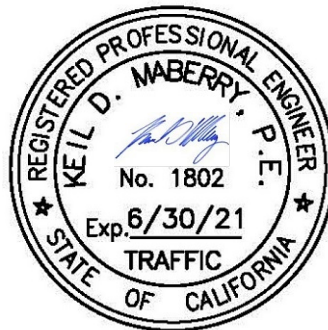


TRAFFIC IMPACT ANALYSIS REPORT
SKY CANYON RETAIL CENTER
Riverside County, California
July 6, 2020
(Update of April 15, 2020 Report)

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EXECUTIVE SUMMARY

- The proposed Sky Canyon Retail Center Project, which consists of a 51,927 square-foot (SF) shopping center and an express car wash with a 130 foot tunnel. The Project site is located on the northeast quadrant of Winchester Road (SR-79) and Willow Avenue in the County of Riverside, California.
- The net traffic generation potential of the proposed Project totals 4,309 daily trips (one half arriving, one half departing), with 206 trips (112 inbound, 94 outbound) produced in the AM peak hour and 340 trips (161 inbound, 179 outbound) produced in the PM peak hour.
- The eleven (11) cumulative projects are forecast to generate a combined total of 33,284 daily trips, with 2,146 trips forecast during the AM peak hour and 2,711 trips forecast during the PM peak hour.
- The key study intersections listed below provide both local and regional access to the study area and defines the extent of the boundaries for this traffic impact investigation:
 1. Winchester Road at La Alba Drive (*City of Murrieta/Riverside County*)
 2. Winchester Road at Hunter Road (*City of Murrieta/Riverside County*)
 3. Winchester Road at Robert Trent Jones Parkway (*City of Murrieta/Riverside County*)
 4. Winchester Road at Murrieta Hot Springs Road (*City of Murrieta/Riverside County*)
 5. Winchester Road at Winchester Square Drive (*City of Temecula/Riverside County*)
 6. Winchester Road at Willows Avenue (*City of Temecula/Riverside County*)
 7. Winchester Road at Nicolas Road (*City of Temecula*)
 8. Winchester Road at Margarita Road (*City of Temecula*)
 9. Winchester Road at Ynez Road (*City of Temecula*)
 10. Sky Canyon Drive at Willows Avenue (*Riverside County*)
- Under Existing traffic conditions, all ten (10) of the key study intersections currently operate at acceptable levels of service under Existing traffic conditions during the AM and PM peak hours when compared to the LOS standards defined in this report.
- All ten (10) of the key study intersections are forecast to operate at acceptable levels of service for Existing With Project traffic conditions based on the HCM methodology and the County's LOS standards.
- All ten (10) of the key study intersections are forecast to operate at adverse levels of service for Existing With Ambient Growth With Project traffic conditions based on the HCM methodology and the County's LOS standards.

- Two (2) of the key study intersections are forecast to operate at adverse levels of service for Existing With Ambient With Project With Cumulative Projects traffic conditions based on the HCM methodology and County LOS standards. These intersections, reported below, are forecast to operate at adverse levels of service during the peak hours indicated:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
4. Winchester Rd at Murrieta Hot Springs Rd	85.8	F	122.5	F
8. Winchester Rd at Margarita Rd	--	--	65.9	E

However, the implementation of the recommended improvements will offset the Project impacts and return the operating condition of the impacted intersections to acceptable levels of service.

- One (1) of the key study intersections is forecast to operate at adverse levels of service for Existing With Project With Cumulative Projects traffic conditions based on the HCM methodology and the Caltrans' LOS standards. This intersection, reported below, is forecast to operate at adverse levels of service during the peak hours indicated:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
4. Winchester Rd at Murrieta Hot Springs Rd	77.9	E	111.3	F

However, none of the key study intersections are impacted by the addition of Project traffic. As such, no mitigation measures are required.

- The following improvements listed below will be constructed by the proposed Project:
 - Sky Canyon Road: Extend the roadway from its current southerly terminus at the northerly Project boundary to Willows Avenue.
 - Sky Canyon Road at Willows Avenue: Install a three-phase traffic signal with a continuous green operation for the eastbound through movement. Convert the No. 1 eastbound through lane to an exclusive eastbound left-turn lane. Restripe the east leg to provide two westbound through lanes and a shared westbound through/right-turn lane. Stripe the north leg to include an exclusive left-turn lane and an exclusive right-turn lane.
- The results of the Existing With Project intersection capacity analysis indicate that the proposed Project will not impact any of the key study intersections.
- The results of the Existing With Ambient Growth With Project intersection capacity analysis indicate that the proposed Project will not impact any of the key study intersections.
- The results of the Existing With Project With Cumulative Projects intersection capacity analysis indicate that the proposed Project will not impact any of the key study intersections.

- The results of the Existing With Ambient Growth With Project With Cumulative Projects traffic conditions level of service analysis indicate that the proposed Project will cumulatively impact two (2) of the key intersections. The following improvements listed below have been identified to mitigate the traffic impacts at the intersections cumulatively impacted by future non-Project traffic and Project traffic. The Project can be expected to contribute a fair share to implement the following feasible recommended improvements:
- Winchester Road at Murrieta Hot Springs Road: Restripe the west leg to include a third EB left-turn lane. Widen and restripe the east leg to include a third WB through lane. Modify the existing traffic signal to include a southbound right-turn overlap and restrict eastbound U-turn movements on Murrieta Hot Springs Road. Modify the existing traffic signal to include a westbound right-turn overlap and restrict southbound U-turn movements on Winchester Road.
 - Winchester Road at Margarita Road: Widen the south leg to provide a fourth NB through lane. Widen the north leg departure to provide four receiving lanes. Modify the existing traffic signal.

It should be noted that there are no impacts under Caltrans criteria. Additionally, it should be noted that Winchester Road from Nicolas Road to Ynez Road has been relinquished to the City of Temecula. Therefore, Temecula traffic impact criteria have been applied to those locations.

- Access to the proposed Project will be provided via four stop-controlled driveways: one (1) right-in/right-out only driveway along Winchester Road, and three (3) full-access driveways along Sky Canyon Road.
- The proposed Project driveways are forecast to operate at acceptable levels of service during the AM and PM peak hours for all scenarios.
- The on-site circulation layout of the proposed Project on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks, and trash trucks. Based on our review of the site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the Project is impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveway is also deemed adequate. As such, motorists entering and exiting the Project site from this driveway will be able to do so comfortably, safely, and without undue congestion.
- Under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions, the existing westbound left-turn lane and westbound left-turn/through lane at the intersection of Winchester Road at Willows Avenue is anticipated to not provide sufficient storage for the forecast 95th percentile queues. However, the storage will be extended with

the construction of the intersection of Sky Canyon Drive at Willows Avenue. With construction, the proposed storage for the westbound left-turn lane at the intersection of Winchester Road at Willows Avenue and the eastbound left-turn lane at the intersection of Sky Canyon Drive at Willows Avenue are forecast to be sufficient.

- It should be noted that the Project's fair share obligation towards the recommended improvements at the intersections of Winchester Road at Margarita Road and Winchester Road at Murrieta Hot Springs Road may be funded through the Transportation Uniform Mitigation Fee (TUMF) program and/or the County's Development Impact Fee (DIF) program.
- Under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions, the fair share contribution at the intersection of Winchester Road and Murrieta Hot Springs Road is **\$11,835.00**, and the fair share contribution at Winchester Road at Margarita Road is **\$25,155.00**.
- The proposed Project is located within a "low VMT-generating TAZ" as shown on the a WRCOG SB 743 VMT Impact Screening Tool, which shows the VMT per worker of **6.54 VMT per worker**, which is less than the jurisdictional average home-based work VMT per worker of **14.83 VMT per worker**. As a result, the proposed Project will result in a less-than-significant transportation impact based on the WRCOG SB 743 VMT Impact Screening Tool.

TRAFFIC IMPACT ANALYSIS REPORT
SKY CANYON RETAIL CENTER
Riverside County, California
July 6, 2020
(Update of April 15, 2020 Report)

1.0 INTRODUCTION

This traffic impact study addresses the potential traffic impacts and circulation needs associated with the proposed Sky Canyon Retail Center Project, which consists of a 51,927 square-foot (SF) shopping center and an express car wash with a 130 foot tunnel. The Project site is located on the on the northeast quadrant of Winchester Road (SR-79) and Willow Avenue in the County of Riverside, California.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential traffic impacts associated with the proposed Sky Canyon Retail Center (hereinafter referred to as Project).

1.1 Scope of Work

The traffic analysis evaluates the existing operating conditions at ten (10) key study intersections within the Project vicinity, estimates the trip generation potential of the proposed Project, superimposes the Project-related traffic volumes on the circulation system as it currently exists, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection improvements/mitigation measures are identified.

This traffic report satisfies the traffic impact requirements of the County of Riverside and Caltrans. The Scope of Work for this traffic study was developed in conjunction with County of Riverside Transportation Department staff.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at the key study location on a “typical” weekday for use in the preparation of intersection level of service calculations. A “typical” weekday constitutes a Tuesday, Wednesday, or Thursday and refers to a non-holiday condition when local schools are in session. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the County of Riverside, the City of Murrieta, and the City of Temecula. Based on our research, there is one (1) cumulative project in the City of Temecula, seven (7) cumulative projects in the City of Murrieta, and three (3) cumulative projects in the County of Riverside. These eleven (11) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this Project.

This traffic report analyzes existing and future weekday AM peak hour and PM peak hour traffic conditions for a near-term (Year 2022) traffic setting upon completion of the proposed Project. Peak

hour traffic forecasts for the Year 2022 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of two percent (2.0%) per year and adding traffic volumes generated by eleven (11) cumulative projects.

1.2 Study Area

The ten (10) key study intersections selected for evaluation were determined based on the approved Traffic Study Scope of Work and discussions with County of Riverside Transportation Department staff. The key study intersections listed below provide both local and regional access to the study area and defines the extent of the boundaries for this traffic impact investigation:

Key Study Intersections:

1. Winchester Road at La Alba Drive (*City of Murrieta/Riverside County*)
2. Winchester Road at Hunter Road (*City of Murrieta/Riverside County*)
3. Winchester Road at Robert Trent Jones Parkway (*City of Murrieta/Riverside County*)
4. Winchester Road at Murrieta Hot Springs Road (*City of Murrieta/Riverside County*)
5. Winchester Road at Winchester Square Drive (*City of Temecula/Riverside County*)
6. Winchester Road at Willows Avenue (*City of Temecula/Riverside County*)
7. Winchester Road at Nicolas Road (*City of Temecula*)
8. Winchester Road at Margarita Road (*City of Temecula*)
9. Winchester Road at Ynez Road (*City of Temecula*)
10. Sky Canyon Drive at Willows Avenue (*Riverside County*)

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

Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated Project traffic generation/distribution/assignment,
- Estimated cumulative projects traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions,
- AM and PM peak hour capacity analyses for existing with Project conditions,
- AM and PM peak hour capacity analyses for existing with ambient growth to the Year 2022 with Project traffic conditions,

- AM and PM peak hour capacity analyses for existing with Project with cumulative projects for the Year 2022 traffic conditions (Caltrans analysis requirement),
- AM and PM peak hour capacity analyses for existing with ambient growth to the Year 2022 with Project with cumulative projects traffic conditions (i.e., cumulative traffic conditions),
- Site Access and Internal Circulation Evaluation, and
- Area-Wide Traffic Improvements.

2.0 PROJECT DESCRIPTION AND LOCATION

The Project site is located on the northeast side of Winchester Road (SR-79) and Willows Avenue in the County of Riverside, California. *Figure 2-1* presents an aerial depiction of the existing site.

The proposed Project consists of a 51,927 square-foot (SF) shopping center and an express car wash with a 130 foot tunnel. *Figure 2-2* presents the proposed site plan for the proposed Project, prepared by McKently Malak Architects. As presented in *Figure 2-2*, the shopping center will consist of two (2) pad buildings, one (1) fast-food restaurant with drive-through, an express car wash, and a grocery store. It should be noted that Sky Canyon Road will be extended along the Project frontage from Willows Avenue to its southerly terminus at the northerly Project boundary in conjunction with the development. The proposed Project is expected to be completed and fully occupied by the Year 2022.

2.1 Site Access

As shown in *Figure 2-2*, access to the proposed Project will be provided via four (4) stop-controlled driveways: one (1) right-in/right-out only driveway along Winchester Road, and three (3) full-access driveways along Sky Canyon Road. It should be noted that the northerly driveway along Sky Canyon Road will experience a nominal volume of traffic and will be utilized primarily by employee vehicles, such that its proximity to the existing adjacent driveway to the north will not be an issue.

3.0 EXISTING CONDITIONS

3.1 Existing Street Network

The I-15 Freeway provides regional access to the Project site. Winchester Road, Murrieta Hot Springs Road, Winchester Creek Avenue, and Willows Avenue provide local access to the Project site. The following discussion provides a brief synopsis of these key streets. The descriptions are based on an inventory of existing roadway conditions.

Winchester Road is generally a six-lane, divided roadway, oriented in the north-south direction, which borders the Project site on the west. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Winchester Road is 55 miles per hour (mph). A traffic signal controls the key study intersections of Winchester Road at La Alba Drive, Hunter Drive, Robert Trent Jones Parkway, Murrieta Hot Springs Road, Winchester Square Drive, Willows Avenue, Nicolas Road, Margarita Road, and Ynez Road.

Murrieta Hot Springs Road is a four-lane, divided roadway, oriented in the east-west direction, located north of the Project site. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Murrieta Hot Springs Road is 50 miles per hour (mph).

Winchester Creek Avenue is a two-lane, undivided roadway, oriented in the east-west direction, located west of the Project site. East of Winchester Road, Winchester Creek Avenue becomes Willows Avenue. On-street parking is not restricted on either side of the roadway within the vicinity of the Project. The posted speed limit on Winchester Creek Avenue is 25 miles per hour (mph).

Willows Avenue is a four-lane, divided roadway, oriented in the east-west direction, which borders the Project site on the south. West of Winchester Road, Willows Avenue becomes Winchester Creek Avenue. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. The posted speed limit on Willows Avenue is 40 miles per hour (mph).

Sky Canyon Drive is a four-lane, divided roadway, oriented in the north-south direction, which borders the Project site on the east. On-street parking is not permitted on either side of the roadway within the vicinity of the Project. Currently, Sky Canyon Drive ends partway between Murrieta Hot Springs Road and Willows Avenue. However, concurrent with the Project, Sky Canyon Drive will extend to Willows Avenue, and provide access to the Project site. A traffic signal controls the key study intersection of Sky Canyon Drive at Murrieta Hot Springs Road.

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

3.2 Existing Traffic Volumes

The ten (10) key study intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential Project-related traffic will

pass through these intersections and their analysis will reveal the expected relative impacts of the Project. These key study intersections were selected for evaluation based on discussions with County of Riverside Transportation Department staff.

Existing AM and PM peak hour traffic volumes for the ten (10) key study intersections evaluated in this report were obtained from manual peak hour turning movement counts conducted by Counts Unlimited, Inc. in September 2018 and grown at two percent (2%) per year to the year 2020. **Figures 3-2 and 3-3** illustrate the existing AM and PM peak hour traffic volumes at the ten (10) key study intersections evaluated in this report, respectively.

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

3.3 Level of Service (LOS) Analysis Methodologies

AM and PM peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections and the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections. This methodology is consistent with Caltrans requirements.

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

AM and PM peak hour operating conditions for the key study intersections were evaluated using the HCM operations method of analysis. Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in **Table 3-1**.

3.3.2 Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined

for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in *Table 3-2*.

3.4 Impact Criteria and Thresholds

3.4.1 County of Riverside Criteria

According to the County of Riverside General Plan, *Section C 2.1*, the following countywide target Levels of Service shall be maintained:

- LOS “C” shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS “D” shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
- LOS “E” may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

Based on the above-mentioned level of service and impact criteria, LOS “D” is the minimum acceptable LOS at the key study intersections.

3.4.2 City of Murrieta Criteria

In conformance with the City of Murrieta and Riverside County Transportation Department requirements, AM and PM peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in the *Highway Capacity Manual 2010 (HCM 2010)*. Daily operating conditions for the key study roadway segments were analyzed using the *Volume to Capacity (V/C) ratio*.

Per City of Murrieta guidelines, a minimum LOS “D” must be maintained at key study intersections, while a minimum LOS “C” must be maintained at key study roadway segments.

3.4.3 City of Temecula Criteria

The City of Temecula considers LOS “D” to be the minimum acceptable LOS for intersections.

3.4.4 Caltrans Criteria

Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the “without Project”

level of service should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS “D.” For undeveloped or not densely developed locations, the goal may be to achieve LOS “C.”

Within the Project study area, Winchester Road is part of the CMPHS for Riverside County and also under the jurisdiction of Caltrans. Based on the LOS criteria stated above, LOS “E” is considered acceptable for intersections located along the CMP network and/or also under the jurisdiction of Caltrans.

**TABLE 3-1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)¹**

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

¹ Source: *Highway Capacity Manual 6*, Chapter 19: Signalized Intersections.

TABLE 3-2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY)²

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

² Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

4.0 TRAFFIC FORECASTING METHODOLOGY

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

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

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

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

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Trip Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 10th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2017].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and also presents the Project's forecast peak hour and daily traffic volumes. As shown, the trip generation potential for the retail component of the proposed Project was estimated using ITE Land Use 820: Shopping Center equations. Generation rates used in the traffic forecasting procedure for the carwash component of the proposed Project are based on the empirical trip generation estimates at Victorville Speedwash collected on February 7, 2014. As indicated in the Project Description above, the carwash is proposed to have an effective tunnel length of 130 feet, which has been utilized for the trip generation calculation.

As shown in *Table 5-1*, the proposed Project is expected to generate 4,976 daily trips (one half arriving, one half departing), with 240 trips (127 inbound, 113 outbound) produced in the AM peak hour and 454 trips (214 inbound, 240 outbound) produced in the PM peak hour on a "typical" weekday.

Applicable pass-by reduction factors were incorporated into the daily, AM peak hour, and PM peak hour traffic forecasts. The factors used in this report are based on pass-by factors considered acceptable by Riverside County.

Hence, the net traffic generation potential of the proposed Project totals 4,309 daily trips (one half arriving, one half departing), with 206 trips (112 inbound, 94 outbound) produced in the AM peak hour and 340 trips (161 inbound, 179 outbound) produced in the PM peak hour. The potential traffic impacts of the aforementioned net Project trips are evaluated in the traffic analysis section of this report.

5.2 Project Traffic Distribution and Assignment

Figure 5-1 presents the traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the Project site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e., I-15, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- existing intersection traffic volumes, and
- ingress/egress availability at the Project site.

The anticipated AM and PM peak hour traffic volumes associated with the proposed Project are presented in *Figures 5-2* and *5-3*, respectively. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-1*.

It should be noted that under future conditions, Sky Canyon Road will be extended from the northerly Project boundary to Willow Avenue. Therefore, in order to estimate future “without Project” volumes along Sky Canyon Road (as well as the future intersection of Sky Canyon Road at Willow Avenue), the appropriate AM and PM peak hour trips associated with the existing shopping center (located adjacent northerly to the Project site on the southeast quadrant of Winchester Road and Murrieta Hot Springs Road) were routed along Sky Canyon Drive to Willow Avenue.

5.3 Existing With Project Traffic Conditions

The existing plus Project traffic conditions have been generated based upon existing conditions and the estimated Project traffic. These forecast traffic conditions have been prepared pursuant to the California Environmental Quality Act (CEQA) guidelines, which require that the potential impacts of a Project be evaluated upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to mitigate the direct traffic impacts of the Project, if any.

Figures 5-4 and *5-5* present projected AM and PM peak hour traffic volumes at the ten (10) key study intersections and three (3) Project driveways with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively.

TABLE 5-1
PROJECT TRIP GENERATION FORECAST

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<u>Generation Factors:</u>							
▪ 820: Shopping Center (TE/TSF) ³	81.83	62%	38%	1.92	48%	52%	7.14
▪ Empirical Trip Generation Estimates for Speedwash (TE/LFWT) ⁴	8.663	0.275	0.204	0.479	0.450	0.463	0.913
<u>Proposed Project Generation Forecast:</u>							
▪ Sky Canyon Retail (51.927 TSF)	3,850	110	68	178	161	174	335
Pass-by (Daily: 10%; AM: 10%; PM: 25%)	<u>-385</u>	<u>-11</u>	<u>-7</u>	<u>-18</u>	<u>-40</u>	<u>-44</u>	<u>-84</u>
<i>Subtotal</i>	<i>3,465</i>	<i>99</i>	<i>61</i>	<i>160</i>	<i>121</i>	<i>130</i>	<i>251</i>
▪ Sky Canyon Retail (130 Feet of Tunnel)	1,126	17	45	62	53	66	119
Pass-by (Daily: 25%; AM: 25%; PM: 25%)	<u>-282</u>	<u>-4</u>	<u>-12</u>	<u>-16</u>	<u>-13</u>	<u>-17</u>	<u>-30</u>
<i>Subtotal</i>	<i>844</i>	<i>13</i>	<i>33</i>	<i>46</i>	<i>40</i>	<i>49</i>	<i>89</i>
<i>Project Trip Generation</i>	<i>4,309</i>	<i>112</i>	<i>94</i>	<i>206</i>	<i>161</i>	<i>179</i>	<i>340</i>

Notes:

- TE/TSF = trip end per thousand square feet

³ Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017). Equations were used to determine the trip generation for the proposed Project. The following equations were used:

- Daily: $\ln(T) = 0.68 * \ln(S) + 5.57$
- AM peak hour: $T = 0.50 * (S) + 151.78$
- PM peak hour: $\ln(T) = 0.74 * \ln(S) + 2.89$

where S = size (in TSF) and T = trip ends.

⁴ Based on driveway traffic counts conducted on Friday (2/7/2014) at Victorville Speedwash (12147 Industrial Boulevard, Victorville).

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

For future traffic conditions, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. Consistent with prior traffic studies conducted in the County of Riverside, the future growth in traffic volumes has been calculated at two percent (2.0%) per year. Applied to existing Year 2018 traffic volumes results in a six percent (6.0%) increase growth in existing volumes to horizon year 2022.

6.2 Cumulative Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the Project, the status of other known development projects (cumulative projects) has been researched at the County of Riverside, the City of Murrieta, and the City of Temecula. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development.

Based on our research, there is one (1) cumulative project in the City of Temecula, seven (7) cumulative projects in the City of Murrieta, and three (3) cumulative projects in the County of Riverside that have either been built, but not yet fully occupied, or are being processed for approval. These eleven (11) cumulative projects have been included as part of the cumulative background setting.

Table 6-1 provides the location and a brief description for each of the eleven (11) cumulative projects. *Figure 6-1* graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 presents the development totals and resultant trip generation for the eleven (11) cumulative projects. As shown in *Table 6-2*, the eleven (11) cumulative projects are forecast to generate a combined total of 33,284 daily trips, with 2,146 trips forecast during the AM peak hour and 2,711 trips forecast during the PM peak hour.

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

6.3 Year 2022 Traffic Volumes

Figures 6-4 and *6-5* present the AM and PM peak hour Existing With Ambient Growth With Project traffic volumes at the ten (10) key study intersections and three (3) Project driveways, respectively.

Figures 6-6 and **6-7** present the AM and PM peak hour Existing With Project With Cumulative Projects traffic volumes at the ten (10) key study intersections and three (3) Project driveways, respectively.

Figures 6-8 and **6-9** present the AM and PM peak hour Existing With Ambient Growth With Project With Cumulative Projects traffic volumes at the ten (10) key study intersections and three (3) Project driveways, respectively.

**TABLE 6-1
DESCRIPTION OF CUMULATIVE PROJECTS⁵**

No.	Cumulative Project	Description	Units/ Square Footage
<u>City of Temecula</u>			
1.	PA17-1508	Fast-Food With Drive Through Window	3.935 TSF
<u>City of Murrieta</u>			
2.	Golden Eagle Apartments ⁶	Apartments	112 DU
3.	Murrieta 196 ⁷	Apartments	196 DU
4.	Adobe Springs ⁸	Single-Family Residential Business Park	287 DU 208.500 TSF
5.	Aldi Food Market ⁹	Supermarket	19.056 TSF
6.	Hot Springs Center/Date Street Shopping Center ¹⁰	Shopping Center	24.874 TSF
7.	MHS20 ¹¹	Convenience Store With Gas Station Fast-Food With Drive-Through Window Shopping Center	12 VFP 3.800 TSF 3.600 TSF
8.	MHSR Apartments ¹²	Apartments	238 DU
<u>County of Riverside</u>			
9.	PP26084	Shopping Center High-Turnover Sit Down Restaurant Office Free Standing Discount Superstore	127.340 TSF 18.000 TSF 16.000 TSF 196.078 TSF
10.	PPT180022	Office Warehousing	139.232 TSF 31.421 TSF
11.	PP25183	Industrial Park	331.003 TSF

Notes:

- DU = Dwelling Units
- TSF = Thousand Square-Feet
- VFP = Vehicle Fueling Positions

⁵ Source: *City of Temecula, City of Murrieta, and County of Riverside.*

⁶ Source: *Murrieta Apartments Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated October 22, 2013.

⁷ Source: *Murrieta 180 Traffic Impact Analysis*, prepared by Kunzman Associates, Inc., dated May 21, 2013.

⁸ Source: *Adobe Springs Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated May 18, 2015.

⁹ Source: *ALDI Food Market TIA (DP-2017-1529)*, prepared by LOS Engineering, Inc., dated January 9, 2018.

¹⁰ Source: *Date Street Shopping Center Focused Traffic Impact Study*, prepared by K2 Traffic Engineering, Inc., dated November 30, 2017.

¹¹ Source: *MHS20 Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated June 13, 2018.

¹² Source: *MHSR Apartments*, prepared by TJW Engineering, Inc., dated July 13, 2018.

**TABLE 6-2
CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST¹³**

Cumulative Project Description		Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
1.	PA17-1508	1,390	61	57	118	50	47	97
2.	Golden Eagle Apartments ¹⁴	745	11	46	57	45	24	69
3.	Murrieta 196 ¹⁵	1,303	20	80	100	78	43	121
4.	Adobe Springs ¹⁶	5,196	303	205	508	244	293	537
5.	Aldi Food Market ¹⁷	1,834	40	25	65	34	33	67
6.	Hot Springs Center/Date Street Shopping Center ¹⁸	801	11	7	18	33	36	70
7.	MHS20 ¹⁹	2,501	142	115	257	84	84	168
8.	MHSR Apartments ²⁰	1,742	25	84	109	84	49	133
9.	PP26084	15,246	354	261	615	572	579	1,151
10.	PPT180022	1,411	143	24	167	28	138	166
11.	PP25183	1,115	107	25	132	28	104	132
Total Cumulative Projects Trip Generation Potential:		33,284	1,217	929	2,146	1,280	1,430	2,711

¹³ Source: *Trip Generation, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012)*. Where applicable, pass-by adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.

¹⁴ Source: *Murrieta Apartments Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated October 22, 2013.

¹⁵ Source: *Murrieta 180 Traffic Impact Analysis*, prepared by Kunzman Associates, Inc., dated May 21, 2013.

¹⁶ Source: *Adobe Springs Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated May 18, 2015.

¹⁷ Source: *ALDI Food Market TIA (DP-2017-1529)*, prepared by LOS Engineering, Inc., dated January 9, 2018.

¹⁸ Source: *Date Street Shopping Center Focused Traffic Impact Study*, prepared by K2 Traffic Engineering, Inc., dated November 30, 2017.

¹⁹ Source: *MHS20 Traffic Impact Analysis*, prepared by Trames Solutions Inc., dated June 13, 2018.

²⁰ Source: *MHSR Apartments*, prepared by TJW Engineering, Inc., dated July 13, 2018.

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

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

7.1.1 County of Riverside

The County of Riverside allows LOS “D” to be used as the maximum acceptable threshold for the study intersections.

7.1.2 City of Murrieta

Per City of Murrieta guidelines, a minimum LOS “D” must be maintained at key study intersections.

7.1.3 City of Temecula

The City of Temecula considers LOS “D” to be the minimum acceptable LOS for intersections.

7.1.4 Caltrans

Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” on State highway facilities. However, if an existing State highway facility is operating at less than this target LOS, the “without Project” level of service should be maintained.

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which HCM calculations have been performed at the key study intersections for existing with Project and near-term (Year 2022) traffic conditions:

- A. Existing Traffic Conditions;
- B. Existing With Project Traffic Conditions;
- C. Scenario (B) with Improvements, if necessary;
- D. Existing With A.G. (Ambient Growth) to the Year 2022 With Project Traffic Conditions;
- E. Scenario (D) with Improvements, if necessary;
- F. Existing With A.G. (Ambient Growth) to the Year 2022 With Project With Cumulative Projects Traffic Conditions; and
- G. Scenario (F) with Improvements, if necessary.

7.3 Caltrans Traffic Impact Analysis Scenarios

The following scenarios are those for which Caltrans calculations have been performed at the key study intersections for existing with Project and near-term (Year 2022) traffic conditions:

- A. Existing Traffic Conditions;

- B. Existing With Project Traffic Conditions;
- C. Scenario (B) with Improvements, if necessary;
- D. Existing With Project With Cumulative Projects Traffic Conditions; and
- E. Scenario (D) with Improvements, if necessary;
- F. Existing With A.G. (Ambient Growth) to the Year 2022 With Project With Cumulative Projects Traffic Conditions; and
- G. Scenario (F) with Improvements, if necessary.

8.0 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Existing With Project Traffic Conditions

Table 8-1 summarizes the peak hour level of service results at the ten (10) key study intersections for “Existing With Project” traffic conditions. The first column (1) of HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) lists Existing With Project traffic conditions. The third column (3) shows the increase in delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

8.1.1 Existing Traffic Conditions

Review of column (1) of *Table 8-1* indicates that all nine (9) of the existing key study intersections currently operate at acceptable levels of service under Existing traffic conditions during the AM and PM peak hours when compared to the LOS standards defined in this report.

Appendix B presents the Existing HCM/LOS calculations for the nine (9) existing key study intersections.

8.1.2 Existing With Project Traffic Conditions

Review of column (2) of *Table 8-1* indicates that all ten (10) of the key study intersections are forecast to operate at acceptable levels of service for Existing With Project traffic conditions based on the HCM methodology and the County's LOS standards.

Appendix B presents the Existing With Project HCM/LOS calculations for the ten (10) key study intersections.

8.2 Existing With Ambient Growth With Project Traffic Conditions

Table 8-2 summarizes the peak hour level of service results at the ten (10) key study intersections for “Existing With Ambient Growth With Project” traffic conditions. The first column (1) of HCM/LOS values in *Table 8-2* presents a summary of existing AM and PM peak hour traffic. The second column (2) lists Existing With Ambient Growth With Project traffic conditions based on existing intersection geometry. The third column (3) shows the increase in delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant “cumulative” impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

8.2.1 Existing With Ambient Growth With Project Traffic Conditions

Review of column (2) of *Table 8-2* indicates that all ten (10) of the key study intersections are forecast to operate at adverse levels of service for Existing With Ambient Growth With Project traffic conditions based on the HCM methodology and the County's LOS standards.

Appendix C presents the Existing With Ambient Growth With Project HCM/LOS calculations for the ten (10) key study intersections.

8.3 Year 2022 Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

Table 8-3 summarizes the peak hour level of service results at the ten (10) key study intersections for “Year 2022 Existing With Ambient Growth With Project With Cumulative Projects” traffic conditions. The first column (1) of HCM/LOS values in *Table 8-3* presents a summary of existing AM and PM peak hour traffic. The second column (2) lists Existing With Ambient Growth With Project With Cumulative Projects traffic conditions based on existing intersection geometry. The third column (3) shows the increase in delay value and indicates whether the traffic associated with the Project will have a significant “cumulative” impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

8.3.1 Existing With Ambient Growth (Year 2022) With Project With Cumulative Projects Traffic Conditions

Review of column (2) of *Table 8-3* indicates that two (2) of the key study intersections are forecast to operate at adverse levels of service for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions based on the HCM methodology and the County's LOS standards. These intersections, reported below, are forecast to operate at adverse levels of service during the peak hours indicated:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delav (s/v)</u>	<u>LOS</u>	<u>Delav (s/v)</u>	<u>LOS</u>
4. Winchester Rd at Murrieta Hot Springs Rd	85.8	F	122.5	F
8. Winchester Rd at Margarita Rd	--	--	65.9	E

Review of column (3) of *Table 8-3* shows that two (2) of the key study intersections are cumulatively impacted, when compared to the LOS standards and significant traffic impact criteria defined in this report.

However, as shown in column (4) of *Table 8-3*, the implementation of the recommended improvements will offset the Project impacts and return the operating condition of the impacted intersections to acceptable levels of service.

Appendix C presents the Existing With Ambient Growth With Project With Cumulative Projects HCM/LOS calculations for the ten (10) key study intersections.

TABLE 8-1
EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²¹

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	17.2	B	17.5	B	0.3	No	--	--
	PM		14.8	B	15.1	B	0.3	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	28.6	C	27.5	C	-1.1	No	--	--
	PM		17.8	B	18.2	B	0.4	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	12.3	B	12.3	B	0.0	No	--	--
	PM		28.7	C	29.1	C	0.4	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	39.7	D	39.9	D	0.2	No	--	--
	PM		42.1	D	43.2	D	1.1	No	--	--
5. Winchester Road at Winchester Square Drive	AM	LOS D	10.5	B	10.5	B	0.0	No	--	--
	PM		21.9	C	21.5	C	-0.4	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	19.8	B	22.4	C	2.6	No	--	--
	PM		22.9	C	30.3	C	7.4	No	--	--
7. Winchester Road at Nicolas Drive	AM	LOS D	41.2	D	40.5	C	-0.7	No	--	--
	PM		24.5	C	26.1	C	1.6	No	--	--

Notes:

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

²¹ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-1 (CONTINUED)
EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²²

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
8. Winchester Road at Margarita Road	AM	LOS D	34.0	C	34.0	C	0.0	No	--	--
	PM		46.0	D	48.7	D	2.7	No	--	--
9. Winchester Road at Ynez Road	AM	LOS D	32.3	C	32.2	C	-0.1	No	--	--
	PM		37.3	D	37.4	D	0.1	No	--	--
10. Sky Canyon Drive at Willows Avenue	AM	LOS D	--	--	13.5	B	--	No	--	--
	PM		--	--	23.7	C	--	No	--	--

Notes:

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

²² **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-2
EXISTING WITH AMBIENT GROWTH WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²³

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2022) With Project Traffic Conditions		(3) Significant Impact		(4) Existing With A.G. (Year 2022) With Project With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	17.2	B	19.4	B	2.2	No	--	--
	PM		14.8	B	16.5	B	1.7	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	28.6	C	33.3	C	4.7	No	--	--
	PM		17.8	B	20.0	B	2.2	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	12.3	B	12.7	B	0.4	No	--	--
	PM		28.7	C	31.2	C	2.5	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	39.7	D	41.8	D	2.1	No	--	--
	PM		42.1	D	48.0	D	5.9	No	--	--
5. Winchester Road at Winchester Square Drive	AM	LOS D	10.5	B	10.9	B	0.4	No	--	--
	PM		21.9	C	22.7	C	0.8	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	19.8	B	23.6	C	3.8	No	--	--
	PM		22.9	C	32.2	C	9.3	No	--	--
7. Winchester Road at Nicolas Drive	AM	LOS D	41.2	D	44.8	D	3.6	No	--	--
	PM		24.5	C	27.2	C	2.7	No	--	--

Notes:

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

²³ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-2 (CONTINUED)
EXISTING WITH AMBIENT GROWTH WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁴

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2022) With Project Traffic Conditions		(3) Significant Impact		(4) Existing With A.G. (Year 2022) With Project With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
8. Winchester Road at Margarita Road	AM	LOS D	34.0	C	34.6	C	0.6	No	--	--
	PM		46.0	D	53.3	D	7.3	No	--	--
9. Winchester Road at Ynez Road	AM	LOS D	32.3	C	34.5	C	2.2	No	--	--
	PM		37.3	D	39.8	D	2.5	No	--	--
10. Sky Canyon Drive at Willows Avenue	AM	LOS D	--	--	13.2	B	--	No	--	--
	PM		--	--	23.4	C	--	No	--	--

Notes:

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

²⁴ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-3

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁵

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2022) With Project With Cumulative With Traffic Conditions		(3) Year 2022 Cumulative Impact		(4) Existing With A.G. (Year 2022) With Project With Cumulative With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	17.2	B	38.4	D	21.2	No	--	--
	PM		14.8	B	35.3	D	20.5	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	28.6	C	53.7	D	25.1	No	--	--
	PM		17.8	B	52.4	D	34.6	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	12.3	B	15.2	B	2.9	No	--	--
	PM		28.7	C	48.4	D	19.7	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	39.7	D	85.8	F	46.1	Yes	38.6	D
	PM		42.1	D	122.5	F	80.4	Yes	50.4	D
5. Winchester Road at Winchester Square Drive	AM	LOS D	10.5	B	11.5	B	1.0	No	--	--
	PM		21.9	C	25.4	C	3.5	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	19.8	B	28.3	C	8.5	No	--	--
	PM		22.9	C	45.9	D	23.0	No	--	--
7. Winchester Road at Nicolas Drive	AM	LOS D	41.2	D	49.4	D	8.2	No	--	--
	PM		24.5	C	36.2	D	11.7	No	--	--

Notes:

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

²⁵ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 8-3 (CONTINUED)

EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁶

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With A.G. (Year 2022) With Project With Cumulative With Traffic Conditions		(3) Year 2022 Cumulative Impact		(4) Existing With A.G. (Year 2022) With Project With Cumulative With Mitigation	
			HCM (s/v)	LOS	HCM (s/v)	LOS	Increase (s/v)	Yes/No	HCM (s/v)	LOS
8. Winchester Road at Margarita Road	AM	LOS D	34.0	C	35.5	D	1.5	No	35.3	D
	PM		46.0	D	65.9	E	19.9	Yes	51.6	D
9. Winchester Road at Ynez Road	AM	LOS D	32.3	C	34.9	C	2.6	No	--	--
	PM		37.3	D	37.9	D	0.6	No	--	--
10. Sky Canyon Drive at Willows Avenue	AM	LOS D	--	--	12.5	B	--	No	--	--
	PM		--	--	21.9	C	--	No	--	--

Notes:

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

²⁶ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

9.0 CALTRANS PEAK HOUR INTERSECTION CAPACITY ANALYSIS

9.1 Existing With Project Traffic Conditions

Table 9-1 summarizes the Caltrans peak hour level of service results at the six (6) County key study intersections for “Existing With Project” traffic conditions. The first column (1) of HCM/LOS values in *Table 9-1* presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) lists Existing With Project traffic conditions. The third column (3) shows the increase in delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

9.1.1 Existing Traffic Conditions

Review of column (1) of *Table 9-1* indicates that none of the key study intersections currently operate at unacceptable levels of service under Existing traffic conditions during the AM and PM peak hours when compared to the LOS standards defined in this report.

Appendix B presents the Existing HCM/LOS calculations for the key study intersections.

9.1.2 Existing With Project Traffic Conditions

Review of column (2) of *Table 9-1* indicates that none of the key study intersections are forecast to operate at adverse levels of service for Existing With Project traffic conditions based on the HCM methodology and the County's LOS standards.

Review of column (3) of *Table 9-1* shows that none of the key study intersections are impacted by the addition of Project traffic, when compared to the LOS standards and significant traffic impact criteria defined in this report. As such, no mitigation measures are required.

Appendix B presents the Existing With Project HCM/LOS calculations for the key study intersections.

9.2 Existing With Project With Cumulative Projects Traffic Conditions

Table 9-2 summarizes the Caltrans peak hour level of service results at the six (6) County key study intersections for “Existing With Project With Cumulative Projects” traffic conditions. The first column (1) of HCM/LOS values in *Table 9-2* presents a summary of the Existing With Cumulative Projects (Without Project) traffic conditions for AM and PM peak hour traffic. The second column (2) lists Existing With Project With Cumulative Projects traffic conditions based on existing intersection geometry. The third column (3) shows the increase in delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant “cumulative” impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

9.2.1 Existing With Project With Cumulative Projects Traffic Conditions

Review of column (2) of *Table 9-2* indicates that one (1) of the key study intersections is forecast to operate at adverse levels of service for Existing With Project With Cumulative Projects traffic conditions based on the HCM methodology and the County's LOS standards. This intersection, reported below, is forecast to operate at adverse levels of service during the peak hours indicated:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
4. Winchester Rd at Murrieta Hot Springs Rd	77.9	E	111.3	F

Review of column (3) of *Table 9-2* shows that none of the key study intersections are impacted by the addition of Project traffic, when compared to the LOS standards and significant traffic impact criteria defined in this report. As stated in *Section 7.0*, “if an existing State highway facility is operating at less than [the] target LOS, the ‘without Project’ level of service should be maintained.” As the intersection of Winchester Road at Murrieta Hot Springs Road does not degrade to a worse level of service, the key study intersection is not considered to have a cumulative impact per Caltrans guidelines. As such, no mitigation measures are required.

Appendix C presents the Existing With Project With Cumulative Projects HCM/LOS calculations for the key study intersections.

9.3 Year 2022 Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions

Table 9-3 summarizes the Caltrans peak hour level of service results at the six (6) County key study intersections for “Year 2022 Existing With Ambient Growth With Project With Cumulative Projects” traffic conditions. The first column (1) of HCM/LOS values in *Table 9-3* presents a summary of the Existing With Ambient Growth With Cumulative Projects (Without Project) traffic conditions for AM and PM peak hour traffic. The second column (2) lists Existing With Ambient Growth With Project With Cumulative Projects traffic conditions based on existing intersection geometry. The third column (3) shows the increase in delay value and indicates whether the traffic associated with the Project will have a significant “cumulative” impact based on the significant impact criteria defined in this report. The fourth column (4) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

9.3.1 Existing With Ambient Growth (Year 2022) With Project With Cumulative Projects Traffic Conditions

Review of column (2) of *Table 9-3* indicates that one (1) of the key study intersections is forecast to operate at adverse levels of service for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions based on the HCM methodology and the County's LOS standards. These intersections, reported below, are forecast to operate at adverse levels of service during the peak hours indicated:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
4. Winchester Rd at Murrieta Hot Springs Rd	85.8	F	122.5	F

Review of column (3) of *Table 9-3* shows that none of the key study intersections are cumulatively impacted, when compared to the LOS standards and significant traffic impact criteria defined in this report. As stated in **Section 7.0**, “if an existing State highway facility is operating at less than [the] target LOS, the ‘without Project’ level of service should be maintained.” As the intersection of Winchester Road at Murrieta Hot Springs Road does not degrade to a worse level of service, the key study intersection is not considered to have a cumulative impact per Caltrans guidelines. As such, no mitigation measures are required.

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

TABLE 9-1
CALTRANS EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁷

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	17.2	B	17.5	B	0.3	No	--	--
	PM		14.8	B	15.1	B	0.3	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	28.6	C	27.5	C	-1.1	No	--	--
	PM		17.8	B	18.2	B	0.4	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	12.3	B	12.3	B	0.0	No	--	--
	PM		28.7	C	29.1	C	0.4	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	39.7	D	39.9	D	0.2	No	--	--
	PM		42.1	D	43.2	D	1.1	No	--	--
5. Winchester Road at Winchester Square Drive	AM	LOS D	10.5	B	10.5	B	0.0	No	--	--
	PM		21.9	C	21.5	C	-0.4	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	19.8	B	22.4	C	2.6	No	--	--
	PM		22.9	C	30.3	C	7.4	No	--	--

Notes:

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

²⁷ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 9-2
CALTRANS EXISTING WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁸

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing With Cumulative Traffic Conditions		(2) Existing With Project With Cumulative With Traffic Conditions		(3) Year 2022 Cumulative Impact		(4) Existing With Project With Cumulative With Mitigation	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	30.0	C	31.2	C	1.2	No	--	--
	PM		28.4	C	29.8	C	1.4	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	44.3	D	45.4	D	1.1	No	--	--
	PM		42.4	D	44.4	D	2.0	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	14.6	D	14.6	B	0.0	No	--	--
	PM		41.4	D	40.4	D	-1.0	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	77.8	E	77.9	E	0.1	No	--	--
	PM		108.3	F	111.3	F	3.0	No	--	--
5. Winchester Road at Winchester Square Drive	AM	LOS D	10.9	B	11.0	B	0.1	No	--	--
	PM		23.0	C	23.2	C	0.2	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	23.4	C	26.5	C	3.1	No	--	--
	PM		28.3	C	41.4	D	13.1	No	--	--

Notes:

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

²⁸ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

TABLE 9-3

CALTRANS EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY²⁹

Key Intersection	Time Period	Minimum Acceptable LOS	(1) Existing With A.G. (Year 2022) With Cumulative Traffic Conditions		(2) Existing With A.G. (Year 2022) With Project With Cumulative With Traffic Conditions		(3) Year 2022 Cumulative Impact		(4) Existing With A.G. (Year 2022) With Project With Cumulative With Mitigation	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
1. Winchester Road at La Alba Drive	AM	LOS D	37.0	D	38.4	D	1.4	No	--	--
	PM		33.9	C	35.3	D	1.4	No	--	--
2. Winchester Road at Hunter Road	AM	LOS D	52.4	D	53.7	D	1.3	No	--	--
	PM		49.9	D	52.4	D	2.5	No	--	--
3. Winchester Road at Robert Trent Jones Parkway	AM	LOS D	15.2	B	15.2	B	0.0	No	--	--
	PM		47.0	D	48.4	D	1.4	No	--	--
4. Winchester Road at Murrieta Hot Springs Road	AM	LOS D	85.4	F	85.8	F	0.4	No	--	--
	PM		119.2	F	122.5	F	3.3	No	--	--
5. Winchester Road at Winchester Square Drive	AM	LOS D	11.4	B	11.5	B	0.1	No	--	--
	PM		24.6	C	25.4	C	0.8	No	--	--
6. Winchester Road at Willows Avenue	AM	LOS D	25.1	C	28.3	C	3.2	No	--	--
	PM		30.7	C	45.9	D	15.2	No	--	--

Notes:

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

²⁹ **Bold HCM/LOS values** indicate adverse service levels based on the LOS standards defined in this traffic study.

10.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

10.1 Level of Service Analysis for Project Access Locations

As shown in *Figure 2-2*, access to the proposed Project will be provided via three (3) stop-controlled driveways: one (1) right-in/right-out only driveway along Winchester Road, and two (2) full-access driveways along Sky Canyon Road.

Table 10-1 summarizes the intersection operations for the proposed Project driveways for future traffic conditions with the proposed Project. As shown in column (1), the proposed Project driveways are forecast to operate at acceptable levels of service during the AM and PM peak hours during the Existing With Ambient Growth With Project traffic conditions. As shown in column (2), the proposed Project driveways are forecast to operate at acceptable levels of service during the AM and PM peak hours during the Existing With Project With Cumulative Projects traffic conditions. As shown in column (3), the proposed Project driveways are forecast to operate at acceptable levels of service during the AM and PM peak hours during the Existing With Ambient Growth With Project With Cumulative Projects traffic conditions.

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

10.2 Internal Circulation Evaluation

The on-site circulation layout of the proposed Project as illustrated in *Figure 2-2* on an overall basis is adequate. Curb return radii appear adequate for passenger cars, service/delivery trucks, and trash trucks. Based on our review of the site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the Project is impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/stacking at the Project driveways. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveway is also deemed adequate. As such, motorists entering and exiting the Project site from this driveway will be able to do so comfortably, safely, and without undue congestion.

10.3 Queuing Evaluation

As requested by Riverside County Transportation, the following queueing analysis addresses the potential queueing conflict between the southbound (SB) left turn queue on Sky Canyon Road at Willows Road and the northbound (NB) left turn queue at the Project driveway. Based on the proposed geometry of southbound approach on Sky Canyon Road at Willows Road, which is proposed/designed and analyzed as one left turn lane and one right turn lane, the SB left turn pocket at Willows and the NB left turn lane (two-way-left-turn-lane) at the Project driveway will not be “back-to-back”. Nonetheless, the SB left turn queue is forecast to be two vehicles (44 feet) and the NB left turn queue is forecast to be one vehicle (22 feet). With approximately 250 feet between willows Road and the Project driveway, adequate storage is available.

Appendices C and *D* contain the detailed HCM/LOS calculation worksheets with the queuing information.

**TABLE 10-1
PROJECT DRIVEWAY PEAK HOUR LEVELS OF SERVICE SUMMARY**

Key Driveway	Control Type	Time Period	(1)		(2)		(3)	
			Existing With Ambient Growth With Project Traffic Conditions		Existing With Project With Cumulative Projects Traffic Conditions		Existing With A.G. (Year 2022) With Project With Cumulative Projects Traffic Conditions	
			HCM	LOS	HCM	LOS	HCM	LOS
A. Winchester Road at Project Driveway 1	One-Way	AM	11.8	B	12.7	B	12.9	B
	Stop	PM	22.4	C	25.4	D	27.0	D
B. Sky Canyon Road at Project Driveway 2	One-Way	AM	8.9	A	8.9	A	8.9	A
	Stop	PM	9.1	A	9.1	A	9.1	A
C. Sky Canyon Road at Project Driveway 3	One-Way	AM	8.6	A	8.6	A	8.6	A
	Stop	PM	9.1	A	9.1	A	9.1	A

Notes:

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

11.0 WILLOWS AVENUE QUEUING ANALYSIS

To address City staff concerns regarding left-turn stacking/storage lengths along Willows Avenue, a queuing evaluation was prepared for the following movements:

- Winchester Road at Willows Avenue
 - Westbound Left-turn
 - Westbound Through/Left-turn
- Sky Canyon Drive at Willows Avenue
 - Eastbound Left-turn

Table 11-1 identifies the minimum required stacking/storage lengths for affected left-turn and right-turn lanes for the Project driveways for the Existing With Project and Year 2020 With Project traffic conditions. Column (1) shows the existing or proposed storage length, in feet. Column (2) shows the left-turn queue (in feet) and indicates whether or not the storage is sufficient based on the calculated 95th percentile queue for Existing With Ambient Growth With Project traffic conditions. Column (3) shows the left-turn queue (in feet) and indicates whether or not the storage is sufficient based on the calculated 95th percentile queue for Existing With Ambient Growth With Project With Cumulative Projects traffic conditions.

11.1 Existing With Ambient Growth With Project Intersection Queuing Evaluation

As presented in Column (2) of *Table 11-1* under Existing With Ambient Growth With Project traffic conditions, the westbound left-turn lane and westbound left-turn/through lane at the intersection of Winchester Road at Willows Avenue is anticipated to not provide sufficient storage for the forecast 95th percentile queues.

The proposed storage for the eastbound left-turn lane at the intersection of Sky Canyon Drive at Willows Avenue is forecast to be sufficient.

11.2 Existing With Ambient Growth With Project With Cumulative Projects Intersection Queuing Evaluation

As presented in Column (3) of *Table 11-1* under Existing With Ambient Growth With Project With Cumulative Projects traffic conditions, the westbound left-turn lane and westbound left-turn/through lane at the intersection of Winchester Road at Willows Avenue is anticipated to not provide sufficient storage for the forecast 95th percentile queues. However, the storage will be extended with the construction of the intersection of Sky Canyon Drive at Willows Avenue. With construction, the proposed storage for the westbound left-turn lane at the intersection of Winchester Road at Willows Avenue and the eastbound left-turn lane at the intersection of Sky Canyon Drive at Willows Avenue are forecast to be sufficient.

Figure 11-1 presents the conceptual improvement plan for the intersection of Winchester Road at Willows Avenue.

**TABLE 11-1
WILLOWS AVENUE QUEUE LENGTH ANALYSIS**

Key Intersection	Approach	Time Period	(1)	(2)		(3)		(4)			
			Existing/ Proposed Storage Length (ft)	Existing With Ambient Growth With Project Traffic Conditions	Existing Storage Sufficient? (yes/no)	Existing With Ambient Growth With Project With Cumulative Projects Traffic Conditions	95 th Percentile Queue (ft)	Existing Storage Sufficient? (yes/no)	Approach	Proposed Storage Length (ft)	95 th Percentile Queue (ft)
6. Winchester Road at Willows Avenue	WBL	AM	110	163	No	199	No	WBL	215	199	Yes
		PM	110	197	No	199	No		215	199	Yes
	WBL/T	AM	210	165	Yes	202	Yes	WBL/T	215	202	Yes
		PM	210	199	Yes	201	Yes		215	201	Yes
10. Sky Canyon Drive at Willows Avenue	EBL	AM	40	20	Yes	20	Yes	EBL	215	20	Yes
		PM	40	37	Yes	37	Yes		215	37	Yes

³⁰ The proposed improvements include restriping the westbound left-turn lane and left-turn/through lane and the eastbound left-turn lane to provide 215 feet of storage each.

12.0 RECOMMENDED IMPROVEMENTS

For the intersections and/or roadway segments where future traffic volumes are expected to result in poor operating conditions, this report recommends (identifies) improvements, which change the geometry to increase capacity. These capacity improvements usually involve roadway widening and/or restriping to reconfigure or add lanes to various approaches of a key intersection or key roadway segment. The proposed improvements are expected to offset the impact of future traffic and improve Levels of Service to an acceptable range.

12.1 Project-Specific Improvements

The following improvements listed below will be constructed by the proposed Project:

- Sky Canyon Road: Extend the roadway from its current southerly terminus at the northerly Project boundary to Willow Avenue.
- Sky Canyon Road at Willows Avenue: Install a three-phase traffic signal with a continuous green operation for the eastbound through movement. Convert the No. 1 eastbound through lane to an exclusive eastbound left-turn lane. Restripe the east leg to provide two westbound through lanes and a shared westbound through/right-turn lane. Stripe the north leg to include an exclusive left-turn lane and an exclusive right-turn lane.

12.2 County Recommended Improvements

The following improvements listed below are forecast to bring the impacted locations into compliance with County standards.

12.2.1 Existing With Project Traffic Conditions

The results of the Existing With Project intersection capacity analysis presented previously in *Table 8-1* indicate that the proposed Project will not impact any of the key study intersections. As such, no improvements are recommended for the Existing With Project traffic conditions.

12.2.2 Existing With Ambient Growth With Project Traffic Conditions

The results of the Existing With Ambient Growth With Project intersection capacity analysis presented previously in *Table 8-2* indicate that the proposed Project will not impact any of the key study intersections. As such, no improvements are recommended for the Existing With Project traffic conditions.

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

The results of the Existing With Ambient Growth With Project With Cumulative Projects traffic conditions level of service analysis presented previously in *Table 8-3* indicate that the proposed Project will cumulatively impact two (2) of the key intersections. The following improvements listed below have been identified to mitigate the traffic impacts at the intersections cumulatively impacted by future non-Project traffic and Project traffic. The Project can be expected to contribute a fair share to implement the following feasible recommended improvements:

- Winchester Road at Murrieta Hot Springs Road: Restripe the west leg to include a third EB left-turn lane. Widen and restripe the east leg to include a third WB through lane. Modify the existing traffic signal to include a southbound right-turn overlap and restrict eastbound U-turn movements on Murrieta Hot Springs Road. Modify the existing traffic signal to include a westbound right-turn overlap and restrict southbound U-turn movements on Winchester Road.
- Winchester Road at Margarita Road: Widen the south leg to provide a fourth NB through lane. Widen the north leg departure to provide four receiving lanes. Modify the existing traffic signal.

It should be noted that the Project's fair share obligation towards the recommended improvements at the intersections of Winchester Road at Margarita Road and Winchester Road at Murrieta Hot Springs Road may be funded through the Transportation Uniform Mitigation Fee (TUMF) program and/or the County's Development Impact Fee (DIF) program.

Figure 12-1 graphically illustrates the traffic improvements recommended at the impacted study intersections for the Existing With Ambient Growth With Project With Cumulative Projects conditions. *Figure 12-2* presents the concept mitigation plan for the intersection of Winchester Road at Murrieta Hot Springs Road. *Figure 12-3* presents the concept mitigation plan for the intersection of Winchester Road at Margarita Road.

12.3 Caltrans Recommended Improvements

The results of the Caltrans intersection capacity analysis for Existing With Project, Existing With Project With Cumulative Projects, and Existing With Ambient Growth With Project With Cumulative Projects (presented previously in *Tables 9-1, 9-2, and 9-3*) indicate that the proposed Project will not impact any of the key study intersections. As such, no improvements are recommended.

13.0 PROJECT FAIR SHARE ANALYSIS

The transportation impacts associated with the development of the proposed Project were determined based on the future conditions analysis with the proposed Project. The key study intersections forecast to operate at adverse levels of service are discussed below. As such, the proposed Project's "fair share" of the recommended improvements has been calculated for the key study intersections that are forecast to operate at adverse levels of service.

13.1 County Fair Share Analysis

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

Table 13-1 presents the AM and PM peak hour fair share percentages at the key study intersections that are forecast to operate at adverse levels of service in the Existing With Ambient Growth With Project With Cumulative Projects traffic conditions. As presented in *Table 13-1*, the first column (1) presents the existing traffic volume at the impacted intersection. The second column (2) presents the Project only traffic volume. The third column (3) presents the Existing With Ambient Growth With Project With Cumulative Projects traffic volume. The fourth column (4) represents the Project fair share based on the following formula:

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

The fifth column (5) presents the total improvement cost, and the sixth column (6) presents the Project fair share contribution, based on the fair share percentage and total improvement cost.

As shown in *Table 13-1*, the fair share contribution at Winchester Road at Murrieta Hot Springs Road is **\$11,835.00**, and the fair share contribution at Winchester Road at Margarita Road is **\$25,155.00**.

TABLE 13-1
EXISTING WITH AMBIENT GROWTH WITH PROJECT WITH CUMULATIVE PROJECTS
TRAFFIC CONDITIONS INTERSECTION FAIR SHARE CONTRIBUTION

Key Intersection		Impacted Time Period	(1)	(2)	(3)	(4)	(5)	(6)
			Existing Traffic	Net Project Trips	Existing With Project With Cumulative Projects With Ambient Growth Volume	Net Project Percent Increase	Total Improvement Cost	Project Fair Share Contribution
4.	Winchester Road at	AM	5,467	62	6,942	4.20%	\$225,000.00	\$11,835.00
	Murrieta Hot Springs Road	PM	6,397	102	8,335	5.26%		
8.	Winchester Road at	AM	--	--	--	--	\$225,000.00	\$25,155.00
	Margarita Road	PM	6,548	102	7,460	11.18%		
Total Project Fair Share Contribution								\$36,990.00

Notes:

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

14.0 VEHICLE MILES TRAVELED (VMT) ASSESSMENT

On December 28, 2018, the California Natural Resources Agency adopted revised CEQA Guidelines. Among the changes to the guidelines was the removal of vehicle delay and LOS from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled. Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3. As we understand it, the County of Riverside has not yet completed the process of updating its transportation impact criteria to be consistent with the CEQA revisions. As a result, the guidelines have not been adopted as of the date of this document, and analysis of vehicle LOS remains the appropriate method for determining a project's transportation impact per the County's General Plan.

In late 2019, State courts stated that under section 21099, subdivision (b)(2), existing law is that "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment" under CEQA, except for roadway capacity projects.

As a result of SB 743, the new metric in the CEQA guidelines for transportation impacts is VMT per capita. The legislative intent of SB 743 is to balance the needs of congestion management with statewide goals for infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.

The Western Riverside Council of Governments (WRCOG) recently developed a SB 743 VMT Impact Screening Tool to serve as a screening tool for potential VMT impacts associated with select land use projects in the WRCOG planning area. Based on direction per the County of Riverside, a significant impact would occur for non-residential projects if the listed condition below is met:

- Project Level Impact: The jurisdictional average 2012 home-based work VMT per worker (VMT per worker) of the project is higher than the existing VMT per worker for the jurisdiction of **14.83 VMT per worker**.

In addition, projects can be screened from analysis per the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA, indicating that their location and project type are anticipated to result in a less-than-significant transportation impact, if the project is located within a Transportation Priority Area (TPA) or a low VMT-generating traffic analysis zone (TAZ). As such, the following guidance summarizes the potential project screening, developed for WRCOG's SB 743 Implementation Study:

- Projects which serve the local community and have the potential to reduce VMT, such as K-12 schools and local-serving retail less than 50,000 sq. ft.
- Projects located within Transit Priority Areas (TPAs) or High Quality Transit Areas

(HQTAs) as determined by the most recent Southern California Association of Governments (SCAG) RTP/SCS should also be exempt from VMT analysis. TPAs are defined in the technical advisor as a ½ mile radius around an existing or planned major transit stop or an existing stop along a high quality transit corridor. HQTAs are defined in the technical advisory as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

- Please note that projects that are in TPAs/HQTAs will also be required to complete a secondary screening step to verify the proposed project’s consistency with the assumptions from the RTP/SCS. This consistency can be a land use review (e.g. are the proposed land uses already included in the RTP/SCS) or can be reviewed from a VMT/SP perspective (e.g. does the resulting land use increase or decrease the VMT/SP in the Traffic Analysis Zone (TAZ) compared to the RTP/SCS assumptions).
- Non-Residential Projects located in a low VMT-generating TAZ.
 - These projects will require two additional secondary screening steps:
 - Verify that the proposed land use is consistent with the existing land use that is generating low VMT/worker. This will include both a land use (type, density, demographics, etc.) comparison.
 - Verify that the proposed land use is consistent with RTP/SCS assumptions or the project improves VMT/worker compared to the RTP/SCS.

The proposed Project, which consists of a 51,927 square-foot (SF) shopping center and an express car wash with a 130 foot tunnel, is located within a “low VMT-generating TAZ” as shown on the a WRCOG SB 743 VMT Impact Screening Tool, which shows the VMT per worker of **6.54 VMT/worker**. In addition, the proposed land use is consistent with the existing land use in the surrounding area, which satisfies the secondary screening steps.

As a result, the proposed Project will result in a less-than-significant transportation impact based on the WRCOG SB 743 VMT Impact Screening Tool.