio. The Riverside County Transportation Commission has allocated $3.2 million in Measure A funds, and $1.5 million in Transportation Enhancement funds, which are currently available to the City of Indio for Highway 111 improvements that include the Highway 111/Jefferson Street intersection. As a result, the City of Indio should be able to construct these improvements. If for some reason beyond Indio's control, the public funding noted herein is not available to pay for these improvements, and Indio establishes an alternative program to spread the costs of these improvements across all new development that increases traffic volumes at this intersection, the developers of this project should be required to participate in such a program to fund their proportionate fair share cost of these improvements. If the improvements are not made, the intersection will operate at LOS E, and the impact of the proposed project would remain significant.

Additional details of the study methodology, findings, and recommendations are provided within this report.

Summary of Intersection Operational Analysis Findings, 2006 Weekday PM Peak Hour

Intersection	Measure	Existing Base	2006 Back ground	2006 with Costco / Komar	2006 with Costco/Komar & Planned Roadway Improvements	Change in LOS / Incremental increase with Costco/Komar Development	Mitigation Required
Washington Ave & Fred Waring	LOS	D	D	D	D	No Change	No
	Critical v/c	0.705	0.717	0.725	0.725	0.008	
Washington Ave & Miles	LOS	C	C	C	C	No Change	No
	Critical v/c	0.576	0.589	0.617	0.617	0.028	
Washington Ave & Channel	LOS	C	C	C	C	No Change	No
	Critical v/c	0.591	0.604	0.612	0.612	0.008	
Washington Ave & Highway 111	LOS	D	D	D	D	No Change	No
	Critical v/c	0.849	0.903	0.959	0.959	0.056	
Washington Ave & Ave 48	LOS	C	C	C	C	No Change	No
	Critical v/c	0.587	0.638	0.654	0.654	0.016	
Highway 111 & Simon	LOS	C	B	B	B	No Change	No
	Critical v/c	0.536	0.640	0.680	0.680	0.040	
Highway 111 & La Quinta Ctr	LOS	B	C	C	B	No Change	No
	Critical v/c	0.676	0.784	0.872	0.629	0.088	
Highway 111 & Adams	LOS	C	D	D	C	No Change	No
	Critical v/c	0.785	0.929	0.978	0.717	0.049	
Highway 111& La Quinta Dr	LOS	C	D	D	D	No Change	No
	Critical v/c	0.688	0.929	0.977	0.837	0.048	
Highway 111 & Dune Palms	LOS	D	E	F	D	E to F	Yes[1]
	Critical v/c	0.886	1.128	1.188	0.840	0.06	
Highway 111 & Depot	LOS	A	B	D	C	B to D	No[2]
	Critical v/c	0.527	0.703	0.905	0.748	0.202	
Highway 111 & Jefferson	LOS	C	D	E	D	D to E	Yes[3]
	Critical v/c	0.654	0.835	1.047	0.840	0.212	
Highway 111& Madison	LOS	D	D	D	D	No Change	No
	Critical v/c	0.730	0.808	0.833	0.833	0.025	
Jefferson & Fred W	LOS	C	C	D	C	C to D	No
	Critical v/c	0.480	0.766	0.790	0.503	0.024	
Jefferson & Miles	LOS	C	F	F	D	No Change	Yes[4]
	Critical v/c	1.039	N/A	N/A	0.465	N/A	
Jefferson & Ave 48	LOS	D	D	D	D	No Change	No
	Critical v/c	0.629	0.747	0.759	0.759	0.012	

1 – The independently planned improvements for 2006 along Highway 111 to widen Highway 111 to six through lanes, with dual left-turn lanes and a separate right-turn will mitigate this intersection to acceptable conditions.

2 - As part of the proposed development, the Costco/Komar development will construct a half street improvement along the site frontage on Highway 111, including a third eastbound through lane, a right-turn lane at each of the site accesses and a dual left-turn lane for westbound traffic at the Highway 111/Depot Drive intersection.

3 - The independently planned improvements for 2006 along Highway 111 and Jefferson Street to widen both roadways to six through lanes, with dual left-turn lanes and a separate right-turn will mitigate this intersection to acceptable conditions.

4 - The independently planned improvement to signalize this intersection in 2006 will mitigate it to acceptable conditions.

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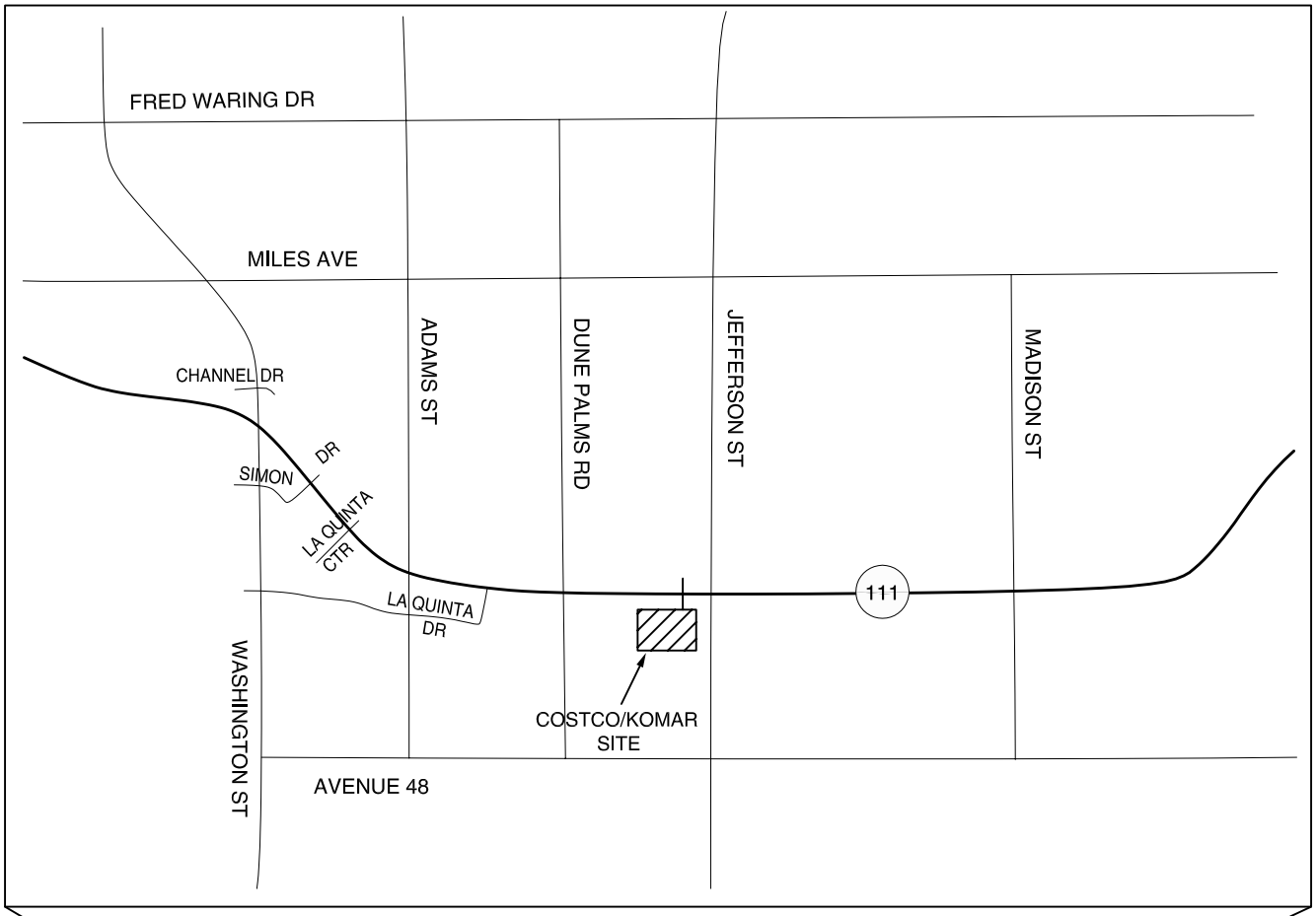
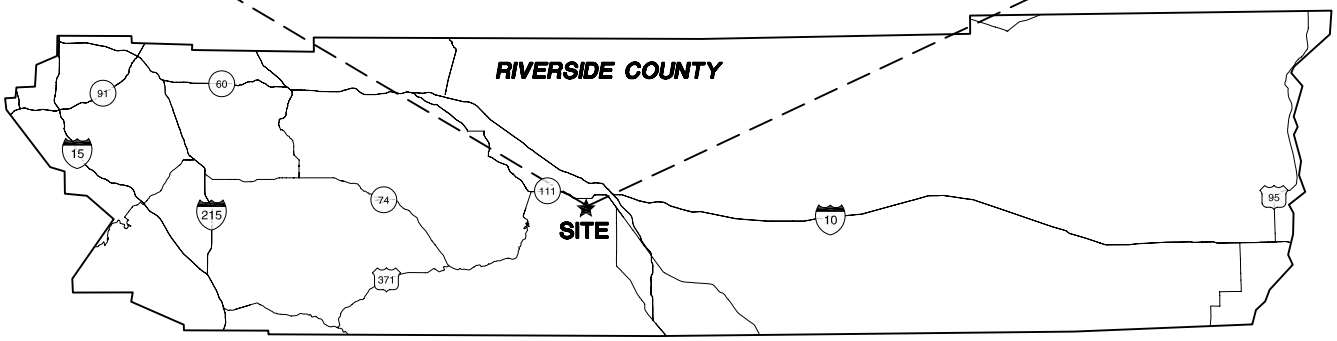




SITE VICINITY MAP
LA QUINTA, CALIFORNIA

FIGURE 1

Section 2

Scope and Methodology

Scope and Methodology

The purpose of this traffic study is to determine the impact the proposed Costco/Komar development will have on the surrounding transportation system. All developments approved by the City of La Quinta at the time of this report were included in the Year 2006 traffic analysis. Mitigations are identified where the proposed development causes the study intersections to exceed operating standards. Traffic volumes on the transportation network for the full build out year were taken from the approved La Quinta General Plan, 2002. A site development plan is shown in Figure 2.

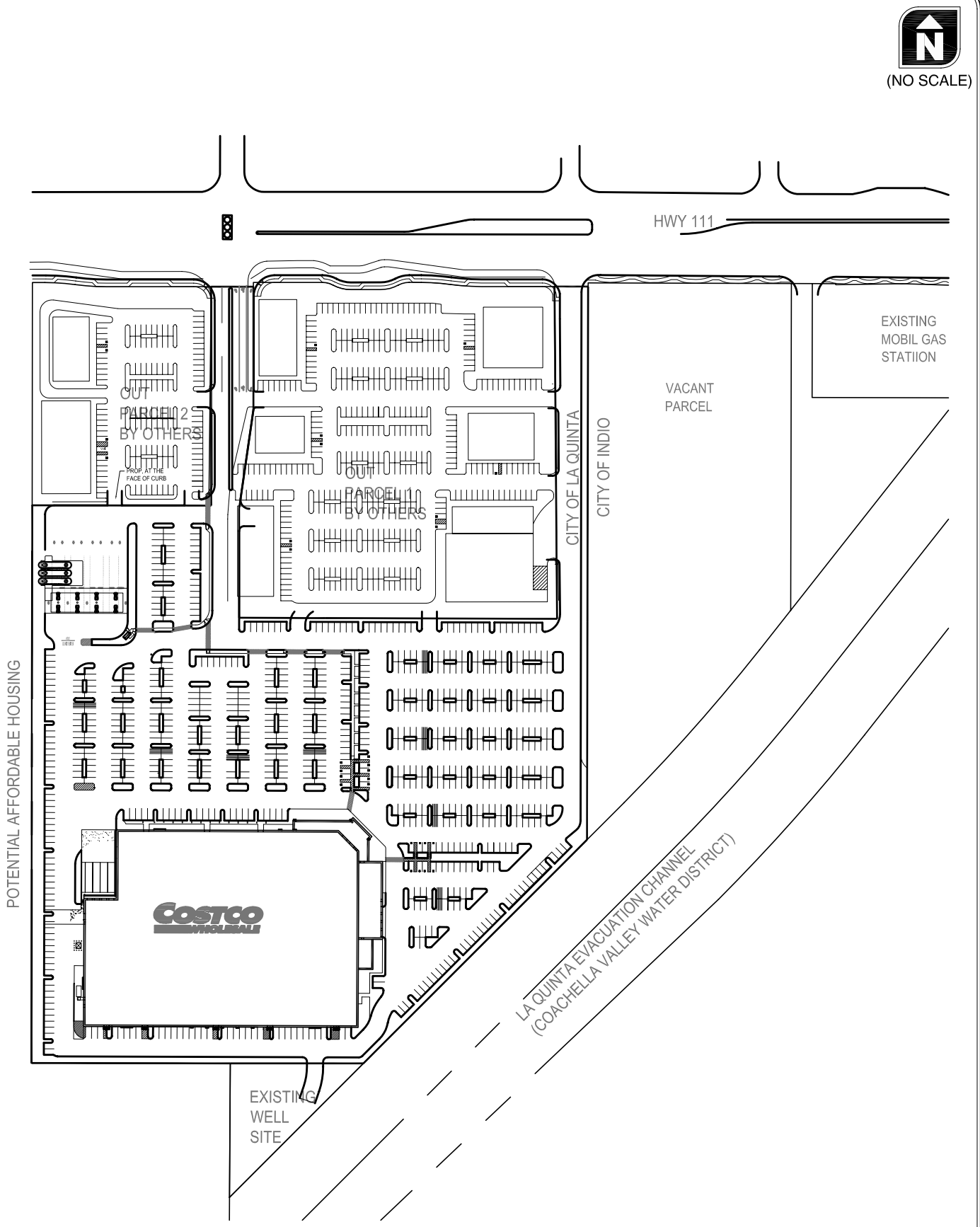
SCOPE OF THE REPORT

This analysis documents the transportation–related impacts associated with the proposed Costco/Komar development. The study intersections and overall study area for this project were selected based on a review of the local transportation system and discussions with City of La Quinta Staff. The study area was broadened beyond what is typically required for similar developments per direction provided by City of La Quinta staff to ensure a comprehensive review of the transportation system.

Operational analyses were performed at the following intersections and as shown in Figure 3:

Study Intersections

- Washington Street/Fred Waring Drive
- Washington Street/Miles Avenue
- Washington Street/Channel Drive
- Washington Street/Highway 111
- Washington Street/Avenue 48
- Highway 111/Simon Drive
- Highway 111/La Quinta Center
- Highway 111/Adams Street
- Highway 111/La Quinta Drive
- Highway 111/Dune Palms
- Highway 111/Depot Drive
- Highway 111/Jefferson Street
- Highway 111/Madison Street
- Jefferson Street /Fred Waring Drive
- Jefferson Street/Miles Avenue
- Jefferson Street/Avenue 48



PROPOSED SITE DEVELOPMENT PLAN
LA QUINTA, CALIFORNIA

FIGURE
2

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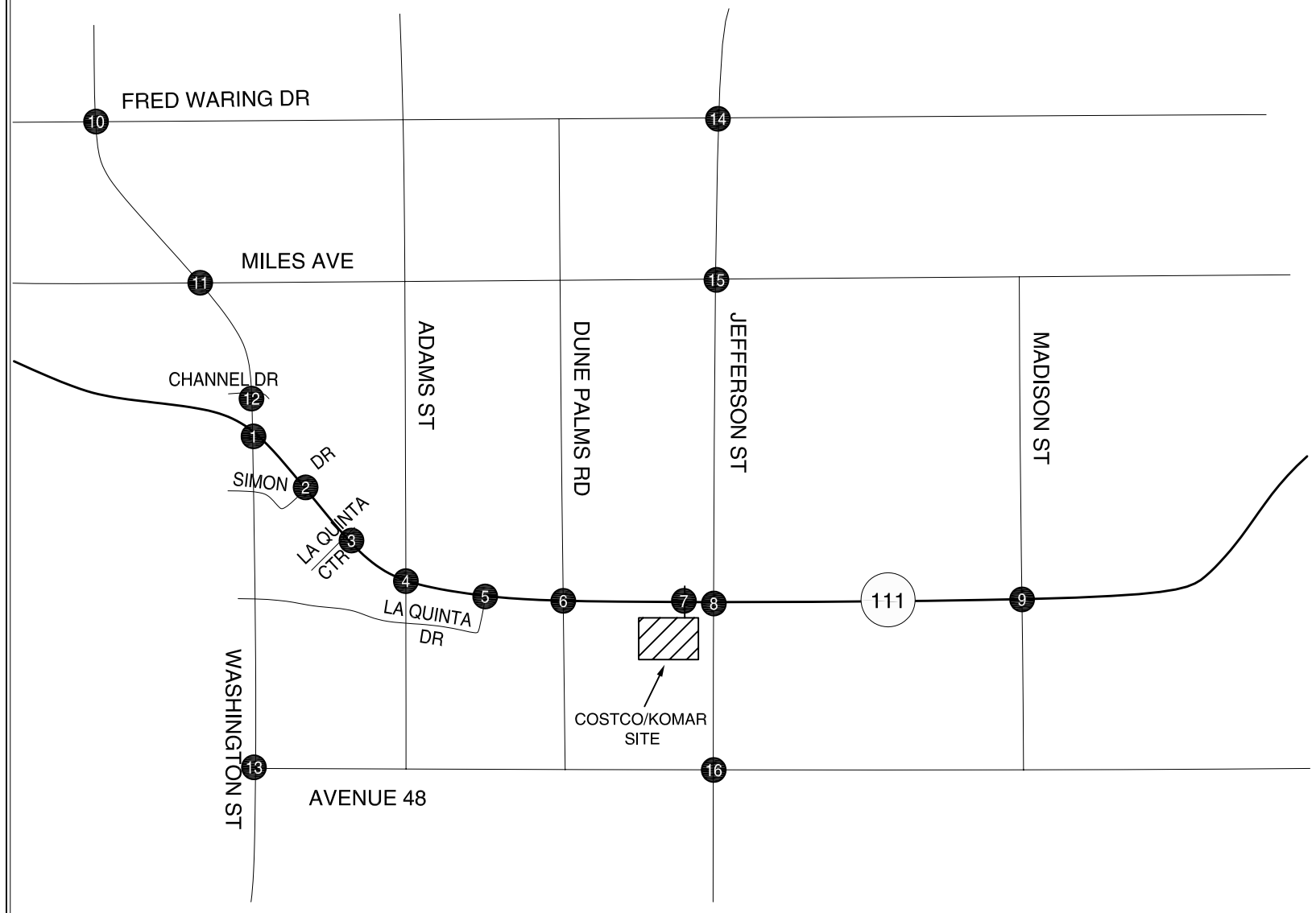

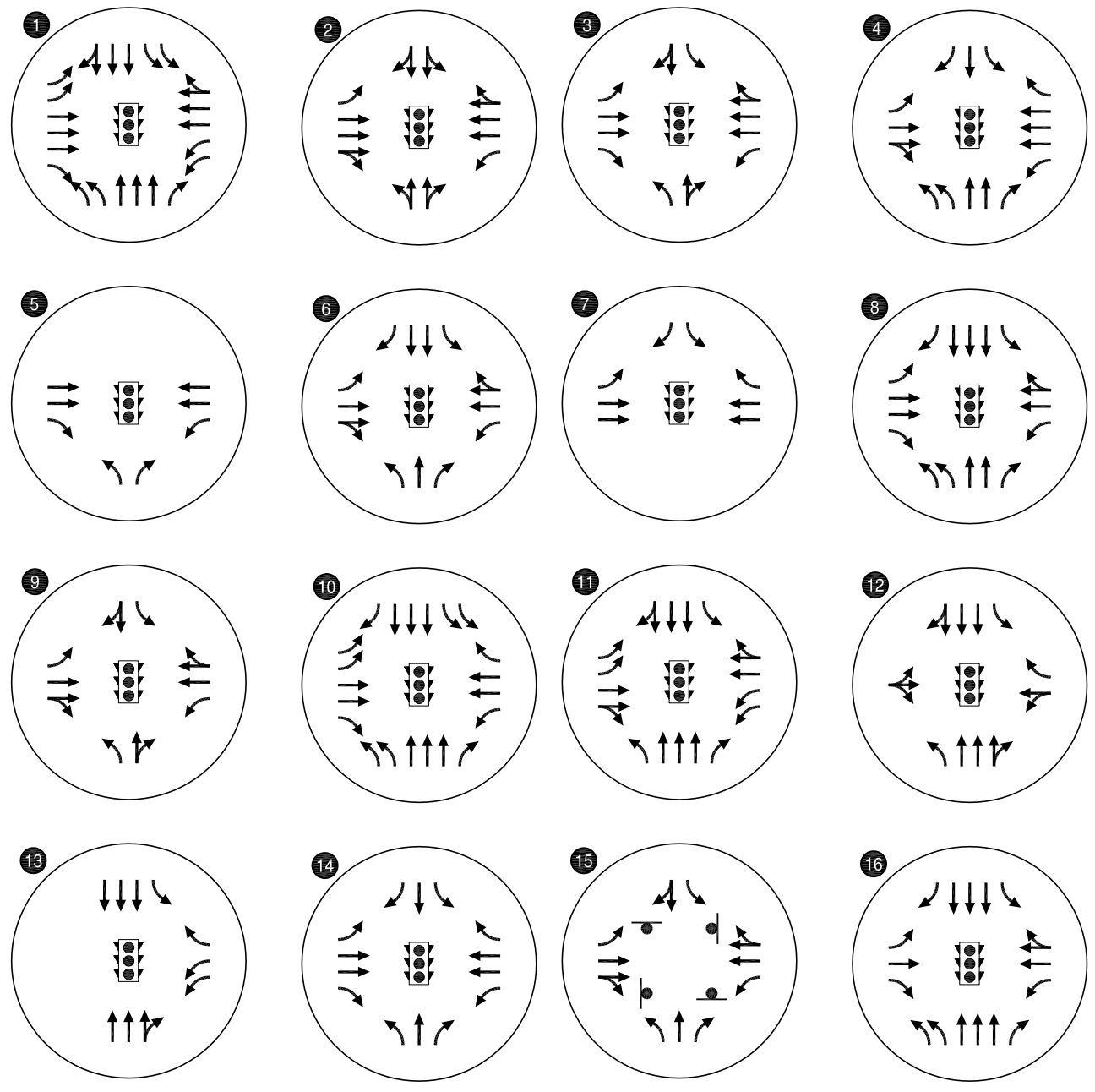

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

YEAR 2005 EXISTING LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES LA QUINTA, CALIFORNIA

FIGURE 3

Drawing Path

Analysis Period

The proposed La Quinta Costco/Komar development will generate the highest levels of traffic during the weekday p.m. peak hour and during a Saturday afternoon peak hour. The weekday a.m. peak hour is typically not evaluated for retail developments because retail uses typically do not open until 9:00 a.m. or 10:00 a.m. and therefore do not significantly impact the morning commuter peak hour. In addition, no seasonal adjustment factor for traffic volumes was required for this study as April represents the higher months of traffic volumes generally experienced in the area during the spring.

Saturday Versus Weekday Peak Hour

Traffic associated with retail developments is typically higher during a Saturday peak hour as compared to the weekday p.m. peak hour although Saturday is rarely evaluated to identify system improvements. Some reasons the Saturday peak hour is not evaluated in most cases are:

- Background traffic on the transportation system is typically higher during the weekday p.m. peak hour and therefore the combined traffic including the development is lower during a Saturday peak hour.

- Traffic patterns in retail areas include greater turning movements into retail developments and less through traffic than the weekday p.m. peak hour resulting in capacity improvements that do not benefit the daily commuter traffic.

- Transportation plans, including the transportation elements of the La Quinta General Plan and Indio General Plan, are based on designing the transportation system to accommodate the weekday a.m. peak hour and weekday p.m. peak hour traffic.

In order to ensure a Saturday analysis was not necessary for the entire study area a sensitivity analysis was conducted to determine the relative impacts. Traffic counts were conducted on a typical Saturday from noon – 4 p.m. and on a typical weekday p.m. peak hour during the same week at the Washington Street/Highway 111 and Jefferson Street/Highway 111 intersections to determine the relationship between the time period used in the analysis scenarios and the weekend peak hour. The traffic counts revealed that at the Washington Street/Highway 111 intersection, traffic volumes were approximately 16% less during the Saturday peak hour than the weekday p.m. peak hour and nearly equal between the two peak periods at the Highway 111/Jefferson Street intersection. In addition future 2006 traffic projections with the proposed development were evaluated in order to determine if the Saturday peak hour required different mitigations. The analysis confirmed that the Saturday peak hour generally will result in similar, or better traffic operations than the weekday p.m. peak hour. Further details regarding the sensitivity analysis are included in Section 6.

Therefore, based on the above analysis, the weekday p.m. peak hour was determined to be the most appropriate for evaluation of the impacts associated with the proposed Costco/Komar development.

Analysis Scenarios

The following scenarios were identified for evaluation:

- Existing 2005 Traffic Conditions

- Year 2006 Background Traffic Conditions without Costco/Komar site traffic, but including other surrounding in-process developments such as Sams Club, expansion on the Home Depot site, La Quinta Corporate Center, and the Pavilion (Adams Street Retail & Restaurants)
- Year 2006 Total Traffic Conditions (includes the Costco/Komar site and 2006 Background Traffic) and planned roadway improvements on Highway 111 and Jefferson Street.
- A 2006 Total Traffic Saturday peak hour sensitivity analysis at the Washington Street/Highway 111 and Jefferson Street/Highway 111 intersections
- Full Build Out Future Year Traffic Conditions (without the Costco/Komar site, and includes the General Plan Build Out/Post 2020 Traffic, and all future/planned roadway improvements)
- Full Build Out Future Year Traffic Conditions (includes the Costco/Komar site, General Plan Build Out/Post 2020 Traffic, and all future/planned roadway improvements)
- Full Build Out Future Year Traffic Conditions (a comparison between the General Plan Build Out/Post 2020 Traffic and the incremental increase in traffic associated with the Costco/Komar development)

Background Traffic Growth

The Costco/Komar development is expected to be complete in 2006. A two and a half percent annual traffic volume growth rate was applied to account for system-wide traffic increases between 2005 and 2006. This growth is in addition to in-process developments. The growth rate was obtained through a review of historical traffic counts found on the Caltrans website.

METHODOLOGY

Intersection Level of Service

All level-of-service (LOS) analyses described in this report were performed in accordance with the procedures stated in the *2000 Highway Capacity Manual (HCM)* (Reference 1) and all the intersections were analyzed using TRAFFIX software. *A description of level of service and the criteria by which they are determined is presented in Appendix A.* Appendix A also indicates how level of service is measured and what is generally considered the acceptable range of level of service.

Operating Standards

Highway 111 is under the jurisdiction of Caltrans through the City of La Quinta. The Caltrans *Guide for the Preparation of Traffic Impact Studies* states that a LOS of between "C" and "D" or better must be maintained for signalized and unsignalized intersections during the weekday p.m. peak hour. However, if an existing State Highway facility is operating at less than the appropriate LOS, the existing Measures of Effectiveness (MOE) for LOS should be maintained. In discussions with Caltrans staff, it was understood that for this section of Highway 111, the state agency defers to the traffic-operating standard adopted by the local City through which the highway passes. The LOS results presented in this report are for the one hour weekday p.m. peak period. Traffic operations during the rest of the p.m. peak period and throughout the day should be better than those shown in this analysis.

Significant Impact

In order to identify the intersections and roadways that are significantly impacted by the proposed project, criteria were developed. For the purposes of this study, the operational impact on the study intersections due to the Costco/Komar traffic was considered significant if the following criteria are met:

1. Intersection LOS deteriorates below LOS D or better to a LOS E or F; or
2. Intersections forecasted to operate as LOS E or F in which the volume-to-capacity V/C increases by 0.02 or more with the site development.

Where traffic related to the Costco/Komar development exceeded the "threshold of significance" at study intersections, recommendations were made to improve traffic conditions to within the acceptable operating limits for the City of La Quinta.

Section 3

Existing Conditions

Existing Conditions

The existing conditions analysis identifies current operational and geometric characteristics of roadways within the study area. The purpose of this section is to set the stage for a basis of comparison to future conditions. Kittelson & Associates' staff conducted a site visit of the proposed Costco/Komar development during April 2005 and again in May 2005 to generate a site inventory. Information collected pertains to site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area. The location of the proposed Costco/Komar development site is located on the south side of Highway 111 and abuts the easterly boundary of the City of La Quinta city limits. This parcel of property is within transportation analysis zone (TAZ) 904 of the transportation model used to develop the City's General Plan that was approved in 2002 and is comprised of 87.66 acres. The Costco Wholesale development site is anticipated to occupy 16.78 acres, while the Komar shopping center is anticipated to occupy 9.59 acres. The entire site is presently undeveloped.

TRANSPORTATION FACILITIES

Roadway Facilities

The site is located on the south side of Highway 111 running in an east-west direction. Jefferson Street is the nearest north-south arterial and is located approximately 1,330 feet to the east of the proposed development. Table 1 provides a summary of the facilities included in this analysis and Figure 3 identifies the existing lane configurations and traffic control devices at the study intersections.

Table 1

Existing Transportation Facilities and Roadway Designations

Roadway	Classification	Cross Section	Speed Limit	Sidewalks	Bicycle Lanes	On-Street Parking
Fred Waring Drive	Major Arterial	4-6 Lanes	50 mph	Yes	No	No
Miles Avenue	Primary Arterial	4 Lanes	50 mph	Yes	No	No
Highway 111	Major Arterial	4-6 Lanes	50-55 mph	Yes	No	No
Avenue 48	Primary Arterial	4 Lanes	50 mph	Yes	No	No
Washington Street	Major Arterial / Augmented Major	6-8 Lanes	45-50 mph	Yes	Yes*	No
Adams Street	Secondary Arterial	4 Lanes	45 mph	Yes	Yes*	No
Dune Palms N/O Highway 111	Secondary Arterial	4 Lanes	35 mph	Yes	No	No
Dune Palms S/O Hwy111	Primary Arterial	4 Lanes	35 mph	Yes	No	No
Jefferson Street	Major Arterial	6 Lanes	40 mph	Yes	Yes	No
Madison Street	Primary Arterial	4 Lanes	35-50 mph	Yes	No	No

* General Plan includes bicycle lanes with some already in place

TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

Peak Hour Intersection Turning Movement Volumes

Manual turning movement counts were obtained for all the study intersections on April 19, 2005 during the 4:00 p.m. to 6:00 p.m. time period. The turning movement counts from the weekday p.m. peak hour were summarized and rounded to the nearest five vehicles per hour as balance with adjacent intersections shown in Figure 4. The weekday evening peak hour occurred between 4:30 p.m. and 5:30 p.m. *Appendix B contains the traffic count sheets used in this study.*

It should be noted that at the time of the existing conditions traffic counts, Jefferson Street north of Highway 111 was only partially open due to repairs from being washed out. Some diversion of traffic was likely occurring onto Washington Street and other north-south roadways. Therefore, adjustments in traffic volumes were made to obtain the 2006 background traffic conditions since repairs on Jefferson Street will be completed by early 2006. The adjustments included the shifting of approximately 400 (13% of traffic on Washington Street) vehicles from Washington Street to Jefferson Street. In addition, the turning movements to and from Jefferson Street were increased by 50 vehicles.

Current Intersection Levels of Service

Volume-to-capacity ratios and LOS were calculated for the study intersections using the weekday p.m. peak hour traffic volumes, as shown in Figure 4. As indicated in the figure, all of the study intersections currently operate at the City of La Quinta acceptable levels of service during the weekday p.m. peak hour.

The following intersections along State Highway 111 currently exceed Caltrans operating standards (LOS C/D):

- *Highway 111/Washington Street* - operates at LOS D;
- *Highway 111/Dune Palms Road* - operates at LOS D; and
- *Highway 111/Madison Street* - operates at LOS D

Appendix C includes the year 2005 existing conditions level-of-service worksheets.

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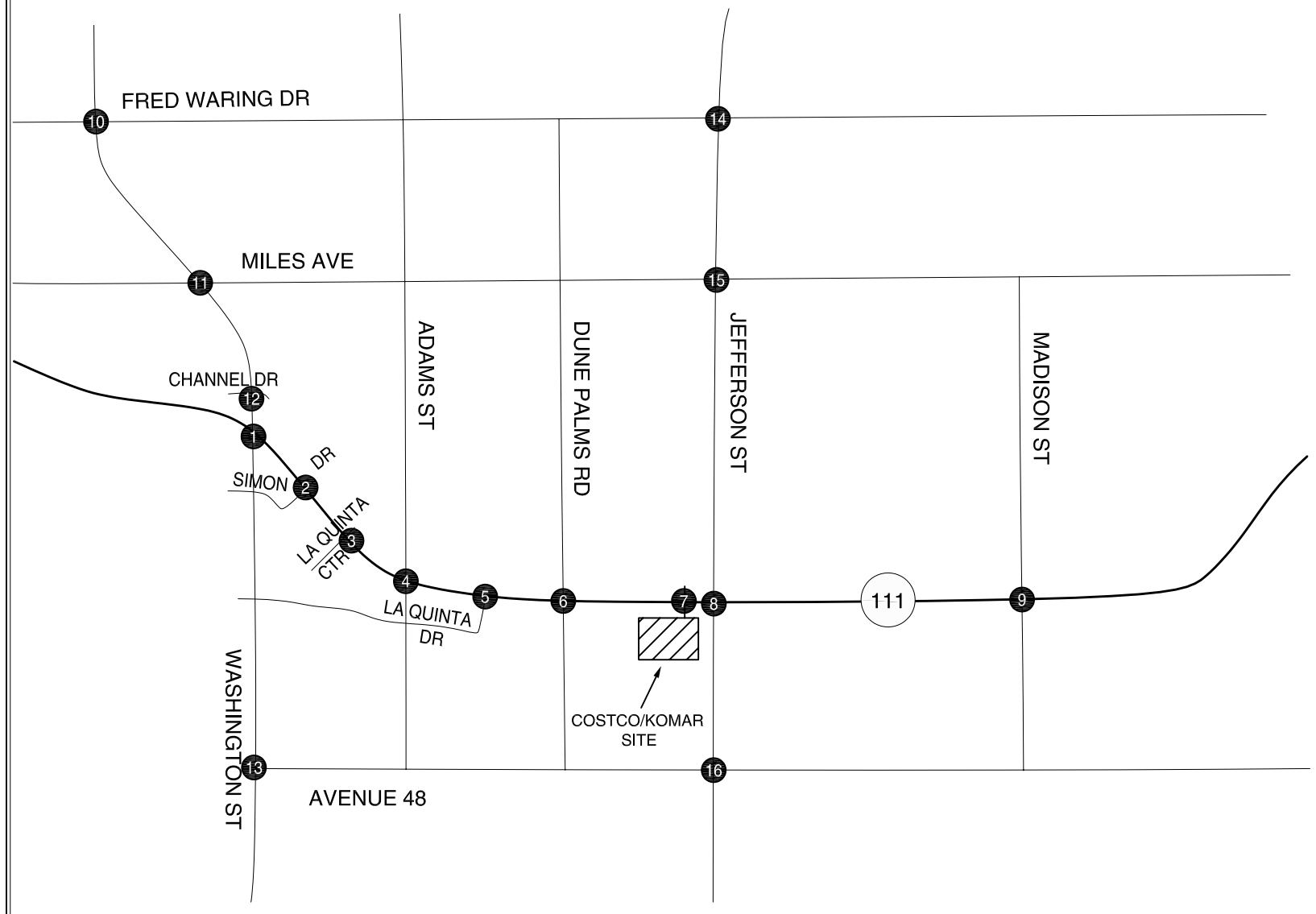
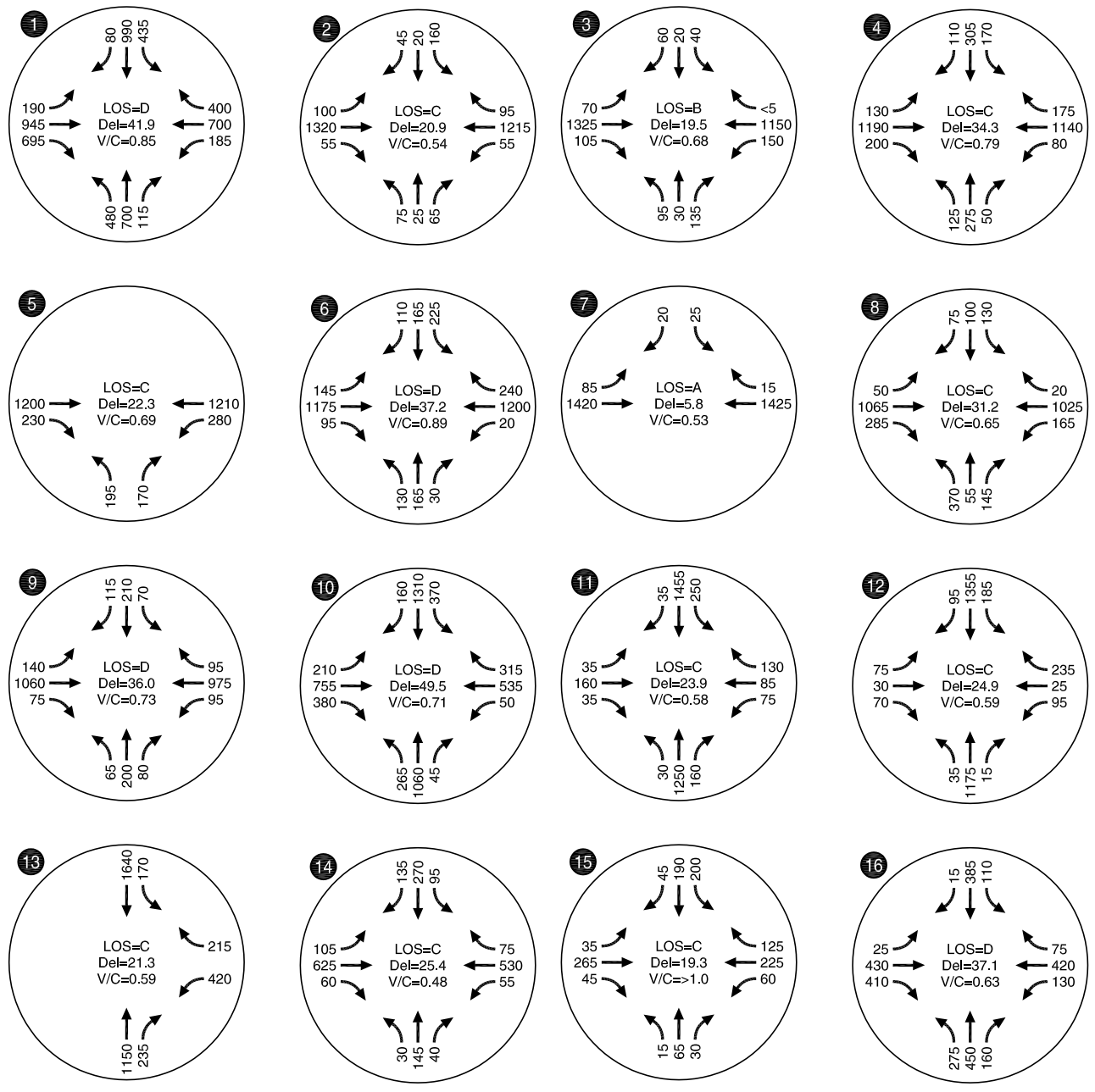




LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED) CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE DELAY (SIGNALIZED)/ CRITICAL MOVEMENT DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2005 EXISTING TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE 4

Drawing Path

Section 4

2006 Background Traffic Conditions

2006 Background Traffic Conditions

This traffic analysis identifies how the transportation system within the study area will operate in the year the proposed development is expected to be complete and in operation. This analysis includes traffic growth due to development within the study area and general growth in the region, but does not include traffic from the proposed Costco/Komar development.

Transportation Improvements and Planned Developments

The Cities of La Quinta and Indio have started construction on a roadway improvement project to widen Jefferson Street to six through lanes, with dual left-turn lanes and a separate right-turn lane at all major intersections from Highway 111 north to Indio Boulevard. This highway improvement (anticipated to be completed by 2006) will include a traffic signal at the intersection of Jefferson Street and Miles Avenue. The improved Jefferson Street will provide a second high capacity road parallel to Washington Street traveling south from Interstate 10 to the City of La Quinta. The completion of Jefferson Street should have the effect of lowering the traffic volumes on the major parallel routes such as Washington Street between the City and I-10 and on the local parallel routes such as Adams Street, Dune Palms Road, and Madison Street.

As a result of the near-term repairs and widening, the existing p.m. peak hour traffic volumes were adjusted to consider the additional capacity provided by Jefferson Street. Based on a review of the historical traffic counts and the roadway system, it was assumed that approximately 400 p.m. peak hour vehicles will divert back to Jefferson upon the repairs being completed.

Four separate major developments along Highway 111 are anticipated to reach build-out in 2006, as determined by conversation with the City of La Quinta staff. These developments are Sams Club, Home Depot (Phase II), La Quinta Corporate Center, and the Pavilion (Adams Street Retail & Restaurants). These developments will include new restaurants, a gas station, a business park, a bank, and retail, commercial, and office uses. Site-generated trips for these developments during the weekday p.m. peak hour were determined by a review of approved traffic impact studies provided by the City of La Quinta and were included in the background 2006 analysis. The trip generation for these developments is included in Table 2.

Table 2

Estimated Trip Generation of Approved Major Development along Highway 111

Scenario	Land Use	Source	Weekday PM Peak Hour Trips		
			Total	In	Out
2006 Background Traffic	Sams Club	Urban Crossroads	500	225	275
	Jefferson Plaza (Home Depot-Phase II)	Endo Engineering	446	223	223
	Pavilion (Adams St Retail/Restaurants)	O'rourke Engineering	172	98	74
	La Quinta Corporate Center	Endo Engineering	1,417	539	878
	Total (All In-Process)		**2,535**	**1,085**	**1,450**

Traffic Volumes

In addition to the trips that will be generated by the completion of the in-process developments along Highway 111, an annual traffic growth rate of two and a half percent was applied to the existing 2005 traffic volumes to account for the near-term regional growth in the area and to develop the 2006 background traffic volumes based on historical traffic data obtained from the Caltrans website. Figure 5 illustrates the resulting forecast year 2006 future traffic volumes without the proposed Costco/Komar development.

Level-of-Service Analysis

Using the weekday p.m. peak hour turning movement volumes shown in Figure 5, an operational analysis was conducted at each study intersection to determine the 2006 background traffic level of service. As indicated by the figure, the future traffic analysis determined that all of the study intersections (unsignalized and signalized) are estimated to operate with acceptable level of service during the weekday p.m. peak period with the exception of:

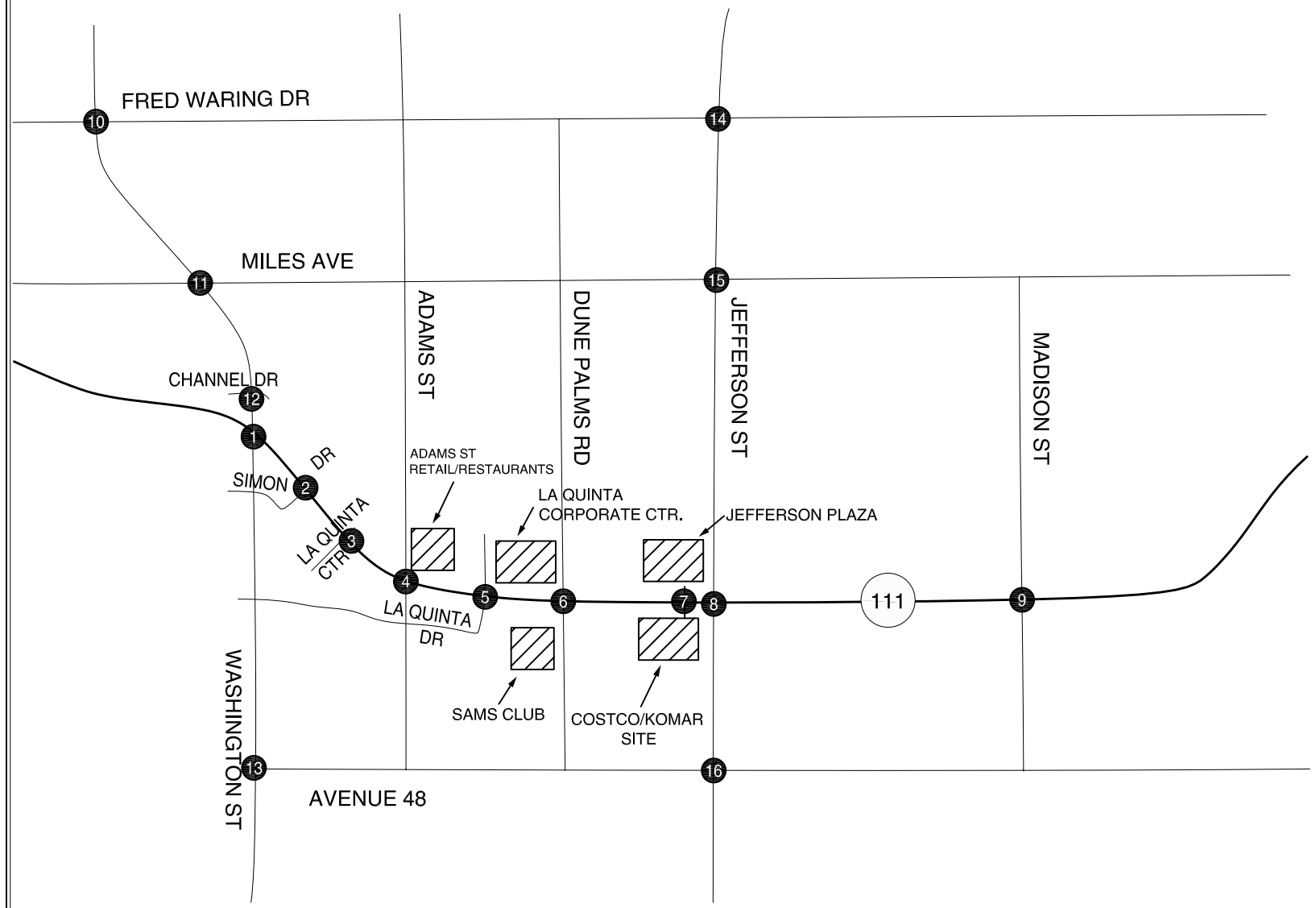
- *Highway 111/Dune Palms Road* – estimated to operate at a LOS F (The planned improvements to widen Highway 111 in 2006 will mitigate the intersection to LOS D); and
- *Jefferson Street and Miles Avenue (unsignalized)* – estimated to operate at a LOS F (The planned improvements to widen Jefferson Street in 2006 and signalization of this intersection will mitigate the intersection to LOS D);

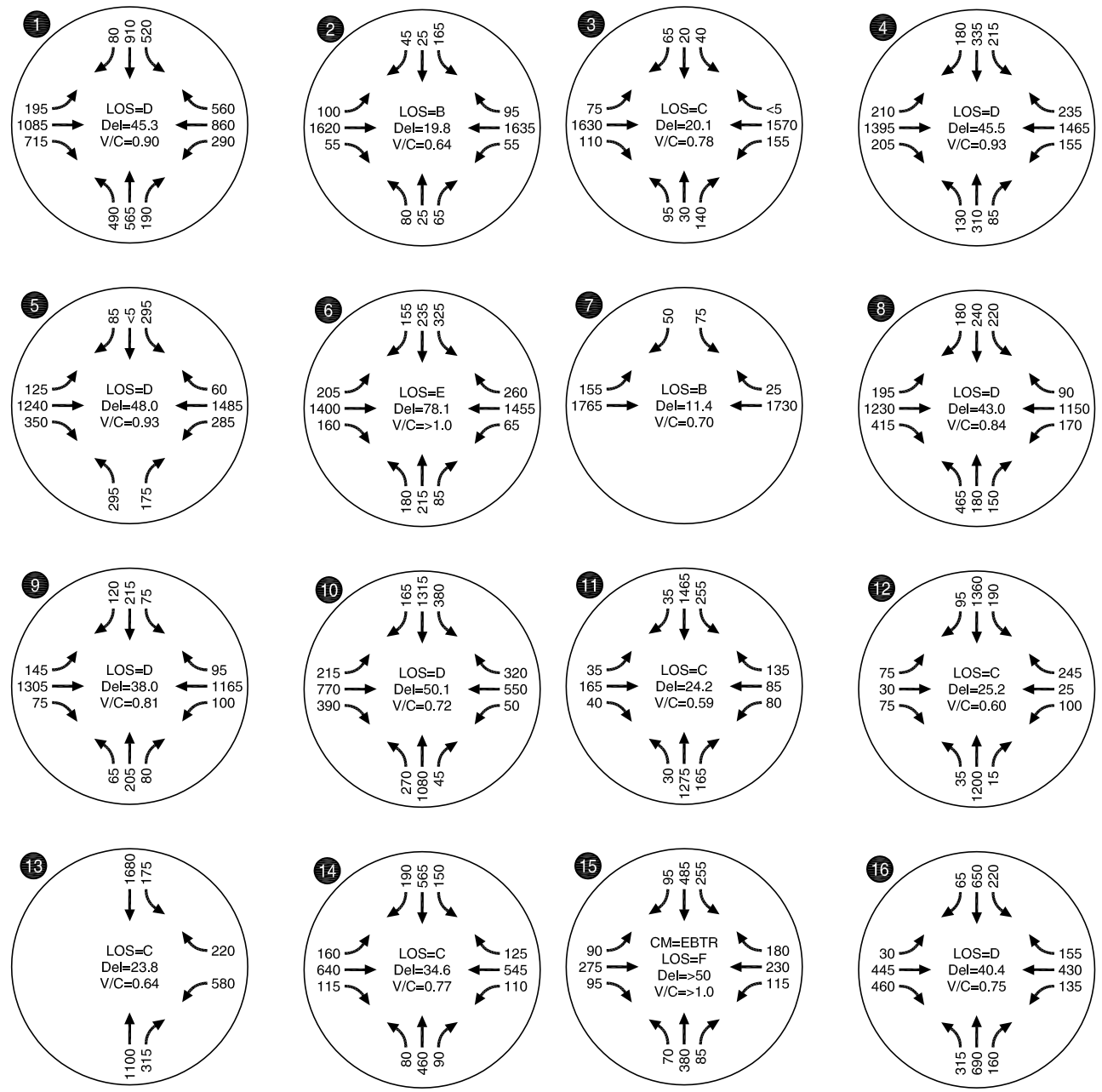
The following study intersections on Highway 111 are estimated to meet the City of La Quinta standards (LOS D) but exceed Caltrans operating standards (LOS C/D), however, it is understood that Caltrans will defer to the City of La Quinta operating standards:

- *Highway 111/Washington Street* - estimated to operate at a LOS D;
- *Highway 111/Adams Street* - estimated to operate at a LOS D;
- *Highway 111/La Quinta Drive* - estimated to operate at a LOS D;
- *Highway 111/Dune Palms Road* - estimated to operate at a LOS E;
- *Highway 111/Jefferson Street* - estimated to operate at a LOS D; and
- *Highway 111/Madison Street* - estimated to operate at a LOS D

Appendix D contains the year 2006 background traffic (without the Costco/Komar development) level-of-service worksheets.

(NO SCALE)





LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

YEAR 2006 BACKGROUND TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE **5**

Drawing Path

Section 5

Project Trip Generation and Distribution

Project Trip Generation and Assignment

The number and type of vehicle trips the development will generate was estimated in order to determine the impact of the proposed development. These trips were then applied to the surrounding road network based on market research and land use patterns in the vicinity.

TRIP GENERATION

The trip generation estimates for the Komar development area are based on the 7th edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual* published in 2003 (Reference 3). The trip generation estimates for the Costco Wholesale are based on trip generation counts and surveys conducted at several existing Costco warehouses. These surveys result in a trip rate that is approximately 61-percent higher than the rate shown for similar developments in the ITE manual. Table 3 summarizes the estimated trip generation for the proposed Costco/Komar development.

For the purposes of this study, the proposed out parcels on the Costco/Komar site are assumed to be developed in 2006 and have been included as 2006 Total Traffic conditions.

Table 3

Proposed Costco/Komar Development Estimated Trip Generation

Land Use	Source	Size	Weekday PM Peak Hour Trips
			Total
Costco Wholesale			1,045
Internal Trips (5%) *Pass-by Trips/Diverted Trips (64%)* ***Primary Trips (31%)***	KAI[1]	149,739 sq. ft.	*50* *670* **325**
Shopping Center (Komar)			555
Internal Trips (9%) *Pass-by Trips/Diverted Trips (53%)* ***Primary Trips (38%)***	ITE 820	83,700 sq. ft.	*50* *295* ***210***
Proposed Development Total Trips at site driveways			*1,500*

[1] Independent studies for Costco identifies a weekday p.m. peak hour trip rate of 6.99 trips/thousand square feet of development for a Costco Warehouse with a fuel center.

TRIP TYPES

Developments include several different types of trips, which are:

Internal Trips

A portion of the trips generated by mixed-use developments or developments in close proximity will travel between the different uses internal to the site and/or the area. The Institute of Transportation Engineers' (ITE) *Trip Generation Handbook* (Reference 2) is typically used to quantify these trips.

Pass-by Trips

Pass-by trips occur when a motorist is on the roadway system for another purpose, but stop at the development while on the way to their final destination. Significant portions of the trips to/from commercial uses are of a pass-by nature particularly during the weekday p.m. peak hour when motorists commuting from work, stop by grocery stores, gas stations, and restaurants on their way home. Pass-by trips have no additional impact on the overall system, but do impact the site driveways. It is assumed that the pass-by trips for the proposed Costco/Komar development will constitute a portion of the motorists on Highway 111. To quantify the impact of these trips, pass-by rate data was obtained from the ITE *Trip Generation Handbook* (Reference 2) for the proposed Komar development and from independent studies for other Costco developments. The pass-by trip data from ITE and Costco support a volume of pass-by trips that are greater than appropriate for the volume of traffic on the adjacent streets. The studies show that pass-by trips for a shopping center can range from 15 to over 50 percent while the pass-by rate for a Costco Warehouse is generally 38 percent during the weekday p.m. peak hour. Applying these percentages to the study would have assumed that a disproportionately high number of motorists on Highway 111 during the weekday p.m. peak hour would stop at the Costco/Komar development. Therefore, the actual number of pass-by trips on Highway 111 used in this analysis was reduced to not exceed 10 percent of the adjacent street through traffic.

Diverted Trips

Diverted trips occur when a vehicle is already on the roadway system, but these vehicles divert from the road they are traveling to stop at the proposed development. Diverted trips are different than pass-by trips in the sense that diverted trips adjust their travel route from a roadway that intersects with the roadway (usually the first major roadway on either side of the development) that the development is located on. When finished, they use the roadway network to return to the initial road. As a result, they have an impact on intersections near the proposed development and site driveways.

Diverted rate data was obtained from the ITE *Trip Generation Handbook* (Reference 2) to quantify the impact of these trips for the proposed Komar development as well as from independent studies for other Costco developments. For purposed of the analysis, it was assumed that diverted trips consist of existing traffic volumes diverted to the Costco/Komar development from Washington Street and Jefferson Street.

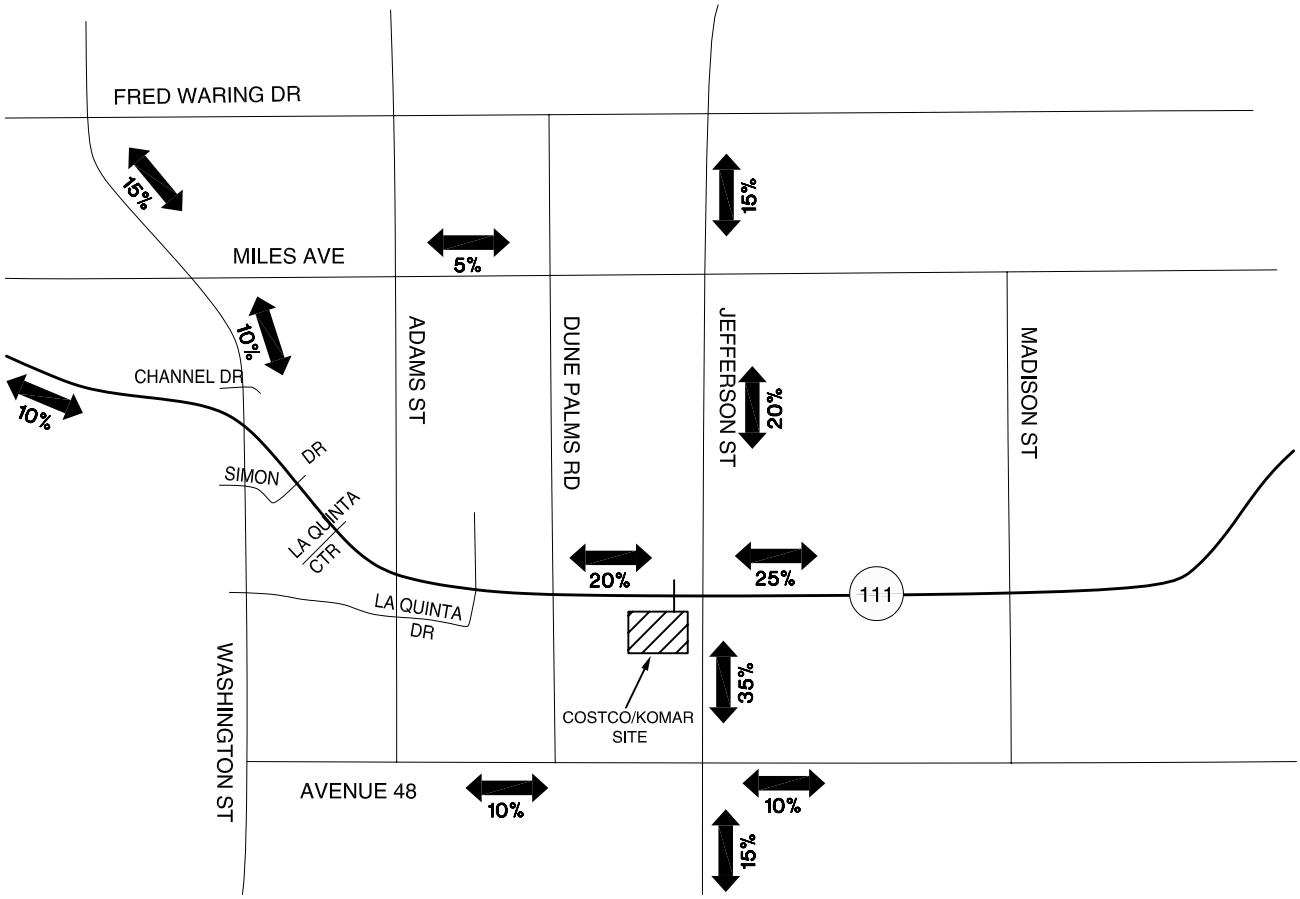
Primary Trips

Primary trips are trips that are new to the roadway system where the purpose of the trip is to visit the proposed development.

TRIP ASSIGNMENT

The assumed assignment of the site-generated trips is based on a review of the marketing study conducted for the proposed Costco Wholesale development, the existing Costco members in the site vicinity, a review of the surrounding transportation system including existing traffic patterns; and conversations with City staff. Figure 6 illustrates the trip assignment pattern used for all scenarios.

(NO SCALE)



COSTCO/KOMAR TRIP ASSIGNMENT PATTERN

LA QUINTA, CALIFORNIA

FIGURE 6

H:\PROJFILE\7118\dwgs\figs\7118FIGS1.dwg Oct 10, 2005 - 1:29pm - openfil Layout Tab: FIG 06

Section 6

2006 Total Traffic Conditions
(With Site Development)

2006 Total Traffic Conditions

The transportation impact analysis identifies how the study area's transportation system is estimated to operate the year the proposed development is fully built out. This analysis includes traffic growth due to development in the vicinity, regional growth, and full build-out of the proposed Costco/Komar site.

2006 TOTAL TRAFFIC CONDITIONS (WITH SITE DEVELOPMENT)

The 2006 total traffic conditions scenario includes the addition of the site access to serve the proposed development at the intersection of Highway 111/Depot Drive shown in Figure 7. The 2006 total traffic conditions shown in Figure 9 are estimated by combining the site-generated traffic shown in Figure 8 with the year 2006 background traffic volumes shown in Figure 5.

Level-of-Service Analysis

The analysis revealed that 13 of the study intersections operate acceptably while six intersections on Highway 111 are estimated to exceed the Caltrans operating standard of LOS C/D. Those six intersections will not meet the Caltrans operating standard whether or not the project-generated trips are added to the roadway network. Of those six intersections, two intersections would also be significantly impacted by the traffic generated by the project site according to the City's thresholds of significance set forth above. Those intersections would be: (1) Highway 111 and Dune Palms, which would drop from LOS "E" to LOS "F", with the project traffic causing a 0.06 increase in the V/C ratio; and (2) Highway 111 and Jefferson, which would drop from LOS "D" to LOS "E"." (It is understood that Caltrans will defer to the City of La Quinta operating standards). Figure 9 illustrates the 2006 total traffic volumes, level of service, and volume-to-capacity ratios during the weekday p.m. peak hour. A series of roadway improvements along Highway 111 are planned in 2006 that will involve widening Highway 111 to six lanes, with dual left-turn lanes and separate right-turn lanes at all of the major intersections from Adams Street to Jefferson Street. For the purposes of this analysis, it is assumed that a third eastbound receiving lane on Highway 111 to the east of Jefferson Street will be constructed to complement the third eastbound through lane constructed within the City of La Quinta. These improvements will result in meeting the City of La Quinta threshold for significant impact at all of the study intersections.

Appendix E contains the year 2006 Total Traffic Conditions (with the site development without roadway improvements) level-of-service worksheets.

ROADWAY IMPROVEMENTS PLANNED FOR 2006

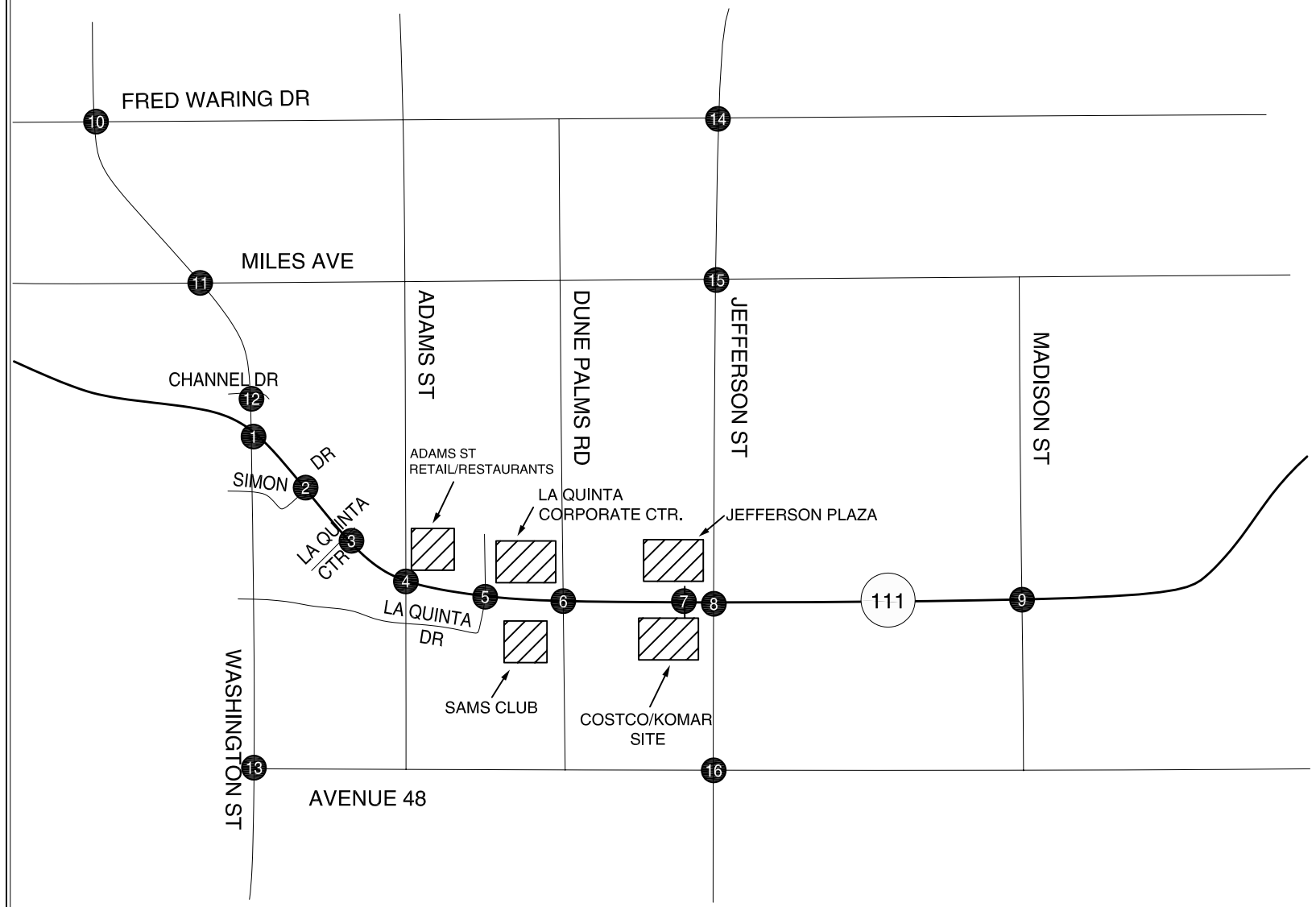
The following roadway improvement projects were identified by the City of La Quinta to occur in 2006:

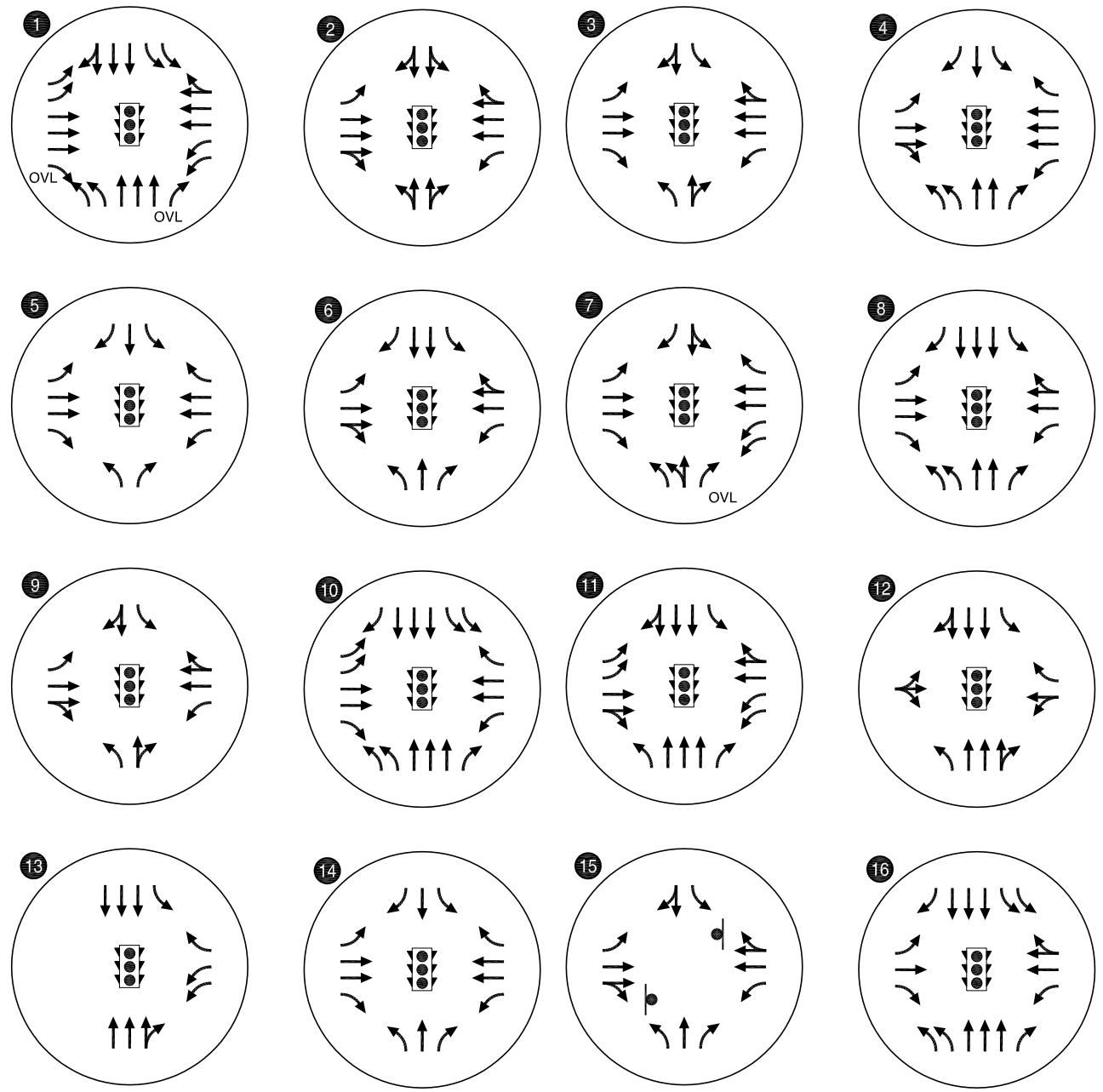
- Highway 111 will be widened to six through lanes from Jefferson Street to Adams Street, and will have 400-foot dual left-turn lanes at La Quinta Drive, Dune Palms Road, and Depot Drive. It will also include dual 300-foot left-turn lanes on eastbound Highway 111 at Jefferson Street. In addition, the improvements will include separate right-turn lanes on Highway 111 at Adams Street, Dune Palms Road, Depot Drive and Jefferson Street. No improvements are proposed to westbound Highway 111 at Jefferson Street.
- In addition to the improvements along Highway 111 at Adams Street, a second southbound through lane and a second southbound left-turn lane will be constructed on Adams Street at this intersection.

- Jefferson Street will be widened to six through lanes, with dual left-turn lanes and a separate right-turn lane at all major intersections from Highway 111, north to Indio Boulevard.

This analysis includes traffic growth due to development in the vicinity, regional growth, and full build-out of the proposed Costco/Komar site, and the planned improvements along Highway 111 and Jefferson Street. Figure 10 shows the lane configurations as a result of the planned roadway improvements, while Figure 11 shows the estimated 2006 total traffic conditions considering the planned roadway improvements.

(NO SCALE)





LEGEND

OVL - OVERLAP

- STOP SIGN

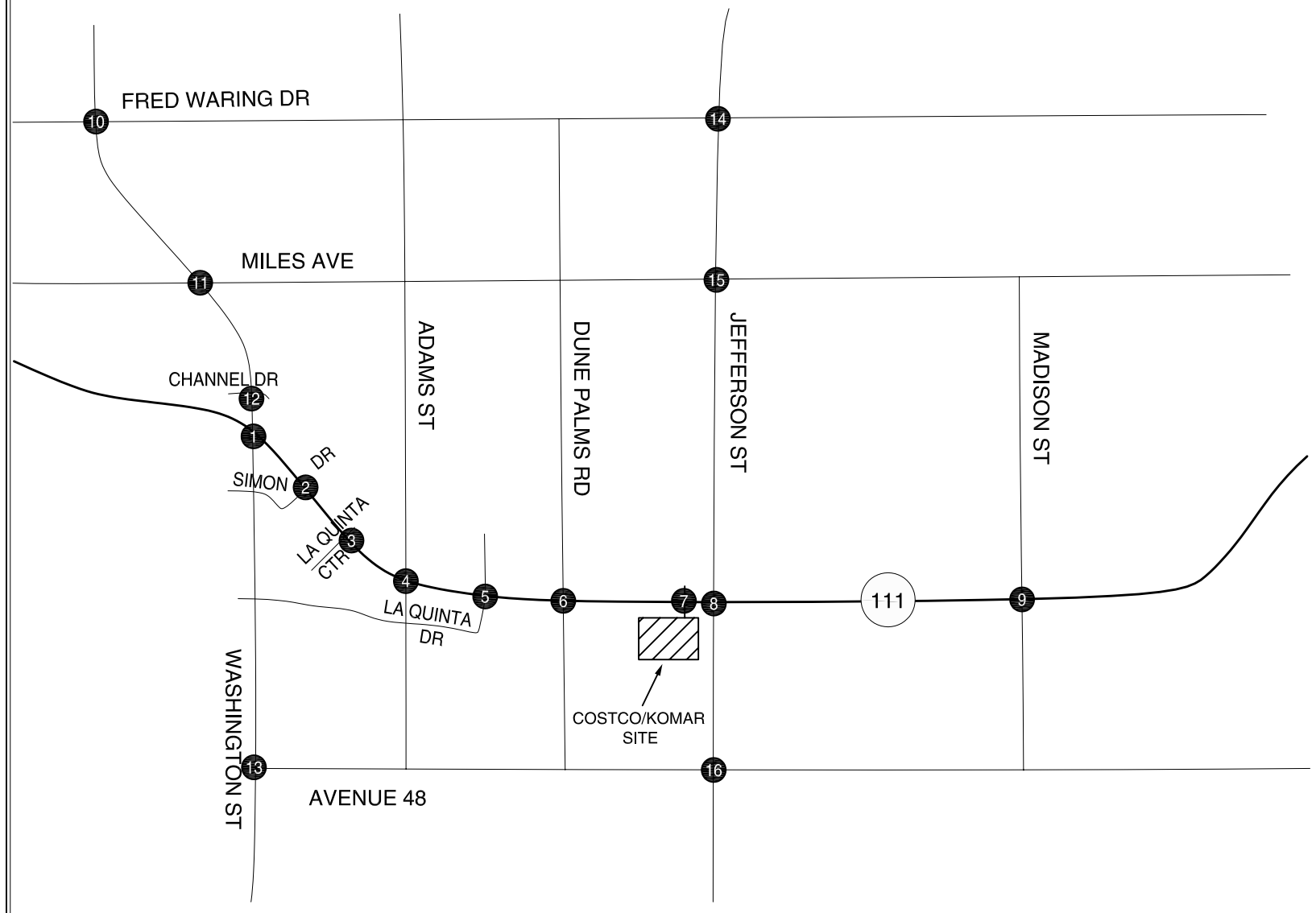
- TRAFFIC SIGNAL

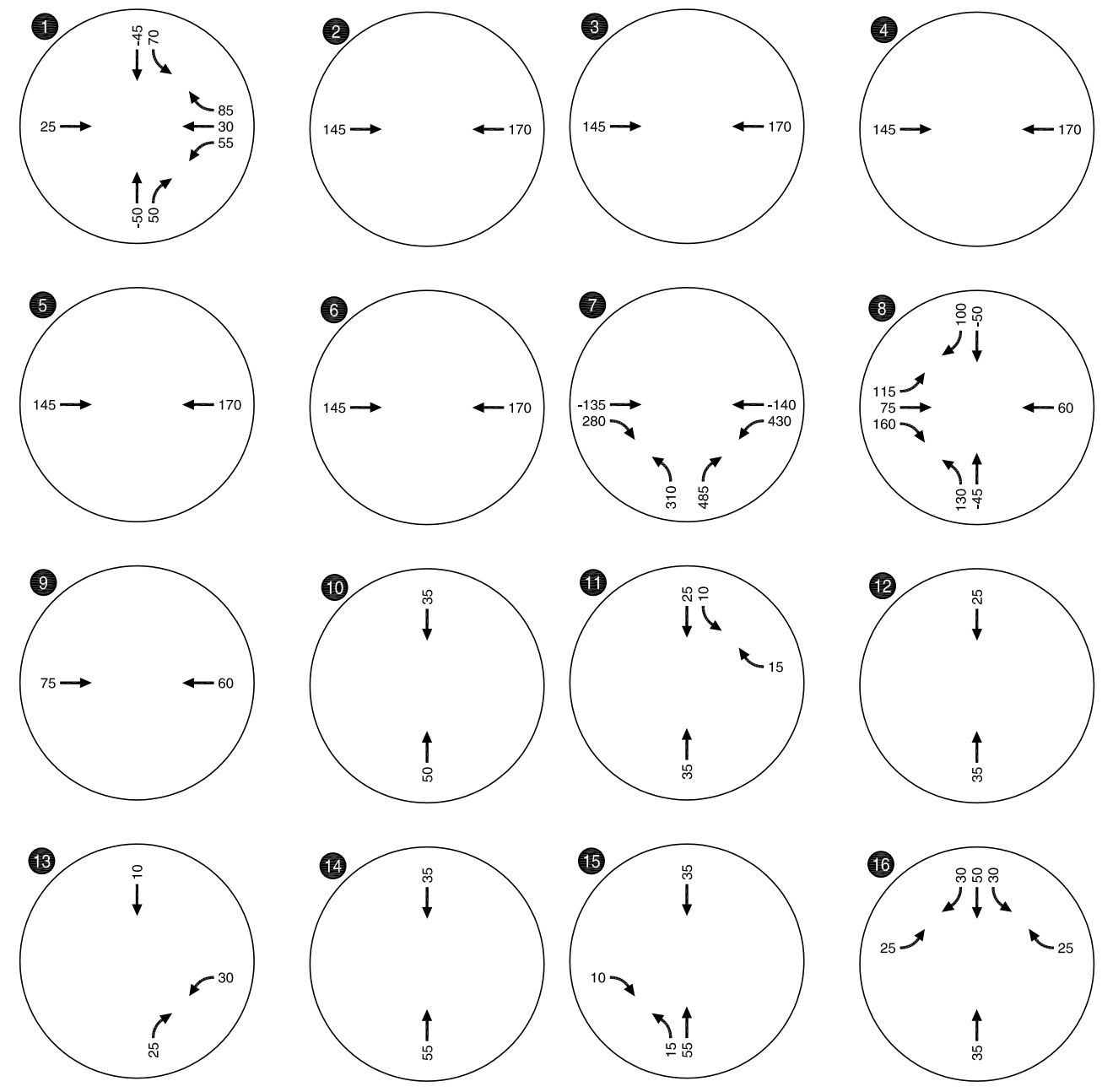
PROPOSED 2006 LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES PRIOR TO ROADWAY IMPROVEMENTS LA QUINTA, CALIFORNIA

FIGURE 7

Drawing Path

(NO SCALE)





LEGEND

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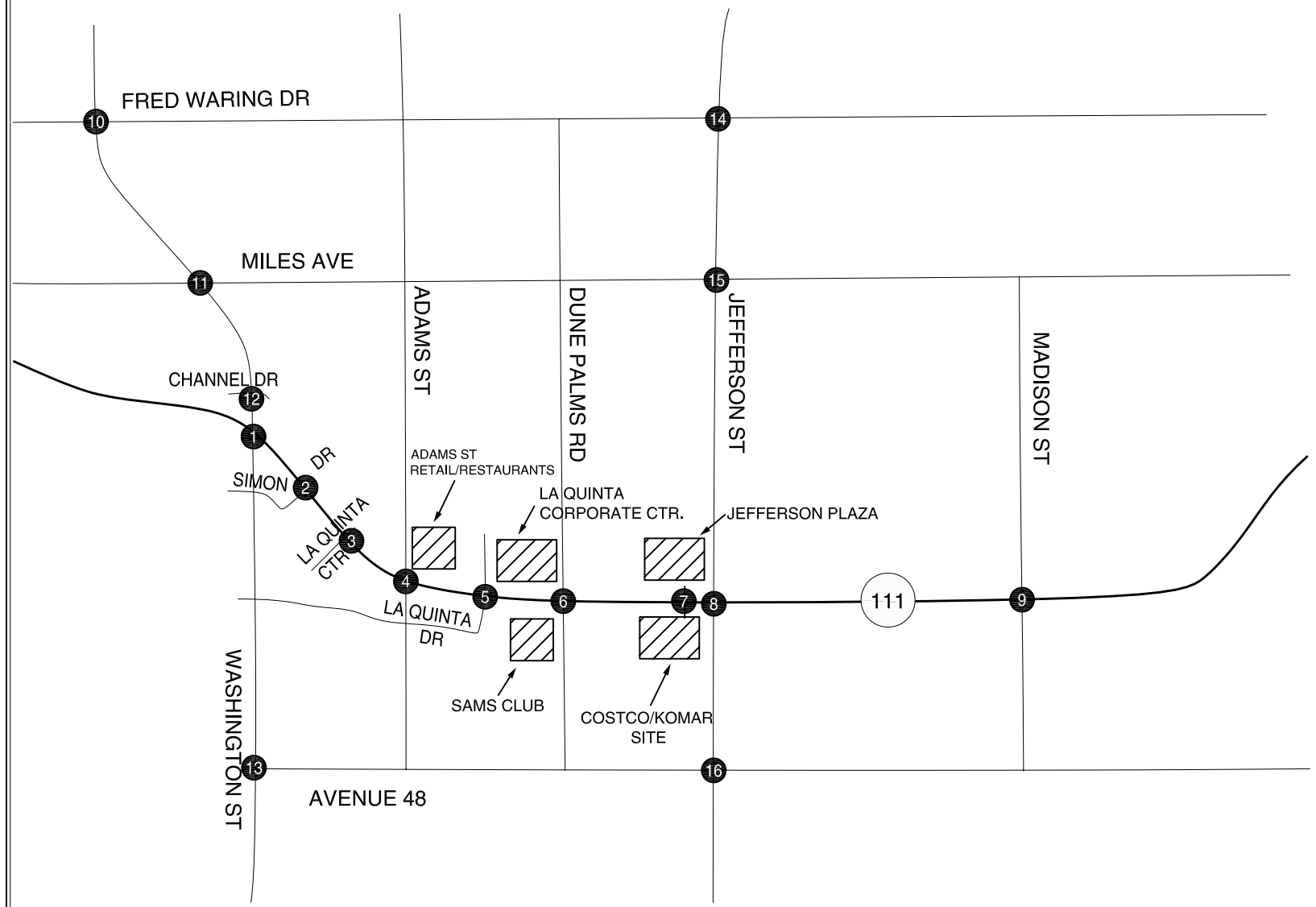
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

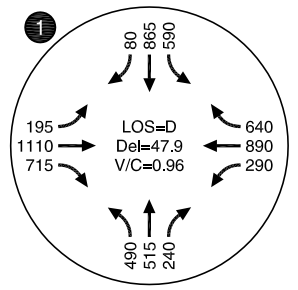
SITE-GENERATED TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

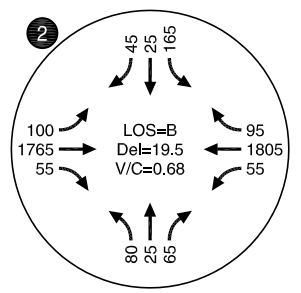
FIGURE **8**

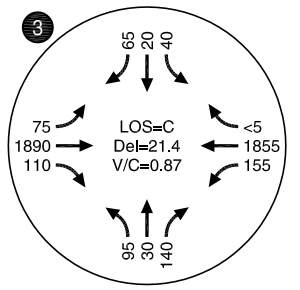
Drawing Path

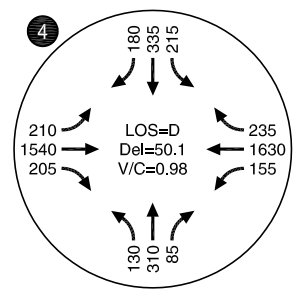
(NO SCALE)

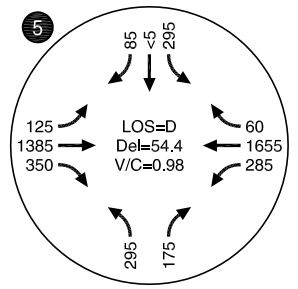


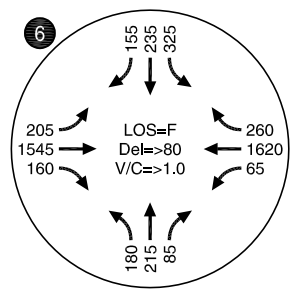


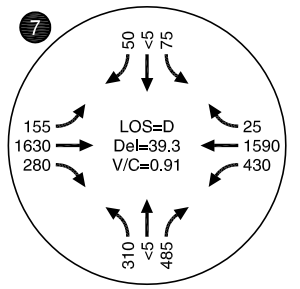


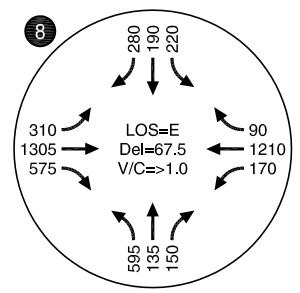


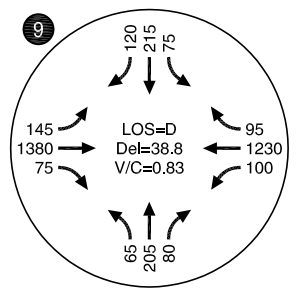


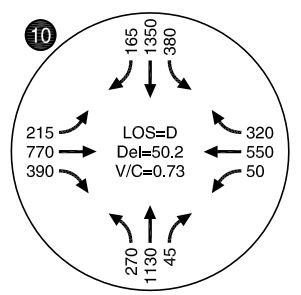


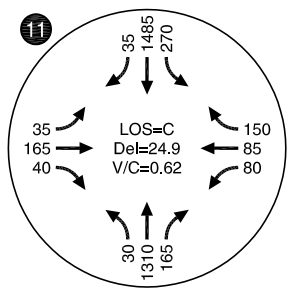


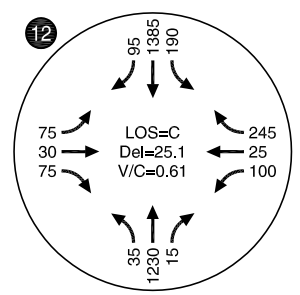


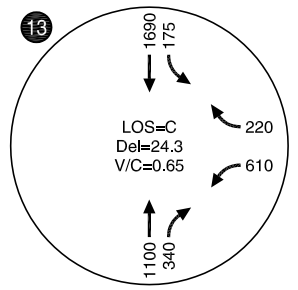


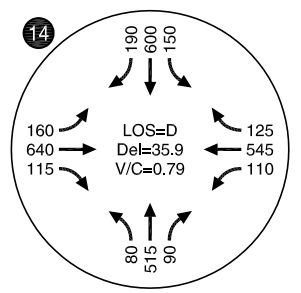


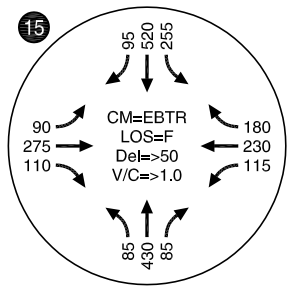


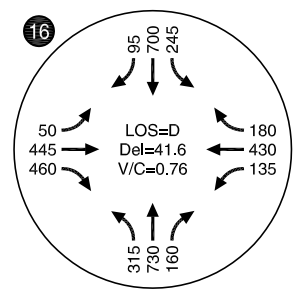












LEGEND

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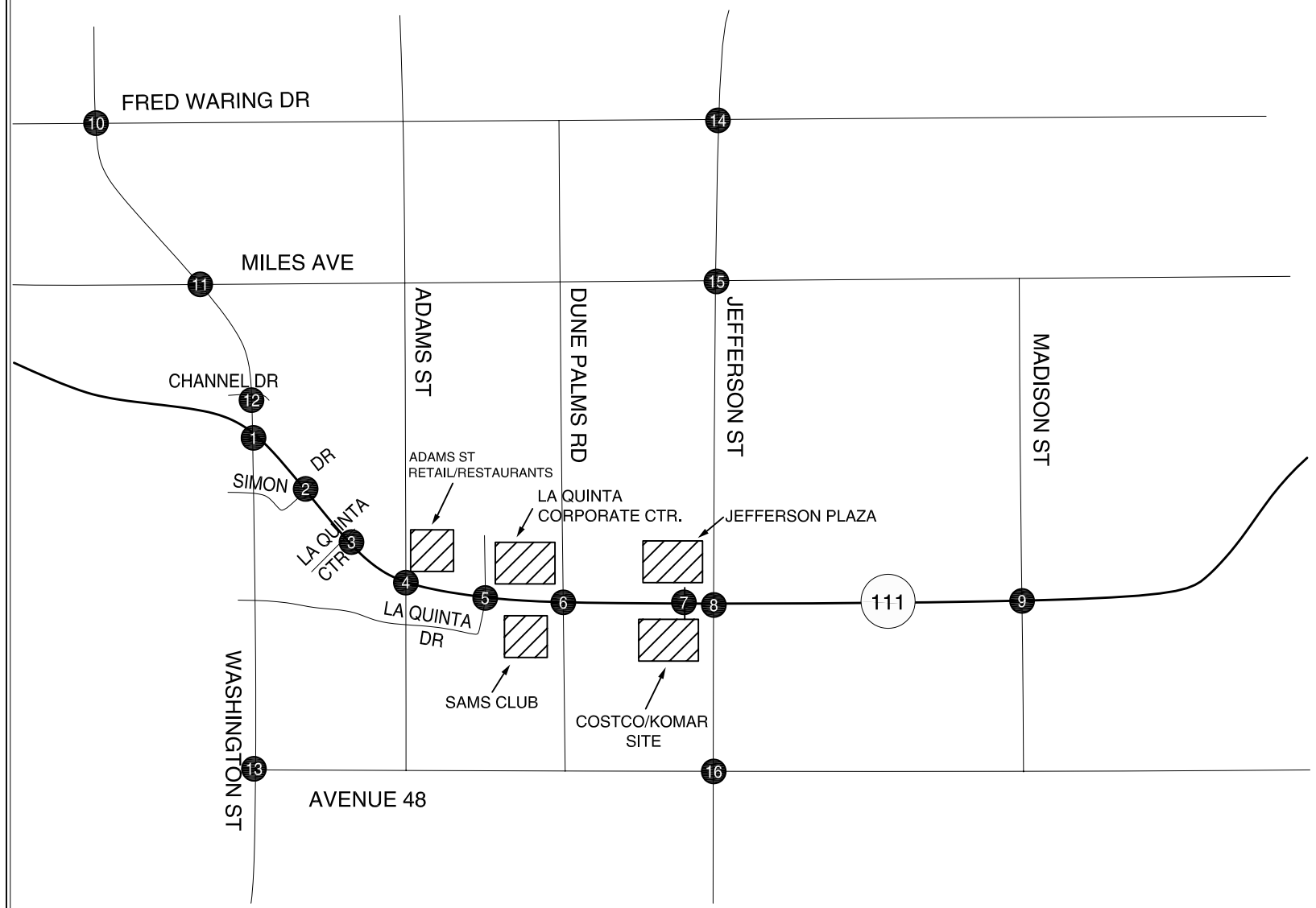
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

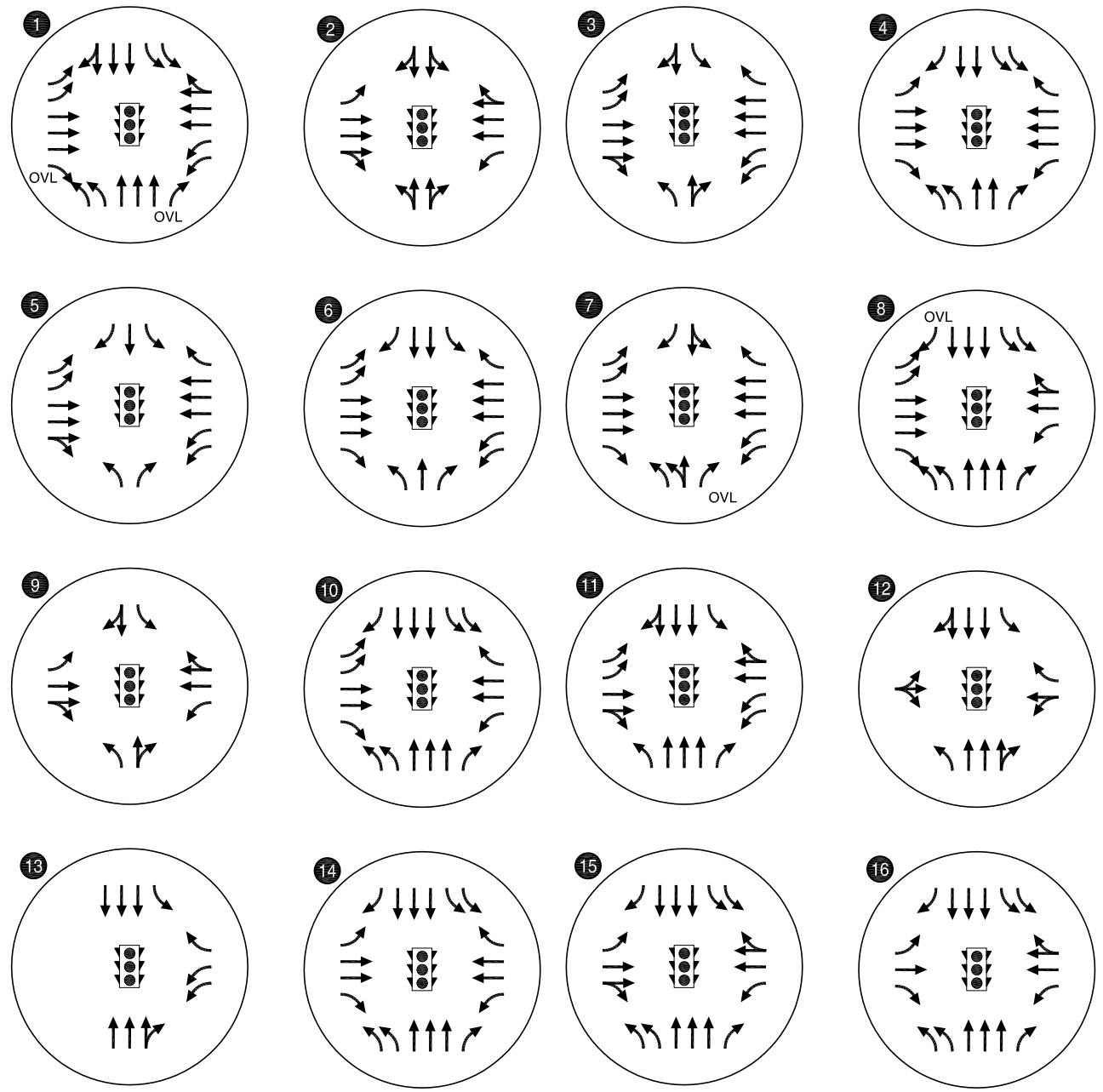
2006 TOTAL TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE 9

Drawing Path

(NO SCALE)





LEGEND

OVL - OVERLAP

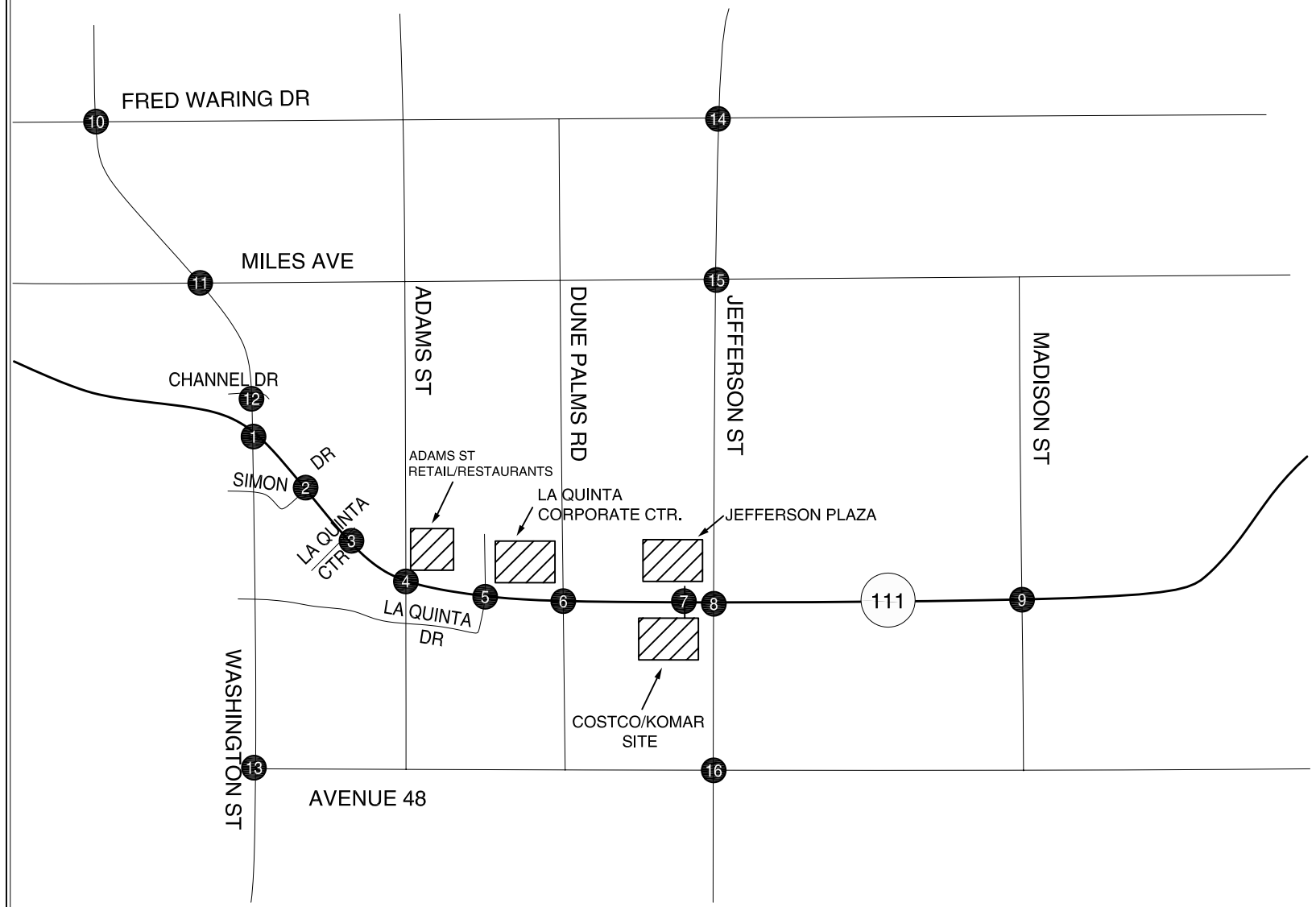
- STOP SIGN

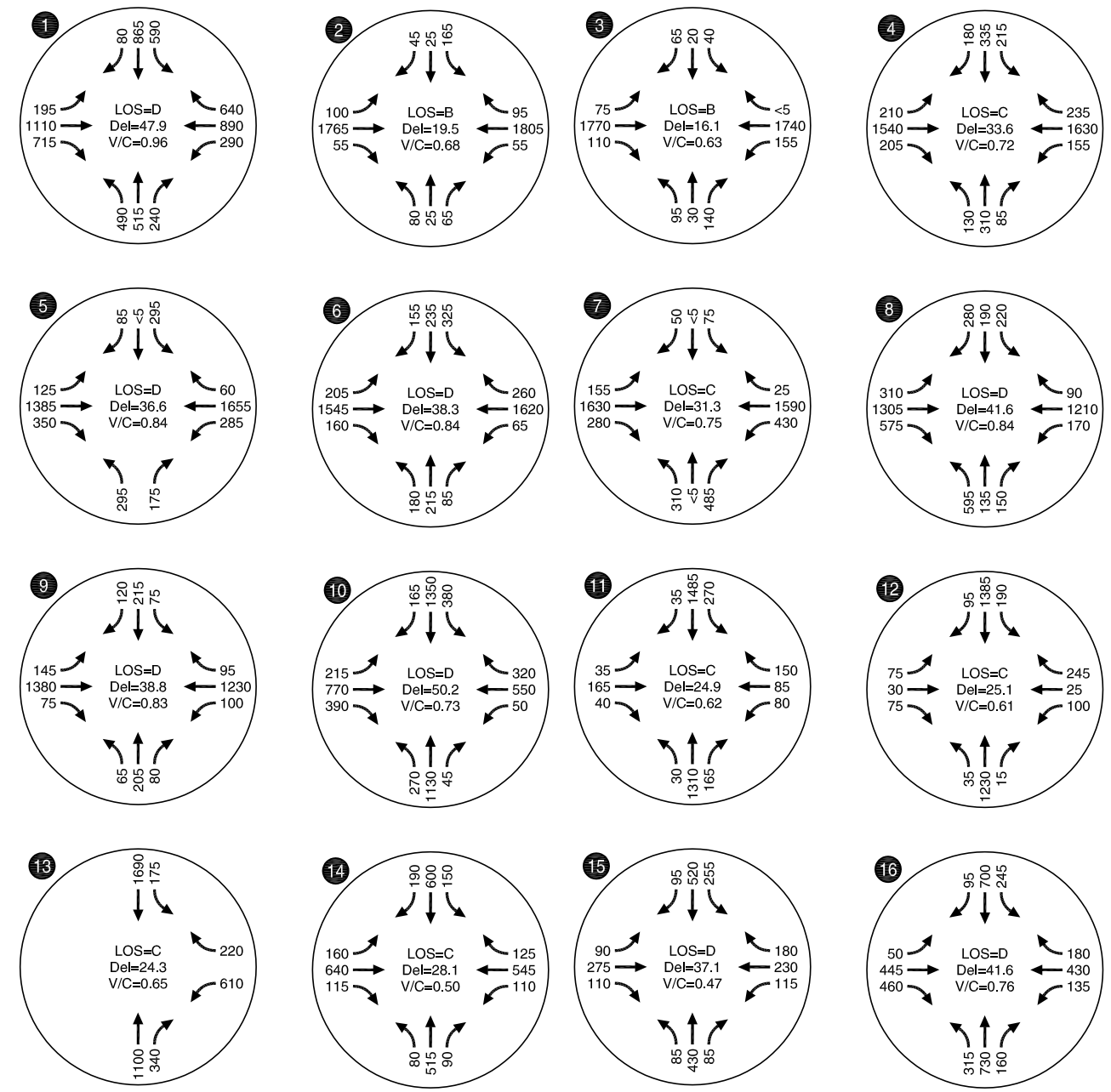
- TRAFFIC SIGNAL

2006 LANE CONFIGURATIONS (WITH PLANNED ROADWAY IMPROVEMENTS) AND TRAFFIC CONTROL DEVICES LA QUINTA, CALIFORNIA

FIGURE 10

Drawing Path





(NO SCALE)

LEGEND

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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2006 TOTAL TRAFFIC CONDITIONS (WITH SITE DEVELOPMENT & ROADWAY IMPROVEMENTS)
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE 11

Drawing Path

Table 4 on the next page is a summary of the weekday p.m. peak hour intersection operations and shows that the level of impact as a result of the Costco/Komar development is minimal. Figure 4 also indicates where mitigation is required to bring the intersections to within acceptable operating conditions.

As shown in Table 4, the following intersections are impacted by the proposed development based on the City's criteria used for determining a significant impact:

- *Highway 111/Dune Palms* – estimated to operate at LOS F with a 0.06 increase in the V/C ratio due to the development. The planned improvements to widen Highway 111 in 2006 will mitigate the intersection to LOS D;
- *Highway 111/Jefferson Street* – estimated to operate at LOS E with a 0.212 increase in the V/C ratio due to the development. The planned improvements to widen Highway 111 and Jefferson Street in 2006 and provision for southbound right-turn overlap phasing will mitigate the intersection to LOS D; and
- *Jefferson Street/Miles Avenue (unsignalized)* - estimated to operate at LOS F. The planned improvements to widen Jefferson Street in 2006 and provision for a signal will mitigate the intersection to LOS D.

Upon completion of the 2006 roadway improvements on Highway 111 and Jefferson Street, the following intersections on Highway 111 are estimated to meet the City of La Quinta standards (LOS D) but exceed Caltrans operating standards (LOSC/D) (It is understood that Caltrans will defer to the City of La Quinta operating standards):

- *Highway 111/Washington Street* - estimated to operate at a LOS D;
- *Highway 111/La Quinta Drive* - estimated to operate at a LOS D;
- *Highway 111/Dune Palms Road* - estimated to operate at a LOS D;
- *Highway 111/Jefferson Street* - estimated to operate at a LOS D; and
- *Highway 111/Madison Street* - estimated to operate at a LOS D

Appendix F contains the year 2006 Total Traffic Conditions (with the site development and Highway 111 and Jefferson Street Improvements) level-of-service worksheets.

Table 4
Summary of Intersection Operational Analysis Findings, Weekday PM Peak Hour

Intersection	Measure	Existing Base	2006 Back ground	2006 with Costco / Komar	2006 with Costco/Komar & Planned Roadway Improvements	Change in LOS / Incremental increase with Costco/Komar Development	Mitigation Required
Washington Ave & Fred Waring	LOS	D	D	D	D	No Change	No
	Critical v/c	0.705	0.717	0.725	0.725	0.008	
Washington Ave & Miles	LOS	C	C	C	C	No Change	No
	Critical v/c	0.576	0.589	0.617	0.617	0.028	
Washington Ave & Channel	LOS	C	C	C	C	No Change	No
	Critical v/c	0.591	0.604	0.612	0.612	0.008	
Washington Ave & Highway 111	LOS	D	D	D	D	No Change	No
	Critical v/c	0.849	0.903	0.959	0.959	0.056	
Washington Ave & Ave 48	LOS	C	C	C	C	No Change	No
	Critical v/c	0.587	0.638	0.654	0.654	0.016	
Highway 111 & Simon	LOS	C	B	B	B	No Change	No
	Critical v/c	0.536	0.640	0.680	0.680	0.040	
Highway 111 & La Quinta Ctr	LOS	B	C	C	B	No Change	No
	Critical v/c	0.676	0.784	0.872	0.629	0.088	
Highway 111 & Adams	LOS	C	D	D	C	No Change	No
	Critical v/c	0.785	0.929	0.978	0.717	0.049	
Highway 111& La Quinta Dr	LOS	C	D	D	D	No Change	No
	Critical v/c	0.688	0.929	0.977	0.837	0.048	
Highway 111 & Dune Palms	LOS	D	E	F	D	E to F	Yes[1]
	Critical v/c	0.886	1.128	1.188	0.840	0.06	
Highway 111 & Depot	LOS	A	B	D	C	B to D	No[2]
	Critical v/c	0.527	0.703	0.905	0.748	0.202	
Highway 111 & Jefferson	LOS	C	D	E	D	D to E	Yes[3]
	Critical v/c	0.654	0.835	1.047	0.840	0.212	
Highway 111& Madison	LOS	D	D	D	D	No Change	No
	Critical v/c	0.730	0.808	0.833	0.833	0.025	
Jefferson & Fred W	LOS	C	C	D	C	C to D	No
	Critical v/c	0.480	0.766	0.790	0.503	0.024	
Jefferson & Miles	LOS	C	F	F	D	No Change	Yes[4]
	Critical v/c	1.039	N/A	N/A	0.465	N/A	
Jefferson & Ave 48	LOS	D	D	D	D	No Change	No
	Critical v/c	0.629	0.747	0.759	0.759	0.012	

1 – The independently planned improvements for 2006 along Highway 111 to widen Highway 111 to six through lanes, with dual left-turn lanes and a separate right-turn will mitigate this intersection to acceptable conditions.

2 - As part of the proposed development, the Costco/Komar development will construct a half street improvement along the site frontage on Highway 111, including a third eastbound through lane, a right-turn lane at each of the site accesses and a dual left-turn lane for westbound traffic at the Highway 111/Depot Drive intersection.

3 - The independently planned improvements for 2006 along Highway 111 and Jefferson Street to widen both roadways to six through lanes, with dual left-turn lanes and a separate right-turn will mitigate this intersection to acceptable conditions.

4 - The independently planned improvement to signalize this intersection in 2006 will mitigate it to acceptable conditions.

2006 TOTAL TRAFFIC CONDITIONS (WITH SITE DEVELOPMENT) FOR THE WEEKEND PEAK PERIOD

As traffic related to any retail development is almost always higher during a Saturday peak hour as compared to the weekday p.m. peak hour, a sensitivity analysis was conducted to determine the relative impact of the Costco/Komar development on the weekend peak hour. Traffic counts were conducted in September 2005 on a typical Saturday from noon – 4 p.m. and on a typical weekday p.m. peak hour at the Washington Street/Highway 111 and Jefferson Street/Highway 111 intersections to determine the relationship between the time period used in the analysis scenarios and the weekend peak hour.

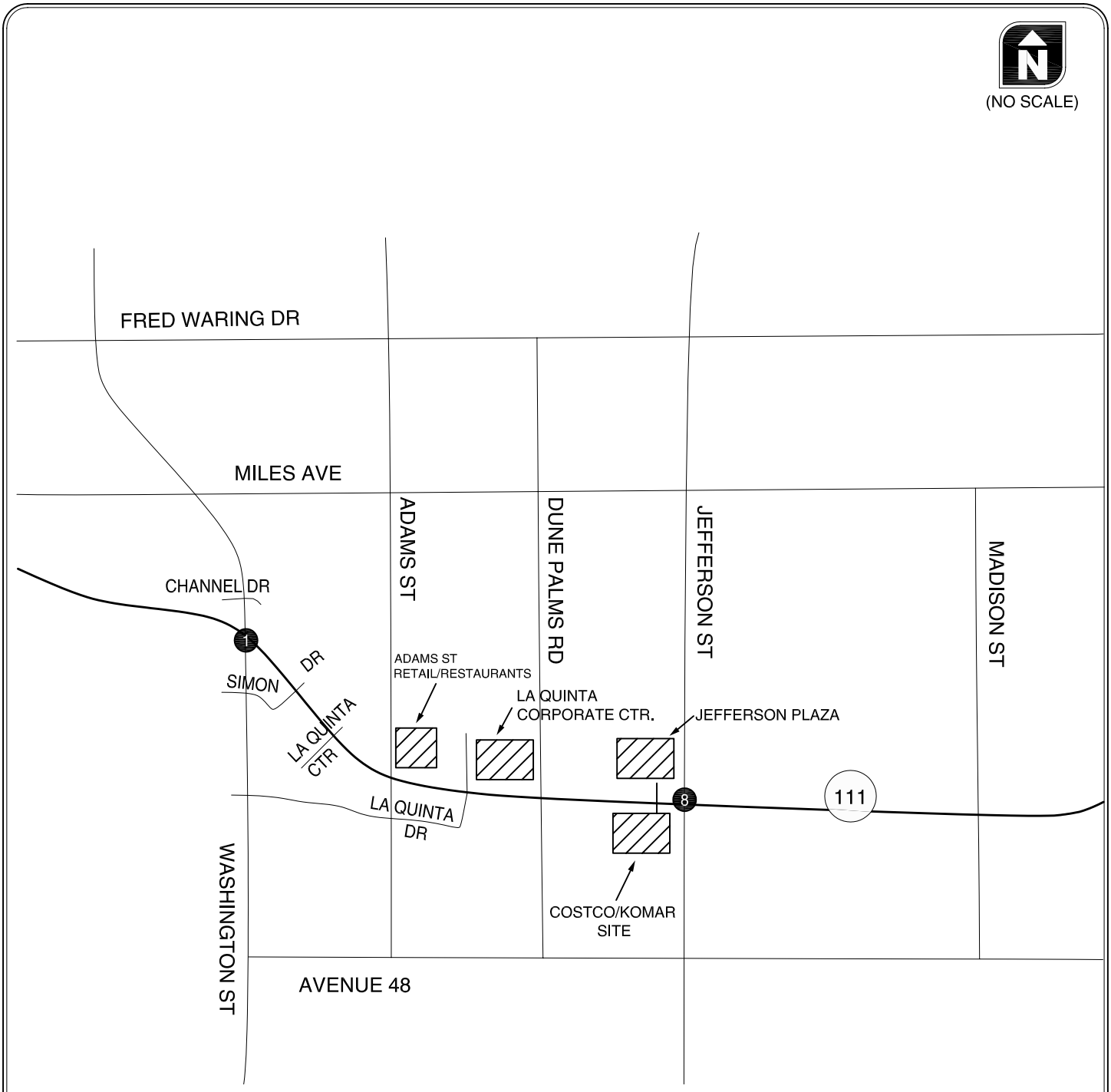
Intersection Levels of Service

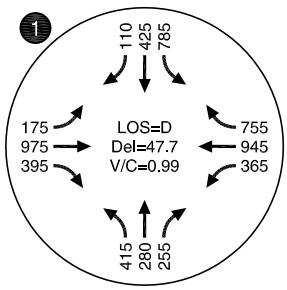
Volume-to-capacity ratios and LOS were calculated for the study intersections using the Saturday peak hour traffic volumes, (12:30 p.m. to 1:30 p.m.) as shown in Figure 12. Similar to the 2006-weekday peak period analysis, the 2005 Saturday volumes were grown by two and a half percent, in-process development trips were added, and a diversion of trips from Washington Street to Jefferson Street were considered to reach 2006 background volumes. The background traffic growth is conservatively high because a significant portion of the in-process development is office related which will likely not be in operation during the Saturday peak hour. As indicated in Figure 12, the study intersections are estimated to operate at acceptable levels of service during the weekend peak period.

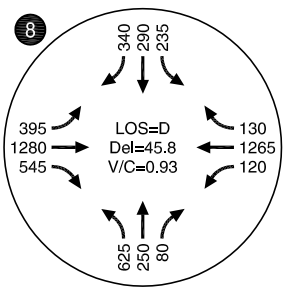
Unlike the traffic volumes experienced during the weekday p.m. peak period that largely consists of commuters, and trips make up of returning from school and day care, the majority of trips during the Saturday peak hour are usually voluntary. While the Saturday peak hour traffic volumes may be higher on occasion than the weekday p.m. peak period, this single peak hour usually occurs approximately 52 times each year. However, the weekday a.m. and p.m. peak hours generally occur five days a week for four to five hours each day and almost every week of the year. This translates into approximately 1,000 hours each year. For this reason, transportation agencies generally work to achieve reasonable traffic operating conditions for the weekday a.m. and p.m. peak hours of travel in urban areas.

This is also consistent with the City of La Quinta General Plan transportation element and the City of Indio General Plan transportation element that is based on the weekday a.m. and p.m. peak hours of traffic operations.

Appendix G contains the year 2006 Total Traffic Conditions for the Weekend Peak Hour







LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED) CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE DELAY (SIGNALIZED)/ CRITICAL MOVEMENT DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

2006 TOTAL TRAFFIC CONDITIONS (WITH SITE DEVELOPMENT & ROADWAY IMPROVEMENTS)
WEEKEND (SATURDAY) PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE 12

H:\PROJFILE\7118\dwgs\figs\7118FIGS1.dwg Oct 11, 2005 - 12:07pm - openfil Layout Tab: FIG 12

Section 7

Future City of La Quinta
Build Out Traffic Conditions
(With Site Development)

Future Build Out Traffic Conditions

The Future Traffic conditions analysis forecasts how the study area's transportation system will operate with the inclusion of traffic from the proposed Costco/Komar development when the City of La Quinta has reached full build-out. This future analysis extends beyond 2020 and is based on traffic forecasts as identified in the City of La Quinta General Plan 2020 "Full Build Out Preferred Option". The La Quinta General Plan Transportation Model (LQTM) was developed by RKJK & Associates, Inc. and forecasts traffic volumes on the road network in La Quinta with the assumption that full build out of undeveloped lands in the city had occurred. In order to develop the transportation model, the city was divided into 146 TAZs, where each zone features a specific area and land use assumptions. TAZ 904 includes the land area being proposed for the Costco/Komar development.

FUTURE TRAFFIC CONDITIONS

The Costco development will be located on 16.78 acres of the 32.44 acres of Commercial Park within TAZ 904 while the Komar shopping center will be located on 9.59 acres of the 27.61 acres zoned as Regional Commercial. As part of the future traffic conditions analysis, two scenarios were analyzed to determine the impacts of the proposed development:

- Full Build Out Future Year Traffic Conditions (without the Costco/Komar site, and includes the General Plan Build Out/Post 2020 Traffic, and all currently planned roadway improvements); and
- Full Build Out Future Year Traffic Conditions (includes the Costco/Komar site, General Plan Build Out/Post 2020 Traffic, and all currently planned roadway improvements)

Traffic Volumes

Growth factors for the study area roadways were obtained from the City of La Quinta Post 2020 General Plan by comparing forecasted post 2020 ADT volumes with 2000 ADT volumes. These factors were used to calculate the post 2020 p.m. peak hour turning movement volumes. The calculated post 2020 p.m. peak hour link volumes were subsequently compared with the post 2020 ADT volumes to determine whether they fall within 8-12 % typically expected as peak to daily traffic volume ratio. As a result of this effort, 150 northbound- and 250 southbound vehicles were added to the through movements respectively along Jefferson Street for each of the Jefferson Street intersections.

Table 5 shows the net increase in traffic volumes as a result of the Costco/Komar development entering each of the study intersections (see Figure 13) during the weekday p.m. peak hour. As shown in Table 5, the maximum increase because of the development at any of the study intersections (excluding the site driveway at Depot Drive) is 7.06% at Jefferson Street.

Table 5

General Plan Post 2020 weekday p.m. peak hour intersection volumes

Intersection	Build Out intersection Traffic Volumes excluding any development on the proposed Costco/Komar site	Build Out intersection Traffic Volumes with the Costco/Komar Development	Percent Change
Washington & Fred Waring Dr	8,597	8,683	1.00%
Washington & Miles Ave	6,083	6,169	1.41%
Washington & Channel Dr	5,550	5,609	1.06%
Washington & Highway 111	9,256	9,474	2.36%
Washington & Ave 48	6,514	6,578	0.98%
Highway 111 & Simon Dr	5,272	5,640	6.98%
Highway 111 & La Quinta Ctr	5,220	5,588	7.05%
Highway 111 & Adams St	6,559	6,927	5.61%
Highway 111 & La Quinta Dr	5,721	6,089	6.43%
Highway 111 & Dune Palms Rd	6,262	6,630	5.88%
Highway 111 & Depot Dr	5,063	6,288	24.20%
Highway 111 & Jefferson Str	6,913	7,455	7.84%
Highway 111 & Madison Str	6,790	6,925	1.99%
Jefferson & Fred Waring Dr	5,614	5,705	1.62%
Jefferson & Miles Ave	4,287	4,405	2.75%
Jefferson & Ave 48	6,461	6,655	3.00%

Level-of-Service Analysis

Using the weekday p.m. peak hour turning movement volumes shown in Figures 14 and 15, an operational analysis was conducted at each study intersection to determine the full build out without- and with the Costco/Komar development traffic level of service. Figure 14 shows the full build out (post 2020) weekday p.m. peak hour intersection traffic conditions without the Costco/Komar development, while Figure 15 shows the full build out (post 2020) weekday p.m. peak hour intersection traffic conditions with the Costco/Komar development.

ROADWAY IMPROVEMENTS PLANNED FOR 2020

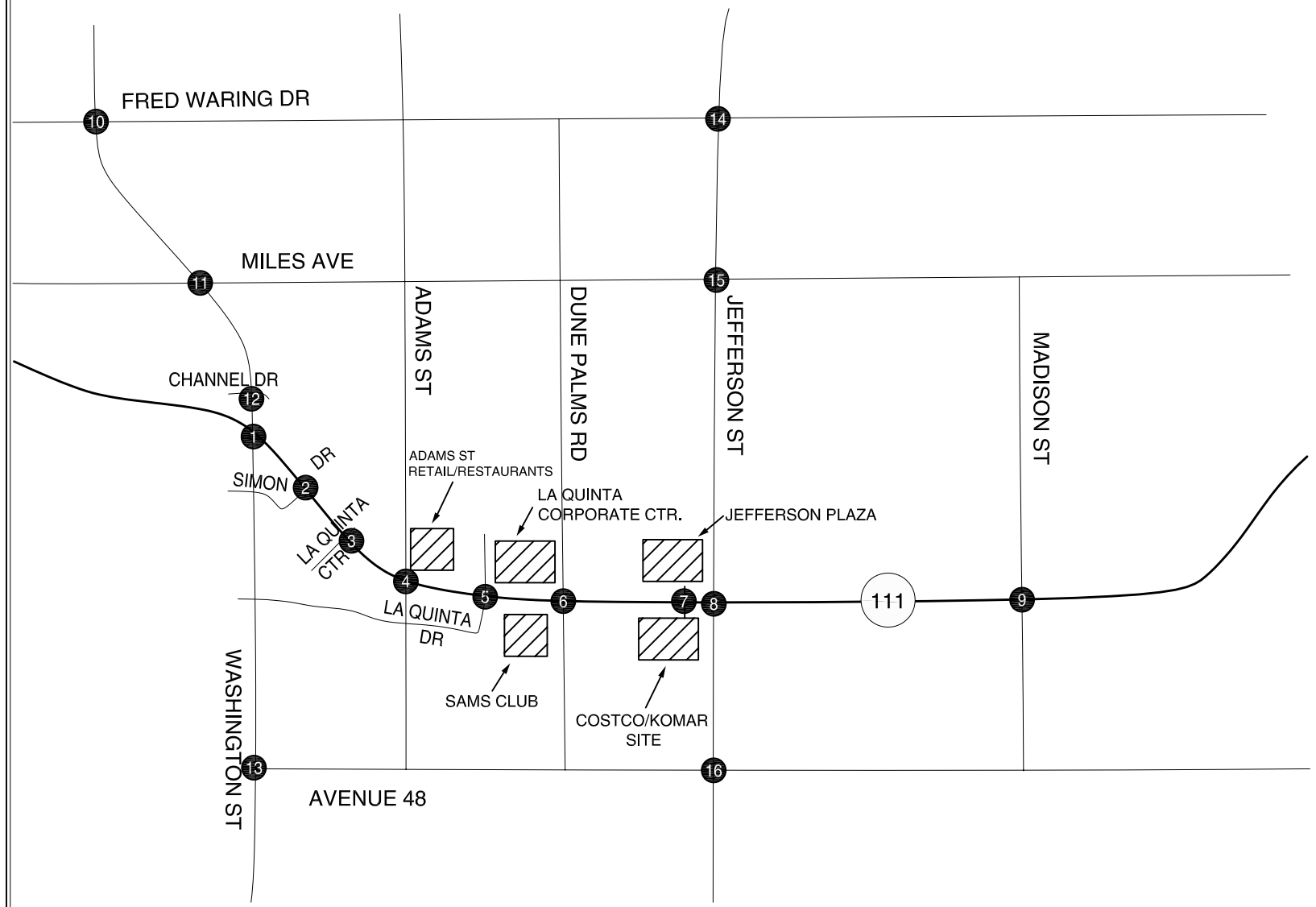
The following roadway improvement projects are assumed to be completed by the year 2020, based on a review of the City of Indio General Plan circulation element for 2020

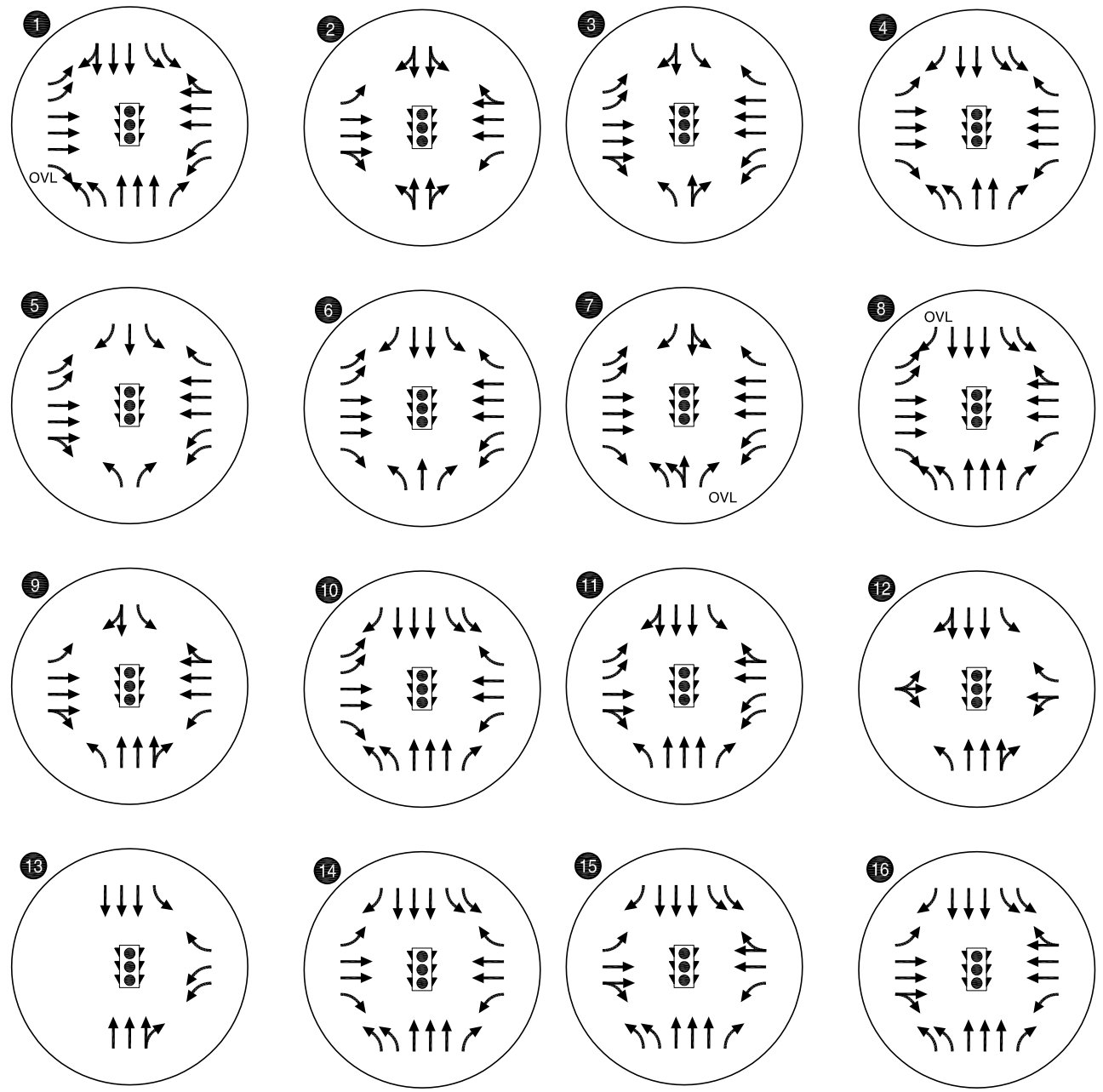
- Highway 111 will be widened to six through lanes from Jefferson Street to Madison Street, and will have a single left-turn lane, two through lanes and a shared through/right turn lane at the major intersections.

- Madison Street south of Highway 111 will be widened to a single left-turn lane, two through lanes and a shared through/right turn lane at major intersections. (Madison Street north of Highway 111 is shown with the same cross-section as it exists today, one left-turn lane and a shared through/right-turn lane).

- Avenue 48 will be widened to a single left-turn lane, two through lanes and a shared through/right turn lane at major intersections.

(NO SCALE)





LEGEND

OVL - OVERLAP

- STOP SIGN

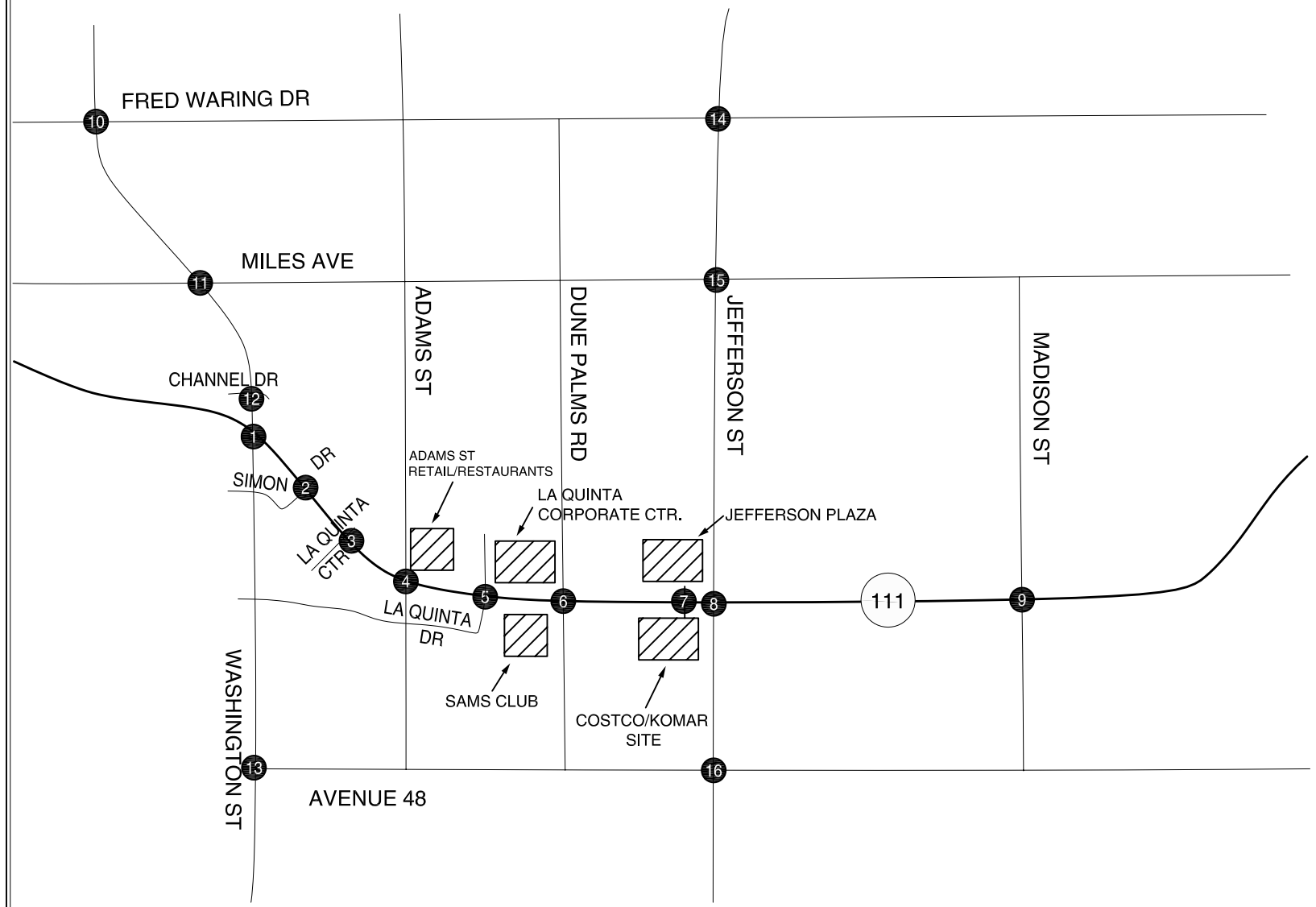
- TRAFFIC SIGNAL

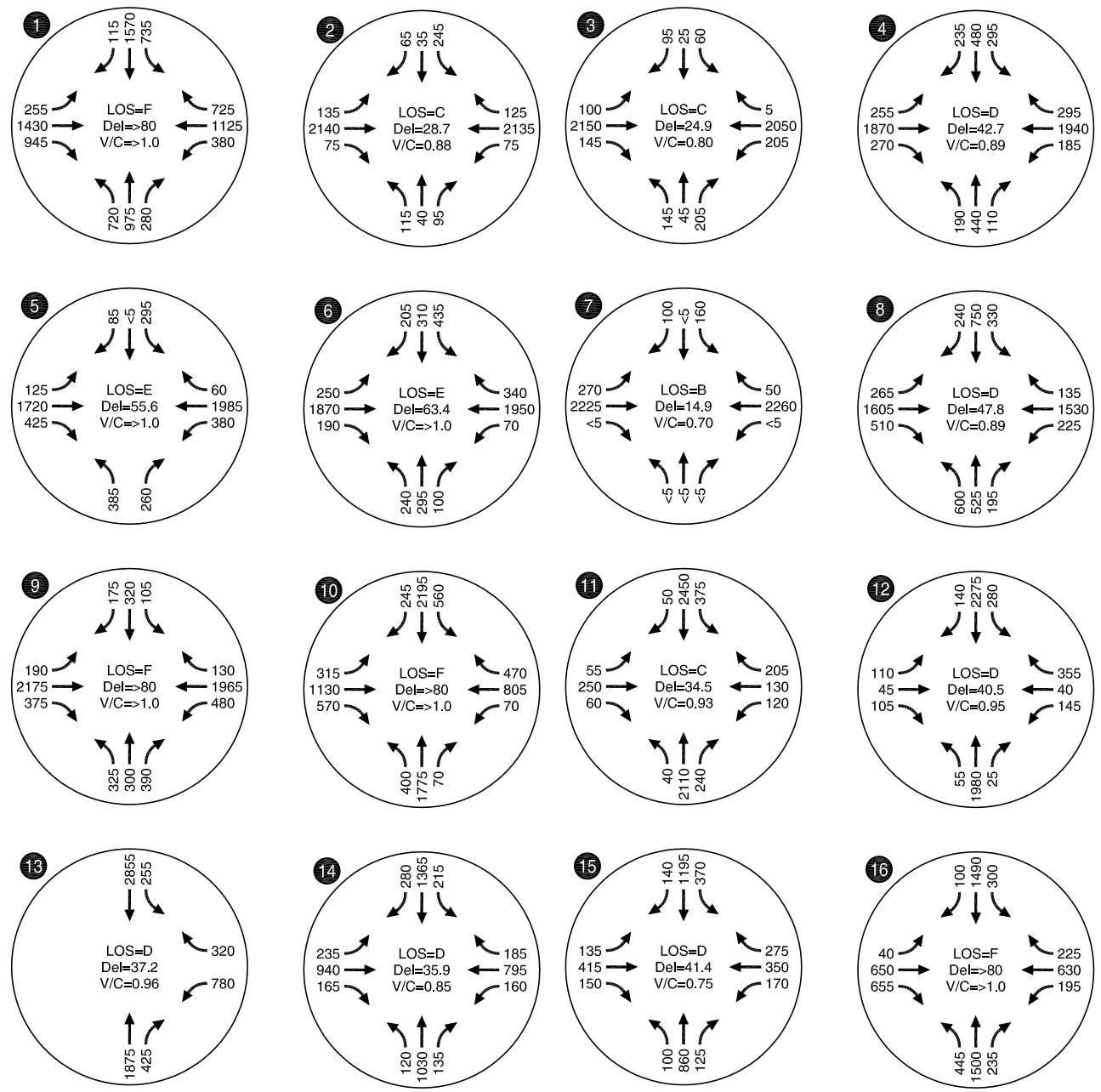
FULL BUILDOUT LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES LA QUINTA, CALIFORNIA

FIGURE **13**

Drawing Path

(NO SCALE)



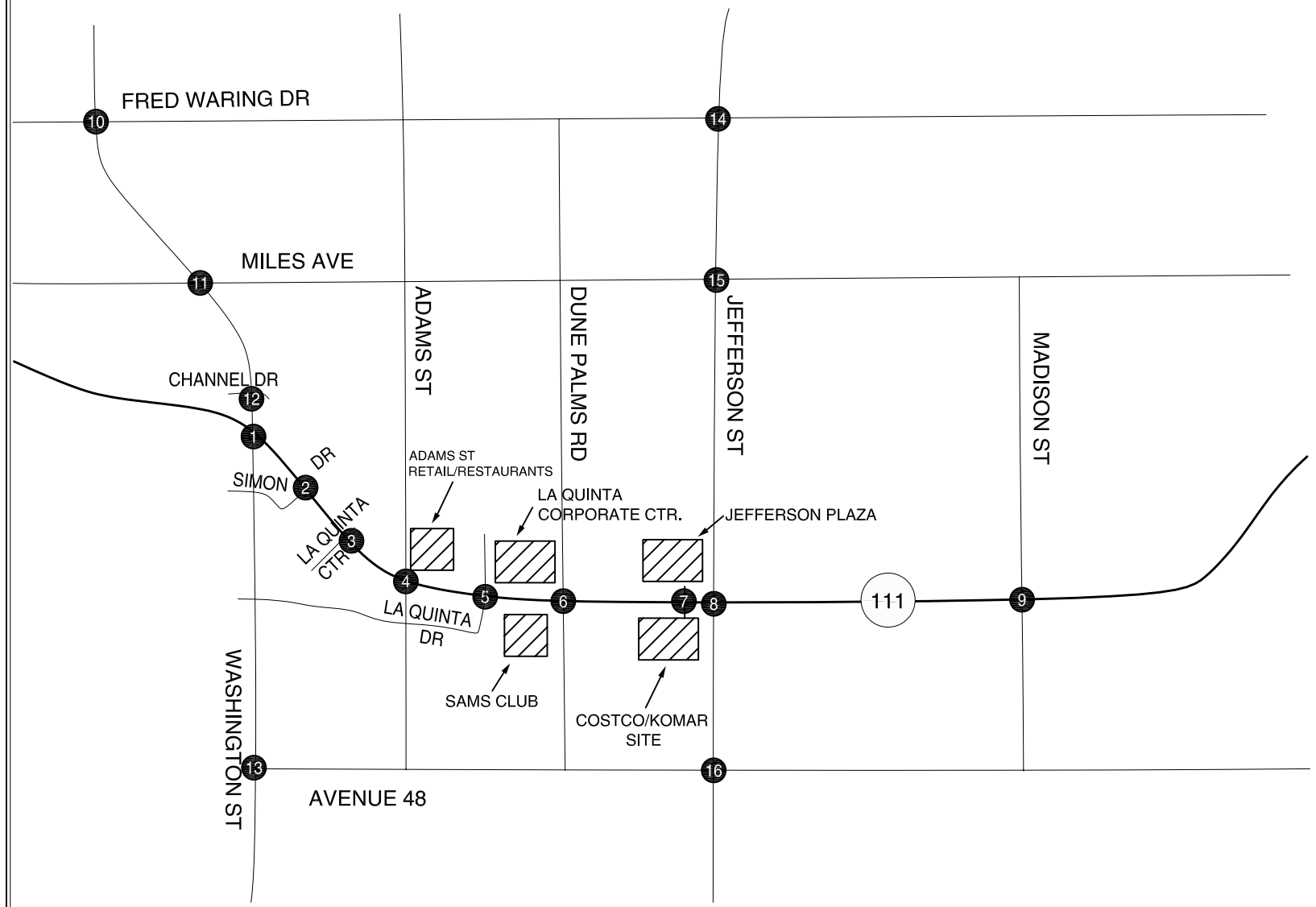


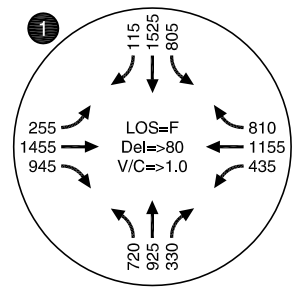
FULL BUILDOUT WITHOUT COSTCO/KOMAR TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

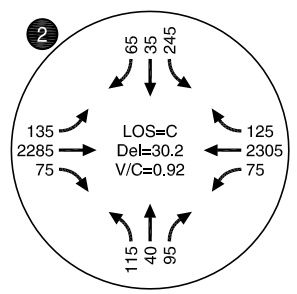
FIGURE **14**

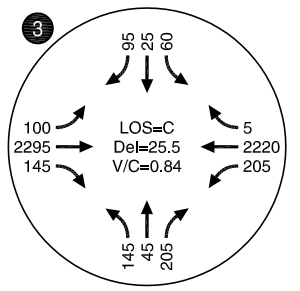
Drawing Path

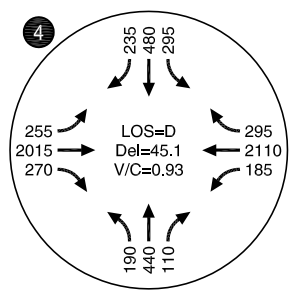
(NO SCALE)

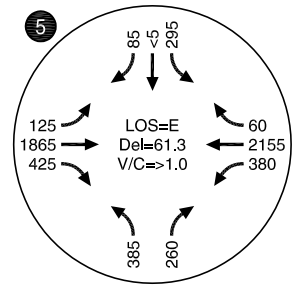


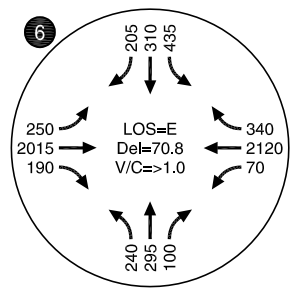


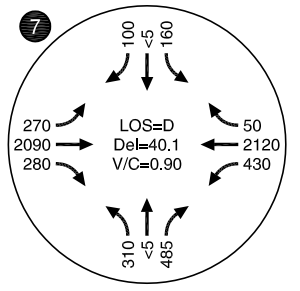


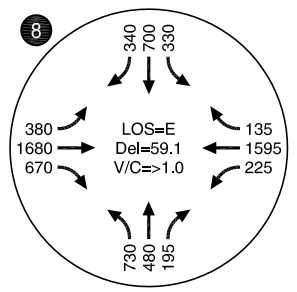


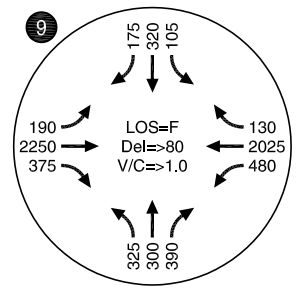


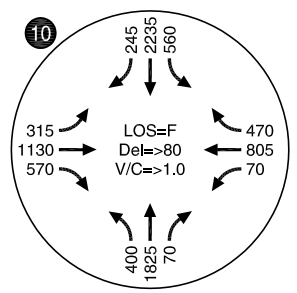


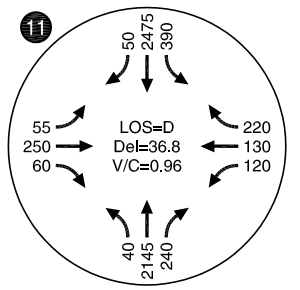


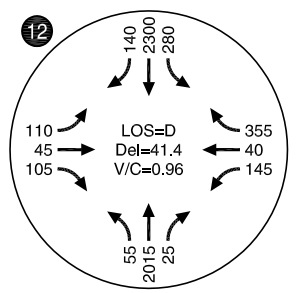


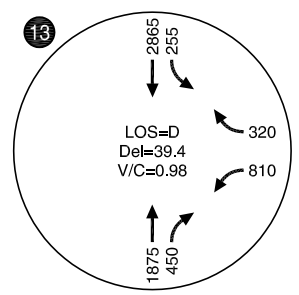


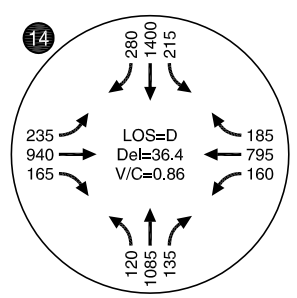


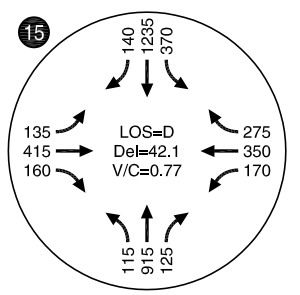


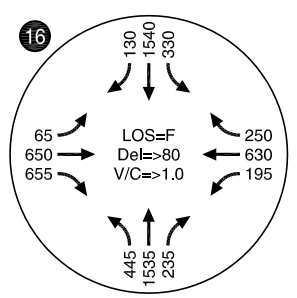












FULL BUILDOUT WITH COSTCO/KOMAR TRAFFIC CONDITIONS
WEEKDAY PM PEAK HOUR
LA QUINTA, CALIFORNIA

FIGURE **15**

Drawing Path

As indicated by Table 6, the full build out traffic analysis determined that most of the study intersections are forecasted to operate without experiencing a significant impact due to the Costco/Komar development during the weekday p.m. peak period. The following intersections are expected to experience a significant impact, with the potential mitigation measures identified to improve the traffic operations:

- *Washington Street/Highway 111* – estimated to operate at LOS F with a 0.056 increase in the V/C ratio due to the development. The following improvements will be required to improve the intersection to LOS D:
    - Westbound - Add a separate westbound right-turn lane
    - Eastbound - Modify the eastbound right-turn lane to function as a free-flow lane and add new southbound receiving/merging lane on Washington Street on the south side of the intersection.
    - Northbound – Add a third left-turn lane.
    - Southbound - Add a third left-turn lane and a fourth through lane (also requires a new southbound receiving lane on Washington Street on the south side of the intersection).

  Implementation of the mitigation measures for this intersection may not be feasible due the substantial construction cost, and right-of-way restrictions. Further, because the project's contribution of trips to this intersection is minimal in comparison to the total number of trips at this location, it may not be legally feasible to require that these improvements, which are regional in nature, be addressed by the proposed development. If the City determines that these measures cannot be feasibly imposed upon this project, the intersection would operate at LOS F, and the impact of the proposed project would remain significant.

  Mitigation specific to the project-specific incremental impact associated with the proposed development may be possible via re-striping the westbound #3 through-lane of Highway 111 to allow a separate westbound right-turn lane. This mitigation action would not achieve a level of service D but would adequately mitigate the project-specific incremental impact upon this intersection. This action would require Caltrans review and approval prior to implementation. While this improvement will mitigate the incremental impact associated with the proposed project, the intersection will continue to operate at a LOS F.

- *Highway 111/La Quinta Drive* - estimated to operate at a LOS E with a 0.027 increase in the V/C ratio. A separate eastbound right-turn lane would be required to improve the intersection operation to LOS D.

  The City has confirmed that this improvement will be constructed by the City of La Quinta, using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Dune Palms Rd* – estimated to operate at a LOS E with a 0.041 increase in V/C. A second southbound left-turn lane would be required to improve the intersection operation to LOS D.

  A commercial development (Sam's Club) is currently in process southwest of this intersection and will be responsible for constructing northbound dual left turn lanes at this intersection. If Caltrans does not require the southbound improvement as part of the Sam's Club improvements,

and the improvements are not otherwise completed by other development, the City has confirmed that the City of La Quinta will complete the improvements using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Jefferson St* – estimated to operate at a LOS D without the Costco/Komar development, and a LOS E with a 0.156 increase in V/C with the Costco/Komar development. A separate westbound right-turn lane and provision for eastbound right-turn overlap phasing would be required to improve the intersection operation to LOS D.

  These proposed mitigation improvements are located in the City of Indio. The Riverside County Transportation Commission has allocated $3.2 million in Measure A funds, and $1.5 million in Transportation Enhancement funds, which are currently available to the City of Indio for Highway 111 improvements that include the Highway 111/Jefferson Street intersection. As a result, the City of Indio should be able to construct these improvements. If for some reason beyond Indio's control, the public funding noted herein is not available to pay for these improvements, and Indio establishes an alternative program to spread the costs of these improvements across all new development that increases traffic volumes at this intersection, the developers of this project should be required to participate in such a program to fund their proportionate fair share cost of these improvements. If the improvements are not made, the intersection will operate at LOS E, and the impact of the proposed project would remain significant.

It should be noted that for the intersections that are partially or wholly within the City of Indio, both the Avenue 48/Jefferson Street intersection and the intersection of Highway 111 and Madison Street are estimated to operate at LOS F, which is below the City of Indio operating standard, without or with the Costco/Komar development. However, the additional traffic associated with the Costco/Komar development does not cause the intersections to exceed the City of La Quinta "Threshold of Significance" of an increase of > 0.02 in the V/C ratio for intersections operating at LOS E or F as applied throughout this analysis. The improvements that would be required to improve the intersections to a LOS D are listed below.

- *Madison Street/Highway 111* – estimated to operate at LOS F with a 0.017 increase in the V/C ratio due to the development. A second northbound left-turn lane, a separate northbound right-turn lane that operates with overlap phasing (only two northbound through lanes required), a second southbound through lane, a separate eastbound right-turn lane, and second westbound left-turn lane would be required to improve the intersection operation to LOS D.
- *Jefferson Street/Avenue 48* – estimated to operate at LOS F with a 0.012 increase in the V/C ratio due to the development. A separate eastbound right-turn lane that operates with overlap phasing, and a second westbound left-turn lane would be required to improve the intersection operation to LOS D.

The following intersections on Highway 111 are estimated to exceed Caltrans operating standards (LOS C/D) (It is understood that Caltrans will defer to the City of La Quinta operating standards):

- *Highway 111/Washington St* - estimated to operate at a LOS F without or with Costco/Komar;

- *Highway 111//Adams St* - estimated to operate at a LOS D without or with Costco/Komar;
- *Highway 111/La Quinta Dr* - estimated to operate a LOS E without or with Costco/Komar;
- *Highway 111/Dune Palms Rd* - estimated to operate a LOS E without or with Costco/Komar;
- *Highway 111/Depot Drive* - estimated to operate at a LOS D with Costco/Komar;
- *Highway 111/Jefferson St* - estimated to operate a LOS D without and LOS E with Costco/Komar; and
- *Highway 111/Madison St* - estimated to operate at a LOS F without or with Costco/Komar

The proposed mitigation measures are further defined in Table 7. *Appendix H contains the full build out traffic (with and without the Costco/Komar development) level-of-service worksheets.*

Table 6

Full Build Out Traffic Conditions

Intersection	Measure	Build Out	Build Out with Costco/Komar	Increase in v/c	Mitigation Required	Mitigated Conditions
Washington Ave & Fred Waring	LOS	F	F	No Change	No	
	Critical v/c	1.111	1.120	0.009		
Washington Ave & Miles	LOS	C	D	C to D	No	
	Critical v/c	0.928	0.956	0.028		
Washington Ave & Channel	LOS	D	D	No Change	No	
	Critical v/c	0.954	0.964	0.010		
Washington Ave & Highway 111	LOS	F	F	No Change	Yes	D
	Critical v/c	1.301	1.357	0.056		0.965
Washington Ave & Ave 48	LOS	D	D	No Change	No	
	Critical v/c	0.962	0.978	0.016		
Highway 111 & Simon	LOS	C	C	No Change	No	
	Critical v/c	0.883	0.924	0.041		
Highway 111 & La Quinta Ctr	LOS	C	C	No Change	No	
	Critical v/c	0.803	0.838	0.035		
Highway 111 & Adams	LOS	D	D	No Change	No	
	Critical v/c	0.894	0.934	0.040		
Highway 111& La Quinta Dr	LOS	E	E	No Change	Yes	D
	Critical v/c	1.022	1.049	0.027		0.947
Highway 111 & Dune Palms	LOS	E	E	No Change	Yes	D
	Critical v/c	1.064	1.105	0.041		0.958
Highway 111 & Depot	LOS	B	D	B to D	No	
	Critical v/c	0.697	0.904	0.207		
Highway 111 & Jefferson	LOS	D	E	D to E	Yes	D
	Critical v/c	0.894	1.050	0.156		0.944
Highway 111& Madison	LOS	F	F	No Change	No	
	Critical v/c	1.486	1.503	0.017		
Jefferson & Fred W	LOS	D	D	No Change	No	
	Critical v/c	0.853	0.862	0.009		
Jefferson & Miles	LOS	D	D	No Change	No	
	Critical v/c	0.752	0.773	0.021		
Jefferson & Ave 48	LOS	F	F	No Change	No	
	Critical v/c	1.213	1.225	0.012		

1 – Decrease in LOS largely due to converting intersection from three to four legs

Table 7

Full Build Out Proposed Mitigation Measures

Intersection	Proposed Measures
Washington/ Highway 111[1]	**Westbound** • Add a separate right turn lane (retain 3 through lanes) **Eastbound** • Reconfigure the right-turn lane to be a free-flow lane. (Requires a new southbound receiving lane on the south side of the intersection) **Southbound** • Add a third left-turn lane • Add a fourth through lane. (Requires an additional southbound receiving lane on the south side of the intersection). **Northbound** • Add a third left-turn lane
Highway 111& La Quinta Dr	• Add a separate eastbound right-turn lane
Highway 111 & Dune Palms	• Add a second southbound left-turn lane
Highway 111 & Jefferson	• Allow eastbound right-turn overlap phasing • Add a separate westbound right-turn lane

1 – The City may determine these improvements infeasible for reasons stated on page 50.

Section 8

Future Traffic Conditions (Incremental Traffic Impact as a Result of the Proposed Costco/Komar Development as Compared to the City of La Quinta General Plan)

Incremental Impacts with Site Development as Compared to City of La Quinta General Plan

The purpose of this section is to identify the incremental traffic impacts to the roadway system with the proposed Costco/Komar development as compared to the traffic volumes forecasted in the City of La Quinta General Plan 2002 "Full Build Out Preferred Option".

FUTURE TRAFFIC CONDITIONS

Based on the proposed site plan provided, the Costco/Komar development will consist of 149,739 sq. ft. of warehouse space with a fuel center and 83,700 sq. ft. of shopping center space. It is proposed that the Costco development will be located on 16.78 acres while the Komar shopping center will be located on 9.59 acres.

Trip Generations

It was necessary to determine the incremental traffic impact to the roadway network that is associated with the proposed Costco/Komar development. This required a review of the traffic volumes that were estimated from TAZ 904 as used in the Full Build Out transportation model in the City of La Quinta General Plan, 2002. Table 8 identifies the estimated number of weekday p.m. peak hour trips associated with each land use in TAZ 904. This information was provided in a memorandum (included as *Appendix J*) provided by Urban Crossroads, Inc. on June 28, 2005.

Table 8

TAZ 904 Estimated Trip Generation

TAZ	Source	Size	Weekday PM Peak Hour Trips
Total TAZ 904	Urban Crossroads	87.66 Ac	*1,566*

Table 9 summarizes the total estimated net new trips that will be anticipated if the proposed Costco/Komar development is developed within TAZ 904.

Table 9

Total Estimated Trip Generation for TAZ 904 including the Proposed Costco/Komar Development

Land Use	Source	Size	Weekday PM Peak Hour Trips
TAZ 904			
Regional Commercial (Vacant) *Tourist Commercial (Vacant)* *Light Industrial (Vacant)*	Urban Crossroads	18.02 Ac 27.61 Ac 15.66 Ac	*472* *549* *142*
Costco Wholesale, Primary Trips *(located within the Commercial Park Zone)*	KAI[1]	16.78 Ac	*325*
Komar Shopping Center, Primary Trips *(located within the Regional Commercial Zone)*	ITE 820	9.59 Ac	*210*
Total Estimated Trip Generation for Costco/Komar and Zone 904		87.66 Ac	*1.703*
Total TAZ 904	Urban Crossroads	87.66 Ac	*1,566*
Net increase in Trip Generation in TAZ 904	N/A	N/A	*137*

[1] Independent studies for Costco identifies a weekday p.m. peak hour trip rate of 6.99 trips/thousand square feet of development for a Costco Warehouse with a fuel center.

Based upon the results, it is estimated that the proposed Costco/Komar development will result in a net increase of 137 additional weekday p.m. peak hour trips in TAZ 904, from a total of 1,566 trips to an estimated total of 1,703 trips, an increase of 8.7 percent.

Operational Analysis

An analyses was performed of the traffic operations in the future full build out condition to determine the operating characteristics of the roadway network during the weekday p.m. peak hour assuming the development in TAZ 904 was consistent with the City of La Quinta General Plan 2002 "Full Build Out Preferred Option". An additional analysis was performed that included the proposed Costco/Komar development with the additional 137 weekday p.m. peak hour trips associated with TAZ 904. The additional 137 trips were assigned across the road network consistent with the previously discussed assignment assumptions. The results of the analysis show that the Costco/Komar development creates minimal impacts to the transportation system as compared to the City of La Quinta General Plan 2002 "Full Build Out Preferred Option". All of the intersections except for Highway 111/Jefferson Street remain at the same Level of Service (LOS) in the future year and the changes to the Volume to Capacity (V/C) rates at the intersections are less than one percent, with the exception of Highway 111/Depot Drive and Highway 111/Jefferson Street, where the V/C increases by approximately 4.9% and 1.6% respectively. Table 10 summarizes the incremental increase across the study area.

Table 10

Future Traffic Conditions Incremental Increase

Intersection	Measure	Build Out with General Plan Land Use Assumptions for TAZ 904	Build Out with Costco/Komar	Increase in v/c	Mitigation Required
Washington Ave & Fred Waring	LOS	F	F	No	No
	Critical v/c	1.117	1.120	0.003	
Washington Ave & Miles	LOS	D	D	No	No
	Critical v/c	0.949	0.956	0.007	
Washington Ave & Channel	LOS	D	D	No	No
	Critical v/c	0.961	0.964	0.003	
Washington Ave & Highway 111	LOS	F	F	No	No
	Critical v/c	1.351	1.357	0.006	
Washington Ave & Ave 48	LOS	D	D	No	No
	Critical v/c	0.974	0.978	0.004	
Highway 111 & Simon	LOS	C	C	No	No
	Critical v/c	0.920	0.924	0.004	
Highway 111 & La Quinta Ctr	LOS	C	C	No	No
	Critical v/c	0.835	0.838	0.003	
Highway 111 & Adams	LOS	D	D	No	No
	Critical v/c	0.931	0.934	0.003	
Highway 111& La Quinta Dr	LOS	E	E	No	No
	Critical v/c	1.047	1.049	0.002	
Highway 111 & Dune Palms	LOS	E	E	No	No
	Critical v/c	1.102	1.105	0.003	
Highway 111 & Depot	LOS	D	D	No	No
	Critical v/c	0.862	0.904	0.042	
Highway 111 & Jefferson	LOS	D	E	D to E	Yes
	Critical v/c	0.894	1.024	0.13	
Highway 111& Madison	LOS	F	F	No	No
	Critical v/c	1.486	1.499	0.013	
Jefferson & Fred W	LOS	D	D	No	No
	Critical v/c	0.860	0.862	0.002	
Jefferson & Miles	LOS	D	D	No	No
	Critical v/c	0.769	0.773	0.004	
Jefferson & Ave 48	LOS	F	F	No	No
	Critical v/c	1.222	1.225	0.003	

Section 9

Site Access and Circulation Analysis

Site Access and Circulation Analysis

ACCESS AND ON-SITE CIRCULATION

Access to the Costco/Komar site will occur via two driveways: a full access signalized intersection at Highway 111/Depot Drive and a right-in/right-out driveway along Highway 111, approximately 550 feet east of the Highway 111/Depot Drive intersection. Refer to the site plan included in Figure 2. In addition, the City of La Quinta will require the developer to provide a reciprocal easement of access at a location on the western edge of the Costco/Komar development. The exact location and details of the access will be worked out as development of the property to the west occurs.

The City of La Quinta will require separate right-turn lanes on Highway 111 at each of the two-site driveways and a dual left-turn lane at the Depot Drive/Highway 111 signalized intersection. These improvements will be made as part of the Costco/Komar development. The traffic signal at the Highway 111/Depot Drive intersection will need to be modified to accommodate the road widening and turn lanes on Highway 111.

Truck access to the development will be accommodated via either driveway to Highway 111. The majority of deliveries to the Costco Warehouse occur before 10 a.m., when the warehouse is not open to the public. Fuel deliveries to the Costco fuel center will be accommodated via the signalized intersection at Highway 111 and Depot Drive.

The site plan was evaluated to provide safe and efficient on-site circulation for pedestrians, automobiles and trucks. Kittelson & Associates, Inc. worked with the project's development team to enhance the operational and safety aspects of the proposed driveways, on-site circulation, and parking lot design. Specific issues addressed include placement and orientation of the Costco Wholesale warehouse, review of on-site truck circulation, site-driveway cross-section design, and throat depth. The length of the throat at the main site access was designed to allow for the vehicles to queue prior to proceeding onto Highway 111 and includes a left-turn lane, a left-turn/through lane and a separate right-turn lane for vehicles exiting the development. The main site driveway has two inbound lanes to accommodate vehicles that will enter the site from the dual left-turn storage lanes on Highway 111. A median will be installed on the main site driveway between the inbound and outbound lanes for a distance of 360 feet from Highway 111 to limit where motorists can turn across the opposing lanes and thereby minimize conflicts between motorists. This design will help to ensure an efficient flow of traffic entering and exiting the proposed development. The right-in/right-out driveway is designed with one inbound and one outbound lane.

SIGHT DISTANCE

Preliminary sight distance was reviewed at the site-access driveways to evaluate any existing sight distance obstructions present. Based on a review of the area, all site driveways can be constructed to meet sight distance requirements. To ensure adequate sight distance in the future, all landscaping along the site frontage and along the north side of Highway 111 should be trimmed and maintained, and landscaping near the driveways should be of non-sight obstructing varieties for a distance of 12 to 15 feet back of curb to ensure adequate sight distance for safe and easy flow of traffic. The site layout maintains a 50-foot setback from the right-of-way.

Section 10

Conclusions and Recommendations

Conclusions and Recommendations

CONCLUSIONS

Existing Conditions

During the weekday p.m. peak hour, all of the study area intersections currently operate within operating standards deemed acceptable by the City of La Quinta (LOS D or better).

2006 Background Traffic Conditions and Cumulative Impacts Without Proposed Costco/Komar Development

During the weekday p.m. peak hour, the study intersections are expected to operate acceptably in 2006 without site traffic with the exception of the following intersections:

- Highway 111/Dune Palms is estimated to operate at a LOS E; and
- Jefferson Street/Miles Avenue (unsignalized) is estimated to operate at a LOS F

2006 Total Traffic Conditions With Proposed Costco/Komar Development

A portion of Highway 111 is scheduled to be widened from four lanes to six lanes from Adams Street to Jefferson Street and is scheduled to occur in 2006. In addition, an improvement project to widen Jefferson Street from four to six lanes from Highway 111 to Fred Waring Drive is also scheduled to occur in 2006. This project will include the installation of a traffic signal at the Jefferson Street/Miles Avenue intersection.

An evaluation of the traffic operations at the intersections within the study area determined that minimal impacts occurred to the LOS and volume to capacity ratios. All of the study intersections are estimated to meet the City of La Quinta operating standards of LOS "D" or better with the planned roadway improvements in place. Caltrans MOE for LOS is met at the study intersections along Highway 111.

As part of the proposed Costco/Komar development, half of the street improvements on Highway 111 will be provided along the site frontage. This will include an additional eastbound through lane, a right-turn deceleration lane on Highway 111 at each of the site driveways, and dual left turn lanes on Highway 111 at Depot Drive.

Full Build Out of City with Proposed Costco/Komar Development in 2020

Based on the results of this study, the proposed Costco/Komar development can be developed while maintaining existing and forecasted traffic operations and safety at the study intersections. However, the following intersections operate at a LOS E or F and as a result of the proposed development, exceed the 0.02 increase in the V/C ratio:

- *Washington Street/Highway 111* – estimated to operate at LOS F with a 0.056 increase in the V/C ratio due to the development. The following improvements will be required to improve the intersection to LOS D:
    - Westbound - Add a separate westbound right-turn lane

- Eastbound - Modify the eastbound right-turn lane to function as a free-flow lane and add new southbound receiving/merging lane on Washington Street on the south side of the intersection.
- Northbound – Add a third left-turn lane.
- Southbound - Add a third left-turn lane and a fourth through lane (also requires a new southbound receiving lane on Washington Street on the south side of the intersection).

Implementation of the mitigation measures for this intersection may not be feasible due the substantial construction cost, and right-of-way restrictions. Further, because the project's contribution of trips to this intersection is minimal in comparison to the total number of trips at this location, it may not be legally feasible to require that these improvements, which are regional in nature, be addressed by the proposed development. If the City determines that these measures cannot be feasibly imposed upon this project, the intersection would operate at LOS F, and the impact of the proposed project would remain significant.

Mitigation specific to the project-specific incremental impact associated with the proposed development may be possible via re-striping the westbound #3 through-lane of Highway 111 to allow a separate westbound right-turn lane. This mitigation action would not achieve a level of service D but would adequately mitigate the project-specific incremental impact upon this intersection. This action would require Caltrans review and approval prior to implementation. While this improvement will mitigate the incremental impact associated with the proposed project, the intersection will continue to operate at a LOS F.

- *Highway 111/La Quinta Drive* - estimated to operate at a LOS E with a 0.027 increase in the V/C ratio. A separate eastbound right-turn lane would be required to improve the intersection operation to LOS D.

  The City has confirmed that this improvement will be constructed by the City of La Quinta, using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Dune Palms Rd* – estimated to operate at a LOS E with a 0.041 increase in V/C. A second southbound left-turn lane would be required to improve the intersection operation to LOS D.

  A commercial development (Sam's Club) is currently in process southwest of this intersection and will be responsible for constructing northbound dual left turn lanes at this intersection. If Caltrans does not require the southbound improvement as part of the Sam's Club improvements, and the improvements are not otherwise completed by other development, the City has confirmed that the City of La Quinta will complete the improvements using Measure A funds provided by the Riverside Transportation Commission, in conjunction with its Highway 111 improvement project scheduled for construction in 2006.

- *Highway 111/Jefferson St* – estimated to operate at a LOS D without the Costco/Komar development, and a LOS E with a 0.156 increase in V/C with the Costco/Komar development. A separate westbound right-turn lane, and provision for eastbound right-turn overlap phasing would be required to improve the intersection operation to LOS D.

These proposed mitigation improvements are located in the City of Indio. The Riverside County Transportation Commission has allocated $3.2 million in Measure A funds, and $1.5 million in Transportation Enhancement funds, which are currently available to the City of Indio for Highway 111 improvements that include the Highway 111/Jefferson Street intersection. As a result, the City of Indio should be able to construct these improvements. If for some reason beyond Indio's control, the public funding noted herein is not available to pay for these improvements, and Indio establishes an alternative program to spread the costs of these improvements across all new development that increases traffic volumes at this intersection, the developers of this project should be required to participate in such a program to fund their proportionate fair share cost of these improvements. If the improvements are not made, the intersection will operate at LOS E, and the impact of the proposed project would remain significant.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

- The proposed Costco/Komar development will provide a half street improvement on Highway 111 along the site frontage, including an additional eastbound through lane, a right-turn deceleration lane on Highway 111 at each of the site driveways, and dual left turn lanes on Highway 111 at Depot Drive.
- The traffic signal at the Highway 111/Depot Drive intersection will need to be modified to accommodate the road widening and turn lanes on Highway 111.
- The development should provide and maintain low growing landscaping in the vicinity of the site driveways and along the site frontage to Highway 111 for a distance of 12 to 15 feet back of curb to ensure adequate sight distance for safe and easy flow of traffic.

Section 11

References

References

1. Transportation Research Board. *Highway Capacity Manual*. 2000.
2. Institute of Transportation Engineers. *Trip Generation Handbook*. 2001.
3. Institute of Transportation Engineers. *ITE Trip Generation Manual, 7th Edition*. 2003.