

**APPENDIX 3.14-A –
TRANSPORTATION ANALYSIS**

TRAFFIC IMPACT ANALYSIS
FOR
RINCON DEL RIO CONTINUING CARE RETIREMENT COMMUNITY
Nevada County, CA

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**RINCON DEL RIO CONTINUING CARE RETIREMENT COMMUNITY
TRAFFIC IMPACT ANALYSIS**

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November 18, 2011

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RINCON DEL RIO CONTINUING CARE RETIREMENT COMMUNITY TRAFFIC IMPACT ANALYSIS

STUDY PURPOSE AND OBJECTIVES

This study evaluates the traffic impact for the proposed Rincon Del Rio Continuing Care Retirement Community (CCRC), a 215± acre site located at the east end of Rincon Way in Nevada County. The project is accessed via State Route 49 (SR 49) with direct access onto Rincon Way. A secondary gated access for emergency vehicles only is proposed at the end of Rodeo Flat Road in the northeast corner of the project site. The project includes a CCRC featuring supportive living arrangements from independent living to assisted living and nursing care. The site will include 345 attached and detached housing units, with approximately 415 residents. Approximately 40 acres of the site, located on the western side adjacent to Rincon Way will be developed; the remaining acreage would remain undeveloped open space. The project will require a General Plan Amendment to the existing land use designation from Planned Development Estate (PD-EST) to PD-CCRC. A zoning change would also be required from RA-3-PD (Residential Agriculture, 3-acre Planned Development) to PD-CCRC.

Study parameters are consistent with Nevada County and California Department of Transportation (Caltrans) guidelines.

This study addresses the following scenarios:

1. Existing Traffic Conditions;
2. Existing Plus Project;
3. Cumulative Traffic Conditions under Existing General Plan; and
4. Cumulative Traffic Conditions with General Plan Amendment.

The objective of this study is to identify those road intersections that may be impacted by development of this project and to suggest strategies for mitigating the impacts of this project. Both Nevada County and Caltrans staff established that the SR 49 / Rincon Way intersection was the only intersection requiring level of service analysis. The closest signalized intersection along SR 49 is Combie Road-Wolf Road, about 2 miles north. Based on the projected land use and peak hour trips generated County and Caltrans staff it determined that this intersection would not need to be studied. The project traffic through this intersection would not be enough to noticeably change the peak hour operations of the intersection.

The adjacent Rincon Way / SR 49 Frontage Road intersection was analyzed to determine if any queuing issues were raised under project conditions. Road segments were not considered for this study. County and Caltrans staff determined that the project's probable likely daily traffic volumes and the split between traffic heading north and south along SR 49 would not substantially affect the traffic conditions along SR 49.

PROJECT DESCRIPTION

The Rincon Del Rio CCRC project is a proposed continual care retirement community covering approximately 215± acres in Nevada County. The project is located at the east terminus of Rincon Way east of SR 49 in southern Nevada County; the SR 49 / Rincon Way intersection is located about ½ mile from the Placer County line. The project will create 14 lots, ranging in size from 2.33 acres to 130.74 acres. The project will be constructed in ten phases; however, phases may be combined or modified based on market conditions. Construction is anticipated to begin in 2012 with full build-out completed by 2016.

Public access will be provided from Rincon Way with direct access onto SR 49. A gated secondary emergency vehicle access is proposed from the end of Rodeo Flat Road, in the northeast corner of the site; Rodeo Flat Road provides a direct connection to Combie Road.

Figure 1 locates the project in Nevada County while Figure 2 provides the layout of the project site.



EXISTING SETTING

Study Area

This study addresses traffic conditions on SR 49 and County roads that will be used to access the site. The limits of the study area were identified through discussions with Nevada County Public Works staff. The text that follows describes the facilities included in this analysis. Neither Caltrans nor County staff identified any roadway segments to be analyzed.

State Route 49. State Route 49 is a primary arterial route that provides north-south access through the Sierra foothills. SR 49 also provides the primary access between I-80 in Auburn and Grass Valley and Nevada City to the north. SR 49 is generally a four-lane facility in the project vicinity. At the Combie Road intersection SR 49 is a four-lane facility with turn lanes. 2009 Caltrans traffic data shows that SR 49 carries about 28,000 vehicles per day, referred to as average daily traffic (ADT) at the Placer County / Nevada County line.

Rincon Way. Rincon Way is a local road within Nevada County. Between SR 49 and the adjacent frontage road, about 65 feet east, Rincon Way is about 50' wide and accommodates left turning and right turning vehicles onto SR 49 as well as inbound vehicles from SR 49; currently, there is no lane striping to differentiate a left turn lane and a right turn lane. Between the frontage road and Hidden Ranch Road, Rincon Way is between 18 feet and 20 feet wide while east of Hidden Ranch Road to the property entrance the roadway narrows to about 16 feet in width.

Study Area Intersections

The quality of traffic flow is often governed by the operation of major intersections. For this study one intersection was identified and confirmed with County and Caltrans staff for evaluation of Level of Service.

The **SR 49 / Rincon Way intersection** is the public access intersection onto SR 49 for the proposed project. The intersection is a tee intersection with stop control along Rincon Way. SR 49 is a four-lane undivided highway with a 500' southbound left turn lane and a 300' northbound right turn lane. Rincon Way is currently striped as single lanes in each direction although the inbound approach could be restriped to include left and right turn lanes. A storage / acceleration lane is present along the south side of the SR 49 / Rincon Way intersection to allow vehicles to queue while waiting for a gap in southbound traffic. The storage / acceleration lane is about 150' long. For this study it was assumed that two vehicles would be queued in this space at any one time.

The **Rincon Way / SR 49 Frontage Road intersection** is an intersection located about 65' east of SR 49. The intersection is a tee intersection with the stem of the tee paralleling SR 49 to the south. All approaches to the intersection are single lanes with stop control along the frontage road. This intersection was evaluated to determine whether the project would add traffic into the intersection to cause queuing and blocking issues with traffic entering or leaving SR 49 at Rincon Way. Level of service was not considered at this intersection.

Level of Service Analysis

Methodology. *Level of Service Analysis* has been employed to provide a basis for describing existing traffic conditions and for evaluating the significance of project traffic impacts. Level of Service measures the *quality* of traffic flow and is represented by letter designations from "A" to "F", with a grade of "A" referring to the best conditions, and "F" representing the worst conditions. Table 1 presents typical Level of Service characteristics.

**TABLE 1
LEVEL OF SERVICE DEFINITIONS**

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: 2000 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.

Procedures used for calculating Levels of Service at signalized intersections are as presented in the Highway Capacity Manual, 2000 edition. In addition to traffic volume, these procedures make use of geometric information and traffic signal timing data. Local agencies and Caltrans adopt minimum Level of Service standards for their facilities. Nevada County identifies LOS "C" as the acceptable Level of Service in Rural Regions. LOS "D" is the acceptable standard on

Caltrans facilities in this area. The methodology employed to determine Level of Service for this analysis makes use of the procedures contained in the 2000 Highway Capacity Manual (HCM). The software used for level of service analysis was *Synchro*.

Unsignalized intersections were analyzed using the method documented in the 2000 HCM. This method calculates the weighted average delay for each controlled movement and for the intersection as a whole. The analysis considers gap acceptance and average delay of motorists on minor streets and in turn lanes to establish service levels. Intersection levels of service presented in this analysis are based on the weighted average total delay per vehicle for the intersection as a whole.

At unsignalized intersections, a traffic impact is considered "adverse but not significant" if the agency LOS standard is exceeded but the projected traffic does not satisfy traffic signal warrants. Under these conditions, the only means to completely alleviate delays to stop controlled vehicles would be to install a traffic signal. However, the unmet signal warrants would imply that the reduction in delay for the stop-controlled vehicles may not justify the new delays that would be incurred by the major street traffic (which is currently not stopped). Under these circumstances, installation of a signal would not be recommended and the substandard LOS for stop-controlled vehicles would be considered an "adverse but not significant" impact.

Traffic Signal Warrants Procedures

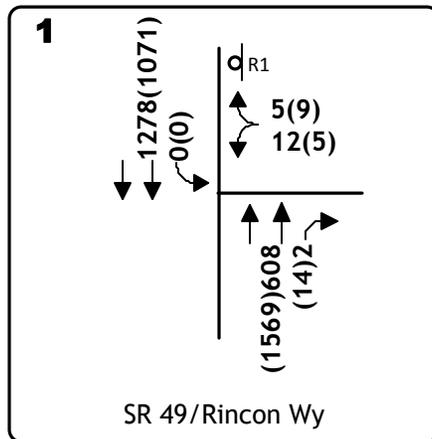
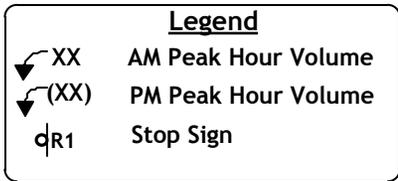
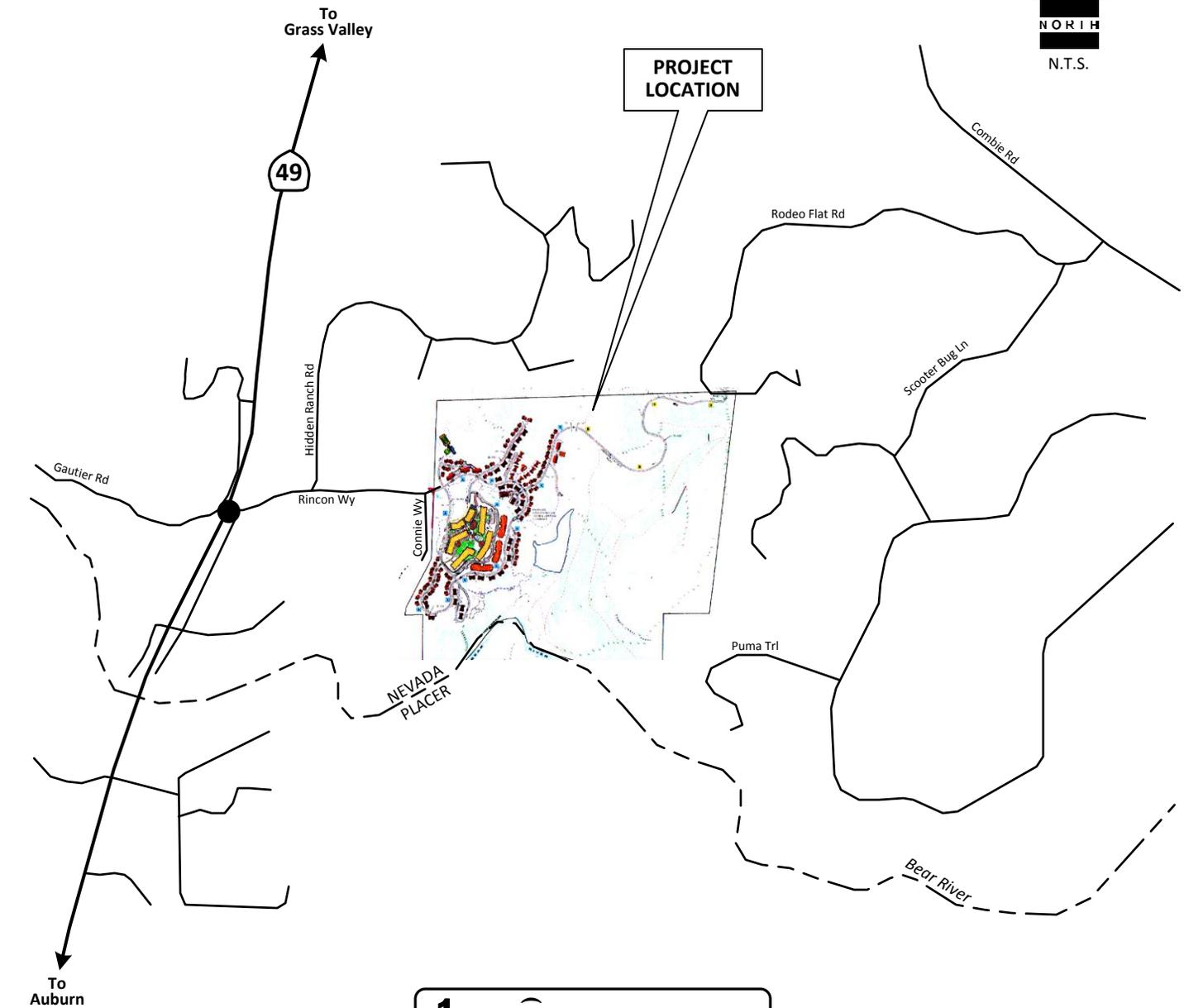
Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street, resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of particular types of accidents. Therefore, if signals are installed where signal warrants are not met, the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signal warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

For the traffic analysis conducted for this traffic impact study, available data are limited to a.m. and p.m. peak hour volumes. Thus, unsignalized intersections operating at poor LOS were evaluated using the Peak Hour Warrant (Warrant Number 3) from the document *Manual on Uniform Traffic Control Devices for Streets and Highways FHWA's MUTCD 2003 Edition, as amended for use in California (CAMUTCD)* (California Department of Transportation 2006). Even if the Peak Hour Warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the eight highest hours of the day, volumes during the four highest hours of the day, pedestrian traffic, and accident histories.

Intersection Levels of Service. Figure 3 presents the a.m. and p.m. peak hour traffic volumes at the study intersection. Traffic counts were conducted in June, 2011 at the SR 49 / Rincon Way intersection. This intersection was selected for analysis based on discussion with County and Caltrans staff. Schools were not in session at the time of the traffic counts. It is not expected that traffic conditions would be substantially higher if schools were in session. This is due to the location of the site, at the south edge of the County, and it's relation to the schools in the vicinity. All of the schools are located north of the project, off of Combie Road and Wolf Road; the rural area south of Rincon Way to the Placer County line will add a minor amount of school-based traffic onto SR 49.

The p.m. counts were also compared to counts conducted in December 2008 at the same intersection, while school was in session. The current 2011 counts show that the northbound movements are lower by about 7% while the southbound counts are higher by about 22%.

Table 2 summarizes current Levels of Service at the study area intersection during the a.m. and p.m. peak hours. As noted in the *Study Area Intersections* section, the westbound approach is wide enough to have right and left turn lanes striped along Rincon Way at SR 49. The LOS analysis assumed this lane configuration although it is currently striped as a single lane. The level of service in both a.m. and p.m. peak hours is adequate at the intersection. The westbound leg operates at LOS B in the a.m. peak hour and LOS C in the p.m. peak hour. The intersection does not meet the peak hour signal warrant.



**TABLE 2
EXISTING PEAK HOUR LEVELS OF SERVICE AT INTERSECTIONS**

Location	Control	AM Peak Hour		PM Peak Hour		Meets Traffic Signal Warrants?	
		LOS	Average Delay (seconds)	LOS	Average Delay (seconds)	Del	Vol
1. SR 49 / Rincon Way	WB Stop					No (No)	No (No)
avg. delay		A	0.1	A	0.2		
SB Left		A	0.0	A	0.1		
WB		B	14.2	C	23.6		

del - peak hour delay warrant

vol – peak hour volume warrant

xx – a.m. (yy) – p.m.

Non-Automobile Transportation

Transit System. Nevada County’s public transit system includes a fixed-route bus service provided by the Gold Country Stage transit service. One route, Gold Country Stage Route 5 provides service to the Lake of the Pines area. This route includes service to Nevada City, Grass Valley and the Auburn multi-modal center at the Amtrak train station. This service runs at approximately two-hour headways. There are no flag-down stops along SR 49 due to safety issues.

Dial-a-ride is available in the county and provides service to the elderly, handicapped and disabled riders on a demand service. Gold County Telecare transports elderly, handicapped and disabled riders.

Bicycle and Pedestrian System. According to the Nevada County General Plan Update Draft Environmental Impact Report, bicycling and walking have not been widely used as transportation modes in Nevada County with the exception of students commuting to school and recreational trips (Nevada County, 1994). Walking and bicycling activity on dedicated facilities are not present in the project area and no existing bikeway or pedestrian facilities were identified within the immediate area of the proposed project.

Rail. While fixed rail service is not provided in Nevada County Amtrak operates Thruway bus service connecting Nevada City, Grass Valley and Lake of the Pines with the ‘Capitol Corridor’ rail service between Auburn and San Jose and the ‘San Joaquins’ rail service that provides service between Emeryville and Bakersfield.

EXISTING PLUS PROJECT IMPACTS

Trip Generation

The development of this project will attract additional traffic to the project site. The amount of additional traffic on a particular section of the street network is dependent upon two factors:

- Trip Generation, the number of new trips generated by the project, and
- Trip Distribution and Assignment, the specific routes that the new traffic takes.

Trip generation is determined by identifying the type and size of land use being developed. Recognized sources of trip generation data may then be used to calculate the total number of trip ends. The trip generation of the project was computed using trip generation rates published in *Trip Generation* (Institute of Transportation Engineers, 8th Edition, 2008) based on the projected use of the site. The project includes development of a continuing care retirement community (CCRC) featuring a variety of independent and supportive living arrangements including independent living, assisted living, nursing care, physical rehabilitation and memory impairment housing. CCRC's are land uses that provide multiple elements of senior adult living. Residents can move from independent living to increased care facilities as lifestyles change with time. CCRC communities may also contain special services such as medical, dining, recreational and limited retail supporting facilities. CCRC's are typically designed as self-contained villages; therefore, related land uses such as senior adult housing, detached and attached, assisted living and nursing homes do not represent the overall composition of the project.

The variable considered to establish trip generation for the project was trip ends per occupied unit. To provide a conservative approach the number of occupied units was equal to the total units proposed for the project. The project will provide housing for about 415 residents in 345 attached and detached housing units on 40 acres of the CCRC site clustered along the west side of the 210 acre site. Table 3 presents daily, a.m. and p.m. peak hour trip generation estimates for the project. The project is expected to generate 969 daily trips with 62 a.m. peak hour trips and 100 p.m. peak hour trips generated.

**TABLE 3
PROJECT TRIP GENERATION**

Land Use	Size	Trip Rates				
		Daily	AM		PM	
Continuing Care Retirement Community (LU 255)	345 units	2.81	0.18		0.29	
			In	Out	In	Out
			64%	36%	48%	52%
Total New Trips		969	40	22	48	52

Trip Distribution

Public access to the site will be along Rincon Way from SR 49. Trip distribution under existing conditions was based on review of existing traffic counts along SR 49 and existing traffic to and from Rincon Way, on locations of trip origins for inbound traffic and on possible destinations of outbound traffic.

Typical origin trips are expected to include, but not be limited to residents, employees of the site, including the acute care facilities and facilities maintenance, and mail and delivery services throughout the day. The CCRC residents will have a wide range of ambulatory skills. It is not unreasonable that the trip distribution could be similar in the near term to the existing trip distribution. Typical destination trips would include medical appointments and shopping. It is projected that more traffic will arrive and depart to the south in the a.m. peak hour while in the p.m. peak hour traffic will be about evenly split between the north and south. The a.m. peak hour is expected to have more employee related trips while the p.m. peak hour will have both employee and resident related trips. Resident related trips would include shopping, medical appointments and recreational activities such as golfing. 74% of the trips in the a.m. are projected to be to the south while in the p.m. peak hour 51% of the trips will be to and from the north.

Table 4 provides the projected trip distribution for the project under current conditions during the peak periods.

**TABLE 4
PROJECT TRIP DISTRIBUTION**

Route	% of Total	
	A.M.	P.M.
North on SR 49	26%	51%
South on SR 49	74%	49%
Total	100%	100%

Trip Assignment

Traffic generated by the project is shown in Figure 4. This traffic was then added to existing peak hour volumes based on the distribution percentages. Figure 5 displays the Existing Plus Project generated traffic anticipated for each study intersection in both a.m. and p.m. peak hours.

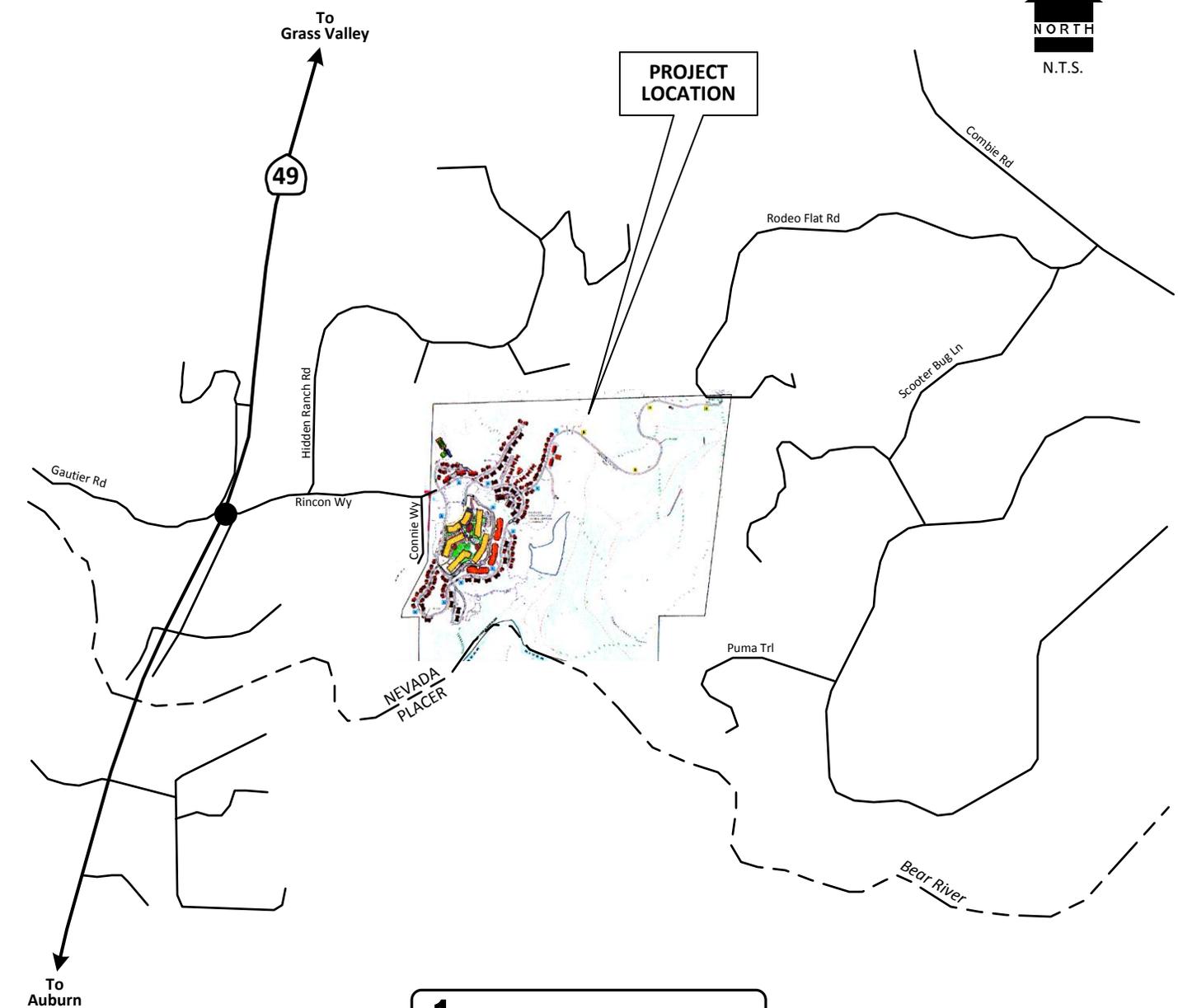
Existing Plus Project Conditions

The impacts of developing the project have been identified by superimposing project traffic onto existing background conditions. Resulting intersection Levels of Service were then calculated and used as the basis for evaluating potential project impacts.

Intersection Levels of Service. Table 5 displays the a.m. and p.m. peak hour Levels of Service at the study intersection with and without the project. The SR 49 / Rincon Way intersection will continue to operate within the accepted Caltrans LOS threshold, but will operate below the County LOS threshold. The intersection will operate with the westbound approach at LOS B in the a.m. peak hour and LOS D in the p.m. peak hour. The intersection will continue to not meet the peak hour signal warrant.

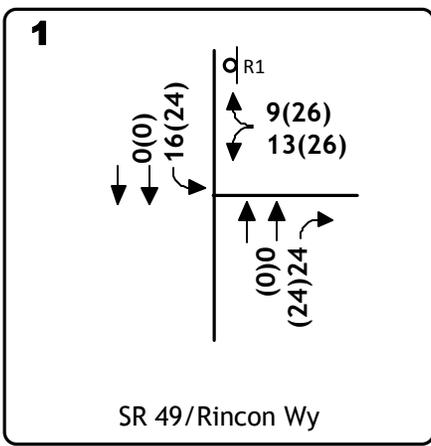


PROJECT LOCATION



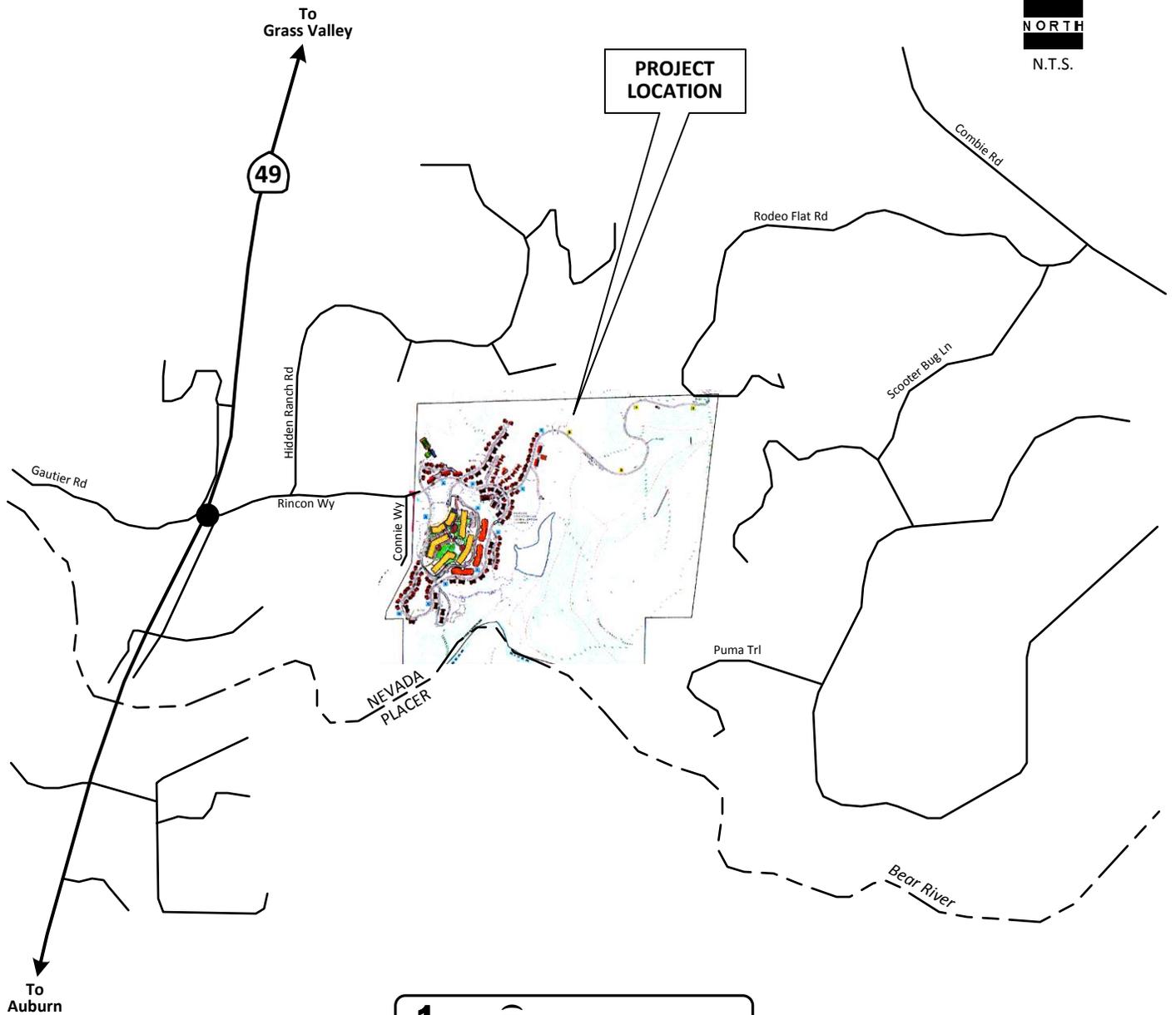
Legend

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊥ dR1 Stop Sign



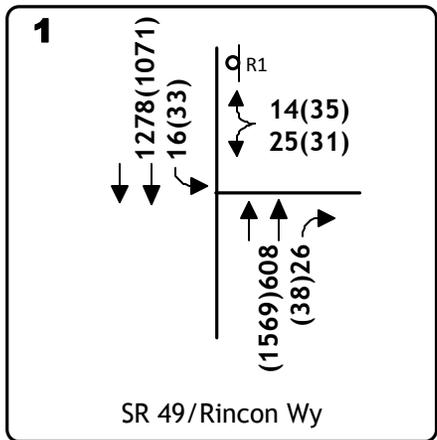


PROJECT LOCATION



Legend

- ↔ XX AM Peak Hour Volume
- ↔ (XX) PM Peak Hour Volume
- ⊥ d_{R1} Stop Sign



**EXISTING PLUS PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS**

**TABLE 5
PEAK HOUR INTERSECTION LEVELS OF SERVICE
EXISTING PLUS PROJECT CONDITIONS**

Location	Control	Existing				Existing Plus Project				Meets Traffic Signal Warrants?	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Del	Vol
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay		
1. SR 49 / Rincon Way avg. delay SB Left WB	WB Stop	A	0.1	A	0.2	A	0.3	A	0.9	No (No)	No (No)
		A	0.0	A	0.1	A	0.1	A	0.5		
		B	14.2	C	23.6	B	14.9	D	30.3		

del - peak hour delay warrant

vol - peak hour volume warrant

xx - a.m. (yy) - p.m.

FUTURE IMPACTS

Background Traffic Volume Forecasts

Future volumes were developed based on the most recent Nevada County Transportation Commission (NCTC) traffic model and the Higgins Marketplace traffic study completed in 2009.

The traffic model considers buildout to 2030. Future traffic volumes along SR 49 included development of the Marketplace project and the Tintle property southeast of the Marketplace site. The Higgins Marketplace study removed traffic generated by the previous zoning and manually added the projected Marketplace trips. Traffic volumes along SR 49 at Rincon Way were based upon the growth rates for the SR 49 / Streeter Road intersection. This intersection was the southernmost intersection studied for Higgins Marketplace, and the growth rates determined for this intersection along SR 49 were applied to the a.m. and p.m. peak hours at Rincon Way.

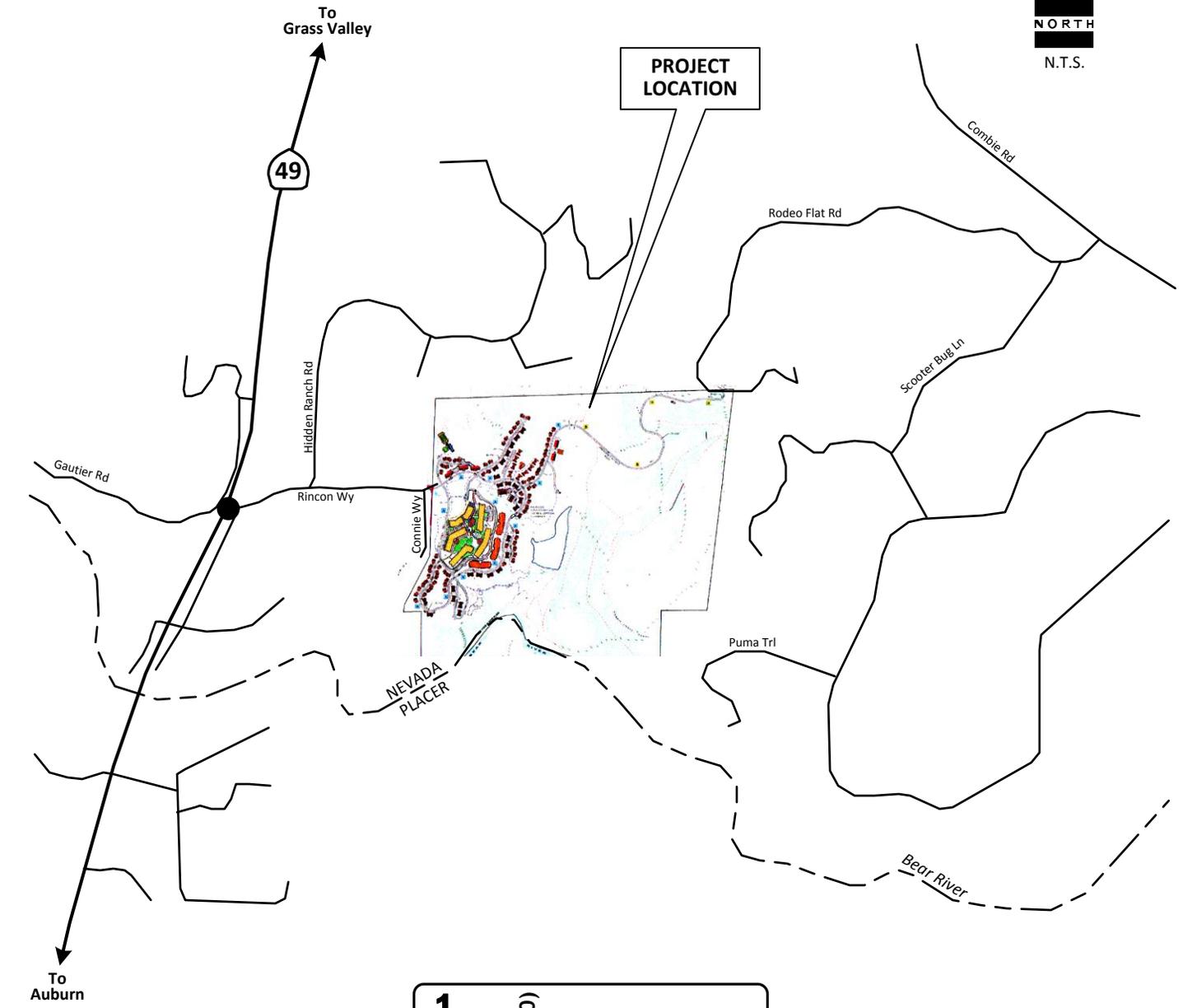
Future traffic projections along Rincon Way were based on the assumed full development of the area; this included development of the existing AG-5 lands with access to SR 49 via Rincon Way. The surrounding undeveloped AG-5 area is comprised of about 70 acres; this would develop 14 single family residences and was confirmed by the County. Trip generation for these 14 additional residential units was completed based on ITE *Trip Generation* and is shown in Table 6. 134 daily trips, 11 peak a.m. trips and 14 peak p.m. trips are projected to be added along Rincon Way.

**TABLE 6
FUTURE DEVELOPMENT TRIP GENERATION**

Land Use	Size	Trip Rates				
		Daily	AM		PM	
AG-5 (Single Family Residential)- LU 210)	14 units	9.57	0.75		1.01	
			In 25%	Out 75%	In 63%	Out 37%
		Trips Generated				
Total New Trips		134	3	8	9	5

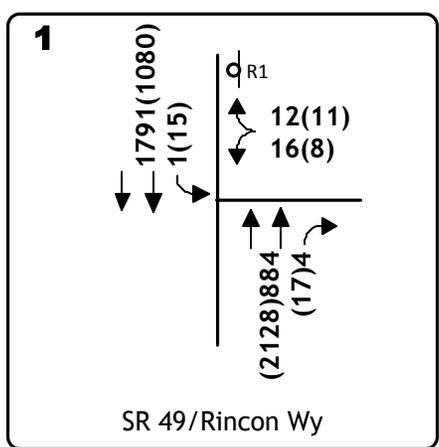
Future Traffic Conditions

Intersection Levels of Service. Figure 6 displays the Future traffic volumes for the study intersection. No roadway improvements are expected at the intersection. Table 7 displays the a.m. and p.m. peak hour Levels of Service at the SR 49 / Rincon Way intersection under the future conditions. The intersection is projected to operate with the westbound approach at LOS C in the a.m. peak hour and LOS E in the p.m. peak hour. The intersection will not meet the peak hour signal warrant.



Legend

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊓ qR1 Stop Sign



**TABLE 7
AM / PM PEAK HOUR INTERSECTION LEVELS OF SERVICE
FUTURE CONDITIONS**

Location	Control	AM Peak Hour Future		PM Peak Hour Future		Meets Traffic Signal Warrants?	
		LOS	Average Delay	LOS	Average Delay	Del	Vol
1. SR 49 / Rincon Way	WB Stop					No (No)	No (No)
avg. delay		A	0.2	A	0.4		
SB Left		B	10.1	C	23.3		
WB		C	17.5	E	47.0		

del - peak hour delay warrant

vol - peak hour volume warrant

xx - a.m. (yy) - p.m.

Future Plus Project Conditions

The impacts of developing the proposed uses on the project site were identified by superimposing project traffic onto the Future conditions.

Trip Distribution

Traffic to and from the site will continue to be via SR 49 and Rincon Way. The trip distribution under future conditions is expected to change based on commercial development north of the project site attracting trips. While many of the destinations trips will be maintained to the south new destinations including Higgins Marketplace will be constructed to the north. Table 8 provides the projected trip distribution for the project during the peak periods.

**TABLE 8
FUTURE PROJECT TRIP DISTRIBUTION**

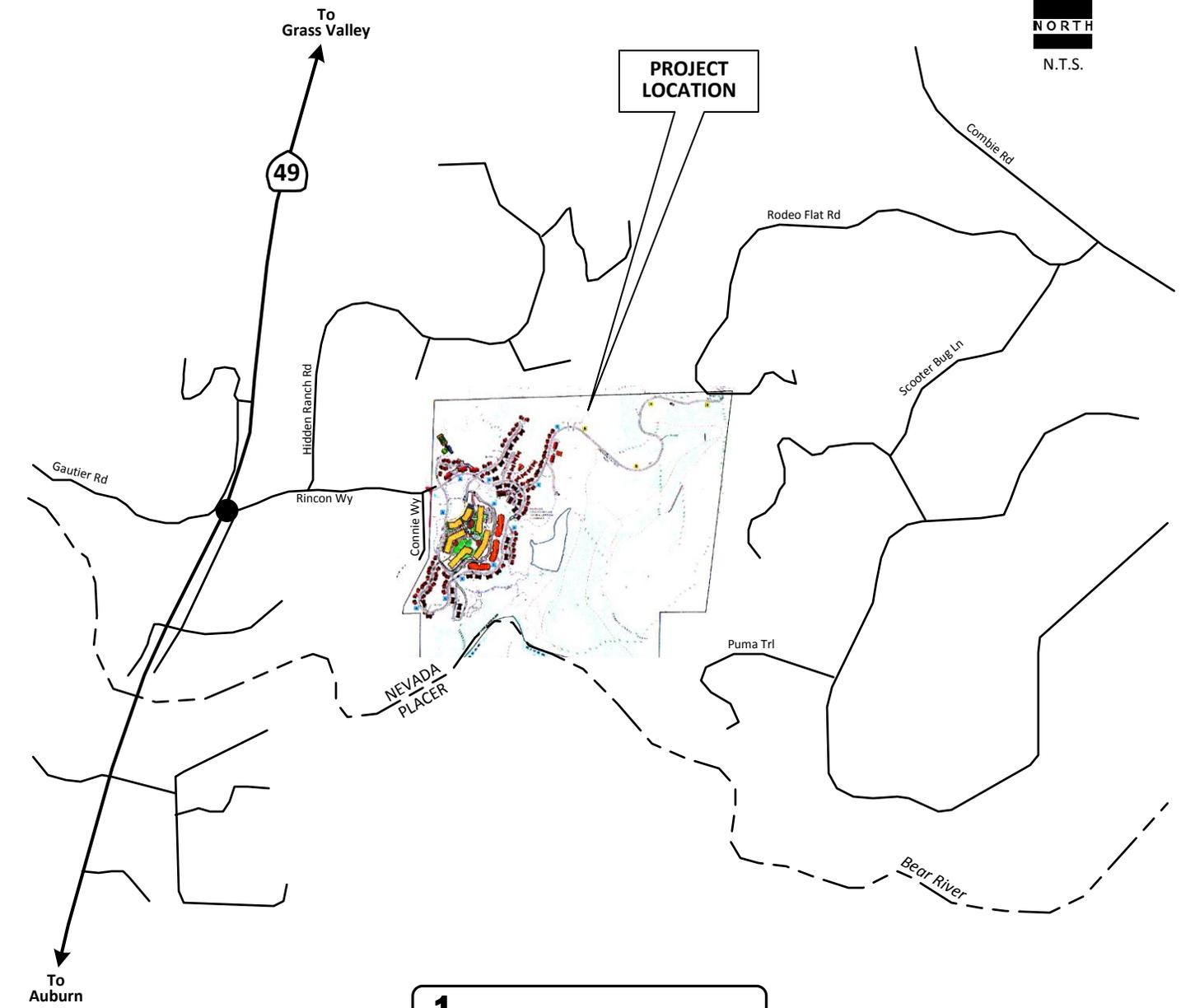
Route	% of Total	
	A.M.	P.M.
North on SR 49	40%	50%
South on SR 49	60%	50%
Total	100%	100%

Trip Assignment

Traffic generated by the project is shown in Figure 7. This traffic was then added to existing peak hour volumes based on the future distribution percentages. Figure 8 displays the Future Plus Project generated traffic anticipated for the study intersection in both a.m. and p.m. peak hours.

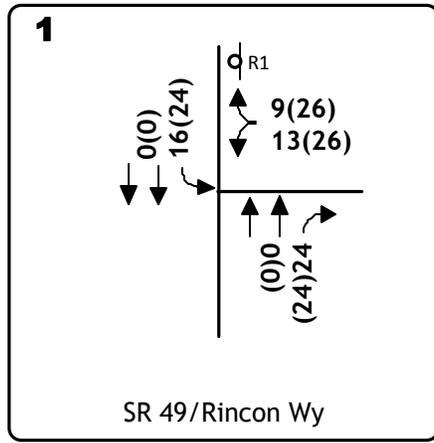
Intersection Levels of Service. Table 9 displays the a.m. and p.m. peak hour Levels of Service at the SR 49 / Rincon Way intersection with the project fully developed. Under this scenario the study intersection will operate with the westbound approach at LOS C in the a.m. peak hour and LOS F in the p.m. peak hour. The intersection will not meet the peak hour signal warrant.

As noted earlier a traffic impact can be considered "adverse but not significant" if the LOS standard is exceeded but the projected traffic does not satisfy traffic signal warrants. Under these conditions, the only means to completely alleviate delays to stop controlled vehicles would be to install a traffic signal. The projected volumes along northbound SR 49 in the project vicinity will be significant so that side street traffic may have difficulty entering the traffic flow during the pm. peak hour; however, the unmet signal warrant implies that the reduction in delay for the stop-controlled vehicles along Rincon Way would not justify the new delays that would be incurred by the SR 49 traffic which is not currently stopped.



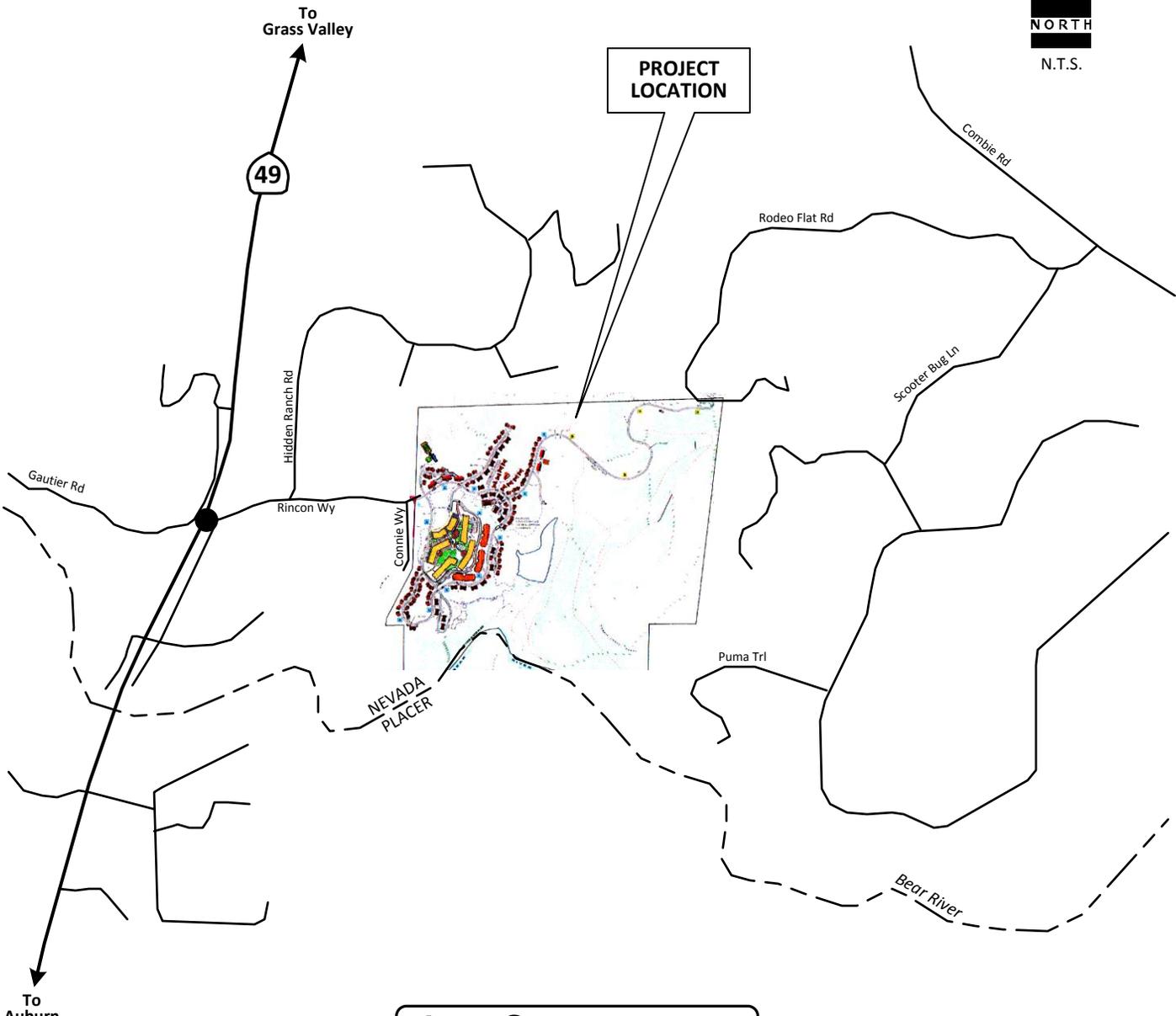
Legend

- ↔ XX AM Peak Hour Volume
- ↔ (XX) PM Peak Hour Volume
- ⊓ dR1 Stop Sign



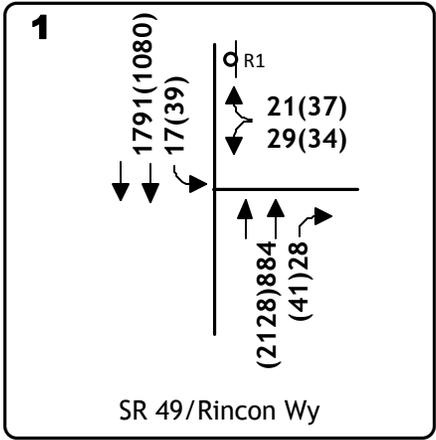


PROJECT LOCATION



Legend

- ↙ XX AM Peak Hour Volume
- ↘ (XX) PM Peak Hour Volume
- ⊓ qR1 Stop Sign



**TABLE 9
PEAK HOUR INTERSECTION LEVELS OF SERVICE
FUTURE PLUS PROJECT CONDITIONS**

Location	Control	Future				Future Plus Project				Meets Traffic Signal Warrants?	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Del	Vol
		LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay		
1. SR 49 / Rincon Way	WB Stop									No (No)	No (No)
avg. delay		A	0.2	A	0.4	A	0.4	A	2.0		
SB Left		B	10.1	C	23.3	B	10.2	D	26.1		
WB		C	17.5	E	47.0	C	18.8	F	82.5		

del - peak hour delay warrant

vol - peak hour volume warrant

xx - a.m. (yy) - p.m.

KDA

QUEUING

A queuing analysis using Synchro software was conducted along the southbound left turn lane and westbound approach of the SR 49 / Rincon Way intersection. The existing southbound left turn lane is about 500' while Rincon Way is currently striped as a single lane. Queues were also considered at the Rincon Way / SR 49 Frontage Road intersection, about 65' feet east of the main intersection. For analysis purposes the existing acceleration lane for westbound to southbound traffic was assumed to store two vehicles at any time. This allows vehicles leaving Rincon Way to complete the movement into the southbound through traffic lanes in two movements, the first across northbound traffic and the second, the merge into the southbound traffic flow.

A 95% confidence level was used, meaning that the forecast queue length should be exceeded only 5% of the time. Table 10 shows the projected queues under each scenario. Under each scenario except the Future plus Project p.m. peak hour, the projected queue for each of the movements is less than 25'; the westbound approach of Rincon Way at SR 49 has a projected queue of 26'. The projected queue along the westbound Rincon Way approach during the p.m. peak hour in the Future plus Project conditions indicate a queue of 82'; this would be about 3 to 4 vehicles. Traffic along the frontage road is minimal, and there does not appear to be any issues with traffic blocking the intersection while queuing to enter SR 49.

**TABLE 10
PROJECTED QUEUES**

Location	Existing		Existing + Project		Future		Future + Project	
	AM	PM	AM	PM	AM	PM	AM	PM
1. SR 49 / Rincon Way								
SB Left	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
WB	<25'	<25'	<25'	26'	<25'	<25'	<25'	82'
2. Rincon Way / SR 49 Frontage								
NB	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'
WB Left	<25'	<25'	<25'	<25'	<25'	<25'	<25'	<25'

TRAFFIC SAFETY

Collision History

In 2004 SR 49 was widened between Bear River Bridge and Combie Road – Wolf Road; the Rincon Del Rio project and Rincon Way are about ½ mile north of the Bear River Bridge. The project widened SR 49 to five lanes within the corridor. Additionally, a left turn lane, a short acceleration lane for southbound traffic and a northbound right turn lane was added at the Rincon Way intersection to improve safety within the corridor.

A review of the past three years of collision data was conducted to determine whether any collision types are prevalent at the SR 49 / Rincon Way intersection. Data was provided from the California Highway Patrol for the period from January 2007 through available 2010 and 2011 data. The data was provided between postmiles 0.275 and 0.653 in Nevada County. This is approximately 1,000 feet south of Rincon Way to approximately 1,000' north of Rincon Way.

Table 11 provides a synopsis of the collision history in the project vicinity. One reported collisions was identified during review of the data which occurred in November 2009 around 6:00 a.m. The collision involved a southbound vehicle and an animal just north of the Rincon Way intersection. No roadway or vehicle factors were associated with the collision.

**TABLE 11
COLLISION HISTORY (JANUARY 2007 THROUGH AVAILABLE 2011)**

No.	Location	Collision Type	Direction (Primary Collision Factor)	Other Factors
1	SR 49 100' north of Rincon Way	Other - Animal	South (Not Drive)	Dark / No Unusual Roadway Conditions

Sight Distance

A sight distance analysis was completed for intersecting roads along Rincon Way between SR 49 and the project entrance. Two intersections were evaluated, Hidden Ranch Road located about midway between SR 49 and the project site and Connie Court, located at the entrance to the project.

Available sight distance was evaluated for the existing intersection using the standards documented in the Caltrans *Highway Design Manual* (HDM). The most significant evaluation parameter is the availability of "**Minimum Safe Stopping Distance**" (MSSD). This criterion is documented in Table 201.1 of the Highway Design Manual and suggests the minimum sight distance that must be available for a motorist to perceive a hazard in the road and come to a stop.

The speed along Rincon Way is a prima facie 25 mph. The minimum sight distance standard for this speed is 150'. Rincon Way is generally an uphill grade from SR 49 to the project site. The Hidden Ranch Road intersection is located on a generally flat segment of the roadway. The north side of Hidden Ranch Road has a slight skew towards SR 49 with a large radius curve of about 100' in the northwest quadrant. The roadway is about 18' wide. The northeast quadrant has a smaller radius curve of about 25'. Visibility along Hidden Ranch Road looking east on Rincon Way is hindered due to existing vegetation along the northeast side of the intersection extending about 150' east of the intersection. The additional traffic generated by the project will add more trips along Rincon Way, further necessitating a clear line of sight at the intersection. Hidden Ranch Road is about 28' wide south of Rincon Way and enters the intersection at a slight skew, similar to the north side. Traffic heading to SR 49 appears to have a clear line of sight when entering Rincon Way.

A second intersection, Rincon Way at Connie Court was also reviewed with regard to sight distance criteria. Connie Court tees into Rincon Way at the entrance to the Rincon Del Rio site. Under existing conditions there appears to be adequate sight distance at a 25 mph design speed. The project is likely to modify the intersection with the completion of the project entrance. During design the sight distance standards should be re-evaluated to ensure changes in the roadway segments do not negatively impact sight lines. Sight distance standards identified in the Caltrans Highway Design Manual should be met.

EMERGENCY VEHICLE ACCESS

The Rincon Del Rio site will have a single public access connecting to SR 49 via Rincon Way. A second emergency vehicle access, which will be gated, has been identified along Rodeo Flat Road. Rodeo Flat Road provides access to single family houses beginning at Combie Road and extends to its terminus at the northeast corner of the project site. Rodeo Flat Road appears to approach a 16% grade at several locations along the road. The project proposes to extend the road onto the Rincon Del Rio site, providing the gated access for emergency vehicle traffic. The project applicant has filed a *Road Grade Exception* request for this emergency vehicle access.

The emergency vehicle access (EVA) will provide emergency access for two directions. First, EVA access can occur via Rincon Way from SR 49 or via Rodeo Flat Road from Combie Road, depending on the responder's location. Second, the EVA can provide a secondary access to SR 49 should evacuation of the Lake of the Pines community be required during a catastrophic event. Traffic would proceed from Combie Road, along Rodeo Flat Road, and through Rincon Del Rio to access SR 49.

FINDINGS / RECOMMENDATIONS / MITIGATIONS

The preceding analysis has identified project impacts that may occur without mitigation. The text that follows identifies a strategy for mitigating the impacts of the proposed project. Recommendations are identified for facilities that require mitigation but are not a result of the proposed project. If the project causes a significant impact, mitigations are identified for the facility.

Existing Conditions

The SR 49 / Rincon Way intersection currently operates at acceptable levels of service. No recommendations are necessary.

Existing plus Project Conditions

The SR 49 / Rincon Way intersection will operate within the accepted Caltrans threshold under project conditions; however, it will not operate within the County Rural LOS threshold. The SR 49 / Rincon Way intersection will operate with the westbound approach at an LOS D condition in the p.m. peak hour. The intersection will not meet the peak hour warrant. A traffic impact can be considered adverse but not significant if the agency LOS is exceeded but the projected traffic does not satisfy traffic signal warrants. Under Existing plus Project conditions the westbound approach will operate under adverse conditions as the LOS is exceeded along the minor leg, i.e. Rincon Way, but the intersection will not meet the peak hour signal warrant. This adverse condition is not considered a significant impact as the installation of an unwarranted signal is not a recommended mitigation.

The project should contribute its fair share to the cost of regional circulation system improvements through the existing Nevada County traffic mitigation fee program.

The following mitigations should be undertaken as part of this project:

- **Restripe Rincon Way at SR 49.** Westbound Rincon Way should be striped to include dedicated left and right turn lanes. This will provide positive guidance for motorists queuing along Rincon Way while waiting to enter the northbound or southbound SR 49 traffic flow.
- **Improve Sight Distance at Rincon Way / Hidden Ranch Road.** A clear line of sight shall be provided for traffic at the Rincon Way / Hidden Ranch Road intersection; currently, sight distance in the northeast quadrant is limited due to vegetation blocking the sight line looking from Hidden Ranch Road east along Rincon Way. A minimum 150' sight line should be provided meeting stopping sight distance standards identified in the Caltrans Highway Design Manual.

- **Verify Sight Lines at Rincon Way / Connie Court intersection.** The project is likely to modify the Rincon Way / Connie Court intersection with the completion of the project entrance. During design the sight distance standards should be re-evaluated to ensure changes in the roadway segments meet sight distance standards identified in the Caltrans Highway Design Manual.

Future Conditions

The SR 49 / Rincon Way intersection will operate with the westbound approach at LOS E conditions in the p.m. peak hour under future conditions without the project. The intersection will not meet the peak hour signal warrant.

Future plus Project Conditions

The SR 49 / Rincon Way intersection will operate with the westbound approach at an LOS F condition in the p.m. peak hour. The intersection will not meet the peak hour warrant. As identified earlier a traffic impact can be considered adverse but not significant if the agency LOS is exceeded but the projected traffic does not satisfy traffic signal warrants. Under Future plus Project conditions the westbound approach will operate under adverse conditions as the LOS is exceeded along the minor leg, i.e. Rincon Way, and the intersection will not meet the peak hour signal warrant. This adverse condition is not considered a significant impact as the installation of an unwarranted signal is not a recommended mitigation.

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Personal Communications

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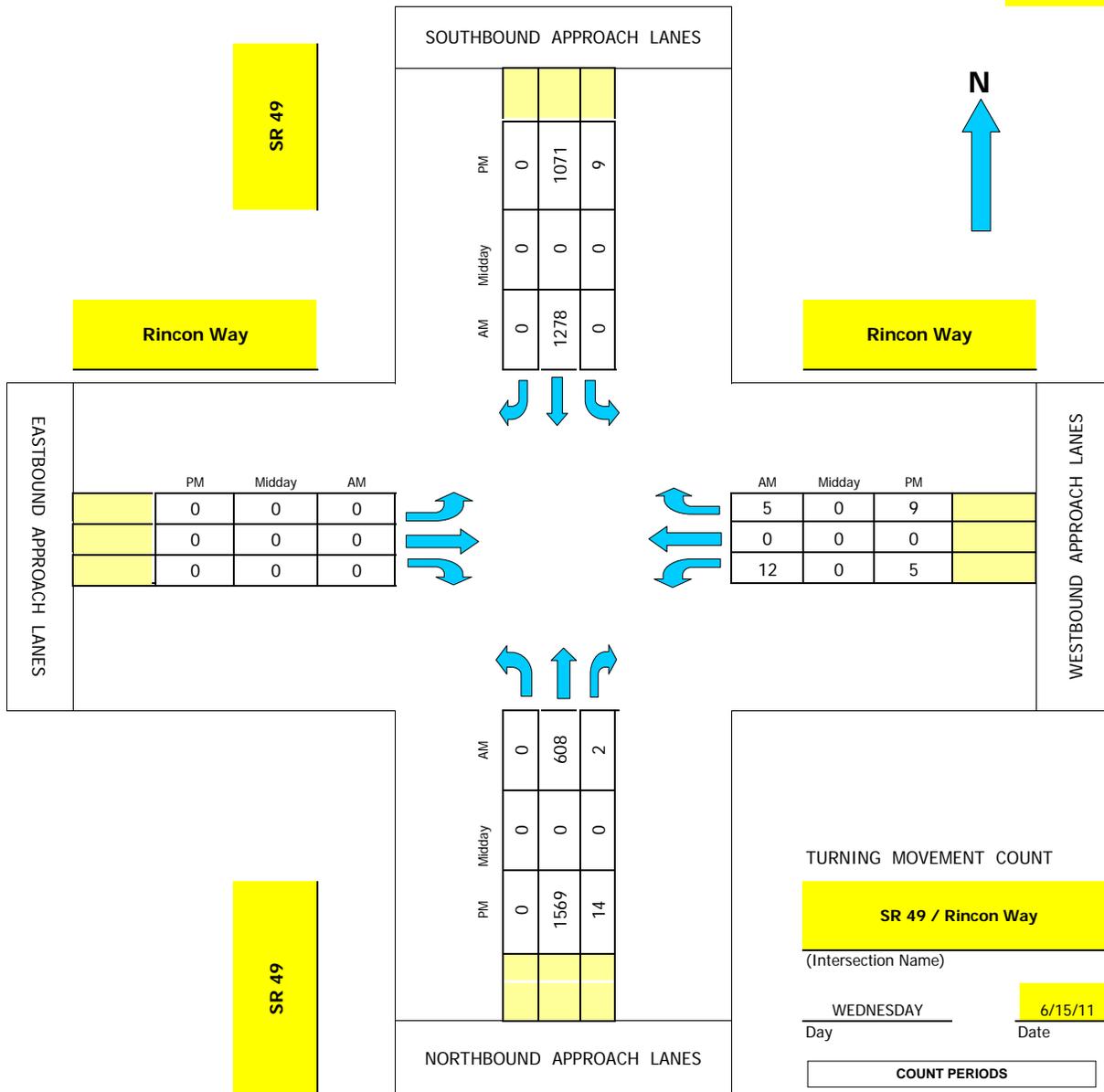
APPENDIX

Intersection Turning Movement

Prepared by:
KD Anderson Associates, Inc.

TMC Summary of SR 49/Rincon Way

Project #: 5480-31



AM PEAK HOUR 715 AM

NOON PEAK HOUR 0 AM

PM PEAK HOUR 500 PM

Intersection Turning Movement

Prepared by:

N-S STREET: SR 49

DATE: 6/15/11

LOCATION: Auburn

E-W STREET: Rincon Way

DAY: WEDNESDAY

PROJECT# 5480-31

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM		120	1	0	263					2		0	386
7:15 AM		159	0	0	329					5		2	495
7:30 AM		148	0	0	319					0		1	468
7:45 AM		153	1	0	348					4		2	508
8:00 AM		148	1	0	282					3		0	434
8:15 AM		160	0	0	302					2		0	464
8:30 AM		140	1	0	289					3		0	433
8:45 AM		157	1	1	289					3		3	454
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
TOTAL VOLUMES =	0	1185	5	1	2421	0	0	0	0	22	0	8	3642

AM Peak Hr Begins at: 7:15 AM

PEAK VOLUMES =	0	608	2	0	1278	0	0	0	0	12	0	5	1905
PEAK HR. FACTOR:		0.959			0.918			0.000			0.607		0.938

CONTROL:

Intersection Turning Movement

Prepared by:

N-S STREET: SR 49

DATE: 6/15/11

LOCATION: Auburn

E-W STREET: Rincon Way

DAY: WEDNESDAY

PROJECT# 5480-31

LANES:	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM		330	2	1	240					1		0	574
4:15 PM		400	1	2	249					4		2	658
4:30 PM		396	3	2	243					0		4	648
4:45 PM		356	2	5	243					1		3	610
5:00 PM		415	4	4	291					1		1	716
5:15 PM		378	3	2	238					0		3	624
5:30 PM		375	5	1	316					1		2	700
5:45 PM		401	2	2	226					3		3	637
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL VOLUMES =	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3051	22	19	2046	0	0	0	0	11	0	18	5167

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES =	0	1569	14	9	1071	0	0	0	0	5	0	9	2677
PEAK HR. FACTOR:		0.945			0.852			0.000			0.583		0.935

CONTROL:

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Exist AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				12		5		608	2	0	1278	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				13		5		661	2	0	1389	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				1355		330				661		
vC1, stage 1 conf vol				661								
vC2, stage 2 conf vol				695								
vCu, unblocked vol				1355		330				661		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				96		99				100		
cM capacity (veh/h)				349		665				923		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	18	330	330	2	0	695	695
Volume Left	13	0	0	0	0	0	0
Volume Right	5	0	0	2	0	0	0
cSH	494	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.19	0.19	0.00	0.00	0.41	0.41
Queue Length 95th (ft)	3	0	0	0	0	0	0
Control Delay (s)	14.2	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	14.2	0.0			0.0		
Approach LOS	B						

Intersection Summary		
Average Delay		0.1
Intersection Capacity Utilization	45.3%	ICU Level of Service
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Exist AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		2	0	0	14		3		0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		2	0	0	15		3		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				2			17		2			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				2			17		2			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			100		100			
cM capacity (veh/h)				1620			1001		1082			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	15	3
Volume Left	0	0	3
Volume Right	0	0	0
cSH	1700	1620	1001
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.6
Approach LOS			A

Intersection Summary

Average Delay	1.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Exist PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				5		9		1569	14	9	1071	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				5		10		1705	15	10	1164	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				2307		853				1705		
vC1, stage 1 conf vol				1705								
vC2, stage 2 conf vol				602								
vCu, unblocked vol				2307		853				1705		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				96		97				97		
cM capacity (veh/h)				125		303				369		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	15	853	853	15	10	582	582
Volume Left	5	0	0	0	10	0	0
Volume Right	10	0	0	15	0	0	0
cSH	351	1700	1700	1700	369	1700	1700
Volume to Capacity	0.04	0.50	0.50	0.01	0.03	0.34	0.34
Queue Length 95th (ft)	3	0	0	0	2	0	0
Control Delay (s)	23.6	0.0	0.0	0.0	15.0	0.0	0.0
Lane LOS	C				C		
Approach Delay (s)	23.6	0.0			0.1		
Approach LOS	C						

Intersection Summary

Average Delay	0.2						
Intersection Capacity Utilization	53.4%	ICU Level of Service					A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Exist PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		23	0	0	14				0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		25	0	0	15		0		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				25			40		25			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				25			40		25			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			100		100			
cM capacity (veh/h)				1589			971		1051			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	25	15	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1589	1700
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		6.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

Exist plus Project AM

1: Rincon Way & SR 49

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				28		11		608	32	10	1278	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				30		12		661	35	11	1389	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				1377		330				661		
vC1, stage 1 conf vol				661								
vC2, stage 2 conf vol				716								
vCu, unblocked vol				1377		330				661		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				91		98				99		
cM capacity (veh/h)				341		665				923		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	330	330	35	11	695	695
Volume Left	30	0	0	0	11	0	0
Volume Right	12	0	0	35	0	0	0
cSH	474	1700	1700	1700	923	1700	1700
Volume to Capacity	0.09	0.19	0.19	0.02	0.01	0.41	0.41
Queue Length 95th (ft)	7	0	0	0	1	0	0
Control Delay (s)	14.9	0.0	0.0	0.0	8.9	0.0	0.0
Lane LOS	B				A		
Approach Delay (s)	14.9	0.0			0.1		
Approach LOS	B						

Intersection Summary

Average Delay	0.3						
Intersection Capacity Utilization	45.3%	ICU Level of Service					A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Exist plus Project AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		42	0	0	36				0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		46	0	0	39		3		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				46			85		46			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				46			85		46			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			100		100			
cM capacity (veh/h)				1562			917		1024			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	46	39	3
Volume Left	0	0	3
Volume Right	0	0	0
cSH	1700	1562	917
Volume to Capacity	0.03	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary		
Average Delay		0.3
Intersection Capacity Utilization	13.3%	ICU Level of Service
Analysis Period (min)		15

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Exist plus Project PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				30		36		1569	38	33	1071	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				33		39		1705	41	36	1164	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				2359		853				1705		
vC1, stage 1 conf vol				1705								
vC2, stage 2 conf vol				654								
vCu, unblocked vol				2359		853				1705		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				74		87				90		
cM capacity (veh/h)				124		303				369		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	72	853	853	41	36	582	582
Volume Left	33	0	0	0	36	0	0
Volume Right	39	0	0	41	0	0	0
cSH	272	1700	1700	1700	369	1700	1700
Volume to Capacity	0.26	0.50	0.50	0.02	0.10	0.34	0.34
Queue Length 95th (ft)	26	0	0	0	8	0	0
Control Delay (s)	30.3	0.0	0.0	0.0	15.8	0.0	0.0
Lane LOS	D				C		
Approach Delay (s)	30.3	0.0			0.5		
Approach LOS	D						

Intersection Summary

Average Delay	0.9						
Intersection Capacity Utilization	53.4%	ICU Level of Service					A
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Exist plus Project PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		71	0	0	66				0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		77	0	0	72		0		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				77			149		77			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				77			149		77			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			100		100			
cM capacity (veh/h)				1521			843		984			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	77	72	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1521	1700
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		7.1%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Future AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				16		12		884	4	1	1791	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				17		13		961	4	1	1947	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				1936		480				961		
vC1, stage 1 conf vol				961								
vC2, stage 2 conf vol				976								
vCu, unblocked vol				1936		480				961		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				93		98				100		
cM capacity (veh/h)				233		532				712		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	30	480	480	4	1	973	973
Volume Left	17	0	0	0	1	0	0
Volume Right	13	0	0	4	0	0	0
cSH	407	1700	1700	1700	712	1700	1700
Volume to Capacity	0.07	0.28	0.28	0.00	0.00	0.57	0.57
Queue Length 95th (ft)	6	0	0	0	0	0	0
Control Delay (s)	17.5	0.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	17.5	0.0			0.0		
Approach LOS	C						

Intersection Summary

Average Delay	0.2						
Intersection Capacity Utilization	59.5%	ICU Level of Service					B
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Future AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		5	0	0	23		5		0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		5	0	0	25		5		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				5			30		5			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				5			30		5			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			99		100			
cM capacity (veh/h)				1616			984		1078			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	5	25	5
Volume Left	0	0	5
Volume Right	0	0	0
cSH	1700	1616	984
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary

Average Delay		1.3		
Intersection Capacity Utilization		13.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Future PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				8		11		2128	17	15	1080	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				9		12		2313	18	16	1174	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				2933		1157				2313		
vC1, stage 1 conf vol				2313								
vC2, stage 2 conf vol				620								
vCu, unblocked vol				2933		1157				2313		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				85		94				92		
cM capacity (veh/h)				59		190				213		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	21	1157	1157	18	16	587	587
Volume Left	9	0	0	0	16	0	0
Volume Right	12	0	0	18	0	0	0
cSH	139	1700	1700	1700	213	1700	1700
Volume to Capacity	0.15	0.68	0.68	0.01	0.08	0.35	0.35
Queue Length 95th (ft)	13	0	0	0	6	0	0
Control Delay (s)	47.0	0.0	0.0	0.0	23.3	0.0	0.0
Lane LOS	E				C		
Approach Delay (s)	47.0	0.0			0.3		
Approach LOS	E						

Intersection Summary

Average Delay	0.4						
Intersection Capacity Utilization	68.8%	ICU Level of Service					C
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Future PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		32	0	0	16		3		0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		35	0	0	17		3		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				35			52		35			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				35			52		35			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			100		100			
cM capacity (veh/h)				1577			956		1038			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	17	3
Volume Left	0	0	3
Volume Right	0	0	0
cSH	1700	1577	956
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

Intersection Summary

Average Delay		0.5	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Future + Project AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				29		21		884	28	17	1791	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				32		23		961	30	18	1947	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				1971		480				961		
vC1, stage 1 conf vol				961								
vC2, stage 2 conf vol				1010								
vCu, unblocked vol				1971		480				961		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				86		96				97		
cM capacity (veh/h)				224		532				712		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	54	480	480	30	18	973	973
Volume Left	32	0	0	0	18	0	0
Volume Right	23	0	0	30	0	0	0
cSH	386	1700	1700	1700	712	1700	1700
Volume to Capacity	0.14	0.28	0.28	0.02	0.03	0.57	0.57
Queue Length 95th (ft)	12	0	0	0	2	0	0
Control Delay (s)	18.8	0.0	0.0	0.0	10.2	0.0	0.0
Lane LOS	C				B		
Approach Delay (s)	18.8	0.0			0.1		
Approach LOS	C						

Intersection Summary

Average Delay	0.4						
Intersection Capacity Utilization	59.5%	ICU Level of Service					B
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Future + Project AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		45	0	0	45				0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		49	0	0	49		5		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				49			98		49			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				49			98		49			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			99		100			
cM capacity (veh/h)				1558			901		1020			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	49	49	5
Volume Left	0	0	5
Volume Right	0	0	0
cSH	1700	1558	901
Volume to Capacity	0.03	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	9.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.0
Approach LOS			A

Intersection Summary

Average Delay		0.5	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 1: Rincon Way & SR 49

Future + Project PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes				1		1		2	1	1	2	
Sign Control				Stop				Free			Free	
Grade				0%				0%			0%	
Volume (veh/h)				34		37		2128	41	39	1080	
Peak Hour Factor				0.92		0.92		0.92	0.92	0.92	0.92	
Hourly flow rate (vph)				37		40		2313	45	42	1174	
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						3						
Median type				TWLTL								
Median storage (veh)				2								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				2985		1157				2313		
vC1, stage 1 conf vol				2313								
vC2, stage 2 conf vol				672								
vCu, unblocked vol				2985		1157				2313		
tC, single (s)				6.8		6.9				4.1		
tC, 2 stage (s)				5.8								
tF (s)				3.5		3.3				2.2		
p0 queue free %				37		79				80		
cM capacity (veh/h)				58		190				213		

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	77	1157	1157	45	42	587	587
Volume Left	37	0	0	0	42	0	0
Volume Right	40	0	0	45	0	0	0
cSH	122	1700	1700	1700	213	1700	1700
Volume to Capacity	0.63	0.68	0.68	0.03	0.20	0.35	0.35
Queue Length 95th (ft)	82	0	0	0	18	0	0
Control Delay (s)	82.5	0.0	0.0	0.0	26.1	0.0	0.0
Lane LOS	F				D		
Approach Delay (s)	82.5	0.0			0.9		
Approach LOS	F						

Intersection Summary

Average Delay	2.0						
Intersection Capacity Utilization	68.8%	ICU Level of Service					C
Analysis Period (min)	15						

HCM Unsignalized Intersection Capacity Analysis
 2: Rincon Way & SR 49 Frontage

Future + Project PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lanes		1>	0	0	<1		1>		0			
Sign Control		Free			Free		Stop					
Grade		0%			0%		0%					
Volume (veh/h)		80	0	0	66		5		0			
Peak Hour Factor		0.92	0.92	0.92	0.92		0.92		0.92			
Hourly flow rate (vph)		87	0	0	72		5		0			
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume				87			159		87			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol				87			159		87			
tC, single (s)				4.1			6.4		6.2			
tC, 2 stage (s)												
tF (s)				2.2			3.5		3.3			
p0 queue free %				100			99		100			
cM capacity (veh/h)				1509			832		972			

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	87	72	5
Volume Left	0	0	5
Volume Right	0	0	0
cSH	1700	1509	832
Volume to Capacity	0.05	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	14.2% ICU Level of Service
Analysis Period (min)	15

Exist AM

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Signal Warrant Summary Report

Intersection	Base Met	Future Met
	[Del / Vol]	[Del / Vol]
# 1 SR 49 / Rincon Way	No / No	No / No

Exist PM

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Signal Warrant Summary Report

Intersection	Base Met	Future Met
	[Del / Vol]	[Del / Vol]
# 1 SR 49 / Rincon Way	No / No	No / No

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	2	0	1	0	0	0	0	0	0	0
Initial Vol:	0	608	2	0	1278	0	0	0	0	12	0	5
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			16.1		

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=17]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=1905]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	2	0	1	0	0	0	0	0	0	0
Initial Vol:	0	608	2	0	1278	0	0	0	0	12	0	5
Major Street Volume:	1888											
Minor Approach Volume:	17											
Minor Approach Volume Threshold:	101 [less than minimum of 150]											

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Initial Vol:	0 1569 14	9 1071 0	0 0 0 0	5 0 9
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	25.5

-----|-----|-----|-----|-----|

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=14]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=2677]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Initial Vol:	0 1569 14	9 1071 0	0 0 0 0	5 0 9

-----|-----|-----|-----|-----|

Major Street Volume: 2663

Minor Approach Volume: 14

Minor Approach Volume Threshold: -47 [less than minimum of 150]

SIGNAL WARRANT DISCLAIMER

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Exist + Project AM

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	608	32		10	1278	0		0	0	0	0		28	0	11				
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				17.2							

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.2]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=39]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=1967]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	608	32		10	1278	0		0	0	0	0		28	0	11				

Major Street Volume: 1928

Minor Approach Volume: 39

Minor Approach Volume Threshold: 92 [less than minimum of 150]

SIGNAL WARRANT DISCLAIMER

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Exist + Project PM

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	1569		38		33	1071		0		0	0	0	0	0	30	0		36	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				35.2							

Approach[westbound][lanes=2][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=66]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2777]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	1569		38		33	1071		0		0	0	0	0	0	30	0		36	
Major Street Volume:	2711																			
Minor Approach Volume:	66																			
Minor Approach Volume Threshold:	-55 [less than minimum of 150]																			

SIGNAL WARRANT DISCLAIMER

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Signal Warrant Summary Report

Intersection	Base Met	Future Met
	[Del / Vol]	[Del / Vol]
# 1 SR 49 / Rincon Way	No / No	No / No

Signal Warrant Summary Report

Intersection	Base Met	Future Met
	[Del / Vol]	[Del / Vol]
# 1 SR 49 / Rincon Way	No / No	No / No

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Initial Vol:	0 884 4	1 1791 0	0 0 0 0	16 0 12
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	20.7

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.2]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=28]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=2708]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Initial Vol:	0 884 4	1 1791 0	0 0 0 0	16 0 12

Major Street Volume: 2680

Minor Approach Volume: 28

Minor Approach Volume Threshold: -50 [less than minimum of 150]

SIGNAL WARRANT DISCLAIMER

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Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound					South Bound					East Bound					West Bound									
Movement:	L	T	R	L	R	L	T	R	L	R	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign									
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Initial Vol:	0	2128	17	15	1080	0	0	0	0	0	8	0	11	xxxxxx	xxxxxx	xxxxxx	51.2								
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					51.2									

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.3]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=19]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3259]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound					South Bound					East Bound					West Bound									
Movement:	L	T	R	L	R	L	T	R	L	R	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign									
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Initial Vol:	0	2128	17	15	1080	0	0	0	0	0	8	0	11												

Major Street Volume: 3240

Minor Approach Volume: 19

Minor Approach Volume Threshold: -131 [less than minimum of 150]

SIGNAL WARRANT DISCLAIMER

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Future plus Project AM

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	884	28	17	1791	0	0	0	0	0	29	0	21							
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			22.8										

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.3]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=50]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=2770]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	884	28	17	1791	0	0	0	0	0	29	0	21							

Major Street Volume: 2720

Minor Approach Volume: 50

Minor Approach Volume Threshold: -56 [less than minimum of 150]

SIGNAL WARRANT DISCLAIMER

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Future plus Project PM

Peak Hour Delay Signal Warrant Report

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	2128	41			39	1080	0			0	0	0	0		34	0	37		
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				100.4							

Approach[westbound][lanes=2][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=2.0]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=71]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3359]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 SR 49 / Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Initial Vol:	0	2128	41			39	1080	0			0	0	0	0		34	0	37		
Major Street Volume:	3288																			
Minor Approach Volume:	71																			
Minor Approach Volume Threshold:	-138 [less than minimum of 150]																			

SIGNAL WARRANT DISCLAIMER

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DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

P. O. Box 942898
Sacramento, CA 94298-0001
(916) 843-4230
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)



July 6, 2011

File No.: 042.A12082.110610

Jonathan Flecker, P.E.
KD Anderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, CA 95650

Dear Mr. Flecker:

Enclosed is a one page listing of collisions occurring on State Route 49 between postmiles .275 and .653 in Nevada County, as requested by your fax dated June 14, 2011. The time period covered was from 2007 through available 2010 and available 2011. Any year missing information had no reported collisions for the requested location.

Should there be any questions, please contact Toni Kellison at (916) 843-4230.

Sincerely,

A handwritten signature in blue ink that reads "Roberta Tanager for L. D. Young".

L. D. YOUNG, Captain
Acting Commander
Support Services Section

Enclosures

cc: Caltrans, Legal Division
Attn: Ms. Kapiolani Lyman
1120 N Street, Room 1404
Sacramento, CA 95814



Transportation Engineers

Fax

To: **Toni Kellison**
CHP

From: **Jonathan Flecker**
kd Anderson & Associates, Inc.

Fax: **916.843.4294** Pages: **1**

Phone: **916.843.4230** Date: **June 14, 2011**

Re: **SWIRTS Request**

Toni

We are conducting a traffic analysis along State Route 49 at Rincon Way in Nevada County. As part of the study we are reviewing crash data along SR 49 in the vicinity.

Could you provide me with SWITRS data for the latest three-year period for which SWITRS data is available. The limits of interest include State Route 49, from 1,000' +/- south of Rincon Way (PM NEV 0.12+-) to 1,000+- north of Rincon Way (PM NEV 0.50 +/-). I am specifically interested in any crashes in and near the SR 49 / Rincon Way intersection.

As a disclaimer, this information is not being used in conjunction with any lawsuit.

If you have any questions, please contact me on my cell number listed below, or send me an e-mail at jflecker@kdanderson.com. Can you also provide me with an approximate date that I can expect this information. Finally, there is no need to send the boilerplate "Description of SWITRS Collision Listing" as we have a copy of this in our office.

Thank you

Jonathan

Jonathan Flecker, P.E.
KDAnderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, CA 95650
916.660.1555
916.660.1535 (fax)
916.501.7513 (cell)

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre Coll	Dir	SW Veh	CHP Veh	Year	Sp Info	OAF1 Viol	OAF2 Safety Equip	Role	Ext of Inj	Age	Sex	Seat Pos	Safety Equip	Ejected
1	DRVR	44	F	W	HNB		PROC	ST	S	A	0100	DODGE	2009	-	3	N			M	G	
Primary Rd RT 49 Distance (ft) 100 Direction N Secondary Rd RINCON WY Beat 031 Type 1 NCIC 9230 State Hwy? Y Route 49 Postmile Prefix - Postmile .50 Side of Hwy S City UNINCORP. County NEVADA Population 9 Rot Dist Collision Type OTHER Severity PDO # Killed 0 Badge 14289 Collision Date 20091113 Time 0558 Day FRI Primary Collision Factor NOT DRIVER Weather1 CLEAR Weather2 Motor Veh Involved With ANIMAL Rdwly Surface DRY Rdwly Cond1 NO UNUSL CND Rdwly Cond2 Cntrl Dev NT PRS/FCTR Loc Type H Ramp/Int - Weather1 CLEAR Weather2 Motor Veh Involved With ANIMAL Lighting DARK - ST LTS Ped Action																					
PARTY INFO											VICTIM INFO										

STATEWIDE INTEGRATED TRAFFIC RECORDS SYSTEM (SWITRS)

EXTRACT OF HISTORY FILES GENERATED ON LIST

'HP.SW.LSTREF'
(H:DATA/042/ISU/SW.LSTREFNWrev2010.DOC
DECEMBER 21, 2010

DESCRIPTION OF SWITRS COLLISION LISTING

LINE 1 * * * * *

PRIMARY ROAD - PRIMARY ROAD NAME AS APPEARS UNDER HEADING "COLLISION OCCURRED ON"

DISTANCE (FT) - DISTANCE, IN FEET, FROM SECONDARY ROAD OR "I", MEANING COLLISION OCCURRED AT INTERSECTION WITH SECONDARY ROAD

DIRECTION - DIRECTION FROM SECONDARY ROAD. IF AT INTERSECTION, DIRECTION IS BLANK.

SECONDARY RD - SECONDARY ROAD NAME AS APPEARS IN "LOCATION" BOX OF PAGE 1 OF COLLISION REPORT. NEAREST CROSS STREET OR LANDMARK TO POINT OF IMPACT.

NCIC - NATIONAL CRIME INFORMATION CENTER NUMBER FOR JURISDICTION

STATE HWY? - Y OR N

ROUTE - - ROUTE NUMBER OF STATE HIGHWAY (OR INTERSTATE OR U S)
(RARELY WITH SUFFIX TO INDICATE TRANSITIONAL STATUS)

POSTMILE PREFIX - NEW POSTMILE VALUES ARE ASSIGNED WHENEVER A LENGTH OF HIGHWAY IS CHANGED DUE TO CONSTRUCTION OR REALIGNMENT. TO DIFFERENTIATE THE NEW VALUES FROM THE OLD, AN ALPHA CODE IS ADDED PREFIXING THE POSTMILE FOR THE NEW VALUES.

- B-BLANK
- C-COMMERCIAL LANES
- D-DUPLICATE POSTMILE AT MEANDERING COUNTY LINE
- G-REPOSTING OF DUPLICATE POSTMILE AT THE END OF A ROUTE
- H-REALIGNMENT OF D MILEAGE
- L-OVERLAP POSTMILE
- M-REALIGNMENT OF R MILEAGE
- N-REALIGNMENT OF M MILEAGE
- R-FIRST REALIGNMENT
- S-SPUR
- T-TEMPORARY CONNECTION
- NO PREFIX

POSTMILE - HIGHWAY MARKER (MILEPOST MARKER [MPM])

SIDE OF HWY - SIDE OF HIGHWAY (N,S,E OR W)

LINE 2 * * * * *

CITY - NAME OF INCORPORATED CITY WHERE COLLISION OCCURRED OR UNINCORP FOR UNINCORPORATED AREAS OF THE COUNTY

COUNTY - NAME OF COUNTY WHERE COLLISION OCCURRED

POPULATION - POPULATION CODE FOR INCORPORATED CITY

- 1 - LESS THAN 2,500
- 2 - 2,500 - 10,000
- 3 - 10,000 - 25,000
- 4 - 25,000 - 50,000
- 5 - 50,000 - 100,000
- 6 - 100,000 - 250,000
- 7 - GREATER 250,000
- 9 - UNINCORPORATED

LINE 2 (CONTINUED) * * * * *

0 - UNIVERSITY/STATE PARK, ETC.

RPT DIST - LOCAL REPORTING DISTRICT

BEAT - BEAT NUMBER

TYPE - BEAT TYPE (CHP)

- 1 - STATE HIGHWAY
- 2 - COUNTY ROAD LINE
- 3 - COUNTY ROAD AREA
- 4 - SCHOOLBUS ON CITY ROADWAY
- 5 - SCHOOLBUS NOT ON PUBLIC ROADWAY
- 6 - OFFROAD (UNIMPROVED)
- 7 - VISTA POINT OR REST AREA,
SCALES OR INSPECTION FACILITY
- 8 - OTHER PUBLIC ACCESS (IMPROVED)
- BLANK - NOT CHP

CALTRANS DIST - CALTRANS DISTRICT NUMBER (01-12)

BADGE - OFFICER IDENTIFICATION NUMBER

COLLISION DATE - DATE OF COLLISION (YEARMODY)

TIME - TIME OF COLLISION

- 0000 TO 2359
- 2500 (NOT STATED)

DAY - DAY OF WEEK

LINE 3 * * * * *

PRIMARY COLLISION FACTOR - CATEGORY DESCRIPTION OF PRIMARY COLLISION FACTOR (PCF)

ABBREVIATED CATEGORY	FULL CATEGORY
R-O-W AUTO	- Automobile Right-Of-Way
BRAKES	- Brakes
DRVR ALC DRG	- Driving or Bicycling Under Influence of Alcohol or Drug
FELL ASLEEP	- Fell Asleep (No longer a PCF Category beginning with the 7/2003 traffic collision form revision.)
TOO CLOSE	- Following Too Closely
HAZ PARKING	- Hazardous Parking
IMPED TRAFFIC	- Impeding Traffic
IMPROP PASS	- Improper Passing
IMPROP TURN	- Improper Turning
LIGHTS	- Lights
NOT STATED	- Not Stated
OTHER EQPMNT	- Other Equipment
OTHER HAZ	- Other Hazardous Violation
OTHER IMPROP DRV	- Other Improper Driving
NOT DRIVER	- Other Than Driver
PED ALC DRUG	- Pedestrian or "Other" Under Influence Of Alcohol Or Drug
R-O-W PED	- Pedestrian Right-Of-Way
PED VIOL	- Pedestrian Violation
STOP SGN SIG	- Traffic Signals and Signs
UNKNOWN	- Unknown
LANE CHANGE	- Unsafe Lane Change
UNSAFE SPEED	- Unsafe Speed
STRNG BCKNG	- Unsafe Starting or Backing
WRONG SIDE	- Wrong Side of Road

LINE 3 (CONTINUED) * * * * *

VIOLATION - SPECIFIC SECTION OF CODE VIOLATION LISTED BY OFFICER AS PRIMARY COLLISION FACTOR

COLLISION TYPE - TYPE OF COLLISION INDICATED BY OFFICER ON PAGE 2 OF COLLISION REPORT

- POSSIBLE ENTRIES
- HEAD-ON
- SIDESWIPE
- REAR END
- BROADSIDE
- HIT OBJECT
- OVERTURNED
- AUTO/PED
- OTHER

SEVERITY - SEVERITY OF COLLISION - HIGHEST DEGREE OF RESULTING INJURY
(FATAL, INJURY OR PDO [PROPERTY DAMAGE ONLY])

KILLED - COUNT OF VICTIMS KILLED

INJURED - COUNT OF VICTIMS INJURED (SEVERE, OTHER VISIBLE OR COMPLAINT OF PAIN)

TOW AWAY? - Y OR N AS INDICATED ON PAGE 1 OF COLLISION REPORT

PROCESS DATE - DATE COLLISION WAS PROCESSED INTO SWITRS (YEARMODY)

LINE 4 * * * * *

WEATHER1 - FIRST OR ONLY INDICATION OF WEATHER

- POSSIBLE ENTRIES
- CLEAR
- CLOUDY
- RAINING
- SNOWING
- FOG
- OTHER
- WIND
- BLANK

WEATHER2 - IF INDICATED, SECOND WEATHER CONDITION (SAME POSSIBLE ENTRIES AS WEATHER1 ABOVE)

RDWY SURFACE - ROADWAY SURFACE AS INDICATED BY OFFICER ON COLLISION REPORT

- POSSIBLE ENTRIES
- DRY
- WET
- SNOWY/ICY
- SLIPPERY
- BLANK

RDWY COND1 - FIRST OR ONLY INDICATION OF ROADWAY CONDITION

- | | |
|---------------------|---------------------------|
| ABBRIEVATED ENTRIES | FULL ENTRIES |
| CONS ZONE | CONSTRUCTION ZONE |
| FLOODED | FLOODED |
| HOLES | HOLES, DEEP RUTS |
| LOOSE MATRL | LOOSE MATERIAL ON ROADWAY |
| NO UNUSL CND | NO UNUSUAL CONDITION |
| OBSTR ON RD | OBSTRUCTION ON ROADWAY |
| OTHER | OTHER |

LINE 4 (CONTINUED) * * * * *

REDUCED RD WPTH REDUCED ROADWAY WIDTH
NOT STATED BLANK

RDWY COND2 - IF INDICATED, SECOND ROADWAY CONDITION (SAME POSSIBLE ENTRIES AS RDWY COND1)

SPEC COND - SPECIAL CONDITION CODED AT TIME OF PROCESSING REPORT

- 1 - SCHOOLBUS, PUBLIC ROADWAY
- 2 - UNIVERSITY/STATE PARKS/AIRPORT
- 3 - SCHOOLBUS, NOT ON PUBLIC ROADWAY
- 4 - OFFROAD (UNIMPROVED)
- 5 - REST AREAS/SCALES
- 6 - OTHER PUBLIC ACCESS
- NO SPECIAL CONDITION
- 0 - NOT STATED

(STATISTICALLY, SPECIAL CONDITIONS GREATER THAN ONE ARE CONSIDERED PRIVATE PROPERTY)

LINE 5 * * * * *

HIT AND RUN - AS INDICATED ON COLLISION REPORT

- FELONY
- MISDEMEANOR

MOTOR VEHICLE INVOLVED WITH - AS INDICATED ON THE COLLISION REPORT. THIS CATEGORY IS THE FIRST EVENT THAT OCCURRED.

POSSIBLE ENTRIES	FULL ENTRIES
ANIMAL	ANIMAL
BICYCLE	BICYCLE
FIXED OBJ	FIXED OBJECT
MV ON OTHER RD	MOTOR VEHICLE ON OTHER ROADWAY
NON-CLSN	NON- COLLISION
BLANK	NOT STATED
OTHER MV	OTHER MOTOR VEHICLE
OTHER OBJ	OTHER OBJECT
PKD MV	PARKED MOTOR VEHICLE
PED	PEDESTRIAN
TRAIN	TRAIN

LIGHTING - LIGHT CONDITION AS INDICATED ON COLLISION REPORT

POSSIBLE ENTRIES	FULL ENTRIES
DAYLIGHT	- DAYLIGHT
DUSK/DAWN	- DUSK/DAWN
DARK - ST LTS	- DARK WITH STREET LIGHTS
DARK - NO ST LTS	- DARK NO STREET LIGHTS
DARK - ST LTS NON-OP	- DARK STREET LIGHTS NOT FUNCTIONING

PED ACTION - PEDESTRIAN ACTION

POSSIBLE ENTRIES	FULL ENTRIES
X-WLK AT IS	- CROSSING IN CROSSWALK AT INTERSECTION
X-WLK NT IS	- CROSSING IN CROSSWALK NOT AT INTERSECTION
NOT IN X-WLK	- CROSSING NOT IN CROSSWALK
IN RD, SHLDR	- IN ROAD (INCLUDING SHOULDER)
NOT IN RD	- NOT IN ROAD
ON/OFF SCH BUS	- APPROACHING/LEAVING SCHOOL BUS

LINE 4 (CONTINUED) * * * * *

BLANK - NO PEDESTRIAN INVOLVED

CNTRL DEV - TRAFFIC CONTROL DEVICES
FNCTNG - CONTROLS FUNCTIONING
NT FNCT - CONTROLS NOT FUNCTIONING
OBSCR - CONTROLS OBSCURED
NT PRS/FCR - NO CONTROLS PRESENT/FACTOR
BLANK - NOT STATED

LOC TYPE - CALTRANS CODING REFERRING TO TYPE OF LOCATION
H - HIGHWAY
I - INTERSECTION
R - RAMP

RAMP/INT - RAMP/INTERSECTION DESCRIPTION
1 - RAMP EXIT, LAST 50 FEET
2 - MID-RAMP
3 - RAMP ENTRY, FIRST 50 FEET
4 - NON-STATE HIGHWAY, RAMP RELATED, WITHIN 100 FT
5 - INTERSECTION
6 - NON-STATE HIGHWAY, INTERSECTION RELATED, WITHIN 250 FT
7 - HIGHWAY
8 - NON STATE HIGHWAY

NOTE: THE FIRST FIVE LINES OF EACH COLLISION PRESENT DATA THAT DESCRIBES THE COLLISION. THE FOLLOWING DESCRIPTIONS ARE FOR EACH PARTY IN THE COLLISION AND THE VICTIMS ASSOCIATED WITH EACH PARTY. THE VICTIM DATA APPEARS TO THE RIGHT OF EACH PARTY.

DESCRIPTION OF PARTY DATA (ONE LINE PER PARTY)

PARTY - PARTY NUMBER
IF AN "F" APPEARS AFTER THE PARTY NUMBER, THIS IS THE PARTY INDICATED BY THE OFFICER AS AT FAULT.

TYPE - PARTY TYPE
DRVR - DRIVER
PED - PEDESTRIAN
PRKD - PARKED VEHICLE
BICY - BICYCLIST
OTHR - OTHER

AGE - AGE OF PARTY
998 - UNKNOWN

SEX - SEX OF PARTY

RACE - RACE OF PARTY (EFFECTIVE 1/1/2002)
A - ASIAN
B - BLACK
H - HISPANIC
O - OTHER
W - WHITE
BLANK - NOT STATED

SOBRIETY1 - REFERS TO THE ALCOHOL PORTION OF THE SOBRIETY-DRUG-PHYSICAL CATEGORY ON THE COLLISION REPORT.
HNBD - HAD NOT BEEN DRINKING
HBD-UI - HBD UNDER INFLUENCE
HBD-NUI - HBD NOT UNDER INFLUENCE
HBD-UNK - HBD IMPAIRMENT UNKNOWN

DESCRIPTION OF PARTY DATA (CONTINUED) * * * * *

IMP UNK - IMPAIRMENT UNKNOWN

SOBRIETY2 - REFERS TO THE DRUG AND PHYSICAL IMPAIRMENT PORTION OF THE SOBRIETY-DRUG-PHYSICAL CATEGORY ON THE COLLISION REPORT.

- DRUG - UNDER DRUG INFLUENCE
- PHYS - PHYSICAL IMPAIRMENT
- FATG - SLEEPY/FATIGUED
- IMP UNK - IMPAIRMENT UNKNOWN

MOVE PRE COLL - PARTY'S MOVEMENT PRECEDING COLLISION

- STOPPED - STOPPED
- PROC ST - PROCEEDING STRAIGHT
- RAN OFF RD - RAN OFF ROAD
- RGT TURN - MAKING RIGHT TURN
- LET TURN - MAKING LEFT TURN
- U-TURN - MAKING U TURN
- BACKING - BACKING
- SLOWING - SLOWING/STOPPING
- PASSING - PASSING OTHER VEHICLE
- CHANG LN - CHANGING LANES
- PARKING - PARKING MANEUVER
- ENT TRAF - ENTERING TRAFFIC
- UNS TURN - OTHER UNSAFE TURNING
- OPPOS LN - CROSSED INTO OPPOSING LANE
- PARKED - PARKED
- MERGING - MERGING
- WRONG WY - TRAVELING WRONG WAY
- OTHER - OTHER
- BLANK - NOT STATED/NOT APPLICABLE

DIR - PARTY'S DIRECTION OF TRAVEL (N,S,E OR W)

SW VEH - STATEWIDE VEHICLE TYPE OF PARTY'S VEHICLE

- A - PASSENGER CAR/STATION WAGON
- B - PASSENGER CAR WITH TRAILER
- C - MOTORCYCLE/SCOOTER
- D - PICKUP OR PANEL TRUCK
- E - PICKUP/PANEL TRUCK WITH TRAILER
- F - TRUCK OR TRUCK TRACTOR
- G - TRUCK/TRUCK TRACTOR WITH TRAILER
- H - SCHOOL BUS
- I - OTHER BUS
- J - EMERGENCY VEHICLE
- K - HIGHWAY CONSTRUCTION EQUIPMENT
- L - BICYCLE
- M - OTHER VEHICLE
- N - PEDESTRIAN
- O - MOPED

CHP VEH - CHP-REPORTED COLLISIONS ONLY, CHP VEHICLE TYPE. THE FIRST TWO DIGITS REFERENCE VEHICLE TYPE, NO TOW, OR TOWING VEHICLE TYPE; THIRD AND FOURTH DIGITS REFERENCE TOWED VEHICLE TYPE. (EFFECTIVE 7/2003 TRAFFIC COLLISION FORM REVISION ALL JURISDICTION ARE TO USE THIS VEHICLE TYPE)

- 00 - NO TOW
- 01 - PASSENGER CAR
- 02 - MOTORCYCLE
- 03 - MOTOR-DRIVEN CYCLE (UNDER 15 HP)
- 04 - BICYCLE
- 05 - MOTORIZED BICYCLE
- 06 - ALL TERRAIN VEHICLE (ATV), NO MOTORCYCLE

DESCRIPTION OF PARTY DATA (CONTINUED) * * * * *

- 07 - SPORT UTILITY VEHICLE (EFF. 6/00)
- 08 - MINI-VAN (EFF. 6/00)
- 09 - PARATRANSIT BUS
- 10 - TOUR BUS
- 11 - OTHER COMMERCIAL BUS
- 12 - NON-COMMERCIAL BUS
- 13 - SCHOOLBUS WITHOUT PUPIL PASSENGERS (prior to 2002)
- 13 - SCHOOLBUS PUBLIC I (EFF. 2002)
- 14 - SCHOOLBUS, PUBLIC I (prior to 2002)
- 14 - SCHOOLBUS, PUBLIC II (EFF. 2002)
- 15 - SCHOOLBUS, PUBLIC II (prior to 2002)
- 15 - SCHOOLBUS, PRIVATE I (EFF. 2002)
- 16 - SCHOOLBUS, PRIVATE I (prior to 2002)
- 16 - SCHOOLBUS, PRIVATE II (EFF. 2002)
- 17 - SCHOOLBUS, PRIVATE II (prior to 2002)
- 17 - SCHOOLBUS, CONTRACTUAL I (EFF. 2002)
- 18 - SCHOOLBUS, CONTRACTUAL I (prior to 2002)
- 18 - SCHOOLBUS, CONTRACTUAL II (EFF. 2002)
- 19 - SCHOOLBUS, CONTRACTUAL II (prior to 2002)
- 19 - GENERAL PUBLIC PARATRANSIT VEHICLE
- 20 - PUBLIC TRANSIT AUTHORITY
- 21 - TWO AXLE TANK TRUCK
- 22 - PICKUP OR PANEL TRUCK
- 23 - PICKUP TRUCK WITH CAMPER
- 24 - THREE AXLE TANK TRUCK
- 25 - TRUCK TRACTOR
- 26 - TWO-AXLE TRUCK
- 27 - THREE-AXLE OR MORE AXLE TRUCK
- 28 - SEMI-TANK TRAILER
- 29 - PULL-TANK TRAILER
- 30 - TWO TANK TRAILER
- 31 - SEMI-TRAILER
- 32 - PULL TRAILER
- 33 - TWO TRAILERS
- 34 - BOAT TRAILER
- 35 - UTILITY TRAILER
- 36 - TRAILER COACH
- 37 - EXTRALEGAL PERMIT LOAD
- 38 - POLE, PIPE, OR LOGGING DOLLY
- 39 - THREE TRAILERS
- 40 - FEDERALLY LEGAL SEMI TRAILER
- 41 - AMBULANCE
- 42 - DUNE BUGGY
- 43 - FIRE TRUCK (NOT RESCUE)
- 44 - FORKLIFT
- 45 - HIGHWAY CONSTRUCTION EQUIPMENT
- 46 - IMPLEMENT OF HUSBANDRY
- 47 - MOTOR HOME 40 FEET IN LENGTH OR LESS (EFF. 01/02)
- 47 - MOTOR HOME (PRIOR TO 01/02)
- 48 - POLICE CAR
- 49 - POLICE MOTORCYCLE
- 50 - MOBILE EQUIPMENT
- 51 - FARM LABOR VEHICLE (PRIOR TO 6/00)
- 51 - FARM LABOR VEHICLE-CERTIFIED (EFF. 6/00)
- 52 - FEDERALLY LEGAL DBL CARGO COMBO (OVER 75 FEET)
- 53 - FIFTH WHEEL TRAVEL TRAILER
- 54 - CONTAINER CHASSIS
- 55 - TWO-AXLE TOW TRUCK
- 56 - THREE-AXLE TOW TRUCK
- 57 - FARM LABOR VEHICLE NON-CERTIFIED (EFF. 6/00)

DESCRIPTION OF PARTY DATA (CONTINUED) * * * * *

- 58 - FARM LABOR VEHICLE TRANSPORTER (EFF. 6/00)
- 59 - MOTOR HOME OVER 40 FEET (EFF. 1/02)
- 61 - SCHOOL PUPIL ACTIVITY BUS I (prior to 2002)
- 62 - SCHOOL PUPIL ACTIVITY BUS II (prior to 2002)
- 63 - "YOUTH" BUS
- 64 - SCHOOL PUPIL ACTIVITY BUS I (EFF. 2002)
- 65 - SCHOOL PUPIL ACTIVITY BUS II (EFF. 2002)
- 66 - SCHOOLBUS WITHOUT PUPIL PASSENGERS (EFF. 2002)
- 71 - PASSENGER CAR-HAZARDOUS MATERIALS ONLY
- 72 - PICKUP OR PANEL-HAZARDOUS MATERIALS ONLY
- 73 - PICKUP AND CAMPER-HAZARDOUS MATERIALS ONLY
- 75 - TRUCK TRACTOR-HAZARDOUS MATERIALS ONLY
- 76 - TWO-AXLE TRUCK-HAZARDOUS MATERIALS ONLY
- 77 - THREE OR MORE AXLE TRUCK-HAZARDOUS MATERIALS ONLY
- 78 - TWO-AXLE TANK TRUCK-HAZARDOUS MATERIALS ONLY
- 79 - THREE-AXLE TANK TRUCK-HAZARDOUS MATERIALS ONLY
- 81 - PASSENGER CAR-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 82 - PICKUP OR PANEL-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 83 - PICKUP AND CAMPER-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 85 - TRUCK TRACTOR-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 86 - TWO-AXLE TRUCK-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 87 - THREE OR MORE AXLE TRUCK-HAZ WASTE OR COMBO HAZ WASTE & MAT.
- 88 - TWO-AXLE TANK TRUCK-HAZ WASTE OR COMBO HAZ WASTE & MATERIALS
- 89 - THREE-AXLE TANK TRUCK-HAZ WASTE OR COMBO HAZ WASTE & MAT.
- 94 - MOTORIZED TRANSPORTATION DEVICE (EFF. 6/00)
- 95 - MISC NON-MOTORIZED VEHICLE
- 96 - MISC MOTORIZED VEHICLE
- 97 - LOW SPEED VEHICLE (EFF. 6/00)
- 98 - EMERGENCY VEHICLE ON EMERGENCY RUN OR IN PURSUIT OF VIOLATOR
- 99 - HIT AND RUN, UNKNOWN

VEH MAKE - VEHICLE MAKE OF PARTY'S VEHICLE

YEAR - MODEL YEAR OF PARTY'S VEHICLE

SP INFO - FROM SPECIAL INFORMATION BOX ON COLLISION REPORT (TWO ITEMS MAY BE INDICATED)

- A - HAZARDOUS MATERIALS INVOLVED
- B - CELL PHONE IN USE (4/1/01)
- C - CELL PHONE NOT IN USE (4/1/01)
- D - CELL PHONE NONE/UNKNOWN (4/1/01)

OAF1 VIOL - FIRST OTHER ASSOCIATED FACTOR INDICATED FOR THE PARTY. IF "A", "B" OR "C" IS INDICATED, THE VIOLATION WILL ALSO APPEAR.

- A,B,C - VC SECTION VIOLATION
- E - VISION OBSCUREMENT
- F - INATTENTION (TYPE OF INATTENTION NOT STATED)
- G - STOP & GO TRAFFIC
- H - ENTERING/LEAVING RAMP
- I - PREVIOUS COLLISION
- J - UNFAMILIAR WITH ROAD
- K - DEFECTIVE EQUIPMENT
- L - UNINVOLVED VEHICLE
- M - OTHER
- N - NONE APPARENT
- O - RUNAWAY VEHICLE
- P - CELL PHONE
- Q - ELECTRONIC EQUIPMENT
- R - RADIO/CD
- S - SMOKING
- T - EATING

DESCRIPTION OF PARTY DATA (CONTINUED) * * * * *

- U - CHILDREN
- V - ANIMALS
- W - PERSONAL HYGIENE
- X - READING
- Y - OTHER INATTENTION

(CATEGORIES P THROUGH Y WERE EFFECTIVE 1/1/01 THROUGH 12/1/2001 ONLY AND ARE CATEGORIES OF "F" INATTENTION.)

OAF2 - SECOND OTHER ASSOCIATED FACTOR INDICATED FOR THE PARTY. IF NOT BLANK, REFER TO SAME ALPHA CODES AS ABOVE IN OAF1.

SAFETY EQUIPMENT - TWO CATEGORIES MAY BE INDICATED BY OFFICER

- A - NONE IN VEHICLE
- B - UNKNOWN
- C - LAP BELT USED
- D - LAP BELT NOT USED
- E - SHOULDER HARNESS USED
- F - SHOULDER HARNESS NOT USED
- G - LAP/SHOULDER HARNESS USED
- H - LAP/SHOULDER HARNESS NOT USED
- J - PASSIVE RESTRAINT USED
- K - PASSIVE RESTRAINT NOT USED
- L - AIR BAG DEPLOYED
- M - AIR BAG NOT DEPLOYED
- N - OTHER
- P - NOT REQUIRED
- Q - CHILD RESTRAINT IN VEHICLE USED
- R - CHILD RESTRAINT IN VEHICLE NOT USED
- S - CHILD RESTRAINT IN VEHICLE USE UNKNOWN
- T - CHILD RESTRAINT IN VEHICLE IMPROPER USE
- U - CHILD RESTRAINT NONE IN VEHICLE
- V - DRIVER OF M/C OR BICYCLIST NOT USING HELMET
- W - DRIVER OF M/C OR BICYCLIST USING HELMET
- X - PASSENGER ON M/C OR BICYCLE NOT USING HELMET
- Y - PASSENGER NO M/C OR BICYCLE USING HELMET

DESCRIPTION OF VICTIM DATA * * * * *

EACH VICTIM IS LISTED ON A SEPARATE LINE TO THE RIGHT OF THE PARTY WITH WHICH THE VICTIM IS ASSOCIATED.

ROLE - VICTIM CLASSIFICATION

- DRVR - DRIVER
- PASS - PASSENGER
- PED - PEDESTRIAN
- BICY - BICYCLE RIDER (DOES NOT INCLUDE PASSENGER)
- OTHR - OTHER

EXT OF INJ - EXTENT OF INJURY FOR EACH VICTIM

- KILLED - KILLED
- SEVERE - SEVERE INJURY
- OTH VIS - OTHER VISIBLE INJURY
- COMP PN - COMPLAINT OF PAIN
- BLANK - NOT INJURED

AGE - AGE OF VICTIM

- 998 - UNKNOWN
- 999 - FETUS (FATAL ONLY)

SEX - SEX OF VICTIM

DESCRIPTION OF VICTIM DATA (CONTINUED) * * * * *

SEAT POS - SEATING POSITION OF VICTIM
1 - DRIVER
2 TO 6 - PASSENGERS
7 - STATION WAGON REAR
8 - REAR OCCUPANT OF TRUCK OR VAN
9 - POSITION UNKNOWN

SAFETY EQUIP - TWO CATEGORIES MAY BE INDICATED BY THE OFFICER. FOR A LIST OF THE CODES,
SEE PARTY DESCRIPTION FOR SAFETY EQUIPMENT.

EJECTED - VICTIM EJECTED FROM VEHICLE CATEGORY
0 - NOT EJECTED
1 - FULLY EJECTED
2 - PARTIALLY EJECTED
3 - UNKNOWN

CONTINUING CARE RETIREMENT COMMUNITIES (PLANNED DEVELOPMENT)

TRAFFIC IMPACT ANALYSIS REPORT

Prepared For:

SCO Planning & Engineering
and
Young Enterprises

Prepared By:

Scott E. Ritchie, P.E.
Roundabouts & Traffic Engineering



DECEMBER 23, 2008

CONTINUING CARE RETIREMENT COMMUNITIES

(Planned Development)
TRAFFIC IMPACT ANALYSIS REPORT

Nevada County, California

Prepared for:

SCO Planning & Engineering
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Prepared by:

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December 23, 2008

RTE Project No. 08370

EXECUTIVE SUMMARY

PURPOSE

Roundabouts & Traffic Engineering (RTE) has been retained by SCO Planning & Engineering via Young Enterprises to perform a Traffic Impact Analysis report for the Planned Development - Continuing Care Retirement Communities (CCRC) project in Nevada County, California. The project consists of approximately 335 units in a campus environment designed to house a population ranging from 350 to 450 seniors housed in a variety of accommodation choices and assistance levels such as cottages, group homes, and assisted living apartments. The campus will also have other buildings associated with the project such as activity areas, recreational amenities, village services, and medical support buildings. The project is located east of SR 49, north of Auburn, and consists of four parcels with the primary access on Rincon Way, east of State Route 49 in Nevada County, California.

This report analyzes the traffic impacts generated by the development upon completion, which is assumed to be in the current year of 2008 for analysis purposes. SCO Planning and Engineering provided the scope of the traffic study and traffic policy thresholds related to this report.

CONCLUSIONS & RECOMMENDATIONS

The findings of the Traffic Impact Analysis are listed below:

1. SR 49/Rincon Way operates at an overall LOS A with or without the project (existing and future); however, the westbound approach falls from a current LOS E to a LOS F with the project. According to the capacity analyses, the westbound left functions at a LOS F with or without the project in the future.
2. Signal warrants are **not** met under existing or future conditions with or without the project at the study area intersection of SR 49 / Rincon Way.
3. A mutually exclusive westbound left and westbound right turn lane on Rincon Way is recommended to be striped for the approach.
4. The internal roadways were not reviewed due to the stage of the site plan.
5. Intersection sight distance could not be measured in the field at this time. Nevada County should verify this site distance with the final plans.
6. A secondary emergency access is proposed for the project.
7. The project is expected to generate 941 average daily trips, 99 of which occur during the PM peak hour (48 entering and 51 exiting). Traffic generated by this development will **not** have a significant impact on the adjacent roadways.

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APPENDICES

A. LEVEL OF SERVICE DEFINITIONS AND CAPACITY CALCULATIONS

Roundabouts & Traffic Engineering (RTE) has been retained by SCO Planning & Engineering via Young Enterprises to perform a Traffic Impact Analysis report for the Planned Development - Continuing Care Retirement Communities (CCRC) project in Nevada County, California. The project consists of approximately 335 units in a campus environment designed to house a population ranging from 350 to 450 seniors housed in a variety of accommodation choices and assistance levels such as cottages, group homes, and assisted living apartments. The campus will also have other buildings associated with the project such as activity areas, recreational amenities, village services, and medical support buildings. The project is located east of SR 49, north of Auburn, and consists of four parcels with the primary access on Rincon Way, east of State Route 49 in Nevada County, California.

The purpose of this engineering study is to determine the impacts of the traffic generated by the proposed development on the surrounding roadway infrastructure. This study will determine if mitigation is required to keep the roadways operating safely and at capacity levels acceptable under current Nevada County code. The report is based on local ordinances, and provides a complete traffic engineering analysis of the intersection identified for analysis.

This analysis is conducted in conformance with direction provided by SCO Planning & Engineering via the Nevada County Department of Transportation. The with and without project traffic conditions are analyzed and discussed in detail in the subsequent sections. This engineering report examines the full build out of the site-generated traffic volumes, as well as the operational analysis of the study intersection located within the study area. The report documents the findings and conclusions of a Traffic Impact Analysis conducted for a proposed site plan for property located in Nevada County, California.

SCOPE OF STUDY

This traffic engineering study documents the existing and proposed conditions, traffic data, capacity, and safety analysis in accordance with Nevada County requirements. SCO Planning & Engineering staff has provided the scope and limits of the intersections to be analyzed as well as the methodology identified in this report via discussions with Caltrans. Only the PM peak hour conditions at the intersection of SR 49 / Rincon Way was requested to be included in the traffic analyses. However, both existing (2009) and future (2029) PM peak hour level of service analyses have been conducted for this study. This intersection was analyzed in the trip generation, distribution, and assignment of this report. This

Traffic Impact Analysis report is prepared for submission to the County. In addition, the traffic study analyzes the Level of Service (LOS) with a 2 second threshold. Although future conditions may not be warranted for the study intersection, future year analyses were prudent to analyze signal warrants.

Initially, this document presents existing traffic conditions and level of service analyses in the area under existing PM peak-hour conditions without the project in order to identify the critical study intersections, or the study intersections that are currently operating at a LOS D or worse during the PM peak hour. Next, the proposed development is assessed to determine the traffic that will be generated in peak-hour vehicle trips and daily vehicle trips. These additional vehicle-trips are then assigned to the nearby roadway system to determine the necessary level of analysis, and to identify the impact on intersection LOS, as well as to determine the level of significance of the impacts for the existing PM peak hour conditions. No AM peak hour analyses were required per SCO via the Nevada County Department of Transportation and Sanitation. The impact on intersection LOS under future conditions are then analyzed to determine the level of significance of the impacts for the future PM peak hour conditions. Finally, conclusions and recommendations are made at the study area intersection.

Traffic related issues addressed in this report are consistent with County requirements. The issues are:

- Existing PM peak hour traffic conditions at the specific intersection
- Site generated traffic volumes, their distribution, and assignment to the identified study area intersection
- Capacity analysis of the required intersection during the existing PM peak hour conditions
- Capacity analysis of the required intersection during the existing PM peak hour conditions
- Safety analysis of the proposed conditions
- Recommendations for mitigation of traffic impacts and conclusions

The results of this traffic study are used to develop recommendations to mitigate project traffic impacts. This analysis considers the following traffic scenarios:

1. Existing PM peak hour conditions *without project traffic*
2. Existing PM peak hour conditions *with project traffic*
3. Future PM peak hour conditions *without project traffic*
4. Future PM peak hour conditions *with project traffic*

The identified study area within Nevada County is shown in [Figure 1](#).

Figure 1: Project Vicinity Map



Chapter 2 **EXISTING CONDITIONS**

The existing infrastructure and operational traffic conditions in the vicinity of the site were documented. The purpose of this section is to provide a foundation of comparison to project conditions. Roadway conditions were studied to identify if the roadways are currently operating in a safe and efficient manner. The following discussion presents information regarding the project site, turning movement traffic volumes, and traffic conditions in the study area. The study area and the impacted intersections were defined based on information provided by SCO Staff prior to starting the impact analysis.

ROADWAY CHARACTERISTICS

Data was gathered on the roadways impacted by the project for the purpose of analyzing the capacity of the existing roadway system. The pertinent information regarding these roadways are described below.

State Route 49 (SR 49)

State Route (SR) 49 provides the primary connection between Grass Valley and Auburn. From Interstate 80 (I-80) in Auburn, SR 49 continues northward and combines with SR 20 to the west of Grass Valley. East of Grass Valley, SR 49 continues northward into Sierra County SR 20 continues eastward to its intersection with I-80. Within the project vicinity, this roadway is a high volume four lane undivided highway with turn lanes.

Rincon Way

Rincon Way is a rural two-lane local roadway running eastward from SR 49. It provides access to a small area directly east of the intersection of SR 49 / Rincon Way then indirectly connects to Willow Valley Road and Nevada Street. This is a low volume roadway with an assumed posted speed limit of 25 miles per hour.

INTERSECTION CHARACTERISTICS

The project area is defined as the vicinity of the site encompassed by the study area intersection and the site itself. [Figure 2](#) displays the existing intersection lane configuration and traffic control.

Figure 2: Lane Configuration and Traffic Control



SR 49 / Rincon Way

The intersection of SR 49/Rincon Way is a three legged or “T” intersection with the primary movements along SR 49 (uncontrolled). Currently, a 325’ northbound channelized deceleration right turn lane exists as well as a long 500’ southbound deceleration left turn lane along SR 49 for Rincon Way. A 150’ acceleration lane is also present on SR 49 for westbound left turns from Rincon Way onto SR 49. In addition, a very wide roadway has been constructed on Rincon Way (stop controlled) near the intersection with SR 49 to include an unstriped left turn lane (roughly 12 feet) as well as an additional varying width (12-22 feet) for a right turn lane for at least two lanes on the approach.

EXISTING TRAFFIC VOLUMES

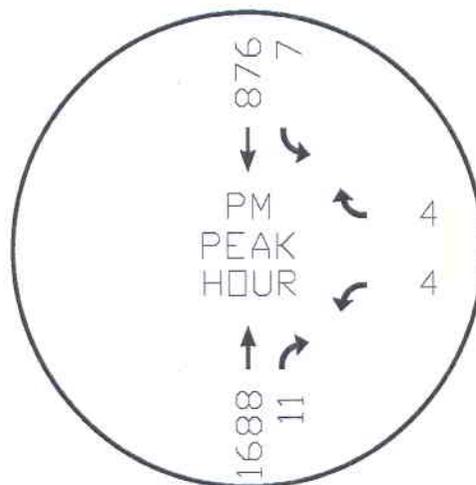
Existing traffic volume data is the basis for the analysis of the capacity and safety of the roadway. Traffic volume data was gathered for the study intersection from field traffic counts conducted by SCO to determine the existing traffic turning movement volumes. A new traffic model was assembled for this project to reflect the new traffic conditions of the area in 2008/9. The new count data was input into the existing conditions traffic model for this analysis to obtain current conditions at the identified intersection.

As required, the PM peak-hour traffic volumes have been analyzed at this intersection for the existing (2009) conditions with and without project. Existing PM peak-hour turning movement volumes, as presented in [Figure 3](#), have been compiled for the study intersection. The source and basis foundation for these volumes are discussed in this section of the report.

Study Area Intersection

Since no existing traffic volumes at the SR 49/Rincon Way intersection were currently available from past traffic studies, the 2009 PM peak-hour traffic volumes taken during the month of December (12/4/2008) during the PM peak hours of 4:00-6:00 PM on a Thursday for this project. All turning movement volumes for this project are based on actual turning movement counts conducted in 2008 during the PM peak hours of 4:00-6:00 PM on typical weekdays. AM turning movement volumes were not required.

Figure 3: Existing PM Peak Hour Volumes



Chapter 3 **PROPOSED CONDITIONS**

The proposed development will add traffic to the roadway system. The project location, the size of the project, and when it will be completed are all important elements that need to be considered to determine the impacts of this development on safety and capacity. It is also important to examine how the project will operate with the existing transportation system, estimate how much new traffic it will generate, and predict where traffic generated by the site will be distributed. This section will also address any funded infrastructure changes planned by other agencies or developers. All of the above elements are important in assessing the traffic impacts of this project.

PROJECT DESCRIPTION

The project consists of approximately 335 units on 215 acres with a campus environment designed for a population ranging from 350 to 450 seniors. The property consists of four parcels located east of SR 49, north of Auburn, with the primary access on Rincon Way, east of State Route 49 in Nevada County, California. The Owner is seeking a new zoning district, Planned Development – Continuing Care Retirement Communities (PD-CCRC). Continuing Care Retirement Communities offer services and housing in an aged restricted campus setting which includes independent living, assisted living, nursing facilities, physical rehabilitation, and memory impairment housing.

The campus will also have other buildings associated with the project such as activity areas, recreational amenities, village services, and medical support buildings. Some of the activity and recreational amenities include a clubhouse, driving range, clay/art studio, aquatic center, gym/workout, yoga/dance, fishing pond, gardening facility, walking trails, picnic areas, and others. Some of the village services include a hair salon, deli/sports bar, libraries, computer/business center, post office, bank, and others. Some of the medical support buildings include doctors, dentists, rehabilitation facilities, and other professional services.

CCRC's are designed as aging in place communities recognizing and accepting aging as a dynamic process wherein seniors can change their assistance levels without moving out of the facility area. Hence, a variety of accommodation choices and assistance levels such as cottages, group homes, and assisted living apartments are available with a self contained CCRC environment. The project consists of the following:

- 75 Active Living Detached Cottages

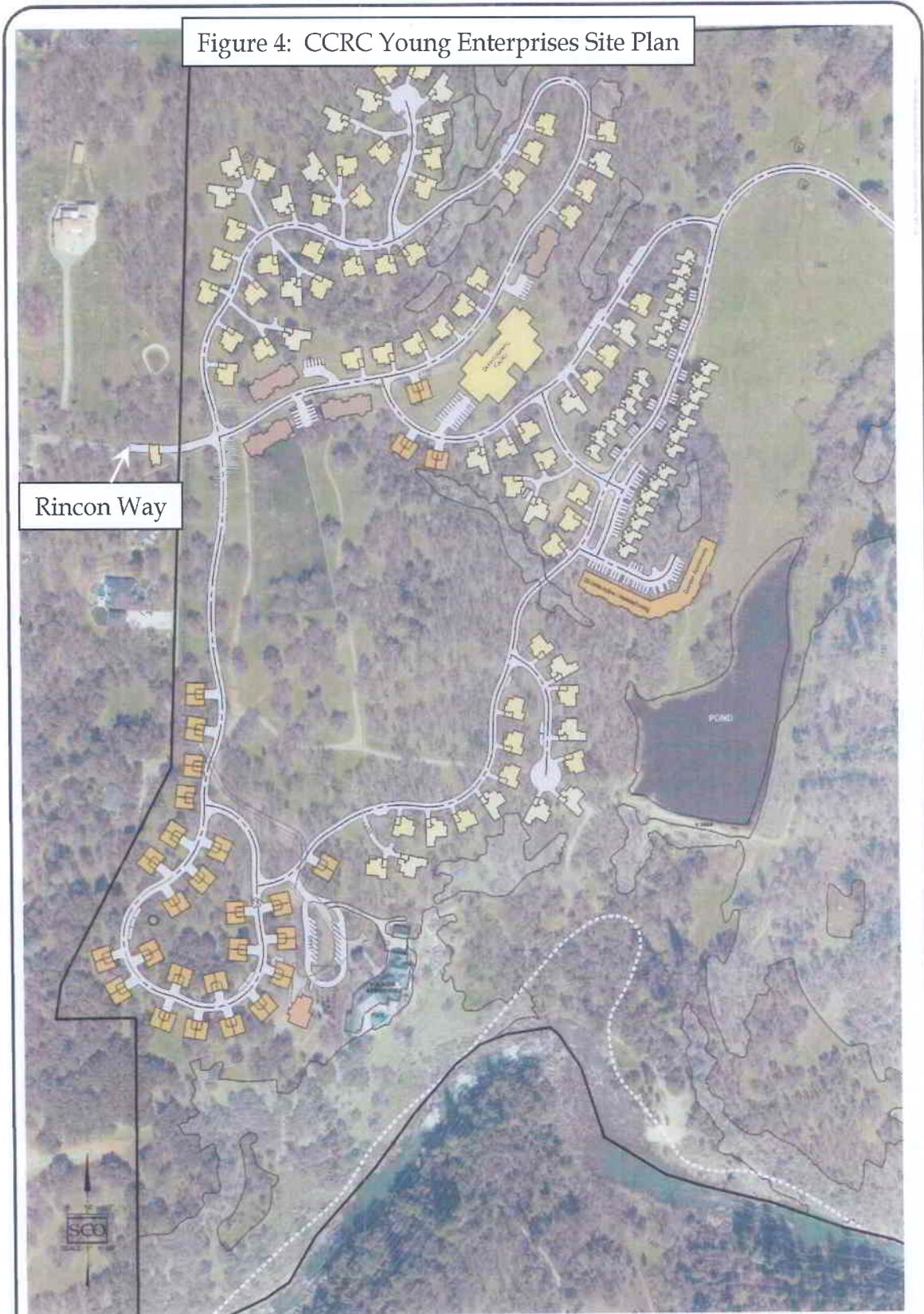
- 3 Active Living Detached Group Homes
- 55 Active Living / Assisted Living Duplexes
- 50 Active Living / Assisted Living Apartments
- 150 Assisted Living Apartments (2 Buildings)
- 1 Skilled Nursing Facility (35 Rooms)
- 1 Memory Impairment Group Home
- Other Stand Alone Support Buildings (described above)

For analysis and calculation simplicity and to remain conservative it is assumed that all project generated trips access onto Rincon Way via SR 49 in the traffic model. This report analyzes the traffic impacts generated by the development upon completion, which is assumed to be in the current year for analysis purposes. The preliminary proposed site plan (tentative only) provided to Roundabouts & Traffic Engineering (RTE) is shown below in [Figure 4](#).

Access

Properly located access points are essential to allow for the safe and orderly movement of traffic in and out of a site. Nevada County recognizes this fact and has enacted ordinances and policies to assure their proper placement and construction. The proposed primary access would be onto Rincon Way via the extension of Rincon Way. It should be noted that no sight distance verification or calculations could be performed for the new roadways or site accesses on Rincon Way. SCO and Nevada County should verify that the final site plan improvements are compliant with their standards since RTE was unable to review the final plans. There were no current sight distance issues observed with the existing intersection at SR 49 / Rincon Way. In addition, according to SCO, a secondary access is proposed to the site for emergency service vehicles. No further information is currently available regarding access to the site.

Figure 4: CCRC Young Enterprises Site Plan



1
of
1

SCS
SUN VALLEY
9740 420-2844
7400200
2002 330-4443
P.O. BOX 200-2888

SCS
PLANNING
ENGINEERING
& SURVEYING

COUNTY OF NEVADA

YOUNG PROPERTY
TENTATIVE LAYOUT

CALIFORNIA

NO.	REVISIONS	DATE	DESIGNED: MOW
			DRAWN: MOW
			PROJ. NO: 200803
			DWG. TITLE: 484
			DATE: NOV. 11, 2008

TRIP GENERATION AND DISTRIBUTION

Trip Generation

Trip generation estimates were prepared for the proposed development using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 7th Edition*. These estimates are based on observed traffic-generation rates for similar land uses nationwide. An estimate of the number of trips generated by the proposed project was developed in order to analyze the existing traffic generation impacts. Trip generation is the evaluation of the number of vehicle-trips that will either have an origin or destination at the project site. Specifically, the PM peak hour project generated trips on an average weekday need to be determined in order to apply the resulting trips to current County policy requirements.

A trip generation analysis was conducted during the PM peak hour of a typical weekday for the land use identified. Based upon the information provided by the applicant and the proposed site plans, the "Continuing Care Retirement Community (CCRC)" land use (ITE Land Use Code 255) best fits this site for the proposed use. The CCRC land use is defined by ITE as follows:

"CCRCs are land uses that provide multiple elements of senior adult living. CCRCs combine aspects of independent living with increased care, as lifestyle needs change with time. Housing options may include various combinations of senior adult detached, senior adult attached, congregate care, assisted living and skilled nursing care – aimed at allowing the resident to live in one community as their medical, dining, recreational and some limited, supproting retail facilities. CCRCs are usually self contained villages."

Furthermore, the Institute of Transportation Engineers *Trip Generation Manual, 7th Edition* cautions users when applying the provided data since continuing care retirement communities are relatively new and unique land uses. The ITE Manual further states:

"These developments consist of various housing components (dweling units, rooms and beds) that often exist in varying proportions. Therefore, the use of a single housing component does not fully dscribe the trip generation characteristics of these communities. Based upon a review of the limited data submitted for this land use, it was determined that a comprehensive independent variable, occupied units, was the most appropriate descriptor of the characteristics. This variable is defined as an aggregate of all living accommodations common to these communities."

Therefore, in order for these analyses to remain extremely conservative, RTE assumed the total number of units equaled the total number of occupied units.

Based on the above information within the *ITE Trip Generation Manual*, the land use descriptions and data points specified for this land use are directly consistent with and applicable to this project. In addition, the *ITE Trip Generation Manual* has only one independent variable for the land use (occupied units). Therefore, the land use's accuracy of the independent variable and data provided in the ITE Manual is predetermined at "occupied units" for this project's analyses during the peak hours between 4:00 and 6:00 PM.

However, the ITE manual provides both a weighted average rate and a fitted curve equation for the independent variable for the land use. The equation produces logical trip end estimates for the proposed land use, based on the size of the facility, and the site falls within the data point range of other like facilities analyzed nationwide. Therefore, the fitted curve equation method was used for this project in accordance with ITE's "Recommended Procedure for Selecting Between Trip Generation Average Rates and Equations" (*Trip Generation Handbook*, ITE 2004). In addition, the provided average rate produced nearly the same results as the fitted curve equation at 2 PM peak hour trips less than the equation. However, no equation was available for the calculation of the average daily trips (weekday). Therefore, only the weighted average daily rate could be used for these analyses.

Since the status of the one existing dwelling unit on the property was unknown (occupied and remaining, occupied and removed, or currently unoccupied), the one PM peak hour trip and approximately 10 daily trips were not accounted for or calculated in the analyses. In addition, RTE is informed the site plan has not yet been finalized and may be adjusted based on SCO's engineering and design of the site. Therefore, the quantity of 335 units was used in these analyses as the number of occupied units although the actual number of units may change in final design. If a significantly different density is proposed with final design, these analyses may need to be recalculated.

Table 1 summarizes the average daily vehicle-trips as well as the PM peak-hour trips on a typical weekday peak hour of adjacent street traffic for one hour between 4:00 and 6:00 PM based on the fitted curve equation. As shown in Table 1, the project would generate an estimated total of 99 PM peak-hour trips (48 entering, 51 exiting) and 941 average daily trips occurring during normal business operation hours of adjacent street traffic. No additional Transportation Impact Factors, such as transit trip reductions, were applied in this analysis.

Trip Distribution and Assignment

The distribution of traffic arriving and leaving the project site is identified based upon existing traffic patterns, regional roadways and destinations, the location of commercial and other residential areas within the local and regional area, and the relative convenience of travel via the various existing and potential routes. In particular, the this project's location has only two routes to ingress or egress the site area via SR 49, which is to the north or south. The distribution analyses identified a relatively even split to the north and south of Rincon Way, which makes sense since the site is nearly equidistant between Grass Valley and Auburn's commercial centers, employment centers, and educational facilities within the regional area. The peak-hour traffic distribution may be found in [Table 2](#) below.

Model Gate #	Location / Area	% Project Distribution	PM Trip Assignment
1	SR 49 to the North (via Rincon Way)	50%	49.5
2	SR 49 to the South (via Rincon Way)	50%	49.5
3	Hidden Ranch Road (Surrounding Project Area)	0%	0
<i>TOTAL</i>		<i>100%</i>	<i>99</i>

Note: Numbers have been rounded to the nearest integer

Source: RTE CCRC Young Tables.xls

The project generated traffic turning movement volumes are calculated by applying the directional distribution in [Table 2](#) above to the project generated traffic in [Table 1](#) and applying these volumes to the study area intersections. The assigned existing project-generated turning movement volumes at the study area intersection for the PM peak-hour are 100% at SR 49 / Rincon Way and are shown graphically in [Figure 5](#). In addition, 2009 with project turning movement volumes are shown in [Figure 6](#). This data is also shown in the attached traffic calculations and Traffix modeling output in the [Appendices](#).

Figure 5: Project Generated Traffic Volumes

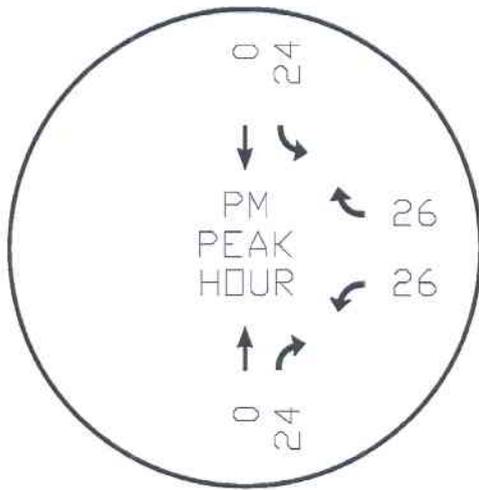
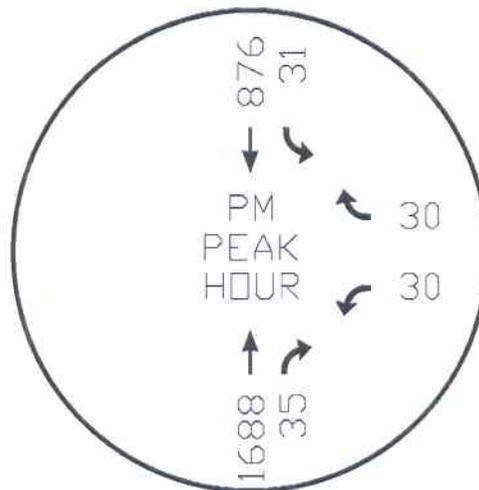


Figure 6: Existing With Project Volumes



PROPOSED INFRASTRUCTURE

Roadways and Intersections

None of the study area intersections or roadways have future planned development or improvements currently identified to be completed by Caltrans, the County, or other developers. The proposed tentative map application includes internal roadway improvements for this project as well as an extension to Rincon Way. Cross sections, right-of-way limits, and specific details of the proposed infrastructure are not available at the time of this study for further comment or review. However, RTE is informed the site will have a secondary emergency access.

FUTURE TRAFFIC VOLUMES

Future AM and PM peak-hour turning movement volumes without the project have been estimated for the study intersection as discussed below. The source and basis foundation for these volumes are discussed in this section of the report.

Future traffic volume data is the basis for the analysis of the capacity and safety of the future roadways and intersections. Based on the traffic volume data that was gathered for the major intersection in the site vicinity under the Existing Traffic Volumes section of the pervious chapter, Roundabouts & Traffic Engineering (RTE) increased the existing traffic volumes at an annual average growth rate of 1.9 percent, which is the estimated population growth rate

identified in the *City of Grass Valley 2020 General Plan* (City of Grass Valley, 1999), for a period of five (5) years to the design year 2014. Please note other local jurisdictional requirements do not require future year analyses for non-critical intersections. However, RTE found it prudent to analyze this intersection under multiple future volume scenarios to determine if signal warrants would be met past the standard five years at 15 years and 20 years (2024 and 2029).

New count data was required to be input into the future conditions traffic model for this analysis to obtain current future conditions. The current count data, as described above, was increased linearly by an average of 1.9% per year to obtain future conditions. No further adjustments or additions to these volumes were accounted for in the estimated future traffic volumes at the study intersection since no other submitted or currently approved but not-yet-built projects within the area could be identified. According to the past four years of posted Caltrans count data at Cottage Drive (MP 5.99), traffic volumes have remained relatively constant on SR 49 from 2004 to 2007. Hence, a 1.9% increase is conservative to use in the future assumptions.

The future turning movement volumes at the study area intersection for the applicable PM peak-hour are shown in [Figure 7](#). Following these traffic volumes are the future 2014 plus project traffic volumes. The 2014 with project turning movement volumes are shown in [Figure 8](#). This data is also shown in the attached traffic calculations and Traffix modeling output in the [Appendices](#).

Figure 8: Future Without Project Volumes

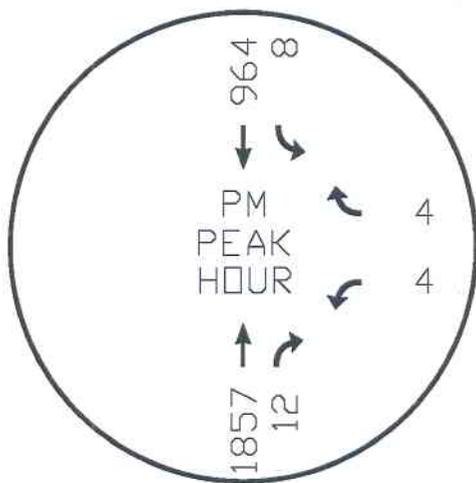
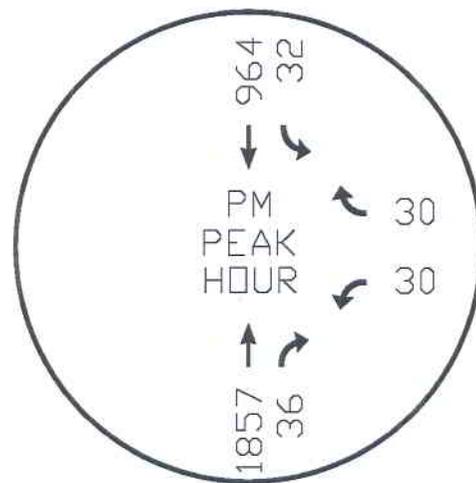


Figure 7: Future With Project Volumes



Chapter 4 CAPACITY ANALYSIS

DESCRIPTION

Traffic operations are assessed in terms of Level of Service (LOS). LOS is a concept that was developed by transportation engineers to quantify the level of operation of intersections and roadways, as presented in the *Highway Capacity Manual* (Transportation Research Board, 2000). The LOS for most jurisdictions at intersections is classified in grades "A" through "F." These grades of LOS are quantified in terms of average delay per vehicle. A LOS "A" reflects full freedom of operation for a driver, while a LOS "F" represents very long delays of operation for a driver, forcing the driver to wait for adequate gaps in conflicting traffic. The criteria is based on the theory of gap acceptance for side-street stop-sign-controlled approaches. A detailed description of LOS criteria is provided in the [Appendices](#).

Generally, LOS "E" is considered the thresholds of acceptable operation for unsignalized intersections. Caltrans strives for to maintain a LOS "D" or better on all state facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency (Nevada County) consult with Caltrans to determine the appropriate target LOS for a project. Therefore, Nevada County staff and Caltrans may determine different acceptable thresholds for this area or specific intersection on SR 49. The Highway Capacity Manual methodology was used for this unsignalized study area intersection.

ANALYSIS METHODOLOGY

Traffic impacts were estimated to determine the extent of change in traffic conditions caused by the development of this project. In order to make this determination, the following assumptions were employed:

- *The proposed development will be built-out and in full operation in 2009.*
- *Existing background traffic on the study area's major roadways was analyzed based on existing count data.*
- *Traffic generation estimates for the project have been prepared for the year of 2009 (as required). These estimates were prepared for the PM peak hours of the surrounding roadway system.*
- *Geometric design changes at the major intersections, and background traffic volumes on the surrounding street system have been determined*

prior to adding the traffic impacts of the proposed project. This was done to establish a baseline for measurement of the incremental impact of the project at the time of its development.

- *Future traffic impacts at a growth rate of 1.9% per year were added to the existing volumes and were also analyzed for this project to determine signal warrants.*
- *If required, roadway improvements have been addressed at appropriate intersections to maintain acceptable levels of operation and threshold criteria. This procedure was conducted for non-project and project-related impacts.*

Per the study requirements, the unsignalized intersection was analyzed using the Highway Capacity Manual (HCM) 2000 methodologies with the HCM 2002 update. The intersections were evaluated using the Traffix software package, which is based upon HCM methodologies. LOS calculations and traffic models for the study area intersection for the previously defined peak hours have been completed and evaluated (calculations can be found in the attached [Appendices](#)).

The standard traffic study methodology for this area identifies a threshold of significance for **critical unsignalized** intersections as follow: “Projects that do not increase the average intersection delay by more than 2.0 seconds for unsignalized intersections will be determined to have a less than significant effect on that intersection.” A critical intersection is defined as one that operates at a LOS D, E, or F. Currently, the study area intersection has not been identified as operating at a critical status.

However, modeling the SR 49 / Rincon Way intersection is difficult for the standard software methodologies since a southbound acceleration lane is present. Since the acceleration lane on SR 49 is not an available option in the modeling software, RTE has provided two sets of capacity analyses to show the impacts and methods used to simulate the acceleration lane per scenario. Essentially, the acceleration lane allows westbound left turns from Rincon Way to enter onto southbound SR 49 without conflict of other southbound traffic already on SR 49. Hence, RTE performed several models runs with and without the SR 49 southbound traffic included to simulate the effects of the acceleration lane. Both of these analyses under all conditions can be found in the [Appendices](#) of this report.

In addition, although Caltrans and the County may not require future year analyses, RTE found it prudent to analyze future conditions of this project’s study area intersection to determine if signal warrants would be met. Several

future year scenarios were considered in the analyses including 5 years out (2014), 15 years out (2024), and 20 years out (2029) to determine if a signal would be needed at the intersection of SR 49/Rincon Way at some point in the future. The existing traffic volumes were increased at an annual average growth rate of 1.9 percent linearly for a period of fifteen as well as twenty years despite the past four years of Caltrans data showing significantly less growth.

EXISTING LOS ANALYSIS

This traffic section of the engineering study analyzes the study area intersection under existing conditions with and without the site-generated vehicular trips. The study area intersection was evaluated to determine existing operational conditions for the PM peak-hour. Using the traffic count data presented in the Existing Conditions Volumes in Chapter 2 of this study, it is possible to evaluate the level of service (LOS) provided during peak periods on the study intersection serving the area. The analysis methodology used is described above for unsignalized intersection to conduct this analysis. Table 4 below summarizes the results of the LOS analyses for the existing with and without project conditions. As shown in Table 4, the existing with project level of service and the thresholds are not exceeded at the study area intersection.

INTX #	Intersection Description	2009 P.M. Peak		2009 P.M. Peak		2 Second Threshold Exceeded?
		Worst Leg		Total Intersection		
		Delay	LOS	Delay	LOS	
1	SR 49 / Rincon Way					
	No Project	35.1	E ¹	0.2	A	
	Plus Project	55.5	F	2.1	A	
	Change in Delay (seconds)	<i>(WB Shared Approach)</i>		1.9		No

Note: LOS D is > 20 and < 35.1 seconds, wherein LOS E is >35.0 and < 55 seconds. Hence, the result is very close to LOS D.

Source: RTE CCRC Young Tables.xls

FUTURE LOS ANALYSIS

Since the results of the existing conditions show the intersection functioning well as a whole but poorly for the westbound approach as well as the fact turning lanes already exist at the study area intersection, RTE found it prudent to analyze this intersection under multiple future volume scenarios to determine if signal warrants would be met in 15 years and 20 years into the future. Hence, future year 2014 LOS analyses were conducted as shown below in Table 5.

TABLE 5: Project Impact on Future Conditions (5 Years / 2014)						
INTX #	Intersection Description	2014 P.M. Peak		2014 P.M. Peak		2 Second Threshold Exceeded?
		Worst Leg		Total Intersection		
		Delay	LOS	Delay	LOS	
1	SR 49 / Rincon Way					
	No Project	44.2	E	0.3	A	
	Plus Project	83.0	F	2.8	A	
	Change in Delay (seconds)	<i>(WB Shared Approach)</i>		2.5		Yes

Source: RTE CCRC Young Tables.xls

As shown in Table 5, the overall intersection still functions at LOS A with the project in 2014, but Rincon Way (westbound approach) experiences a worst case scenario of LOS F during the PM peak hour with the project (down from the existing LOS E without project). Specifically, the westbound left turn is reported as the problematic leg. However, the volume of this leg or specifically the westbound left turns are still relatively low at only 30 PM peak hour trips. **In addition, the accuracy and capability of analyzing the existing acceleration lane on SR 49 is deceiving and difficult for the software to understand. Hence, it is RTE's belief the intersection functions better than the results reported.**

The existing intersection's lane configuration has been well designed and already has left and right turn lanes on SR 49 as well as an acceleration lane on SR 49 for westbound left turns. The westbound approach has more than enough asphalt to function with exclusive left and right turn lanes. Hence, the intersection has been built-out to full capacity as an unsignalized intersection. Installing a traffic signal or modern roundabout at this intersection to improve the potential 30 westbound left's delay is not recommended as the average delay would increase for all traffic movements, additional safety issues could arise for SR 49 traffic, and the overall operation of the approach is expected to function better than reported values. In addition, the signal warrant analyses (below) determine if further mitigation is warranted for the intersection.

As indicated above, the intersection was also analyzed 15 and 20 years from assumed buildout of 2009. Although not required, these analyses are shown below in Table 6 and Table 7 for additional information.

INTX #	Intersection Description	2024 P.M. Peak		2024 P.M. Peak		2 Second Threshold Exceeded?
		Worst Leg		Total Intersection		
		Delay	LOS	Delay	LOS	
1	SR 49 / Rincon Way					
	No Project	70.9	F	0.4	A	
	Plus Project	190.8	F	5.5	A	
	Change in Delay (seconds)	<i>(WB Shared Approach)</i>		5.1		Yes

Source: RTE CCRC Young Tables.xls

INTX #	Intersection Description	2029 P.M. Peak		2029 P.M. Peak		2 Second Threshold Exceeded?
		Worst Leg		Total Intersection		
		Delay	LOS	Delay	LOS	
1	SR 49 / Rincon Way					
	No Project	95.6	F	0.5	A	
	Plus Project	301.6	F	8.1	A	
	Change in Delay (seconds)	<i>(WB Shared Approach)</i>		7.6		Yes

Source: RTE CCRC Young Tables.xls

OTHER CAPACITY CONSIDERATIONS

Signal Warrants

As anticipated, signal warrants have **not** been found to be met at the study area intersection under either existing or any of the future scenarios. The initial traffic volume signal warrant analyses are shown in the Appendices of the report for each scenario. Please refer to these signal warrant analyses shown in the Appendices for further information as additional scenarios were added to the analyses to account for the acceleration lane on SR 49 (with and without southbound volumes) to test the scenarios.

Signal warrants were analyzed under eight scenarios (16 total including southbound volumes), which include the following:

- Existing No Project Conditions
- Existing Plus Project Conditions
- Future 2014 No Project Conditions

- Future 2014 Plus Project Conditions
- Future 2024 No Project Conditions
- Future 2024 Plus Project Conditions
- Future 2029 No Project Conditions
- Future 2029 Plus Project Conditions

In summary, **Table 8** shows the results of these analyses. As shown, signal warrants have not been met under any of the existing or future scenarios analyzed at the study area intersection. In addition, RTE could not find any other traffic studies warranting a signal at the study area intersection. Therefore, a signal is not recommended for this intersection at this time.

TABLE 8: SIGNAL WARRANT ANALYSIS SUMMARY		
<i>Appendices Contain Full Reports</i>		
#	Scenario Description	Signal Warrants Met?
SR 49 / Rincon Way		
1	2009 No Project	No
2	2009 Plus Project	No
3	2014 No Project	No
4	2014 Plus Project	No
5	2024 No Project	No
6	2024 Plus Project	No
7	2029 No Project	No
8	2029 Plus Project	No
<i>Note 1: Signal Warrant Rules 1, 2, and 3 Succeed (Met)</i>		
Source: RTE		CCRC Young Tables.xls

Left Turn Storage and Queuing Analysis

Left turn lane analyses were not performed along SR 49 since turn lanes already exist. In addition, since ample roadway width is paved for the westbound approach and the LOS analyses benefit from mutually exclusive turn lanes, a striped left and right turn lane is recommended for Rincon Way at least 50 feet in length. Minor asphalt improvements may not be needed in the field, wherein only striping would suffice. However, the prime civil engineering firm should verify the roadway width, length, and existing condition of the striped turn lanes to determine if further improvements are needed.

In addition, an acceleration lane on SR 49 northbound (westbound right turn) does not appear warranted.

MITIGATION MEASURES

The study area intersections were analyzed for capacity based upon procedures presented in the Highway Capacity Manual. Both existing and future conditions identify the intersection functioning at a LOS A as whole and a LOS E or F for the westbound approach (worst leg) with or without the project. Considering the study area intersection is fully built-out with turn lanes and an acceleration lane on SR 49 southbound as well as the fact signal warrants are not met for 20 years into the future, no further mitigation is recommended with the exception of clear delineation for the westbound approach's left and right turn lanes.

Therefore, paint or thermoplastic striping and pavement markings are recommended to be installed on Rincon Way for a minimum of 50 feet in length as part of this project's intersection improvements. Nevada County staff and/or Caltrans may determine the need for additional improvements.

OTHER NON-CAPACITY CONSIDERATIONS

Sight Distance at Site Access Locations

No sight distance verification or calculations could be performed for the new roadways or site accesses on Rincon Way. Nevada County should verify that the final site plan improvements are compliant with their standards for the actual access points on these roadways since RTE was unable to review the final plans in the field.

Transit, Pedestrian & Bicycle Facilities

Transit services should be provided directly to the site with this high senior population. Transit stops are recommended to be provided adjacent to or within the site since it was not discussed in the project description. However, these comments and recommendations, or if the developer desires to place a transit stop on Rincon Way, are at the discretion of the Nevada County Transit Division for approval of new transit stop locations. The Nevada County Transit Division may have a few transit shelters already constructed and available for this project's purchase /use. If no transit shelters are available, the Nevada County Transit Division should provide specifications for the placement of a new transit stop (if appropriate).

No pedestrian activity was observed near the site frontage. Due to the rural nature of this project's development area (off-site), suburban sidewalks may not be necessary. However, on-site sidewalks should be included within the project development.

Emergency Vehicles

The new roadways internal and external to the proposed development should be reviewed by the local fire department staff for compliance. A secondary and emergency access is proposed with this project. No emergency vehicle issues have been reviewed or identified for this project at this time.

REFERENCES

1. *Highway Capacity Manual (2000), HCM Special Report 209*, 1985, Updated October 1994, Transportation Research Board, National Research Council.
2. *Trip Generation Manual*, Seventh Edition, Institute of Transportation Engineers.
3. *Manual on Uniform Traffic Control Devices*, 2003, Federal Highway Administration.
4. *Traffic Access and Impact Study for Site Development, A Recommended Practice*, 1991, Institute of Transportation Engineers.
5. *A Policy on The Geometric Design of Highways and Streets*, 1994, American Association of State Highway Transportation Officials.

APPENDIX

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report
Scenario: Existing No Proj. PM
Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Existing

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1688	11	7	876	0	0	0	0	4	0	4	2590
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1688	11	7	876	0	0	0	0	4	0	4	2590

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met No	Met ???

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	0 0 1 0 0
Final Vol.:	0 1722 11	7 894 0	0 0 0 0	4 0 4
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	63.2

Approach[westbound][lanes=1][control=Stop]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=8]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2643]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: F[63.2]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes.

Table with columns for Volume Module: Count Date (3 Dec 2008), PM Peak, Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module: Critical Gp, FollowUpTim, and values for different approaches.

Table for Capacity Module: Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Table for Level Of Service Module: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, and ApproachLOS.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Existing No Proj. PM

Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Existing

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Turning Movement Report
PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1688	11	7	0	0	0	0	0	4	0	4	1714
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1688	11	7	0	0	0	0	0	4	0	4	1714

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	No	???

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	1722		11	7	0		0	0	0	0		0	0	4	0		0	4	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				35.1							

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=8]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=1749]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report
Scenario: Existing + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Existing

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1688	11	7	876	0	0	0	0	4	0	4	2590
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	1688	35	31	876	0	0	0	0	30	0	30	2690

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/	V/	Del/	V/	
	LOS	Veh	LOS	Veh	
# 1 SR49/Rincon Way	F	63.2 0.000	F	219.4 0.000	+156.172 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met ???	Met No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0
Final Vol.:	0	1722	36		32	894	0		0	0	0	0		31	0	31				
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				219.4							

 Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=3.7]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=61]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2745]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 5.1 Worst Case Level Of Service: F[219.4]

Street Name: SR 49 Rincon Way

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Channel Include Include Include

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 0 0 0 0 1 0 0

Volume Module: >> Count Date: 3 Dec 2008 << PM Peak

Table with 12 columns for traffic metrics: Base Vol, Growth Adj, Initial Bse, Added Vol, In-Process, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol. Rows include values for each approach and movement.

Critical Gap Module:

Table with 3 columns for Critical Gap, FollowUpTim, and values for different approaches.

Capacity Module:

Table with 3 columns for Capacity metrics: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows include values for different approaches.

Level of Service Module:

Table with 3 columns for Level of Service metrics: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Rows include values for different approaches.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:			2%					2%					0%					0%		
Grade:			2%					-3%					0%					0%		
Peds/Hour:			0					0					0					0		
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:			12 feet					12 feet					12 feet					12 feet		
Time Period:	0.25 hour																			

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Existing + Proj. PM

Command: Plus Project

Volume: PM

Geometry: Default Geometry

Impact Fee: Default Impact Fee

Trip Generation: PM

Trip Distribution: Default Trip Distribution

Paths: Default Paths

Routes: Default Routes

Configuration: Existing

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1688	11	7	0	0	0	0	0	4	0	4	1714
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	1688	35	31	0	0	0	0	0	30	0	30	1814

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	LOS	Veh C	LOS	Veh C	
# 1 SR49/Rincon Way	E	35.1 0.000	F	55.5 0.000	+20.427 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met Met ???	Met Met No

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0	0	2	0	1		1	0	2	0	0	
Final Vol.:	0	1722	36	32	0	0	0	0	0	0	0	1
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			55.5		

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=0.9]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=61]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=1851]

SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: F[55.5]

Street Name: SR 49 Rincon Way

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Channel Include Include Include

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0 0 1

Volume Module: >> Count Date: 3 Dec 2008 << PM Peak

Base Vol:	0	1688	11	7	0	0	0	0	0	4	0	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1688	11	7	0	0	0	0	0	4	0	4
Added Vol:	0	0	24	24	0	0	0	0	0	26	0	26
In-Process:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1688	35	31	0	0	0	0	0	30	0	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	1722	36	32	0	0	0	0	0	31	0	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	1722	36	32	0	0	0	0	0	31	0	31

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.8	xxxx	6.9
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxx	1722	xxxx	xxxxx	xxxx	xxxx	xxxxx	1786	xxxx	861
Potent Cap.:	xxxx	xxxx	xxxxx	363	xxxx	xxxxx	xxxx	xxxx	xxxxx	74	xxxx	303
Move Cap.:	xxxx	xxxx	xxxxx	363	xxxx	xxxxx	xxxx	xxxx	xxxxx	69	xxxx	303
Volume/Cap:	xxxx	xxxx	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	xxxx	0.44	xxxx	0.10

Level Of Service Module:

Queue:	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	1.7	xxxx	0.3
Stopped Del:	xxxxx	xxxx	xxxxx	15.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	92.8	xxxx	18.2
LOS by Move:	*	*	*	C	*	*	*	*	*	F	*	C
Movement:	LT - LTR - RT											
Shared Cap.:	xxxx	xxxx	xxxxx									
SharedQueue:	xxxxx	xxxx	xxxxx									
Shrd StpDel:	xxxxx	xxxx	xxxxx									
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			55.5		
ApproachLOS:	*			*			*			F		

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Project Trips Report
PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future No Proj. PM

Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Turning Movement Report
PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1857	12	8	0	0	0	0	0	4	0	4	1885
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1857	12	8	0	0	0	0	0	4	0	4	1885

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met No	Met ???

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

 Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 1895 12	8 0 0 0	0 0 0 0	4 0 4
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	44.2

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=9]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=1924]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: E[44.2]

Table with columns: Street Name, Approach, Movement, Control, Rights, Lanes. Rows include SR 49 and Rincon Way with various traffic movement details.

Table with columns: Volume Module, Count, Date, PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Table with columns: Critical Gap Module, Critical Gp, FollowUpTim. Rows include values for critical gaps and follow-up times.

Table with columns: Capacity Module, Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows include capacity-related metrics.

Table with columns: Level Of Service Module, Queue, Stopped Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Rows include detailed level of service and delay data.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:	2%			2%			0%			0%										
Grade:	2%			-3%			0%			0%										
Peds/Hour:	0			0			0			0										
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet			12 feet			12 feet			12 feet										
Time Period:	0.25 hour																			

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future No Proj. PM

Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Turning Movement Report
PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2161	14	9	1121	0	0	0	0	5	0	5	3315
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2161	14	9	1121	0	0	0	0	5	0	5	3315

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met No	Met ???

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0
Final Vol.:	0 2205				14	9 1144				0	0 0 0 0				0	5 0 5				
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					199.7				

 Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.6]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=10]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3383]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way
Average Delay (sec/veh): 0.7 Worst Case Level Of Service: F[199.7]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes.

Table for Volume Module showing Count Date (3 Dec 2008), PM Peak, and various volume metrics like Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module showing Critical Gap, FollowUpTim, and other timing parameters.

Table for Capacity Module showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap.

Table for Level of Service Module showing Queue, Stopped Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd StpDel, Shared LOS, ApproachDel, and ApproachLOS.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future No Proj. PM

Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Turning Movement Report
PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2161	14	9	0	0	0	0	0	5	0	5	2194
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2161	14	9	0	0	0	0	0	5	0	5	2194

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	No	???

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0 2205			14			9 0 0			0			0 0 0			5 0 5				
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			xxxxxx			70.9							

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=10]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2239]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 0.4 Worst Case Level Of Service: F[70.9]

Street Name: SR 49 Rincon Way

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Table with columns for Volume Module: Count Date (3 Dec 2008) and PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module with columns for Critical Gp, FollowUpTim, and values like 4.1, 6.8, 2.2, 3.5.

Table for Capacity Module with columns for Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. with values like 2205, 223, 235, 0.04.

Table for Level Of Service Module with columns for Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, and ApproachLOS.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:	2%			2%			0%			0%										
Grade:	2%			-3%			0%			0%										
Peds/Hour:	0			0			0			0										
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet			12 feet			12 feet			12 feet										
Time Period:	0.25 hour																			

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future No Proj. PM

Command: No Project

Volume: PM

Geometry: Default Geometry

Impact Fee: Default Impact Fee

Trip Generation: PM

Trip Distribution: Default Trip Distribution

Paths: Default Paths

Routes: Default Routes

Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2329	15	10	1209	0	0	0	0	6	0	6	3574
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2329	15	10	1209	0	0	0	0	6	0	6	3574

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base Met	Future Met
# 1 SR49/Rincon Way	No	???

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	0 0 1! 0 0
Final Vol.:	0 2377 15	10 1234 0	0 0 0 0	6 0 6
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	331.8

Approach[westbound][lanes=1][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=1.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=11]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3647]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: F[331.8]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes (0 0 2 0 1, 1 0 2 0 0, 0 0 0 0 0, 0 0 1! 0 0).

Table with columns for Volume Module: >> Count Date: 3 Dec 2008 << PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module: Critical Gp, FollowUpTim. Values include 4.1, 2.2, 6.8, 3.5.

Table for Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Values include 2377, 201, 201, 0.05, 3013, 11, 10, 0.55.

Table for Level Of Service Module: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Values include 0.2, 23.8, C, 20, 1.6, 332, F, 331.8.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:	2%				2%				0%				0%							
Grade:	2%				-3%				0%				0%							
Peds/Hour:	0				0				0				0							
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet				12 feet				12 feet				12 feet							
Time Period:	0.25 hour																			

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future No Proj. PM

Command: No Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2329	15	10	0	0	0	0	0	6	0	6	2365
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2329	15	10	0	0	0	0	0	6	0	6	2365

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	No	???

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	2377		15		10	0		0		0	0		0		6	0		6	
ApproachDel:	xxxxxx					xxxxxx					xxxxxx					95.6				

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=11]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2414]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: F[95.6]

Street Name: SR 49 Rincon Way

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, and Lanes.

Table for Volume Module showing Count Date: 3 Dec 2008 << PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module showing Critical Gap and FollowUpTim values for different movements.

Table for Capacity Module showing Cnflct Vol, Potent Cap., Move Cap., and Volume/Cap. for different movements.

Table for Level Of Service Module showing Queue, Stopped Del, LOS by Move, Movement, Shared Cap., Shared Queue, Shrd StpDel, Shared LOS, ApproachDel, and ApproachLOS.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:			2%					2%					0%					0%		
Grade:			2%					-3%					0%					0%		
Peds/Hour:			0					0					0					0		
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet			12 feet			12 feet			12 feet										
Time Period:	0.25 hour																			

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Turning Movement Report
PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1857	12	8	964	0	0	0	0	4	0	4	2849
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	1857	36	32	964	0	0	0	0	30	0	30	2949

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 SR49/Rincon Way	F 88.0	0.000	F 267.8	0.000	+179.793 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	???	No

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	1895		37		32	983		0		0	0	0	0		31	0		31	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				267.8							

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=4.6]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=62]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3009]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	1857	12	8	0	0	0	0	0	4	0	4	1885
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	1857	36	32	0	0	0	0	0	30	0	30	1985

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 SR49/Rincon Way	E 44.2	0.000	F 83.0	0.000	+38.825 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	???	No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	1895	37	32	0	0	0	0	0	0	0	0	0	0	31	0	31			
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			83.0										

Approach[westbound][lanes=2][control=Stop]
 Signal Warrant Rule #1: [vehicle-hours=1.4]
 FAIL - Vehicle-hours less than 5 for two or more lane approach.
 Signal Warrant Rule #2: [approach volume=62]
 FAIL - Approach volume less than 150 for two or more lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=2026]
 SUCCEED - Total volume greater than or equal to 650 for intersection
 with less than four approaches.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Computation Report
 2000 HCM Unsignalized Method (Future Volume Alternative)

 Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 2.8 Worst Case Level Of Service: F[83.0]

Street Name:	SR 49				Rincon Way					
Approach:	North Bound		South Bound		East Bound		West Bound			
Movement:	L	T	R	L	T	R	L	T	R	
Control:	Uncontrolled		Uncontrolled		Stop Sign		Stop Sign			
Rights:	Channel		Include		Include		Include			
Lanes:	0	0	2	0	1	1	0	0	0	1

Volume Module:	>> Count	Date:	3 Dec 2008	<< PM Peak									
Base Vol:	0	1688	11	7	0	0	0	0	0	0	4	0	4
Growth Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Initial Bse:	0	1857	12	8	0	0	0	0	0	0	4	0	4
Added Vol:	0	0	24	24	0	0	0	0	0	0	26	0	26
In-Process:	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1857	36	32	0	0	0	0	0	0	30	0	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	1895	37	32	0	0	0	0	0	0	31	0	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	1895	37	32	0	0	0	0	0	0	31	0	31
Critical Gap Module:													
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.8	xxxx	6.9	
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	

Capacity Module:													
Cnflct Vol:	xxxx	xxxx	xxxxx	1895	xxxx	xxxxx	xxxx	xxxx	xxxxx	1959	xxxx	947	
Potent Cap.:	xxxx	xxxx	xxxxx	311	xxxx	xxxxx	xxxx	xxxx	xxxxx	57	xxxx	266	
Move Cap.:	xxxx	xxxx	xxxxx	311	xxxx	xxxxx	xxxx	xxxx	xxxxx	52	xxxx	266	
Volume/Cap:	xxxx	xxxx	xxxx	0.10	xxxx	xxxx	xxxx	xxxx	xxxx	0.59	xxxx	0.12	

Level Of Service Module:													
Queue:	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.3	xxxx	0.4	
Stopped Del:	xxxxx	xxxx	xxxxx	17.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	145.7	xxxx	20.3	
LOS by Move:	*	*	*	C	*	*	*	*	*	F	*	C	
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*	
ApproachDel:	xxxxxxx			xxxxxxx			xxxxxxx			83.0			
ApproachLOS:	*			*			*			F			

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2161	14	9	1121	0	0	0	0	5	0	5	3315
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	2161	38	33	1121	0	0	0	0	31	0	31	3415

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Impact Analysis Report
 Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS Veh	V/ C	Del/ LOS Veh	V/ C	
# 1 SR49/Rincon Way	F 185.0	0.000	F 664.4	0.000	+479.354 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	???	No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	2205		39		34	1144		0		0	0	0	0		32	0		32	
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				664.4							

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=11.7]

SUCCEED - Vehicle-hours >= 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=64]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3485]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 12.3 Worst Case Level Of Service: F[664.4]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes (0 0 2 0 1).

Table with columns for Volume Module: >> Count Date: 3 Dec 2008 << PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, In-Process, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table for Critical Gap Module: Critical Gap:xxxxx, FollowUpTim:xxxxx. Values include 4.1, 6.8, 2.2, 3.5.

Table for Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Values include 2205, 2844, 235, 13, 0.14, 2.53.

Table for Level Of Service Module: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Values include 0.5, 4.9, 22.9, 1304, C, F, D, 664.4.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach: Movement:	North Bound			South Bound			East Bound			West Bound		
	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:		2%			2%			0%			0%	
Grade:		2%			-3%			0%			0%	
Peds/Hour:		0			0			0			0	
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:		12 feet			12 feet			12 feet			12 feet	
Time Period:	0.25 hour											

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2161	14	9	0	0	0	0	0	5	0	5	2194
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	2161	38	33	0	0	0	0	0	31	0	31	2294

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 SR49/Rincon Way	F 70.9	0.000	F 190.8	0.000	+119.908 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
# 1 SR49/Rincon Way	Met Met ???	Met Met No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Uncontrolled	Uncontrolled	Stop Sign	Stop Sign
Lanes:	0 0 2 0 1	1 0 2 0 0	0 0 0 0 0	1 0 0 0 1
Final Vol.:	0 2205 39	34 0 0	0 0 0 0	32 0 32
ApproachDel:	xxxxxx	xxxxxx	xxxxxx	190.8

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=3.4]

FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=64]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=2341]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 5.5 Worst Case Level Of Service: F[190.8]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes (0 0 2 0 1).

Table with columns for Volume Module: >> Count Date: 3 Dec 2008 << PM Peak. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, In-Process, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, and Final Vol.

Table with columns for Critical Gap Module: Critical Gp, FollowUpTim. Values include 4.1, 6.8, 2.2, 3.5.

Table with columns for Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Values include 2205, 2272, 235, 31, 0.14, 1.02.

Table with columns for Level Of Service Module: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Values include 0.5, 22.9, 356.3, 190.8.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:	2%				2%				0%				0%							
Grade:	2%				-3%				0%				0%							
Peds/Hour:	0				0				0				0							
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet				12 feet				12 feet				12 feet							
Time Period:	0.25 hour																			

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report
Scenario: Future + Proj. PM
Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Zone #	Subzone	Amount	Units	Rate In	Rate Out	Trips In	Trips Out	Total Trips	% Of Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Zone 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

Zone	To Gates	
	1	2
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2329	15	10	1209	0	0	0	0	6	0	6	3574
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	2329	39	34	1209	0	0	0	0	32	0	32	3674

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/	V/	Del/	V/	
# 1 SR49/Rincon Way	LOS Veh	C	LOS Veh	C	
	F 331.8	0.000	F OVRFL 0.000		+1447.460 D/

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	???	No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign										
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0
Final Vol.:	0	2377	40	34	1234	0	0	0	0	0	0	0	0	0	32	0	32			
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			1779.3										

Approach[westbound][lanes=1][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=31.8]

SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=64]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3749]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 30.8 Worst Case Level Of Service: F[1779.3]

Table with columns for Street Name (SR 49, Rincon Way), Approach (North Bound, South Bound, East Bound, West Bound), Movement (L-T-R), Control (Uncontrolled, Stop Sign), Rights (Channel, Include), and Lanes (0 0 2 0 1, etc.).

Table with columns for Volume Module: Count Date (3 Dec 2008), Peak, Base Vol, Growth Adj, Initial Bse, Added Vol, In-Process, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol.

Table with columns for Critical Gap Module: Critical Gap, FollowUpTim, values like 4.1, 6.8, 6.9, 2.2, 3.5, 3.3.

Table with columns for Capacity Module: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap, values like 2377, 3062, 1188, 201, 184, 184, 0.17, 3.73, 0.18.

Table with columns for Level Of Service Module: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS, values like 0.6, 26.6, 16, 8.7, 1779.3, F.

CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HevVeh:	2%				2%				0%				0%							
Grade:	2%				-3%				0%				0%							
Peds/Hour:	0				0				0				0							
Pedestrian Walk Speed:	4.00 feet/sec																			
LaneWidth:	12 feet				12 feet				12 feet				12 feet							
Time Period:	0.25 hour																			

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Zone #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Scenario Report

Scenario: Future +Proj. PM

Command: Plus Project
Volume: PM
Geometry: Default Geometry
Impact Fee: Default Impact Fee
Trip Generation: PM
Trip Distribution: Default Trip Distribution
Paths: Default Paths
Routes: Default Routes
Configuration: Future

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Trip Generation Report
 PM Trip Generation from ITE Trip Generation Manual
 Forecast for PM

Øne #	Subzone	Amount	Units	Rate		Trips		Total % Of	
				In	Out	In	Out	Trips	Total
1	CCRC Young	1.00	CCRC	48.00	51.00	48	51	99	100.0
	Øne 1 Subtotal					48	51	99	100.0
TOTAL						48	51	99	100.0

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Trip Distribution Report
Trip Distribution
Percent Of Trips Default

	To Gates	
	1	2
One	-----	-----
1	50.0	50.0

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Turning Movement Report
 PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#1 SR49/Rincon Way													
Base	0	2329	15	10	0	0	0	0	0	6	0	6	2365
Added	0	0	24	24	0	0	0	0	0	26	0	26	100
Total	0	2329	39	34	0	0	0	0	0	32	0	32	2465

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Impact Analysis Report
Level Of Service

Intersection	Base		Future		Change in
	Del/ LOS	V/ Veh C	Del/ LOS	V/ Veh C	
# 1 SR49/Rincon Way	F 95.6	0.000	F 301.6	0.000	#06.017 D/V

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Signal Warrant Summary Report

Intersection	Base	Future
	Met	Met
# 1 SR49/Rincon Way	???	No

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Signal Warrant Report

Intersection #1 SR49/Rincon Way

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	T	R		L	T	R		L	T	R		L	T	R					
Control:	Uncontrolled				Uncontrolled				Stop Sign				Stop Sign							
Lanes:	0	0	2	0	1	1	0	2	0	0	0	0	0	0	0	1	0	0	0	1
Final Vol.:	0	2377		40	34	0		0	0	0		0	32	0		32				
ApproachDel:	xxxxxx				xxxxxx				xxxxxx				301.6							

Approach[westbound][lanes=2][control=Stop]

Signal Warrant Rule #1: [vehicle-hours=5.4]

SUCCEED - Vehicle-hours >= 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=64]

FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=2516]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

CCRC Young Enterprises
Traffic Impact Analysis Data
Roundabouts & Traffic Engineering

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 SR49/Rincon Way

Average Delay (sec/veh): 8.1 Worst Case Level Of Service: F[301.6]

Street Name: SR 49 Rincon Way

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Uncontrolled Uncontrolled Stop Sign Stop Sign

Rights: Channel Include Include Include

Lanes: 0 0 2 0 1 1 0 2 0 0 0 0 0 0 1 0 0 0 1

Volume Module: >> Count Date: 3 Dec 2008 << PM Peak

Table with 12 columns for traffic volume metrics: Base Vol, Growth Adj, Initial Bse, Added Vol, In-Process, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Vol. Rows show data for four approaches (North, South, East, West) and their movements (L, T, R).

Critical Gap Module:

Table with 3 columns for critical gap metrics: Critical Gap, FollowUpTim. Rows show data for four approaches.

Capacity Module:

Table with 3 columns for capacity metrics: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap. Rows show data for four approaches.

Level Of Service Module:

Table with 3 columns for level of service metrics: Queue, Stopped Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd StpDel, Shared LOS, ApproachDel, ApproachLOS. Rows show data for four approaches.

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Level Of Service Detailed Computation Report
 2000 HCM Unsignalized Method
 Base Volume Alternative

Intersection #1 SR49/Rincon Way

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			2%			0%			0%		
Grade:	2%			-3%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed:	4.00 feet/sec											
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period:	0.25 hour											

 CCRC Young Enterprises
 Traffic Impact Analysis Data
 Roundabouts & Traffic Engineering

Project Trips Report
 PM

Node Intersection	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Øne #1: CCRC Young 1 SR49/Rincon W	0	0	24	24	0	0	0	0	0	26	0	26

Project Description

Young Enterprises, L.P. (“Owner”) owns approximately 215 acres in unincorporated Nevada County (“County”). The property consists of four parcels and is accessed from State Route 49 (SR 49) via Rincon Way and is known as (APN 57-240-17, 18, 19 and 57-130-13). The vast majority of the property is currently undeveloped. There is an existing single family residential structure on the property. The property has a General Plan designation of PD EST and a zoning designation of RA-3-PD.

The Owner is seeking a new zoning district, Planned Development – Continuing Care Retirement Communities (PD-CCRC). Continuing Care Retirement Communities CCRCs offer services and housing in a “Aged restricted Campus Setting” that includes independent living, assisted living, skilled nursing facilities, physical rehabilitation, and Memory impairment housing. Seniors who are independent may live in a single-family home, apartment or condominium within the Campus. If they begin to need help with activities of daily living, (e.g., bathing, dressing, eating, etc.), help is provided in the home or the resident may transfer to assisted living or skilled nursing housing on the same site.

CCRC’s are designed as “aging in place” communities that recognize and accept aging as a dynamic process. While many people may remain in independent living arrangements their entire life, at some point they will need assistance. CCRC’s are designed to provide the needed services necessary for all levels of the aging process.

The campus is proposed to be clustered in the Northwest section of the property on APN 57-240-19 and on APN 57-240-04. Access will be provided via Rincon Way

The Campus is designed to serve adults 55 years and older, who are seeking to downsize their living environment, but are still active physically and socially. In addition, there are opportunities for independent congregate living community, Apartment style units with services such as dining/meals, transportation, and recreational activities are also provided. Due to the size of the property, the Owner believes the campus will have different types of communities within the overall area. Each community would be designed to meet the specific needs of the residents based on age group and/or services needed.

The Owner does not intend on selling the land in fee simple to the residents, but rather to partner with a Non-Profit Sponsor to create a CCRC that is a *health care related entity providing housing rather than a housing-related entity providing health care*. The goal is to create a “wellness” atmosphere in a natural setting that encourages activity and independence. By working with Sutter Health or a similar experienced sponsor, the community hopes to become a health-care related entity providing housing designed to support that ambition rather than a housing-related entity that provides some level of health care in a forced continuum.

The Campus design offers a self contained environment in a rural and agricultural atmosphere with amenities and services including, but not limited to a clubhouse, driving range, aquatic center, hair salon, spa rooms, gym/workout, yoga/dance, private dining areas, picnic areas, walking trails, community garden, fishing pond, recycle facility, art/clay studio, deli/sports bar, libraries, computer/business center, theater, post office, bank, and on-site support services such as doctor, dentist, rehab facilities and other professional services

The campus offers seniors a variety of housing choices all constructed with Universal Design aimed at insuring an age-in-place option no matter how challenging the circumstance.

The Campus is designed to serve a senior population ranging from 350 to 450 housed in the following:

- 75 ~ Active Living (Detached) Cottages.
- 3 ~ Active Living (Detached) Group Homes.
- 55 ~ Active Living/Assisted Living Duplexes unit (two bedroom, 1.5 bath, with small one car garage)
- 50 ~ Active Living/Assisted Living Garden Apartments(two bedroom, two bath, with den)
- 150 ~ Assisted Living units (within two three story buildings each containing 50, 2 bedroom,2 bath units, and 25, 2 bedroom 2 bath with and underground parking)
- 1 ~ 35 room Skilled Nursing facility
- 1 ~ Memory Impaired Group Home (6 bedrooms w/bath, restricted kitchen caretaker apartment)

Stand alone buildings include dining/education; barn that holds woodshop, car repair, maintenance equipment; greenhouse, existing club house.

There is a difference in the traditional type of Health Care Facilities currently available to Elder Care and the type of facility proposed herein. The following are terms and definitions designed to bring conceptual clarification:

Life expectancy has risen and housing and health care arrangements of the past are now inappropriate to service the needs of today's independent and semi-independent elderly. As a result, supportive housing arrangements that integrate various levels of ambulatory health care services, social services, recreational activities, and skilled/nursing/long term care services are required, the most common being:

- Independent Housing – Active Living/Independent Congregate Living (IL)

- Assisted Living (AL)
- Skilled Nursing (SN)
- Residentially-oriented Dementia and Alzheimer's (ALZ) or "Memory Loss"
- Continuing Care Retirement Community (CCRC) integrates all of the "above" products as well as physical rehabilitation services.

Active Living housing is age-restricted (55+) and is typically 1500 to 2000 square feet on a single level, with recreational amenities and the maintenance of home exteriors, yards, and recreational complexes usually managed by a Home Owner's Association. Independent Congregate Living is "resort style" apartments with most of the community amenities available within the building.

Assisted Living provides more comprehensive services but offers fewer amenities and reduced living space. Sometimes referred to as "Transitional Living" it is designed for adults who need help with everyday tasks, but they don't need full-time nursing care.

Skilled Nursing has Registered Nurses who help provide 24-hour care to people who can no longer care for themselves due to physical, emotional, or mental conditions. A licensed physician supervises each patient's care and a nurse or other medical professional is almost always on the premises. Most nursing homes have two basic types of services: skilled medical care and custodial care.

Residential Memory Loss are secure, specialized facilities offering services and housing specially designed to accommodate those with various dementias. This level of care offers twenty-four hour supervision, secure units (locked), meals, activities, and care services specific to each resident.

Continuing Care Retirement Communities offer services and housing packages that encompass all of the above living arrangements by allowing access to independent living, assisted living, skilled nursing facilities, physical rehabilitation, and Memory Loss. Seniors who are independent may live in a single-family home, apartment or condominium within the Continuing Care retirement complex. If they begin to need help with activities of daily living, (e.g., bathing, dressing, eating, etc.), help is provided in the home or the resident may transfer to assisted living or skilled nursing housing on the same site.

CCRC's are "aging in place" communities that recognize and accept aging as a dynamic process. While many people may remain in independent living arrangements their entire life, at some point they may need some assistance. Some will decrease at the assisted level, but many more may require acute health care services, while still others will continue to age and inevitably require skilled nursing or memory care.

Understanding A Continuing Care Retirement Community (CCRC)

Continuing Care Retirement Communities (CCRC) allow seniors to "age in place," with flexible accommodations that are designed to meet their health and housing needs as these needs change over time. Residents entering Continuing Care Retirement Communities sign a long-term contract that provides for housing, services and nursing care, usually all in one location, enabling seniors to remain in a familiar setting as they grow older.

Many seniors enter into a CCRC contract while they are healthy and active, knowing they will be able to stay in the same community and receive nursing care should this become necessary. Seniors who invest in a Continuing Care Retirement Community have adequately planned for housing and care for the remainder of their life, and have the financial means to support it.

Difference between Continuing Care Retirement Community and Assisted Living

A senior in a Continuing Care Retirement Community contracts in advance for a lifetime commitment from the Continuing Care Retirement Community to care for them, regardless of their future needs. In contrast, a resident in an Assisted Living Facility has no such contract; they move into the Assisted Living Facility when necessary, and begin to pay at that point. The advantages of a Continuing Care Retirement Community are:

- There is no moving required (except possibly to another building within the same community).
- The senior is still able to maintain relationships with spouse, friends and other family members;
- If the senior becomes well enough to no longer require assistance or nursing care, the care ceases, and they resume an independent lifestyle within the same community.

Types of Housing Provided in Continuing Care Retirement Communities

One of the major advantages of a Continuing Care Retirement Community is the option to move between the available housing environments as one's needs change. Housing choices range from independent living to assisted living to a skilled nursing facility, all on the same property. Some Continuing Care Retirement Communities are in a high-rise building; others are on extensive campuses. The Continuing Care Retirement Community model ensures that the senior stays in the same location as their needs change.

Independent Living

Independent Living units are for healthy, active seniors. They may be:

- Two-, or three-bedroom apartments
- Cottages
- Duplexes
- Cluster homes
- Single-family homes

Assisted Living

Assisted Living units are for those who need some assistance in Activities of Daily Living (ADLs), such as bathing, eating, dressing, and using the toilet, but who also want to maintain independence. The units may be:

- Existing Residence with assistance from the CCRC
- Apartments with scaled down kitchens
- Extended Family type housing
- Congregate Apartment Housing

Assisted Living units may have group dining areas and common areas for social and recreational activities.

Skilled Nursing Accommodations

Nursing Home accommodations are for those who require skilled nursing care. These living units are furnished single rooms with a bathroom, usually shared with one or more other residents.

As a senior who develops a need for Assisted Living or nursing home care recovers, they are welcome to resume independent living if their medical professionals agree they are again able to manage on their own.

Services provided in Continuing Care Retirement Communities

Continuing Care Retirement Communities are not designed for short-term residency or care. The contract that you sign is for life.

Continuing Care Retirement Communities allow seniors to tailor their service plan to suit their needs, abilities, and preferences. Even though a senior may not require a specific service now, they can opt to enroll in it. These services include:

- Independent/Active Living with Extensive Amenities as well as Planned Activity
- Assisted living services
- Physical Rehabilitation
- Skilled Nursing and other medical services
- Memory Loss - Alzheimer's Disease

Typical Independent/Active Living services include:

Aquatic center, fitness center, community gardens, yoga, art/clay studios, woodshop, garage, computer/business center, spa, nutritionist, singles groups, consigner services, day trips, library, college-sponsored learning programs, discussion/book groups, sports court, dining, housekeeping, massage, etc.

Typical assisted living services include:

- Meals and special diets
- Housekeeping
- Transportation
- Emergency help
- Personal assistance
- Assistance with Activities of Daily Living (ADLs)
- Recreational, social, and educational activities.

Typical Rehabilitation Services Include:

CCRC's offer a host of rehabilitation services that are typically utilized on a short-term basis after a hospitalization for injury or illness. Rehabilitation often focuses on:

- Physical therapy to help your strength, mobility and fitness
- Occupational therapy to help you with your daily activities
- Speech-language therapy to help with speaking, understanding, reading, writing and swallowing
- Treatment of pain

Typical Skilled Nursing/Memory Loss services include:

As medical facilities they are allowed to provide services that cannot be dispensed in assisted living arrangement. Typically these services involve managing complex and potentially serious medical problems such as infections, wound care, IV therapy, and coma care. Skilled Nursing offers both short and long term care options for those with serious problems and disabilities such as quadriplegics, MS patients, ALS patients and others who are bedridden and are unable to do anything on their own.

Traffic:

Regarding the expanded use of Rincon Road as it relates to State Route 49, Jim Brake from Caltrans was questioned regarding the intersection of Rincon Road and State Highway 49. Mr. Brake stated that the highway was designed for a capacity that can handle approximately 28,000 average daily trips. He indicated that is very unlikely that a traffic signal would be allowed in this area, even if a signal warrant will be met. Without a traffic study which considers the proposed density and the existing conditions of the Highway, it is difficult to provide more technical information than the aforementioned. However, based on similar CCRC projects which have already been constructed and are in full operation as well as the Institute of Transportation Engineers (ITE) Trip Generation data, a CCRC use generates a range of approximately 1 to 3 average daily trips per unit, which equates to a range of 350 to 1,000 average daily trips for a project containing 350 units. A traffic study will be required in order to determine the impacts to the existing private roadway and impacts to SR 49, in addition to trip generation rates for existing and proposed uses. However, based on average trip generations for CCRC's determined by existing projects and the ITE, the project will generate similar trip generation rates, if not less than if the project were to be developed into 75 single family homes.

MEMO

To: Pat Angell, PMC

From: Jonathan Flecker, P.E.

Date: January 13, 2012

Re: Rincon Del Rio – Daily volumes along SR 49

Pat:

Here is a synopsis of daily traffic volumes along SR 49 north and south of Rincon Way relative to project traffic added. In both the Existing and Future conditions traffic conditions will remain at acceptable levels of service. Let me know if you need anything else.

Daily Traffic Volume Thresholds. The Nevada County General Plan presents the Level of Service criteria for roadway segments based on daily traffic volume. These thresholds make use of classifications that are based on the facility type. The classifications are shown in Table 1. The volumes along the Caltrans facilities, i.e. SR 49, (rural 2-lane highway, freeway and principal arterial) are different than that identified in the Nevada County General Plan. Previous discussions with Caltrans District 3 staff have indicated that the volume thresholds identified by the County are too high for freeways and principal arterials (i.e. SR 49 south of Combie Road), and too low for rural highways (i.e. SR 49 north of Combie Road). The volume thresholds were determined based on capacity and speed relationships for those types of facilities.

Existing & Existing Plus Project Levels of Service based on Daily Traffic Volumes. Table 2 summarizes Levels of Service based on the current daily traffic volumes on study area roads with and without the project. Applicable Level of Service thresholds and roadway classifications are presented. Currently, under the County's criteria the existing Level of Service is B which is acceptable along SR 49 north and south of Rincon Way.

Daily roadway traffic will increase along SR 49, both north and south of Rincon Way. Table 2 also shows the projected daily volumes along SR 49 with the project. Along both segments the level of service will remain acceptable, at LOS B.

**TABLE 1
 DAILY PLANNING SERVICE VOLUME CRITERIA**

Facility Type	Functional Class	Lanes	Area ₂ Type	LOS A	LOS B	LOS C	LOS D	LOS E
1*	Interstate and Freeway	4	all	43,200	50,400	57,600	64,800	72,000
		6	all	68,400	79,800	91,200	102,600	114,000
2A	Principal Arterial	2	all	11,100	12,950	14,800	16,650	18,500
		4	all	22,200	25,900	29,600	33,300	37,000
		6	all	33,300	38,850	44,400	49,950	55,500
2B*	Principal Arterial	2	all	21,600	25,200	28,800	32,400	36,000
		4	all	34,200	39,900	45,600	51,300	57,000
3	Minor Arterial	2	MU- S	9,300	10,850	12,400	13,950	15,500
		2	R	6,600	7,700	8,800	9,900	11,000
		4	MU -S	18,600	21,700	24,800	27,900	31,000
		4	R	13,200	15,400	17,600	19,800	22,000
		6	all	27,900	32,550	37,200	41,850	46,500
4	Major Collector	2	all	6,600	7,700	8,800	9,900	11,000
		4	all	13,200	15,400	17,600	19,800	22,000
5	Minor Collector	2	all	5,700	6,650	7,600	8,550	9,500
		4	all	11,400	13,300	15,200	17,100	19,000
6	Ramp	1	all	6,000	7,000	8,000	9,000	10,000
7*	Rural Highway	2	all	16,200	18,900	21,600	24,300	27,000
		4	all	32,400	37,800	43,200	48,600	54,000

¹ Facility type (1-6) may not always directly coincide with functional classification of individual road segments.

² MU = Mixed Urban area type

S = Suburban area type

2A – County facilities

* Caltrans facilities – threshold volumes not contained in Nevada County General Plan

**TABLE 2
 EXISTING ROADWAY SEGMENT LEVELS OF SERVICE**

Roadway	Location	Facility Classification	Standard		Existing Condition		Existing + Project Condition	
			LOS	Daily Volume Threshold	Daily Volume	LOS	Daily Volume	LOS
State Route 49	North of Rincon Way	Principal Arterial	D	51,300	34,500*	B	34,838	B
	South of Rincon Way		D	51,300	34,500*	B	35,082	B

* Caltrans 2010 Volumes

Future & Future Plus Project Levels of Service based on Daily Traffic Volumes.

Based on information from the Marketplace Shopping Center Traffic Impact Analysis (TIA) and current daily volumes provided from Caltrans future traffic was projected along SR 49 for 2030 conditions. The Marketplace TIA noted a 1% annual increase in projected traffic along SR 49. The current daily volumes along SR 49 were extrapolated based on this annual increase. Traffic from the Marketplace Shopping Center was then added to develop a baseline 2030 daily traffic condition shown in Table 3. Under projected future volumes SR 49 will operate at an LOS C condition north and south of Rincon Way. Under 'plus project' conditions the daily traffic volumes will continue to operate at LOS C, within the County's operational thresholds.

**TABLE 3
 FUTURE & FUTURE PLUS PROJECT ROADWAY SEGMENT LEVELS OF SERVICE**

Roadway	Location	Facility Classification	Standard		Future Condition		Future + Project Condition	
			LOS	Daily Volume Threshold	Daily Volume	LOS	Daily Volume	LOS
State Route 49	North of Rincon Way	Principal Arterial	D	51,300	42,883	C	43,455	C
	South of Rincon Way		D	51,300	42,883	C	43,271	C

SR 49 / Combie Road Intersection

Although this intersection was not requested to be analyzed by either County or Caltrans staff we conducted an overview of the intersection under future conditions based on the Marketplace TIA analysis. Under existing conditions there is adequate capacity within the intersection and this continue with the project traffic added to the intersection.

Under Future conditions the Marketplace TIA level of service calculations dated March 3, 2009 indicated that the northbound, southbound and westbound approaches to the intersection will operate at LOS D in the a.m. peak hour. The levels of service indicate that there is available capacity along these movements to accommodate additional traffic. The eastbound approach will operate at LOS F. The overall intersection LOS is LOS D. Addition of project traffic in the a.m. peak hour at this intersection is limited as noted in the TIA based on most projected origins and destinations to and from the south. The traffic from north of the project is expected to travel through the SR 49 / Combie Road intersection to and from north of Combie Road and along Combie Road. No traffic is expected to travel along Wolfe Road as the origins along Wolfe Road include residential housing while the known destination includes an elementary school; both would not be expected to have traffic to or from the project site. The project traffic would add traffic along the northbound, southbound and westbound directions; however, as noted above, there is adequate capacity along these movements that should accommodate the project traffic.