Section 5.0
Environmental Analysis

5.0 ENVIRONMENTAL ANALYSIS

The following subsections of the EIR contain a detailed environmental analysis of the existing conditions, project impacts (including direct and indirect, short-term and long-term, and cumulative impacts), recommended mitigation measures, and unavoidable significant impacts. The EIR analyzes those environmental issue areas where potentially significant impacts have the potential to occur, as stated in Appendix 15.1, *Initial Study and Notice of Preparation*.

The EIR will examine environmental factors outlined in Appendix G of the *CEQA Guidelines*, *Environmental Checklist Form*, as follows:

5.1 Traffic and Circulation;
5.2 Air Quality;
5.3 Hydrology, Drainage, and Water Quality; and
5.4 Public Services and Utilities.

Each environmental issue is addressed in a separate section of the EIR and is organized into six sections, as follows:

- "Environmental Setting" describes the physical conditions that exist at the present time and that may influence or affect the issue under investigation.

- "Regulatory Setting" lists and discusses the laws, ordinances, regulations, and standards that apply to the project.

- "Impact Thresholds and Significance Criteria" provides the thresholds that are the basis of conclusions of significance, which are primarily the criteria in Appendix G of the *CEQA Guidelines* (California Code of Regulations, Sections 15000 – 15387).

  Primary sources used in identifying the criteria include the *CEQA Guidelines*; local, state, federal, or other standards applicable to an impact category; and officially established significance thresholds. ". . . An ironclad definition of significant effect is not possible because the significance of any activity may vary with the setting" (*CEQA Guidelines* Section 15064[b]). Principally, ". . . a substantial, or potentially substantial, adverse change in any of the physical conditions within an area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance" constitutes a significant impact (*CEQA Guidelines* Section 15382).

- "Impacts and Mitigation Measures" describes potential environmental changes to the existing physical conditions, which may occur if the proposed project is implemented. Evidence, based on factual and scientific data, is presented to show the cause and effect relationship between the proposed project and the potential changes in the environment. The exact magnitude, duration, extent, frequency, range, or other parameters of a potential impact are ascertained, to the extent possible, to determine whether impacts may be

significant; all of the potential direct and reasonably foreseeable indirect effects are considered.

Impacts are generally classified as potentially significant impact, less than significant impact, or no impact. The "Level of Significance After Mitigation" identifies the impacts that would remain after the application of mitigation measures, and whether the remaining impacts are or are not considered significant. When these impacts, even with the inclusion of mitigation measures, cannot be mitigated to a level considered less than significant, they are identified as "unavoidable significant impacts."

"Mitigation Measures" are project-specific measures that would be required of the project to avoid a significant adverse impact; to minimize a significant adverse impact; to rectify a significant adverse impact by restoration; to reduce or eliminate a significant adverse impact over time by preservation and maintenance operations; or to compensate for the impact by replacing or providing substitute resources or environment.

- "Cumulative Impacts" describes potential environmental changes to the existing physical conditions that may occur as a result of the proposed project together with all other reasonably foreseeable, planned, and approved future projects producing related or cumulative impacts.

- "Significant Unavoidable Impacts" describes impacts that would be significant and cannot be feasibly mitigated to less than significant, so would therefore be unavoidable. To approve a project with unavoidable significant impacts, the Lead Agency must adopt a Statement of Overriding Considerations. In adopting such a statement, the Lead Agency is required to balance the benefits of a project against its unavoidable environmental impacts in determining whether to approve the project. If the benefits of a project are found to outweigh the unavoidable adverse environmental effects, the adverse effects may be considered "acceptable" (*CEQA Guidelines* Section 15093[a]).

5.1 TRAFFIC AND CIRCULATION

This section is based upon the *Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis* (October 10, 2006) prepared by Urban Crossroads, which is included as Appendix 15.3, *Traffic Impact Analysis*. The purpose of the *Traffic Impact Analysis* is to evaluate development of the proposed Project from a traffic and circulation standpoint. The evaluation considers impacts on local roadways and intersections, as well as regional transportation facilities. Mitigation measures are recommended, if necessary, to avoid or reduce project impacts on traffic and circulation.

The following traffic analysis scenarios are evaluated in this study:

- 2006 Existing Conditions;
- 2030 Horizon Year Without Project Conditions (Without SR-62 Realignment); and
- 2030 Horizon Year With Project Conditions (With SR-62 Realignment).

The preparation of this traffic impact analysis is in conformance with the requirements of the San Bernardino County Congestion Management Program (CMP).

5.1.1 EXISTING SETTING

ANALYSIS METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with the San Bernardino County Congestion Management Program (CMP). Both the overall methodologies used to develop future traffic volume forecasts, and the explicit traffic operations analysis methodologies, are summarized below.

Overall Analysis Methodology

Traffic conditions are evaluated in this report for both existing conditions and two future horizon year conditions. Urban Crossroads conducted the actual traffic counts to quantify existing traffic conditions. At the direction of the CMP, the analysis considers the weekday AM and PM peak hours of traffic.

The refined future peak hour forecasts are developed in a manner consistent with the National Cooperative Highway Research Program (NCHRP Report 255), using the collected existing peak-hour data. The recommended post-processing procedure is described in Appendix 15.3.

The Morongo Basin Transportation Model (MBTM) has been reviewed to evaluate the representation of other planned development projects within the Town of Yucca Valley. The other development projects include the Mountain Vista at Western Hills

Ranch residential development, the Yucca Valley Retail Center, the K-Mart Reuse project, the Home Depot project, and several other projects; refer to Section 4.0, *Cumulative Projects*.

The growth in socio-economic data (SED) between the baseline and horizon years for the traffic analysis zones (TAZs) containing these respective projects was assessed and modified to ensure proper representation of the planned development projects in the MBTM.

The TAZ structure for the MBTM has been reviewed within the Old Town Specific Plan Area (SPA). The initial TAZ structure for the MBTM has the same TAZ boundaries as the current San Bernardino Associated Governments (SANBAG) model. Under the initial structure, a total of ten TAZs comprise the Old Town SPA (as well as a portion of the surrounding area). These TAZs have been subdivided into 52 TAZs, 44 of which represent the Old Town SPA in its entirety, to better represent the proposed land use patterns and circulation features (including the SR-62 realignment) for the proposed Project under 2030 Horizon Year With Project conditions. This refined TAZ structure was then adopted for both the Existing (baseline) and 2030 Horizon Year Without Project conditions, so that a comparison of the Old Town SPA traffic characteristics across analysis conditions would yield meaningful results.

The traffic volume projections for the 2030 Horizon Year With Project condition were estimated via the MBTM. Given that there are existing land uses in the Old Town SPA that generate traffic, the proposed Old Town SPA Project trips are not the total trips resulting from the planned land uses, but rather the difference between the future trips and the existing trips. The net Project trips have been calculated by subtracting the trips generated in the SPA under Existing (baseline) conditions from the trips projected to be generated by the SPA under 2030 Horizon Year With Project conditions. A select zone (trip distribution) analysis for the proposed Specific Plan development was then performed using the MBTM under 2030 Horizon Year With Project conditions. The Project only traffic forecasts have been generated by applying the net Project trip generation, distribution, and traffic assignment calculations.

The 2030 Horizon Year Without Project traffic volumes have also been derived from the MBTM. As stated previously, the TAZ structure for the Old Town SPA has been subdivided in the same manner for all analysis conditions. The land uses proposed in the currently adopted Town of Yucca Valley General Plan for the area were used to replace the regional SED presently included in the model. The roadway network structure, however, was not changed to include the realignment of SR-62, and therefore is the same as the structure under Existing (baseline) conditions.

Flow conservation checks and forecast adjustments were performed as necessary to ensure that all future 2030 Horizon Year traffic volume forecasts are reasonable. The result of this traffic forecasting procedure is a series of traffic volumes suitable for traffic operations analysis.

Traffic Operations Analysis

The current technical guide to the evaluation of traffic operations is the *2000 Highway Capacity Manual* (HCM) (Transportation Research Board Special Report 209). The HCM defines level of service as a qualitative measure, which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate Level of Service (LOS) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted.

The definitions of level of service for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The levels of service determined in this study are calculated using the HCM methodology.

For signalized intersections, average stopped delay per vehicle for the overall intersection is used to determine level of service. Levels of service at signalized study intersections have been evaluated using an HCM intersection analysis program.

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the traffic flow along the major street. The AWS controlled intersection has been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The level of service for this type of intersection analysis is also based on average stopped delay per vehicle for the overall intersection.

Study area intersections, which are stop sign controlled with stop-control on the minor street only (cross street stop [CSS]), have been analyzed using the two-way stop-controlled unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow along the major street.

The level of service has been calculated using data collected describing the intersection configuration and traffic volumes at signalized locations to calculate average intersection delay. The level of service for unsignalized intersections with stop control on the minor street is based on the stopped delay per vehicle for the worst minor street movement(s).

The levels of service are defined in Table 5.1-1, *Level of Service Definitions*, in terms of average delay for the intersection analysis methodology as follows:

Table 5.1-1
Level of Service Definitions

Level of Service	Average Total Delay Per Vehicle (seconds)	
	Signalized	Unsignalized
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

Per CMP guidelines, signalized intersections are considered deficient (LOS "F") if the overall intersection critical volume-to-capacity *(V/C)* ratio exceeds 1.0, even if the level of service defined by the delay value is below the defined LOS standard. The *V/C* ratio is defined as the critical volumes divided by the intersection capacity. A *V/C* ratio greater than 1.0 implies an infinite queue.

A level of service analysis must be conducted on all existing segments and intersections on the CMP network potentially impacted by the project or plan (as defined by the thresholds in Section 1B of the 2005 San Bernardino CMP). Urban segments (i.e., segments on roadways that are generally signalized) do not require segment analysis. Segment requirements can normally be determined by the analysis of lane requirements at intersections.

The LOS analysis for signalized intersections has been performed using optimized signal timing. This analysis has included an assumed lost time of two seconds per phase in accordance with San Bernardino CMP recommended default values. Signal timing optimization has considered pedestrian safety and signal coordination requirements. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis.

The following formula has been used to calculate the pedestrian minimum times for all HCM runs, pursuant to the 2003 Manual of Uniform Traffic Control Devices (MUTCD):

[(Curb-to-Curb distance) / (4 feet/second)] + 5 seconds]

Saturation flow rates of 1,800 vehicles per hour of green (vphg) for through and right-turn lanes and 1,700 vphg for single left-turn lanes, 1,600 vphg per lane for dual left-turn lanes, and 1,500 vphg per lane for triple left-turn lanes have been assumed for all capacity analysis under 2006 Existing conditions. Under 2030 Horizon Year conditions, saturation flow rates of 1,900 vphg for through and right-turn lanes and 1,800 vphg for single left-turn lanes, 1,700 vphg per lane for dual left-turn lanes, and 1,600 vphg per lane for triple left-turn lanes have been assumed. These are the default values recommended by the CMP guidelines.

As required by the San Bernardino CMP, the peak-hour traffic volumes have been adjusted to peak 15 minute volumes for analysis purposes using the existing observed peak 15 minute to peak hour factors for all scenarios analyzed. Where feasible improvements, in accordance with the local jurisdiction's General Plan, which result in acceptable operations cannot be identified, the 2030 peak-hour factor has been adjusted upwards to 0.95. This is specifically allowed in the San Bernardino CMP guidelines to account for the effects of congestion on peak spreading under future year conditions. Peak spreading refers to the tendency of traffic to spread more evenly across time as congestion increases.

EXISTING ROADWAY SYSTEM AND DAILY TRAFFIC VOLUMES

Study Area

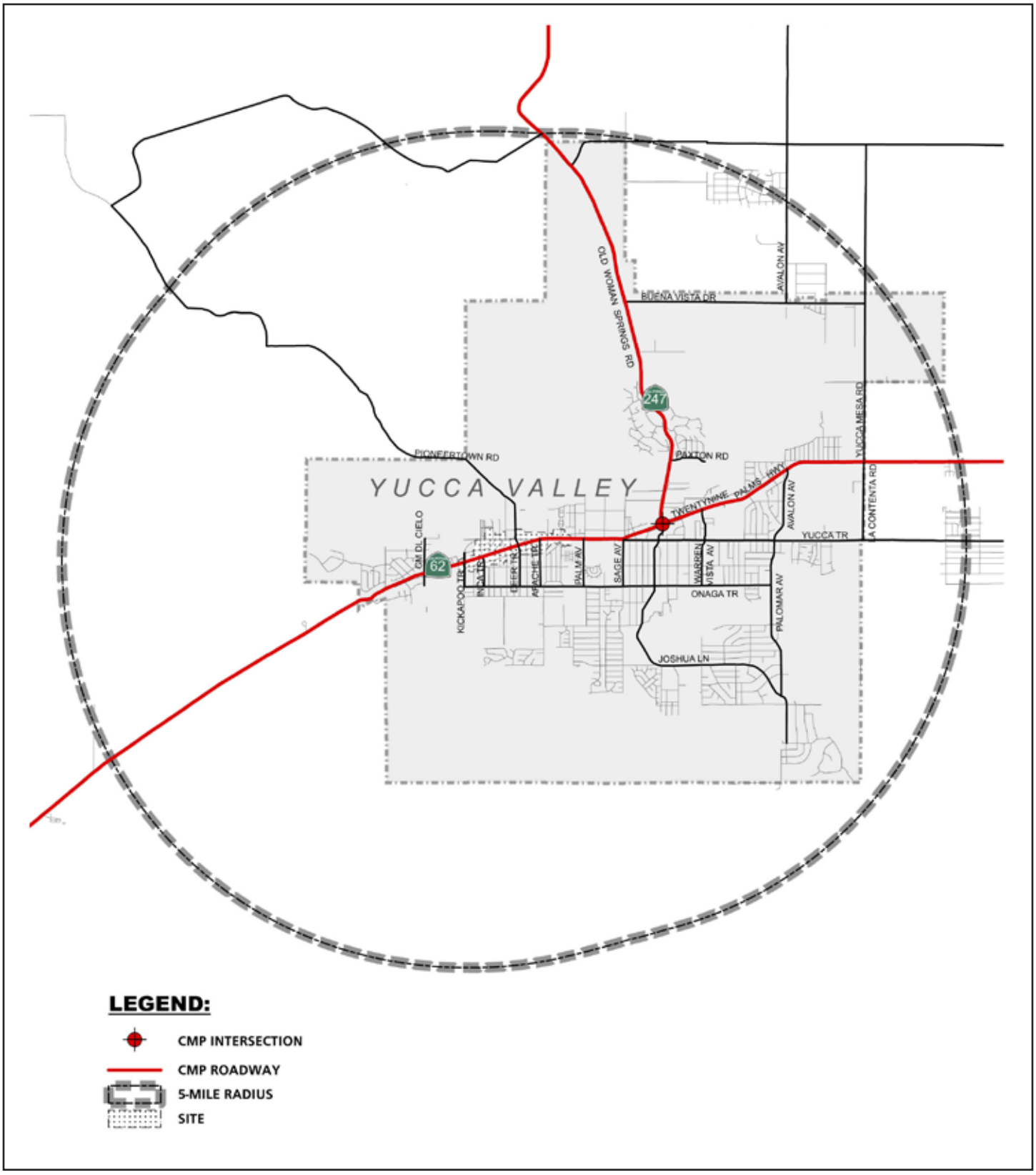
The overall study area evaluated in this traffic impact analysis is illustrated on Exhibit 5.1-1, *San Bernardino County Network*, which also identifies all CMP roadways within the study area. The roadway elements, which must be analyzed in accordance with CMP requirements, are dependent on both the analysis year (project Interim Year or CMP Horizon Year) and project-generated traffic volumes.

Twentynine Palms Highway (SR-62) and Old Woman Springs Road (SR-247) provide regional access to the site. Various arterial roadways in the vicinity of the Project area provide local access. The local arterials which would be most affected by the proposed Project include Yucca Trail, Pioneertown Road/Deer Trail, Santa Fe Trail, Kickapoo Trail, and Acoma Trail.

A series of scoping discussions were conducted with Town of Yucca Valley staff in order to define the desired (local agency required) analysis locations for existing and future analysis conditions. The 2030 Horizon Year analysis locations required by the CMP can only be determined once the project 2030 project-related traffic volumes have been developed. This information will be presented in subsequent sections of this report.

The number of through travel lanes for existing roadways and existing intersection controls within the study area are presented on Exhibit 5.1-2, *Number of Through Lanes and Intersection Controls – Existing*. Roadway median treatments are also depicted on Exhibit 5.1-2. A divided roadway has a median that is either painted or physically separated (raised concrete island or curbs). Exhibit 5.1-3, *Average Daily Traffic – Existing*, depicts the current average daily traffic (ADT) volumes in the study area. Existing ADT volumes have been obtained from the latest automatic traffic recorder counts (see Appendix 15.3) or have been estimated by factoring up peak hour counts conducted for Urban Crossroads using the following formula for each intersection leg:

[(AM Peak Hour + PM Peak Hour Intersection L_{eg} Volumes) / (6.2% + 7.9%) = (Daily L_{eg} Volume)]



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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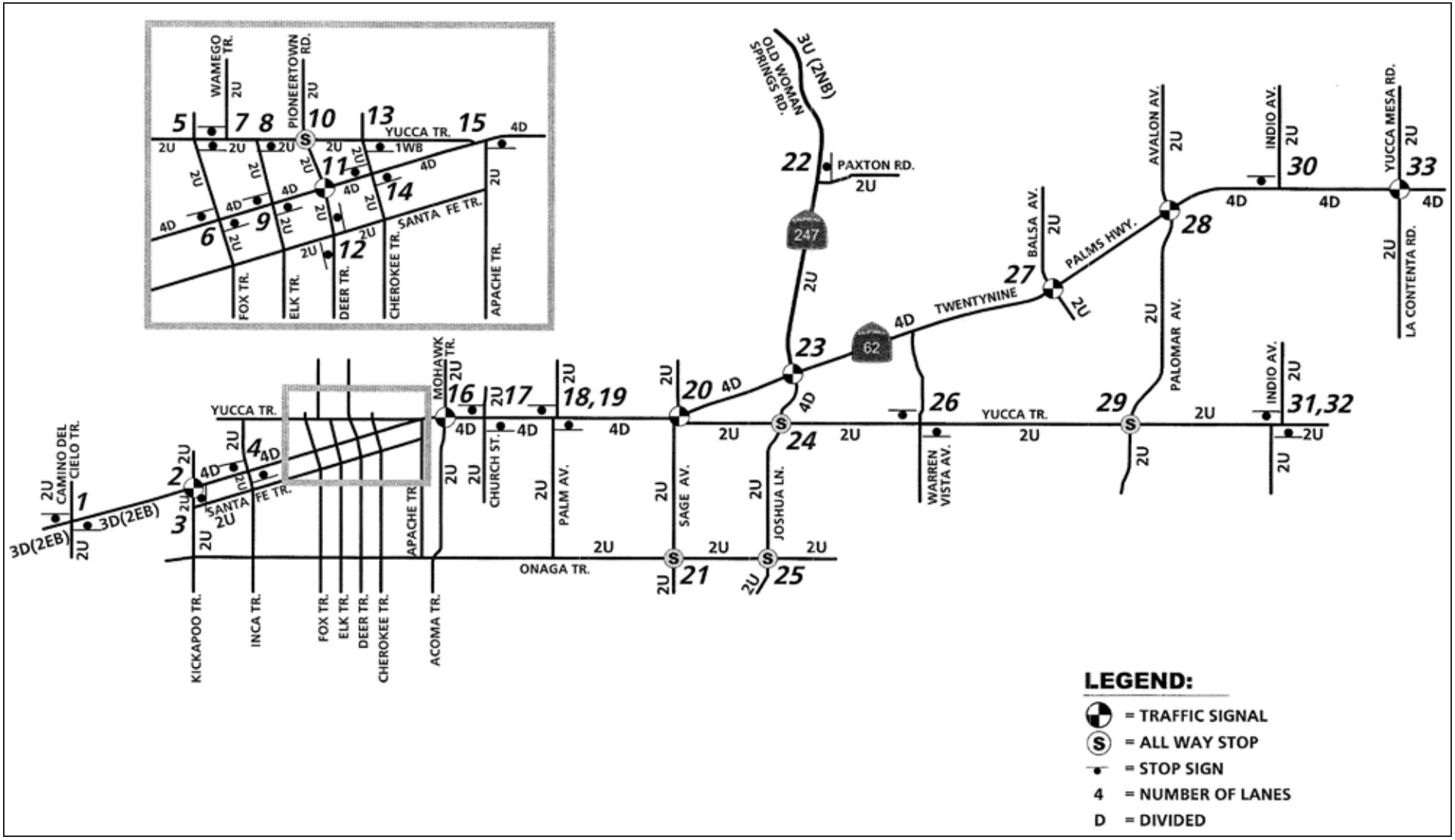
San Bernardino County Network

Exhibit 5.1-1



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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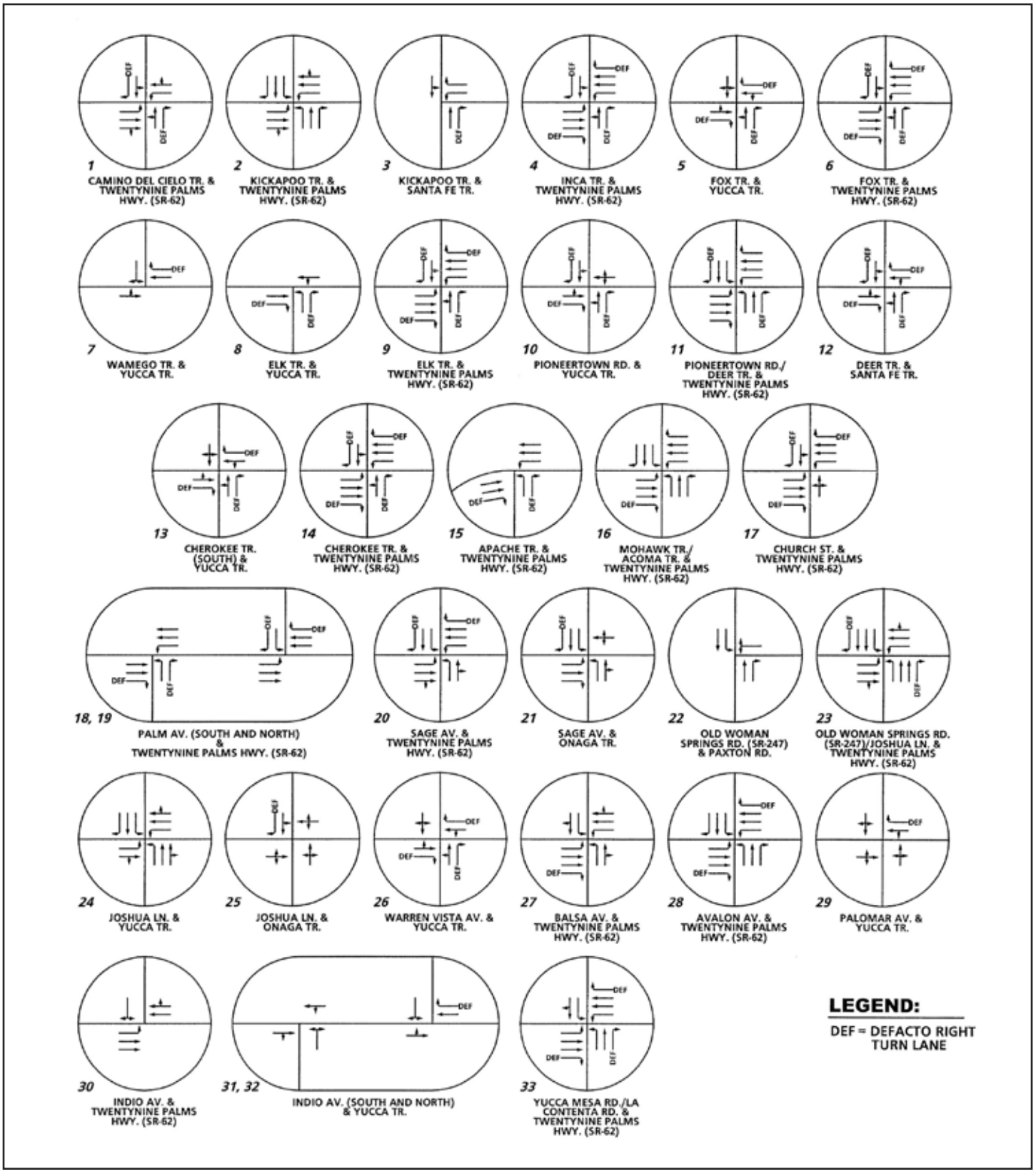
Number of Through Lanes and Intersection Controls - Existing

Exhibit 5.1-2a



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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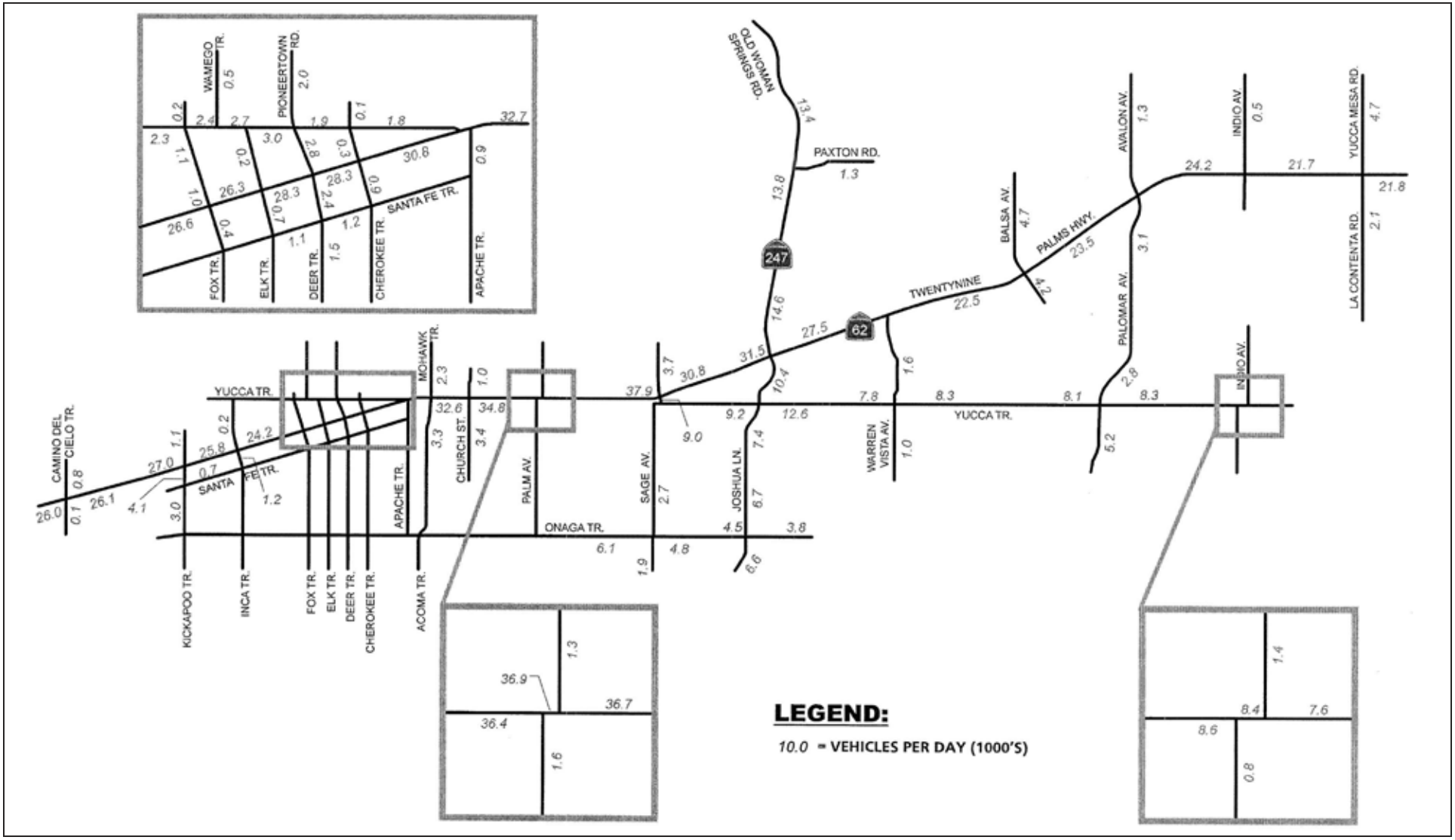
Number of Through Lanes and Intersection Controls - Existing

Exhibit 5.1-2b



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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Average Daily Traffic - Existing

Exhibit 5.1-3

In the above formula, the constants of 6.2 percent and 7.9 percent are calculated AM and PM Peak Hour to ADT ratios based on the actual count data collected and included in Appendix 15.3. Daily traffic volumes in the study area range from less than 1,000 vehicles per day (VPD) to a maximum volume of 37,900 VPD on SR-62 (west of Sage Avenue). The daily traffic volumes on SR-62 range between 21,700 VPD (east of Indio Avenue) to the previously mentioned maximum of 37,900 VPD. Old Woman Springs Road and Joshua Tree Lane are the only other roadways in the study area that carry daily traffic volumes in excess of 10,000 VPD under existing conditions.

Major Roadways

The characteristics of the major roadways in the vicinity of the Project area are described below:

- Twentynine Palms Highway/State Route 62 (SR-62) is a four-lane divided roadway from Kickapoo Trail throughout the Old Town area and surrounding study area to the east. West of Kickapoo Trail, SR-62 transitions to a three-lane divided facility with two through lanes eastbound and one through lane westbound. SR-62 provides regional access to the Project area.

- Yucca Trail is a four-lane east-west roadway, designated by the General Plan as an Industrial roadway; on-street parking is prohibited.

- Onaga Trail is a two-lane undivided roadway. On-street parking is permitted.

- Kickapoo Trail is a two-lane undivided roadway, which is designated as a two-lane Collector roadway between Yucca Trail and Santa Fe Trail, and a four-lane Collector roadway between Santa Fe Trail and Onaga Trail.

- Pioneertown Road/Deer Trail is a two-lane undivided roadway, which is designated as four-lane Collector roadway from the Town boundary to Onaga Trail; on-street parking is permitted south of Yucca Trail.

- Acoma Trail is a two-lane undivided roadway, which is designated as a four-lane Collector roadway south of Twentynine Palms Highway (SR-62).

- Santa Fe Trail is a two-lane undivided roadway, which is designated as a four-lane Collector roadway between Kickapoo Trail and Acoma Trail.

- Joshua Tree Lane south of Twentynine Palms Highway (SR-62) is a four-lane divided roadway, which is designated as a four-lane Divided Arterial; on-street parking is prohibited.

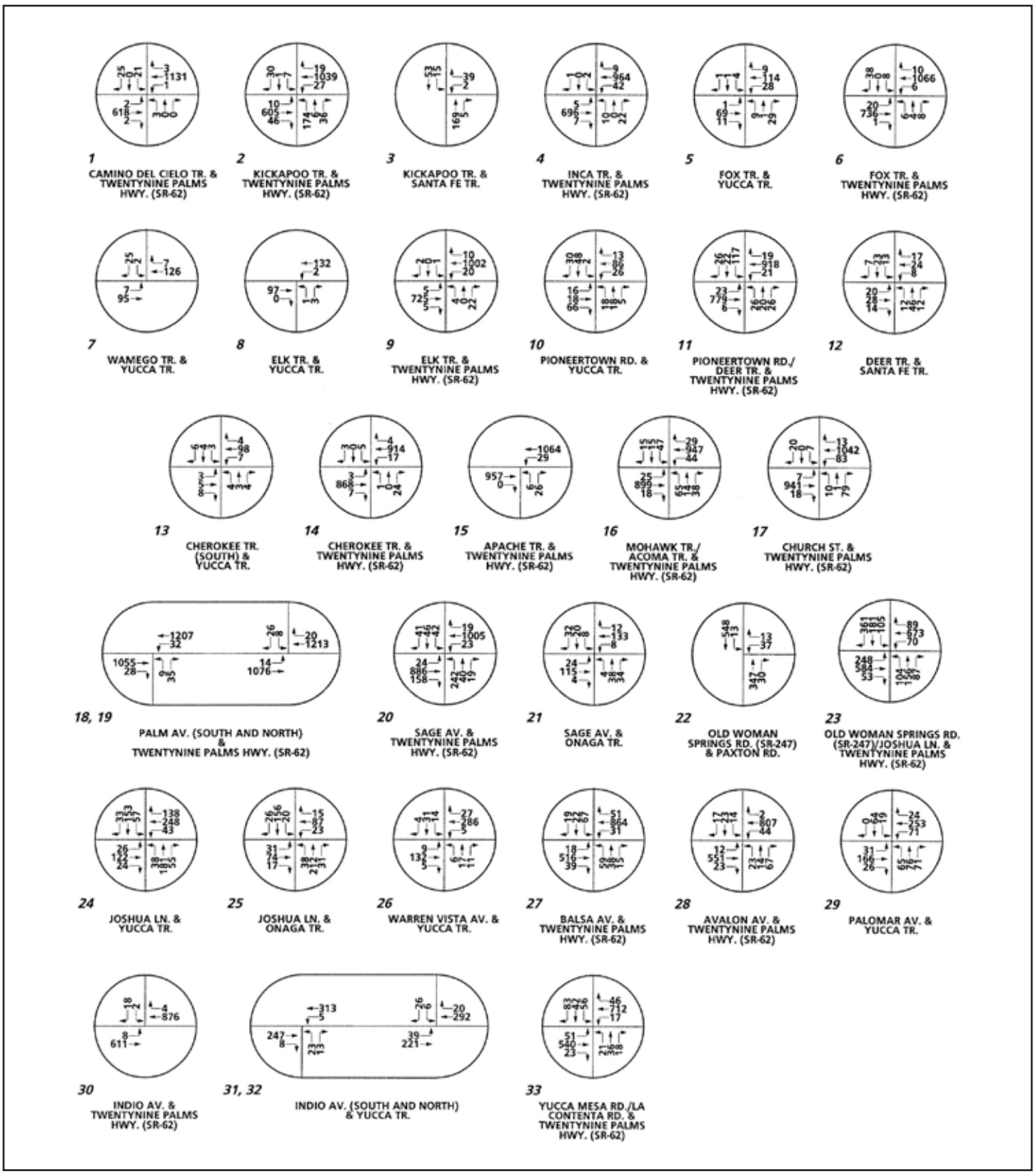
Study Intersections

The Town of Yucca Valley (Town) has identified the following 33 intersections for analysis in this study, based on the roadways that would carry most of the Project-generated traffic. These intersections (shown on Exhibit 5.1-2) are as follows:

- Camino del Cielo/Twentynine Palms Highway (SR-62);
- Kickapoo Trail/Twentynine Palms Highway (SR-62);
- Kickapoo Trail/Santa Fe Trail;
- Inca Trail/Twentynine Palms Highway (SR-62);
- Fox Trail/Yucca Trail;
- Fox Trail/Twentynine Palms Highway (SR-62);
- Wamego Trail/Yucca Trail;
- Elk Trail/Yucca Trail;
- Elk Trail/Twentynine Palms Highway (SR-62);
- Pioneertown Road/Yucca Trail;
- Pioneertown Road, Deer Trail/ Twentynine Palms Highway (SR-62);
- Deer Trail/Santa Fe Trail;
- Cherokee Trail/Yucca Trail;
- Cherokee Trail/Twentynine Palms Highway (SR-62);
- Apache Trail/Twentynine Palms Highway (SR-62);
- Acoma Trail/Twentynine Palms Highway (SR-62);
- Church Street/Twentynine Palms Highway (SR-62);
- Palm Avenue (South)/Twentynine Palms Highway (SR-62);
- Palm Avenue (North)/Twentynine Palms Highway (SR-62);
- Sage Avenue/Twentynine Palms Highway (SR-62);
- Sage Avenue/Onaga Trail;
- Old Woman Springs Road (SR-247)/Paxton Road;
- Old Woman Springs Road (SR-247), Joshua Tree Lane/Twentynine Palms Highway (SR-62);
- Joshua Tree Lane/Yucca Trail;
- Joshua Tree Lane/Onaga Trail;
- Warren Vista Avenue/Yucca Trail;
- Balsa Avenue/Twentynine Palms Highway (SR-62);
- Avalon Avenue/Twentynine Palms Highway (SR-62);
- Palomar Avenue/Yucca Trail;
- Indio Avenue/Twentynine Palms Highway (SR-62);
- Indio Avenue(South)/Yucca Trail;
- Indio Avenue(North)/Yucca Trail; and
- Yucca Mesa Road, La Contenta Road/Twentynine Palms Highway (SR-62).

EXISTING PEAK-HOUR TRAFFIC VOLUMES

The existing AM and PM peak-hour intersection turning movement volumes are presented on Exhibit 5.1-4, *AM Peak Hour Intersection Volumes – Existing*, and Exhibit 5.1-5, *PM Peak Hour Intersection Volumes – Existing*, respectively. The peak-hour volumes in the study area exhibit the same types of trends (in terms of magnitude) described for daily traffic volumes. Peak-hour directional flows are generally balanced along SR-62 from Cherokee Trail to the east. A greater imbalance occurs at the western portion of the study area, with a predominant westbound flow in the morning peak hour, mirrored by a predominant (although less imbalanced) eastbound flow in the evening peak hour.



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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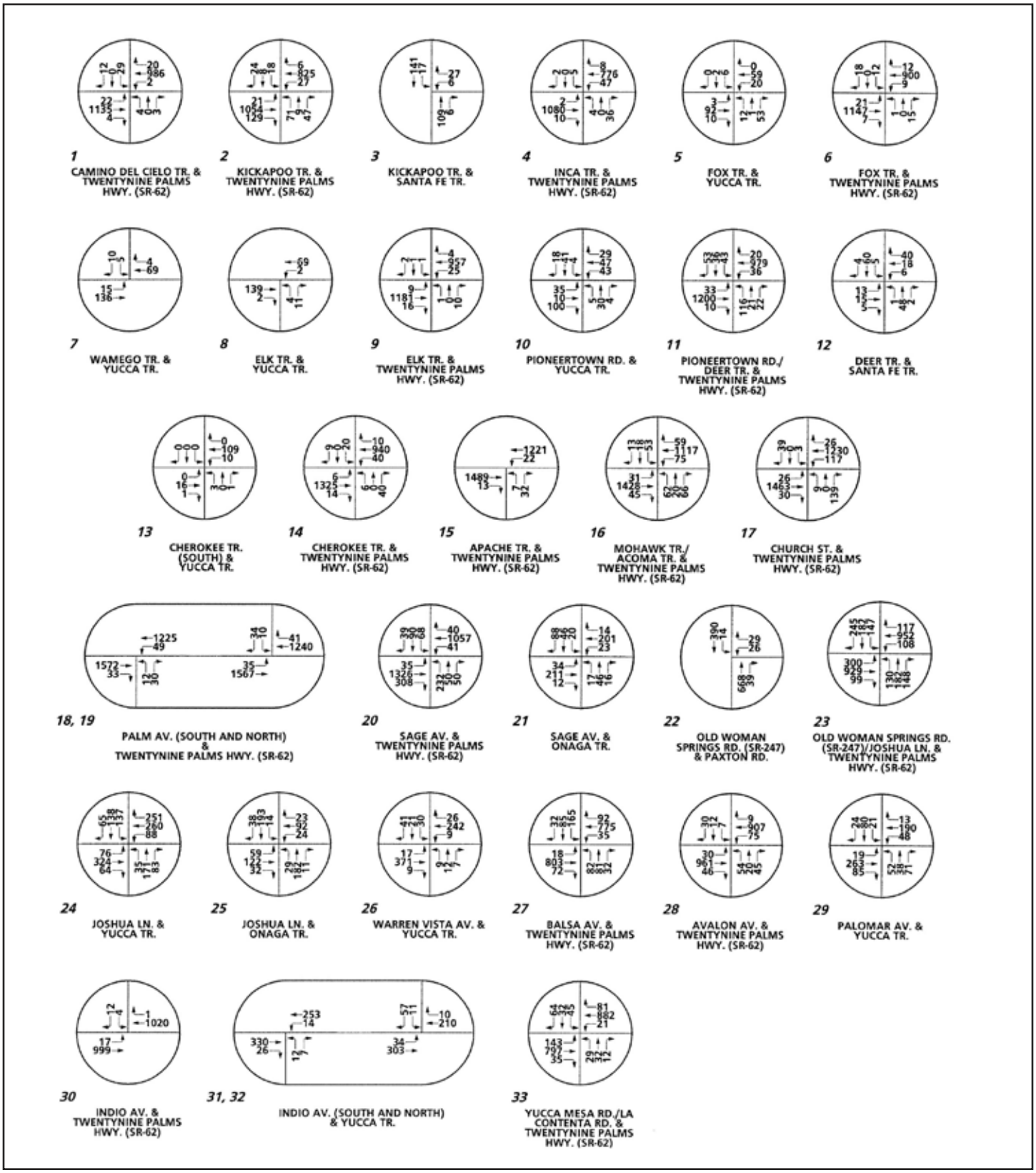
AM Peak Hour Intersection Volumes - Existing

Exhibit 5.1-4



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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PM Peak Hour Intersection Volumes - Existing

Exhibit 5.1-5

Existing intersection level of service calculations are based upon manual AM and PM peak-hour turning movement counts conducted specifically for Urban Crossroads (traffic count worksheets are included in Appendix 15.3). The AM peak-hour traffic volumes were determined by counting the two-hour period from 7:00 AM to 9:00 AM on a typical weekday. Similarly, counting the two-hour period from 4:00 PM to 6:00 PM on a typical weekday identified the PM peak-hour traffic volumes. Per Town direction, the counts include the vehicle classification as shown below per the requirements of SANBAG and the San Bernardino CMP.

- Passenger cars;
- Buses/recreational vehicles (2-axle);
- 3-axle heavy vehicles; and
- 4+-axle heavy vehicles.

The overall existing count volumes illustrated on the exhibits and used for the analysis for the study are calculated passenger car equivalent (PCE) volumes. Explicit peak-hour factors have been calculated using the data collected for this effort as well.

EXISTING TRAFFIC OPERATIONS

Existing peak-hour traffic operations have been evaluated for both the AM and PM peak hours of traffic at the study area intersections. The results of this analysis are summarized in Table 5.1-2, *Intersection Analysis – Existing*, along with the existing intersection geometrics and control devices at each analysis location.

Table 5.1-2
Intersection Analysis – Existing

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay[2] (seconds)	LOS	Delay[2] (seconds)	LOS
Camino del Cielo Trail (NS) at:					
• Twentynine Palms Hwy. (SR-62) (EW)	**CSS**	**–[3]**	**F**	**–[3]**	**F**
Kickapoo Trail (NS) at:					
• Twentynine Palms Hwy. (SR-62) (EW)	TS	19.5	B	18.2	B
• Santa Fe Trail (EW)	CSS	10.3	B	10.7	B
Inca Trail (NS) at:					
• Twentynine Palms Hwy. (SR-62) (EW)	CSS	66.9	F	67.0	F
Fox Trail (NS) at:					
• Yucca Trail (EW)	CSS	11.0	B	10.9	B
• Twentynine Palms Hwy. (SR-62) (EW)	CSS	**96.5**	**F**	**76.6**	**F**
Wamego Trail (NS) at:					
• Yucca Trail (EW)	CSS	9.3	A	9.3	A
Elk Trail (NS) at:					
• Yucca Trail (EW)	CSS	10.1	B	9.8	A
• Twentynine Palms Hwy. (SR-62) (EW)	CSS	**53.4**	**F**	**–[3]**	**F**
Pioneertown Road (NS) at:					
• Yucca Trail (EW)	AWS	8.5	A	8.5	A
Pioneertown Road/Deer Trail (NS) at:					
• Twentynine Palms Hwy. (SR-62) (EW)	TS	9.7	A	10.6	B

Table 5.1-2 [continued]
Intersection Analysis – Existing

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay[2] (seconds)	LOS	Delay[2] (seconds)	LOS
Deer Trail (NS) at: • Santa Fe Trail (EW)	CSS	10.2	B	10.3	B
Cherokee Trail (South) (NS) at: • Yucca Trail (EW)	CSS	9.7	A	9.5	A
Cherokee Trail (South) (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	**55.2**	**F**	–[3]	**F**
Apache Trail (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	**48.6**	**F**	–[3]	**F**
Mohawk Trail/Acoma Trail (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	TS	17.7	B	19.6	B
Church Street (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	–[3]	**F**	–[3]	**F**
Palm Avenue (South) (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	**81.0**	**F**	–[3]	**F**
Palm Avenue (North) (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	**76.8**	**F**	–[3]	**F**
Sage Avenue (NS) at: • Twentynine Palms Hwy. (SR-62) (EW) • Onaga Trail (EW)	TS AWS	12.5 8.9	B A	12.6 11.2	B B
Old Woman Springs Road (SR-247) (NS) at: • Paxton Road (EW)	CSS	20.1	C	20.6	C
Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at: • Twentynine Palms Highway (SR-62) (EW)	TS	24.0	C	26.5	C
Joshua Tree Lane (NS) at: • Yucca Trail (EW) • Onaga Trail (EW)	AWS AWS	13.7 12.2	B B	32.8 11.2	D B
Warren Vista Avenue (NS) at: • Yucca Trail (EW)	CSS	15.8	C	17.3	C
Balsa Avenue (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	TS	19.4	B	20.5	C
Avalon Avenue (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	TS	19.7	B	20.3	C
Camino del Cielo Trail (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	**CSS**	–[3]	**F**	–[3]	**F**
Palomar Avenue (NS) at: • Yucca Trail (EW)	AWS	15.7	C	13.1	B
Indio Avenue (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	CSS	14.0	B	23.0	C
Indio Avenue (South) (NS) at: • Yucca Trail (EW)	CSS	14.0	B	14.5	B
Indio Avenue (North) (NS) at: • Yucca Trail (EW)	CSS	11.9	B	11.5	B
Yucca Mesa Road/La Contenta Road (NS) at: • Twentynine Palms Hwy. (SR-62) (EW)	TS	17.7	B	19.4	B

1. CSS = Cross Street Stop; TS = Traffic Signal; AWS = All-Way Stop.
2. Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.
3. – = Delay High or V/C Ratio exceeding 1.0, Intersection Unstable, Level of Service "F".

As indicated in Table 5.1-2, according to Town of Yucca Valley performance criteria, all study intersections are currently operating at an acceptable LOS (LOS D or better) during the peak hours except for the following intersections:

- Camino del Cielo Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Inca Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Fox Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Elk Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Cherokee Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Apache Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Church Street (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (South) (NS) at Twentynine Palms Highway (SR-62) (EW); and
- Palm Avenue (North) (NS) at Twentynine Palms Highway (SR-62) (EW).

The operations analysis worksheets for existing conditions are included in Appendix 15.3. In general, existing traffic operations deficiencies occur at full access intersections with cross street STOP control along SR-62 in the vicinity of the Downtown area.

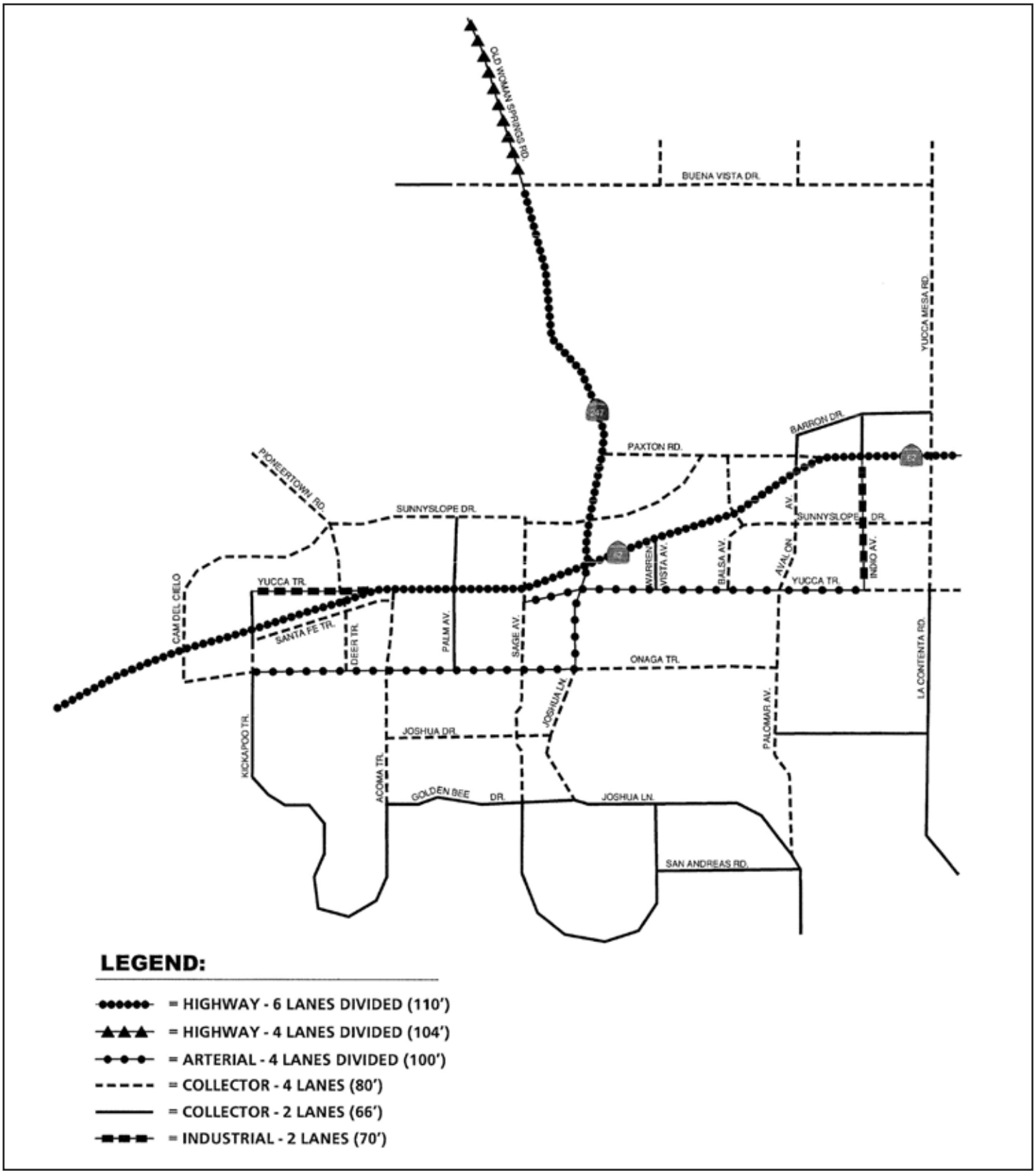
Traffic signal warrant analysis indicates that the following intersections appear to warrant a traffic signal under existing conditions (see Appendix 15.3):

- Inca Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Cherokee Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Church Street (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (South) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (North) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Joshua Tree Lane (NS) at Yucca Trail (EW); and
- Palomar Avenue (NS) at Yucca Trail (EW).

Additional signal warrant analysis (also included in Appendix 15.3) has been conducted for intersections potentially requiring traffic signal installation. The additional analysis indicates that no other traffic signals are currently warranted. Traffic signals are warranted at many (but not all) of the intersections experiencing deficient operations, as well as at some other intersections currently under all-way stop control.

PLANNED TRANSPORTATION IMPROVEMENTS AND RELATIONSHIP TO GENERAL PLAN

The long-range transportation system within the study area is expected to undergo significant improvement as a result of work to be performed by the California Department of Transportation (Caltrans) and the Town of Yucca Valley. The Town of Yucca Valley General Plan Circulation Element and General Plan roadway cross-sections are shown on Exhibit 5.1-6, *Town of Yucca Valley General Plan Circulation Element*, and Exhibit 5.1-7, *Town of Yucca Valley General Plan Roadway Cross-Sections*, respectively. The currently adopted General Plan does not include the proposed realignment of SR-62 along the existing Yucca Trail alignment and is used as the planned roadway system for the 2030 Horizon Year Without Project condition



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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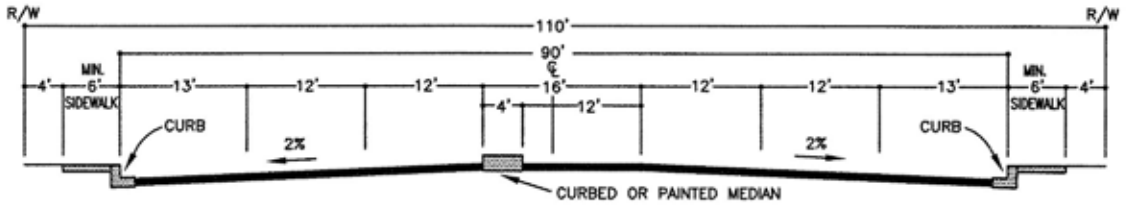
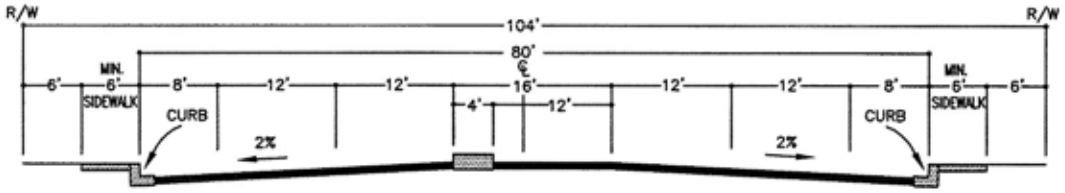
Town of Yucca Valley General Plan Circulation Element

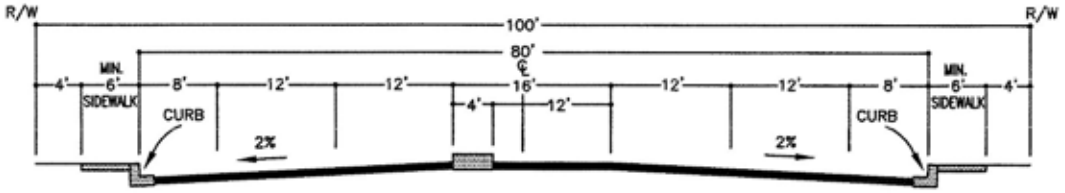
Exhibit 5.1-6



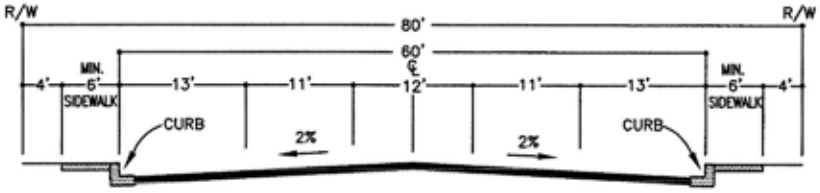
HIGHWAY - 6 LANES DIVIDED



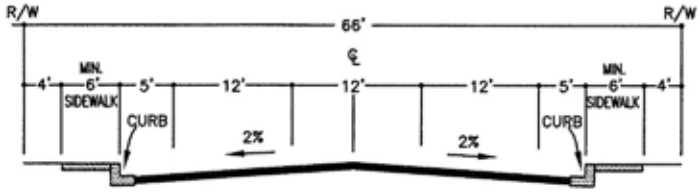
HIGHWAY - 4 LANES DIVIDED



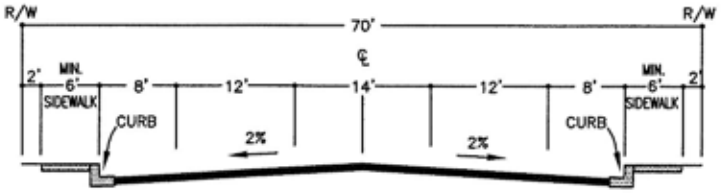
ARTERIAL - 4 LANES DIVIDED



COLLECTOR - 4 LANES (WITH OPTIONAL STRIPED MEDIAN LANE)



COLLECTOR - 2 LANES (WITH OPTIONAL STRIPED MEDIAN LANE)



INDUSTRIAL - 2 LANES (WITH STRIPED MEDIAN LANE)

*PART WIDTH STREET SECTION FOR ALL COLLECTOR STREETS - 34' IMPROVEMENTS ON 48' R/W

SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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Town of Yucca Valley General Plan Roadway Cross-Sections

Exhibit 5.1-7

in this analysis. In the currently adopted General Plan, Kickapoo Trail, between Yucca Trail and Santa Fe Trail, is designated as a 2-lane Collector roadway, becoming a 4-lane Collector roadway between Santa Fe Trail and Onaga Trail. Pioneertown Road/Deer Trail are designated as 4-lane Collector roadways from the Town boundary to Onaga Trail. Acoma Trail, south of Twentynine Palms Highway (SR-62), is designated as a 4-lane Collector roadway. Yucca Trail, west of Twentynine Palms Highway (SR-62), is designated as a 2-lane Industrial roadway. Twentynine Palms Highway (SR-62), throughout the Town of Yucca Valley, is designated as a 6-lane Divided Highway. Santa Fe Trail, between Kickapoo Trail and Acoma Trail, is designated as a 4-lane Collector roadway.

The County of San Bernardino General Plan Circulation Element and General Plan roadway cross-sections in the vicinity of the proposed project are depicted on Exhibit 5.1-8, *County of San Bernardino General Plan Circulation Element*, and Exhibit 5.1-9, *County of San Bernardino General Plan Roadway Cross-Sections*, respectively. Pioneertown Road is the only roadway within the study area that is given a specific designation on the County plan (SR-62 and SR-247 are simply identified as "highways"). The County's designation of Pioneertown Road as a Secondary Highway is generally consistent with the Town of Yucca Valley's designation as a 4-lane Collector Roadway. Both classifications provide for a 4-lane, undivided roadway. The Town's designation provides for a right-of-way of 80 feet, while the County designation calls for an 88-foot right-of-way.

Funded Roadway Improvements

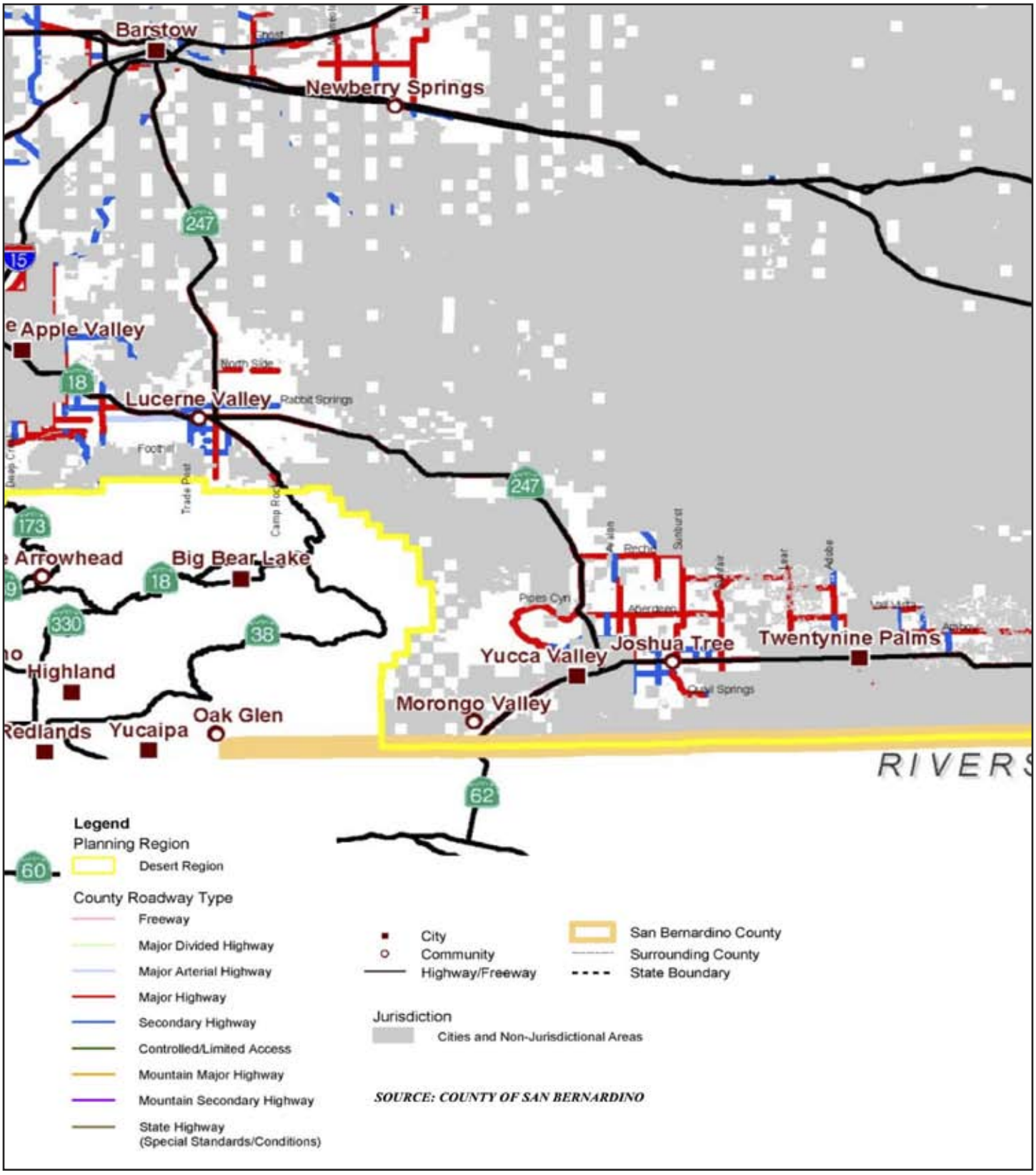
No committed sources of funding for additional improvements necessary to serve the increase in traffic other than the Town of Yucca Valley fee program or improvements that would occur in conjunction with other cumulative projects have been identified while conducting the study. A number of other known development projects are anticipated within the study area.

ALTERNATIVE TRANSPORTATION

The Morongo Basin Transit Authority serves the Town of Yucca Valley with commuter, local, senior, disabled, and paratransit services. Refer to Section 10.0, *Effects Found Not to Be Significant*, for further discussion regarding alternative transportation.

5.1.2 REGULATORY SETTING

The preparation of this traffic impact analysis is in conformance with the requirements of the San Bernardino County Congestion Management Program (CMP). Exhibit 5.1-1, *San Bernardino County CMP Network*, depicts the CMP roadway network and potential study area limits. The CMP requires no analysis further than five (5.0) miles from the Project site or where fewer than 50 peak hour Project trips are added to a CMP intersection or fewer than 100 peak hour Project trips (two-way) are added to freeway links. The CMP requires both an Interim Year analysis and a CMP Horizon Year analysis. However, as this project is a Specific Plan and involves an amendment to the currently adopted *General Plan*, the CMP Horizon Year also serves as the Project Opening Year (Interim Year).



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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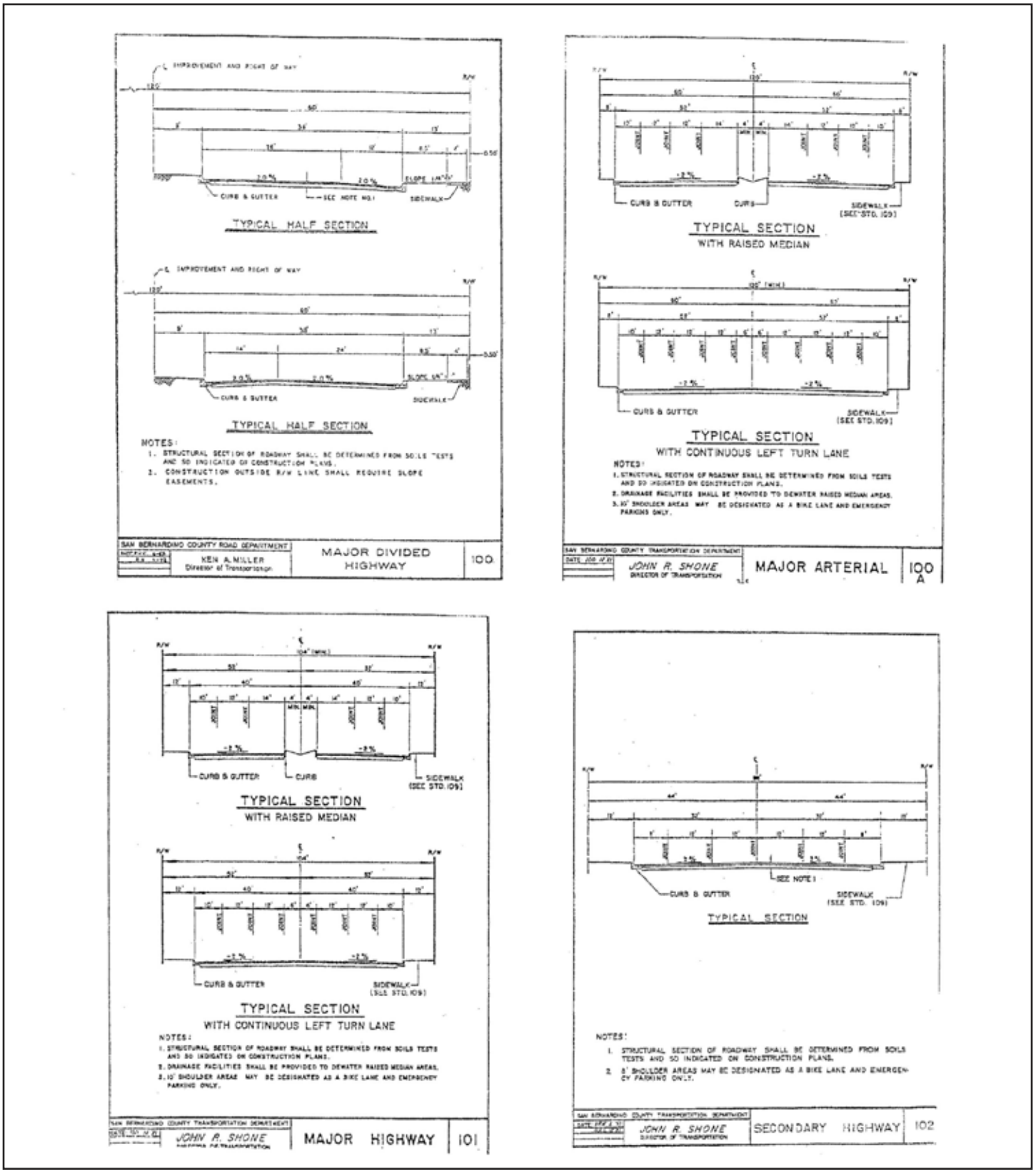
County of San Bernardino General Plan Circulation Element

Exhibit 5.1-8



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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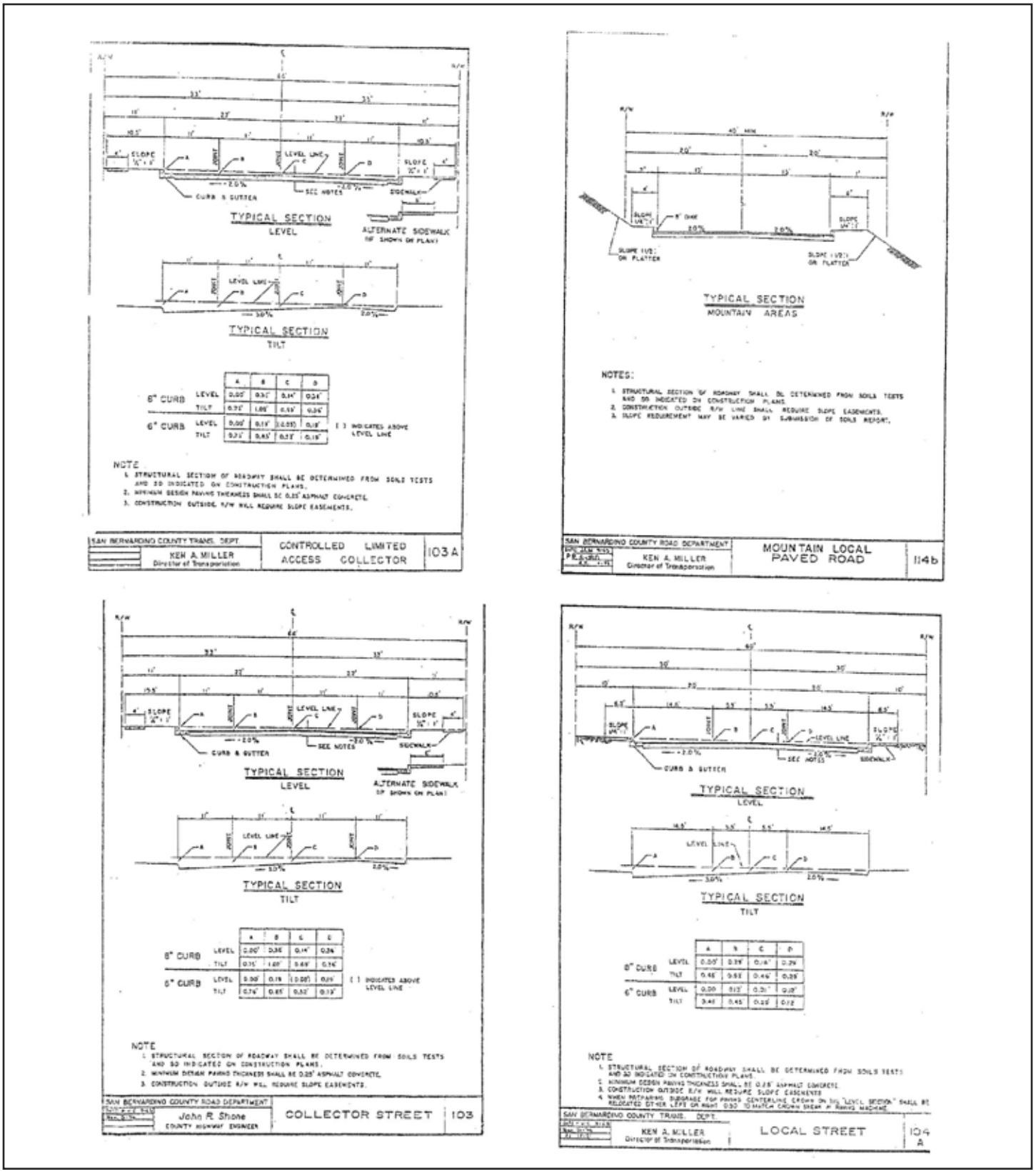
County of San Bernardino General Plan Roadway Cross-Sections

Exhibit 5.1-9a



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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OLD TOWN YUCCA VALLEY SPECIFIC PLAN

County of San Bernardino General Plan Roadway Cross-Sections

Exhibit 5.1-9b

5.1.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

DEFINITION OF DEFICIENCY AND SIGNIFICANT IMPACT

The following definitions of deficiencies and significant impacts have been developed in accordance with the Town of Yucca Valley and County of San Bernardino CMP requirements.

Definition of Deficiency

The definition of an intersection deficiency for intersections in the Town of Yucca Valley sphere of influence has been obtained from the Town of Yucca Valley General Plan. The General Plan states that peak hour intersection operations of LOS "D" or better are considered acceptable. Therefore, any Town of Yucca Valley intersection operating at LOS "E" or LOS "F" would be considered deficient. Per CMP and CALTRANS direction, state controlled facilities (state highways, freeway ramp intersection, etc.) are subject to local jurisdiction traffic operations requirements, with no greater than a 45 second average stopped delay per vehicle during peak hour operations (middle of LOS "D").

The identification of a CMP deficiency requires further analysis in satisfaction of CMP requirements, including:

- Evaluation of the improvement measures required to restore traffic operations to an acceptable level of service with respect to CMP and local jurisdiction LOS standards.
- Calculation of the project share of new traffic on the impacted CMP facility during peak hours of traffic.
- Estimation of the cost required to implement the improvements required to restore traffic operations to an acceptable level of service as described above.

This study incorporates each of these aspects for all locations where a CMPO deficiency is identified.

Definition of Significant Impact

The identification of significant impacts is a requirement of the California Environmental Quality Act (CEQA), and is not directly addressed in the CMP document. The Town of Yucca Valley General Plan and Circulation Element have been adopted in accordance with CEQA requirements, and any roadway improvements within the Town of Yucca Valley, which are consistent with these documents, are not considered a significant impact, so long as the project contributes its "fair share" funding for improvements.

A traffic impact is considered significant and immitigable if the project both: 1) contributes measurable traffic to and 2) substantially and adversely changes the

level of service at any off-site location projected to experience deficient operations under foreseeable cumulative conditions, where feasible improvements consistent with the Town of Yucca Valley General Plan cannot be constructed.

Significance Criteria

Environmental impact thresholds as indicated in Appendix G of the *CEQA Guidelines* (Initial Study Checklist Form) are also used as significance thresholds in this analysis. As such, a project would create a significant impact if it would:

- Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).

- Exceed, either individually or cumulatively, an LOS standard established by the County CMP agency for designated roads or highways.

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; refer to Section 10.0, *Effects Found Not To Be Significant*.

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); refer to Section 10.0, *Effects Found Not To Be Significant*.

- Result in inadequate emergency access; refer to Section 10.0, *Effects Found Not To Be Significant*.

- Result in inadequate parking capacity; refer to Section 10.0, *Effects Found Not To Be Significant*.

- Conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks); refer to Section 10.0, *Effects Found Not To Be Significant*.)

5.1.4 IMPACTS AND MITIGATION MEASURES

TRAFFIC GENERATION – LONG-TERM IMPACT (2030)

- **PROJECT IMPLEMENTATION WOULD CAUSE A SIGNIFICANT INCREASE IN TRAFFIC FOR 2030 HORIZON YEAR WHEN COMPARED TO THE EXISTING TRAFFIC CAPACITY OF THE STREET SYSTEM AND WOULD EXCEED AN ESTABLISHED LOS STANDARD.**

Impact Analysis: The Old Town Specific Plan includes four distinct districts that provide for a mix of complementary uses that would encourage compact, vertical

development, resulting in a street-oriented, pedestrian friendly environment; refer to Section 3.0, *Project Description*.

The Old Town Specific Plan includes the proposed realignment of State Route (SR-62) in order to allow through traffic along the highway to bypass the Old Town area, thus promoting a more pedestrian-oriented environment. The preferred realignment alternative (California Department of Transportation (Caltrans) Alternative D) transitions SR-62 to the north, east of Kickapoo Trail, and onto the existing Yucca Trail alignment, in the vicinity of Fox Trail. The Old Town Specific Plan includes a highway environs overlay intended to address redevelopment in the context of the proposed future realignment. The existing alignment of SR-62 through the SPA would be reconstituted as a "Main Street" design feature that incorporates enhanced gateways for access to/from SR-62 and traffic calming measures to enhance pedestrian safety, reduce traffic speeds, and promote walkability within the area. The preferred alignment alternative is depicted on Exhibit 5.1-10, *State Route 62 Preferred Realignment Alternative (Caltrans Alternative D).*

The Old Town Yucca Valley Specific Plan also calls for the closure of roadways, and portions thereof, within the Specific Plan Area. Inca Trail would be closed north of Main Street (existing SR-62). Hopi Trail, between SRr-62 (existing Yucca Trail) and Benicia Trail, would be closed and converted into a recreational trail. Benicia Trail and Miami Trail would be eliminated altogether.

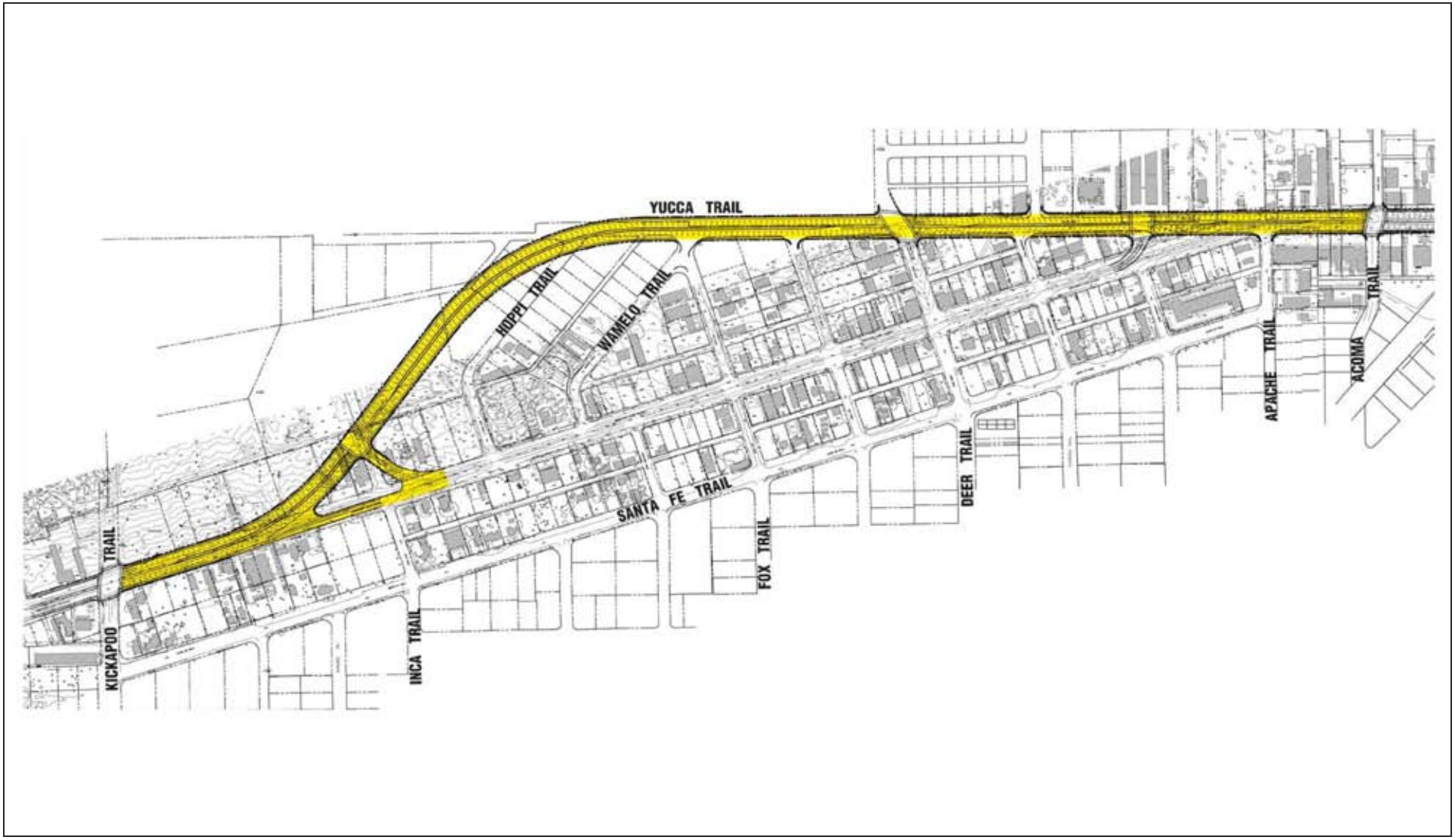
Under existing conditions, these roadways, and portions thereof, provide access to specific developments and are not utilized for travel through the Specific Plan area. Even with these closures, the Old Town Yucca Valley Specific Plan would provide adequate access for the land uses proposed via local streets and alleys.

Properties along the eastbound one-way travel lane at the western gateway could access SR-62 westbound via a right turn onto Inca Trail, a right turn onto Santa Fe Trail, followed by a right turn onto Kickapoo Trail, which would presumably be shorter both distance-wise and time-wise than (the alternative of) traveling east along the low-speed Main Street route to Pioneertown Road and making a left turn.

"U"-turns may not be possible. However, the extensive grid system of streets and alleys on either side of Main Street would provide adequate opportunities to reverse direction.

Project Model Representation

In order to determine the traffic characteristics of the proposed Old Town Specific Plan, particularly in relation to the existing and currently adopted *General Plan* land uses, it is necessary to understand how the Old Town area is represented in the Morongo Basin Transportation Model (MBTM).



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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OLD TOWN YUCCA VALLEY SPECIFIC PLAN

State Route 62 Preferred Realignment Alternative (Caltrans Alternative D)

Exhibit 5.1-10

The TAZ structure for the MBTM has been reviewed within the Old Town SPA. The initial TAZ structure for the MBTM has the same TAZ boundaries as the current SANBAG model. Under the initial structure, a total of ten TAZs comprise the Old Town SPA (as well as a portion of the surrounding area). The initial MBTM TAZ structure is illustrated on Exhibit 5.1-11, *Initial MBTM TAZ Structure SPA*. These TAZs have been subdivided into 52 TAZs, 44 of which constitute the Old Town SPA in its entirety, to better represent the proposed land use patterns and circulation features (including the SR-62 realignment) for the proposed Project under 2030 Horizon Year With Project conditions. The refined MBTM TAZ structure is depicted on Exhibit 5.1-12, *Refined MBTM TAZ Structure SPA*. This refined TAZ structure was then used for both the Existing (baseline) and 2030 Horizon Year Without Project conditions, so that a comparison of the Old Town SPA traffic characteristics across analysis conditions would yield comparable results.

The Old Town SPA, with the refined TAZ structure, has been defined within the model in terms of socio-economic data (SED) for all conditions. The Southern California Association of Governments (SCAG) provided SED by TAZ for 1994 and 2020 during the MBTM development project completed by Urban Crossroads, Inc. staff in 1994. The SED was refined during the original model development effort to incorporate additional knowledge regarding housing and employment in the Morongo Basin. Final SED by TAZ used in the original version of the MBTM is included in Appendix 15.3. Current regional SED forecasts were obtained from SANBAG for the entire Morongo Basin area. Based on comparisons of the new regional data to the old MBTM data under Base Year conditions and Horizon Year conditions, the data in the MBTM is fairly similar and for the most part a little higher (and therefore more conservative) than the current regional forecasts. The baseline SED from the MBTM was used to develop the traffic characteristics of the existing land uses occupying the Old Town SPA. Refer to Appendix 15.3 for a detailed discussion of the SED used for traffic modeling.

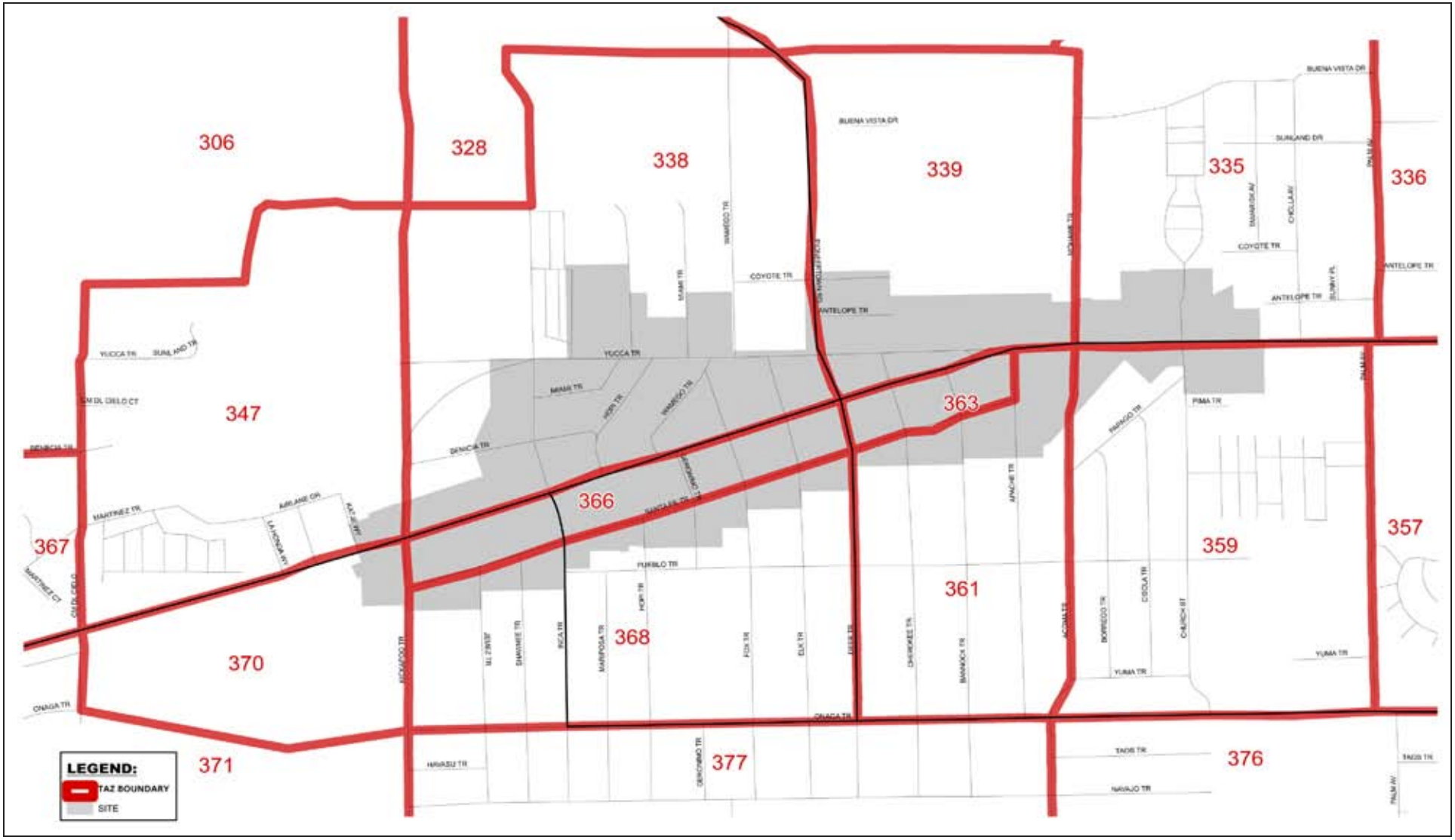
Project Traffic

The traffic related to the Project has been calculated in accordance with the following accepted procedural steps:

- Trip Generation
- Trip Distribution
- Traffic Assignment

Project Trip Generation Rates

Trip generation has been calculated for the Project by the Morongo Basin Transportation Model; refer to Table 5.1-3, *Project Trip Generation Summary*. The Project is projected to generate a net increase over existing 2005 conditions of 6,144 AM peak hour trips, 9,970 PM peak hour trips, and 107,463 daily trips. No credit has been taken in this calculation for the mixed-use nature of the development.



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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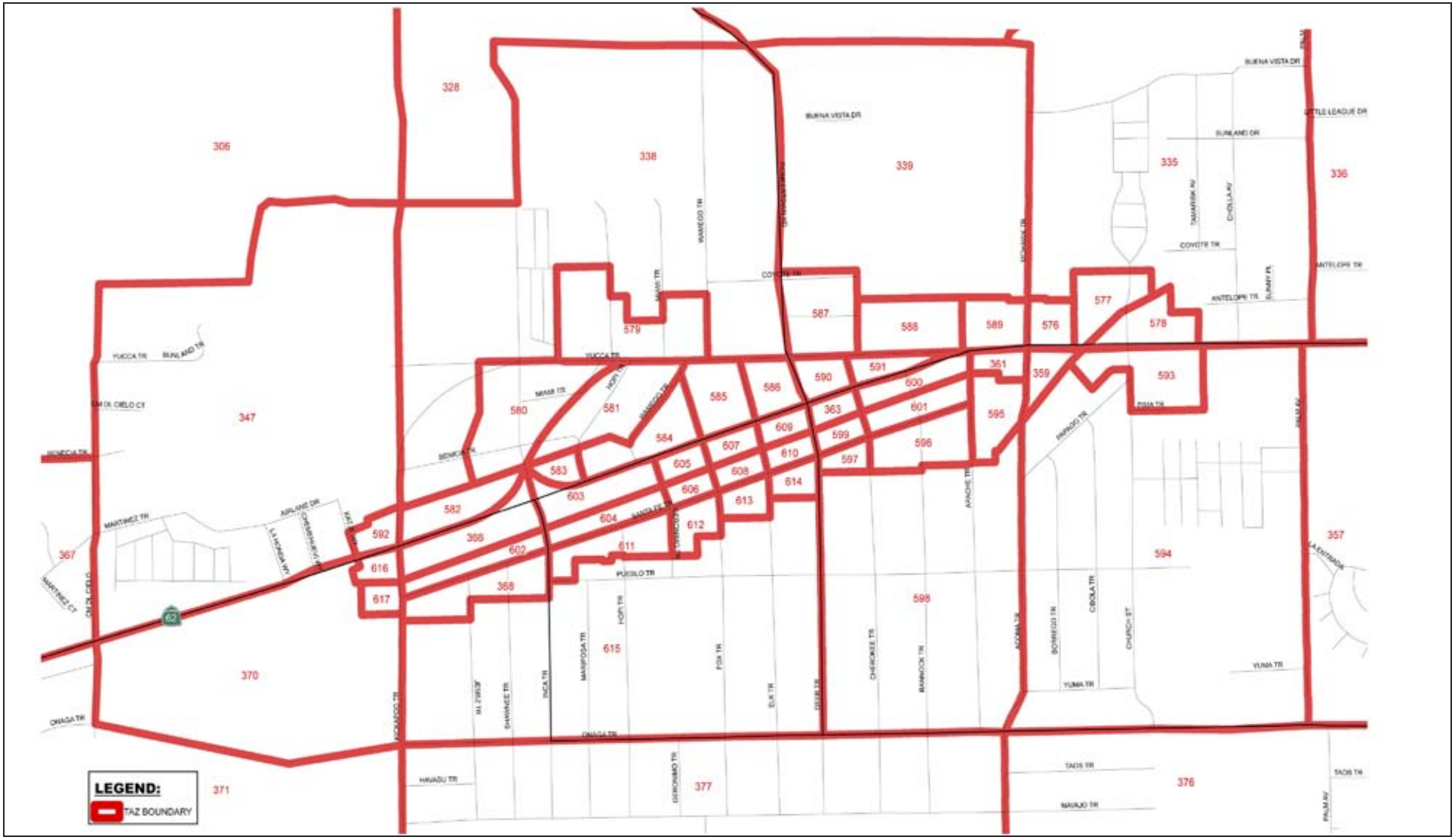
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Initial MBTM TAZ Structure SPA

Exhibit 5.1-11



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Refined MBTM TAZ Structure SPA

Exhibit 5.1-12

Table 5.1-3
Project Trip Generation Summary

Scenario	AM Peak Hour			PM Peak Hour			Daily Trips
	In	Out	Total	In	Out	Total	
Existing	537	309	846	603	757	1,360	14,681
General Plan With Project	4,870	2,120	6,990	4,748	6,581	11,329	122,144
Project Only	4,333	1,811	6,144	4,145	5,824	9,969	107,463
Percent Growth	807%	586%	726%	687%	769%	733%	732%

Internal capture rates for the Project, which have been derived directly from the model for the AM peak hour, PM peak hour, and daily timeframes, are 22.8 percent, 24.2 percent, and 24.3 percent, respectively. The proposed Project would create a more pedestrian friendly environment and is expected to further reduce vehicle traffic, but no additional reduction has been assumed in this analysis.

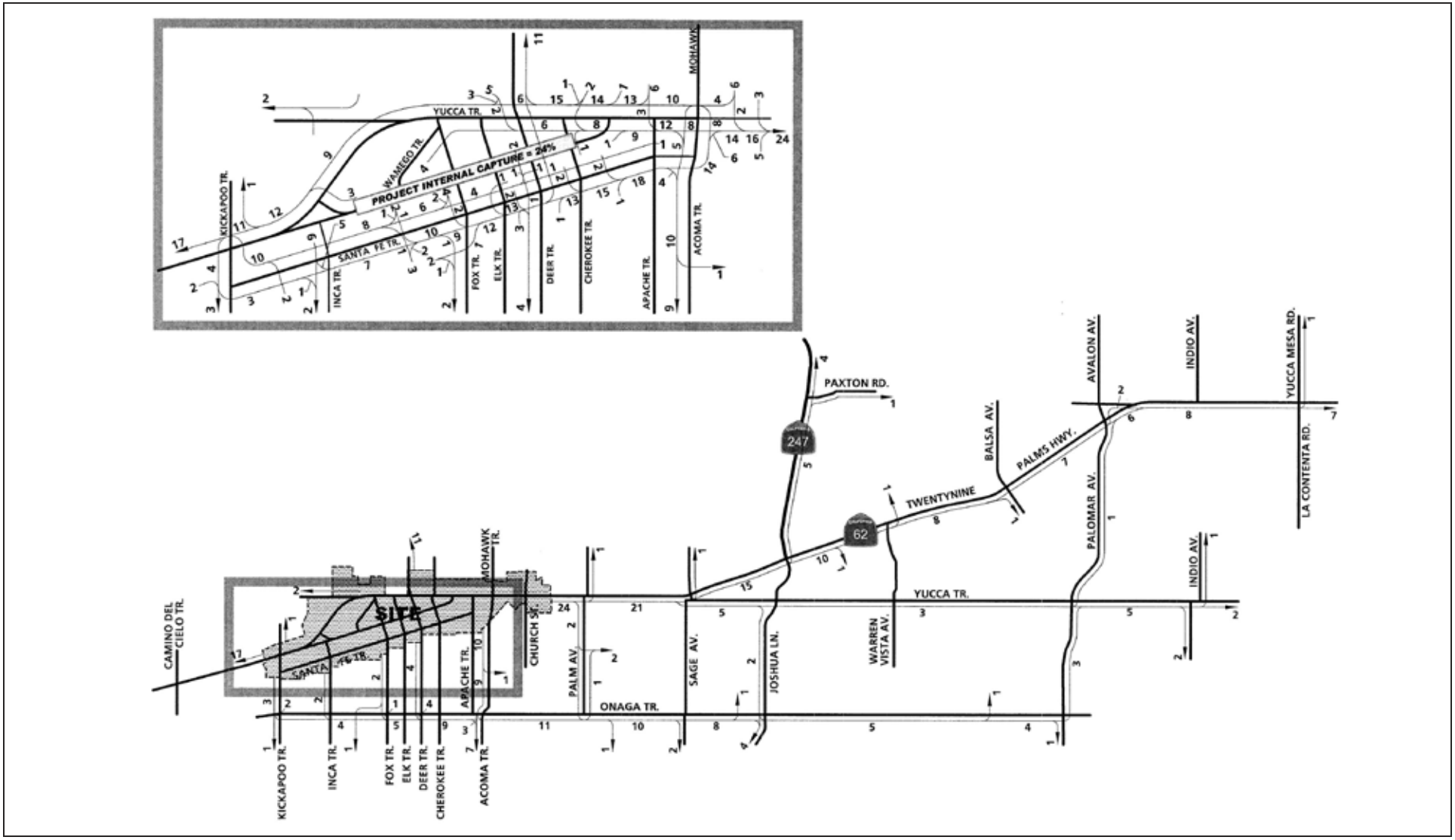
Project Trip Distribution and Assignment

The 2030 Horizon Year Project trip distribution and assignment process represents the directional orientation of traffic to and from the project site. Trip distribution is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional highway/freeway system. The RSA 33 – Morongo Basin Transportation Model (MBTM) has been used to evaluate the distribution and likely travel routes of the local traffic. A select zone (trip distribution) analysis for the Old Town Yucca Valley Specific Plan development was performed using the model for the Horizon Year.

The Project traffic distribution pattern is shown on Exhibit 5.1-13, *Trip Distribution – Project Buildout*. As illustrated on Exhibit 5.1-13, approximately 17 percent of the Project-related traffic would be distributed to/from the west of the site via SR-62, with 11 percent oriented to/from the north on Pioneertown Road, 24 percent to/from the east on Yucca Trail, one percent to/from the north on Kickapoo Trail, two percent to/from the west on Yucca Trail, three percent to/from the south on Kickapoo Trail, two percent to/from the south on Fox Trail and Inca Trail, four percent to/from the south on Deer Trail, and ten percent to/from the south on Acoma Trail.

Project Only Traffic Volume Forecasts

The Old Town Yucca Valley Specific Plan Project only traffic forecasts have been generated by calculating the difference between future with Project forecast volumes and existing model volumes. The Project traffic volumes are the criteria determining the limits of the required CMP Horizon Year (2030) analysis. The CMP states that any CMP roadway link carrying 50 or more two-way project trips or any CMP freeway link carrying 100 or more two-way project trips during the AM or PM peak hour must be analyzed to ensure that no CMP deficiencies are anticipated within the study area.



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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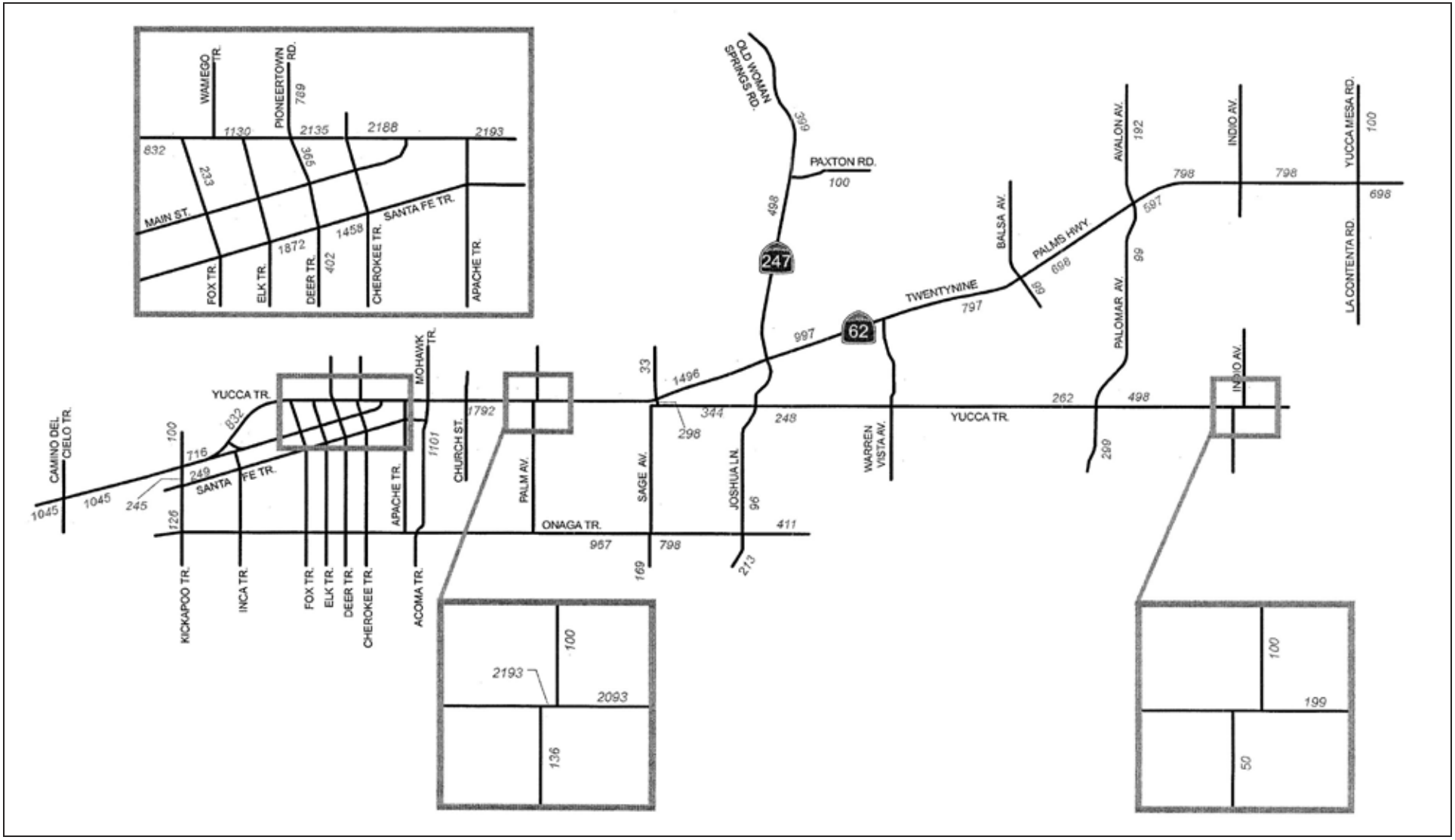
Trip Distribution - Buildout Project

Exhibit 5.1-13

Exhibit 5.1-14, *2030 Horizon Year CMP Project Only Traffic Contribution Test Volumes (PM Peak Hour)*, illustrates the 2030 CMP project only traffic contribution test volumes (PM peak hour) for the proposed mixed-use project. Because the project PM peak hour trip generation is higher than the Project AM peak hour trip generation, only the PM peak hour volumes have been examined for the CMP test. The only CMP intersection within five miles of the Project is Old Woman Springs Road (SR-247) at Twentynine Palms Highway (SR-62). The CMP criterion is satisfied at this location; thus, it has been analyzed. Additional intersections have been analyzed pursuant to direction from Town of Yucca Valley staff. The additional analysis locations along SR-62 and SR-247 (CMP roadways) have been completed in lieu of segment level analysis, consistent with CMP guidelines. Exhibit 5.1-15, *Intersection Analysis Locations*, depicts the resulting intersection analysis locations, based upon the CMP analysis and Town of Yucca Valley staff direction. The intersection analysis locations include the following:

- Camino del Cielo Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Kickapoo Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Kickapoo Trail (NS) at Santa Fe Trail (EW);
- Inca Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Fox Trail (NS) at Yucca Trail (EW);
- Fox Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Wamego Trail (NS) at Yucca Trail (EW);
- Elk Trail (NS) at Yucca Trail (EW);
- Elk Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Pioneertown Road (NS) at Yucca Trail (EW);
- Pioneertown Road/Deer Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Deer Trail (NS) at Santa Fe Trail (EW);
- Cherokee Trail (South) (NS) at Yucca Trail (EW);
- Cherokee Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Apache Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Acoma Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Church Street (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (South) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (North) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Sage Avenue (NS) at Twentynine Palms Highway (SR-62) (EW);
- Sage Avenue (NS) at Onaga Trail (EW);
- Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW);
- Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at Twentynine Palms Highway (SR-62) (EW);
- Joshua Tree Lane (NS) at Yucca Trail (EW);
- Joshua Tree Lane (NS) at Onaga Trail (EW);
- Warren Vista Avenue (NS) at Yucca Trail (EW);
- Balsa Avenue (NS) at Twentynine Palms Highway (SR-62) (EW);
- Avalon Avenue (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palomar Avenue (NS) at Yucca Trail (EW);
- Indio Avenue (NS) at Twentynine Palms Highway (SR-62) (EW);



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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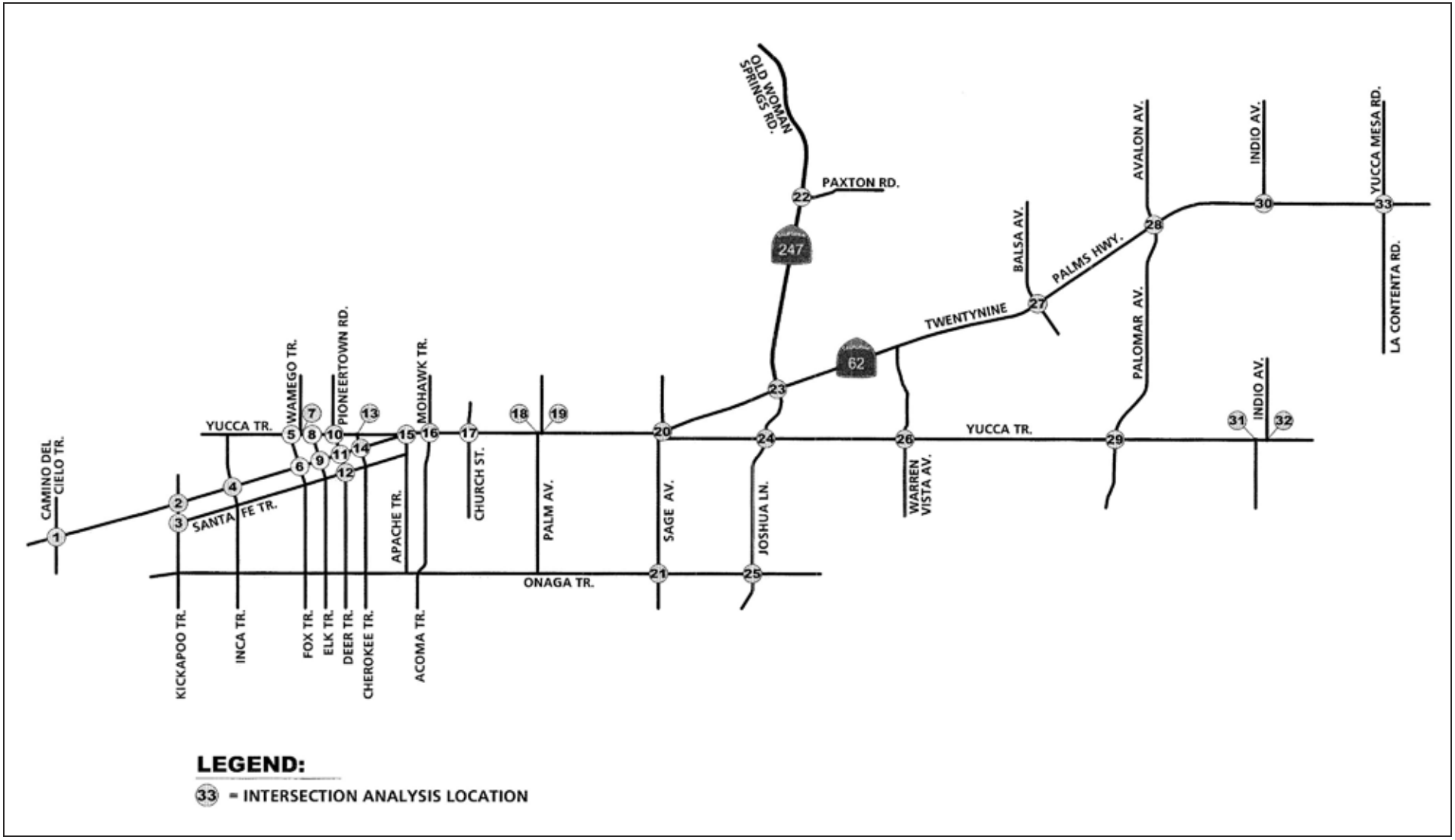
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

2030 Horizon Year CMP Project Only Traffic Contribution Test Volumes (PM Peak Hour)

Exhibit 5.1-14



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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Intersection Analysis Locations

Exhibit 5.1-15

- Indio Avenue (South) (NS) at Yucca Trail (EW);
- Indio Avenue (North) (NS) at Yucca Trail (EW); and
- Yucca Mesa Road/La Contenta Road (NS) at Twentynine Palms Highway (SR-62) (EW).

Exhibit 5.1-16, *Intersection Analysis Locations With Proposed State Route 62 Realignment*, depicts the resulting intersection analysis location with the proposed SR-62 realignment. Due to the realignment and the proposed Old Town Yucca Valley Specific Plan, name and geometry changes are assumed for intersections within the Old Town area. The intersection of Inca Trail at Main Street has been removed, as it is no longer a primary access location for the Old Town area. The intersection of Main Street (Western Gateway and Eastern Gateway) with SR-62 have been added, resulting in a total of 34 intersection analysis locations under 2030 Horizon Year With Project conditions.

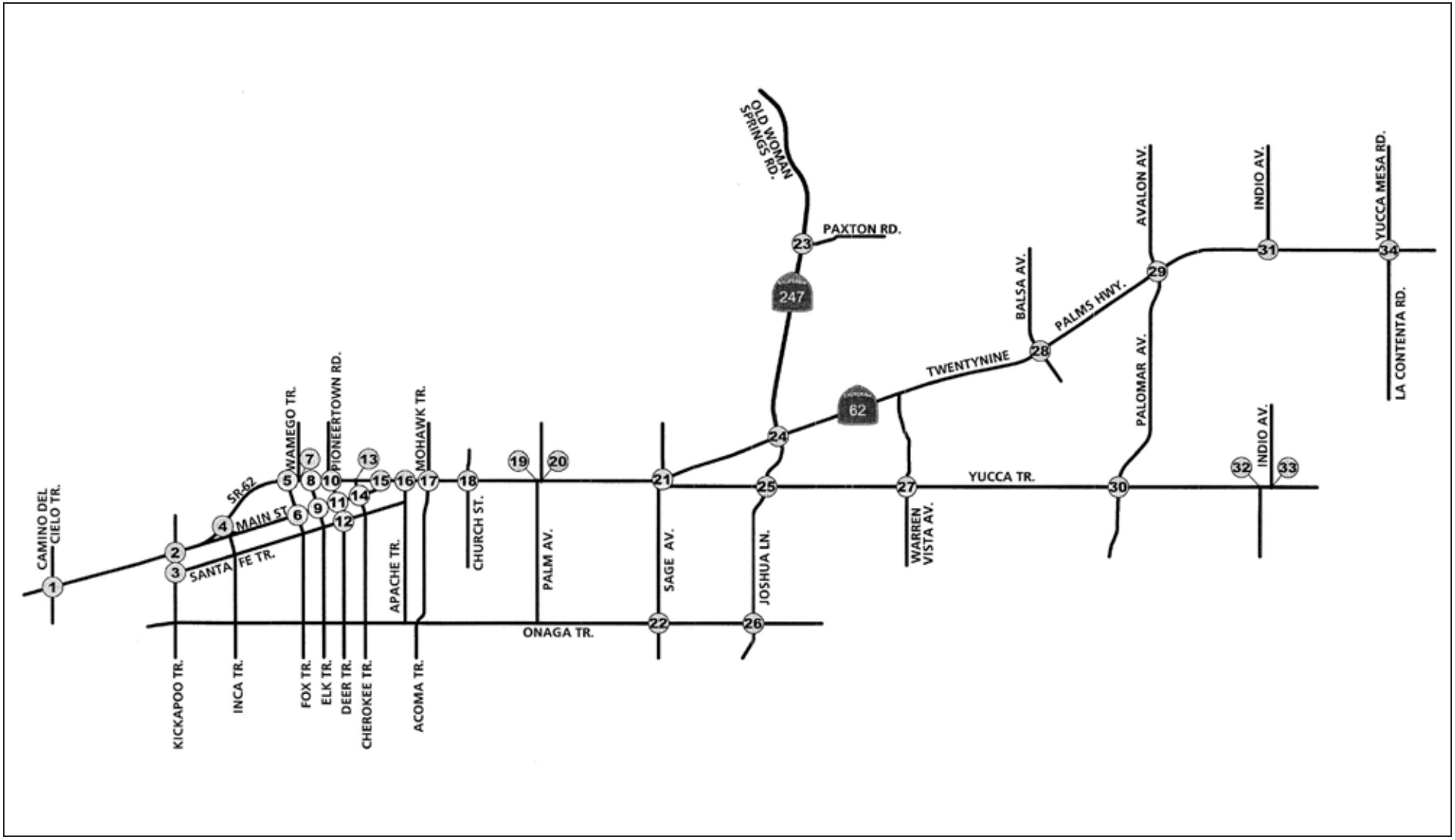
The 2030 Horizon Year Project only ADT volumes are presented on Exhibit 5.1-17, *Average Daily Traffic – Project Only*. The 2030 Horizon Year Project only AM and PM peak hour intersection turning movement volumes are depicted on Exhibit 5.1-18, *AM Peak Hour Intersection Volumes – Project Only,* and Exhibit 5.1-19, *PM Peak Hour Intersection Volumes – Project Only*, respectively.

Future (Cumulative) Project Traffic Conditions

As described above, the 2030 Horizon Year ADT volume forecasts are developed using the long-range volumes predicted by the RSA 33 – Morongo Basin Transportation Model (MBTM). For 2030 Horizon Year Without Project conditions, the Old Town SPA has been represented by the explicit land uses detailed in the currently adopted *General Plan*. Similarly, for 2030 Horizon Year With Project conditions, the Old Town SPA has been represented by the land uses detailed in the proposed Specific Plan. The growth increment for both 2030 Horizon Year conditions on each roadway segment is the increase in MBTM volume from existing to their respective future conditions. The final 2030 Horizon Year Without and With Project roadway segment volumes are then determined by adding their respective 2030 growth increments to the existing counted volumes. Appendix 15.3 includes the worksheets showing daily traffic volume calculations for all scenarios.

In order to ensure the 2030 Horizon Year traffic volumes include other developments, which are planned within the Town of Yucca Valley, Town staff was contacted in order to determine if there were any projects planned outside of the Old Town area that would have an impact on future traffic volumes at the study area intersections. Town staff provided information regarding 23 other cumulative projects within the study area. Exhibit 5.1-20, *Other Development Location Map*, shows the locations of the other developments.

For each traffic analysis zone (TAZ) in the MBTM containing one or more of the other development projects, the growth in socio-economic data (SED) between existing and 2030 Horizon Year conditions was verified to include the development project(s). The project-generated SED forecasts for the other development are based on land use information provided in available traffic studies and from the Town of Yucca



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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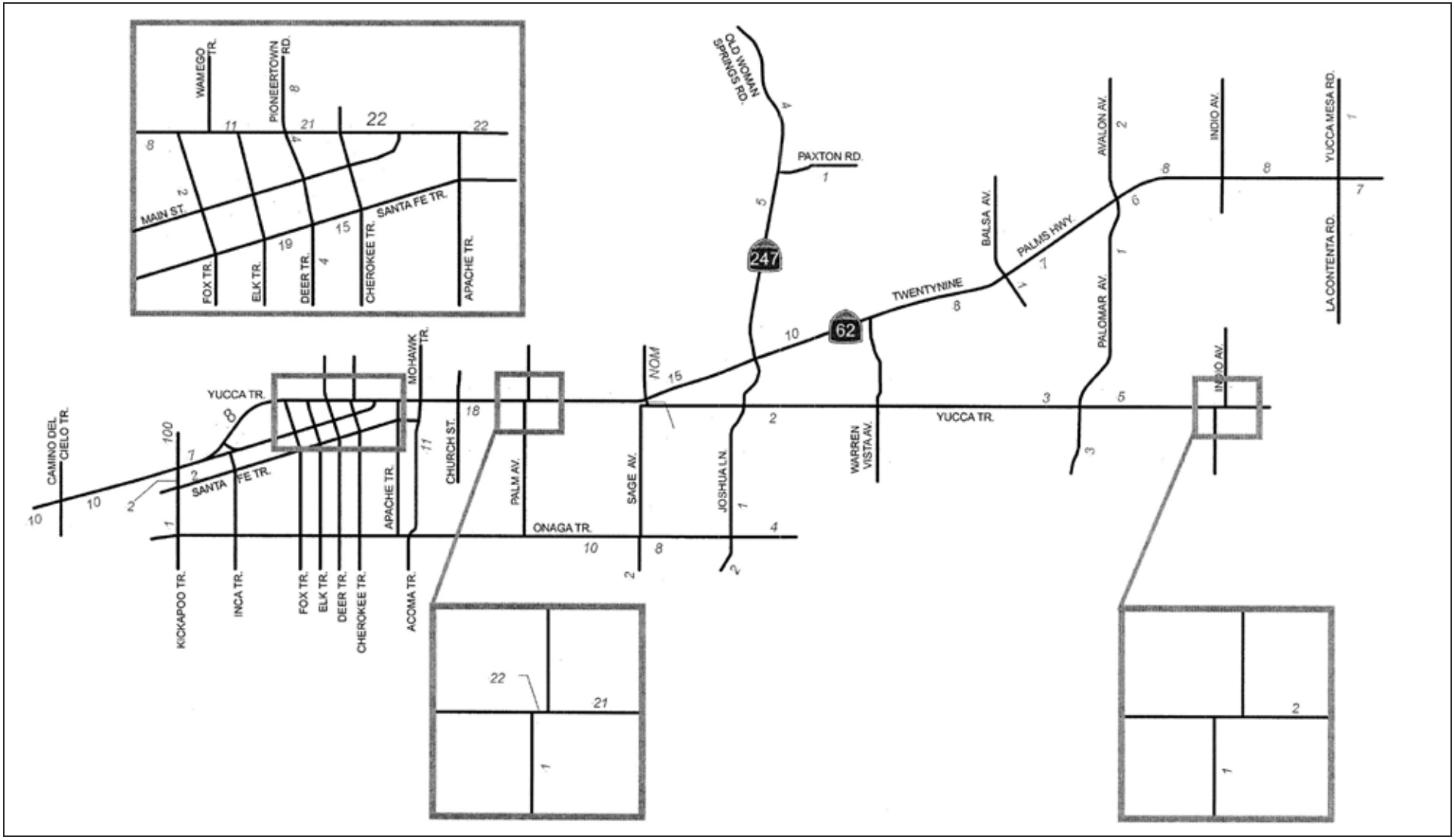
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Intersection Analysis Locations With Proposed State Route 62 Realignment

Exhibit 5.1-16



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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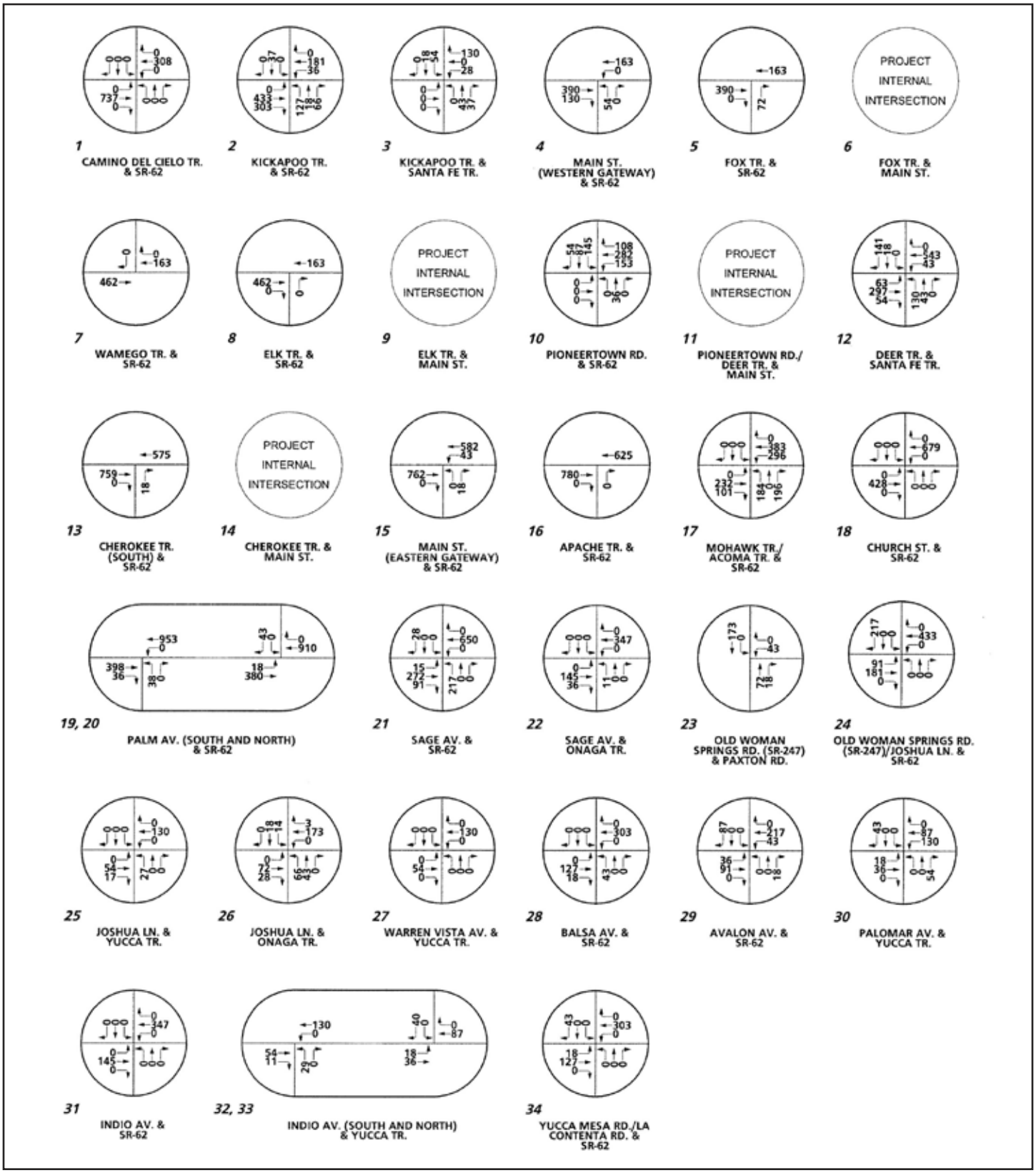
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Average Daily Traffic Project Only

Exhibit 5.1-17



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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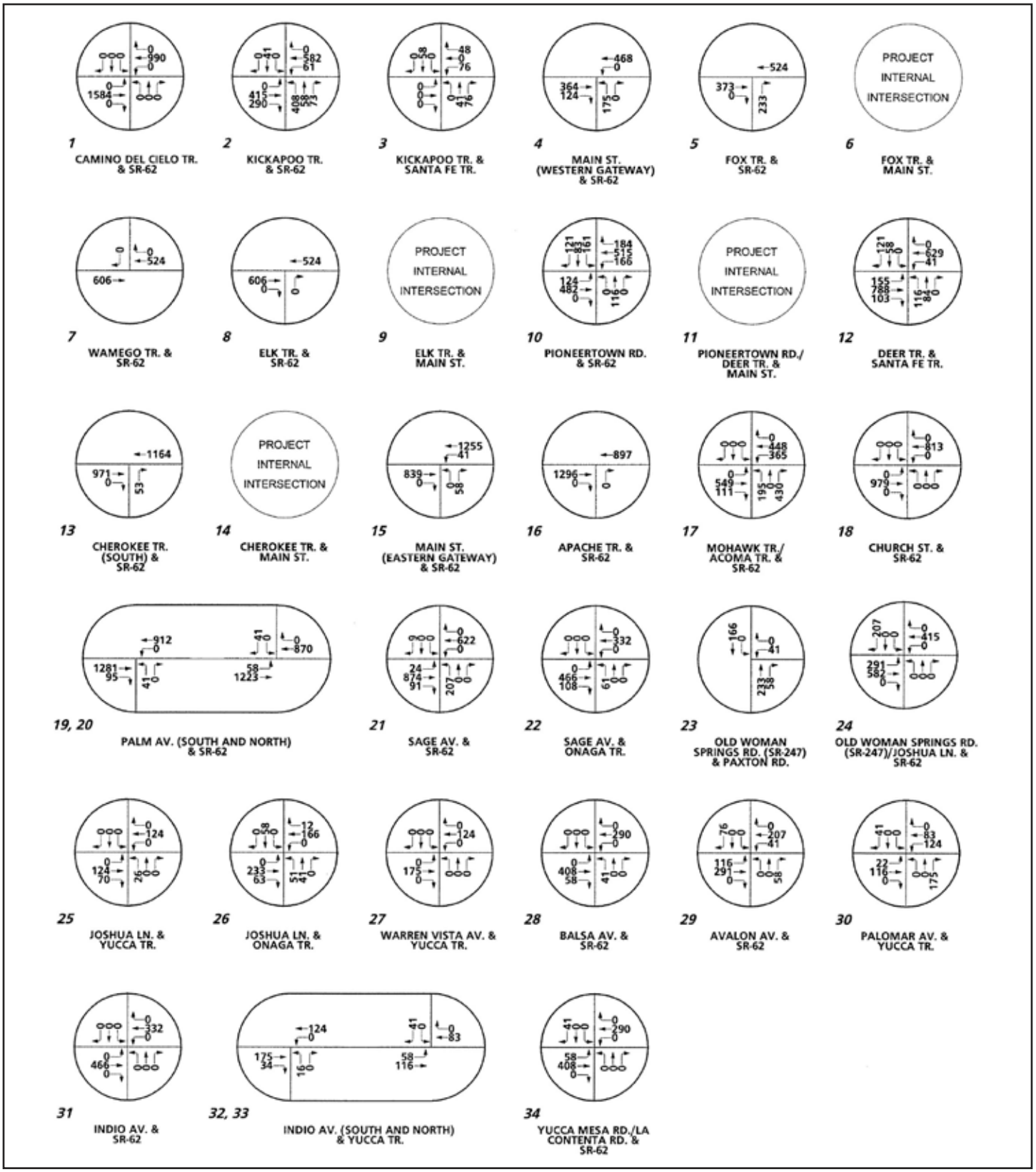
AM Peak Hour Intersection Volumes - Project Only

Exhibit 5.1-18



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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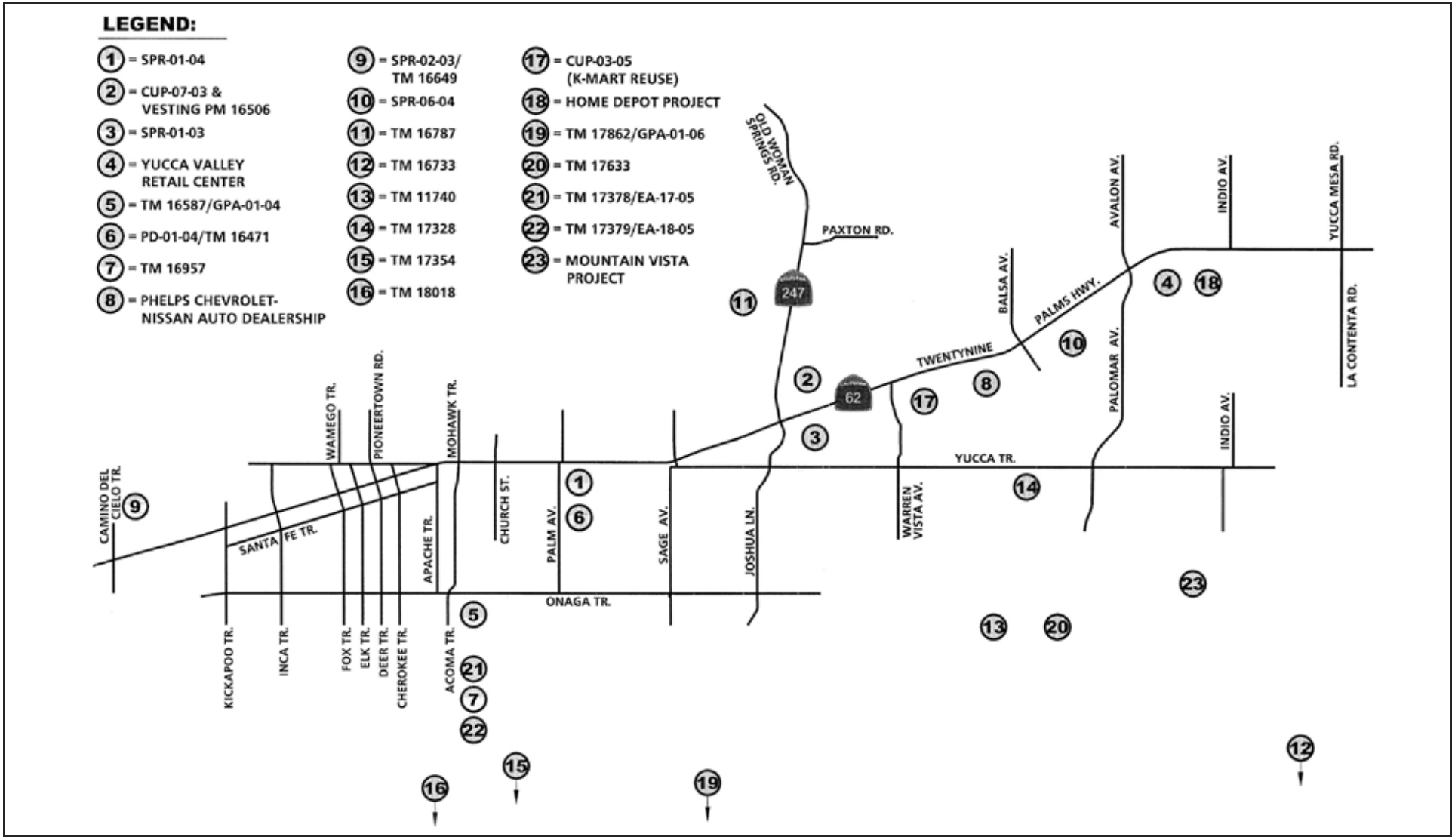
PM Peak Hour Intersection Volumes - Project Only

Exhibit 5.1-19



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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Other Development Location Map

Exhibit 5.1-20

Valley's Active Projects Map. The land use information for each of these developments has been converted into SED by way of the land use-to-SED factors. Refer to Appendix 15.3 for further discussion regarding cumulative project SED.

2030 Horizon Year Without Project Conditions (Without SR-62 Realignment)

2030 HORIZON YEAR WITHOUT PROJECT DAILY TRAFFIC VOLUMES

ADT volumes for 2030 Horizon Year Without Project conditions have been determined, as described above. Exhibit 5.1-21, *2030 Horizon Year ADT – Without Project*, shows the ADT volumes, which can be expected for 2030 Horizon Year Without Project conditions. SR-62 is the most heavily traveled roadway under future conditions with daily traffic volumes ranging from 34,000 vehicles per day (VPD) to 59,800 VPD in the study area. A number of other roadways are projected to carry daily traffic volumes in excess of 20,000 VPD, including SR-247, Yucca Trail, Joshua Tree Lane, and Onaga Trail.

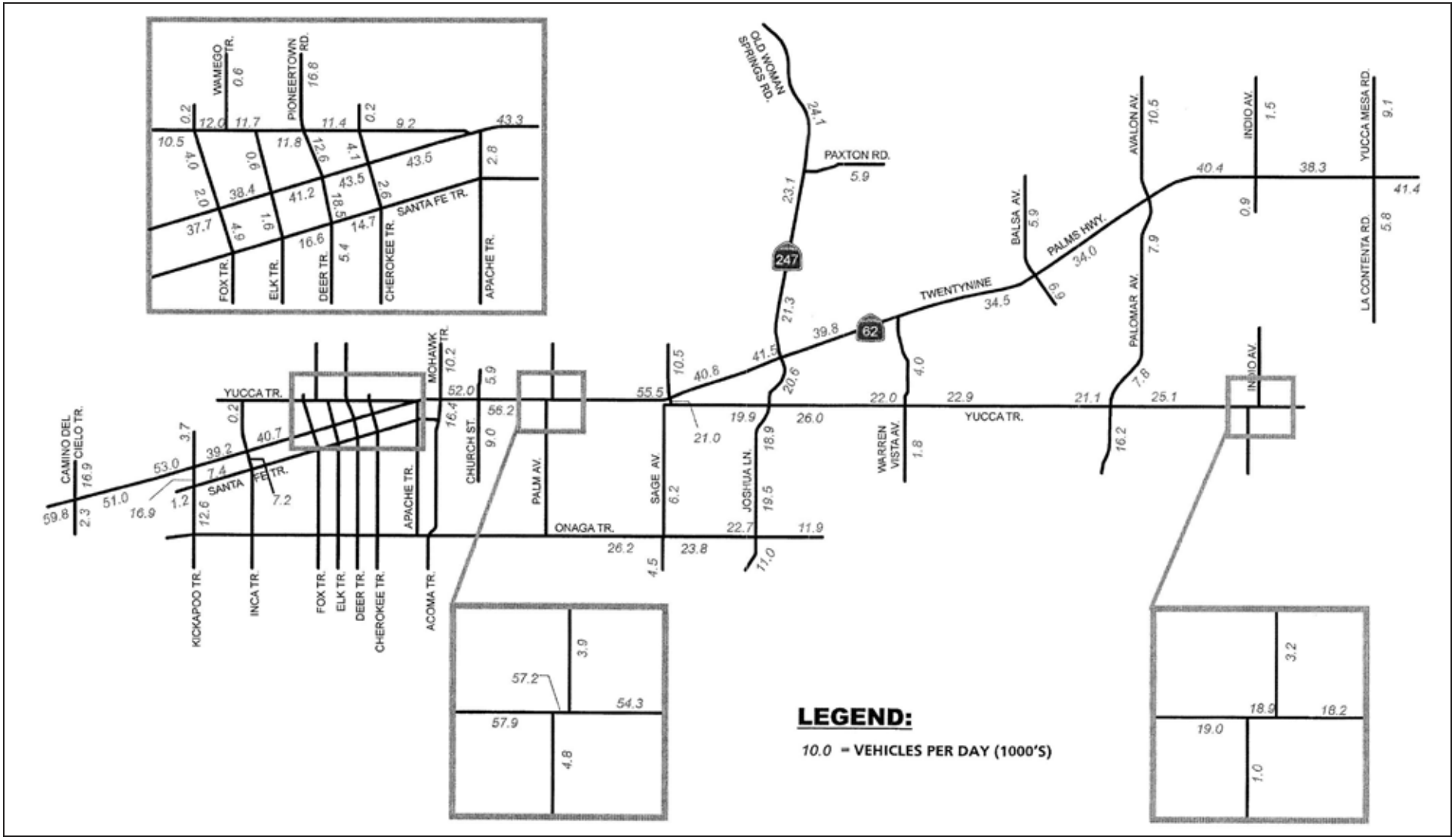
For 2030 Horizon Year Without Project conditions, the following study area intersections are projected to warrant a traffic signal (in addition to those intersections that warrant a traffic signal under existing conditions):

- Camino del Cielo Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Kickapoo Trail (NS) at Santa Fe Trail (EW);
- Fox Trail (NS) at Yucca Trail (EW);
- Fox Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Pioneertown Road (NS) at Yucca Trail (EW);
- Deer Trail (NS) at Santa Fe Trail (EW);
- Cherokee Trail (South) (NS) at Yucca trail (EW);
- Apache Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Sage Avenue (NS) at Onaga Trail (EW);
- Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW);
- Joshua Tree Lane (NS) at Onaga Trail (EW);
- Warren Vista Avenue (NS) at Yucca rail (EW); and
- Indio Avenue (North) (NS) at Yucca Trail (EW).

Appendix 15.3 includes the traffic signal warrant analysis worksheet and the daily traffic volume calculations.

2030 HORIZON YEAR WITHOUT PROJECT OPERATIONS

The intersection operations analysis for 2030 Horizon Year Without Project conditions is summarized in Table 5.1-4, *Intersection Analysis – 2030 Horizon Year Without Project Conditions*. 2030 Horizon Year without Project AM and PM peak hour intersection turning movement volumes are presented on Exhibits 5.1-22, *2030 Horizon Year AM Peak Hour Intersection Volumes – Without Project*, and 5.1-23, *2030 Horizon Year PM Peak Hour Intersection Volumes – Without Project*, respectively. The operations analysis worksheets for 2030 Horizon Year Without



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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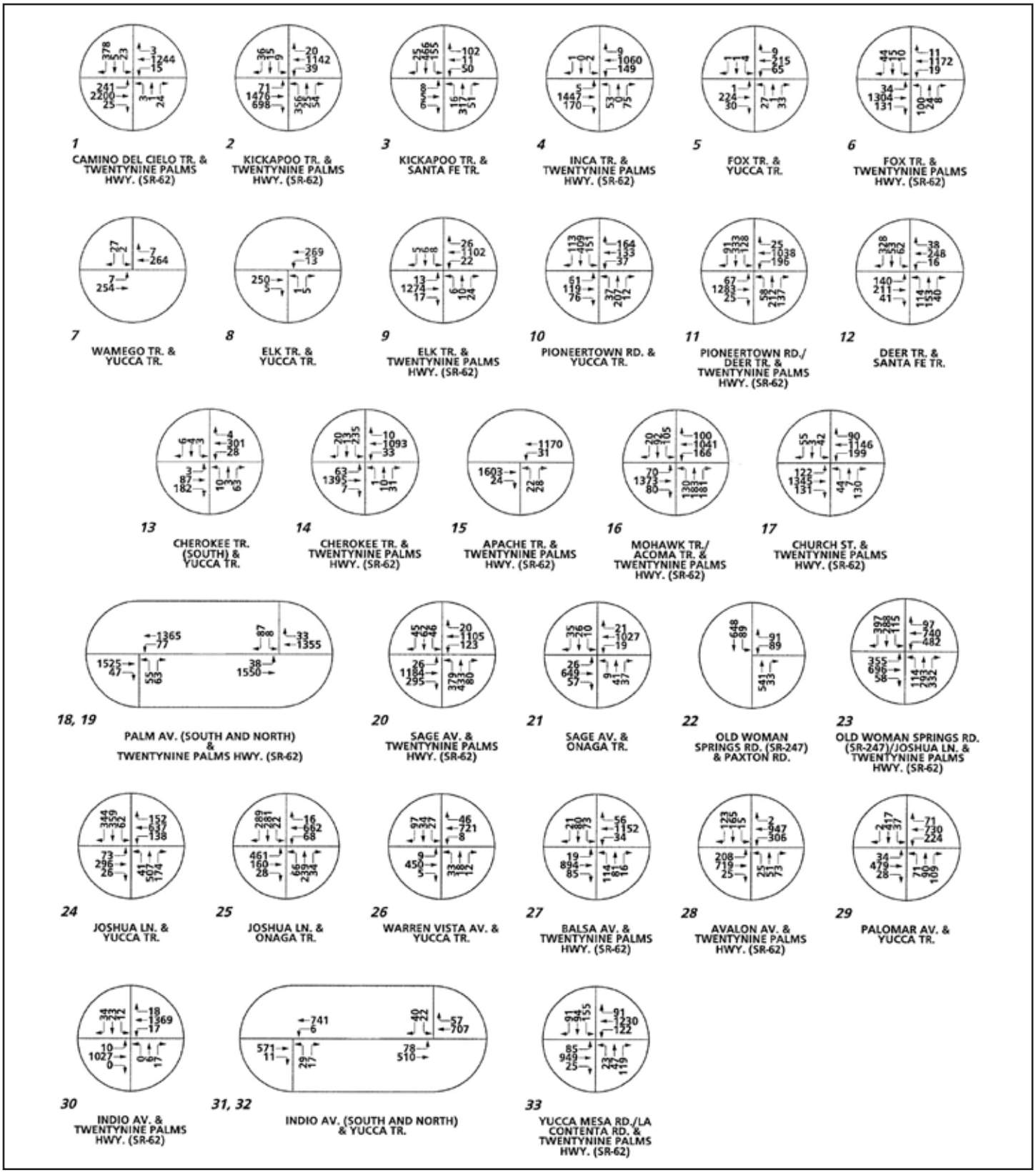
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

2030 Horizon Year ADT Without Project

Exhibit 5.1-21



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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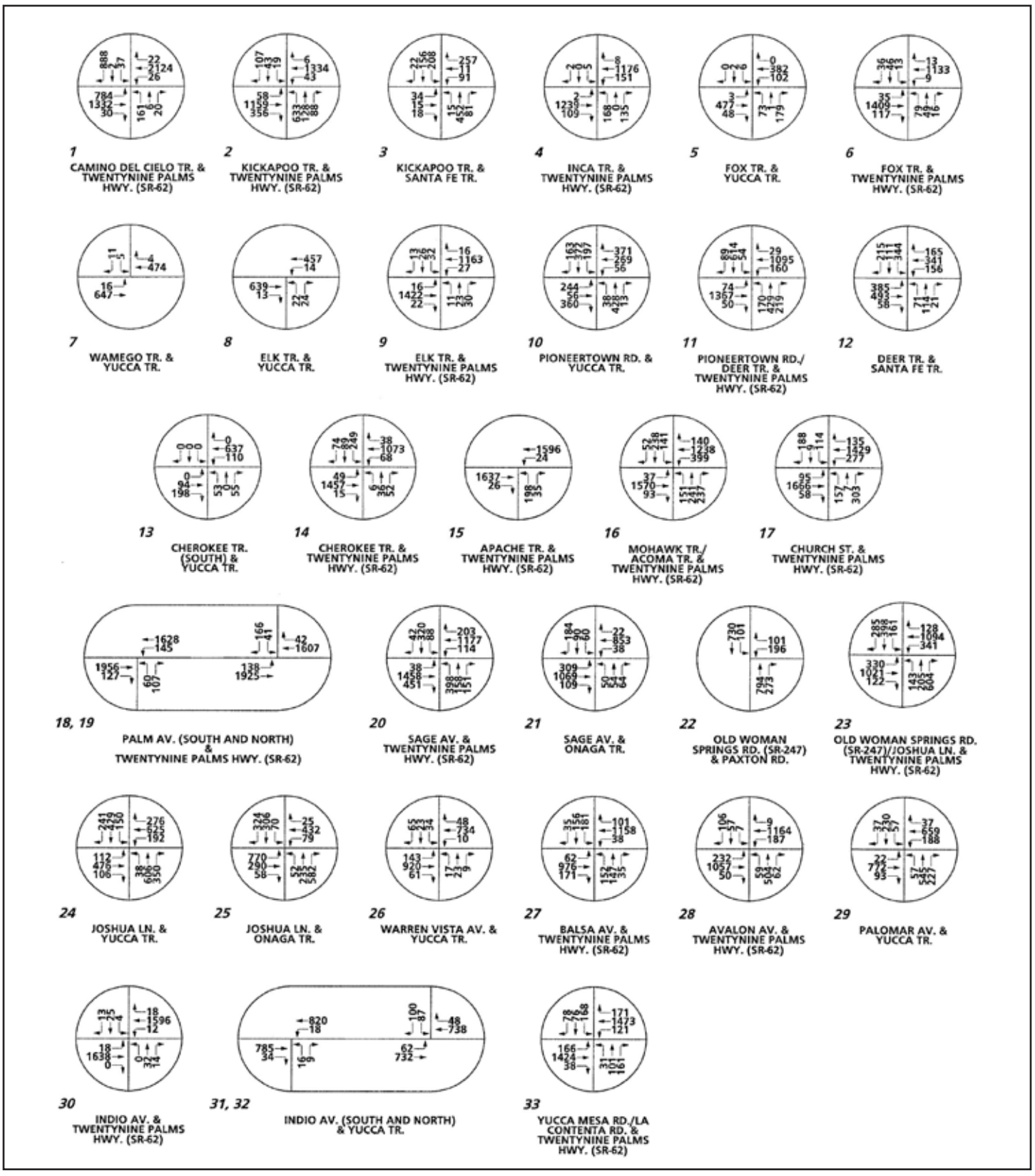
2030 Horizon Year AM Peak Hour Intersection Volumes - Without Project

Exhibit 5.1-22



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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2030 Horizon Year PM Peak Hour Intersection Volumes - Without Project

Exhibit 5.1-23

Table 5.1-4
Intersection Analysis – 2030 Horizon Year Without Project Conditions

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay (seconds)[2]	LOS	Delay (seconds)[2]	LOS
Camino del Cielo Trail (NS) at:					
• Twentynine Palms Hwy. (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements[4]	**TS**[5]	17.5	B	32.5	C
Kickapoo Trail (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	32.4	C	35.1	D
• Santa Fe Trail	CSS	49.8	E	–[3]	F
- With Improvements	**TS**	20.7	C	30.4	C
Inca Trail (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	20.5	C	27.4	C
Fox Trail (NS) at:					
• Yucca Trail (EW)	CSS	14.9	B	44.4	E
- With Improvements	**TS**	19.0	B	23.5	C
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	17.9	B	17.7	B
Wamego Trail (NS) at:					
• Yucca Trail (EW)	CSS	10.1	B	15.4	C
Elk Trail (NS) at:					
• Yucca Trail (EW)	CSS	12.5	B	24.4	C
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements[6]	**TS**	15.1	B	16.7	B
Pioneertown Road (NS) at:					
• Yucca Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	24.8	C	38.5	D
Pioneertown Road/Deer Trail (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	12.3	B	19.0	B
Deer Trail (NS) at:					
• Santa Fe Trail (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	25.7	C	48.7	D
Cherokee Trail (South) (NS) at:					
• Yucca Trail (EW)	CSS	12.7	B	23.4	C
- With Improvements	**TS**	21.6	C	9.4	A
Cherokee Trail (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	29.1	C	31.5	C
Apache Trail (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	3.7	A	6.3	A
Mohawk Trail/Acoma Trail (NS) at:]					
• Twentynine Palms Highway (SR-62) (EW)					
- With Improvements	TS	21.1	C	35.5	D
Church Street (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	24.9	C	43.6	D
Palm Avenue (South) (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)					
- With Improvements	CSS	–[3]	F	–[3]	F
Palm Avenue (North) (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F

Table 5.1-4 [continued]
Intersection Analysis – 2030 Horizon Year Without Project Conditions

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay (seconds)[2]	LOS	Delay (seconds)[2]	LOS
Palm Avenue (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)					
- With Improvements[7]	**TS**	17.6	B	24.5	C
Sage Avenue (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	15.1	B	13.6	B
• Onaga Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	22.7	C	41.0	D
Old Woman Springs Road (SR-247) (NS) at:					
• Paxton Road (EW)	CSS	76.7	F	–[3]	F
- With Improvements	**TS**	9.8	A	12.2	B
Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)					
- With Improvements	TS	31.7	C	39.1	D
Joshua Tree Lane (NS) at:					
• Yucca Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	27.3	C	39.5	D
• Onaga Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	37.6	D	42.9	D
Warren Vista Avenue (NS) at:					
• Yucca Trail (EW)	CSS	84.0	F	–[3]	F
- With Improvements	**TS**	17.7	B	20.4	C
Balsa Avenue (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	16.7	B	18.9	B
Avalon Avenue (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	30.1	C	33.6	C
Palomar Avenue (NS) at:					
• Yucca Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	40.2	D	34.8	C
Indio Avenue (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	CSS	–[3]	F	–[3]	F
- With Improvements[6]	**TS**	13.6	B	15.5	B
Indio Avenue(South) (NS) at:					
• Yucca Trail (EW)	CSS	27.4	D	40.1	E
- With Improvements	**AWS**	13.7	B	18.3	C
Indio Avenue(North) (NS) at:					
• Yucca Trail (EW)	CSS	25.5	D	–[3]	F
- With Improvements	**TS**	6.6	A	9.2	A
Yucca Mesa Road/La Contenta Road (NS) at:					
• Twentynine Palms Highway (SR-62) (EW)	TS	19.3	B	24.5	C

1. CSS = Cross Street Stop; TS = Traffic Signal; AWS = All-Way Stop.
2. Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.
3. **–** = Delay High or V/C Ratio exceeding 1.0, Intersection Unstable, Level of Service "F".
4. Pedestrian crossing would be prohibited along the east and west legs of the intersection in order to provide acceptable LOS operations.
5. **Bold** = Improvement.
6. This intersection does not warrant a traffic signal; however, no other feasible improvements would provide acceptable LOS operations.
7. The adjacent intersections of Palm Avenue (South) and Palm Avenue (North) at Twentynine Palms Highway (SR-62) are to be improved by means of a single traffic signal to control both of them. Pedestrian crossing would be prohibited along the east leg of the intersection in order to provide acceptable LOS operations.

Project conditions are included in Appendix 15.3. As shown in Table 5-1, the following study area intersections are projected to experience unacceptable levels of service during the peak hours (without improvements) and are, therefore, deficient per Town of Yucca Valley/County of San Bernardino criteria:

- Camino del Cielo Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Kickapoo Trail (NS) at Santa Fe Trail (EW);
- Inca Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Fox Trail (NS) at Yucca Trail (EW);
- Fox Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Elk Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Pioneertown Road (NS) at Yucca Trail (EW);
- Deer Trail (NS) at Santa Fe Trail (EW);
- Cherokee Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Apache Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Church Street (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (South) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Palm Avenue (North) (NS) at Twentynine Palms Highway (SR-62) (EW);
- Sage Avenue (NS) at Onaga Trail (EW);
- Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW);
- Joshua Tree Lane (NS) at Yucca Trail (EW);
- Joshua Tree Lane (NS) at Onaga Trail (EW);
- Warren Vista Avenue (NS) at Yucca Trail (EW);
- Palomar Avenue (NS) at Yucca Trail (EW);
- Indio Avenue (NS) at Twentynine Palms Highway (SR-62) (EW);
- Indio Avenue (South) (NS) at Yucca Trail (EW); and
- Indio Avenue (North) (NS) at Yucca Trail (EW).

In addition, traffic signal control is anticipated to be warranted at the following study area intersection for 2030 Horizon Year Without Project conditions. Although the intersection is projected to operate at acceptable LOS, it was also analyzed assuming the provision of traffic signal control:

- Cherokee Trail (South) (NS) at Yucca Trail (EW).

Three of the study area intersections that have been identified as operationally deficient do not meet planning level signal warrants. Improvements analysis has included traffic signal control, as no other feasible improvements would provide acceptable LOS operations at the following locations:

- Elk Trail (NS) at Twentynine Palms Highway (SR-62) (EW);
- Indio Avenue (NS) at Twentynine Palms Highway (SR-62) (EW); and
- Indio Avenue (South) (NS) at Yucca Trail (EW).

The adjacent intersections of Palm Avenue (South) and Palm Avenue (North) at Twentynine Palms Highway (SR-62) present a special case. Both Palm Avenue intersections with Twentynine Palms Highway (SR-62) warrant traffic signal control and operate at deficient levels of service under 2030 Horizon Year Without Project

conditions. In order to provide acceptable traffic operations, a traffic signal is required, which would control both Palm Avenue (South and North) intersections with Twentynine Palms Highway (SR-62). The Caltrans Traffic Manual requires that offset intersections be within 60 meters (outside curb-to-outside curb distance) of each other in order to be signalized as a single intersection. The Palm Avenue (South and North) legs fit this criterion. This improvement for the Palm Avenue intersections with Twentynine Palms Highway (SR-62) are also assumed in the 2030 Horizon Year With Project operations analysis.

The intersection operations analyses for 2030 Horizon Year Without Project conditions *with improvements* are also included in Table 5.1-4. As shown in Table 5.1-4, all of the study area intersections are projected to operate at acceptable levels of service during the peak hours, with the identified improvements.

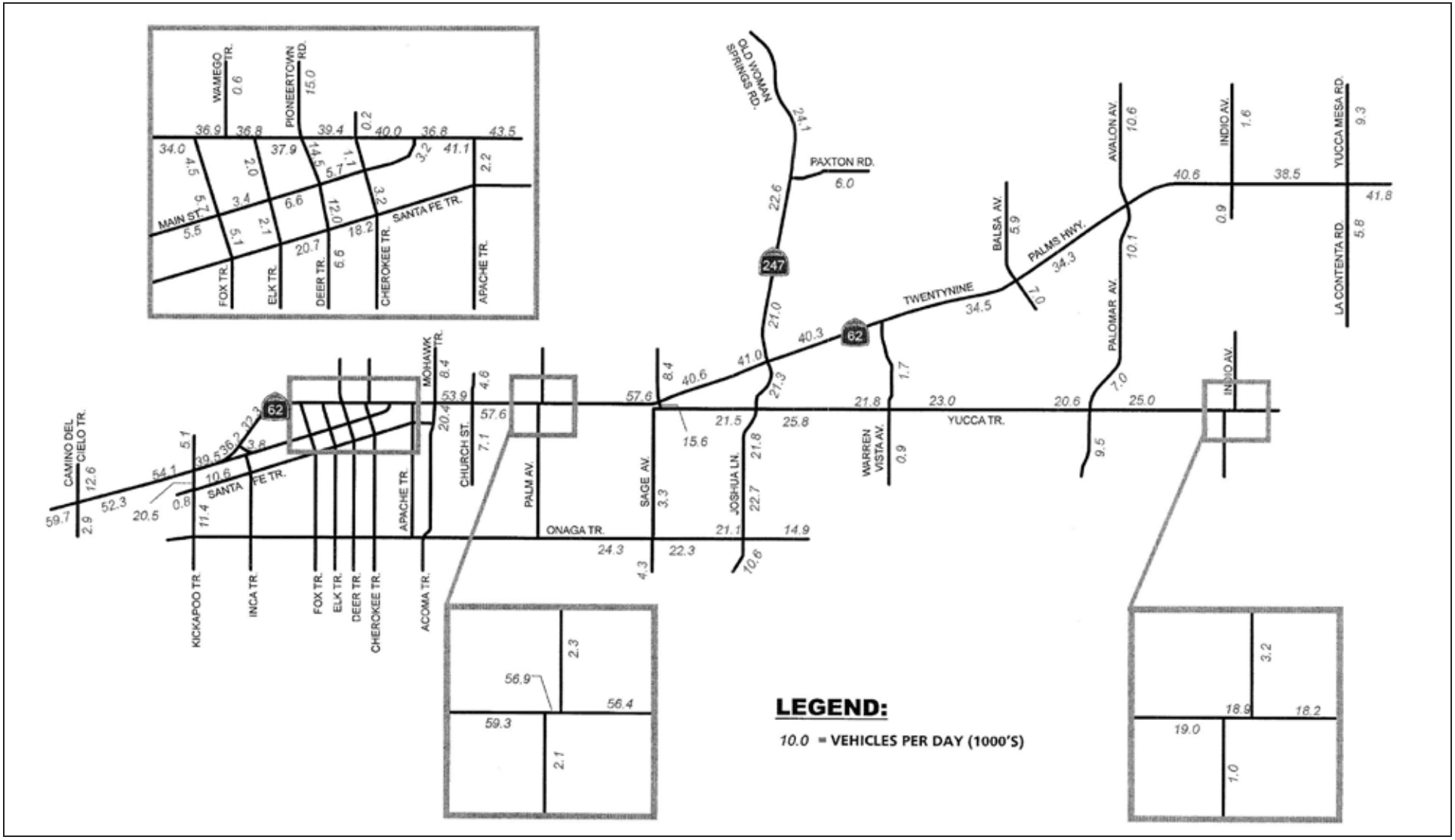
2030 Horizon Year With Project Conditions (With SR-62 Realignment)

2030 HORIZON YEAR WITH PROJECT DAILY TRAFFIC VOLUMES

ADT volumes for 2030 Horizon Year With Project conditions have been determined, as described above. Exhibit 5.1-24, *2030 Horizon Year ADT – With Project*, shows the ADT volumes, which can be expected for the 2030 Horizon Year With Project conditions. The traffic patterns are generally similar to 2030 without Project conditions. SR-62 is projected to carry traffic volumes ranging from 34,300 VPD to 59,700 VPD in the study area. SR-247, Yucca Trail, Joshua Tree Lane, and Onaga Trail are also expected to carry daily traffic volumes in excess of 20,000 VPD. The primary difference is that realigning SR-62 would reduce traffic volumes on Main Street in the Old Town area to between 3,200 and 6,600 VPD.

As described above, the proposed SR-62 realignment and Old Town Yucca Valley Specific Plan circulation plan have altered the names and geometric configurations of intersections within the SPA (as well as added two additional analysis locations). As such, regardless of whether the affected intersections warranted a traffic signal under existing or 2030 Horizon Year Without Project conditions, the intersections were reanalyzed with respect to traffic signal warrants under 2030 Horizon Year With Project conditions. Intersections outside the SPA were compared only with existing conditions, as the proposed Project is a Specific Plan that proposes a *General Plan* amendment (and not an additional project added) to the currently adopted *General Plan*. Traffic signals are anticipated to be warranted at the following intersections for 2030 Horizon Year With Project conditions:

- Camino del Cielo Trail (NS) at SR-62 (EW);
- Kickapoo Trail (NS) at Santa Fe Trail (EW);
- Main Street (Western Gateway) (NS) at SR-62 (EW);
- Fox Trail (NS) at SR-62 (EW);
- Elk Trail (NS) at SR-62 (EW);
- Pioneertown Road (NS) at SR-62 (EW);
- Pioneertown Road/Deer Trail (NS) at Main Street (EW);



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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2030 Horizon Year ADT With Project

Exhibit 5.1-24

- Deer Trail (NS) at Santa Fe Trail (EW);
- Main Street (Eastern Gateway) (NS) at SR-62 (EW);
- Apache Trail (NS) at SR-62 (EW);
- Sage Avenue (NS) at Onaga Trail (EW);
- Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW);
- Joshua Tree Lane (NS) at Onaga Trail (EW);
- Warren Vista Avenue (NS) at Yucca Trail (EW); and
- Indio Avenue (North) (NS) at Yucca Trail (EW).

The intersection of the North Site Access Driveway at Yucca Trail does not satisfy the Planning Level traffic signal warrant (based on intersection approach ADT), but does satisfy the Peak Hour warrant (Warrant 3) detailed in the 2003 Manual of Uniform Traffic Control Devices (MUTCD).

Appendix 15.3 includes the traffic signal warrant analysis worksheets and the daily traffic volume calculations.

2030 HORIZON YEAR WITH PROJECT OPERATIONS

The intersection operations analysis for 2030 Horizon Year With Project conditions is summarized in Table 5.1-5, *Intersection Analysis – 2030 Horizon Year With Project Conditions*. 2030 Horizon Year with Project AM and PM peak hour intersection turning movement volumes are presented on Exhibits 5.1-25, *2030 Horizon Year AM Peak Hour Intersection Volumes – With Project*, and 5.1-26, *2030 Horizon Year PM Peak Hour Intersection Volumes – With Project*, respectively. The operations analysis worksheets for 2030 Horizon Year With Project conditions are included in Appendix 15.3. As shown in Table 5.1-5, the following study area intersections are projected to experience unacceptable levels of service during the peak hours (without improvements) and are, therefore, deficient per the Town of Yucca Valley/County of San Bernardino criteria:

- Camino del Cielo Trail (NS) at SR-62 (EW);
- Kickapoo Trail (NS) at Santa Fe Trail (EW);
- Pioneertown Road (NS) at SR-62 (EW);
- Deer Trail (NS) at Santa Fe Trail (EW);
- Church Street (NS) at SR-62 (EW);
- Palm Avenue (South) (NS) at SR-62 (EW);
- Palm Avenue (North) (NS) at SR-62 (EW);
- Sage Avenue (NS) at Onaga Trail (EW);
- Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW);
- Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at SR-62 (EW);
- Joshua Tree Lane (NS) at Yucca Trail (EW);
- Joshua Tree Lane (NS) at Onaga Trail (EW);
- Warren Vista Avenue (NS) at Yucca Trail (EW);
- Palomar Avenue (NS) at Yucca Trail (EW);
- Indio Avenue (NS) at SR-62 (EW);
- Indio Avenue (South) (NS) at Yucca Trail (EW); and
- Indio Avenue (North) (NS) at Yucca Trail (EW).

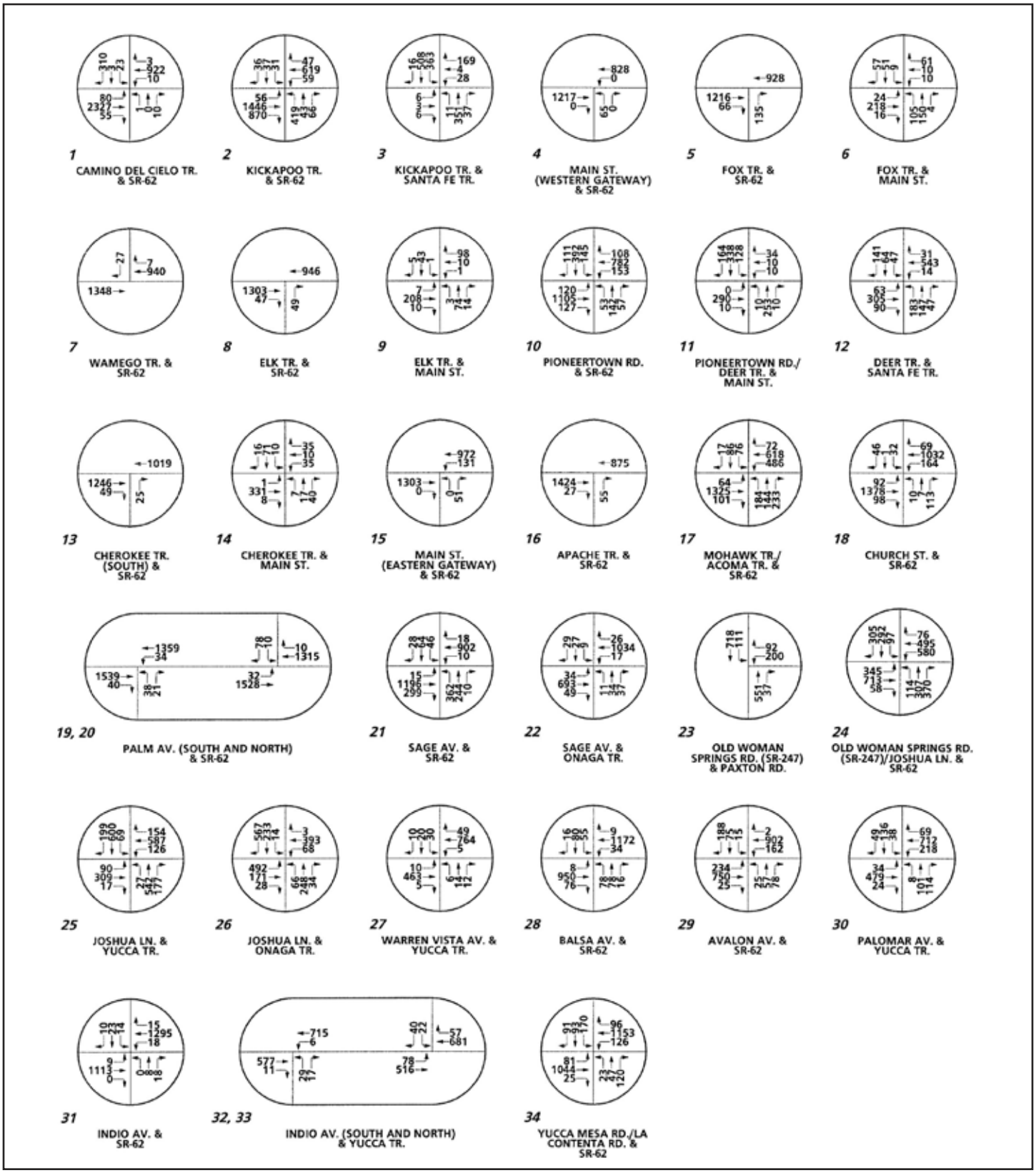
Table 5.1-5
Intersection Analysis – 2030 Horizon Year With Project Conditions

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay (seconds)[2]	LOS	Delay (seconds)[2]	LOS
Camino del Cielo Trail (NS) at:					
• SR-62 (EW)	CSS	–[3]	F	–[3]	F
- With Improvements[4]	**TS**[5]	24.2	C	30.5	C
Kickapoo Trail (NS) at:					
• SR-62 (EW)[6]	TS	53.5	F	42.9	D
- With Improvements[4]	TS	34.3	C	28.9	C
• Santa Fe Trail	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	28.3	C	46.7	D
Main St. (Western Gateway) at:					
• SR-62 (EW)[7]	–	–	–	–	–
- With Improvements	**TS**	6.5	A	8.9	A
Fox Trail (NS) at:					
• SR-62 (EW)[6]	–	–[3]	–	–	–
- With Improvements	CSS	13.8	B	22.5	C
Main St. (EW)[6]	CSS	19.6	C	16.8	C
Wamego Trail (NS) at:					
• SR-62 (EW)[6]	–	–	–	–	–
- With Improvements	CSS	10.6	B	11.8	B
Elk Trail (NS) at:					
• SR-62 (EW)[6]	–	–	–	–	–
- With Improvements	CSS	12.4	B	15.7	C
• Main St. (EW)6[5]	CSS	12.1	B	12.3	B
Pioneertown Road (NS) at:					
• SR-62 (EW)[6]	–	–	–	–	–
- With Improvements	**TS**	29.3	C	39.6	D
Pioneertown Road/Deer Trail (NS) at:					
• Main St. (EW)[6]	TS	18.1	B	16.9	B
Deer Trail (NS) at:					
• Santa Fe Trail (EW)	CSS	–	F	–	F
- With Improvements	**TS**	28.6	C	35.9	D
Cherokee Trail (South) (NS) at:					
• SR-62 (EW)[6]	–	–	–	–	–
- With Improvements	CSS	11.9	B	13.3	B
Cherokee Trail (NS) at:					
• Main St. (EW)[6]	CSS	13.5	B	11.7	B
Main St. (Eastern Gateway) (NS) at:					
• SR-62 (EW)[7]	–	–[3]	–	–	–
- With Improvements	**TS**	12.7	B	12.8	B
Apache Trail (NS) at:					
• SR-62 (EW)[6]	–	–	–	–	–
- With Improvements	CSS	12.9	B	15.7	C
Mohawk Trail/Acoma Trail (NS) at:					
• SR-62 (EW)[6]	TS	33.5	C	40.0	D
Church Street (NS) at:					
• SR-62 (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	22.7	C	41.5	D
Palm Avenue (South) (NS) at:					
• SR-62 (EW)	CSS	–[3]	F	–[3]	F
Palm Avenue (North) (NS) at:					
• SR-62 (EW)	CSS	–[3]	F	–[3]	F

Table 5.1-5 [continued]
Intersection Analysis – 2030 Horizon Year With Project Conditions

Study Intersection	AM Peak Hour			PM Peak Hour	
	Traffic Control[1]	Delay (seconds)[2]	LOS	Delay (seconds)[2]	LOS
Palm Avenue (NS) at:					
• SR-62 (EW)					
- With Improvements[8]	**TS**	16.5	B	20.0	C
Sage Avenue (NS) at:					
• SR-62 (EW)	TS	10.7	B	15.6	B
• Onaga Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	23.3	C	29.6	C
Old Woman Springs Road (SR-247) (NS) at:					
• Paxton Road (EW)	CSS	–[3]	F	–[3]	F
- With Improvements	**TS**	12.1	B	13.8	B
Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at:					
• SR-62 (EW)	TS	37.5	D	–	F
- With Improvements	TS	27.9	C	38.5	D
Joshua Tree Lane (NS) at:					
• Yucca Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	32.8	C	47.4	D
• Onaga Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	40.8	D	52.3	D
Warren Vista Avenue (NS) at:					
• Yucca Trail (EW)	CSS	47.7	E	–[3]	F
- With Improvements	**TS**	13.3	B	17.3	B
Balsa Avenue (NS) at:					
• SR-62 (EW)	TS	15.0	B	17.1	B
Avalon Avenue (NS) at:					
• SR-62 (EW)	TS	25.6	C	30.5	C
Palomar Avenue (NS) at:					
• Yucca Trail (EW)	AWS	–[3]	F	–[3]	F
- With Improvements	**TS**	27.7	C	35.2	D
Indio Avenue (NS) at:					
• SR-62 (EW)	CSS	–[3]	F	–[3]	F
- With Improvements[9]	**TS**	13.2	B	16.1	B
Indio Avenue(South) (NS) at:					
• Yucca Trail (EW)	CSS	26.7	D	40.5	E
- With Improvements	**AWS**	13.4	B	18.6	C
Indio Avenue(North) (NS) at:					
• Yucca Trail (EW)	CSS	24.6	C	–[3]	F
- With Improvements	**TS**	6.6	A	9.4	A
Yucca Mesa Road/La Contenta Road (NS) at:					
• SR-62 (EW)	TS	17.7	B	20.8	C

1. CSS = Cross Street Stop; TS = Traffic Signal; AWS = All-Way Stop.
2. Delay and level of service calculated using the following analysis software: Traffix, Version 7.8 R2 (2006). Per the 2000 Highway Capacity Manual, overall average intersection delay and level of service are shown for intersections with traffic signal or all-way stop control. For intersections with cross street stop control, the delay and level of service for worst individual movement (or movements sharing a single lane) are shown.
3. – = Delay High or V/C Ratio exceeding 1.0, Intersection Unstable, Level of Service "F".
4. Pedestrian crossing would be prohibited along the east and/or west legs of the intersection in order to provide acceptable LOS operations.
5. **Bold** = Improvement.
6. Geometric changes assumed at intersection in conjunction with the SR-62 Realignment (Alt. D) and proposed Old Town Yucca Valley Specific Plan Circulation Plan.
7. New analysis locations resulting from the SR-62 Realignment (Alt. D) and proposed Old Town Yucca Valley Specific Plan Circulation Plan.
8. The adjacent intersections of Palm Avenue (south) and Palm Avenue (North) at SR-62 are to be improved by means of a single traffic signal to control both of them. Pedestrian crossing would be prohibited along the east leg of the intersection in order to provide acceptable LOS operations.
9. This intersection does not warrant a traffic signal; however, no other feasible improvements would provide acceptable LOS operations.



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

NOT TO SCALE

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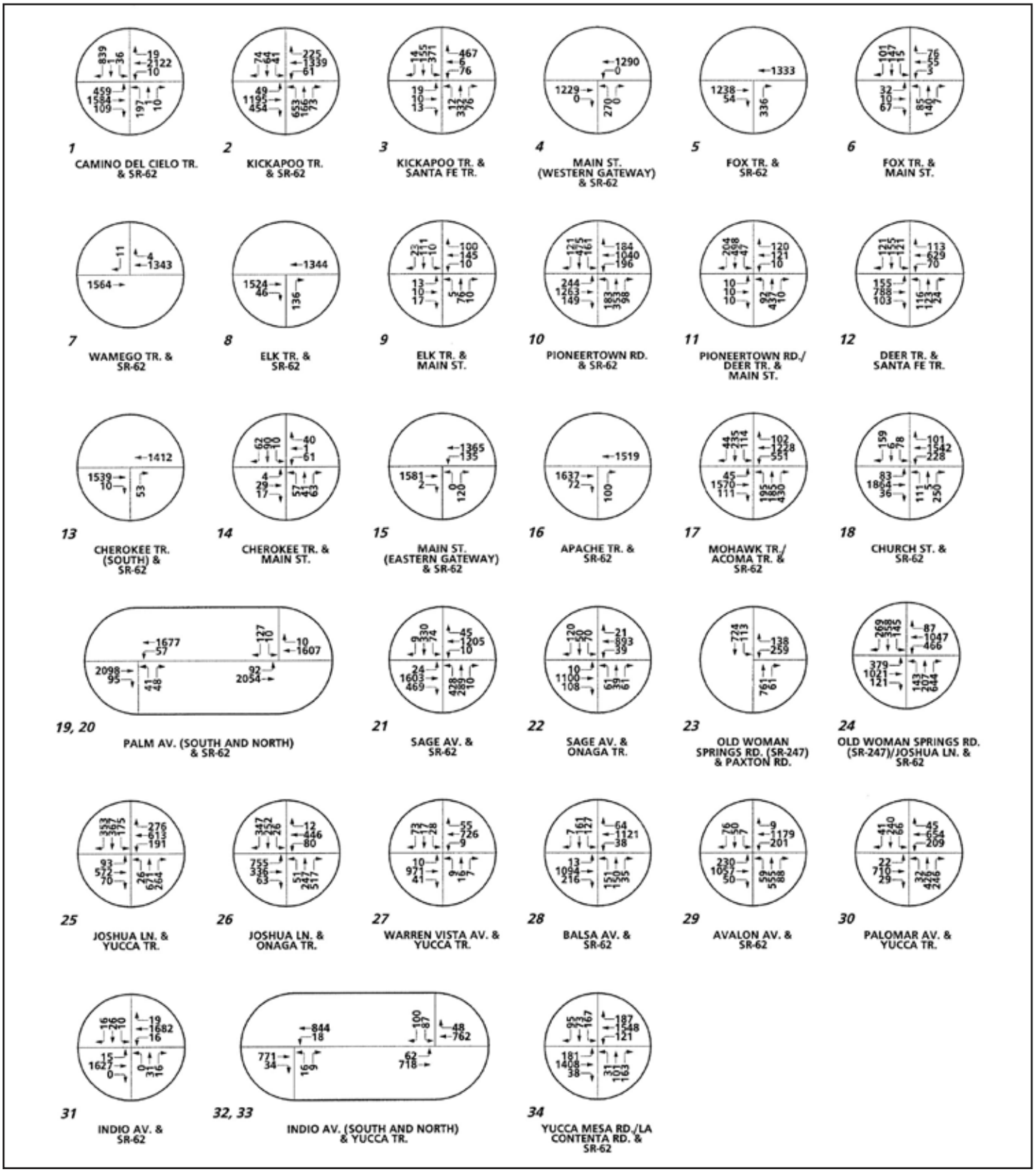
2030 Horizon Year AM Peak Hour Intersection Volumes - With Project

Exhibit 5.1-25



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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2030 Horizon Year PM Peak Hour Intersection Volumes - With Project

Exhibit 5.1-26

The intersections (outside the Project area) expected to experience deficient operations are consistent with the intersections identified for 2030 Without Project conditions.

Two of the study area intersections that have been identified as operationally deficient do not meet planning level signal warrants. Improvements analysis has included traffic signal control, as no other feasible improvements would provide acceptable LOS operations at the following locations:

- Indio Avenue (NS) at SR-62 (EW); and
- Indio Avenue (South) (NS) at Yucca Trail (EW).

The intersection operations analyses for 2030 Horizon Year With Project conditions *with improvements* are also included in Table 5.1-5, *Intersection Analysis – 2030 Horizon Year With Project Conditions*. As shown in Table 5.1-5, all of the study area intersections are projected to operate at acceptable levels of service during the peak hours, with the identified improvements. Most of the differences in required improvements compared to the 2030 Without Project (currently adopted *General Plan*) conditions occur within the SPA and are a direct result of the proposed realignment of SR-62. The only other difference identified through this analysis is a second westbound left-turn lane at the intersection of SR-247 and SR-62.

Required Improvements and Project Contribution

This section of the report summarizes the improvements required to meet CMP level of service requirements at CMP analysis locations.

2030 CMP REQUIRED IMPROVEMENTS

Improvements, which would eliminate all anticipated roadway operational deficiencies throughout the study area, have been identified for 2030 Horizon Year traffic conditions. The improvements were determined as part of the operations analysis presented above. Table 5.1-6, *2030 Improvements*, specifies the needed 2030 improvements for the study area intersections.

The definition of an intersection deficiency for intersections in the Town of Yucca Valley sphere of influence has been obtained from the Town of Yucca Valley General Plan. The General Plan states that peak hour intersection operations of LOS “D” or better are considered acceptable. Therefore, any Town of Yucca Valley intersection operating at LOS “E” or LOS “F” would be considered deficient. Per CMP and CALTRANS direction, state controlled facilities (state highways, freeway ramp intersection, etc.) are subject to local jurisdiction traffic operations requirements, with no greater than a 45-second average stopped delay per vehicle during peak hour operations (middle of LOS “D”).

Improvement measures have been evaluated based on each intersection’s mitigation requirements, to restore traffic operations to an acceptable level of service with respect to CMP and local jurisdiction LOS standards.

Table 5.1-6
2030 Improvements

Intersection	Improvement
Camino Del Cielo Tr. (NS) at: • SR-62 (EW)	Install a traffic signal Restripe NB shared left through lane as 1st exclusive left turn lane Reconstruct NB right turn lane as 1st through lane Restripe SB shared left through lane as 1st exclusive left turn lane Construct 1st SB through lane Construct 2nd SB right turn lane with Overlap phase Construct 2nd EB Left Turn lane Construct 2nd and 3rd WB through lane
Kickapoo Tr. (NS) at: • SR-62 (EW)	Construct 2nd NB Left Turn Lane Construct 3rd EB Through Lane Construct 3rd WB Through Lane
• Santa Fe Tr. (EW)	Install a traffic signal Construct 1st SB Left Turn Lane Construct 1st EB Left Turn Lane
Main Sl. (Western Gateway) (NS) at: • SR-62 (EW)	Install a traffic signal Construct 1st NB Left Turn Lane Construct 1st NB Right Turn Lane Construct 1st, 2nd, and 3rd EB Through Lanes [1] Construct 1st WB Left Turn Lane Construct 1st, 2nd, and 3rd WB Through Lanes [1]
Fox Tr. (NS) at: • SR-62 (EW)	Construct 1st NB Right Turn Lane Construct 1st, 2nd, and 3rd EB Through lanes [1] Construct 1st, 2nd, and 3rd WB Through lanes [1]
Warnego Tr. (NS) at: • SR-62 (EW)	Construct 1st SB Right Turn lane Construct 1st, 2nd, and 3rd EB Through lanes [1] Construct 1st, 2nd, and 3rd WB Through lanes [1]
Elk Tr. (NS) at: • SR-62 (EW)	Construct 1st NB Right Turn Lane Construct 1st, 2nd, and 3rd EB Through lanes [1] Construct 1st, 2nd, and 3rd WB Through lanes [1]
Pioneertown Rd. (NS) at: • SR-62 (EW)	Install a traffic signal Construct 1st NB left Turn lane Construct 1st NB Through lane Construct 1st SB left Turn lane Construct 1st SB through lane Construct 1st SB Right Turn lane Construct 1st EB left Turn Lane
Cherokee Tr. (NS) at: • SR-62 (EW)	Construct 1st NB Right Turn Lane Construct 1st, 2nd, and 3rd EB Through Lanes [1] Construct 1st, 2nd, and 3rd WB Through Lanes [1]
Main 51. (Eastern Gateway) (NS) at: • SR-62 (EW)	Install a traffic signal Construct 1st NB Left Turn Lane Construct 1st NB Right Turn Lane Construct 1st, 2nd, and 3rd EB Through Lanes [1] Construct 1st WB Left Turn Lane Construct 1st, 2nd, and 3rd WB Through Lanes [1]
Apache Tr. (NS) at: • SR-62 (EW)	Construct 1st NB Right Turn Lane Reconstruct Existing EB Right Turn Lane as 3rd Through Lane Reconstruct Existing WB Left Turn Lane as 3rd Through Lane

Table 5.1-6 [continued]
2030 Improvements

Intersection	Improvement
Mohawk Tr./Acoma Tr. (NS) at: • SR-62 (EW)	Reconstruct Existing EB Right Turn Lane as 3rd Through Lane Reconstruct Existing WB Right Turn Lane as 2nd Through Lane Construct 3rd WB Through Lane
Church SI. (NS) at: • SR-62 (EW)	Install a traffic signal Construct 1st NB Left Turn Lane Restripe SB shared left through lane as 1st exclusive left turn lane Reconstruct SB Right Turn Lane as 1st Through lane
Palm Av. (South) (NS) at: • SR-62 (EW)	Install a Traffic Signal[2] Construct 3rd EB Through Lane
Palm Av. (North) (NS) at: • SR-62 (EW)	Install a Traffic Signal
Sage Av. (NS) at: • Onaga Tr. (EW)	Install a Traffic Signal Construct 1st WB Left Turn Lane
Old Woman Springs Rd. (SR 247) (NS) at: • Paxton Rd. (EW)	Install a Traffic Signal Construct 2nd NB Through Lane Construct 2nd SB Through Lane
Old Woman Springs Rd. (SR 247)/Joshua Ln. (NS) at: • SR-62 (EW)	Construct 2nd WB Left Turn Lane
Joshua Ln. (NS) at: • Yucca Tr. (EW)	Install a Traffic Signal
Warren Vista Av. (NS): • Yucca Tr. (EW)	Install a Traffic Signal Restripe NB Shared Left Through Lane as 1st Exclusive Left Turn Lane Reconstruct NB Right Turn Lane as 1st Through Lane Construct 1st SB Left Turn Lane Restripe EB Shared Left Through Lane as 1st Exclusive Left Turn Lane Reconstruct EB Right Turn Lane as 1st Through Lane Restripe WB Shared Left Through Lane as 1st Exclusive Left Turn Lane Reconstruct WB Right Turn Lane as 1st Through Lane
Palomar Av. (NS) at: • Yucca Tr. (EW)	Install a Traffic Signal Construct 1st NB Left Turn Lane Construct 2nd NB Through Lane Construct 1st SB Left Turn Lane Construct 1st EB Left Turn Lane Construct 2nd EB Through Lane Restripe WB Shared Left Through Lane as 1st Exclusive Left Turn Lane Reconstruct WB Right Turn Lane as 1st Through Lane
Indio Av. (NS) at: • SR-62 (EW)	Install a Traffic Signal Construct 1st NB Left Turn Lane Construct 1st SB Left Turn Lane
Indio Av. (South) (NS) at: • Yucca Tr. (EW)	Install All Way Stop Construct 2nd EB Through Lane Restripe WB Shared Left Through Lane as 1st Exclusive Left Turn Lane Construct 1st and 2nd WB Through Lanes
Indio Av. (North) (NS) at: • Yucca Tr. (EW)	Install a Traffic Signal Restripe EB Shared Left Through Lane as 1st Exclusive Left Turn Lane Construct 1st EB Through Lane

1. See Appendix H for "through" cost calculation
2. Cost of $250,000 for Traffic Signal Installation is divided between Palm Avenue (North) and Palm Avenue (South) at SR-62

2030 Improvements

Camino Del Cielo Trail (NS) at SR-62 (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach should be restriped to provide an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The southbound approach would require an exclusive left turn lane, an exclusive through lane, and two right turn lanes with an overlap phase (this approach currently includes a shared left-through lane and an exclusive right turn lane). The eastbound approach would require the construction of a second EB left turn lane (this approach currently includes a single left turn lane). The westbound approach would require the construction of a second and third through lane (this approach currently includes a single through lane). These improvements would provide acceptable AM and PM peak hour operations.

Kickapoo Trail (NS) at SR-62 (EW). Deficiencies are projected for AM peak hour traffic operations. The intersection should be reconstructed to include a second northbound left turn lane, third eastbound through lane, and a third westbound through lane. These improvements would provide acceptable AM peak hour operations (there is no PM peak hour deficiency).

Kickapoo Trail (NS) at Santa Fe Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. The intersection should be improved by installing a traffic signal. The southbound approach should also be reconstructed to provide its first exclusive left turn lane (this approach currently includes a shared left-through-right turn lane). The eastbound approach should also be reconstructed to provide its first exclusive left turn lane (this approach currently includes a shared left-through-right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Main Street (Western Gateway) (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The intersection would need to be reconstructed to provide a traffic signal as its traffic control. The northbound approach should include an exclusive left turn lane and an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to include an exclusive left turn lane and three through lanes. These improvements would provide excellent AM and PM peak hour operations.

Fox Trail (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The northbound approach should include an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Wamego Trail (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The southbound approach should include an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through

lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Elk Trail (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The northbound approach should include an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Pioneertown Road (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The intersection would need to be reconstructed to provide a traffic signal as its traffic control. The northbound approach should include an exclusive left turn lane and a through lane. The southbound approach should be improved to include an exclusive left turn lane, a single through lane, and an exclusive right turn lane. The eastbound approach would need to be reconstructed to include an exclusive left turn lane and three through lanes. The westbound approach would require reconstruction to include an exclusive left turn lane and three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Deer Trail (NS) at Santa Fe Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach should be restriped to provide an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The southbound approach would require an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The eastbound approach should be restriped to provide an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The southbound approach should be restriped to provide an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Cherokee Trail (South) (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The northbound approach should include an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Main Street (Eastern Gateway) (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The intersection would need to be reconstructed to provide a traffic signal as its traffic control. The northbound approach should include an exclusive left turn lane and an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to include an exclusive left turn lane and three

through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Apache Trail (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The northbound approach should include an exclusive right turn lane. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Mohawk Trail/Acoma Trail (NS) at SR-62 (EW). This intersection is part of the SR-62 realignment. The eastbound approach would need to be reconstructed to include three through lanes. The westbound approach would require reconstruction to also include three through lanes. These improvements would provide acceptable AM and PM peak hour operations.

Church Street (NS) at SR-62 (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach should be reconstructed to provide an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The southbound approach would require an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Palm Avenue (North and South) (NS) at SR-62 (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal and phasing these two intersections to function as one intersection. The eastbound approach improvement should include the construction of a third through lane (this approach currently includes two through lanes). These improvements would provide acceptable AM and PM peak hour operations.

Sage Avenue (NS) at Onaga Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The westbound approach would require the construction of an exclusive left turn lane (this approach currently includes a shared left-through-right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Old Woman Springs Road (SR-247) (NS) at Paxton Road (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach should be reconstructed to provide a second through lane (this approach currently includes a single through lane). The southbound approach should be reconstructed to provide a second through lane (this approach currently includes a single through lane). These improvements would provide acceptable AM and PM peak hour operations.

Old Woman Springs Road (SR-247)/Joshua Tree Lane (NS) at SR-62 (EW). Deficiencies are projected for PM peak hour traffic operations. The westbound approach improvement includes the construction of a second westbound left turn

lane. This improvement would provide acceptable PM peak hour operations (there is no AM peak hour deficiency).

Joshua Tree Lane (NS) at Yucca Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. The needed improvement is installation of a traffic signal. This improvement would provide acceptable AM and PM peak hour operations.

Joshua Tree Lane (NS) at Onaga Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach improvements should include the construction of an exclusive left turn lane (this approach currently includes a shared left-through-right turn lane). The southbound approach improvements require restriping to include an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The eastbound approach would require the construction of a two EB left turn lanes (this approach currently includes a shared left-through-right turn lane). The westbound approach would require the construction of an exclusive left turn lane and a second through lane (this approach currently includes a shared left-through-right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Warren Vista Avenue (NS) at Yucca Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach improvements require restriping to include an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The southbound approach would require the construction of an exclusive left turn lane (this approach currently includes a shared left-through-right turn lane). The eastbound approach improvements require restriping to include an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). The westbound approach improvements should include an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Palomar Avenue (NS) at Yucca Trail (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound approach improvements should include the construction of an exclusive left turn lane and a second through lane (this approach currently includes a shared left-through-right turn lane). The southbound approach improvements include the construction of an exclusive left turn (this approach currently includes a shared left-through-right turn lane). The eastbound approach would require the construction of a left turn lane and a second through lane (this approach currently includes a shared left-through-right turn lane). The westbound approach would require restriping to include an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane and an exclusive right turn lane). These improvements would provide acceptable AM and PM peak hour operations.

Indio Avenue (NS) at SR-62 (EW). Deficiencies are projected for both AM and PM peak hour traffic operations. Needed improvements include installing a traffic signal. The northbound and southbound approach improvements include the construction of an exclusive left turn lane for each approach. These improvements would provide acceptable AM and PM peak hour operations.

Indio Avenue (South) (NS) at Yucca Trail (EW). Deficiencies are projected for PM peak hour traffic operations. Needed improvements include installing an All-Way-Stop. The eastbound approach improvements include the construction of a second through lane (this approach currently includes a shared through-right turn lane). The westbound approach improvements construction to include an exclusive left turn lane, and two through lanes (this approach currently includes a shared left-through lane). These improvements would provide acceptable PM peak hour operations (there is no AM peak hour deficiency).

Indio Avenue. (North) (NS) at Yucca Trail (EW). Deficiencies are projected for AM peak hour traffic operations. Needed improvements include installing a traffic signal. The eastbound approach improvements include the construction of an exclusive left turn lane and a through lane (this approach currently includes a shared left-through lane. These improvements would provide excellent AM and PM peak hour operations.

Project Contribution

The Project's fair share contribution towards the required improvements has also been calculated, based on the Project's percent of new traffic; refer to Table 5.1-7, *Project Fair Share Contribution*.

The necessary off-site improvement recommendations were described above. The Project would be required to contribute towards the cost of necessary study area improvements on a fair share or "pro-rata" basis by paying development impact fees and/or additional fair share contributions towards improvements not included in the adopted fee program.

ON-SITE IMPROVEMENTS

On-site improvements and improvements within the Old Town SPA would be required in conjunction with proposed development to ensure adequate circulation within the Project itself. Exhibit 5.1-27, *Project Circulation Recommendations*, illustrates the recommended roadway improvements to address on-site and regional (SR-62) circulation requirements within the SPA, which include the following:

- Construct a realigned SR-62 along Yucca Trail at its ultimate width as a 6-Lane Divided Highway in conjunction with the proposed Project.

Table 5.1-7
Project Fair Share Contribution

Intersection	Peak Hour	Existing Traffic	2030 Horizon Year With Project Traffic	Project Traffic	Total New Traffic	Project Percent Of New Traffic
Camino Del Cielo Tr. (NS) at:	AM	1,806	3,744	1,045	1,938	53.92%
• SR-62 (EW)	PM	2,217	5,387	2,574	3,170	81.20%
Kickapoo Tr. (NS) at:	AM	2,000	3,729	1,201	1,729	69.46%
• SR-62 (EW)	PM	2,239	4,394	1,928	2,155	89.47%
• Santa Fe Tr. (EW)	AM	283	1,502	310	1,219	25.43%
	PM	306	1551	299	1245	24.02%
Main Sl. (Western Gateway) (NS) at:	AM	0	2,110	737	2,110	34.93%
• SR-62 (EW)	PM	0	2,789	1,131	2,789	40.55%
Fox Tr. (NS) at:	AM	277	2,345	625	2,068	30.22%
• SR-62 (EW)	PM	258	2,961	1,130	2,703	41.81%
Wamego Tr. (NS) at:	AM	262	2,322	625	2,060	30.34%
• SR-62 (EW)	PM	239	2,922	1,130	2,683	42.12%
Elk Tr. (NS) at:	AM	235	2,345	625	2,110	29.62%
• SR-62 (EW)	PM	227	3,050	1,130	2,823	40.03%
Pioneertown Rd. (NS) at:	AM	346	3,295	865	2,949	29.33%
• SR-62 (EW)	PM	366	4,467	1,952	4,101	47.60%
Deer Tr. (NS) at:	AM	224	1,675	1,332	1,451	91.80%
• Santa Fe Tr. (EW)	PM	217	2,518	2,095	2,301	91.05%
Cherokee Tr. (NS) at:	AM	149	2,339	1,352	2,190	61.74%
• SR-62 (EW)	PM	140	3,014	2,188	2,874	76.13%
Main Sl. (Eastern Gateway) (NS) at:	AM	0	2,457	1,405	2,457	57.18%
• SR-62 (EW)	PM	0	3,203	2,193	3,203	68.47%
Apache Tr. (NS) at:	AM	2,082	2,381	1,405	299	469.90%
• SR-62 (EW)'	PM	2,784	3,328	2,193	544	403.13%
Mohawk Tr./Acoma Tr. (NS) at:	AM	2,156	3,406	1,392	1,250	111.36%
• SR-62 (EW)'	PM	2,987	4,810	2,098	1,823	115.09%
Church Sl. (NS) at:	AM	2,221	3,042	1,107	821	134.84%
• SR-62 (EW)'	PM	3,082	4,463	1,792	1,381	129.76%
Palm Av. (South) (NS) at:	AM	2,366	3,031	1,425	665	214.29%
• SR-62 (EW)'	PM	2,921	4,016	2,329	1,095	212.69%
Palm Av. (North) (NS) at:	AM	2,357	2,973	1,351	616	219.32%
• SR-62 (EW)'	PM	2927	3,900	2,192	973	225.28%
Sage Av. (NS) at:	AM	432	2,000	539	1,568	34.38%
• Onaga Tr. (EW)	PM	728	2,572	967	1,844	52.44%
Old Woman Springs Rd. (SR 247) (NS) at:	AM	988	1,709	306	721	42.44%
• Paxton Rd. (EW)	PM	1,166	2,056	498	890	55.96%
Old Woman Springs Rd. (SR 247)/Joshua Ln. (NS) at:	AM	2,711	3,752	922	1,041	88.57%
• SR-62 (EW)	PM	3,539	4,887	1,495	1,348	110.91%
Joshua Ln. (NS) at:	AM	1,118	2,897	228	1,779	12.82%
	PM	1,692	3,671	344	1,979	17.38%
• Yucca Tr. (EW)	AM	730	2,317	417	1,587	26.28%
• Onaga Tr. (EW)	PM	819	3,132	624	2,313	26.98%

Table 5.1-7 [continued]
Project Fair Share Contribution

Intersection	Peak Hour	Existing Traffic	2030 Horizon Year With Project Traffic	Project Traffic	Total New Traffic	Project Percent Of New Traffic
Warren Vista Av. (NS) :	AM	547	1,388	184	841	21.88%
• Yucca Tr. (EW)	PM	794	1,962	299	1,168	25.60%
Palomar Av. (NS) at:	AM	866	1,982	368	1,116	32.97%
• Yucca Tr. (EW)	PM	904	2,720	561	1,816	30.89%
Indio Av. (NS) at:	AM	1,519	2,523	492	1,004	49.00%
• SR-62 (EW)	PM	2,053	3,458	798	1,405	56.80%
Indio Av. (South) (NS) at:	AM	609	1,355	224	746	30.03%
• Yucca Tr. (EW)	PM	642	1692	349	1,050	33.24%
Indio Av. (North) (NS) at:	AM	604	1,394	181	790	22.91%
• Yucca Tr. (EW)	PM	625	1,777	298	1,152	25.87%

- Reconstruct Main Street to provide a pedestrian-friendly local street per Specific Plan cross-sections and recommendations.

- Signal coordination should be considered for signalized intersections less than 0.25-mile apart. Additional analysis should be completed in conjunction with actual construction of traffic signals and related improvements.

- Construct Santa Fe Trail through the SPA at its ultimate section width as a 4-Lane Collector in conjunction with the proposed Project.

- Construct Pioneertown Road/Deer Trail through the SPA at its ultimate section width as a 4-Lane Collector in conjunction with the proposed Project.

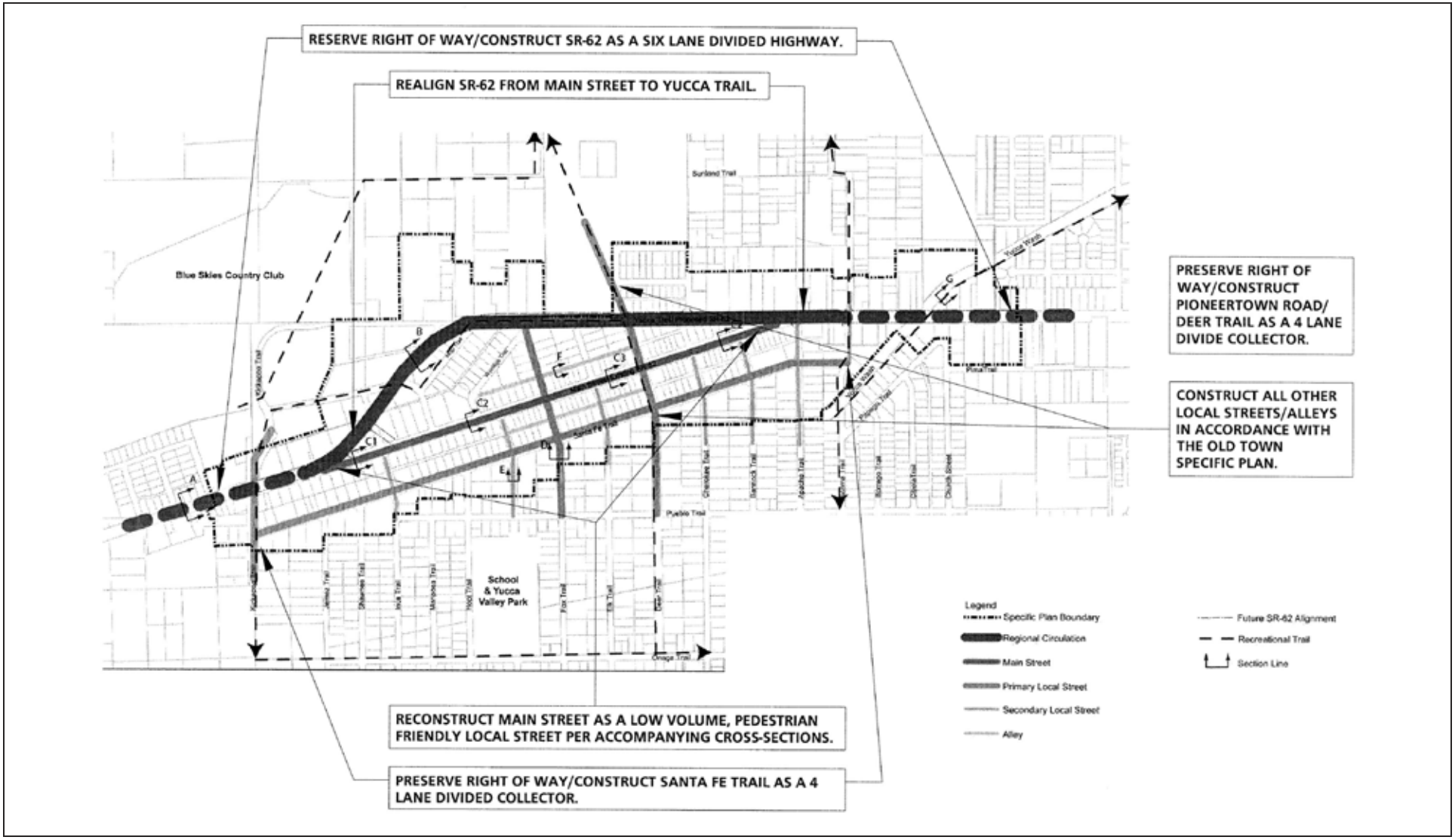
- Provide stop sign control for all unsignalized site access driveways.

- Sight distance at the Project area access points should be reviewed with respect to Town of Yucca Valley standards in conjunction with the preparation of precise grading and landscape plans.

- Participate in the phased construction of off-site traffic signals and roadway improvements through payment of established fees or fair share contribution towards improvements not included in the fee program(s).

Mitigation Measures:

TRA-1 Future development projects shall contribute towards the cost of necessary study area improvements on a fair share or "pro-rata" basis by paying development impact fees and/or additional fair share contributions towards improvements not included in the adopted fee program; refer to Table 5.1-6, *2030 Roadway Improvements*, and Table 5.1-7, *Project Fair Share Contribution*.



SOURCE: Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis, Urban Crossroads, August 7, 2005.

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ENVIRONMENTAL IMPACT REPORT
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Project Circulation Recommendations

Exhibit 5.1-27

TRA-2 On-site improvements and improvements within the SPA shall be implemented by future development projects to ensure adequate circulation within the Project itself, as illustrated on Exhibit 5.1-27, *Project Circulation Recommendations*, and shall include the following:

- Construct a realigned SR-62 along Yucca Trail at its ultimate width as a 6-Lane Divided Highway in conjunction with the proposed Project.
- Reconstruct Main Street to provide a pedestrian-friendly local street per Specific Plan cross-sections and recommendations.
- Signal coordination shall be considered for signalized intersections less than 0.25-mile apart. Additional analysis shall be completed in conjunction with actual construction of traffic signals and related improvements.
- Construct Santa Fe Trail through the SPA at its ultimate section width as a 4-Lane Collector in conjunction with the proposed Project.
- Construct Pioneertown Road/Deer Trail through the SPA at its ultimate section width as a 4-Lane Collector in conjunction with the proposed Project.
- Provide stop sign control for all unsignalized site access driveways.
- Sight distance at the Project area access points should be reviewed with respect to Town of Yucca Valley standards in conjunction with the preparation of precise grading and landscape plans.
- Participate in the phased construction of off-site traffic signals and roadway improvements through payment of established fees or fair share contribution towards improvements not included in the fee program(s).

Level of Significance: Less Than Significant Impact After Mitigation.

5.1.5 SIGNIFICANT UNAVOIDABLE IMPACTS

Following implementation of all mitigation measures (i.e., all recommended improvements), traffic and circulation impacts would be reduced to a less than significant level.

5.2 AIR QUALITY

This section evaluates air quality associated with short- and long-term impacts resulting from buildout of the Old Town Yucca Valley Specific Plan. Information in this section is based primarily on the *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (May 2006),* prepared by the Mojave Desert Air Quality Management District (MDAQMD), Air Quality Data (California Air Resources Board 2001 through 2005, and the *MDAQMD 2004 Ozone Attainment Plan (State and Federal)* (*Attainment Plan*).

5.2.1 EXISTING SETTING

MOJAVE DESERT AIR BASIN

The State of California is divided geographically into 15 air basins. The Town of Yucca Valley is located within the Mojave Desert Air Basin (MDAB). The MDAB includes the desert portions of Los Angeles and San Bernardino Counties, the eastern desert portion of Kern County, and the northeastern desert portion of Riverside County. This MDAQMD has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County. This region includes the incorporated communities of Adelanto, Apple Valley, Barstow, Blythe, Hesperia, Needles, Twentynine Pines, Victorville, and Yucca Valley. This region also includes the National Training Center (NTC) at Fort Irwin, the Marine Corps Air Ground Combat Center, and the Marine Corps Logistics Base in the eastern portion of Edwards Air Force Base.

CLIMATE

During the summer a Pacific Subtropical High cell that sits off the coast generally influences the MDAB, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4° F.

WIND

Local meteorological conditions are greatly affected by the topography of the region. Wind direction is primarily from the west, west-southwest and southwest. A significant portion of the prevailing winds in the Yucca Valley area is due to the phenomena known as the “orographic effect.” The air is forced over the mountain range and loses moisture as it rises. When it descends, it also compresses and heats up. The speed of the wind is aided by the “desert heat lows,” which routinely form over the eastern Mojave Desert area. Although a portion of Yucca Valley’s

winds comes from the Los Angeles Basin via the canyons, the vast majority of the winds are a result of the orographic effect and the desert heat low-pressure systems. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses.

TEMPERATURE INVERSIONS

The southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in the southland. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air that acts as a lid through which the marine layer cannot rise. When the inversion layer is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over mountain slopes or through passes. At a height of 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long period of time, allowing them to form secondary pollutants by reacting with sunlight.

The inversion conditions in the MDAB are much less favorable for the buildup of high ozone concentrations than in the coastal areas of Southern California. When subsidence inversions occur, they are generally 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is often much lower. As a result, meteorology in the MDAB is less conducive for the chemical mixing characteristic of typical ozone formation.

MONITORED AIR QUALITY LEVELS

The Project area's local ambient air quality is monitored by the Mohave Desert Air Quality Management District (MDAQMD) and the California Air Resources Board (CARB). CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above-ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

The Joshua Tree-National Monument monitoring station in the MDAB is the nearest monitoring station to Yucca Valley, located approximately 12 miles to the south, but only monitors 8-hour ozone (O_3). Other monitoring stations including Palm Springs-Fire Station (20 miles south), Lucerne Valley-Middle School (35 miles northwest), and Victorville-Park Avenue (55 miles northwest), were used to collect data on sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), fine particulate matter ($PM_{2.5}$), and coarse particulate matter (PM_{10}). Air quality data from 2001 to 2005 from the monitoring stations is provided in Table 5.2-1, *Local Air Quality Levels*. The following air quality information briefly describes the various types of pollutants.

Table 5.2-1
Local Air Quality Levels

Pollutant	California Standard	Federal Primary Standard	Year	Maximum Concentration[1]	Days (Samples) State/Federal Standard was Exceeded
Ozone (O_3) 1 hour	0.09 ppm	NA	2001	0.137[2]	53/6
			2002	0.136[2]	49/2
			2003	0.141[2]	54/4
			2004	0.125[2]	36/1
			2005	0.139[2]	41/4
Ozone (O_3) 8 hour	0.070 ppm	0.08 ppm	2001	0.106[3]	3/0
			2002	0.133[3]	38/3
			2003	0.140[3]	41/9
			2004	0.137[3]	35/3
			2005	0.131[3]	38/2
Carbon Monoxide (CO)	9.0 ppm (8 hour)	9.0 ppm (8 hour)	2001	1.60[2]	0/0
			2002	1.14[2]	0/0
			2003	1.39[2]	0/0
			2004	0.80[2]	0/0
			2005	0.80[2]	0/0
Nitrogen Dioxide (NO_2)	0.25 ppm (1 hour)	0.053 ppm annual average	2001	0.081[2]	0/NA
			2002	0.068[2]	0/NA
			2003	0.067[2]	0/NA
			2004	0.066[2]	0/NA
			2005	0.059[2]	0/NA
Particulate Matter (PM_{10})[6,7]	50 ug/m^3 (24 hours)	150 ug/m^3 (24 hours)	2001	50.0[4]	NA/0
			2002	46.0[4]	NA/0
			2003	79.0[4]	1/0
			2004	53.0[4]	0/0
			2005	64.0[4]	1/0
Fine Particulate Matter ($PM_{2.5}$)[7]	12 μg/m^3 Annual Arithmetic mean	65μg/m^3 (24 hours)	2001	44.7[2]	NA/0
			2002	42.3[2]	NA/0
			2003	21.2[2]	NA/0
			2004	27.1[2]	NA/0
			2005	26.1[2]	NA/0
Sulfur Dioxide (SO_2)	0.25 ppm (1 hour)	0.14 ppm for 24 hours or 0.03 ppm annual arithmetic mean	2001	0.005[5]	0/0
			2002	0.006[5]	0/0
			2003	0.006[5]	0/0
			2004	0.003[5]	0/0
			2005	0.003[5]	0/0

Source: Aerometric Data Analysis and Measurement System (ADAM), summaries from 2001 to 2005, http://www.arb.ca.gov/adam.

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NM = not measured; μg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable.

1. Maximum concentrations are measured over the same period as the California standard.
2. Palm Springs-Fire Station monitoring station is located at 590 East Racquet Club Avenue, Palm Springs, CA 92262.
3. Joshua Tree-National Monument monitoring station is the closest 8-hour Ozone monitoring to the Project site located at Black Rock, Joshua Tree National Park, CA 92252.
4. Lucerne Valley-Middle School monitoring station is the closest PM_{10} monitoring station to the Project site located 8532 Aliento Road, Lucerne, CA 92356.
5. Victorville-Park Avenue monitoring station is the closest SO_x monitoring station located at 14306 Park Avenue, Victorville, CA 92392.
6. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20,2002.
7. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Ozone

Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

"Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOC), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are ozone precursors. VOCs and NO_X are emitted from various sources throughout the Town. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill plant communities) and damages agricultural crops and some man-made materials (such as rubber, paint and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

The State ozone standard is 0.09 parts per million (ppm), averaged over one hour. The State standard at the Victorville-Park Avenue monitoring station was exceeded 91 days between 2001 and 2005. The Federal standard for O_3 is 0.12 ppm, averaged over one hour, and was exceeded 7 days between 2001 and 2005. The MDAB is designated as a nonattainment area for State and Federal O_3 standards.

Carbon Monoxide

Carbon monoxide is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, unconsciousness and death. State and Federal standards were not exceeded in between 2001 and 2005. The MDAB is designated as an attainment area for State and Federal CO standards.

Nitrogen Dioxide

Nitrogen oxides are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. Nitrogen dioxide (NO_2), often used interchangeably with NO_X, is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in

areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_X can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_X concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

State and Federal standards were not exceeded between 2001 and 2005. The MDAB is designated as an attainment area for State and Federal NO_2 standards.

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, and is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. Some particles are large or dark enough to be seen as soot or smoke; others are so small that they can be detected only with an electron microscope. PM_{10} particles are less than or equal to 10 microns in aerodynamic diameter; $PM_{2.5}$ particles are less than or equal to 2.5 microns in aerodynamic diameter, and are a subset (portion) of PM_{10}.

In the western United States, there are sources of PM_{10} in both urban and rural areas. PM_{10} and $PM_{2.5}$ are emitted from stationary and mobile sources, including diesel trucks and other motor vehicles, power plants, industrial processing, wood-burning stoves and fireplaces, wildfires, dust from roads, construction, landfills, agriculture, and fugitive windblown dust.

PM_{10} and $PM_{2.5}$ particles are small enough to be inhaled into, and lodge in, the deepest parts of the lung. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings.

The State standard for PM_{10} is 50 micrograms per cubic meter ($\mu g/m^3$) averaged over 24 hours; this standard was exceeded twice between 2001 and 2005. The Federal standard for PM_{10} is 150 $\mu g/m^3$ averaged over 24 hours; this standard was not provided. The MDAB is designated as a nonattainment area for State PM_{10} standards. Based upon a desire to set clean air goals throughout the State, the CARB created a new annual average standard for $PM_{2.5}$ at 12 $\mu g/m^3$. Currently, the

CARB has issued a staff report that recommends that the MDAB be designated as nonattainment for State and Federal $PM_{2.5}$ standards.[1]

Sulfur Dioxide

Sulfur dioxide is a colorless, pungent gas belonging to the family of sulfur oxide gases (SO_X), formed primarily by combustion of sulfur-containing fossil fuels (primarily coal and oil) metal smelting and other industrial processes. Sulfur dioxide (often used interchangeably with sulfur oxides [SO_X]) did not exceed Federal or State standards between 2001 and 2005. The MDAB is designated as an attainment area for both State and Federal SO_2 standards.

The major health concerns associated with exposure to high concentrations of SO_X are effects on breathing, respiratory illness, diminishment of pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_X are individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as children and the elderly. Emissions of SO_X also can damage the foliage of trees and agricultural crops. Together, SO_X and NO_X are the major precursors to acid rain, which is associated with the acidification of lakes and streams, and the accelerated corrosion of buildings and public monuments. Sulfur oxides can react to form sulfates, which significantly reduce visibility.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern in Southern California. There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset conditions. Health effects of TACs include cancer, birth defects, neurological damage and death. The ten TACs posing the greatest health risk in California are acetaldehyde, benzene, 1-3 butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchlorethylene, and diesel particulate matter.

California regulates TACs through its Air Toxics Program, mandated in Chapter 3.5 - Toxic Air Contaminants of the Health and Safety Code (H&SC Section 39660 et. seq.) and Part 6 - Air Toxics “Hot Spots” Information and Assessment (H&SC Section 44300 et. seq.).

CARB is working in conjunction with the Office of Environmental Health Hazard Assessment (OEHHA), in order to identify potential sources of TACs. Air toxic control measures may then be adopted to reduce ambient concentrations of the identified toxic air contaminant below a specific threshold based on its effects on

[1] U.S. Environmental protection Agency (EPA), *Fine Particle ($PM_{2.5}$) Designations* web site: http://www.epa.gov/pmdesignations/documents/120/table.htm.

health, or to the lowest concentration achievable through use of best available control technology for toxics (T-BACT). The program is administered by CARB. Air quality control agencies, including the MDAQMD, must incorporate air toxic control measures into their regulatory programs or adopt equally stringent control measures as rules within six months of adoption by CARB.

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than on ambient air conditions to determine allowable emissions from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a significant health risk and are termed "toxic hot spots."

Reactive Organic Gases and Volatile Organic Compounds

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and volatile organic compounds (VOCs). ROGs comprise all hydrocarbons except those exempted by the CARB. Therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they comprise all organic gases except those exempted by federal law. VOCs are therefore a set of organic gases based on federal rules and regulations. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions and paint (via evaporation).

The health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons are considered toxic air contaminants ("air toxics"). There are no separate health standards for VOCs, although some VOCs are also toxic; an example is benzene, which is both a VOC and a carcinogen.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than are the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors are residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent center, and retirement homes. The Project area is surrounded by sensitive receptors within a one-mile radius; refer to Table 5.2-2, *Sensitive Receptors in the Project Vicinity*. As indicated in Table 5.2-2, the Project is directly adjacent to residential neighborhoods, schools, parks, and healthcare facilities.

5.2.2 REGULATORY SETTING

Regulatory oversight for air quality in the MDAB rests with the Mojave Desert Air Quality Management District at the regional level, the California Air Resources Board

at the State level, and the U.S. Environmental Protection Agency (EPA) Region IX office at the Federal level.

Table 5.2-2
Sensitive Receptors in the Project Vicinity

Type	Name	Distance from Project Site (miles)[1]	Direction from Project Site
Residential	Various	0.25 – 1.0	Various
Schools	Yucca Valley Elementary School	≤ 0.50	Southeast
	Yucca Valley Adventist Team School	≤ 1.0	Southeast
	Yucca Valley Christian School	0.0	Within Planning Area
	Yucca Valley High School	≤ 0.25	South
Parks	Yucca Valley Park	≤ 0.50	South
	Blue Skies Country Club	≤ 0.25	Northwest
	Desert Christ Park	≤ 1.0	North
Religious Centers	Church of the Nazarene	≤ 0.50	North
	Yucca Valley Foursquare Church	≤ 0.25	South

Source: http://maps.google.com
1. Sensitive receptor populations utilized in this analysis are those within a one-mile radius of the Project site.

U.S. ENVIRONMENTAL PROTECTION AGENCY

The principal air quality regulatory mechanism at the federal level is the Clean Air Act (CAA) and, in particular, the 1990 amendments to the Federal Clean Air Act (FCAA) and the National Ambient Air Quality Standards (NAAQS) that it establishes. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone, carbon monoxide, nitrogen dioxide (NO_2 is a form of NO_x), sulfur oxides (SO_2 is a form of SO_x), particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively) and lead (Pb); refer to Table 5.2-3, *National and California Ambient Air Quality Standards*. The EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf) and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives and interstate trucking.

CALIFORNIA AIR RESOURCES BOARD

The CARB, a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the FCAA requirements and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish California Ambient Air Quality Standards (CAAQS) and a legal mandate to achieve these standards by the earliest practicable date. These standards apply to the same criteria pollutants as the FCAA and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride; refer to Table 5.2-3.

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT

Air districts have the primary responsibility to control air pollution from all sources other than those directly emitted from motor vehicles, which are the responsibility of the CARB and the EPA. Air districts adopt and enforce rules and regulations to achieve State and federal ambient air quality standards and enforce applicable State and Federal law.

On July 1, the former San Bernardino County Air Pollution Control District became the Mojave Desert Air Quality Management District, an autonomous agency under local control. As stated before, the MDAQMD has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County. This region includes the incorporated communities of Adelanto, Apple Valley, Barstow, Blythe, Hesperia, Needles, Twentynine Pines, Victorville, and Yucca Valley.

The portion of the Southeast Desert Modified Air Quality Maintenance Area (SDMAQMA) has been given a Severe-17 non-attainment designation by the U.S. EPA for ozone. This area includes the Coachella Valley/San Jacinto region in Riverside County, the Victor Valley/Barstow region in San Bernardino County (which includes the project site) and the Antelope Valley region in Los Angeles County. The U.S. EPA designated this area as Severe-17 on the basis of a 0.24 ppm ozone value measured in Banning, California.

The Severe-17 designation requires the MDAQMD to implement a program to reach the ozone standard by November 15, 2007. In order to comply with Federal Regulations, the MDAQMD developed the *Post 1996 Attainment Demonstration and Reasonable Further Progress Plan* (ADP), adopted October 26, 1994, which provides an update to the efforts utilized to meet the State and Federal standards. The ADP concludes that the Federal ozone standard will be met in 2007, as a result of emission reduction in the South Coast Air Basin (SCAB). An Urban Airshed Model (UAM) evaluation was conducted by the South Coast Air Quality Management District (SCAQMD) to demonstrate this. Adding in the effect of the emission reduction identified by the MDAQMD in the ADP, results in the reduction of peak ozone concentrations from 12 parts per million (ppm) down to six to nine ppm.

In 2004, the MDAQMD adopted the *2004 Ozone Attainment Plan* (*Attainment Plan*) to update the previous ADP. The MDAQMD has adopted enforceable emission limitations, has a monitoring system in place throughout the populated portions of the Federal Ozone Non-Attainment Area (FONA), maintains a permit program (including a New Source Review program with an ambient air quality modeling requirement), and has performed an attainment demonstration using air quality modeling. The *Attainment Plan* incorporates all reasonably available control measures (all such measures have already been adopted for the FONA) and include a comprehensive, accurate and current inventory of actual emissions. The *Attainment Plan* also

documents reasonable further progress for the applicable periodic milestone dates (2007).

Table 5.2-3
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Extreme Nonattainment**	NA[5]	NA[5]
	8 Hours	0.07 (137 μg/m³)	Unclassified	0.08 ppm (157 μg/m³)	**Sever 17 Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 μg/m³	**Nonattainment**	150 μg/m³	**Serious Nonattainment**
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	50 μg/m³	**Serious Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate Standard		65 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	15 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	8 Hours	9.0 ppm μg/m³	Attainment	9 ppm (10 μg/m³)	**Nonattainment[6]**
	1 Hour	20 ppm (23μg/m³)	Attainment	35 ppm (40 μg/m³)	**Nonattainment[6]**
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	NA	NA	0.053 ppm (100 μg/m³)	Attainment
	1 Hour	0.25 ppm (470 μg/m³)	Attainment	NA	NA
LEAD (Pb)	30 days average	1.5 μg/m³	Attainment	NA	NA
	Calendar Quarter	NA	NA	1.5 μg/m³	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 μg/m³)	Attainment
	24 Hours	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (365 μg/m³)	Attainment
	3 Hours	NA	NA	NA	Attainment
	1 Hour	0.25 μg/m³	Attainment	NA	NA
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		

Source: California Air Resources Board and U.S. Environmental Protection Agency, 2005.

μg/m³ = micrograms per cubic meter; ppm = parts per million; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; NA = Not Applicable

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM_{10}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, the CARB identified vinyl chloride as a Toxic Air Contaminant and determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable* if (1) monitored air quality data show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005.
6. Technically, the Basin is in attainment for CO, however, has not been designated by EPA.

STATE AIR TOXICS PROGRAM

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern in Southern California. There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating, commercial operations such as gasoline stations and dry cleaners, and motor vehicle engine exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset (spill) conditions. Health effects of TACs include cancer, birth defects, neurological damage, and death.

California regulates toxic air contaminants through its air toxics program, mandated in Chapter 3.5 (Toxic Air Contaminants) of the Health and Safety Code (H&SC Section 39660 et. seq.) and Part 6 (Air Toxics "Hot Spots" Information and Assessment) (H&SC Section 44300 et. seq.). The CARB, working in conjunction with the State Office of Environmental Health Hazard Assessment, identifies TACs. Air toxic control measures may then be adopted to reduce ambient concentrations of the identified TAC to below a specific threshold, based on its effects on health, or to the lowest concentration achievable through use of best- available control technology for toxics (T-BACT). The program is administered by the CARB. Air quality control agencies, including the MDAQMD, must incorporate air toxic control measures into their regulatory programs or adopt equally stringent control measures as rules within six months of adoption by CARB.

The Air Toxics "Hot Spots" Information and Assessment Act, codified in the Health and Safety Code, requires operators of specified facilities in the MDAQMD to submit to the MDAQMD comprehensive emissions inventory plans and reports by specified dates (H&SC Section 39660 et. seq. and Section 44300 et. seq.). The MDAQMD reviews the reports and then places the facilities into high-intermediate-, and low-priority categories, based on the potency, toxicity, quantity, and volume of hazardous emissions and on the proximity of potential sensitive receptors to the facility. Facilities designated as high priority (Category A) must prepare a health risk assessment (HRA). If the HRA finds a significant risk, the surrounding population must be notified. The emissions inventory data are to be updated every two years.

The CARB in 1998 identified diesel engine particulate matter as a TAC. Mobile sources (including trucks, buses, automobiles, trains, ships, and farm equipment) are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the particles, and because diesel particles are very small, they penetrate deeply into the lungs. Diesel engine particulate matter is a human carcinogen. The cancer risk from exposure to diesel exhaust may be much higher than the risk associated with any other toxic air pollutant routinely measured in the region.

Before California listed particulate matter from diesel engine exhaust as a TAC, it had already adopted various regulations that would reduce diesel emissions. These regulations include new standards for diesel engine fuel; exhaust emission standards for new diesel trucks, buses, autos, and utility equipment; and inspection and maintenance requirements for health duty vehicles. Since listing diesel exhaust as a TAC, the CARB has been evaluating what additional regulatory action is needed to reduce public exposure. The CARB does not anticipate banning diesel fuel or engines; however, it may consider additional requirements for diesel fuel and engines, as well as other measures to reduce public exposure.

5.2.3 IMPACT THRESHOLDS AND SIGNIFCANCE CRITERIA

CEQA SIGNIFICANCE CRITERIA

In accordance with CEQA, the effects of a project are evaluated to determine whether they would result in a significant impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to avoid or lesson any significant impacts that are identified. The criteria (standards) used to determine the significance of impacts may vary, depending on the nature of the project. Air quality impacts resulting from implementation of the proposed Project could be considered significant if they would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

STANDARDS-BASED THRESHOLDS[2]

MDAQMD *CEQA and Federal Conformity Guidelines* establish thresholds for pollutant emissions generated both during and following construction.

Criteria Pollutants

For purposes of this air quality analysis, actions that violate Federal standards for criteria pollutants (i.e., primary standards designed to safeguard the health of people considered to be sensitive receptors, and outdoor and secondary standards designed to safeguard human welfare) are considered significant impacts.

[2] Mojave Desert Air Quality Management District, *California Environmental Quality Act* (*CEQA) and Federal Conformity Guidelines,* May 2006.

Additionally, actions that violate State standards developed by the CARB or criteria developed by the MDAQMD, including thresholds for criteria pollutants, are considered significant impacts. Table 5.2-4, *Construction and Operational Air Emissions Thresholds*, provides the thresholds set forth by the MDAQMD.

Table 5.2-4
Construction and Operational Air Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Thresholds (lbs)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOCs)	25	137
Oxides of Sulfur (SO_X)	25	137
Particulate Matter (PM_{10})	15	82

Source: Mojave Desert Air Quality Management District, *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*, May 2006.

A project must incorporate mitigation sufficient to reduce its impact to a less than significant level. A project that cannot be mitigated to a level that is less than significant is required to incorporate all feasible mitigation. It should be noted that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

5.2.4 IMPACTS AND MITIGATION MEASURES

SHORT-TERM AIR QUALITY IMPACTS

- **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT COULD RESULT IN SIGNIFICANT AIR POLLUTANT EMISSIONS IMPACTS.**

Impact Analysis: Construction activities produce combustion emissions from various sources including demolition, site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling, and motor vehicles transporting the construction crew. The use of construction equipment on-site would result in localized vehicular exhaust emissions. Vehicular exhaust emissions during site construction would vary as construction activity levels change.

Table 5.2-5, *Land Use Plan Buildout Summary*, includes the anticipated development associated with the implementation of the Project. The development and/or redevelopment of the Old Town Yucca Valley Specific Plan Project area would be a multi-year effort and is envisioned to occur over a 20-year period. Future development and/or redevelopment in the Project area would be dependent on and responsive to prevailing market conditions. Therefore, at this stage, construction

information is not available. Construction activities were therefore not quantified using the URBEMIS 2002 air quality model, but were discussed qualitatively below.[3]

Table 5.2-5
Project Land Use Plan Summary

District and Land Use Type(s)	Old Town Yucca Valley Specific Plan Buildout	
	Dwelling Units	Square Feet
Old Town Mixed-Use		
Commercial/Retail - up to 1.00 FAR; Residential – up to 40 du/ac	465	759,317
Old Town Highway Commercial		
Commercial/Retail – up to 0.35 FAR; Residential – none	0	889,684
Old Town Commercial/Residential		
Commercial/Retail – up to 0.40 FAR; Residential – up to 24 du/ac	413	699,769
Old Town Industrial/Commercial		
Industrial/Commercial – up to 0.40 FAR; Res. – up to 30 du/ac	238	551,834
TOTALS	**1,115**	**2,900,604**

Source: RBF Consulting, *Old Town Yucca Valley Specific Plan*, May 5, 2006.
Note: FAR = Floor Area Ratio; du/acre = Dwelling Units per Acre.

Fugitive Dust and Construction Equipment Emissions

Federal, State, and local development standards and requirements designed to minimize air quality emissions would be implemented through standard development procedures. These measures typically include the following:

- Water exposed soils at least twice daily and maintain equipment and vehicle engines in good condition and in proper tune;
- Wash-off trucks leaving development sites;
- Replace ground cover on construction sites if it is determined that the site will be undisturbed for lengthy periods;
- Reduce speeds on unpaved roads to less than 15 miles per hour;
- Halt all grading and excavation operations when wind speeds exceed 25 miles per hour;
- Properly maintain diesel-powered on-site mobile equipment;

[3] Construction methodology approach developed pursuant to a telephone conversation between Maria Cadiz of RBF Consulting and Alan DeSalvio of the Mohave Desert Air Quality Management District, August 10, 2006.

- Install particulate filters on off-road construction equipment;
- Sweep streets at the end of the day if substantial visible soil material is carried over to the adjacent streets; and
- Cover all trucks hauling dirt, sand, soil or other loose material to and from the site.

Fugitive dust is a major concern for areas in the MDAB. Implementation of the Project would include considerable construction activities, which could potentially result in exceedances of MDAQMD PM_{10} standards. Since the proposed Project is currently in the programmatic stage, it is not possible to quantify impacts associated with fugitive dust. Therefore, based on the size of the proposed project and in consultation with the MDAQMD, it is anticipated that impacts regarding fugitive dust would be significant and unavoidable. All future projects within the Specific Plan would be required to adhere to all feasible mitigation measures to minimize fugitive dust emissions. Feasible mitigation measures include those listed in Mitigation Measures AQ-1 and AQ-2. Implementation of mitigation measures would reduce fugitive dust impacts; however, impacts would remain significant and unavoidable.

Reactive Organic Gas and Volatile Organic Compound Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are ozone precursors. Future development within the Project area would be required to adhere to the MDAQMD Rule 1113, *Architectural Coatings*, which provides stipulations on painting and coating activities; refer to Mitigation Measure AQ-5.

Toxic Air Contaminants

Diesel particulate matter is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by EPA's National Scale Assessment to contribute to human health risk. Diesel exhaust has two phases, gas and particle, and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those in the categories of fine and ultrafine particles. The composition of these fine and ultrafine particles may be elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines, including light and heavy-duty equipment.

Toxic air contaminants are not expected to be a significant source of pollution from construction activities. Health risk assessments (HRA) for diesel particulate matter (DPM) are typically conducted for areas that would expose sensitive receptors to high concentrations of DPM over a long period of time. Typically, per the California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Pollution Control Officers Association (CAPCOA) guidelines, estimating cancer risk

for DPM is not required for construction activities, as they occur for a short period of time and therefore would not measurably increase cancer risk. The Project area would be developed per market demand in phased increments.

Per MDAQMD guidance, TAC and DPM modeling is not warranted.[4] However, in order to reduce impacts associated with TAC and DPM, the proposed Project would be required to implement Mitigation Measures AQ-3 and AQ-4. Mitigation Measure AQ-3 includes procedures such as properly maintaining mechanical equipment and shutting down idling equipment. Mitigation Measure AQ-4 requires that a "Diesel Fuel Reduction Plan" be implemented, which includes measures such as using low sulfur or other alternative fuel.

Asbestos

Project construction activities may include the demolition of buildings that were constructed prior to 1980. These structures may contain friable asbestos, which has been identified as a hazardous airborne contaminant. Regulations are already in place, which require demolition activities to minimize asbestos released into the air. Primarily, this is accomplished through the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP). The EPA through the CARB and the MDAQMD enforces this NESHAP.

The asbestos NESHAP specifies work practices to be followed during demolition of all structures that contain, or may contain asbestos (MDAQMD District Rule 1000, National Emissions Standards for Hazardous Air Pollutants). These work practices have been designed to effectively reduce airborne asbestos to safe levels. The proposed Project would be subject to the asbestos NESHAP, and thus would be required to comply with these specified work practices. Additionally, demolition activities would be subject to MDAQMD Rule 306, *Demolition and Renovation Project Fees*, and Rule 1000, *National Emissions Standards for Hazardous Air Pollutants*. Consequently, airborne asbestos would not be generated in unhealthy amounts during demolition.

Odors

Potential odors generated during construction operations would be temporary and are concluded to result in less than significant impacts. Note that emissions produced during grading and construction activities are short-term, as they occur only for the duration of construction.

Mitigation Measures:

AQ-1 During clearing, grading, earth-moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures using the following procedures, as specified by the MDAQMD, including but not limited to MDAQMD Rule 401, *Visible Emissions*, and Rule 403 *Fugitive Dust*:

[4] Ibid.

- On-site vehicle speed shall be limited to 15 miles per hour;
- All on-site construction roads with vehicle traffic shall be watered periodically;
- Streets adjacent to the Project's reach shall be swept as needed to remove silt that may have accumulated from construction activities so as to prevent excessive amounts of dust;
- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day;
- All clearing, grading, earth-moving, or excavation activities shall cease during periods of high winds (i.e., greater than 35 miles per hour averaged over one hour) so as to prevent excessive amounts of dust;
- All material transported on-site or off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust;
- The area disturbed by clearing, grading, earth-moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust; and
- These control techniques shall be indicated on project grading plans. Compliance with this measure shall be subject to periodic site inspections by the Town of Yucca Valley.

AQ-2 All trucks hauling excavated or graded material on-site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4), as amended, regarding the prevention of such material spilling onto public streets.

AQ-3 During construction activities, excessive construction equipment and vehicle exhaust emissions shall be controlled by implementing the following procedures, as specified by the MDAQMD:

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions;
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines;
- Encourage ride sharing and use of transit transportation for construction employee commuting to the Project sites;
- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment; and

- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing construction activity during the peak-hour of vehicular traffic on adjacent roadways.

AQ-4 Prior to approval of the project plans and specifications, the Public Works Director, or his designee, shall confirm that the construction bid packages include a separate "Diesel Fuel Reduction Plan." This plan shall identify the actions to be taken to reduce diesel fuel emissions during construction activities (inclusive of grading and excavation activities). Reductions in diesel fuel emissions can be achieved by measures including, but not limited to, the following: a) use of alternative energy sources, such as compressed natural gas or liquefied petroleum gas, in mobile equipment and vehicles; b) use of "retrofit technology," including diesel particulate trips, on existing diesel engines and vehicles; and c) other appropriate measures. Prior to the issuance of a grading permit, the Diesel Fuel Reduction Plan shall be filed with the Town of Yucca Valley. The Diesel Fuel Reduction Plan shall include the following provisions:

- All diesel fueled off-road construction equipment shall be California Air Resources Board (CARB) certified or use post-combustion controls that reduce pollutant emissions to the same level as CARB certified equipment. CARB certified off-road engines are engines that are three years old or less and comply with lower emission standards. Post-combustion controls are devices that are installed downstream of the engine on the tailpipe to treat the exhaust. These devices are now widely used on construction equipment and are capable of removing over 90 percent of the PM_{10}, carbon monoxide, and volatile organic compounds from engine exhaust, depending on the specific device, sulfur content of the fuel, and specific engine. The most common and widely used post-combustion control devices are particulate traps (i.e., soot filters), oxidation catalysts, and combinations thereof.

- All diesel fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible.

- The effectiveness of the latest diesel emission controls is highly dependant on the sulfur content of the fuel. Therefore, diesel fuel used by on-road and off-road construction equipment shall be low sulfur (>15 ppm) or other alternative low polluting diesel fuel formulation.

AQ-5 The construction contractor shall adhere to MDAQMD District Rule 1113 (Architectural Coatings) to limit volatile organic compounds from architectural coatings. This rules specifies architectural coatings storage, clean up and labeling requirements.

AQ-6 All building demolition activities shall adhere to MDAQMD District Rule 306 (Demolition and Renovation Project Fees) and Rule 1000 (National Emissions Standards for Hazardous Air Pollutants). Additionally, the demolished material shall be transported off-site expeditiously after demolition of the structure.

Level of Significance: Significant and Unavoidable With Mitigation Incorporated.

LONG-TERM OPERATIONAL IMPACTS

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD RESULT IN SIGNIFICANT AIR EMISSIONS IMPACTS.**

Impact Analysis: For purposes of this air quality emissions analysis, operational related air quality impacts were studied for 2030 buildout. Long-term air quality impacts would consist of mobile source emissions generated from Project-related traffic and from stationary source emissions generated directly from natural gas. Emissions associated with each of these sources are discussed and calculated below.

Mobile Source Emissions

Based on the *Traffic Impact Analysis*, the proposed Project would generate 107,463 net daily trips above existing conditions. Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, VOCs, NO_X, SO_X, and PM_{10} are all pollutants of regional concern; (NO_X and VOCs react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X and PM_{10}). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using the URBEMIS 2002 computer model. This model predicts VOCs, CO, NO_X, SO_X, and PM_{10} emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix 15.4, *Air Quality Data*, for model input values used for this Project. Project trip generation rates were based on the *Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis;* refer to Section 5.1, *Traffic and Circulation*, and Appendix 15.3, *Traffic Impact Analysis*. Table 5.2-6, *Year 2030 Project Operational Emissions*, presents anticipated mobile source (vehicle) emissions.

Area Source Emissions

Area source emissions were estimated using a variety of sources including the URBEMIS 2002 model, along with generally accepted emission factors for certain stationary sources. While previous versions of URBEMIS 2002 were designed to estimate emissions only from motor vehicle trips, the current version can estimate emissions from gas heaters, furnaces, and landscape maintenance equipment. The model accounts for specific meteorological conditions and topography that characterize each air basin in California. Electricity and natural gas are utilized by

almost every residential development. As indicated in Table 5.2-6, area source emissions alone would not exceed established MDAQMD thresholds.

Table 5.2-6
Year 2030 Project Operational Emissions[1]

Emissions	Pollutant (pounds/day)[1]				
	ROG/VOC	NO_X	CO	SO_X	PM_{10}
• Area Source Emissions[2]	140.47	38.07	61.00	0.22	0.18
• Mobile Source (Vehicle) Emissions	192.73	276.98	2,259.69	7.28	1,299.38
Total Emissions	333.19	315.06	2,320.69	7.50	1,299.56
MDAQMD Threshold	137	137	548	137	82
Is Threshold Exceeded? (Significant Impact?)	***Yes***	***Yes***	***Yes***	***No***	***Yes***

ROG = reactive organic gases; VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; SOX = sulfur oxides; PM10 = particulate matter.

1. Based on URBEMIS 2002 modeling results, worst-case seasonal emissions for area and mobile emissions have been modeled.
2. Area Source emissions exclude the use of fireplaces and wood burning stoves.

Total Project Operational Emissions: Area and Mobile Sources

The total Project operational emissions are described in terms of area source and mobile source (vehicle) emissions. Transportation control measures and design features can be incorporated into the Project to reduce emissions from mobile sources. Mitigation Measure AQ-7 has been recommended to reduce area source emissions and potential sources of ROG emissions. However, as indicated in Table 5.2-6, operational emissions would still exceed the MDAQMD thresholds in regards to VOCs, NO_X, CO, and PM_{10}. Thus, the Project would result in significant and unavoidable impacts for long-term operations under for Year 2030 conditions.

Health Effects

The proposed Project would result in significant and unavoidable impacts associated with emissions of VOCs, NO_X, CO, and PM_{10}. As previously noted (Local Ambient Air Quality), these criteria pollutants have been known to cause health related problems to humans. The following provides some discussion on the types of health effects associated with Project air emissions:

- Ozone (O_3) – High concentrations of ground level ozone can adversely affect the human respiratory system and other tissues. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels.

- Carbon Monoxide (CO) – CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood, thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected, but only at higher levels of exposure. Carbon monoxide binds strongly to hemoglobin, the oxygen-carrying protein in blood, and thus reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can

cause heart difficulties in people with chronic diseases, and can impair mental abilities. Typically, CO is a localized pollutant and does not disperse far from the source.

- Nitrogen Oxides (NO_X) – NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza.

- Particulate Matter (PM_{10} and $PM_{2.5}$) – Are small enough to be inhaled into, and lodged in, the deepest parts of the lung. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis and respiratory illnesses in children.

- Volatile Organic Compounds (VOCs) – The primary health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement.

Localized CO Hotspots

Carbon monoxide emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels (i.e., adversely affect residents, school children, hospital patients, the elderly, etc.).

To identify CO hotspots, the MDAQMD follows the SCAQMD criterion, which requires an analyst to perform a CO microscale hotspot analysis when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersection locations. Per the *Old Town Yucca Valley Specific Plan CMP Traffic Impact Analysis*, full buildout of the Project would warrant a CO hotspot at the following intersections:

- Camino Del Cielo Trail and SR-62;
- Kickapoo Trail and SR-62;
- Kickapoo Trail and Santa Fe Trail;
- Pioneertown Road and SR-62;
- Deer Trail and Santa Fe Trail;
- Mohawk Trail/Acoma Trail and SR-62;
- Church Street and SR-62;
- Palm Avenue South and SR-62;
- Palm Avenue North and SR-62;
- Sage Avenue and Onaga Trail;
- Old Woman Springs Road (SR-247) and Paxton Road;
- Old Woman Springs Road (SR-247)/Joshua Lane and SR-62;
- Joshua Lane and Yucca Trail;
- Joshua Lane and Onaga Trail;

- Warren Vista Avenue and Yucca Trail;
- Palomar Avenue and Yucca Trail;
- Indio Avenue and SR-62;
- Indio Avenue South and Yucca Trail; and
- Indio Avenue North and Yucca Trail.

The PM peak hour results in higher intersection capacity utilization (ICU) and was used in the modeling process. Future CO projections are modeled using the existing lane configurations and do not include the improvements discussed in the traffic analysis.[5] The projected traffic volumes were then modeled using the CALINE4 dispersion model and the resultant values were added to an ambient concentration. The ambient concentration used in the modeling was the highest one-hour measurement from the past five years of MDAQMD. Actual future ambient CO levels may be lower due to emissions control strategies that would be implemented between now and the Project buildout date. As indicated in Table 5.2-7, *Project Buildout Carbon Monoxide Concentrations*, CO levels would be well below the State standard of 20 ppm for the 1-hour Standards and 9 ppm for the 8-hour standards. Therefore impacts associated with CO levels would be less than significant.

Table 5.2-7
Project Buildout Carbon Monoxide Concentrations

Intersection	1-Hour CO (ppm)		8-Hour CO (ppm)	
	1-Hour Standard	Future Year	8-Hour Standard	Future Year
Camino Del Cielo Trail and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Kickapoo Trail and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Kickapoo Trail and Santa Fe Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Pioneertown Road and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Deer Trail and Santa Fe Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Mohawk Trail/Acoma Trail and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Church Street and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Palm Avenue South and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Palm Avenue North and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Sage Avenue and Onaga Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Old Woman Springs Road (SR-247) and Paxton Road	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Old Woman Springs Road (SR-247)/Joshua Lane and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Joshua Lane and Yucca Trail	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Joshua Lane and Onaga Trail	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Warren Vista Avenue and Yucca Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Palomar Avenue and Yucca Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Indio Avenue and SR-62	20 ppm	2.7 ppm	9 ppm	1.9 ppm
Indio Avenue South and Yucca Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm
Indio Avenue North and Yucca Trail	20 ppm	2.6 ppm	9 ppm	1.8 ppm

ppm = parts per million.

1. As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Presented 1-hour CO concentrations include a background concentration of 2.5 ppm. Eight-hour concentrations are based on a persistence of 0.7 of the 1-hour concentration.
2. The State 1-hour standard is 20 ppm. The Federal standard is 35 ppm. The most stringent standard is reflected in the Table.
3. The State 8-hour and Federal 8-hour standard is 9 ppm.

[5] It is noted that the existing lane configurations are considered a more conservative approach.

Odors

Depending on the end user, odors could potentially be generated. Odor is strongest at its source and dissipates with increasing distance. The offensiveness and degree of odor is ultimately dependent on the sensitivity of the receptors exposed to the odor. Temperature, wind, dust conditions, topography, and the presence of physical obstructions affect the degree of odor impacts on nearby sensitive receptors. Odor compounds travel further in warm climates than in relatively cooler climates. During windy conditions, odor compounds are diluted with fresh air and, consequently, disperse more quickly and are less noticeable at a distance. However, wind direction also defines the direction of travel for odors. Physical obstructions, such as windbreaks, cause more rapid dilution of odorous compounds and also capture odor-containing fugitive dust.

It is not anticipated that the Project would result in odor impacts to the surrounding area, as the Project primarily consists of residential and commercial uses, which are generally not considered odor generators. The proposed Project would include some industrial land uses, however all future developments would adhere to MDAQMD District Rule 401, *Nuisance*, which prohibits any quantities of air contaminants or other material which may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Thus a less than significant impact would occur in this regard.

Mitigation Measures:

AQ-7 Proposed development within the Old Town Yucca Valley Specific Plan areas shall include, as a part of construction and building management contracts, the following requirements or measures shown to be equally effective:

- Use solar or low-emission water heaters in the residential buildings.
- Provide energy-efficient natural gas heating and cooking equipment.
- Require that residential landscapers providing services at the common areas of a Project site use electric or battery-powered equipment, or other internal combustion equipment that is either certified by the California Air Resources Board or is three years old or less at the time of use, to the extent that such equipment is reasonably available and competitively priced in San Bernardino County (meaning that the equipment can be easily purchased at stores in San Bernardino County and the cost of the equipment is not more than 20 percent greater than the cost of standard equipment).

Level of Significance: Significant and Unavoidable With Mitigation Incorporated.

CONFORMITY WITH AIR QUALITY MANAGEMENT PLAN

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD BE INCONSISTENT WITH REGIONAL PLANS.**

Impact Analysis: According to the *MDAQMD CEQA and Federal Conformity Guidelines,* a project is non-conforming if conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plans, and is consistent with the growth forecasts in the applicable plans. Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast.

Although the Project would represent an incremental negative impact to air quality in the MDAB, of primary concern is that Project-related impacts have been properly anticipated in the regional air quality planning process and reduced whenever feasible. Therefore, it is necessary to assess the Project's consistency with the applicable attainment or management plan. The proposed Project is covered under the *MDAQMD 2004 Ozone Attainment Plan* (*Attainment Plan*). The *Attainment Plan* bases its assumptions on growth forecasts contained in the Yucca Valley *General Plan* and is utilized by the MDAQMD in budgeting the MDAB emissions. Therefore, in order to analyze consistency with the *Attainment Plan*, a comparison study was performed to determine impacts associated with implementation of the Specific Plan over the existing Town of Yucca Valley *General Plan* land designations.

Table 5.2-8, *Land Use Plan Buildout Summary*, indicates the proposed Project would increase the number of residential units by 1,088 and decrease commercial/industrial uses by 478,435 square feet. Based on the assumptions provided in Table 5.2-8, trip generation rates were also generated for future buildout of the existing *General Plan* (without the proposed Project); refer to Table 5.2-9, *Trip Generation Rate Summary*. As shown in Table 5.2-9, buildout of the existing *General Plan* would result in approximately 105,457 daily trips, while the proposed Project would generate 107,463 daily trips. The proposed Project would therefore result in an increase 2,006 daily trips above the *General Plan* Buildout assumptions. Thus, the proposed Project would include a more intense use of the Project area.

Potential buildout of 1,115 dwelling units within the SPA would cause an increase in the Town's population projection as compared to the existing *General Plan*. The Specific Plan buildout net change from the *General Plan* would create an additional 1,088 residential units within the SPA. Based on an estimate of 2.517 persons per household,[6] buildout of the Specific Plan would result in a potential population of approximately 2,806 persons, which is approximately 2,738 additional persons beyond what would be anticipated for the SPA based on the existing General Plan.[7]

[6] State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark. Sacramento, California, May 2006.

[7] Note: This calculation uses only residential units to predict future population, which is the most accurate method available at this time.

Table 5.2-8
Land Use Buildout Summary

District and Land Use Type(s)	Existing General Plan		Old Town Yucca Valley Specific Plan Buildout		Specific Plan Buildout Net Change From General Plan	
	Dwelling Units	Square Feet	Dwelling Units	Square Feet	Dwelling Units	Square Feet
Old Town Mixed-Use						
Commercial/Retail - up to 1.00 FAR; Residential – up to 40 du/ac	0	208,812	465	759,317	465	550,505
Old Town Highway Commercial						
Commercial/Retail – up to 0.35 FAR; Residential – none	16	1,194,444	0	889,684	(16)	(304,760)
Old Town Commercial/Residential						
Commercial/Retail – up to 0.40 FAR; Residential – up to 24 du/ac	11	1,113,542	413	699,769	402	(413,773)
Old Town Industrial/Commercial						
Industrial/Commercial – up to 0.40 FAR; Res. – up to 30 du/ac	0	862,241	238	551,834	238	(310,407)
TOTALS	**27**	**3,379,039**	**1,115**	**2,900,604**	**1,088**	**(478,435)**

Source: RBF Consulting, *Old Town Yucca Valley Specific Plan*, May 5, 2006.
Note: FAR = Floor Area Ratio; du/acre = Dwelling Units per Acre.

Table 5.2-9
Trip Generation Rate Summary

Scenario	AM Peak Hour			PM Peak Hour			Daily Trips
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Existing General Plan	4,485	1,535	6,020	3,892	9,780	105,457	105,457
Proposed Project	4,333	1,811	6,144	4,145	5,824	9,969	107,463
Specific Plan Buildout Net Change from General Plan							2,006

Source: Urban Crossroads, August 16, 2006.

Based on the trip generation rates and proposed land uses under the Specific Plan, quantitative emissions analysis was conducted using the URBEMIS 2002 model. Results of the air quality modeling are presented in Table 5.2-10, *Operational Emissions Comparison*. As indicated in Table 5.2-10, the proposed Project would increase emissions in the area by 95.13 lbs/day for VOCs, 24.73 lbs/day for NO_x, 116.89 lbs/day for CO, 0.46 lbs/day for SO_x, and 44.13 lbs/day for PM_{10}. Therefore, implementation of the proposed Specific Plan would result in an increase of forecast General Plan buildout emissions for the Town of Yucca Valley. This increase in emissions above *General Plan* buildout was not included with the latest MDAQMD *Attainment Plan*. Therefore, impacts would be considered significant and unavoidable in regards to consistency with the latest *Attainment Plan*.

Table 5.2-10
Operational Emissions Comparison

Emissions	Pollutant (pounds/day)[1]				
	ROG/VOC	NO_X	CO	SOX	PM10
Existing General Plan Buildout					
• Area Source Emissions[2]	51.49	22.29	20.64	0.01	0.05
• Mobile Source (Vehicle) Emissions	186.57	268.04	2183.16	7.03	1,255.39
Total Emissions	238.06	290.33	2,203.80	7.04	1,255.43
MDAQMD Threshold	137	137	548	137	82
Is Threshold Exceeded? (Significant Impact?)	***No***	***Yes***	***Yes***	***No***	***Yes***
Old Town Valley Specific Plan Buildout					
• Area Source Emissions[2]	140.47	38.07	61.0	0.22	0.18
• Mobile Source (Vehicle) Emissions	192.73	276.98	2,259.69	7.28	1299.38
Total Emissions	333.19	315.06	2,320.69	7.50	1,299.56
MDAQMD Threshold	137	137	548	137	82
Is Threshold Exceeded? (Significant Impact?)	***No***	***Yes***	***Yes***	***No***	***Yes***
Net Increase					
Specific Plan Buildout Net Emissions above General Plan Forecast	95.13	24.73	116.89	0.46	44.13

ROG = reactive organic gases; VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; SOX = sulfur oxides; PM10 = particulate matter.

1. Based on URBEMIS 2002 modeling results, worst-case seasonal emissions for area and mobile emissions have been modeled.
2. Area Source emissions exclude the use of fireplaces and wood burning stoves.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Significant and Unavoidable Impact.

5.2.5 CUMULATIVE IMPACTS

- **DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT AND RELATED CUMULATIVE PROJECTS WOULD RESULT IN SIGNIFICANT AIR QUALITY IMPACTS.**

Impact Analysis: The MDAQMD classifies cumulative impacts as direct and indirect project emissions. If a project related air quality impact is individually less than significant, the impacts of reasonably anticipated future activities, probable future projects, and past projects are included based on similar air quality impacts, transport considerations and geographic location. Currently the MDAQMD's approach towards assessing cumulative impacts is based on the fact that the MDAQMD *Attainment Plan* forecasts attainment of ambient air quality standards in accordance with the requirements of the CCAA, which takes into account the San Bernardino County Association of Governments (SANBAG) forecasted future regional growth. Therefore, if all projects are individually consistent with the growth assumptions within the MDAQMD's *Attainment Plan*, then future development would not impeded the attainment of ambient air quality standards. As indicated under the *Long-Term Operational Emissions* and *Conformity With Air Quality Management Plan* discussions, the proposed Project would result in exceedances of MDAQMD standards for criteria pollutants under long-term operations. Furthermore, the proposed Project would include an increase in daily trips compared to the existing

General Plan land use designations. As a result, the proposed Project would be inconsistent with the anticipated emissions in the *Attainment Plan*. Therefore, the proposed Project would result in a significant and unavoidable cumulatively significant impact.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Significant and Unavoidable Impact.

5.2.6 SIGNIFICANT UNAVOIDABLE IMPACTS

Despite compliance with mitigation measures, emissions during construction would remain above MDAQMD thresholds.

Implementation of the operational Mitigation Measures would be partially effective in reducing impacts of area source emissions. However, this measure would not substantially reduce the projected increase in emission levels below MDAQMD significance thresholds. Thus, impacts related to regional pollutants (VOCs, CO, NO_x, and PM_{10}) would be significant and unavoidable. Impacts related to local CO concentrations would be less than significant.

This increase in Project related emissions above *General Plan* buildout forecasts was not included with the latest MDAQMD *Attainment Plan*. Therefore, impacts related to consistency with the latest *Attainment Plan* would be significant and unavoidable.

Cumulative regional operational impacts related to regional emissions would be significant and unavoidable, while cumulative local operational impacts related CO emissions would be less than significant.

If the Town of Yucca Valley approves the Project, the Town would be required to adopt findings in accordance with Section 15091 of the *CEQA Guidelines* and prepare a Statement of Overriding Considerations in accordance with Section 15093 of the *CEQA Guidelines*.

5.3 HYDROLOGY, DRAINAGE, AND WATER QUALITY

This section analyzes potential impacts to existing drainage patterns, surface hydrology, and flood control facilities in the project area, as well as water quality conditions. Mitigation measures are recommended to avoid potential impacts or reduce impacts to a less than significant level. Information in this section is based primarily on the Master Plan of Drainage (June 1999) for the Town of Yucca Valley. The Master Plan of Drainage includes technical, hydraulic, and facility-sizing calculations for the regional, secondary, and local drainage systems.

5.3.1 EXISTING SETTING

The Yucca Valley Master Plan of Drainage (1999) was utilized in order to identify the existing conditions in the Specific Plan Area (SPA). The San Bernardino County Transportation/Flood Control Department is responsible for the management of regional drainage facilities, including rivers, major streams, and their tributaries. The Department is empowered with broad management functions, including flood control planning and construction of drainage improvements for regional flood control facilities, watershed, and watercourse protection related to those facilities.

FLOODPLAIN MAPPING

The Town is a participant in the National Flood Insurance Program (NFIP) through the Federal Emergency Management Agency (FEMA). Communities participating in the NFIP must adopt and enforce minimum floodplain management standards, including identification of flood hazards and flooding risks. Participation in the NFIP allows communities to purchase low cost insurance protection against losses from flooding. Title 8, Chapter 8.04, *Flood Control*, within the *Yucca Valley Municipal Code* was recently reenacted by Ordinance 174, Emergency Management Agency, to address the issues of public health, safety, and general welfare and to minimize public and private losses due to flood conditions in the Town.

The published Flood Insurance Rate Maps (FIRMs) for the SPA are included on Community Panel No. 06071C8855F and 06071C8860F, and illustrated in Exhibit 5.3-1, *Flood Map*. The purpose of a FIRM is to show the areas of a community located in the 100-year floodplain (an area that has a one percent or greater chance of flooding in any given year). These areas are known as Special Flood Hazard Areas (SFHAs). As illustrated in Exhibit 5.3-1, portions of the SPA are currently located in a SFHA, as recognized in the NFIP. More specifically, portions of the area are located in Zones A and AE. Zone A is the area within the 100-year floodplain that does not have base flood elevations. Zone AE is also an area within the 100-year floodplain; however, more technical information is available for this zone because base flood elevations were derived from detailed hydraulic analyses. Both zones have mandatory flood insurance purchase requirements and require special authorization from FEMA in order to alter the land or structures or construct new structures within the zones.

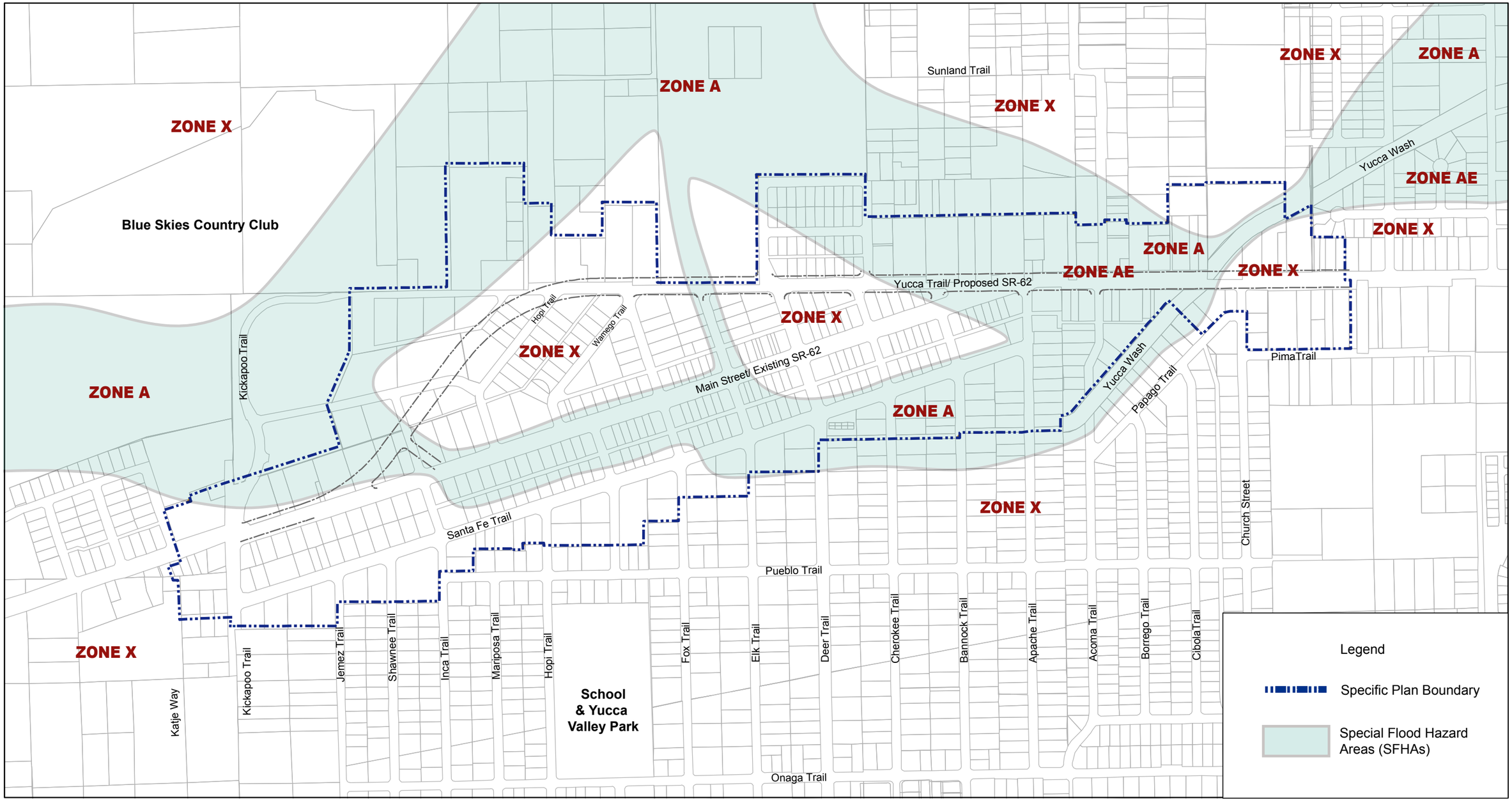
FEMA requires the property owner to complete a form request for a Letter of Map Amendment (LOMA), Conditional Letter of Map Amendment (CLOMA), Letter of Map Revision Based on Fill (LOMR-F), or Conditional Letter of Map Revision Based on Fill (CLOMR-F) for existing or proposed, single, or multiple lots/structures.

More specifically, a LOMA is a letter from FEMA stating that an existing structure or parcel of land that has not been elevated by fill (natural grade) would not be inundated by the base flood. A CLOMA is a letter from FEMA stating that a proposed structure that is not to be elevated by fill (natural grade) would not be inundated by the base flood if built as proposed. A LOMR-F is a letter from FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood. Lastly, a CLOMR-F is a letter from FEMA stating that a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed.

The review is often done to the property that determines effects to the hydrologic or hydraulic characteristics of a flooding source and any resulting effects in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the SFHA. The letter does not revise an effective NFIP map but only indicates whether a project, if built as proposed, would be recognized by FEMA. FEMA charges a fee for processing requests, which includes the cost of a review, if necessary. Because a CLOMR does not change the NFIP map, once a project has been completed, an agency must request a revision to the FIRM to reflect the project. "As-built" certification and other data must be submitted to support the revision request.

To remove an existing or proposed structure from the SFHA by the placement of fill, a LOMR-F or Letter of Map Revision (LOMR) is required according to FEMA. Fill is defined as material from any source placed to raise the ground to or above the base flood elevation BFE. Removing unsuitable existing material (topsoil) and backfilling with select structural material is not considered placement of fill if the practice does not alter the existing (natural grade or ground) elevation, which is at or above the BFE. NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the BFE. To remove the entire lot and structure, both the lowest point on the lot and the lowest adjacent grade of the structure must be at or above the BFE. Additionally, the participating community must also determine that the land and any existing or proposed structures to be removed from the SFHA are "reasonably safe from flooding."

Portions of the SPA are within Zone X, which is not a SFHA. Zone X is either in the 500-year floodplain, an area in the 100-year flood with average depth of less than one foot, or with drainage protected by levees from the 100-year flood plain. The local floodplain management regulations required by the NFIP apply only in SFHAs; properties within these areas are not held to the same regulation, nor are they required to purchase flood insurance due to low threat of flood.



SOURCE: Federal Emergency Management Agency (FEMA) Map Service Center. www.msc.fema.gov.2006

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OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Floodplain Map

Exhibit 5.3-1

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EXISTING WATERSHED AND HYDROLOGY

Facilities within the Town include dikes, levees, channels, and debris and detention basins. Within the SPA, the primary existing collector is the Yucca Wash, and a trapezoidal, soft bottom, natural drainage course located in the eastern portion of the SPA. In general, the Town is subject to relatively infrequent but sometimes intense thunderstorms. According to the General Plan EIR, annual rainfall is very low, averaging less than 10 inches. Most of the rainfall occurs during the cooler months of November through March, but occasional high-intensity thunderstorms and tropical storms occur in late summer and early fall. Many existing drainage courses in the Town are unimproved and have insufficient hydraulic capacity. Therefore, intense storms result in significant quantities of water and sediment conveyed from the mountains through developed areas. Flooding of properties and sediment disposition within properties and in the streets is a common occurrence during the storm season. The SPA is primarily reliant upon street gutter capacity for drainage.

The watershed within the SPA consists of residential, industrial, commercial and civic land uses. Soils within the SPA consists of sand and silty sand with localized sandy silts stringer.[1] The drainage pattern for the SPA flows in various directions throughout the area. Refer to Exhibit 5.3-2, *Street Flow*. Generally, the portion of the project area which is west of Fox Trail drains in a northwesterly direction towards the natural drainage course that parallels Kickapoo Trail. East of Fox Trail, water flows in a southwesterly direction towards the Yucca Wash. Storm flow conveyance in the SPA generally exists on local streets and flows in the direction of the natural topography. Major drainage facilities within the area convey flows in two directions. On the eastern portion of the area, the Yucca Creek Wash generally conveys flow in a northeasterly direction, away from the SPA. On the western portion, drainage courses and street conveyance system take flows toward the Blue Skies Country Club. Refer to Exhibit 5.3-3, *Existing Drainage*.

Surface Water Hydrology Existing Conditions

The hydrologic analysis contained in the 1999 Master Plan of Drainage (MPD) was used to identify existing conditions within the SPA. The MPD discusses existing flood facilities and proposed facilities. Existing facilities within the SPA include the Yucca Wash, which begins on-site at Deer Trail, travels northeast through the project area, and continues northeast to Yucca Mesa Road. A soft bottom natural drainage course is present along Kickapoo Trail and Santa Fe Trail, from approximately Hopi Trail to Deer Trail.

Off-site, the Church Channel, located to the southeast of the SPA, serves as a tributary to the Yucca Wash.

[1] Hi-Desert Water District. Wastewater Management Plan, 1999.

Existing On-Site Facilities

YUCCA WASH (1A, 1B, 1C)

The Yucca Wash is a primary drainage facility for the Town and SPA, located in the eastern portion of the SPA. The Yucca Wash is the primary flood control facility and is a graded earth flood control channel for the majority of its length. It is a soft bottom trapezoidal channel with grade stabilizers and side slope revetment. Specifically, the portion of Yucca Creek Wash (Section 1A, 1B, and 1C) that parallels and passes through the site is classified as a Trapezoidal Earthen Channel (TEC). Refer to Table 5.3-1, *Existing Drainage Facilities*. Improvements are proposed for the western portions of the Yucca Wash and the area between Deer Trail and Apache Trail, which is within the SPA.

CHURCH CHANNEL (6)

The Church Channel is an existing TEC drainage facility tributary to the Yucca Wash. The Church Channel is located on the southeastern portion of the project area, extending south beyond the area boundaries. The local facility appears to flow north with direction of the curb flow, between Church Street and Ciboa Trail, into the existing Yucca Wash.

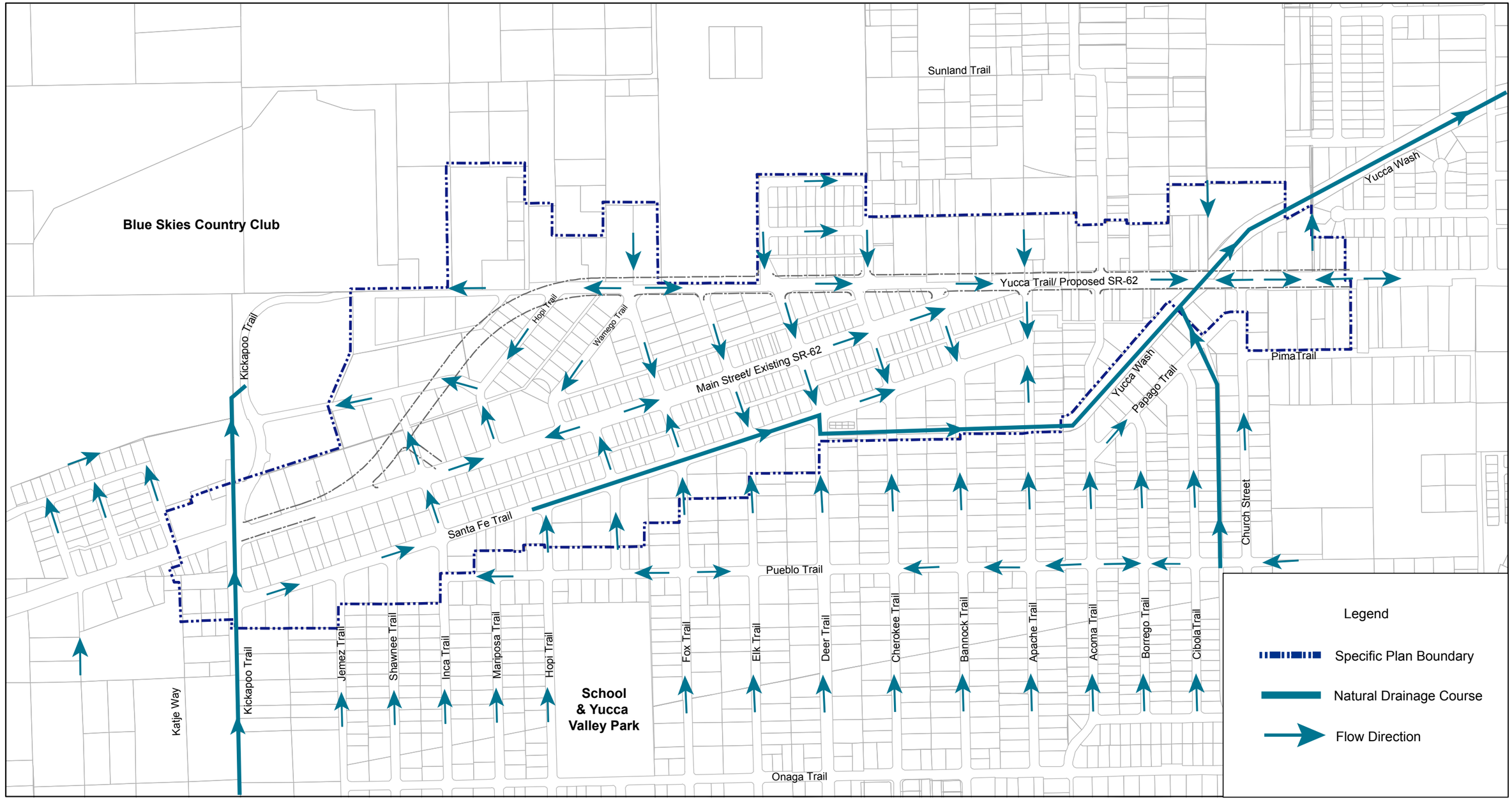
KICKAPOO TRAIL

This natural drainage course is located in the western portion of the SPA, along Kickapoo Trail, to Blue Canyon Country Club. The course flows north along the street and often ponds at the intersection of Kickapoo Trail and SR-62. The flow continues on-street until it reaches the natural drainage course, just north of Twentynine Palms Highway (existing SR-62), and continues as a natural drainage course on the eastern side of Kickapoo Trail off-site.

Table 5.3-1
Flood Control Facilities/Natural Drainage Course — Existing Conditions

Facility	ID #	Location or Reach	Type of Facility	Width (ft)	Height (ft)	Side Slope	Channel Slope	Capacity	Velocity
Yucca Wash	1A	Deer Trail to Acoma Trail	TEC*	10	3 (1.5)	2:1	0.010	106	6.4
	1B	Acoma Trail to 29 Palms Hwy.	TEC	18	7 (5.5)	1.5:1	0.011	3930	17.9
	1C	29 Palms Hwy to Palm Ave.	TEC	30	8 (8.5)	1.5:1	0.009	4166	16.1
Church Channel	6	Onega Trail to Yucca Wash	TEC	8	4 (2.5)	1.5:1	0.040	503	17.1

Source: *Town of Yucca Valley Master Plan of Drainage, 1998, Figure 3*
* TEC Trapezoidal Earthen Channel



SOURCE: Town of Yucca Valley, Master Plan of Drainage, June, 1999, Final Report.

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Street Flow

Exhibit 5.3-2

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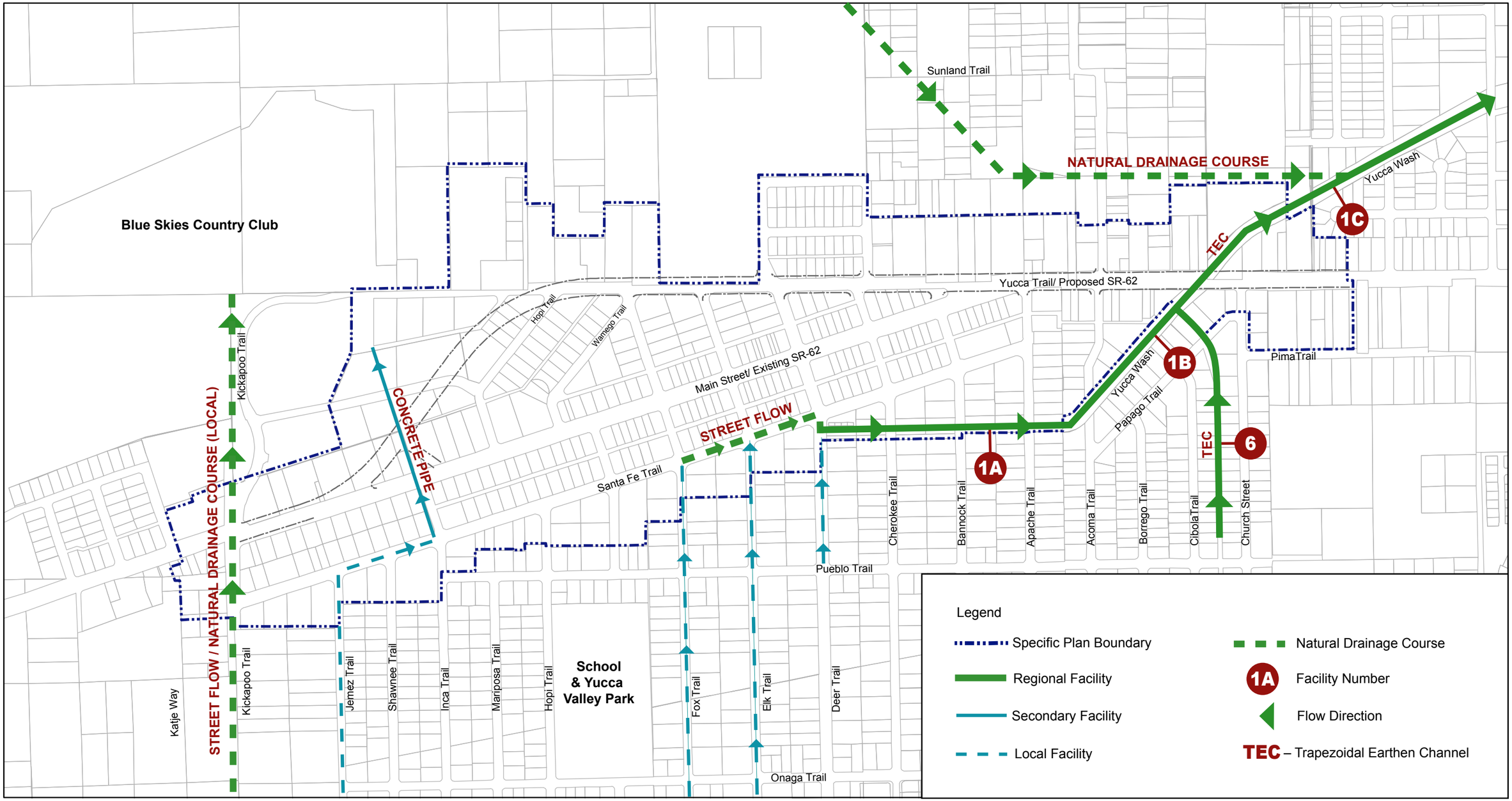

SOURCE: Town of Yucca Valley, Master Plan of Drainage, June, 1999, Final Report.

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OLD TOWN YUCCA VALLEY SPECIFIC PLAN

Existing Drainage

Exhibit 5.3-3

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SANTA FE TRAIL

This natural drainage facility currently directs storm flows along the street. The street currently uses its topographic position and the adjacent development to convey storm flows. The area is often over capacity and minor improvements are planned for this area in the MPD.

INCA TRAIL

Storm flows conveyed through street flows within Santa Fe Trail flow southwest to the intersection of Inca Trail and Santa Fe Trail. From that intersection stormwater is to be conveyed through a reinforced concrete pipe to the Blue Skies Country Club and Water Canyon Basin.

Existing Off-Site Facilities

WATER CANYON FLOOD CONTROL FACILITY

This flood control facility is located to the north of the SPA and travels southeast towards the Yucca Wash. The natural drainage facility boarders the northern area of the SPA, from Apache Trail to the Yucca Wash. Currently, this facility is a natural drainage course, and future improvements have been identified in the MPD.

Proposed Flood Control Facilities (on- and off-site)

Proposed flood control and drainage facilities located within or in close proximity to the SPA are discussed below. These proposed facilities are referenced in the Master Plan of Drainage for the Town of Yucca Valley. The proposed facilities and improvements are phased for implementation based on three set criteria:

- Threat to public safety;
- Potential property damage; and
- Development plans.

According to the MPD, the timing and location of development within the Town is largely reliant upon landowners and developers driven by the local economy. Priorities can be altered due to development agreements in certain areas. Table 5.3-2, *Recommended Priority for Proposed Facility Improvements*, lists the priority of improvements that are within or in close proximity to the SPA. This excludes the purchase of right-of-way for the facility, which would occur prior to construction and improvements.

The MPD considered one hundred and twenty-five year peak discharges, which were computed utilizing the previously approved watershed subarea delineation map, with defined flow paths. Calculations for the proposed facilities were performed for both the non-detained and detained facilities using AES computer software. Selected peak discharges resulting from the computations, which were used from sizing both non-detained and detained drainage facilities within the SPA, are summarized in Table 5.3-3, *Summary of Hydraulic Sizing Calculations-Proposed Facilities*.

Table 5.3-2
Recommended Priority for Proposed Facility Improvements

Facility Name & No.	Improvement Description	Order of Improvement
Yucca Wash (YO1)	Construct channel/improvements	1
Inca Trail / Wash Storm Drain (K01-03)	Santa Fe Street Improvements	2
La Honda Drain and Debris Control Inlet (K01-01)	Construct channel	3
Kickapoo Drain and Detention/Debris Basin (K01)	Construct storm drain	4
Acoma Channel (Y10)	Construct channel	5
Water Canyon Channel and Detention/Debris Basin (Y12)	Construct channel	6
Yucca Wash (YO1)	Construct channel/improvements	7

Source: *Master Plan of Drainage, 1999*

Table 5.3-3
Summary of Proposed Facility Capacity

Facility Name & No.	Facility location	Type of Facility	Channel Slope/ Base width/ Depth/ Sideslope Design/ Velocity (fps)	Flowrate (cfs)	
				25-yr	100-yr
Yucca Wash (YO1)	SR-62 to Water Cyn. Confl.	RRSS	0.007/30.0/ 9.3/ 2:1/9.8		1,708
	Acoma Trail to SR-62	RRSS	0.16-0.009/ 18.0/ 9.6/ 2:1/ 10.4-13.6		1,327-1680
	Deer Trail to Acoma Trail	RRSS /CLC	0.009-0.013/ 16.0/ 7.2-8.8/ 1:1-2:1/11.2-17.9		821-1,149
Local Facilities	Along Deer Trail	STF	0.035/ 26.0/ Ø/ Ø/ 8.8	102	
	Along Elk Trail (Onaga Tr. to Yucca Wash	STF	0.036/ 26.0/ Ø/ Ø / 10.6	183	
	Along Fox Trail (Onaga Tr. to Yucca Wash	STF	0.030/ 36.0/ Ø/ Ø/ 10.5	245	
Santa Fe Trail (Y01-03)	Fox Trail to Elk Trail	STF	0.010/ 36.0/ Ø/ Ø / 8.7-10.1	359-521	
La Honda drain and Debris Control Inlet (K01-01)	Chemehuevi Way to Kickapoo Drain	SBC	0.005/ 6.0/ 9.0/ 2:1/ 6.9	314	
	Ø	SBC	0.030/6.0/ 5.0/ 2:1/13.3	314	
	Ø	RCP	0.030/4.5/ Ø / Ø /24.3	314	
Inca Trail Wash Storm Drain (K01-03)	Santa Fe Tr. To Blue Skies County Club	RCP	0.039/ 4.5/ Ø/ Ø/ 26.9	314	
Kickapoo Drain and Detention/Debris Basin (K01)	Onaga Trail to La Honda Drain	RCP	0.043/ 8.0/ 6.0/ Vert./ 35.3		1,168
Water Canyon Channel and Detention/Debris Basin (Y12)	Apache Ave. to Yucca Wash	RLC	0.023/ 18.0/ 7.6/ 1.5:1/ 15.1		1,957

Source: *Master Plan of Drainage, 1999.*

cfs = cubic feet per second fps = Flow per second RCP = Reinforced Concrete Pipe SBC = Soft-Bottom Channel
RRSS = Rock Revetted Side Slopes RLC = Rock-lined Channel STF = Street Flow CLC = Concrete-Lined Channel
Ø = Information not available

YUCCA TRAIL (YO1)

Proposed improvements for the Yucca Wash within the SPA would be between Deer Trail and Apache Trail. Plans include a concrete-lined channel with improved culverts at street crossings. A concrete-lined channel is necessary for this reach because of the limited right-of-way. Some of the soft bottom reaches are being enlarged in order to convey the 100-year peak flows with freeboard as well. Improvements to the Yucca Wash and all other facilities are illustrated in Exhibit 5.3-4, *MPD Proposed Drainage Facilities* of this EIR. Improvement properties are included in Table 5.3-2, *Proposed Drainage Facilities*. Improvements for the Yucca Wash have been classified as low priority (Nos. 40-44) and include only improvements to the existing channel. No extensions or new facilities are proposed. Improvements would not require additional right-of-way or easements within the SPA.

The proposed detention basins, located off-site, would reduce the peak flow rate and debris drained into the Yucca Wash. Because of the reduction in debris to Yucca Wash, the need for grade stabilizers is required. Stabilization would be provided in several locations by existing street crossings of the wash flow line and through improved at-grade culvert crossings.

CHURCH CHANNEL (LOCAL DRAIN TRIBUTARY TO Y01)

The existing tributary to the Church Channel is to be reduced as a result of the proposed Acoma Detention/Sediment Basin and Channel (facility No. Y10). The runoff from the local area is to be carried by the existing soft bottom channel. The at-grade street crossings would provide stabilization as well as access to the channel for maintenance.

SANTA FE TRAIL (Y01-03)

This street currently uses the topographic position of the street and the adjacent development to convey storm flows. Minor improvements are planned for this area. High curbs and an inverted crown would be necessary to safely carry the peak 100-year flows. While existing debris problems would be reduced with the Kickapoo Detention/Sediment Basin, some debris removal after storms will be necessary.

DEER TRAIL, ELK TRAIL, FOX TRAIL (LOCAL FACILITIES)

These three local facilities currently consist of street flow. They are tributary to Santa Fe Trail and originate south of the SPA and flow north into the site parallel to Elk Trail, Deer Trail and Acoma Trail. The MPD indicates improvements to these streets are proposed but details are not included.

KICKAPOO DRAIN AND DETENTION/DEBRIS BASIN (K01)

This proposed facility would improve the natural drainage course, located in the western portion of the SPA along Kickapoo Trail, into a soft bottom channel. A detention/debris basin is recommended at the inlet to the drain to reduce the peak

flow rate and remove the debris. The Kickapoo Storm Drain would confluence with the La Hinda Drain and carry the flow under SR-62 and protect the development near the Blue Skies Country Club, which is located directly north of the SPA.

LA HONDA DRAIN AND DEBRIS CONTROL INLET (K01-01)

The La Honda Drain is a proposed underground storm drain recommended in the MPD. It would border the west side of the SPA, just west of Kickapoo Trail. This drain would have a debris control inlet to prevent flow from becoming obstructed. The La Honda Drain would reduce the flooding of SR-62 at the west end of the SPA. It is to provide flood protection for development near the Blue Skies Country Club. This drain would confluence with the Kickapoo Drain and discharge near the Blue Skies Country Club.

INCA TRAIL WASH STORM DRAIN (K01-03)

The Inca Storm Drain would improve flows from the west end of Santa Fe Trail under the existing SR-62. The slope on this drain would be hydraulically steep so that any debris that does not settle out in Santa Fe Trail before entering the storm drain would be transported through the drain. This storm drain would provide additional flood protection for SR-62 and the properties adjacent to Inca Trail, as well as Bencia Trail near the Blue Skies Country Club.

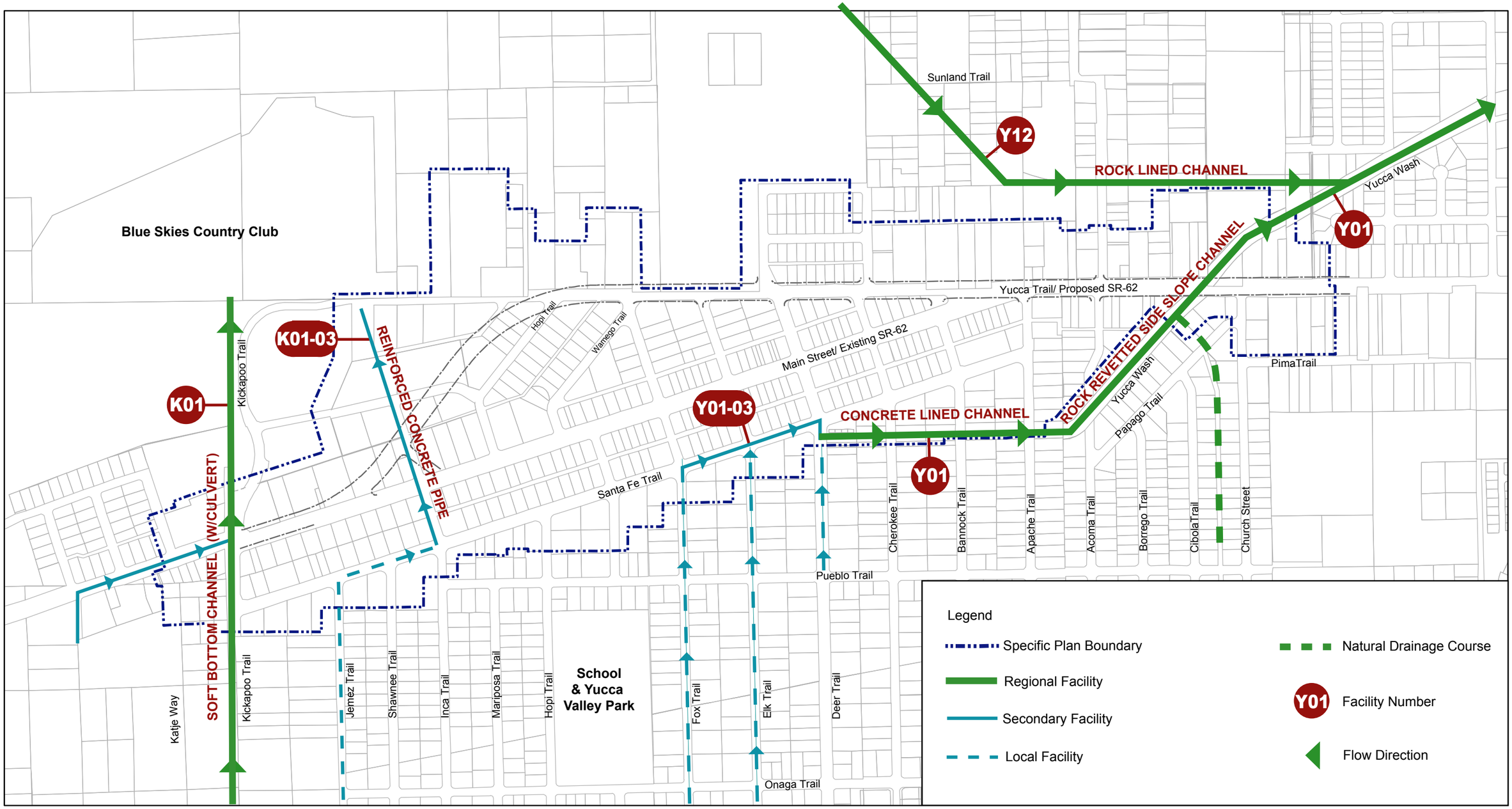
WATER CANYON CHANNEL AND DETENTION/DEBRIS BASIN (Y12)

The Water Canyon Channel would carry flows from Water Canyon, located along the northern border of the SPA, to where it drains into the Yucca Wash just outside the eastern boundary of the SPA. Water Canyon is one of the largest tributaries to Yucca Wash. A detention/debris basin at the mouth of Water Canyon, just outside of the Town limits, is recommended by the MPD. This basin would substantially reduce the peak flows from Water Canyon. The channel would be revetted soft bottom for a distance of approximately 3,000 feet downstream of the basin. From this point downstream, which includes the portions that lie along the northern border of the SPA, the channel would be rocklined.

Proposed drainage facilities are prioritized and will be completed as funds become available. Ordinance 173, *Development Impact Fees*, is applicable to drainage and hydrology facilities and would be required prior to issuance of a development permit.

STORMWATER QUALITY

Stormwater quality is a significant concern in southern California. This section discusses typical pollutants found in stormwater runoff and discusses the types of contaminants that may be found in existing stormwater runoff in the Specific Plan Area.



SOURCE: Town of Yucca Valley, Master Plan of Drainage, June, 1999, Final Report.

NOT TO SCALE

RBF CONSULTING

08/07 • JN 10-104893

ENVIRONMENTAL IMPACT REPORT
OLD TOWN YUCCA VALLEY SPECIFIC PLAN

MPD Proposed Drainage Facilities

Exhibit 5.3-4

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Point Source Pollutants

Historically, point-source pollutants have consisted of industrial operations with discrete discharges to receiving waters. Over the past several decades, many industrial operations have been identified as potential sources of pollutant discharges. For this reason, many types of industrial operations require coverage under the State of California's General Industrial Permit. This permit regulates the operation of industrial facilities and monitors and reports mechanisms to ensure compliance with water quality objectives.

Industrial operations not under the General Industrial Permit's jurisdiction may still have the potential to affect the water quality of receiving waters. These industrial operations would be considered non-point-source pollutants.

Because of State regulations, industrial operations that require compliance with California's General Industrial Permit are considered to have less than significant impacts on the receiving waters' water quality.

Non-Point-Source Pollutants in Stormwater

A net effect of urbanization can be to increase pollutant export. However, an important consideration in evaluating storm water quality from the SPA is to assess whether it impairs the beneficial use to the receiving waters. Non-point-source pollutants have been characterized by the following major parameters to assist in determining and using the pertinent data. Receiving waters can assimilate a limited quantity of various constituent elements; however, there are thresholds beyond which the measured amount becomes a pollutant and results in an undesirable impact. The following background information on these standard water quality parameters provides an understanding of typical urbanization impacts.

SEDIMENT

Sediment is made up of tiny soil particles that are washed or blown into surface waters. It is the major pollutant by volume in surface water. Suspended soil particles can cause the water to look cloudy or turbid. The fine sediment particles also act as a vehicle to transport other pollutants, including nutrients, trace metals and hydrocarbons. Construction sites are typically the largest source of sediment for urban areas under development.

NUTRIENTS

Nutrients (especially phosphorous and nitrogen) are a major concern for surface water quality because they can cause algal blooms and excessive vegetative growth. Of the two, phosphorus is usually the limiting nutrient that controls the growth of algae in lakes.

The orthophosphorous form of phosphorus is readily available for plant growth. The ammonium form of nitrogen can also have severe effects on surface water quality. The ammonium is converted to nitrate and nitrite forms nitrogen in a process called nitrification; this process consumes large amounts of oxygen, which can impair the

dissolved oxygen levels in water. The nitrate form of nitrogen is very soluble and is found naturally at low levels in water. When nitrogen fertilizer is applied to lawns or other areas in excess of plant needs, nitrates can leach below the root zone, eventually reaching groundwater. Orthophosphate from auto emissions also contributes phosphorus in areas with heavy automobile traffic. As a general rule of thumb, nutrient export is greatest from development sites with the most impervious areas. Other problems resulting from excess nutrients are (1) surface algal scums, (2) water discolorations, (3) odors, (4) toxic releases, and (5) overgrowth of plants. Common measures for nutrients are total nitrogen, organic nitrogen, total Kjeldahl nitrogen (TKN), nitrate, ammonia, total phosphate, and total organic carbon (TOC).

TRACE METALS

Trace metals are primarily a concern because of their toxic effects on aquatic life and their potential to contaminate drinking water supplies. The most common trace metals found in urban runoff are lead, zinc and copper. Fallout from automobile emissions is also a major source of lead in urban areas. A large fraction of the trace metals in urban runoff are attached to sediment and this effectively reduces the amount that is immediately available for biological uptake and subsequent bioaccumulation. Metals associated with the sediment settle out rapidly and accumulate in the soils. Also, urban runoff events typically occur over a shorter duration, which reduces the aquatic environment's amount of exposure to toxics. The toxicity of trace metals in runoff varies with the hardness of the receiving water. As total hardness of the water increases, the threshold concentration levels for adverse effects increases.

OXYGEN-DEMANDING SUBSTANCES

Aquatic life is dependent on the dissolved oxygen (DO) in the water, and when organic matter is consumed by microorganisms, DO is consumed in the process. A rainfall event can deposit large quantities of oxygen-demanding substances in lakes and streams. The biochemical oxygen demand (BOD) of typical urban runoff is on the same order of magnitude as the effluent from an effective secondary wastewater treatment plant. A problem from low DO results when the rate of oxygen-demanding material exceeds the rate of replenishment. Oxygen demand is estimated by direct measure of DO and indirect measures such as BOD, chemical oxygen demand (COD), oils and greases and TOC.

BACTERIA

Bacteria levels in undiluted urban runoff exceed public health standards for water contact recreation almost without exception. Studies have found that total coliform counts exceeded EPA water quality criteria at almost every site and almost every time it rained. The coliform bacteria that are detected may not be a health risk in themselves, but are often associated with human pathogens.

OIL AND GREASE

Oil and grease contain a wide variety of hydrocarbons, some of which could be toxic to aquatic life in low concentrations. These materials initially float on water and

create the familiar rainbow-colored film. Hydrocarbons have a strong affinity for sediment and quickly become absorbed to it. The major source of hydrocarbons in urban runoff is crankcase oil and other lubricating agents that leak from automobiles. Hydrocarbon levels are highest in the runoff from parking lots, roads and service stations. Residential land uses generate less hydrocarbons export, although illegal disposal of waste oil into stormwaters can be a local problem.

Priority pollutants are generally related to hazardous wastes or toxic chemicals and can sometimes be detected in storm water. Priority pollutant scans have been conducted in previous studies of urban runoff, which evaluated the presence of over 120 toxic chemicals and compounds. The scans rarely revealed toxins that exceeded the current safety criteria. The urban runoff scans were primarily conducted in suburban areas not expected to have many sources of toxic pollutants (with the possible exception of illegally disposed or applied household hazardous wastes). Priority pollutants in stormwater are (1) phthalate (plasticizer compound), (2) phenols and creosols (wood preservatives), (3) pesticides and herbicides, (4) oils and greases and (5) metals.

Physical Characteristics of Stormwater

Standard parameters assess the quality of stormwater and provide a method of measuring impairment. The quantity of a material in the environment and its characteristics determine the degree of availability as a pollutant in surface runoff. In an urban environment, the quantity of certain pollutants in the environment is a function of the intensity of the land use. For instance, a high density of automobile traffic makes a number of potential pollutants (such as lead and hydrocarbons) more available. The availability of a material, such as a fertilizer, is a function of the quantity and the manner in which it is applied. Applying fertilizer in quantities that exceed plant needs leaves the excess nutrients available for loss to surface or groundwater.

The physical properties and chemical constituents of water traditionally have served as the primary means of monitoring and evaluating water quality. The water quality parameters for stormwater are numerous and are classified in several ways. In many cases, the concentration of an urban pollutant, rather that the annual load of that pollutant, is needed to assess a water quality problem. Common physical, chemical and biological characteristics that evaluate the quality of the surface runoff are outlined below.

DISSOLVED OXYGEN (DO)

Dissolved oxygen in the water has a pronounced effect on the aquatic organisms and the chemical reactions that occur. It is one of the most important biological water quality characteristics in the aquatic environment. The DO concentration of a water body is determined by the solubility of oxygen, which is inversely related to water temperature, pressure, and biological activity. DO is a transient property that can fluctuate rapidly in time and space, and so represents the status of the water system at a particular point and time of sampling. The decomposition of organic debris in water is a slow process and the responding changes in oxygen status are also slow.

OXYGEN DEMAND

The oxygen demand is an indication of the pollutant load and includes measurements of biochemical oxygen demand or chemical oxygen demand.

- The biochemical oxygen demand (BOD) is an index of the oxygen-demanding properties of the biodegradable material in the water. Samples are taken from the field and incubated in the laboratory at 20^{o}C, after which the residual dissolved oxygen is measured. The BOD value commonly referenced is the standard 5-day values. These values are useful in assessing stream pollution loads and for comparison purposes.

- The chemical oxygen demand (COD) is a measure of the pollutant loading in terms of complete chemical oxidation using strong oxidizing agents. It can be determined quickly because it does not rely on slow bacteriological actions, as does BOD. COD does not necessarily provide a good index of oxygen-demanding properties in natural waters.

TOTAL DISSOLVED SOLIDS (TDS)

TDS concentration is determined by evaporation of a filtered sample to obtain residue whose weight is divided by the sample volume. The TDS of natural waters varies widely. TDS is an important indicator of water quality for several reasons:

- Dissolved solids affect the ionic bonding strength related to other pollutants such as metals in the water;

- TDS is a major determinant of aquatic habitat;

- TDS affects the saturation concentration of dissolved oxygen and influences the ability of a water body to assimilate wastes; and

- Eutrophication rates depend on TDS.

pH

The pH of water is the negative log, base 10, of the hydrogen ion (H+) activity. A pH of 7 is neutral; a pH greater than 7 indicates alkaline water; a pH less than 7 represents acidic water. In natural water, carbon dioxide (CO_2) reactions are some of the most important in establishing pH. The pH at any one time is an indication of the balance of chemical equilibrium in water and affects the availability of certain chemicals or nutrients in water for uptake by plants. The pH of water directly affects fish and other aquatic life; generally, toxic limits are pH values of less than 4.8 and greater than 9.2.

ALKALINITY

Alkalinity is the opposite of acidity, representing the capability of water to neutralize acid. Alkalinity is also linked to pH and is caused by the presence of carbonate, bicarbonate, and hydroxide, which are formed when carbon dioxide is dissolved. A

high alkalinity is associated with a high pH and excessive solids. Most streams have alkalinities of less than 200 milligrams per liter (mg/l) and alkalinity ranges of 100 – 200 mg/l seem to support well-diversified aquatic life.

SPECIFIC CONDUCTANCE

The specific conductivity of water (its ability to conduct an electric current) is related to its total dissolved ionic solids. Long-term monitoring of a Project's waters can develop a relationship between specific conductivity and TDS. Its measurement is quick and inexpensive and can be used to approximate TDS. Specific conductivities in excess of 2,000 micro-ohms per centimeter (µohms/cm) indicate a TDS level that is too high for most freshwater fish.

TURBIDITY

Turbidity is an indicator of the property of water that causes light to become scattered or absorbed. Suspended clays and other organic particles cause turbidity. The clarity of water is an important indicator of water quality that relates to the ability of photosynthetic light to penetrate. Turbidity can be used as an indicator of certain water quality constituents, such as predicting the sediment concentrations.

NITROGEN (N)

Sources of nitrogen in stormwater are from the additions of organic matter to water bodies or chemical additions. Ammonia and nitrate are important nutrients for the growth of algae and other plants. Excessive nitrogen can lead to eutrophication, because nitrification consumes dissolved oxygen in the water. Nitrogen occurs in many forms. Organic nitrogen breaks down into ammonia, which eventually becomes oxidized to nitrate-nitrogen, a form available for plants. High concentrations of nitrate-nitrogen (N/N) in water can stimulate growth of algae and other aquatic plants, but if phosphorus (P) is present, only about 0.30 mg/l of nitrate-nitrogen is needed for algal blooms. Some fish life can be affected when nitrate-nitrogen exceeds 4.2 mg/l. There are a number of ways to measure the various forms of aquatic nitrogen. Typical measurements of nitrogen are Kjeldahl nitrogen (organic nitrogen plus ammonia); ammonia; nitrite plus nitrate; nitrite; and nitrogen in plants. The principal water quality criteria for nitrogen focus on nitrate and ammonia.

PHOSPHORUS (P)

Phosphorus is an important component of organic matter. In many water bodies, phosphorus is the limiting nutrient that prevents additional biological activity from occurring. The origin of this constituent in urban stormwater discharge is generally from fertilizers and other industrial products. Orthophosphate is soluble and is considered to be the only biologically available form of phosphorus. Because phosphorus strongly associates with solid particles and is a significant part of organic material, sediments influence concentration in water and are an important component of the phosphorus cycle in streams. The primary methods of measurement are detecting orthophosphate and total phosphorus.

EXISTING STORMWATER QUALITY

The SPA lacks any measured data on stormwater runoff quality. In the absence of site-specific data, expected storm water quality can be qualitatively discussed by relating typical pollutants to specific land uses. The expected existing pollutants in the existing storm water runoff from the developed areas of the SPA and its tributary area are oil and grease from automobile use, vacant areas could add suspended solids in the stormwater runoff. Other pollutants associated with residential and commercial development include trash, nutrients, bacteria, oil and grease and household hazardous wastes.

Residential Activities and Development

Residential and urban development is often a significant source of stormwater pollution. Development and redevelopment activities have two primary effects on water quality; they are sources of erosion and sedimentation during the construction phase and they have long-term effects on runoff once the development is complete. Residential and urban development can affect water quality in three ways:

- Impervious surfaces associated with development increase the rate and volume of stormwater runoff, which increase downstream erosion potential;
- Urban activities generate dry-weather ("nuisance") flows, which may contain pollutants and/or may change the ephemeral nature of streams and the degradation of certain habitats; and
- Impervious surfaces increase the concentration of pollutants during wet weather flows.

The potential for negative water quality effects is generally correlated to the density of development and the amount of impervious area associated with development. Detached residential development has the potential to generate sediments such as nutrients and organic substances (including fertilizers), pesticides (from landscape application), trash and debris (including household hazardous waste), oxygen demand, oil and grease (from driveways and roads), and bacteria and viruses.

Municipal Activities and Development

Infrastructure and facilities (roads, streets, highways, parking facilities, storm drains and flood management facilities) present a threat to water quality. Other facilities such as parks, airfields, water treatment plants, wastewater reclamation plants, landfills and transfer centers, and corporate yards also present water quality issues. Municipalities may also own and administer areas and activities tributary to impaired water bodies and/or water quality sensitive areas that might be harmful to water quality.

Commercial, Civic and Industrial Activities and Development

Certain commercial activities have the potential to generate pollutants that can negatively affect stormwater quality. Auto repair shops in particular have the

potential to generate heavy metals, oils, toxic chemicals and other oxygen-demanding substances. In addition, restaurants have the potential to generate pollutants such as grease, trash and other oxygen-demanding substances.

Industrial activities can significantly affect water quality, depending on the type of pollutants and activity. In general, industrial activity is associated with effects on ambient water temperature, alkalinity levels of total suspended solids and oxygen demand. Certain industrial uses may entail the generation of heavy metals, nutrients, toxic chemicals and other pollutants. Industrial uses that take place indoors do not have stormwater pollutant exposure and present little threat to stormwater quality.

5.3.2 REGULATORY SETTING

This section describes the Federal, State, and local laws, ordinances, regulations and standards pertinent to hydrology, drainage and water quality.

FEDERAL AND STATE REGULATIONS

The Clean Water Act (CWA) amendments of 1987 established a framework for regulating stormwater discharges from municipal, industrial and construction activities under the National Pollutant Discharge Elimination System (NPDES) program. The primary objectives of the municipal stormwater program requirements are to:

- Effectively prohibit non-stormwater discharges; and
- Reduce the discharge of pollutants from the stormwater conveyance system to the maximum extent practicable.

For this evaluation, impacts on stormwater quality would be considered significant if the project did not attempt to address stormwater pollution to the maximum extent practical. Currently, there are no definitive water quality standards for individual pollutants. Therefore, impacts on stormwater quality would be considered less than significant if they meet requirements set by the California Regional Water Quality Control Board, Colorado River Basin Region (Region 7) and is compliant with all applicable policies and principals outlined in the Water Quality Control Plan.

Stormwater Pollution Prevention Plan (SWPPP) is a fundamental requirement of stormwater permits which are necessary as of March 10, 2003 on all construction projects that disturb one acre or more of land or whose projects disturb less than one acre, but are part of a larger common plan of development. A SWPPP:

- identifies all potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site;
- describes practices to be used to reduce pollutants in storm water discharges from the construction site; and

- helps assure compliance with the terms and conditions of the permit (when the plan is designed for the individual site, and is fully implemented).

LOCAL REGULATIONS

Town of Yucca Valley General Plan

Program 2.B establishes regulations and guidelines for the development and maintenance of project specific on-site retention/detention basins, which enhance groundwater, recharge, and complement regional flood control facilities. Any future detention basin would need to comply with the applicable guidelines developed as part of the program identified in the Town's Water Resources Element.

Standard Conditions and Uniform Codes

Ordinance 173, *Development Impact Fee,* which has been passed by the Town Council and will be added to Title 3, Section 3.40 of the *Yucca Valley Municipal Code* states that:

> *General Facility, Park Facility, Trail Facility, Storm Drain Facility, and Street and Traffic Facility development impact fees shall be paid by applicants for development projects as set forth in this chapter and in the amounts adopted by the Town Council by resolution from time to time. No building permit, or occupancy permit, shall be issued for any new development project unless the fees specified in this chapter as adopted by Resolution of the Town Council are paid. Fees collected pursuant to this chapter shall be deposited into a separate fund and used only for the purpose of acquiring, designing, constructing, improvement, providing and maintaining, to the extent permitted by law, the General Facilities provided for in the Study and the Plans as adopted and amended from time to time by the Town Council.*

Ordinance 174, *Emergency Management Agency*, was passed by the Town of Yucca Valley to reenact Chapter 8.04 of Title 8 of the Municipal Code. The purpose of the Ordinance is to address the issues of public health, safety and general welfare and to minimize public and private losses due to flood conditions in the Town. Provisions are designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;

- Ensure that potential buyers are notified that property is in an area of special flood hazard; and

- Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

5.3.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Appendix 15.1, *Initial Study and Notice of Preparation*, contains the *Initial Study*, based on Appendix G of the *CEQA Guidelines* used during the preparation of the Project *Initial Study*. The *Initial Study* includes questions relating to hydrology, drainage and water quality. The issues presented in the *Initial Study Checklist Form* have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it would:

- Violate any water quality standards or waste discharge requirements.

- Substantially deplete groundwater supplies or substantially interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

- Create or contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provision of substantial additional sources of polluted runoff.

- Otherwise substantially degrade water quality.

- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

- Place a structure within a 100-year flood hazard area that would impede or redirect flood flows.

- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

- Result in inundation by seiche, tsunami, or mudflow; refer to Section 10.0 *Effects Found Not To Be Significant*.

5.3.4 IMPACTS AND MITIGATION MEASURES

FLOOD HAZARDS

- **IMPLEMENTATION OF THE PROPOSED PROJECT MAY PLACE STRUCTURES WITHIN A 100-YEAR FLOOD HAZARD AREA (ZONE A OR ZONE AE), IMPEDING OR REDIRECTING FLOOD FLOWS.**

Impact Analysis: As stated above, portions of the SPA are located in Zone A and Zone AE, which are defined by FEMA as areas within the 100-year flood zones, where depths are between one to three feet. These areas are known as Special Flood Hazard Areas (SFHAs). Special requirements apply to commercial and residential development/redevelopment in these zones. Placement of fill or other forms of zone removal would be required in order to build or remove structures from the SFHA. Regulatory compliance with FEMA would be required in order to build within these areas. The completion of a LOMA, CLOMA, LOMR-F or CLOMR-F would be required by FEMA verifying that the lowest adjacent grade of the existing or proposed structure is at or above the Base Flood Elevations (BFE) or, for removal of an entire lot and structure, that both the lowest point on the lot and the lowest adjacent grade of the structure is at or above the BFE. Details and specific requirements vary within each land use and are available through FEMA.

Compliance with FEMA regulations, which includes the completion of a CLOMR, CLOMR-F, LOMA or LOMR-F, would be required. FEMA requirements and impact fees paid towards storm drain facility improvements, as referenced in the Master Plan of Drainage, would reduce potential flooding hazards to a less than significant level.

Mitigation Measures: No Mitigation Measures are recommended.

Level of Significance: Less Than Significant Impact.

DRAINAGE AND RUNOFF

- **BUILDOUT OF THE SPA WOULD INCREASE THE TOTAL IMPERVIOUS AREA WITHIN THE PROJECT AREA, WHICH COULD RESULT IN INCREASED DRAINAGE AND RUNOFF IMPACTS.**

Impact Analysis: Drainage exists primarily within the local streets and is defined by the natural topography of the area. On the northern portion, flows occur in a northeastern direction and on the western portion of the SPA drainage flows in a northwestern direction.

Within the SPA, impervious areas are anticipated to increase, due to development on vacant lots and infill development on underdeveloped parcels. The Town of Yucca Valley has a standard of a no net increase in runoff from new development. Town standards require new development to submit a hydrology report, which indicated how the proposed development would provide for on-site retention, capture and dispose, or conveyance of generated runoff to a County of San Bernardino Flood Facility. These plans are reviewed and approved by the Town's Public Works Department at the entitlement phase, verified prior to issuance of the grading permit, and post-construction.

The Master Plan of Drainage refers to proposed drainage facilities within the SPA, which have been determined necessary for capturing and treating flows in the Town of Yucca Valley. Their description and level of priority is discussed above in the existing conditions portion of this section.

Funding for these improvements would be attained through assessment fees pursuant to *Ordinance 173*, which would mitigate the affects of new development to downstream areas. Fees would pay for facility improvements and therefore impacts to the SPA would be reduced to a less than significant level.

Mitigation Measures: No Mitigation Measures are recommended.

Level of Significance: Less Than Significant Impact.

WATER QUALITY – SHORT-TERM IMPACTS

- **GRADING AND EXCAVATION ASSOCIATED WITH CONSTRUCTION ACTIVITIES IN THE SPA MAY IMPACT WATER QUALITY DUE TO POTENTIAL SHEET EROSION OF EXPOSED SOILS AND SUBSEQUENT DEPOSITION OF PARTICLES AND POLLUTANTS IN DRAINAGE AREAS.**

Impact Analysis: Construction controls are discussed separately from other water quality management measures because they are temporary and specific to the type of construction. Construction activities of the individual development sites that will take place through buildout of the SPA has the potential to produce typical pollutants such as nutrients, suspended solids, heavy metals, pesticides and herbicides, toxic chemicals related to construction and cleaning, waste materials (including wash water), paints, wood, paper, concrete, food containers, sanitary wastes, fuel and lubricants. The significance of this impact would vary depending upon the level of construction activity, weather conditions, soil conditions, and the increased sedimentation of drainage systems within the local area of the individual development sites. However, with mitigation measures would vary accordingly to mitigate impacts on a project-by-project basis.

During construction on the development sites, mitigation in the form of erosion control measures would be necessary to prevent the erosion of exposed soils during periods of heavy rainfall. During the interim period, before the ground cover takes hold, straw, wood chips and plastic (visqueen) can be used as stabilizing agents. With implementation of erosion control measures, the total debris produced from the

individual development sites would be lower when compared to the area of soils exposed within the existing conditions.

Mandated by Congress under the CWA, the NPDES Storm Water Program addresses nonagricultural sources of stormwater discharges that adversely affect the quality of waters of the United States. Construction activities that disturb one or more acres of land (or less than one acre, but are part of a larger common plan of development or sale) are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (General Permit). The General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP outlines the source control and/or treatment control Best Management Practices (BMPs) that would avoid or reduce runoff pollutants at the construction site to the maximum extent practicable. A copy of the SWPPP must be available and implemented at the construction site at all times. As part of its compliance with the NPDES requirements, a Notice of Intent (NOI) would need to be prepared and submitted to the State Water Resource Control Board (SWRCB) providing notification that a SWPPP has been developed and the operator intends to comply with the State of California General Permit. Implementation of recommended mitigation (i.e., compliance with the NPDES requirements) would reduce construction-related impacts on water quality to a less than significant level.

Mitigation Measures:

HYD-1 Prior to Grading Permit issuance and as part of the compliance with the NPDES requirements, a Notice of Intent shall be prepared for each future development project and submitted to the California State Water Resources Control Board, providing notification and intent to comply with the State of California General Permit.

HYD-2 A Storm Water Pollution Prevention Plan (SWPPP) shall be completed for the construction activities for each future development project. A copy of the SWPPP shall be available and implemented at the construction sites at all times. The SWPPP shall outline the source control and/or treatment control BMPs to avoid or mitigate runoff pollutants at the construction site to the maximum extent practicable.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

WATER QUALITY – LONG-TERM IMPACTS

- **IMPLEMENTATION OF THE PROPOSED SPECIFIC PLAN COULD RESULT IN LONG-TERM IMPACTS ON THE QUALITY OF STORMWATER AND URBAN RUNOFF, SUBSEQUENTLY IMPACTING WATER QUALITY.**

Impact Analysis: The general water quality of the SPA is not anticipated to be negatively impacted by project implementation due to the Town's no net increase stormwater standards, incorporation of BMPs into the design and operation of projects, and site specific mitigation measures.

Residential Development and Activities

Specific Plan implementation would result in the development of approximately 1,115 total residential units. As previously stated, residential uses typically generate pollutants such as sediments, pesticides, trash and debris, oil and grease, and bacteria and viruses. However, compliance with Town stormwater standards for on-site stormwater retention, regional plans, local standards and mitigation measures would reduce water quality impacts to a less than significant level.

Commercial and Industrial Development and Activities

The potential for pollution due to the proposed 2.9 million square feet of development would not increase relative to existing General Plan conditions. New development activities would be subject to in the Regional Water Quality Control Board and the Town of Yucca Valley's stromwater standards, which require on-site retention. Regulations require post-construction runoff to be less or equal to pre-construction conditions through on-site retention.

Additionally, most commercial and industrial point sources are subject to an Industrial Storm Water General Permit, which serves as a regulatory mechanism for the monitoring, inspection, and enforcement of pertinent water quality regulations.

Since 1990, the SWRCB has required that certain industrial businesses obtain a stormwater permit in order to discharge runoff into a Town's storm drain system or a local water body. The SWRCB adopted the current version of this storm water permit (SWRCB Water Quality Order No. 97-03-DWQ, or Industrial Permit) in 1997. The Industrial Permit mandates that regulated industrial businesses develop and implement programs to prevent the contamination of urban runoff draining off their site. The Industrial Permit is intended to cover all new or existing storm water discharges and authorized nonstormwater discharges, as required by Federal regulations. The Industrial Permit is administered by the SWRCB, and is generally enforced by the Regional Boards.

Industrial permittees are required to collect and analyze samples of stormwater discharges for pH, TSS, TOC, specific conductance, toxic chemicals and other pollutants that are likely to be present in stormwater discharges in significant quantities. In addition, certain industries are required to test for specific analytes, such as metals, nitrate and nitrite, phosphorus, COD and TSS.

Permit compliance includes development and implementation of a SWPPP, and necessary BMPs. Consistent inspection and enforcement of Industrial Storm Water General Permit requirements effectively reduce the potential harmful water quality effects of existing and proposed commercial and industrial activities. In addition to plans, standards and other requirements, a requiring a Water Quality Management Plan has been included to further remove any potential water quality impact within the SPA.

Mitigation Measures:

HYD-3 A Water Quality Management Plan shall be prepared for each future development project and shall include Nonstructural/Source Control and Structural/Treatment Best Management Practices to conform to the Town's Storm Water standards and National Pollution Discharge Elimination System requirements.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

5.3.5 CUMULATIVE IMPACTS

- **THE PROPOSED SPECIFIC PLAN, ALONG WITH OTHER FUTURE DEVELOPMENT MAY INCREASE HYDROLOGY AND DRAINAGE IMPACTS IN THE AREA. IMPACTS WOULD BE EVALUATED ON A PROJECT-BY-PROJECT BASIS.**

Impact Analysis: The basis of the cumulative analysis is presented in Section 4.0, *Basis of Cumulative Analysis*. For purposes of drainage and water quality analysis, cumulative impacts are considered for projects within the same watershed as the SPA. The projects listed in Section 4.0 are within the same watershed as the SPA.

Increased impermeable surfaces resulting from future development in the SPA may increase runoff flows to existing drainage facilities, which manage drainage throughout the watershed. This may negatively impact the watershed's ability to manage hydrology and drainage in the area. Cumulative projects southeast of the SPA would discharge runoff into the Yucca Wash, which passes through a portion of the SPA and continues eastward off-site. Runoff from these projects would combine and interact with runoff from the SPA. Runoff from cumulative projects west of the SPA would utilize offsite drainage facilities that would not pass through the SPA or receive runoff from the SPA.

Future development would be required comply with Town of Yucca Valley's stromwater standards, which require on-site retention. Regulations require post-construction runoff to be less or equal to pre-construction conditions through on-site retention during peak flows.

Additionally, new development would be required to pay storm drain facility development impact fees pursuant to Chapter 3.40.040: Public Infrastructure Facilities (*Ordinance 173*) of the Town of Yucca Valley's Municipal Code. The Ordinance requires payment of fees as determined by the Town Council prior to receipt of building permit or occupancy permit. Development impact fees are used only for the purpose of acquiring, designing, constructing, improving, providing and maintaining, to the extent permitted by law, the general facilities, which would mitigate impacts of new development. Impact fees provide funding for drainage facility maintenance, improvements, and/or new facilities. The management of these facilities are outlined in the Town of Yucca Valley's Master Plan of Drainage, which is designed to address the need for flood control planning and floodplain management. The plan established policies and concepts based on published Town goals and objectives, which have anticipated future grow in Yucca Valley. The report is used

as a guideline for future planning, design and construction of regional, secondary, and local drainage facilities within the Town of Yucca Valley and includes detailed hydrologic, hydraulic, and facility sizing calculations for the drainage systems. Compliance with Town standards and payment of fees on a project-by-project level would reduce impacts created by cumulative development to a less than significant level.

Mitigation Measures: No Mitigation Measures are recommended.

Level of Significance: Less Than Significant Impact.

5.3.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

No significant impacts related to hydrology and water quality have been identified following implementation of mitigation measures and/or compliance with applicable standards and policies.

5.4 PUBLIC SERVICES AND UTILITIES

This section is based upon information from public service and utility agencies; refer to Appendix 15.1, *Initial Study and Notice of Preparation,* and Appendix 15.6, *Correspondence*. *O*ther references include and the *Yucca Valley Master Plan – Evaluation of Existing Utilities* (January 2005) prepared by RBF Consulting, the *Water and Wastewater Utility Plan* (January 2005) prepared by RBF Consulting, and the *Preliminary Draft SB 610 Water Supply Assessment* (June 2006) prepared by RBF Consulting. Public services include fire protection, police protection, schools, library services, roadway maintenance, and recreation. Utilities include water, wastewater (sewers), solid waste, electricity, natural gas, telephone, and cable.

This section discusses existing conditions, which provide background information necessary to determine potential impacts of the proposed Project. Criteria by which an impact may be considered potentially significant are provided, along with a discussion of impacts pursuant to Appendix G of the *CEQA Guidelines*. Mitigation measures are identified to avoid or reduce potential impacts to less than significant levels.

5.4.1 EXISTING SETTING

FIRE PROTECTION

The San Bernardino County Fire Department (County Fire Department) provides fire protection and emergency medical services to the Specific Plan Area (SPA). Fire Station 121 (at 57201 Twentynine Palms Highway) is the jurisdictional station for the SPA. Table 5.4-1, *Fire Station Information*, details fire and paramedic resources serving the SPA.

Table 5.4-1
Fire Station Information

Fire Station Location	Equipment	Average Response Time[1] (minutes)
Fire Station 121 *Jurisdictional Station* 57201 Twentynine Palms Highway Town of Yucca Valley	1-Type One Paramedic Engine Company 1-Paramedic Ambulance 6-On duty personnel	6-7
Fire Station 122 58612 Aberdeen County of San Bernardino	1-Type One Paramedic Engine Company 1-Paramedic Ambulance 4-On duty personnel	22-28
Fire Station 36 6715 Park Boulevard Joshua Tree	1-Type One Paramedic Engine Company 3-On duty personnel	17-24
Source: Paul Summers, Division Chief, South Desert Division, San Bernardino County Fire Department, June 23, 2006.		
1. Average response times for the Town of Yucca Valley. This assumes resources are static in the fire station and does not include call processing (reporting and dispatching) or preparation time.		

Response times are measured from the point at which the agency receives notification of the incident at the station, to their arrival on the site. Although the three fire stations are the most likely to respond to the SPA, according to County Fire Department, any County Fire Department emergency unit may respond to an incident anywhere in County Fire Department territory, depending on the need and availability. A major incident would draw multiple response units from four or more stations. The Hi-Desert Water District supplies water for the three stations. The available fire-flow currently supplied by the Hi-Desert Water District is inadequate for the SPA.[1]

The Insurance Services Office (ISO) collects information, which includes evaluations of public fire protection, flood risk, and adoption and enforcement of building codes in individual communities. ISO analyzes the relevant data using the Fire Suppression Classification, which is assigned a rating from 1 to 10. Class 1 represents exemplary public protection and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria. The current ISO rating in Yucca Valley is Class 5.

POLICE PROTECTION

San Bernardino County Sheriff's Department serves the Town of Yucca Valley. Specifically, the SPA is served by the Morongo Basin Sheriff's Station, located at 6527 White Feather Road, Joshua Tree, approximately ten miles from the SPA. The station serves a geographical area of approximately 5,200 square miles and a population in excess of 65,000 residents.[2]

Law enforcement needs in Yucca Valley are based on several factors, which include population, numbers of calls for service, response times, number of traffic accidents, response times, arrests, bookings, and patrol miles. The Town's law enforcement strategy includes the achievement of a policing ratio or one law enforcement officer per 1,000 citizens. On most days and most shifts, two officers and two patrol cars serve the Town of Yucca Valley, which includes the SPA.

Table 5.4-2, *Law Enforcement*, provides law enforcement projections and indicates that, based on the Towns target policing ratio and the SPA's existing population; the existing law enforcement demand for the SPA is less than one officer.

Response times are measured from the time a call is received until the patrol car arrives at the incident location. Response times vary, as calls are handled by the nearest available patrol car located within the patrol area, not necessarily from the station itself. Currently, emergency response time to the SPA is approximately five minutes.

[1] Paul Summers, Division Chief, South Desert Division, San Bernardino Fire Department, June 23, 2006.

[2] James R. Williams, Captain, County of San Bernardino Sheriff's Department, Morongo Basin Station, June 29, 2006.

Table 5.4-2
Law Enforcement

Geography	Population	Officers	
		Rate[1]	Demand
Within SPA - Existing	821 persons[2]	one officer per 1,000 persons	0.8 officer
Within SPA - General Plan Buildout	68 persons[3]		0.1 officer
Town of Yucca Valley- Existing	20,537 persons[4]		21.0 officers

Notes:
1. James R. Williams, Captain, County of San Bernardino Sheriff's Department, Morongo Basin Station, June 29, 2006.
2. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household (California Department of Finance).
3. Based on 27 dwelling units and 2.517 persons per household.
4. State of California, Department of Finance, *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001-2006, with 2000 Benchmark*. Sacramento, California, May 2006.

SCHOOLS

The Morongo Unified School District (MUSD) serves the SPA. Table 5.4-3, *Schools Serving the Project Area*, identifies the schools within the District that serve the SPA, their locations, current enrollment as of June 1, 2006, and enrollment capacities. A review of Table 5.4-3 indicates that the La Contenta Middle School is over capacity.

Seventeen schools are situated within MUSD, all of which have experienced an increase in enrollment since 1980. MUSD anticipates steady growth in student enrollment as a trend for the entire District; this includes an anticipated growth in the SPA. Most of the schools in the District are operating with student enrollment that exceeds the original design capacities.

Table 5.4-3
Schools Serving the Project Area

School	Location	Current Enrollment (students)	Enrollment Capacity (students)
Yucca Valley Elementary	7601 Hopi Trail	538	550
La Contenta Middle School	7050 La Contenta Road	710	700
Yucca Valley High School	7600 Sage Avenue	1,489	1,550

Sources: Joseph P Sullivan, Director, Facilities Planning, Morongo Unified School District, February 15, 2006 and Telephone Conversation, June 1, 2006.

MUSD collects Level 1 School Fees for residential and commercial development that are matched with the State School Building Program. On January 25, 2006, the State Allocation Board (SAB) increased the amount of the Statutory maximum Level 1 School Fees, which may be levied by a school district on new development. The maximum Level 1 School Fees are currently $2.63 per assessable square foot of residential construction and $0.42 per square foot of enclosed and covered space for commercial/industrial development. Other funds come from MUSD's Measure O (General Obligation Bond) passed in November 2005.

LIBRARIES

The County of San Bernardino Public Library provides library service to the Town of Yucca Valley and the SPA. The Yucca Valley Library is located at 57098 Twentynine Palms Highway in Yucca Valley, which is approximately three miles east of the SPA. The Library is 8,252 square feet (SF) with a staff of eight full-time employees and 72 volunteers. The facility maintains a collection of 51,000 books and other materials (video tapes, periodicals, etc.).

Table 5.4-4, *Library Resources*, provides library resource projections and indicates that, based on the library's planning standards and the Town's existing population, the target facility size for the Yucca Valley Library is 8,215 SF and the target collection size is 20,537 books/other materials. Thus, both the existing facility and collection exceed the target ratios by approximately 37 SF and 30,463 books/ materials, respectively.

The Public Library relies on property tax and State library funding for revenue. There are no development fees or assessment fees required by the Town at this time. According to the County Library's 2001 Master Facility Plan, there is a projected need of 20,500 additional SF of facility space to accommodate the 2021 anticipated population. At this time, there are no plans for library expansion.

Table 5.4-4
Library Resources

Geography	Population	Facility Space		Collection (Books/Materials)	
		Rate[1]	Demand	Rate[1]	Demand
Within SPA - Existing	821 persons[2]	0.4 SF per person	328 SF	1.0 per person	821 collection
Within SPA - General Plan Buildout	68 persons[3]		27 SF		68 collection
Town of Yucca Valley- Existing	20,537 persons[4]		8,215 SF		20,537 collection

1. Linda Grove, County of San Bernardino Public Library, July 17, 2006.
2. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household (California Department of Finance).
3. Based on 27 dwelling units and 2.517 persons per household.
4. State of California, Department of Finance, *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001-2006, with 2000 Benchmark*. Sacramento, California, May 2006.

ROADWAY MAINTENANCE

The SPA is served predominantly by a grid system of local and collector streets that flow to Twentynine Palms Highway (existing State Route 62), which traverses the center of the Town. Twentynine Palms Highway is the main arterial serving the SPA.

The Town of Yucca Valley Public Works/Engineering Department facilitates improvements, inspection, and support for public and private projects, which include streets. Divisions within the Department are responsible for maintenance and

improvements within the Town. The Street Maintenance staff attends to the routine and emergency maintenance of more than 150 miles of paved roads in Yucca Valley. The street crew completes immediate repairs and preventative measures, as necessary. Major road construction is accomplished in conjunction with additional contractors and is completed with available funding. Town repair and maintenance services apply to streets, sidewalks, curbs and gutters, rights-of-way, shoulders, landscape and parkway trees, storm drains, and drainage channels.

RECREATION

Two public parks providing approximately 5.5 acres of developed parkland serve the SPA. Remembrance Park, formerly known as Triangle Park, is an approximately 0.5-acre passive park situated at the intersection of State Route 62, Yucca Trail, and Apache Trail. The park has served as a focal point, equipped with a pedestrian walkway, benches, public art, and a Veterans Memorial exhibit. Jacobs Park is a 5-acre neighborhood park located less than 1.0-mile from the SPA, at the corner of Onaga Trail and Hopi Trail. Jacobs Park provides the only two publicly-lit tennis courts in Yucca Valley, a playground, community building, and t-ball fields. Residents in and near the SPA utilize the park. The Yucca Valley Community Center is a 22-acre facility located within 2.0 miles of the SPA. The Center consists of the Town Hall, public library, senior center, a museum, and several recreation amenities where many events, meetings, and public activities take place. The current acreage of parkland inventory in the Town of Yucca Valley overall is approximately 174.9 acres.[3]

Table 5.4-5, *Parkland Demand - Existing*, provides parkland demand projections, based on the Town's adopted standard of 5.0 acres of developed parkland per 1,000 persons. Table 5.4-5 indicates the target parkland inventory for the Town of Yucca Valley, based on the Town's existing population, is 102.7 acres. Thus, the existing parkland inventory exceeds the target ratio by approximately 72 acres.

Table 5.4-5
Parkland Demand – Existing

Geography	Population	Developed Parkland	
		Rate[1]	Demand
Within SPA - Existing	821 persons[2]		4.1 acres
Within SPA - General Plan Buildout	68 persons[3]	5.0 acres per 1,000 persons	0.34 acres
Town of Yucca Valley- Existing	20,537 persons[4]		102.7 acres

1. *Town of Yucca Valley Parks Master Plan*, December 16, 1999.
2. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household (California Department of Finance).
3. Based on 27 dwelling units and 2.517 persons per household.
4. State of California, Department of Finance, *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001-2006, with 2000 Benchmark*. Sacramento, California, May 2006.

[3] *Town of Yucca Valley Parks Master Plan*, December 16, 1999.

WATER

In accordance with Water Code Section 10910 and Senate Bill 610, a Water Supply Assessment (WSA) (December 2006) was prepared by RBF Consulting in December 2006. The Assessment is included in Appendix 15.5a, *Water Supply Assessment*. The primary reference for the WSA is the Hi-Desert Water District's Urban Water Management Plan (UWMP). In 2000, the HDWD submitted the Warren Valley Basin Management Plan along with an addendum to comply with the URMP provisions at that time. With the implementation of SB 610, and its impact to subsequent UWMP preparation, the HDWD provided supplements to the 2000 Plan. The HDWD then produced its stand-alone Urban Water Management Plan in 2005.

In early 2007 the Hi-Desert Water District (HDWD) began to draft all WSAs for new development/projects within the district. In May 2007, the Hi-Desert Water District prepared a Water Supply Assessment for the Old Town Yucca Valley Specific Plan. The Assessment is included in Appendix 15.5b, *Hi-Desert Water District, Water Supply Assessment*. The Water Board adopted the final WSA and it's findings pursuant to SB610 at the HDWD Board of Directors meeting May 23, 2007.

Water Source

The Hi-Desert Water District (HDWD) serves the Town of Yucca Valley and would provide service to the specific plan area (SPA). The HDWD utilizes two principal water sources to meet demands within its service area: imported surface water supplies from the California State Water Project (SWP) and domestic groundwater supplies. Natural recharge, stormwater and wastewater return flows further augment the HDWD's total water supply portfolio. The majority of the HDWD's groundwater water supply is pumped from the Warren Valley Groundwater Basin (WVB). This Basin provides 80 percent of the HDWD's domestic water source while a secondary groundwater Basin known as the Ames/Means Valley Basin, provides the remaining 20 percent of the HDWD's water source. Table 5.4-6, *Existing Water Supply Entitlements Rights and Contracts*, provides a brief overview of the HDWD's existing water, which are discussed in detail below. Historical domestic groundwater production represents the amount of water pumped from the ground regardless of the source of recharge. Table 5.4-7, *Warren Valley Basin Historical Domestic Groundwater Production,* summarizes the historical groundwater production from the WVB by the HDWD and other groundwater right holders since 1995.

Table 5.4-6
Existing Water Supply Entitlements Rights and Contracts

Supply	Acre-ft/year	Right	Contract
Warren Valley Basin	1,622	Yes	
Ames/Means Basin	800 + 0.5 for each new residential meter		Yes
SWP Supplies	4,282[1]		Yes
Source: High Desert Water District, Water Supply Assessment for Old Town Yucca Valley Specific Plan.			
1. Recharge to the Warren Valley Basin for later extraction.			

Table 5.4-7
Warren Valley Basin Historical Domestic Groundwater Production

Year	Warren Valley Basin (acre-feet)		Total
	HDWD	Private Pumbers[1]	
1995	1,613	350	1,963
1996	1,366	330	1,696
1997	2,142	424	2,566
1998	1,677	353	2,030
1999	1,888	342	2,225
2000	2,213	258	2,471
2001	2,167	330	2,497
2002	2,305	503	2,808
2003	2,553	256	2,809
2004	2,378	207	2,585
2005	2,388	230	2,618

Source: RBF Consulting, Draft Waster Supply Assessment Old Town Yucca Valley Specific Plan, Town of Yucca Valley, December 2006.

1. Includes Blue Skies Country Club, Institute of Mental Physics and individual private pumpers.
2. Includes production of both adjudicated groundwater rights and contractual SWP supplies.

The HDWD currently maintains the following facilities, which provide water supply, storage, and transmission for the HDWD water system:

- 274 miles of pipeline ranging in diameter from 2 to 12 inches;
- 17 groundwater wells on the two basins capable of producing 7,000 gallons per minute;
- 16 storage tanks totaling 12.66 million gallons; and
- 2 percolation ponds atop the WVB.

Groundwater Sources

Warren Valley Basin. The Warren Valley Basin covers an area of approximately 26.9 square miles (17,200 acres). The Basin includes the water-bearing sediments beneath the Town of Yucca Valley and the surrounding area. The Basin is bounded on the north by the Pinto Mountain fault, on the south by the bedrock outcrop of the Little San Bernardino Mountains, on the east by a bedrock constriction called the "Yucca barrier", and on the west by a bedrock constriction and a topographic divide between Warren Valley and Morongo Valley. The productive water-bearing materials in this Basin consist of unconsolidated to partly consolidated Miocene to Quaternary continental deposits.

In 1950, the Warren Valley Basin began to overdraft. As significant growth occurred in the Yucca Valley area, this overdraft condition worsened and groundwater levels declined at an accelerated rate. During this time, the groundwater levels declined as much as 20 to 40 feet per year. This overdraft problem has been known for many years. In 1977 the groundwater Basin was approved and the HDWD was appointed

as the Watermaster. The groundwater extraction rights established by 1997 adjudication are shown in Table 5.4-8, *Warren Valley Groundwater Pumping Rights*. As a result of the HDWD's 1990 acquisition of the Yucca Water Company, the HDWD's adjudicated groundwater rights in the Basin total 1,622 AFY.

Table 5.4-8
Warren Valley Groundwater Pumping Rights

Party to the Adjudication	Pumping Right (acre-foot/year)
Hi-Desert Waste District	896
Yucca Water Company[1]	726
Blue Skies Country Club	585
Institute of Mental Physics	80
16 Minimal Producers	16[2]
Total	2,303
Note: pumping rights exceed the native yield of the basin and are predicted on implementation of a Basin Management Plan.	
1. The HDWD acquired Yucca Valley Company in 1990. 2. This figure is being updated by the Warren Valley Watermaster.	

A Warren Valley Basin Management Plan was adopted in 1991 that called for importing State Water Project (SWP) water from Mojave Water Agency (MWA) through the then-proposed Morongo Basin Pipeline (MBP) to balance demand and replenish past overdraft. The 71-mile MBP has since been constructed and the HDWD has been purchasing SWP water from MWA and replenishing the WVB since 1995.

Groundwater in the WVB is supplemented by recharge at the HDWD's two percolation ponds, natural recharge from precipitation and stream flow, and percolation from return flows. Return flows are a combination of septic tank return flows, irrigation return flows, and wastewater return flows. Supply to the percolation ponds is provided by imported water from the SWP.

HDWD began to notice an increase in nitrate levels in a localized area within the WVB in 1997. The increase is a result of the return flows from the current septic systems used in Yucca Valley, and is the only foreseeable factor that could reduce supply from the WVB. In response to the increase in nitrate levels, the HDWD constructed a nitrate removal facility to treat the water, and is currently treating two groundwater wells. The HDWD is evaluating the construction of a wastewater treatment facility and sewer collection system to provide an additional source of supply, by the use of treated water to recharge the groundwater basin. The construction of a sewer system would eliminate the current septic systems that contribute to the high nitrate levels of the WVB.

Ames/Means Valley Basin. The HDWD pumps groundwater from the Ames/Means Valley Basin, which includes portions of the Ames and Copper Mountain Valley Basins as designated by Department of Water Resources (DWR). Groundwater produced by the Ames/Means Basin is identified as a part of the HDWD's total water

supplies. However, as required by the Ames Basin Agreement, water is only utilized to serve customers in the Ames/Means Basin area and would not be used to serve the SPA or any other HDWD demands in the Warren Valley Basin.

The Ames Valley Basin covers an area of approximately 169.7 square miles (110,000 acres). The Basin underlies Ames Valley, Homestead Valley, and Pipes Wash in the south-central San Bernardino County. The Basin is bounded by non-waterbearing rocks of the San Bernardino Mountains on the west, Iron Ridge on the north, and Hidalgo Mountain on the northeast. The Emerson, Copper Mountain, and West Calico fault also form parts of the eastern and northern boundaries. A surface water drainage divide with the Copper Mountain Valley Basin forms the southern boundary.

The Copper Mountain Valley Basin covers an area of approximately 47.4 square miles (30,300 acres). The basin is bounded on the north by a drainage divide with the Ames Valley Basin, and on the south by the Pinto Mountain fault. The non-waterbearing rocks of the Copper Mountain and the San Bernardino Mountains form the eastern and western basin boundaries, respectively. The total storage capacity is estimated in excess of 1,000,000 acre-feet.

In 1987, the District contracted with the Mainstream Water Development Company to locate and develop a well outside the Warren Valley Basin that would be capable of producing 1,500 acre-ft/yr. Subsequently, the proposed well site was placed within the sphere of influence of the Desert View Water Agency, one of the predecessor agencies to the Bighorn-Desert View Water Agency (BDVWA). This well was successfully drilled on the Bureau of Land Management property. The well can produce up to 2,100 acre-ft/yr from the Ames/Means Valley Groundwater Basin, which much of HDWD's Mesa area overlies.

Prior to this water source, the Mesa area utilized approximately 800 acre-ft/yr from the Warren Valley Basin. In 1989, the environmental issues related to this well resulted in complex litigation with the BDVWA. This litigation prevented the production of groundwater from the well. However, after prolonged negotiations with BDVWA, a settlement agreement, allowing the extraction of 800 acre-ft/yr as well as 0.5 acre-ft/yr for each new residential meter, was executed by both parties in January 1991. The settlement agreement prevents the export of groundwater from the Basin.

Imported Water Sources

State Water Project Supplies. The State Water Project (SWP) water is the third water source for the Yucca Valley area. The HDWD obtains its SWP supplies from the Mojave Water Agency (MWA). MWA is a special act district to help meet the water needs within its territory. The MWA's maximum annual water supply through the SWP system is 75,800 acre feet per year (AFY). The HDWD is located within Division 2 (Improvement District M) of the MWA, which is currently entitled to 7,257 AFY. Of the four purveyors within Division 2, the HDWD has a contractual entitlement of 4,282 AFY, which HDWD is able to take full advantage of due to water recharge to the Warren Valley Basin. HDWD recharges the SWP water it receives through the Morongo Basin Pipeline into the Warren Valley Groundwater Basin

through a series of percolation ponds owned and operated by HDWD. An additional recharge facility (Site 3) was recently constructed east of Pioneertown Road that increased the District's total recharge capacity to approximately 11,000 acre-ft/yr.

Contractual deliveries of up to 4,282 acre-feet in wet years allow the HDWD to include in its total projected water supplies a long-term average of 3,297[4] acre-ft/yr of SWP water from MWA.

Additional SWP Supplies. Under the 1991 Agreement, the HDWD has the first option to take delivery of contractual amount that is not utilized by the three other purveyors in District 2. Since completion of the Morongo Basin Pipeline, none of the other purveyors have requested or received any portion of their SWP supplies. This creates an opportunity for HDWD to purchase up to an additional 2,011 acre-ft/yr. This long-term annual average may also be stored in the Warren Valley Basin.

Additional SWP Table A Supplies Available to the HDWD. In addition to the HDWD's contractual rights to SWP water, the HDWD is able to acquire such additional surplus SWP supplies from MWA's "Table A" by purchase under MWA's Ordinance No. 9 (refer to Appendix C in Appendix 15.5b). This allows HDWD to purchase annual amounts of SWP water from MWA for domestic, industrial, municipal, agricultural, recreational, and/or groundwater replenishment purposes. Such water may be placed in a storage account under the Rules and Regulations of the Warren Valley Basin. As a conservative estimate for purposes of this WSA, the HDWD may purchase between 5,000 and 10,000 acre-feet of unused SWP supplies from MWA over the next 10-year period, either as a one-time purchase or as incremental purchases. Those deliveries will be made to the HDWD via the Morongo Basin Pipeline.

Interruptible SWP Supplies Available to the HDWD. The HDWD also has an opportunity to purchase "interruptible" or "Article 21" water from MWA. Article 21 water is typically available only in wet months, such as December through March, and is only available to SWP Contractors who can use the water directly or store it in their own system, such as in a groundwater basin. It is has estimated that an average of at least 120,000 acre-ft/yr of interruptible water will be available for purchase by the Contractors in years 2005 through 2025. Similarly, because of the HDWD's ability to store water in the Warren Valley Basin, it is appropriate for HDWD to incorporate future purchases of Article 21 water from MWA into the HDWD's projected water supply portfolio. As a conservative estimate for purposes of this WSA, the HDWD projects it may purchase between 5,000 and 10,000 acre-feet of interruptible SWP supplies from MWA over the next 10 to 20-year period, either as a one-time purchase or in annual increments.

In 2004, the HDWD and MWA renegotiated the conjunctive use agreement. Under the new agreement HDWD's entitled to extract and purchase 12,900 acre-feet of SWP water from the WVB from 2006 to 2012. The goal of both agencies is to store the additional water in the WVB in preparation for extended drought cycles. Both agencies would have access to this recharged groundwater, once the initial storage requirement of 2,500 acre-feet is fulfilled. HDWD would reimburse the 12,900 acre-

[4] 3,297 is derived using a 77 percent reliability rate of total water deliveries, refer to Appendix 15.5 for additional information.

feet of SWP water to MWA by receiving 478 acre-feet per year less of their SWP entitlement from 2020 to 2046.

Water Supply

Historical water supply represents the measured and estimated inflows to the WVB and imported water from the Ames/Means Valley Basin and other sources. The sources of the WVB recharge include precipitation on the Basin, runoff from its limited watershed (80 AFY), return flows from irrigation, septic, and wastewater systems, conjunctive use water from Mojave Water Agency, and SWP water imported from the MWA through the Morongo Basin Pipeline. Table 5.4-9, *Historical Water Supply*, summarizes the total historical water supplies the HDWD received from 1995 through 2005.

Table 5.4-9
Historical Water Supply

Year	Total Water Supply (acre-feet)
1995	3,600
1996	5,986
1997	6,278
1998	4,465
1999	3,380
2000	5,136
2001	5,061
2002	3,866
2003	4,005
2004	5,236
2005	4,761

Source: RBF Consulting, *Draft Water Supply Assessment Old Town Yucca Valley Specific Plan*, Town of Yucca Valley, December 2006.

Note: Refer to Appendix 15.5, *Water Supply Assessment*, for a breakdown of specific sources.

Reliability of Water Supply

Several important factors contribute to the reliability of the HDWD's existing and future water supplies. First, the HDWD is fortunate to have a diversified set of water rights, including adjudicated groundwater rights, contractual groundwater rights, and contractual rights to SWP supplies. Second, the HDWD is advantaged by having the Warren Valley Basin to use as a regulating reservoir.

Groundwater

As discussed throughout the HDWD WSA, the District utilizes the WVB to coordinate its groundwater and SWP rights, storing water in excess of demand during wet cycles and producing stored reserves during dry cycles. This utilization of the WVB allows the HDWD to plan for and serve the water demands of its existing and future

customers throughout wet, normal, and dry water years. Other key factors in the HDWD's water supply reliability are the significant amounts of local return flows to the Basin and conservation and demand management measures implemented by the HDWD. During dry years when SWP deliveries are reduced, SWP water previously stored in the Basin is extracted. As of June 2006, the Warren Valley Basin Watermaster has estimated that recharge in excess of extraction totaled 21,910 acre-feet, a 7.1 year reserve based on current production levels (WVBWM, 2006). Consequently, the groundwater supply is reliable to the extent that adequate SWP water is available for recharge and to maintain an adequate reserve. Table 5.4-10, *Groundwater Storage by Year – Warren Valley Basin*, indicates the banked groundwater storage by year for the WVB (data for the MVB was not available).

Table 5.4-10
Groundwater Storage by Year – Warren Valley Basin

Calendar Year	Groundwater Storage (acre-feet)
1995	526
1996	3,276
1997	6,389
1998	7,973
1999	8,354
2000	10,419
2001	12,327
2002	12,588
2003	13,211
2004	15,052
2005	16,608

Source: *Draft Water Supply Assessment Old Town Yucca Valley Specific Plan*, RBF Consulting, August 2006.

Return flows play a key role in maintaining the health and reliability of the Warren Valley Basin. Currently, return flows to the WVB from precipitation and natural recharge, irrigation returns, septic returns, and stormwater runoff are approximately 900 AFY, a significant portion of which are attributable to irrigation and septic system returns. The HDWD estimates that approximately 32 percent of the water used within the portion of the HDWD overlying the WVB returns to the Basin. That calculation is based on dividing the estimated average return flows by the Warren Valley groundwater pumping over the past 18 years (refer to Table 5.4-7). Based on the projected annual water use increase within the HDWD over the next 20 years, return flows to the Basin in the year 2028 are estimated to be 1,747 AFY without the Old Town Specific Plan Project.

In December 2003, a direct method of establishing the relationship between groundwater reserves and actual growth was approved. Groundwater reserves are based on the amount of water recharged into the WVB. This method removes all restrictions on growth unless water reserves in the groundwater Basin reach a pre-determined level.

The effect of this policy is to maintain minimum groundwater reserves that are adequate to meet current and approved demands during dry years without causing overdraft. If an extended dry period occurs that draws the reserves below the established levels, limitations on approval of additional growth would be implemented. No changes to this policy are anticipated.

Imported Water. Current imported supplies are available to the HDWD from MWA through the Morongo Basin Pipeline. While the HDWD's current entitlement to SWP is 4,282 AFY, actual deliveries vary depending on seasonal climate changes. Table 5.4-11, *HDWD SWP Purchases (1995-2005)* summarizes the amount of SWP deliveries received by the HDWD between 1995 and 2005. Since the execution of the Morongo Basin Pipeline agreement in 1995, reductions to the HDWD have not been necessary due to low overall demand for SWP supplies within the MWA service area. However, as demand for SWP water within the MWA service area increases, reductions in SWP deliveries may become more frequent in dry years. Consequently, the value of 3,297 AFY is considered to be a conservative estimate of the amount of SWP water available to HDWD.

Table 5.4-11
HDWD SWP Purchases (1995-2005)

Year	HDWD
1995	1,608
1996	3,919
1997	4,848
1998	2,895
1999	1,918
2000	3,631
2001	3,831
2002	2,566
2003	2,681
2004	3,700
2005	3,460
Average	3,187

Source: Hi-Desert Water District, Water Supply Assessment for Old Town Yucca Valley Specific Plan, May 2007.

Water Demand

The SPA area currently consists of existing land uses that generate a water demand, including residential, commercial, industrial, and civic. Water Demand Factors are necessary in order to estimate existing and ultimate water demands. According to the UWMP (2005), the HDWD assumes a typical household uses 0.28 AFY (250 gallons/day). The UWMP does not specifically state water demand factors for land uses other than residential. The HDWD's Draft Water Master Plan (DWMP) has estimated that a typical household uses 0.39 AFY (350 gallons/day). The DWMP also provides water demand factors for selected land use types. Refer to Appendix

15.5 for a summary of the water demand factors pertinent to the Old Town Yucca Valley Specific Plan area.

Existing water demand within the SPA is estimated to be 1 159.4 AFY(42,268 gallons per day)(refer to Appendix 15.5 of this EIR for detailed water demand calculations). Table 5.4-12, *Water Demand – Existing*, categorizes the existing water demands based on the proposed planning districts and shows the domestic water demand for existing conditions according to land use types.

Table 5.4-12
Water Demand – Existing

District/ Land Use Type	Gross Area (ac)	Dwelling Units (du)	Building Area (SF)	Water Demand Factor[1]	Average Day	
					(gpd)	(AFY)
Old Town Mixed Use						
Auto repair	1.006	0	5,476	1,000 gpd/ac	1,006	1.1
Auto sales	0.398	0	1,041	1,000 gpd/ac	398	0.4
Car wash	0.148	0	1,182	1,000 gpd/ac	148	0.2
Commercial	5.601	0	63,474	1,000 gpd/ac	5,601	6.3
Dental office	0.215	0	10,640	1,000 gpd/ac	215	0.2
Gas station	0.610	0	3,858	1,000 gpd/ac	610	0.7
Hotel/Motel[2]	0.309	1	6,072	3,520 gpd/ac	1,089	1.2
Industrial	5.256	0	46,607	850 gpd/ac	4,468	5.0
Low density residential	0.461	1	0	540 gpd/ac	203	0.2
Medical office	0.962	0	13,130	1,000 gpd/ac	962	1.1
Mini-storage	2.411	0	4,265	850 gpd/ksf	2,050	2.3
Office	1.146	0	7,000	1,000 gpd/ac	1,146	1.3
Restaurant	1.407	0	17,368	1,000 gpd/ac	1,407	1.6
Vacant	9.121	0	3,057	0 gpd/ac	0	0.0
TOTAL	**29.053**	**2**	**182,170**	**-**	**19,303**	**21.6**
Old Town Highway Commercial						
Auto repair	3.081	0	19,249	1,000 gpd/ac	3,081	3.5
Auto sales	2.636	0	11,222	1,000 gpd/ac	2,636	3.0
Commercial	17.394	0	97,652	1,000 gpd/ac	17,394	19.5
High density residential	0.523	0	0	3,520 gpd/ac	1,840	2.1
Hotel/Motel	2.371	12	55,907	3,520 gpd/ac	8,345	9.3
Low density residential	0.994	1	0	440 gpd/ac	437	0.5
Medical office	0.687	0	4,800	1,000 gpd/ac	687	0.8
Meeting hall	1.800	0	9,938	800 gpd/ac	1,440	1.6
Mini-storage	6.464	0	40,952	850 gpd/ac	5,494	6.2
Office	2.574	0	22,954	1,000 gpd/ac	2,574	2.9
Park-n-ride	1.055	0	0	0 gpd/ac	0	0.0
Restaurant	3.083	0	13,430	1,000 gpd/ac	3,083	3.5
RV park	1.305	0	1,740	800 gpd/ac	1,044	1.2
Unknown	0.012	0	0	1,000 gpd/ac	12	0.0
Vacant	14.379	0	0	0	0	0.0
TOTAL	**58.355**	**13**	**277,844**	**-**	**48,067**	**53.8**

Table 5.4-12 [continued]
Water Demand – Existing

District/ Land Use Type	Gross Area (ac)	Dwelling Units (du)	Building Area (SF)	Water Demand Factor[1]	Average Day	
					(gpd)	(AFY)
Old Town Commercial/Residential						
Church	2.577	0	16,887	800 gpd/ac	2,061	2.3
Civic	0.634	0	944	800 gpd/ac	507	0.6
Commercial	3.307	0	33,408	1,000 gpd/ac	3,307	3.7
High density residential	3.360	22	0	2,100 gpd/ac	11,828	13.3
Hotel/Motel	0.247	9	2,864	4,300 gpd/ac	868	1.0
Industrial	1.921	0	18,288	850 gpd/ac	1,633	1.8
Medium density residential	18.747	83	0	1,250 gpd/ac	19,215	21.5
Medical office	3.435	0	56,902	1,000 gpd/ac	3,435	3.8
Office	1.785	0	19,596	1,000 gpd/ac	1,785	2.0
Pet hospital	0.451	0	6,334	1,000 gpd/ac	451	0.5
Vacant	20.910	0	0	0	0	0.0
TOTAL	**57.373**	**114**	**155,223**	**-**	**45,091**	**50.5**
Old Town Industrial						
Civic	2.065	0	993	800 gpd/ac	1,652	1.9
Industrial	32.530	0	96,603	850 gpd/ac	27,650	31.0
Mini-storage	0.595	0	0	8500 gpd/ac	506	0.6
Vacant	4.399	0	0	0	0	0.0
TOTAL EXISTING Demand	**184.370**	**129**	**712,833**	**-**	**142,268**	**159.4**

1. Water demand factors based on District's Draft Water Master Plan.
2. Hotel/Motel assumed as high density residential.

Unknown land uses were assumed at 1,000 gpd/ac.
Results may not add correctly, as figures were rounded for the purpose of compiling this table.

WASTEWATER

Currently, all wastewater in the SPA is treated though septic systems located on each lot. A septic system has two main components: a septic tank; and an absorption area, sometimes constructed horizontally (leach field) or vertically (seepage pit). Septic tanks are buried between five and ten feet from the source structure. The liquid rises and leaves the septic tank through a pipe, which then branches out to the absorption area (or drainfield). Most of the liquid from the drainfield eventually seeps down toward the Town's aquifer to be pumped up to the surface again through wells.

The HDWD provides water service to the Town of Yucca Valley. The generation rates for domestic contribution to the wastewater system is assumed to be 90 gallons per capita per day (gpcd), while specific generation rates are applied to the other types of land uses. Table 5.4-13, *Wastewater Generation - Existing*, outlines the wastewater generation and indicates that an estimated 92,045 gpd of wastewater are currently generated within the SPA.

Table 5.4-13
Wastewater Generation – Existing

Geography	Square Feet/ Population	Rate[1]	Wastewater Generation
Within SPA - Existing			
Commercial/Retail	551,335 SF	30 gpd/1,000 SF	16,540 gpd
Industrial	161,498 SF	10 gpd/1,000 SF	1,615 gpd
Residential	821 persons	90 gpd/person	73,890 gpd
Total			*92,045 gpd*
Within SPA - General Plan Buildout			
Commercial/Retail	2,516,798 SF	30 gpd/1,000 SF	75,504 gpd
Industrial	862,241 SF	10 gpd/1,000 SF	8,622 gpd
Residential	68 persons	90 gpd/person	6,120 gpd
Total			*90,201 gpd*

1. *Hi-Desert Water District Wastewater Collection and Treatment Master Plan, Final Report*, January 1998.

The HDWD pumps water out of the ground (from an aquifer), up through wells to the surface. Poorly functioning, not maintained, and/or failing septic systems have contributed to the contamination of the Town's groundwater and aquifer, causing a rise in nitrates in some of the HDWD wells. Concerned with rising nitrates, the HDWD constructed a nitrate removal facility, which was in full operation by fall 2002.

The nitrate removal facility is considered an interim solution to the Town's wastewater treatment limitations. To determine the technical aspects of these improvements, the HDWD has prepared the Wastewater Collection and Treatment Master Plan (January 1998). The Plan identifies the wastewater flow projections for the Town, based on the land uses identified in the General Plan (1995). The Plan also evaluates alternative treatment processes for groundwater percolation and water reuse, and presents the recommended infrastructure for the District-wide sewer system and wastewater treatment facility. In addition to controlling nitrate contamination resulting from septic systems, the wastewater system would also provide the opportunity to recharge an estimated 1,000-acre-feet of treated wastewater per year into the WVB using recharge basins.

As of August 2006, the HDWD is attempting to finalize plans for construction of a new wastewater treatment facility in Yucca Valley.[5] It is noted that plans have altered from the 1998 *Wastewater Collection and Treatment Master Plan* and neither of two previously recommended sites are presently being considered. Construction of the treatment facility is anticipated to consist of seven phases. The initiation of this process is currently under discussion and negotiation by the HDWD Board of Directors and a private developer. Anticipated start of the new facility would begin within one year, however, whether all parties will agree on treatment facility level type and start of construction remains undetermined at this time. It is anticipated that private septic systems would continue to be used for the wastewater disposal until sufficient development has occurred to extend sewer system infrastructure to Yucca Valley.

[5] Telephone Conversation, Greg Snyder, Assistant General Manager, Hi-Desert Water District, August 2006.

Assessment fees are also currently a pending item for the HDWD. The implementation of Development Fees, which are not currently required for new development, is up for discussion by the Board of Directors in August 2006. The specific requirement and dollar amount is pending at this time.[6]

SOLID WASTE

Solid waste disposal service for residents and businesses in Yucca Valley is provided through Burrtec Waste Management Inc., which is the Town's franchise hauler. Burrtec is contracted by the County of San Bernardino to maintain landfills (both open and closed) and collection centers. Their on-site recycling programs are for white paper and scrap metal, and at certain sites, cardboard, bottles, cans, plastics, green waste, wood and construction/demolition debris. Services for curbside household hazardous waste and greenwaste collection is not available at this time. A local recycling company, Hi-Desert Recycling, accepts glass, plastic, aluminum, tin, newspaper and other non-ferrous scrap metal. The Yucca Valley does not have a transfer facility (waste-to-energy facility).

Table 5.4-14, *Solid Waste Generation - Existing*, outlines the estimated solid waste generation and indicates that an estimated 3,448 tons per year of solid waste are currently generated within the SPA.

Table 5.4-14
Solid Waste Generation – Existing

Geography	Square Feet/ Dwelling Units	Rate[1]	Solid Waste Generation
Within SPA - Existing			
Commercial/Retail	551,335 SF	0.0024 tons/SF	1,323 tons/year
Industrial	161,498 SF	0.0108 tons/SF	1,7443 tons/year
Residential	326 DU	1.17 tons/DU	381 tons/year
Total			*3,448 tons/year*
Within SPA - General Plan Buildout			
Commercial/Retail	2,516,798 SF	0.0024 tons/SF	6,040 tons/year
Industrial	862,241 SF	0.0108 tons/SF	9,312 tons/year
Residential	27 DU	1.17 tons/DU	32 tons/year
Total			*15,384 tons/year*

1. Estimated Solid Waste Generation Rates, California Integrated Waste Management Board website www.ciwmb.ca.gov, August 2006.

Solid waste generated in the SPA is disposed of at the Landers Landfill or the Trail's End Transfer Station in Morongo Valley. The Lander's Landfill has a total capacity of 3,080,000 cubic yards (cy), and currently has a remaining available capacity of approximately 15.1 percent (463,785 cy). This facility is estimated to remain open through 2008. San Bernardino County has landfill capacity in compliance with State regulations for a minimum of 12 years.

[6] Gary Snider, Hi-Desert Water District, Telephone Conversation, July 2006.

In 1992, the Town adopted a Source Reduction and Recycling Element to help them achieve the goals of AB 939. The Town participates in the Education and Outreach Committee of the County Waste Disposal Agreement involved in education on waste reduction and proper disposal.

OTHER UTILITIES

The SPA and its vicinity are currently served with natural gas, electricity, telephone, and cable services. Facilities are located both above and below-ground throughout the SPA, including a portion of Twentynine Palms Highway and Santa Fe Trail. Existing mainlines occur throughout the SPA. The relevant providers and their respective facilities are identified below:

- Electricity: Southern California Edison.
- Natural Gas: Southern California Gas Company: Nearest existing gas facilities include a two-inch main located seven feet N/S parallel to Eucalyptus Avenue.
- Telephone: Verizon.
- Cable: Time Warner Cable.

5.4.2 REGULATORY SETTING

STATE OF CALIFORNIA

Senate Bills 221 and 610

Senate Bills 221 and 610 were signed into law in 2001 and took effect January 1, 2002. The two bills amended State law to better link information on water supply availability to certain land use decisions by cities and counties. The two companion bills provide a regulatory forum that requires more collaborative planning between local water suppliers and cities and counties. All Senate Bill (SB) 221 and 610 reports are generated and adopted by the public water supplier.

SB 610 requires a detailed report regarding water availability and planning for additional water suppliers that is included with the environmental document for specified projects. All projects that meet any of the following criteria require the water availability assessment:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 SF of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 SF of floor space;
- A proposed hotel and/or motel having more than 500 rooms;

- A proposed industrial, manufacturing, or processing plant or an industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 SF of floor area;

- A mixed-use project that includes one or more of the projects specified in this subdivision; or

- A project that would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project.

While SB 610 primarily affects the Water Code, SB 221 principally applies to the Subdivision Map Act. The primary effect of SB 221 is to condition every tentative map for an applicable subdivision on the applicant by verifying that the public water supplier (PWS) has sufficient water supply available to serve it. Under SB 221, approval by a city or county of certain residential subdivisions requires a written verification of sufficient water supply. SB 221 applies to any subdivision, defined as:

- A proposed residential development of more than 500 dwelling units (if the PWS has more than 5,000 service connections); or

- Any proposed development that increases connections by 10 percent or more (if the PWS has fewer than 5,000 connections).

ASSEMBLY BILL 939: THE INTEGRATED WASTE MANAGEMENT ACT

In 1989, Assembly Bill 939, known as the Integrated Waste Management Act, was passed because of the increase in waste stream and the decrease in landfill capacity. As a result, the current California Integrated Waste Management Board (CIWMB) was established. A disposal reporting system with CIWMB oversight was established, and facility and program planning was required. AB 939 mandates a reduction of waste being disposed: jurisdictions were required to meet diversion goals of 25 percent by 1995 and 50 percent by 2000.

Town Of Yucca Valley Municipal Code

Code Chapter 3.40, *Development Impact Fees*, establishes development impact fees intended to recover from each new development, its reasonable share of the cost of each type of public facility and infrastructure improvement needed to serve that development. Code Section 3.40.040, *Public Infrastructure Facilities*, states:

> *General Facility, Park Facility, Trail Facility, Storm Drain Facility, and Street and Traffic Facility development impact fees shall be paid by applicants for development projects as set forth in this chapter and in the amounts adopted by the Town Council by resolution from time to time. No building permit, or occupancy permit, shall be issued for any new development project unless the fees specified in this chapter as adopted by Resolution of the Town Council are paid. Fees collected pursuant to this chapter shall be deposited into a separate fund and used only for the purpose of acquiring, designing, constructing, improvement, providing and maintaining, to the extent permitted*

by law, the General Facilities provided for in the Study and the Plans as adopted and amended from time to time by the Town Council.

Code Section 6.02.050, *Recycling and Solid Waste Processing Services*, discusses responsibilities of solid waste and recycling collection and states:

The Town may provide for recycling and solid waste processing services, which may include recycling from designated collection locations of all commercial and residential premises within the Town. Such services may include designation of an authorized recycling agent.

5.4.3 IMPACT THRESHOLDS AND SIGNIFICANCE CRITERIA

Pursuant to Appendix G of the *CEQA Guidelines*, *Environmental Checklist Form*, a project would normally have a significant adverse impact on public services if it would:

PUBLIC SERVICES
(Fire and police protection, schools, libraries, and roadway maintenance)

A significant impact would occur if the project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services, including fire protection, police protection, schools, or other public facilities.

RECREATION

A significant impact would occur if the project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

- Includes recreational facilities or requires the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

UTILITIES AND SERVICE SYSTEMS
(Water, wastewater/sewers, and solid waste)

A significant impact would occur if the project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

- Have insufficient water supplies available to serve the project from existing entitlement and resources, and new or expanded entitlement is needed.

- Result in a determination by the wastewater treatment provider, which serves or may serve the project that does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

- Be served by a landfill that does not have sufficient permitted capacity to accommodate the project's solid waste disposal needs.

- Not comply with federal, state, and local statutes and regulations related to solid waste.

5.4.4 IMPACTS AND MITIGATION MEASURES

FIRE PROTECTION

- **THE PROPOSED PROJECT COULD RESULT IN SIGNIFICANT PHYSICAL IMPACTS WITH RESPECT TO FIRE PROTECTION SERVICES.**

Impact Analysis: According to the County Fire Department, any development within the Town of Yucca Valley, including within the SPA, would increase demands on existing fire protection resources. Additional manpower, equipment and facilities are already needed in the area. The County Fire Department anticipates that an additional fire station and staffed engine company with four on duty personnel would be required for the Specific Plan. However, because the Specific Plan is conceptual, analysis is based on maximum development potential, and thus the County Fire Department is unable to provide specific comments regarding land development within the SPA.[7]

Specific fire and life safety requirements for construction would be addressed at the building and fire safety plan check for individual projects and entitlements in the SPA. Development proposed would be subject to compliance with all relevant County Fire Department general requirements, including the following:

General Requirements

- Multiple ingress/egress access for circulation of traffic and emergency response;

[7] Paul Summers, Division Chief, San Bernardino County Fire Department, June 23, 2006.

- Compliance with all applicable code and ordinance requirements for construction, access, water mains, fire flows and fire hydrants;
- Specific fire and life safety requirements during the construction phase;
- Specifications for the accessibility of access roadways to Fire Department apparatus;
- Maintenance of access roads;
- Specific requirements for subdivisions; and
- Fire sprinkler systems.

Specific Requirements for Commercial, Industrial, Institutional, and Residential

- Fire flow;
- Fire hydrant location and spacing;
- Fire Department access;
- Turning radii and street and driveway width and length specifications; and
- Identification of fire lanes.

The current ISO rating for the SPA is Class 5. Project implementation may result in changes to this existing rating. Depending on the construction type, additional fire stations, fire apparatus and personnel, built-in fire protection, and water distribution upgrades, the ISO classification may be lower.

Assessment fees are assessed by the Fire Department and would be determined on a project-by-project basis, when more detailed development information is available. Future development would be required to pay fees sufficient to cover mitigation costs. Potential fire service impacts are concluded to be less than significant, following compliance with all applicable requirements and payment of assessment fees.

Fire flow requirements are addressed in the *Water* discussion below.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact.

POLICE PROTECTION

- **PROJECT IMPLEMENTATION COULD RESULT IN SIGNIFICANT PHYSICAL IMPACTS WITH RESPECT TO POLICE PROTECTION.**

Impact Analysis: Buildout of the SPA would result in an increased demand for law enforcement services beyond existing conditions. Table 5.4-15, *Law Enforcement - Projections*, provides law enforcement projections and indicates that the proposed Specific Plan would generate a demand for three patrol officers, or two officers more than the demand generated by existing conditions. Comparatively, the proposed Specific Plan would generate a demand for two officers more than demand generated by the existing General Plan. However, the Specific Plan proposes less commercial floor area than the *General Plan* buildout (a net decrease of 478,435 SF), thus, the patrolling requirements would be proportionately less.

Law enforcement needs are determined and adjusted annually, thus, the Town would be able to respond to Police protection needs prior to buildout of the SPA. Additional information is required as to the specific use of the commercial/industrial development to determine the potential policing impacts of this component of the Specific Plan. At this time it is not anticipated that Project implementation would result in the need for physical additions to the existing department facilities. However, the inclusion of a satellite police department office in the SPA should be considered. Any increased demand for law enforcement and traffic services would be coordinated between the Sheriff's Department and the Town of Yucca Valley. With mitigation, which requires further consultation between the Sheriff's Department and the Town of Yucca Valley regarding the provision of a satellite office and law enforcement needs, the Project would result in less than significant impacts.

Table 5.4-15
Law Enforcement – Projections

Geography	Population	Officers	
		Rate[1]	Demand
Old Town Yucca Valley SP - Proposed	2,806 persons[2]	one officer per 1,000 persons	3 officers
Within SPA – Existing	821 persons[3]		1 officer
Net Change (Specific Plan: Existing)	*+1,985 persons*		*+2 officers*
Within SPA - General Plan Buildout	68 persons[4]		1 officer
Net Change (Specific Plan: General Plan)	*+2,738 persons*		*+2 officers*

1. James R. Williams, Captain, County of San Bernardino Sheriff's Department, Morongo Basin Station, June 29, 2006.
2. Based on 1,115 dwelling units and 2.517 persons per household (California Department of Finance).
3. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household.
4. Based on 27 dwelling units and 2.517 persons per household.

Mitigation Measure:

PSU-1 The Town of Yucca Valley shall consult with the Sheriff's Department, on a project-by-project basis, regarding the provision of a satellite police department office in the SPA and potential increased demand for law enforcement and traffic services.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

SCHOOLS

- **PROJECT IMPLEMENTATION WOULD NOT RESULT IN SIGNIFICANT PHYSICAL IMPACTS ON EXISTING SCHOOL FACILITIES.**

Impact Analysis: Table 5.4-14, *Student Population - Projections*, provides the projected student population growth, based on the MUSD student generation rate of 0.7 student per dwelling unit. As indicated in Table 5.4-14, buildout of the SPA would generate approximately 781 elementary, middle, and high school students in the MUSD, or 553 more students than existing conditions. Based on the *School Accountability Report Card* desired class size of 30 students, the Project (at buildout) would generate a demand for 26 classrooms, or 18 classrooms more than the demand generated by existing conditions. According to the MUSD, additional funds and facilities would be required in order to meet the demand generated by the proposed Specific Plan. Comparatively, buildout of the SPA would generate approximately 762 students more than the student population projection, based on *General Plan* buildout; refer to Table 5.4-16.

Table 5.4-16
Student Population – Projections

Geography	Dwelling Units	Student	
		Rate[1]	Generation
Old Town Yucca Valley SP – Proposed Project	1,115 du	0.7 students per dwelling unit	781 students
Within SPA – Existing	326 du		228 students
Net Change (Specific Plan: Existing)	*+789 du*		*+553 students*
Within SPA - General Plan Buildout	27 du		19 students
Net Change (Specific Plan: General Plan)	*+1,088*		*+762 students*

1. Joseph P. Sullivan, Director of Facilities Planning, Morongo Unified School District, February 13, 2006.

MUSD would collect, on a project-by-project basis, Level 1 School Fees for residential and commercial development. Payment of these development fees would reduce impacts to school facilities to a less than significant level.

According to the MUSD, spot construction on infill-lots within the SPA would not require additional mitigation, beyond payment of development impact fees.[8] However, housing tract developments in concentrated areas within the SPA may require the establishment of Community Facility Districts. With implementation of the recommended mitigation, which requires further consultation between the MUSD and the Town of Yucca Valley regarding the establishment of a Community Facilities District, the Project would result in less than significant impacts.

Mitigation Measure:

PSU-2 For housing tract developments in concentrated areas, the Town of Yucca Valley shall consult with the Morongo Unified School District, regarding the establishment of a Community Facilities District.

[8] Joseph P Sullivan, Director, Facilities Planning, Morongo Unified School District, February 15, 2006.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

LIBRARIES

- **PROJECT IMPLEMENTATION WOULD INCREASE THE DEMAND FOR LIBRARY FACILITIES AND WOULD CONTRIBUTE TO THE EXISTING NEED FOR CONSTRUCTION OF NEW FACILITIES OR ALTERATION OF EXISTING FACILITIES.**

Impact Analysis: Table 5.4-17, *Library Resources - Projections*, provides the library facility projections and indicates that Project implementation would generate a demand for 1,122 SF of facility space and 2,806 books/materials, or 1,095 SF of facility space and 2,738 books/materials more than the demand generated by existing conditions, respectively. Because the existing collection exceeds the Library's target ratio, an excess supply of approximately 30,463 books/materials is available. Thus, the demand for books/materials generated by the proposed Project would be met from the existing supplies and a less than significant impact would occur in this regard. However, additional square footage to meet the new demand generated by the proposed Project (1,095 SF) could not be feasibly added to the existing building and would necessitate a new facility. Comparatively, the Specific Plan would result in more population growth than the existing General Plan, thus, the demand for library space and books/materials would be proportionately greater; refer to Table 5.4-17.

Table 5.4-17
Library Resources – Projections

Geography	Population	Facility Space		Collection (Books/Materials)	
		Rate[1]	Demand	Rate[1]	Demand
Old Town Yucca Valley SP – Proposed Project	2,806 persons[2]	0.4 SF per capita	1,122 SF	1.0 per capita	2,806 collection
Within SPA – Existing	821 persons[3]		794 SF		821 collection
Net Change (Specific Plan: Existing)	*+1,985 persons*		*+328 SF*		*+1,985 collection*
Within SPA - General Plan Buildout	68 persons[5]		27 SF		68 collection
Net Change (Specific Plan: General Plan)	*+2,738 persons*		*+1,095 SF*		*+2,738 collection*

1. Linda Grove, County of San Bernardino Public Library, July 17, 2006.
2. Based on 1,115 dwelling units and 2.517 persons per household (California Department of Finance).
3. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household.
4. State of California, Department of Finance, *E-5 Population and Housing Estimates, for Cities, Counties, and the State, 2001-2006, with 2000 Benchmark.* Sacramento, California, May 2006.
5. Based on 27 dwelling units and 2.517 persons per household.

Future development would be subject to payment of development impact fees required by Ordinance 173 of Chapter 3.40 of the *Municipal Code*. Compliance with Code requirements would contribute the funds necessary to mitigate impacts to library facilities to a less than significant level. It is further noted that the Old Town Yucca Valley Specific Plan suggests that new public facilities be relocated to the Old

Town area to enhance the Main Street and Old Town character. To further lessen potential impacts in this regard, mitigation is recommended, which requires consultation between the County of San Bernardino Library and the Town of Yucca Valley regarding the expansion/provision of a library facility.

Mitigation Measure:

PSU-3 The Town of Yucca Valley shall consult with the San Bernardino County Library, on a project-by-project basis, regarding the provision of library facility space.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

ROADWAY MAINTENANCE

- **THE USAGE OF AREA ROADWAYS MAY RESULT IN INCREASED MAINTENANCE REQUIREMENTS.**

Impact Analysis: As described in Section 3.0, Project Description, the Circulation Plan proposes a semi-grid system of roadways, emphasizing community and regional linkages to the Old Town area and addressing the potential realignment of SR-62; refer to Exhibit 3-7, *Proposed Circulation Map*. The roadway network includes a variety of cross-sections to encourage a more pedestrian-friendly environment. Right-of-ways range from 110 to 134 feet and include from one to three lanes of travel; refer to Exhibit 3-8, *Street Cross-Sections*. A "Main Street" is proposed (within the existing SR-62 alignment) that extends through the center of the Old Town. The Circulation Plan also identifies the potential SR-62 realignment location and conceptual Gateway lane configurations, currently being studied by Caltrans District 8.[9]

Project implementation would result in an increase of roadways to be maintained by the Town of Yucca Valley. In addition, proposed uses would result in increased traffic in the SPA, resulting in potentially significant impacts to existing roadway conditions. Future development within the SPA would be subject to compliance with Code Section 3.40, which requires payment of an impact fee, in order to mitigate additional traffic burdens and provide maintenance to the Town's arterial and collector street system. The fee would be assessed on a project-by-project basis. Thus, with payment of impact fees, impacts to roadways would be reduced to a less than significant level.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact.

[9] A separate study, conducted by Caltrans would assess impacts of the proposed SR-62 realignment. If approved, this primary arterial would be allowed to function as a main street instead of a fast flowing highway. All impacts and issues regarding the realignment would be examined in a separate study.

RECREATION

- **PROJECT IMPLEMENTATION WOULD GENERATE A DEMAND FOR ADDITIONAL PARK AND RECREATION FACILITIES AND MAY INCREASE THE USE OF EXISTING NEIGHBORHOOD AND REGIONAL PARKS OR OTHER RECREATIONAL FACILITIES.**

Impact Analysis: Table 5.4-18, *Parkland Demand – Projections*, provides the projected demand for parkland and indicates buildout of the SPA would generate a demand for 14 acres of developed parkland, or 9.9 acres more than the demand generated by existing conditions. Comparatively, buildout of the SPA would generate a demand for 13.7 acres of developed parkland more than the parkland demand, based on *General Plan* buildout; refer to Table 5.4-18.

Table 5.4-18
Parkland Demand – Projections

Geography	Population	Developed Parkland	
		Rate[1]	Demand
Old Town Yucca Valley SP – Proposed	2,806 persons[2]	5.0 acres per 1,000 persons	14.0 acres
Within SPA – Existing	821 persons[3]		4.1 acres
Net Change (Specific Plan: Existing)	*+1,985 persons*		*+9.9 acres*
Within SPA - General Plan Buildout	68 persons[4]		0.34 acres
Net Change (Specific Plan: General Plan)	*+2,738 persons*		*+13.7 acres*

1. Town of Yucca Valley Parks Master Plan, December 16, 1999.
2. Based on 1,115 dwelling units and 2.517 persons per household (California Department of Finance).
3. Based on 326 dwelling units (Traffic Impact Analysis) and 2.517 persons per household.
4. Based on 27 dwelling units and 2.517 persons per household.

The Town has an adopted Quimby ordinance and also a phased schedule of developer fees that would mitigate the impact on parkland from new residential development. Impacts on recreation would be mitigated through requirements for parkland dedication or in-lieu fees. Following compliance with Code requirements, and in consideration of the existing parkland inventory (exceeds the target ratio by approximately 72 acres), implementation of the proposed Project would generate a less than significant impact on recreation.

As discussed in Section 3.0, *Project Description*, the Project proposes pedestrian and bicycle/equestrian trails, which would further mitigate impacts to recreational facilities. The trail system includes a pedestrian-oriented street system encompassing wide sidewalks and public plazas. On-street Class 1 bike paths are proposed to extend along SR-62/Yucca Trail and Santa Fe Trail, connecting the local street network. The proposed Yucca Wash multi-use trail would be a 10-foot decomposed granite trial for equestrian and pedestrian use, ultimately connecting to the regional California Riding and Hiking Trail System. The Specific Plan also proposes relocation and/or construction of new public facilities currently located within the Community Center area, however, this would not result in net change in recreation acreage.

Implementation of the proposed Specific Plan may alter the existing Remembrance Park, depending on the ultimate site plans for future development; refer to Exhibit 3-5, *Vision Plan*. However, it would remain a passive public area and no net change in acreage would occur.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact After Mitigation Incorporated.

WATER

- **PROJECT IMPLEMENTATION WOULD INCREASE THE DEMAND FOR WATER BEYOND CURRENT CONDITIONS REQUIRING AN INCREASE IN FUTURE WATER SUPPLY.**

Impact Analysis:

Water Supply. Water Supply Assessments (WSA) () were prepared by the Town of Yucca Valley and by the HDWD for the proposed Project, in accordance with Water Code Section 10910 and Senate Bill 610. The analysis and calculations by the HDWD (May 2007) supersede the Town's Assessment presented in the December 2006 WSA which was incorporated into the Draft EIR. At buildout, the Specific Plan area would consist of residential, commercial/retail, industrial, office, and civic land uses. Table 5.4-19, *Water Demand – Project* provides the detailed domestic water demand for the proposed Specific Plan, according to planning district and land use type. Water demand for the Project was calculated by the HDWD using water demand factors from Appendix 15.5 of this EIR. The ultimate average day water demands at full build-out are estimated to be approximately 526.7 AFY for the proposed SPA.

Table 5.4-19
Water Demand – Project

District/Land Use Type	Density (du/ac)	Gross Area (ac)	Units (du)	Building Area (SF)	Water Demand Factor[1] (gpd/ac)	Average Day Demand (AFY)
Commercial/Retail		17.428		759,317	1,000	19.5
Residential	40	11.625	465		11,730	152.8
Total		**29.053**	**465**	**759,317**	**-**	**172.3**
Commercial/Retail		58.355		889,684	1,000	65.4
Total		**58.355**		**889,684**	**-**	**65.4**
Commercial/Retail		40.165		699,769	1,000	45.0
Residential	24	17.208	413		7,040	135.7
Total		**57.373**	**413**	**699,769**	**-**	**166.4**
Industrial		31.66		551,834	850	30.1
Residential	30	7.933	238		8,800	78.2
Total		**39.589**	**238**	**551,834**	**-**	**108.3**
Total Proposed Water Demand		**184.370**	**1,116**	**2,900,604**	**-**	**526.7**
Less Existing Demand			**129**			**159.4**
Total Projected Water Demand		**184.370**	**1,115**			**367.3**

The net change in water demand from existing to ultimate represents the impact the Project will have on HDWD's supply system. The proposed Specific Plan would result in an increase in water demand of 367 AFY.

Growth within the project area is expected to occur linearly over a 50-year period starting in 2008 and ending in 2057. This results in an annual growth in demand of 7.3 acre-ft/yr. Beyond 2057, the Project's additional water demand remains constant at 367 AFY.

Projected Water Demand

The HDWD needs to take into account all additional water demands in deciding whether there is sufficient water supply for the proposed Specific Plan. As of May 2007, there are 62 development projects under some stage of consideration by the Town in addition to this Specific Plan (refer to *Appendix G* in Appendix 15.5 of this EIR). These projects are incorporated in the base demand forecasts which uses a linear growth rate of 2.3 percent to estimate future population and water demand. Table 5.4-20, *Projected Water Demand (2.3 Percent Growth Rate)* displays projected HDWD water demand totals up to the year 2028. The table also displays the HDWD future water demand with anticipated future projects, and anticipated demand from the Old Town Specific Plan Area.

Table 5.4-20
Project Water Demand (2.3 percent Growth Rate)

User	2008	2013	2018	2023	2028
HDWD – Warren Valley[1]	2,744	3,338	3,748	4,037	4,325
Old Town SP Project (net increase)	7	44	81	118	154
Total Demand	2,751	3,382	3,829	4,155	4,479

1. HDWD – Warren Valley demand includes existing customers, an annual increase of 58 acre-/yr (2.3 percent of existing demand) and projected demand for the Mountain Vista development.
2. The net demand increase is used because the existing demand of the Old Town area is included in the existing demand projection.

Based on the calculations in Table 5.4-20, the projected demands to the HDWD for a normal year are estimated to increase by approximately 4,479 acre-feet by the year 2028. The Old Town Yucca Valley Specific Plan is anticipated to create an additional water demand of 154 acre-feet by 2028 which is assumed to be only partially built out. This amount would represent approximately 3.4 percent of the HDWD's water 2028 demands.

According to the HDWD's WSA for the Old Town Yucca Valley Specific Plan Area, water supplies are adequate to meet demands in normal, single dry and multiple dry years both without and with the proposed Project through 2028 while maintaining DHWD supply reserves in the Warren Valley Basin exceeding five years. Beyond the 20-year analysis period (2028), the District will need to acquire additional supplies above its current contracted SWP supply to meet the future demand in the SPA.

To meet the future demands of 2028 and beyond, the HDWD would have to plan on obtaining additional sources of water such as increased imported water from MWA, recycled water or desalinated water. HDWD could purchase additional SWP water in early years to buildup a larger groundwater reserve. However, it should ensure that it does not violate its water reserve policies.

Based on existing water supply and demand conditions and future assumptions, the WSA has concluded the following regarding the proposed Project:

- Hi-Desert Water District has been identified as the public water purveyor for the Old Town Yucca Valley Specific Plan.
- Water demand for the proposed Specific Plan is planned to be met through groundwater extraction and imported sources from the SWP.
- Reliability to the groundwater system is provided by natural recharge and recharge in the percolation ponds, which is supplied by MWA and the SWP along with management and conservation measures taken by the HDWD.
- The calculated water demand for the proposed Specific Plan is approximately 526.7 AFY at buildout (2057), and it has been estimated that approximately 159.4 AFY of water is currently used within the SPA.
- The Hi-Desert Water District proposes to deliver water to the Old Town Yucca Valley Specific Plan project from groundwater extracted from Warren Valley Basin, and SWP.

Water Distribution. RBF Consulting prepared the Yucca Valley Revitalization Project Draft Utility Plan (September 9, 2005) for the proposed Specific Plan. According to the Draft Utility Plan, the SPA is located within the 3495W Pressure Zone and is the supply zone that the west side wells pump directly into. During the 1995-96 Pipeline Improvement Project, the HDWD completed several miles of pipeline upgrades to replace old and undersized pipelines; refer to Table 5.4-21, *Water Pipeline Replacements Completed*. The pipeline upgrades included the construction of 22,300 linear feet of replacement pipeline in the District's west side, which would directly benefit the 3495W Pressure Zone and the SPA. This study assumes that all replacement projects completed to date are incorporated into the 2002 Water System Atlas.

Table 5.4-21
Water Pipeline Replacements Completed

Fiscal Year of Construction	Area	Lineal Footage Installed
2000 / 2001	Jemez Trail and Highland Trail (Kickapoo Trail to Inca Trail)	1,500
2000 / 2001	Inca Trail and Mariposa Trail, (Mariposa Trail to Fox Trail, and Yucca Trail to Palms Highway)	2,300
2002 / 2003	Coyote Trail and Apache Trail (north of 29 Palms Highway)	3,400

For the purposes of the Water Master Plan Study, the pipe diameter given is based on the typical (and conservative) industry velocity standard of ten feet per second (fps). This ensures a reasonable unit headloss within the system for maximum ability to provide the fire flows at the minimum residual pressure of 20 pounds per square inch (psi), as dictated by the Uniform Fire Code. Fire-flow criteria (as provided in the 2001 Water Master Plan Update) and appropriate system pipeline diameters are indicated in Table 5.4-22, *Fire-Flow Pipe Dimensions*.

Table 5.4-22
Fire-Flow Pipe Dimensions

Land Use	Minimum Required Fire Flow (gallons per minute)	Minimum Pipe Diameter
Low-Density Residential	1,500	8 inches
Residential	2,000	8 inches (looping)
Commercial/Multi-family Residential	3,000	10 inches (looping)
Industrial	4,000	12 inches (looping)

Although several miles of pipeline upgrades were completed during the 1995-96 Pipeline Improvement Project, several older and smaller pipelines (two-inch, three-inch, and four-inch) are still in operation. Some of these existing pipelines still serve fire hydrants, which are sorely insufficient for providing even the lowest of current-day fire-flow requirements. Thus, based on current information, the available fire flow currently supplied by the HDWD would be inadequate for the Project. Mitigation is recommended requiring hydraulic analysis on a project-by-project basis, at the design phase of each project, to verify that current-day fire-flow requirements would be met and that the fire-flow pipe diameters (Table 5.4-20) would work within the operation of the HDWD transmission system as a whole. However, even with mitigation, this potential impact is concluded as significant and unavoidable.

The Specific Plan would result in the buildout of water infrastructure and presents an opportunity to upgrade and ensure the adequacy of fire hydrant coverage. In locations that cannot be reached by conventional fire department equipment from existing public fire hydrants, new fire hydrants would be required and/or old hydrants replaced/relocated as part of the infrastructure upgrades. The proposed water system upgrades would require prior verification through computer model simulation on a project-by-project basis. Refer to Table 3-2, *Proposed Water Infrastructure Improvements*, and Exhibit 3-8, *Proposed Water Plan*.

Water Storage. The 1995 and 2001 Water Master Plans define water storage requirements due to three separate needs – operational, emergency, and fire. Both the 1995 and 2001 Master Plans discuss the need for additional storage in the 3495W Pressure Zone. The 2001 HDWD Water Master Plan Update (Section VII) describes additional storage capacity needs, based on the 2001 storage capacity of 4.5 million gallons (MG). Projected water demands for the 3495W Pressure Zone (both east and west sides) produce a need for 4.72 MG for 2005, and 5.57 MG for 2020, according to Tables VII-1B and VII-1A of the Update. This represents an additional storage need for the 3495W Zone, as a whole, of approximately 0.2 MG in

2005 and 1.1 MG in 2020. Current storage capacity in the 3495W Zone may be adequate for the additional demands estimated from the Project. The water storage requirements would require prior verification on a project-by-project basis.

Mitigation Measures:

PSU-4 Prior to issuance of Grading Permit, future applicants shall consult the HDWD on a project-by-project basis to identify the existing water distribution facilities (pipelines, fire hydrants, etc.) and the necessary upgrades, pursuant criteria specified in the 2001 Water Master Plan Update.

PSU-5 Prior to issuance of Certificate of Occupancy and in consultation with HDWD on a project-by-project basis, new fire hydrants shall be installed and/or old hydrants replaced/relocated, in locations that cannot be reached by conventional fire department equipment from existing public fire hydrants.

PSU-6 Prior to issuance of Grading Permit and on a project-by-project basis, future applicants shall consult with the HDWD to verify through computer model simulation, the proposed water system upgrades outlined in Table 3-2, *Proposed Water Infrastructure Improvements*, and illustrated on Exhibit 3-8, *Proposed Water Plan*.

PSU-7 Prior to issuance of Grading Permit and during the design phase of each future project, applicants shall conduct a hydraulic analysis in consultation with the HDWD to verify that current-day fire-flow requirements would be met and that the fire-flow pipe diameters work within the operation of the HDWD transmission system as a whole, pursuant to the fire-flow criteria specified in the 2001 Water Master Plan Update.

PSU-8 Prior to issuance of Grading Permit and on a project-by-project basis, future applicants shall consult with the HDWD to verify the water storage requirements, based on the 2001 Water Master Plan Update.

Level of Significance: Significant and Unavoidable Impact After Mitigation.

WASTEWATER (SEWER)

- **PROJECT IMPLEMENTATION WOULD GENERATE ADDITIONAL WASTEWATER BEYOND CURRENT CONDITION.**

Impact Analysis: According to the HDWD, the generation rates for domestic contribution to the wastewater system is assumed to be 90 gallons per capita per day (gpcd), while specific generation rates are applied to the other types of land uses. Table 5.4-23, *Wastewater Generation - Project*, provides an estimate of the amount of wastewater that would be generated by implementation of the Specific Plan. As indicated in Table 5.4-23, an estimated 328,521 gpd of wastewater would be generated by the proposed Project, or 236,476 gpd more than the wastewater generated by existing conditions. Comparatively, buildout of the SPA would

generate approximately 238,320 gpd more than the wastewater generation, based on General Plan buildout; refer to Table 5.4-23.

Table 5.4-23
Wastewater Generation – Project

Geography	Square Feet / Population	Rate[1]	Wastewater Generation
Old Town Yucca Valley SP – Proposed			
Commercial/Retail	2,348,770 SF	30 gpd/1,000 SF	70,463 gpd
Industrial	551,834 SF	10 gpd/1,000 SF	5,518 gpd
Residential	2,806 persons	90 gpd/person	252,540 gpd
Total			*328,521 gpd*
Within SPA – Existing[2]			92,045 gpd
Net Change (Specific Plan: Existing)			*+236,476 gpd*
Within SPA - General Plan Buildout[2]			90,201 gpd
Net Change (Specific Plan: General Plan)			*+238,320 gpd*

1. *Hi-Desert Water District Wastewater Collection and Treatment Master Plan, Final Report*, January 1998.
2. Refer to Table 5.4-9, *Wastewater Generation - Existing*.

Private septic systems would be used for disposal of the wastewater generated by future development within the SPA. This would continue until such time as sufficient development has occurred to extend sewer system infrastructure to Yucca Valley. Because septic tank discharges have contaminated some of the groundwater supply with high nitrate levels, the potential exists that future development within the SPA would further aggravate this existing condition. Mitigation is recommended, which requires that the best available technology be used in the selection and installation of the private septic systems. However, even with mitigation, this potential impact is concluded as significant and unavoidable.

The Hi-Desert Water District anticipates constructing a wastewater treatment plant in Yucca Valley, northeast of the SPA. Future wastewater improvements, including the elimination of private septic systems and the construction of new wastewater collection, treatment, and disposal systems, would require a coordinated effort between the Town of Yucca Valley and the HDWD.

Mitigation Measures:

PSU-9 Prior to Building Permit issuance, new development on vacant parcels, which do not currently have a septic system, shall implement best available technology in the selection and installation of private septic systems, to the satisfaction of the Town of Yucca Valley and the Hi-Desert Water District (HDWD). New development on vacant parcels shall also provide lateral sewer lines to the center-lines of the nearest adjacent roadways. The lateral sewer lines shall be constructed in accordance with Town and District standards and specifications, to the satisfaction of the Town of Yucca Valley.

PSU-10 Prior to Building Permit issuance, new development or redevelopment on parcels with existing septic systems shall provide evidence to the

satisfaction of the Town of Yucca Valley and the HDWD, that the existing septic system is operating efficiently and that adequate capacity exists to support new/additional development.

PSU-11 Prior to issuance of Certificate of Occupancy, applicants shall provide the Town of Yucca Valley with evidence that the HDWD has reviewed/approved the informational materials regarding the proper maintenance of septic systems that will be distributed to future tenants/residents. Such informational materials, shall include at a minimum, the following provisions:

- Septic tanks shall be inspected and pumped regularly to remove the solid waste (sludge). At a minimum, septic tanks shall be cleaned every four years.

- Chemicals and other hazardous wastes shall be kept out of the septic systems. Hazardous chemicals shall not be poured down the drain or flushed down the toilet (e.g., pesticides, paint thinner, household chemicals, solvents, or engine oil).

- Toilet bowl cleaners, such as the tablets dropped in tanks, shall be "septic system friendly." To prevent the destruction of the bacteria used in septic tanks, cleaners that include chemicals with "benzene" (e.g., dichlorobenzene) or Formaldehyde shall be avoided.

- Chemicals used to clear clogged drains or leach lines (e.g., destroy roots) or any product that has acid in it, shall also be avoided to prevent the destruction of the bacteria.

Level of Significance: Significant and Unavoidable Impact After Mitigation Incorporated.

SOLID WASTE

- **IMPLEMENTATION OF THE SPECIFIC PLAN WOULD INCREASE SOLID WASTE GENERATION.**

Impact Analysis: Proposed construction and demolition activities would generate construction debris from development of the SPA over an unspecified amount of time until buildout. Compliance with Code requirements would reduce potential impacts in this regard to less than significant.

Table 5.4-22, *Solid Waste Generation – Project*, outlines the estimated solid waste generation for the proposed Specific Plan and indicates post-development operations would generate approximately 12,902 tons of solid waste per year (prior to recycling), or 9,454 tons per year more than existing conditions. Comparatively, buildout of the SPA would generate 2,482 tons of solid waste per year less than the solid waste generation based on *General Plan* buildout; refer to Table 5.4-24. The Specific Plan proposes less commercial/industrial development than the *General Plan* buildout (a net decrease of 478,435 SF). Thus, the solid waste generation

would be proportionately less, more than offsetting the increase in solid waste generation from the residential development proposed by the Project.

Table 5.4-24
Solid Waste Generation – Project

Geography	Square Feet / Dwelling Units	Rate[1]	Solid Waste Generation
Old Town Yucca Valley SP – Proposed			
Commercial/Retail	2,348,770 SF	0.0024 tons/SF	5,637 tons/year
Industrial	551,834 SF	0.0108 tons/SF	5,959 tons/year
Residential	1,115 DU	1.17 tons/DU	1,305 tons/year
Total			*12,902 tons/year*
Within SPA – Existing[2]			3,448 tons/year
Net Change (Specific Plan: Existing)			*+9,454 tons/year*
Within SPA - General Plan Buildout[2]			15,384 tons/year
Net Change (Specific Plan: General Plan)			*-2,482 tons/year*

1. Estimated Solid Waste Generation Rates, California Integrated Waste Management Board website www.ciwmb.ca.gov, August 2006.
2. Refer to Table 5.4-10, *Solid Waste Generation – Existing*.

The proposed new development within the SPA would be subject to the provisions of Section 6.02 of the *Yucca Valley Municipal Code*, which discusses responsibilities of solid waste and recycling collection. The solid waste service provider would continue to provide recycling containers for residential, commercial, and institutional uses, further facilitating the diversion of solid waste and recyclable materials from landfills. Project compliance with the Town's AB 939 waste reduction requirements and the Yucca Valley Municipal Code would reduce the amount of solid waste, which is ultimately disposed of at the landfill. Analysis has concluded that impacts would be less than significant.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact.

OTHER UTILITIES (ELECTRIC, GAS, TELEPHONE)

- **PROJECT IMPLEMENTATION WOULD RESULT IN AN INCREASE IN THE DEMAND FOR PUBLIC UTILITIES (ELECTRICAL, NATURAL GAS, TELEPHONE, AND CABLE SERVICE) BEYOND EXISTING CONDITIONS AND MAY REQUIRE SYSTEM EXPANSIONS.**

Impact Analysis: Implementation of the proposed Specific Plan would increase demand for electricity, natural gas, telephone, and cable services in the SPA. Total demand is expected to increase over an extended period of time. The electricity, gas, and telephone lines to serve the new development can be connected from existing transmission facilities on SR-62. It is anticipated that SCE, SCG, Verizon, and Time Warner Cable would have adequate resources to serve all customer loads on a project-by-project basis, in accordance with agency rules and tariffs.

Future development shall coordinate with SCE, SCG, Verizon, and Time Warner Cable to install electrical, gas, telephone, and cable lines in an individual or joint trench configuration. As previously stated, future development would trench and install the conduit per the utilities' requirements and, where applicable, the utility would inspect the trench and provide, install, and connect service. Each utility company would determine the costs for new services once established. Implementation of the proposed Specific Plan would result in less than significant impacts.

Electricity. SCE would require official development design plans from the Town in order to provide an engineering design for the demolition or conversion to underground electrical lines. Aerial electrical lines are currently located throughout the SPA. Upon Project implementation, future developers may be required to underground all electric lines. Individual development projects would be required to coordinate with the local SCE planner to obtain underground electrical services for proposed construction within the SPA.

Natural Gas. SCG maintains provides natural gas service to the SPA. Two-, four-, and six-inch transmission and distribution lines run throughout Yucca Valley and there is a six-inch gas line running under SR-62.

Telephone. All existing undergrounded telephone lines within the SPA shall be protected in place. In order to disconnect existing overhead telephone lines, the Town would be required to provide Verizon with the addresses of buildings and housing units proposed for removal. Coordination with Verizon would be required to obtain new telephone services for individual developments. A full set of plans, including addresses and site plans for each new property shall be provided to Verizon to obtain new services. Upon receipt of site plans, Verizon would determine if relocation of existing undergrounded telephone lines would be required.

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact.

5.4.5 CUMULATIVE IMPACTS

- **CUMULATIVE DEVELOPMENT WOULD INCREASE THE DEMAND FOR PUBLIC SERVICES AND INCREASE THE CONSUMPTION RATES FOR PUBLIC UTILITIES, POTENTIALLY REQUIRING EXPANSIONS OF THE EXISTING SYSTEMS.**

Impact Analysis: In relation to the cumulative development outlined in Section 4.0 *Basis of Cumulative Analysis*, the proposed Specific Plan would incrementally contribute to an increased demand for fire, police, schools, libraries, water, wastewater (sewer), solid waste and electricity, natural gas, and telephone utilities. The Specific Plan and cumulative projects would add to the cumulative demand for such services and utilities through the introduction of new residents and patrons. The Project is located in an area that is served by all utilities (except wastewater [sewage]) and public services. Existing facilities can be readily extended into the area to serve new development as it occurs, on a project-by-project basis. Excluding

wastewater, no other governmental services or activities would be cumulatively impacted by the proposed Project. Because the respective providers of such services and facilities have indicated that the Project's incremental impacts are sufficiently mitigated, cumulative impacts on public services and utilities anticipated to result from future development are not considered significant. Analysis has concluded that cumulative development is subject to standards and requirements of reviewing agencies and that a less than significant impact would occur in this regard.

Some of the existing pipelines within the Town still serve fire hydrants, which are sorely insufficient for providing even the lowest of current-day fire-flow requirements. Thus, the available fire flow currently supplied by the HDWD would be inadequate for cumulative development. Mitigation is recommended requiring hydraulic analysis on a project-by-project basis, at the design phase of each project, to verify that current-day fire-flow requirements would be met and that the fire-flow pipe diameters work within the operation of the HDWD transmission system as a whole. However, even with mitigation, the inadequate fire-flow is concluded as a significant and unavoidable impact.

Because septic tank discharges have contaminated some of the groundwater supply with high nitrate levels, the potential exists that future cumulative development combined with future development within the SPA, would further aggravate this existing condition. Mitigation is recommended, which requires that the best available technology be used in the selection and installation of the private septic systems. The potential contamination associated with wastewater generation is concluded as a significant and unavoidable cumulative impact.

Mitigation Measures: Refer to Mitigation Measures PSU-1 through PSU-11.

Level of Significance: Significant and Unavoidable Impact After Mitigation Incorporated.

5.4.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project and cumulative development would result in significant and unavoidable impacts with respect to:

- The available fire flow currently supplied by the HDWD, which is considered inadequate for the Project and cumulative development.

- The potential for future Project and cumulative development within the SPA to further aggravate the existing contamination of the groundwater supply (with high nitrate levels), which has been caused by discharges from existing septic tanks.

If the Town of Yucca Valley approves the proposed Project, the Town would be required to adopt findings in accordance with *CEQA Guidelines* Section 15091 and prepare a Statement of Overriding Considerations in accordance with *CEQA Guidelines* Section 15093.