

# River Oaks: The Next Generation

## Transportation Impact Analysis



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## Executive Summary

This study evaluates the potential transportation impacts of the proposed River Oaks: The Next Generation project, which reflects an update to the Borkey Area Specific Plan. The project location and study intersections are shown on Figure 1. The project includes the development of 144 active adult homes, 127 single family homes, and a community center and fitness/wellness center for residents of the River Oaks community.

The study intersections were evaluated during the weekday morning (7-9 AM) and evening (4-6 PM) time periods under Existing, Near-term, and Cumulative conditions with and without the project.

The project is expected to generate 2,128 daily trips, 160 AM peak hour trips, and 207 PM peak hour trips. The City's Transportation Impact Analysis Guidelines and Caltrans criteria were applied to identify transportation deficiencies, summarized below.

**Traffic Operations Deficiencies:** No deficiencies are expected under Existing Plus Project and Near Term Plus Project conditions. Two deficiencies are identified under Cumulative Plus Project conditions to Caltrans-controlled intersections:

- SR 46/Buena Vista Drive: This intersection would experience eastbound left-turn and southbound left-turn queue spillback. This deficiency would be eliminated by the installation of a second eastbound left-turn lane and southbound left-turn lane.
- SR 46/Golden Hill Road: This intersection would operate unacceptably at LOS D/E conditions during the AM/PM peak hours both with and without the project. Per the Caltrans Corridor Study, this remains a low priority location for future improvements and improvements should focus on local parallel routes funded by the City's traffic impact fee.

**Bicycle Deficiencies:** The project should make the following changes to maintain consistency with the City's Bike Master Plan:

- Re-stripe the existing segment of Clubhouse Drive to meet the Bike Master Plan standards.
- Include Class II bike lanes on the segment of Buena Vista Drive between the Cuesta College Driveway and the project entrance when this segment is improved. This will require coordination with the County of San Luis Obispo.

**Pedestrian Deficiencies:** Pedestrian facilities are adequate as proposed. The project's plans showing detailed designs should be reviewed when they are available to ensure that new facilities connect to existing facilities to the maximum extent possible.

**Transit Deficiencies:** The project would not overburden area transit service. The project proposes two new transit stop locations, making all of the site within a third mile radius to a transit stop. The project should coordinate with City staff to determine the appropriate locations and amenities for new transit stops on the site to accommodate future service expansion.

**Site Access and Circulation:** The geometric designs should be reviewed when available to ensure they meet City engineering design standards and conform to the City's Bike Master Plan.

**Other Issues:** This section discusses additional circulation issues requested by City staff. The planned Dry Creek Road Extension between Buena Vista Drive and North River Road is not expected to carry high traffic volumes in the future, and eliminating this segment as proposed by the project would not impact nearby facilities. The intersection of Buena Vista Drive/River Oaks Drive/Dallons Drive is forecast to operate acceptably in the future as an all-way-stop controlled intersection, but drivers would experience less delay if the intersection were converted to roundabout control.

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## Introduction

This study evaluates the potential transportation impacts of the proposed River Oaks: The Next Generation project, which reflects an update to the Borkey Area Specific Plan. The project is located in Paso Robles, roughly bounded by River Oaks Drive to the south, River Road to the west, and Buena Vista Drive to the east. The project includes the development of 144 active adult homes, 127 single family homes, a community center and fitness/wellness center for residents of the River Oaks community.

The project's location and study intersections are shown on Figure 1, and Figure 2 shows the project's site plan.

The following intersections were evaluated during the weekday morning (7-9 AM) and evening (4-6 PM) time periods:

1. North River Road/River Oaks Drive
2. Buena Vista Drive/River Oaks Drive
3. State Route 46 E/Buena Vista Drive (Caltrans intersection)
4. State Route 46 E/Golden Hill Road (Caltrans intersection)

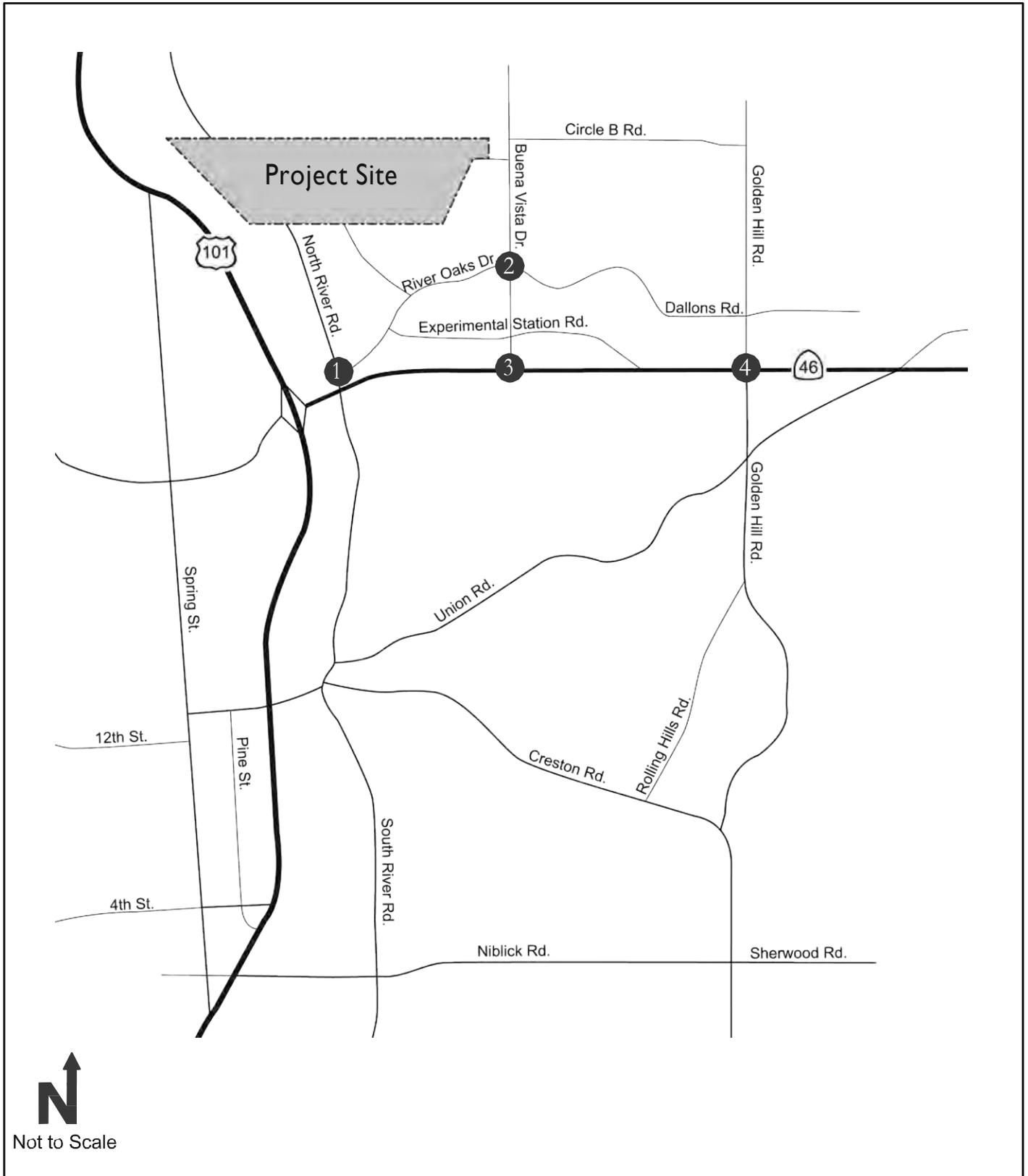
The study intersections were evaluated under these analysis scenarios:

1. **Existing Conditions** reflect recently collected traffic counts and the existing transportation network.
2. **Existing Plus Project Conditions** add project generated traffic to Existing Conditions volumes.
3. **Near Term Conditions** add approved and pending projects in the study area to Existing Conditions volumes.
4. **Near Term Plus Project Conditions** add project traffic to Near Term Conditions volumes.
5. **Cumulative Conditions** reflect future traffic conditions developed using the City's Travel Demand Model.
6. **Cumulative Plus Project Conditions** add project traffic to Cumulative Conditions volumes.

A description of the analysis approach follows Figures 1 and 2.



Figure 1 : Project and Study Locations



Legend:

7 - Study Intersection

Figure 2: Site Plan



(Source: RRM Design Group)



Not to Scale



November 2015

River Oaks, The Next Generation

## ANALYSIS METHODS

The analysis approach was developed based on the City of Paso Robles’ recent *Transportation Impact Analysis Guidelines* and Caltrans standards for intersections on State Route 46.

### City Facilities

The City’s TIA Guidelines provide criteria for identifying mobility deficiencies reflecting the City’s Circulation Element Goals. While vehicular level of service (LOS) is not identified as a mobility deficiency criteria for City controlled intersections, vehicular queues that exceed existing or planned lengths of turn pockets are a deficiency criteria. LOS calculations are also a component of the evaluation criteria for stop-controlled intersections.

In order to evaluate queuing and stop-controlled intersection LOS, the study intersections have been analyzed with the Synchro 9 software package applying the 2010 Highway Capacity Manual (HCM) methods. The 95<sup>th</sup> percentile queues are reported, which reflect the queue length that will not be exceeded 95% of the time.

### Caltrans Facilities

Caltrans controls the intersections along State Route 46 and relies on LOS to determine deficiencies. Accordingly, Caltrans intersections have been evaluated using LOS criteria as contained in the 2010 HCM. Vehicular level of service is based on control delay, which is the total of time spent decelerating when approaching an intersection, time spent stopped or moving in a queue at an intersection, and time spent accelerating after an intersection.

The level of service thresholds relevant to the Caltrans controlled intersections in this study are presented in Table 1. Unsignalized intersections have lower delay thresholds because users experience more uncertainty than at signals, where drivers typically expect higher levels of congestion and more predictable levels of delay.

<b>Table 1: Vehicular Level of Service Thresholds</b>			
<b>Signalized Intersections<sup>1</sup></b>		<b>Stop Sign Controlled Intersections<sup>2</sup></b>	
<b>Control Delay (seconds/vehicle)</b>	<b>Level of Service</b>	<b>Control Delay (seconds/vehicle)</b>	<b>Level of Service</b>
≤ 10	A	≤ 10	A
> 10 - 20	B	> 10 - 15	B
> 20 - 35	C	> 15 - 25	C
> 35 - 55	D	> 25 - 35	D
> 55 - 80	E	> 35 - 50	E
> 80	F	> 50	F

1. Per Exhibit 18-4 of the 2010 *Highway Capacity Manual*.

2. Per Exhibits 19-1 and 20-2 of the 2010 *Highway Capacity Manual*.

**MOBILITY DEFICIENCY STANDARDS**

**City of Paso Robles Facilities:** The City’s TIA Guidelines specify mobility deficiency criteria for a variety of study elements. Table 2 summarizes these criteria, which are used to identify deficiencies.

<b>Table 2: City of Paso Robles Mobility Deficiency Criteria<sup>1</sup></b>	
<b>Study Element</b>	<b>Deficiency Determination</b>
On-site Circulation and Parking	Project designs fail to meet City or industry standard guidelines, fail to provide adequate truck access, will result in unsafe condition, or will create parking demand or supply above code requirement.
Pedestrian, Bicycle, Transit Facilities	Project fails to provide safe and accessible connections, conflicts with adopted plans, or adds trips to facility that doesn't meet current design standards.
Traffic Operations	Project causes vehicle queues that exceed turn pocket lengths, increases safety hazards, or causes stop-controlled intersection to operate below LOS D and meet signal warrant.

1. Summary based on Table 5 of City's Transportation Impact Guidelines.

**Caltrans Facilities:** Operations degrade from LOS C or better to LOS D, E, or F; or project traffic worsens the service level of an intersection or segment operating at LOS D, E, or F. Caltrans does not provide a threshold related to queuing.

## Existing Conditions

This section describes the existing transportation system and current operating conditions in the study area.

### EXISTING ROADWAY NETWORK

*US Highway 101* is a north-south facility connecting Los Angeles to San Francisco. In the vicinity of the project it is a four-lane freeway with a full access interchange at State Route 46E.

*State Route 46* is an east-west facility connecting the Central Valley with the Central Coast. In the vicinity of the project it consists of four lanes with at-grade intersections at side streets.

*Buena Vista Drive* is primarily a north-south arterial roadway that runs from the Paso Robles Municipal Airport to State Route 46. It provides four travel lanes near State Route 46 and two travel lanes north of the Cuesta College campus.

*Golden Hill Road* is a north-south arterial with two travel lanes north of Dallons Drive and four travel lanes between State Route 46 and Dallons Drive.

*River Oaks Drive* is an east-west two-lane arterial connecting N River Road to Buena Vista Drive. It serves primarily residential uses. East of Buena Vista Drive it becomes Dallons Drive.

*Clubhouse Drive* is a short local collector road with two travel lanes connecting River Oaks Drive to the River Oaks Spa.

*Dallons Drive* is a two-lane east-west arterial connecting Buena Vista Drive to Golden Hill Road. West of Buena Vista Drive it becomes River Oaks Drive.

*River Road* is a north-south two-lane arterial running parallel to the Salinas River within the City limits. It crosses under State Route 46 and parallels Highway 101 on the east bank of the river.

### EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian facilities include sidewalks, crosswalks, multi-use paths, and pedestrian signals at signalized intersections. Sidewalks are provided along portions of Buena Vista Drive and along most of River Oaks Drive, Clubhouse Drive, and Dallons Drive. Marked crosswalks are provided at the intersections of River Oaks Drive/Clubhouse Drive, River Oaks Drive/Buena Vista Drive, across the north leg of Buena Vista Drive/State Route 46, and across three legs of the Golden Hill Road/State Route 46 intersection.

Bicycle facilities consist of multi-use paths separate from the roadway (Class I), on-street striped bike lanes (Class II), and signed bike routes (Class III). Class II bike lanes are provided on Dallons Drive.

### EXISTING TRANSIT SERVICE

The Paso Express provides fixed route and dial-a-ride transit service throughout the City of Paso Robles. The dial-a-ride service provides curb-to-curb service on weekdays from 7:00 AM to 1:00 PM.

The San Luis Obispo Regional Transit Authority (RTA) provides regional fixed-route and dial-a-ride services to San Luis Obispo County. Route 9 connects the North County and the City of San Luis Obispo, with a stop at Cuesta College North campus on weekdays. RTA also operates a summer beach shuttle connecting the North County to Cayucos.

### EXISTING TRAFFIC CONDITIONS

Traffic counts for weekday AM and PM peak hour conditions were collected at the study intersections in May 2014 and October 2015 when schools were in session. The traffic count sheets are included in Appendix A.

Figure 3 shows the existing peak hour traffic volumes and lane configurations. Table 3 presents the LOS and Table 4 presents the queues for the study intersections, and the detailed calculation sheets are included in Appendix B.

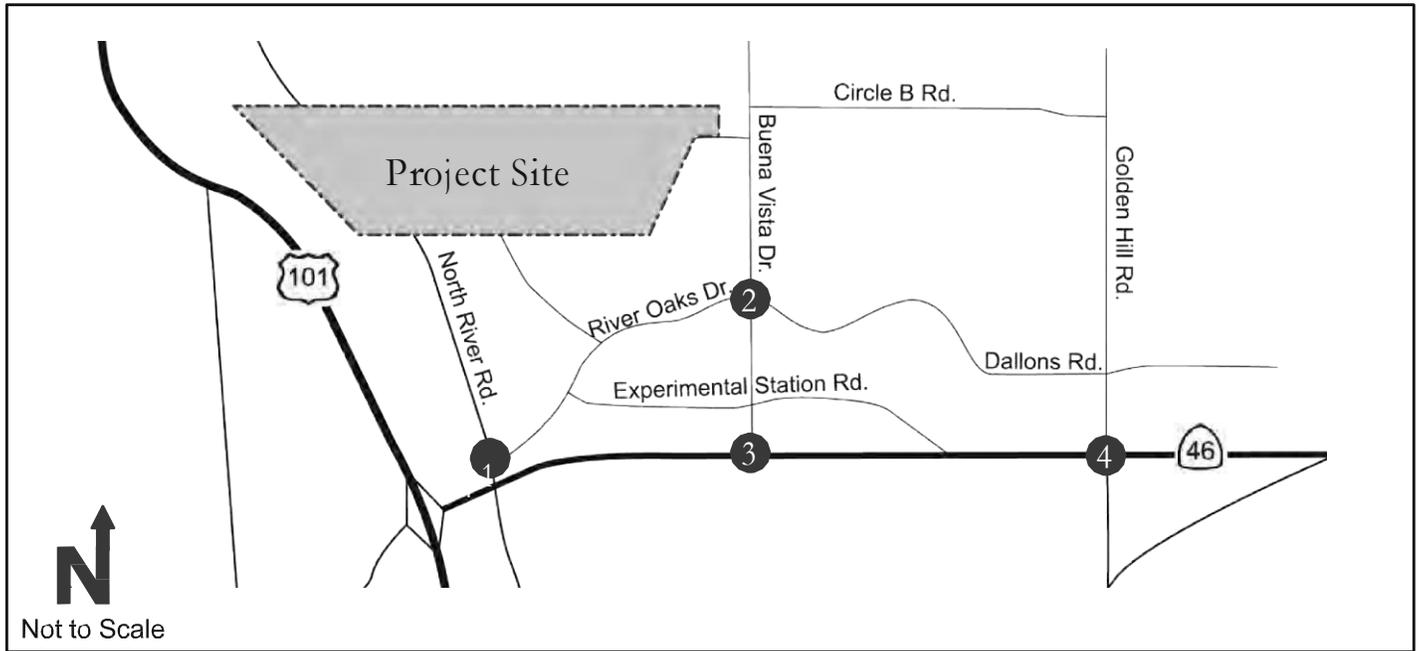
Table 3: Existing Intersection Levels of Service			
Intersection	Peak Hour	Delay <sup>1</sup> (sec/veh)	LOS <sup>2</sup>
1. North River Road/ River Oaks Drive	AM	4.7 (11.0)	A (B)
	PM	5.0 (10.3)	A (B)
2. Buena Vista Drive/ River Oaks Drive	AM	11.8	B
	PM	8.6	A
3. State Route 46 E/ Buena Vista Drive	AM	14.8	B
	PM	7.2	A
4. State Route 46 E/ Golden Hill Road	AM	20.0	B
	PM	21.3	C
1. HCM 2010 average control delay in seconds per vehicle.			
2. For side-street-stop controlled intersections (i.e. N River Road/ River Oaks Drive) the worst approach's delay is reported in parenthesis.			

All of the study intersections operate at LOS C or better during the weekday peak hours.

Table 4: Existing Queues				
Intersection	Peak Hour	Movement	Storage (ft)	95% Queue (ft)
1. North River Road/ River Oaks	AM	NBR	200	30
	PM			25
2. Buena Vista Drive/ River Oaks	AM	NBL	90	58
	PM			8
3. State Route 46 E/ Buena Vista	AM	EBL	720	194
	PM			86
4. State Route 46 E/ Golden Hill Road	AM	EBL	550	72
	PM			76
	AM	SBL	130	54
	PM			79

All of the study intersections operate acceptably in terms of queue lengths.

Figure 3: Existing Peak Hour Volumes and Lane Configurations



Existing Peak Hour Volumes			
<p>1. River Oaks Dr./North River Rd</p>	<p>2. River Oaks Dr./Buena Vista Dr.</p>	<p>3. SR 46 E./Buena Vista Dr.</p>	<p>4. SR 46 E./Golden Hill Rd</p>

Existing Lane Configuration			
<p>1. River Oaks Dr./North River Rd.</p>	<p>2. River Oaks Dr./Buena Vista Dr.</p>	<p>3. SR 46 E./Buena Vista Dr.</p>	<p>4. SR 46 E./Golden Hill Rd.</p>



Legend:	
● - Study Area Intersection	🚦 - Traffic Signal
xx(yy) - AM(PM) Peak Hour Traffic Volumes	⊓ - Stop Sign

## Existing Plus Project Conditions

This section evaluates the impacts of the proposed project on the surrounding transportation network, including traffic operations, bicycle, pedestrian, transit, and site access deficiencies. Existing Plus Project conditions reflect existing traffic levels plus the estimated traffic generated by the proposed project.

### PROJECT TRAFFIC ESTIMATES

The amount of project traffic affecting the study intersections is estimated in three steps: trip generation, trip distribution, and trip assignment. Trip generation refers to the total number of new trips generated by the site. Trip distribution identifies the general origins and destination of these trips, and trip assignment identifies the specific routes taken to reach these origins and destinations.

#### *Trip Generation*

The project consists of 144 active adult detached units, 127 single family units, a 5,000 square foot community center and 5,000 square foot fitness/wellness center. The community center and fitness/wellness center are planned to primarily serve the River Oaks community so they are not expected to draw significant amounts of traffic from outside of the River Oaks community. However, public use of the fitness/wellness facility is not expressly prohibited, so it has been included in the trip generation estimates to present a conservative analysis.

The trip generation estimates were developed using rates in the Institute of Transportation Engineers' *Trip Generation Manual*. Table 5 summarizes the project's estimated trip generation.

Land Use	Size	Number of Trips						
		Daily	AM			PM		
			In	Out	Total	In	Out	Total
Active Adult Single Family <sup>1</sup>	144 units	654	19	35	54	36	23	59
Single Family Residential <sup>2</sup>	127 units	1309	25	74	99	82	48	130
Fitness & Wellness Center <sup>3</sup>	5,000 s.f.	165	4	3	7	5	13	18
	<b>Total Trips</b>	<b>2128</b>	<b>48</b>	<b>112</b>	<b>160</b>	<b>123</b>	<b>84</b>	<b>207</b>

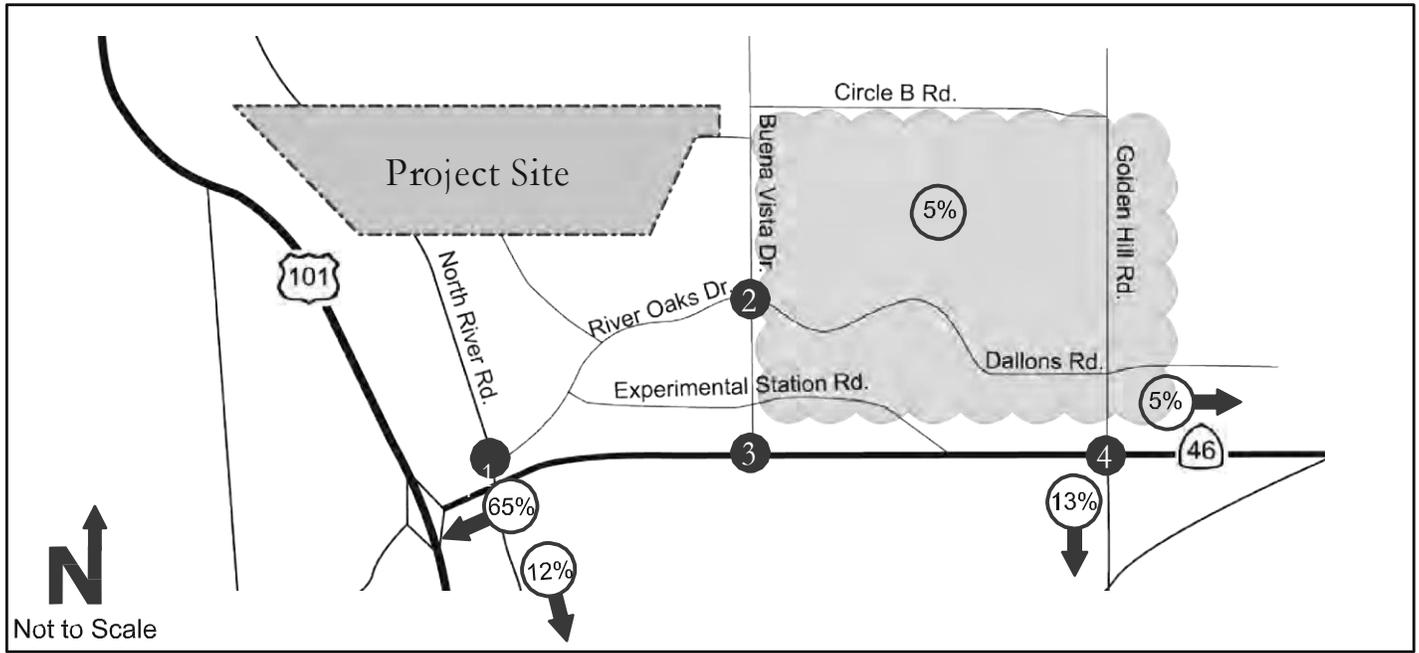
1. ITE Lane Use Code 251, Senior Adult Housing-Detached. Fitted curve equations used.  
 3. ITE Land Use Code 492, Health/Fitness Club. Average rates used.  
 Source: Trip Generation, 9th Edition, ITE (2012) and CCTC, 2013

The project is expected to generate 2,128 daily trips, 160 AM peak hour trips, and 207 PM peak hour trips.

#### *Trip Distribution and Assignment*

The directions of approach and departure for project trips were estimated using the City's Travel Demand Model, existing trip patterns, and the locations of complementary land uses. Project trips were assigned to individual intersections based on the trip distribution percentages, and were then added to the existing traffic volumes to establish Existing Plus Project Conditions. **Figure 4** shows the trip distribution percentages, project trip assignment, and Existing Plus Project volumes.

Figure 4: Project Trip Distribution, Assignment, and Existing Plus Project Volumes



Project Trip Assignment			
1. River Oaks Dr./North River Rd.	2. River Oaks Dr./Buena Vista Dr.	3. SR 46 E./Buena Vista Dr.	4. SR 46 E./Golden Hill Rd.

Existing Plus Project Peak Hour Volumes			
1. River Oaks Dr./North River Rd	2. River Oaks Dr./Buena Vista Dr.	3. SR 46 E./Buena Vista Dr.	4. SR 46 E./Golden Hill Rd



Legend:	
	- Study Area Intersection
	- Project Trip Distribution Percentage
xx(yy)	- AM(PM) Peak Hour Traffic Volumes

**DEFICIENCY ANALYSIS**

The deficiency analysis for individual travel modes are discussed below.

**Traffic operations**

Traffic operations deficiency criteria are described in the Analysis Methods section of this report. Table 6 summarizes level of service and Table 7 summarized queuing conditions under Existing and Existing Plus Project conditions.

<b>Table 6: Existing &amp; Existing Plus Project Intersection Levels of Service</b>					
<b>Intersection</b>	<b>Peak Hour</b>	<b>Existing</b>		<b>Existing Plus Project</b>	
		<b>Delay<sup>1</sup> (sec/veh)</b>	<b>LOS<sup>2</sup></b>	<b>Delay<sup>1</sup> (sec/veh)</b>	<b>LOS<sup>2</sup></b>
1. North River Road/ River Oaks Drive	AM	4.7 (11.0)	A (B)	4.9 (11.2)	A (B)
	PM	5.0 (10.3)	A (B)	5.0 (10.5)	A (B)
2. Buena Vista Drive/ River Oaks Drive	AM	11.8	B	13.9	B
	PM	8.6	A	9.5	A
3. State Route 46 E/ Buena Vista Drive	AM	14.8	B	16.6	B
	PM	7.2	A	10.3	B
4. State Route 46 E/ Golden Hill Road	AM	20.0	C	20.1	C
	PM	21.3	C	21.7	C

1. HCM 2010 average control delay in seconds per vehicle.  
2. For side-street-stop controlled intersections (i.e. N River Road/River Oaks Drive) the worst approach's delay is reported in parenthesis.

All of the study intersections operate acceptably at LOS C or better with the addition of project traffic.

Table 7 presents the queuing conditions under Existing and Existing Plus Project conditions.

<b>Table 7: Existing Plus Project Queues</b>					
<b>Intersection</b>	<b>Peak Hour</b>	<b>Movement</b>	<b>Storage (ft)</b>	<b>Existing 95%</b>	<b>Existing Plus Project</b>
				<b>Queue (ft)</b>	<b>95% Queue (ft)</b>
1. North River Road/ River Oaks	AM	NBR	200	30	35
	PM			25	25
2. Buena Vista Drive/ River Oaks	AM	NBR	200	58	78
	PM			8	15
3. State Route 46 E/ Buena Vista	AM	EBL	720	194	225
	PM			86	146
4. State Route 46 E/ Golden Hill Road	AM	EBL	550	72	73
	PM			76	77
	AM	SBL	130	54	54
	PM			79	79

No queuing deficiencies are noted under Existing and Existing Plus Project Conditions.

**Bicycles**

Bicycle deficiencies would occur if the project disrupts existing or planned bicycle facilities or is otherwise incongruent with the City’s Bike Master Plan. The Bike Master Plan proposes the following new bicycle facilities in the vicinity of the project:

- A Class I multi-use trail parallel to the Salinas River between the river and North River Road.

- A Class II on-street bike lane on River Oaks Drive from North River Road to Buena Vista Drive.
- A Class II on-street bike lane along the extent of Clubhouse Drive.
- A Class II on-street bike lane on Buena Vista Drive north of River Oaks Drive.
- A Class II bike route along the entirety of Experimental Station Road.

### *Clubhouse Drive*

While the southern (existing) portion of Clubhouse Drive is noted as having an existing Class II lane in the Plan, it does not meet the Plan's design standards for a Class II bike lane. The 40-foot curb to curb width is currently delineated with two 13-foot travel lanes with 7-foot parking aisles on both sides, but the striping is degraded and on-street parking is lightly utilized. This gives drivers the perception of very wide lanes conducive to high vehicle speeds. Field observations show 85<sup>th</sup> percentile vehicle speeds in excess of 35 mph, higher than the posted 25 mph limit.

Figure 9 of the Bike Master Plan shows typical cross sections for streets with bike lanes. One option to achieve conformance with the Plan would be to re-stripe this existing section of roadway with two 11-foot travel lanes, a 12-foot shared parking/bike lane, and a 6-foot bike lane to meet the Plan's designation as a Class II bike lane. This would focus parking demand on one side of the street and reduce the perception of wide lanes encouraging higher speeds.

The project would improve Clubhouse Drive north of the current end of pavement to include two 11-foot travel lanes, a 10-foot multiuse trail on the east side, and an 8-foot sidewalk on the west side. This differs from the Class II lanes shown on this segment in the City's Bike Master Plan. The transition from Class II lanes to the multiuse trail should occur at the Clubhouse Drive/Village Drive intersection. Detailed designs for this intersection should be reviewed to ensure there is a safe and convenient transition between these two facilities for all users.

### *East Project Entrance (Village Drive)*

The project would provide an east-west arterial connecting Clubhouse Drive to Buena Vista Drive through the middle of the project site. The East Project Entrance includes two 11-foot travel lanes, 7-foot parking lanes, a 5-foot sidewalk on the south side, and a 10-foot multiuse trail on the north side. This multiuse trail is not included in the City's Bike Master Plan, but provides a convenient connection from Clubhouse Drive to Buena Vista Drive.

### *Buena Vista Drive*

The project documents available for review did not include a planned cross-section for the section of Buena Vista Drive between the northernmost Cuesta College Driveway and the project's planned east-west collector. To maintain consistency with the City's Bike Master Plan, this segment should include Class II bike lanes on both sides when it is improved. This segment is within the County of San Luis Obispo's jurisdiction, and any improvements would require coordination with the County.

The project would also provide a recreational trail along the bluff above North River Road within the project boundaries which would connect to the existing bluff trail west of the Traditions community.

### ***Pedestrians***

Pedestrian deficiencies would occur if the project fails to provide safe and accessible pedestrian connections between project buildings and adjacent streets, trails, and transit facilities. The project proposes 5-foot sidewalks along public streets, or an 8-foot sidewalk on one side of the roadway when

the opposite side adjoins passive or active recreational sites. These sidewalks would connect to existing pedestrian facilities adjacent to the site. Direct pedestrian connections would be provided to the nearby transit stop at Cuesta College.

Pedestrian circulation should be reviewed once design documents are available to ensure they will connect to existing facilities to the maximum extent possible.

### *Transit*

Transit deficiencies would occur if the project disrupts existing or planned transit facilities or services; conflicts with City plans, guidelines, policies, or standards; or if the project adds trips to a line already operating at peak hour crush load capacity.

The project proposes two additional transit stops, one near the Fitness and Wellness Center and one on the eastern end of the proposed East Project Entrance. The project provides direct pedestrian connections to these transit stops and is not expected to overburden transit service. With new transit stops in place, all of the site would be within a 1/3 mile radius of a transit stop. The project should coordinate with the City to determine the precise locations and design standards for future transit service expansions.

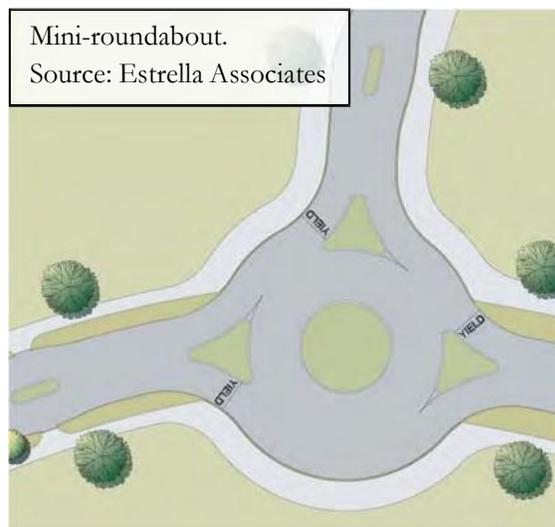
### *On-Site Circulation*

On-site circulation deficiencies would occur if project designs fail to meet appropriate standards, fail to provide adequate truck access, or would result in hazardous or unsafe conditions.

The proposed site plan is shown on **Figure 2**. Project access will be provided via Clubhouse Drive and Buena Vista Drive. Two arterial roads will lead to local roads and alleyways for individual homes. Typical roadway cross sections are provided in the project's design documents, and generally conform to industry standards.

Some internal intersections will be served by 'mini-roundabouts.' The design of these intersections should be reviewed for conformance with industry-standard practices when the designs are complete. Accommodation should be made to ensure trucks can navigate the intersections, such as by providing mountable center islands if necessary.

The planning-level nature of the site plans available at this time do not show adequate detail for the evaluation of final geometric designs of intersections or the design of transitions from Class I paths to sidewalks and Class II bike lanes. The geometric designs should be reviewed when available to ensure they meet City engineering design standards and conform to the City's Bike Master Plan, including the finished surface of the multiuse trails (proposed as decomposed granite). Similarly, the network of sidewalks and multi-use paths should be reviewed to ensure it is continuous and connects to existing pedestrian and bicycle facilities to the maximum extent possible.



### *Neighborhood Traffic Analysis*

The intersections of Buena Vista Drive/East Project Entrance and River Oaks Drive/Clubhouse Drive were evaluated to determine if the project would result in deficiencies to these neighborhood intersections. This evaluation, included as Appendix C, show that these intersections would operate acceptably at LOS B or better under Existing and Cumulative conditions with the project in place. River Oaks Drive is projected to operate well below its daily capacity with free-flow conditions. See Appendix C for further details.

## Near Term Traffic Conditions

Near Term conditions reflect the addition of approved and pending projects in the study area to Existing Conditions volumes. The following near-term projects are included in this scenario:

- Ayers Hotel- 190 hotel rooms, 36 extended stay units, and related amenities on the northeast corner of Buena Vista Drive and Experimental Station Road.
- La Quinta Inn- 30 additional hotel rooms and related amenities at 2615 Buena Vista Drive.
- Buena Vista Apartments- 142 apartment units located at 802 Experimental Station Road.
- Tract 2887- 51 single-family homes located at the southeast corner of River Oaks Drive and Experimental Station Road.
- RV Park- 332 spaces located at the north end of Golden Hill Road
- Wine Storage Building- 66,000 s.f. located at 2261 Wisteria Lane
- San Antonio Winery Processing Facility-126,000 s.f. located on Wisteria Lane.
- Hilton Golden Hill- 166 hotel rooms and related amenities located at 2348 Golden Hill Road
- San Antonio Winery Development- tasting room, restaurant, four residences, and retail in addition to existing facilities at 2610 Buena Vista Drive
- Chrysler/Jeep Dealership- 29,800 s.f. located at the northeast corner of Golden Hill Road and Tractor Street.

Traffic volumes for the Ayers Hotel, Buena Vista Apartments and Hilton Golden Hill projects were obtained from the traffic studies prepared for those projects. Traffic volumes for La Quinta Inn, Tract 2887, the RV park, wine storage building, San Antonio Winery Processing Facility, San Antonio Winery Development, and dealership were estimated using standard ITE rates. Project volumes were added to Near Term conditions to yield Near Term Plus Project conditions as shown on **Figure 5**. Table 8 summarizes level of service and Table 9 summarizes queuing conditions under Near Term and Near Term Plus Project conditions.

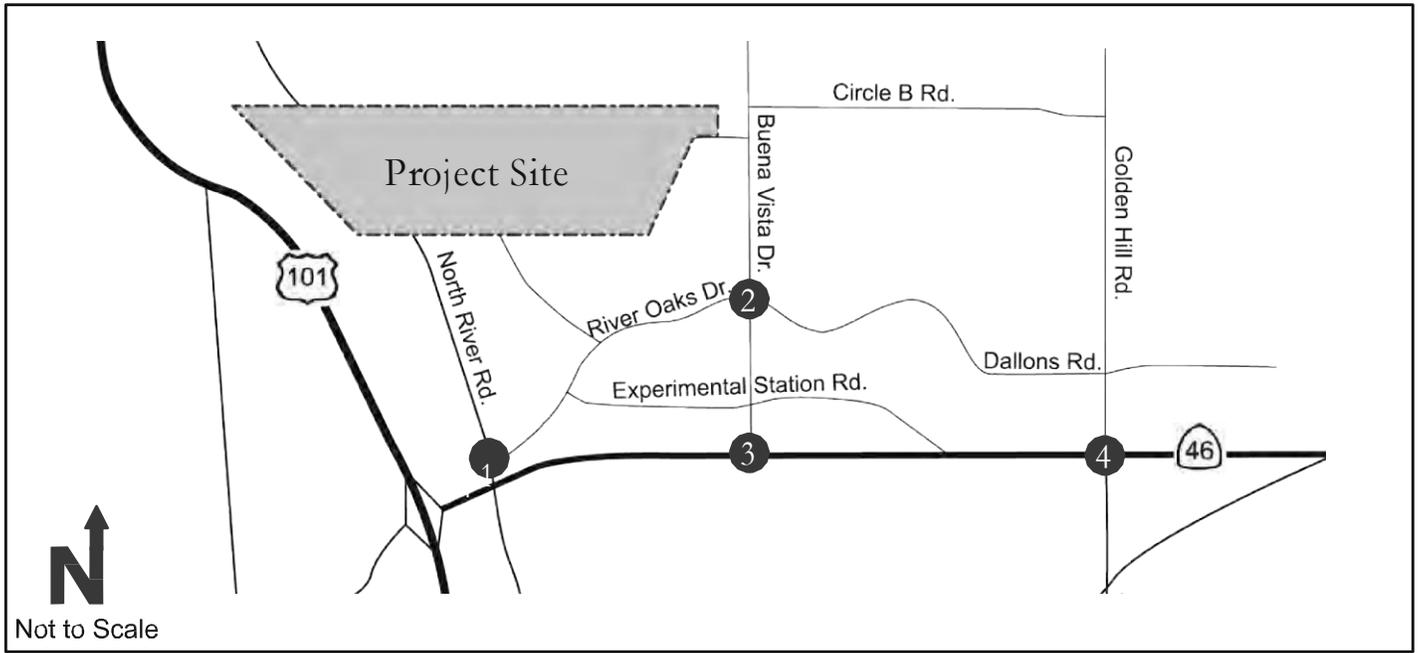
Table 8: Near Term & Near Term Plus Project Intersection Levels of Service					
Intersection	Peak Hour	Near Term		Near Term Plus Project	
		Delay <sup>1</sup> (sec/veh)	LOS <sup>2</sup>	Delay <sup>1</sup> (sec/veh)	LOS <sup>2</sup>
1. North River Road/ River Oaks Drive	AM	5.1 (11.5)	A (B)	5.3 (11.8)	A (B)
	PM	5.1 (10.6)	A (B)	5.2 (10.8)	A (B)
2. Buena Vista Drive/ River Oaks Drive	AM	12.2	B	14.5	B
	PM	8.8	A	9.7	A
3. State Route 46 E/ Buena Vista Drive	AM	21.2	C	22.9	C
	PM	12.6	B	16.1	B
4. State Route 46 E/ Golden Hill Road	AM	20.2	C	22.8	C
	PM	23.2	C	23.5	C

1. HCM 2010 average control delay in seconds per vehicle.  
2. For side-street-stop controlled intersections (i.e. N River Road/River Oaks Drive) the worst approach's delay is reported in parenthesis.

<b>Table 9: Near Term Plus Project Queues</b>					
<b>Intersection</b>	<b>Peak Hour</b>	<b>Movement</b>	<b>Storage (ft)</b>	<b>Near Term 95% Queue (ft)</b>	<b>Near Term Plus Project 95% Queue (ft)</b>
1. North River Road/ River Oaks Drive	AM	NBR	200	38	43
	PM			30	30
2. Buena Vista Drive/ River Oaks Drive	AM	NBL	90	63	83
	PM			8	18
3. State Route 46 E/ Buena Vista Drive	AM	EBL	720	312	354
	PM			194	270
	AM	WBT	>1000	611	611
	PM			463	468
4. State Route 46 E/ Golden Hill Road	AM	EBL	550	77	77
	PM			84	84
	AM	SBL	130	50	50
	PM			85	85

All of the study intersections operate acceptably for level of service and queuing under both Near Term and Near Term Plus Project conditions.

Figure 5: Near Term and Near Term Plus Project Peak Hour Volumes



Near Term Peak Hour Volumes

1. River Oaks Dr./North River Rd.	2. River Oaks Dr./Buena Vista Dr.	3. SR 46 E./Buena Vista Dr.	4. SR 46 E./Golden Hill Rd.

Near Term Plus Project Peak Hour Volumes

1. River Oaks Dr./North River Rd.	2. River Oaks Dr./Buena Vista Dr.	3. SR 46 E./Buena Vista Dr.	4. SR 46 E./Golden Hill Rd.



Legend:

- Study Area Intersection
- xx(yy) - AM(PM) Peak Hour Traffic Volumes

## Cumulative Traffic Conditions

Cumulative conditions reflect future year traffic volumes and planned roadway improvements. Cumulative and Cumulative Plus Project conditions are discussed in this section.

### CUMULATIVE ROADWAY NETWORK

The Cumulative conditions analysis reflects planned roadway capacity expansions identified in the City's Circulation Element. While numerous capacity expansions are planned in the vicinity of the project, including widening State Route 46 east of Airport Road and the Airport Road Extension among others, no improvements are planned at the four study intersections. Therefore the study intersection lane configurations have not been changed from Existing conditions.

### CUMULATIVE TRAFFIC FORECASTS

The City's Travel Demand Model was developed to forecast future travel patterns in the City. The Model incorporates future improvements identified in the Circulation Element and projected land uses both locally and regionally to output future year traffic forecasts. The Model was applied to develop Cumulative forecasts using the difference method, where the model's projected growth of future year volumes over base year volumes was added to the recently collected traffic counts. Project traffic was added to Cumulative conditions volumes to yield Cumulative Plus Project conditions as shown in **Figure 6**.

#### *Other General Plan Amendments*

Planning is underway for the Beechwood project which would amend the City's General Plan. The Cumulative traffic forecasts shown on Figure 6 only include projects in the adopted General Plan. In order to gauge the potential impact of the Beechwood project on facilities in the study area, a select zone analysis was conducted using the City's Travel Demand Model. This technique tracks trips from specific projects through the roadway network and allows a determination of the amount of traffic using specific roadways.

Based on this analysis, less than three percent of the traffic from the Beechwood project is expected to travel on State Route 46 E in the vicinity of the project. This corresponds to an increase of less than one percent to traffic on State Route 46 E. Local traffic levels in the vicinity of the River Oaks project would not be affected by the project. Therefore, the Beechwood project would not change the findings of this study.

## CUMULATIVE TRAFFIC CONDITIONS

Tables 10 and 11 summarize Cumulative traffic conditions with and without the project.

Intersection	Peak Hour	Cumulative		Cumulative Plus Project	
		Delay <sup>1</sup> (sec/veh)	LOS <sup>2</sup>	Delay <sup>1</sup> (sec/veh)	LOS <sup>2</sup>
1. North River Road/ River Oaks Drive	AM	5.0 (11.1)	A (B)	5.2 (11.3)	A (B)
	PM	5.5 (11.4)	A (B)	5.6 (11.6)	A (B)
2. Buena Vista Drive/ River Oaks Drive	AM	12.3	B	14.3	B
	PM	10.5	B	11.8	B
3. State Route 46 E/ Buena Vista Drive	AM	29.2	C	33.2	C
	PM	25.4	C	33.4	C
4. State Route 46 E/ Golden Hill Road	AM	<b>39.4</b>	<b>D</b>	<b>40.0</b>	<b>D</b>
	PM	<b>60.4</b>	<b>E</b>	<b>62.6</b>	<b>E</b>

1. HCM 2010 average control delay in seconds per vehicle.  
2. For side-street-stop controlled intersections (i.e. N River Road/River Oaks Drive) the worst approach's delay is reported in parenthesis.

The State Route 46E/Golden Hill Road intersection is expected to operate below the Caltrans threshold both with and without the project. The addition of project traffic does not change the service level at this location.

Intersection	Peak Hour	Movement	Storage (ft)	Cumulative	Cumulative Plus
				95% Queue	Project 95% Queue
1. North River Road/ River Oaks Drive	AM	WBL	200	48	38
	PM			40	43
2. Buena Vista Drive/ River Oaks Drive	AM	NBL	90	48	63
	PM			8	18
3. State Route 46 E/ Buena Vista Drive	AM	EBL	720	#384	#447
	PM			#284	#450
	AM	WBT	>1000	#838	#838
	PM			#1097	#1097
	AM	SBL	>1000	#294	#334
	PM			181	#214
4. State Route 46 E/ Golden Hill Road	AM	EBL	550	#154	#157
	PM			#171	#174
	AM	WBT	>1000	705	706
	PM			#839	#845
	AM	SBL	130	<b>158</b>	<b>158</b>
	PM			<b>#319</b>	<b>#319</b>

Bold indicates unacceptable operations.

Queuing issues are reported at two study intersections under Cumulative and Cumulative Plus Project conditions:

- The intersection of State Route 46 E/Buena Vista Drive is expected to experience queue issues for eastbound left, westbound through, and southbound left conditions with and without the project during both the AM and PM peak hours. These queues are not expected to spill out of the turn pocket but could reduce deceleration distance below the recommended distance.

- The intersection of State Route 46 E/Golden Hill Road operates unacceptably during the AM and PM peak hours under both cumulative scenarios. Queue spillback is an issue in the eastbound left, southbound left, and westbound through. However, the addition of project traffic does not worsen the LOS, and causes a minimal increase in delay.

The remaining study intersections operate acceptably.

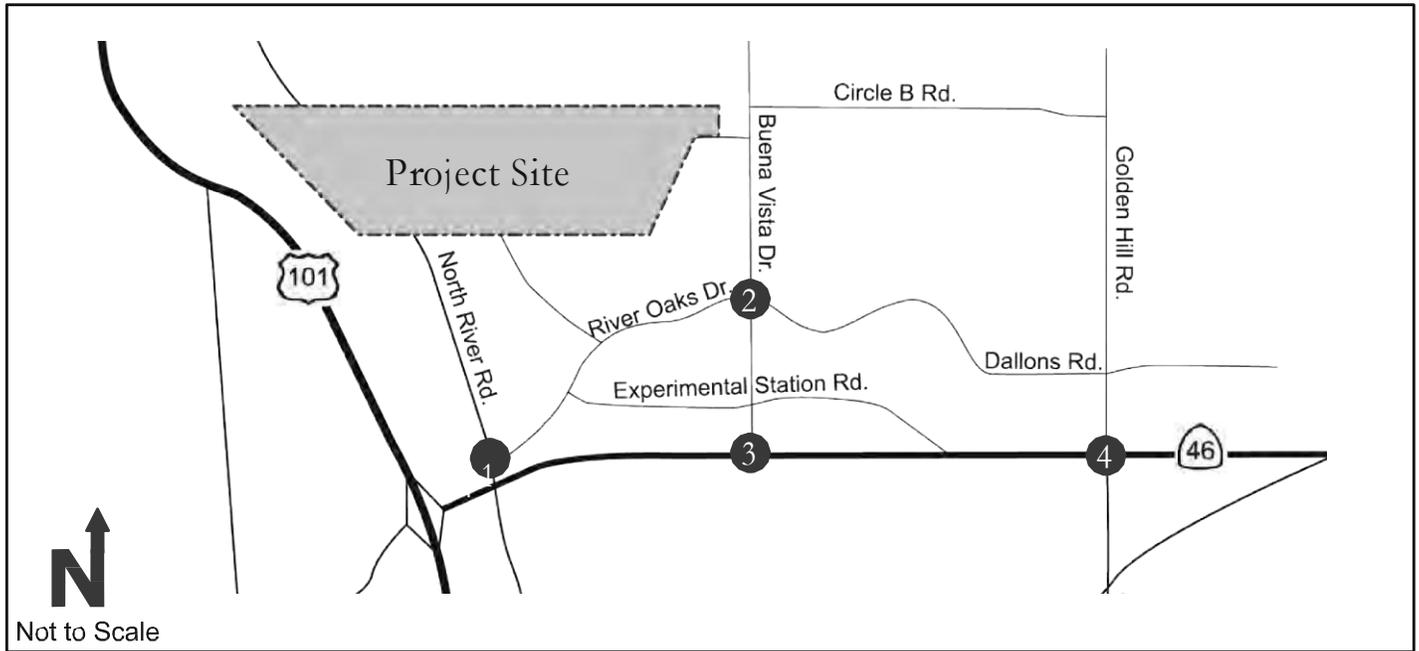
### **CUMULATIVE DEFICIENCIES**

Caltrans' thresholds are not based on queues, but the following improvements are discussed for informational purposes:

- State Route 46/Buena Vista Drive: Add a second eastbound left-turn lane. This maintains LOS C conditions during the AM/PM peaks. Queue lengths would be reduced to acceptable levels with the second left-turn lane. This project is included in the City's Traffic Impact Fee program; funding from cumulative projects will be used to ensure that this improvement is implemented. The timing for this improvement depends on growth in the area, particularly increases in staffing and enrollment at Cuesta College North.
- State Route 46/Golden Hill Road: Improve parallel local routes. This is consistent with the Caltrans SR 46 Corridor System Management Plan, which notes that Golden Hill Road remains a low-priority for location improvement and that local road improvements are a high priority within the corridor. The City's Traffic Impact Fee program funds improvements to parallel local routes. The City has developed plans to improve the intersection of North River Road/River Oaks Drive to reduce delay for the predominant vehicle flows at this intersection. The City is also evaluating intersection operations at Buena Vista Drive/River Oaks Drive to improve conditions for vehicles, cyclists, and pedestrians. These improvements, supplemented by the implementation of transportation demand management strategies such as programs supporting increases in non-auto travel modes, carpools, ridesharing, and park-and-ride facilities would further reduce the demand for travel along the State Route 46 corridor.

Payment of the City's impact fees would address these deficiencies.

Figure 6: Cumulative and Cumulative Plus Project Peak Hour Volumes



Cumulative Peak Hour Volumes

<p>1. River Oaks Dr./North River Rd</p>	<p>2. River Oaks Dr./Buena Vista Dr.</p>	<p>3. SR 46 E./Buena Vista Dr.</p>	<p>4. SR 46 E./Golden Hill Rd</p>
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Cumulative Plus Project Peak Hour Volumes

<p>1. River Oaks Dr./North River Rd</p>	<p>2. River Oaks Dr./Buena Vista Dr.</p>	<p>3. SR 46 E./Buena Vista Dr.</p>	<p>4. SR 46 E./Golden Hill Rd</p>
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Legend:

- ⑦ - Study Area Intersection
- xx(yy) - AM(PM) Peak Hour Traffic Volumes



## Other Circulation Issues

This section discusses additional circulation issues requested by City staff.

### **DRY CREEK ROAD EXTENSION**

The City's Circulation Element identifies a number of planned roadway connections including the extension of Dry Creek Road from its current terminus at Airport Road to North River Road. The River Oaks project does not propose to construct this connection due to topographical and environmental resource constraints. This would result in the Dry Creek Extension terminating at Buena Vista Drive instead of North River Road as planned in the Circulation Element.

The City's Travel Demand Model was used to evaluate the potential impacts of not providing the Dry Creek Road extension from Buena Vista Road to North River Road. The model assigns under 100 daily trips to the segment of the Dry Creek Road Extension between Buena Vista Drive and North River Road under the model's Year 2025 scenario. Given the minimal usage projected, the elimination of this segment is not expected to impact nearby facilities. This conclusion is supported by the Parallel Routes Study, which ranks the Dry Creek Road Extension as 6<sup>th</sup> of the 7 alternatives evaluated.

### **BUENA VISTA DRIVE/DALLONS DRIVE INTERSECTION CONTROL**

The intersection of Buena Vista Drive/River Oaks Drive/Dallons Drive is currently controlled by stop signs on all approaches. City staff has requested an evaluation of alternative traffic control measures to improve operations at this location and make the River Oaks Drive/Dallons Drive corridor a more attractive parallel route to State Route 46.

The intersection operates acceptably under all of the scenarios evaluated with minimal queuing. The installation of a single-lane roundabout would provide acceptable operations with LOS C or better operations under all scenarios. A single lane roundabout has the benefit of reducing crossing distances for pedestrians, since no turn lanes are needed. Similarly, vehicles emissions would be lower under roundabout control than all-way-stop control as many drivers would not need to stop at the intersection. This would improve the attractiveness of the River Oaks Drive corridor as an alternative route parallel to State Route 46.

If all-way-stop control is maintained pedestrian crossing distances could be shortened by removing a north- and southbound turn lane and adding curb extensions (bulbouts). This would continue to provide acceptable operations for vehicles while improving conditions for pedestrians.

### **RIVER OAKS DRIVE/N RIVER ROAD RECONFIGURATION**

The intersection of River Oaks Drive and North River Road currently serves minimal traffic to and from the north, with the predominant traffic flows moving northbound to eastbound and westbound to southbound. The current intersection control, with a stop sign for westbound traffic, is not optimized to serve these flows. The City's Traffic Impact Fee includes a project to reconfigure this intersection so that the predominant flows do not have to stop. This would support the Circulation Element and Corridor Study goals of improving local routes parallel to State Route 46 by reducing travel time along the Buena Vista Drive corridor.

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