

**TRINITY COUNTY PLANNING COMMISSION  
STAFF REPORT**

**PROJECT NAME:** Lance Gulch Road/State Route 299 Intersection Control Project

**REPORT BY:** Janice Smith, Sr. Environmental Compliance Specialist

**APPLICANT:** Trinity County Department of Transportation (TCDOT)

**PROJECT NUMBER:** PW-16-06

**LOCATION:** Intersection of State Highway 299, Lance Gulch Road and Glen Road in eastern Weaverville.

**PROJECT DESCRIPTION:**

The Trinity County Department of Transportation (TCDOT) is proposing to construct a roundabout at the intersection of Lance Gulch Road, Glen Road and State Route (SR) 299. Additionally, a new opening to Nugget Lane would be constructed across from the Trinity Plaza Shopping Center. This intersection is located at the eastern end of Weaverville and serves as the southern terminus of Lance Gulch Road, the recently constructed arterial route between SR 299 and SR 3. This intersection also serves residents on Glen Road and businesses on Nugget Lane.

There are two alternative roundabout designs, and three alternative locations for the new opening to Nugget Lane. See the Initial Study/Mitigated Negative Declaration (IS/MND) Figures 3, 4 and 5 for details on these two alternatives and three “sub-alternatives”. The intersection of Lance Gulch Road and SR 299 was originally planned for, programmed, and approved as a signalized intersection as part of the East Connector Roadway Project (now known as Lance Gulch Road). Therefore, the signalized intersection is considered the “no project” alternative. If the Planning Commission, and ultimately the Board of Supervisors, chooses not to approve any of the roundabout alternatives, the signalized intersection will be constructed as originally planned for in the Environmental Impact Report (EIR) for the East Connector Roadway Project.

**PROJECT SITE INFORMATION:**

All of the surrounding parcels are designated in the general plan and zoning ordinance as Commercial. Several parcels would be directly affected by either roundabout alternative or the sub-alternative accesses to Nugget Lane.

The table on the next page summarizes the effects of either roundabout alternative on adjacent commercial parcels. Both roundabout alternatives have approximately equal effects, except where otherwise noted. None of these effects would occur if the “no project” alternative, i.e. the traffic signal, is selected.

**Table 1. Effects of Roundabout Alternatives on Adjacent Commercial Properties**

Current Business Occupant	Alternatives	Direct effects of roundabout alternatives
Weaverville Market	1, 2	Access onto Glen Road will be moved further south, toward Coast Central Credit Union. The effect is greater for roundabout Alternative 2. Alternative 2 would eliminate the Market's ability to install fuel pumps, as planned.
CHP/DMV	1, 2	Loss of a truck inspection station located in Caltrans right-of-way in front of DMV. Impacts on left turns out of DMV onto SR 299 have been mitigated. Emergency response time may be delayed by traffic waiting to enter the roundabout on Lance Gulch Road. Mitigation for that impact is under discussion.
Vacant land adjacent to CVS	1, 2	Loss of the southwest corner of the property. Utilities in that area may have to be moved further into the property within a new utility easement. The owner will not be able to split the property into 3 commercial lots, as desired. Two commercial lots may be possible.
Radio Shack, U.S. Nails and office space	1, 2	Roundabout Alternative 1 would probably require removal of at least part of the building, and Alternative 2 would remove the entire building. Access from Glen Road to Nugget Lane would be completely blocked. Most parking would be lost. A smaller building could possibly be constructed, but it would be difficult to provide adequate parking.
The Floor Store, Owens Pharmacy and Physical Therapy building	1, 2; Sub- Alts B, C	Access from Glen Road to Nugget Lane would be completely blocked. This will preclude through truck access for delivery trucks. There is not sufficient room for trucks to turn around. Proposed mitigation is to place an additional access to Nugget Lane from SR 299 at one of three locations (Sub-Alternative A, B or C). Sub-Alternative B would provide the closest access, and therefore minimize or eliminate the need for delivery trucks to back up on Nugget Lane. However, it would also eliminate approximately six parking spaces along the SR 299 side of Nugget Lane (technically in Caltrans or County right-of-way).

<p>Trinity Lanes and Marino's Pizza House</p>	<p>1, 2; Sub- Alts A, C</p>	<p>Access from Glen Road to Nugget Lane would be completely blocked. This will preclude through truck access for delivery trucks. There is not sufficient room for trucks to turn around. Proposed mitigation is to place an additional access to Nugget Lane from SR 299 at one of three locations (Sub-Alternative A, B or C). Sub-Alternative B would provide access that would eliminate the need for delivery trucks to back up on Nugget Lane. Sub-Alternative C would require trucks to back up a short distance, but would eliminate approximately six parking spaces along the SR 299 side of Nugget Lane (technically in Caltrans or County right-of-way).</p>
<p>Tat Too Parlor and the Lunch Box</p>	<p>1, 2; Sub-Alt A</p>	<p>Access from Glen Road to Nugget Lane would be completely blocked. This will preclude through truck access for delivery trucks. There is not sufficient room for trucks to turn around. Proposed mitigation is to place an additional access to Nugget Lane from SR 299 at one of three locations (Sub-Alternative A, B or C). Sub-Alternative B or C would provide access that would eliminate the need for delivery trucks to back up on Nugget Lane. Sub-Alternative A would require trucks to back up a short distance, but would eliminate approximately six parking spaces along the SR 299 side of Nugget Lane (technically in Caltrans or County right-of-way).</p>
<p>Round Table Pizza and Tangle Blue Saloon</p>	<p>1, 2</p>	<p>There would be no direct effects on parking. Truck access would not be adversely affected, provided Sub-Alternative A, B or C was implemented to provide through access for delivery trucks.</p>
<p>Vacant land behind Nugget Lane</p>	<p>2</p>	<p>A sliver of the edge of this vacant parcel would have to be acquired to realign Glen Road for the approach to the Alternative 2 roundabout.</p>

## **BACKGROUND:**

The Planning Commission heard a Staff presentation and held a Public Hearing on this project on November 10, 2016. Comments were received from John Hamilton, Duane Heryford, Allen Houston, Burt Harvey, Ricky from Weaverville Market, Dan Stoddard, Scott White and Megan Marshall.

No further comments being received, Vice Chair Matthews closed public comment on this item.

The Commission had several questions for staff, based on the comments received. There was a lot of discussion about **Mitigation Measure 14.2:**

“Roundabout design shall provide for right and left turn movement in and out of the California Highway Patrol/Department of Motor Vehicles parking lot from SR 299. The splitter island on the Lance Gulch Road approach to the roundabout shall be designed so that CHP and other emergency vehicles can drive on the island in order to pass other vehicles and enter the roundabout. The splitter island shall be striped or otherwise labeled for emergency use only.”

Commissioners McHugh and Matthews were both concerned about how adding this mitigation would affect the safety of the roundabout. Allowing left turns out of the DMV driveway onto SR 299 was not factored into the Benefit/Cost (B/C) ratio provided in the Intersection Control Evaluation appended to the Initial Study/Mitigated Negative Declaration (ISMND). The ISMND referred to the ICE in several locations where safety and operational impacts were discussed. Comments by Scott White said that the B/C ration should be recalculated because of the added left turn movements onto SR 299 near the roundabout.

Another concern the Commission had about this mitigation measure was regarding the splitter island on the Lance Gulch Road approach to the roundabout being designed so that the CHP could drive on it to pass other vehicles and enter the roundabout quickly. There were questions about what this island would look like and how it would work, and serious concerns about safety. One concern was for pedestrians using the splitter island as refuge while crossing one lane of the approach at a time. The other concern was that a driver may drive down the splitter island and make a left turn, entering the roundabout in the wrong direction.

An example of a mountable splitter island at a roundabout near a fire station in Bend, Oregon is provided as Exhibit B to this Staff Report. The island would be raised, and constructed of different materials, to make it obvious that it was not part of the roadway.

Vice Chair Matthews said that there were issues with the timing for public comments due on the document. He said we have comments that staff hasn't addressed, so he thought the item should be continued e in order to have staff address those comments. Commissioner McHugh moved to continue the matter to December 8, 2016 to look at further input received from staff. Commissioner Frasier seconded the motion, and the motion carried unanimously.

## **FOLLOW-UP DISCUSSION:**

Responses to the public comments, as well as responses to two comment letters that were received too late for staff to provide an adequate response in the Staff Report for the November meeting, are attached to this staff report as Exhibit A. The authors of those two letters made presentations at the November public hearing that were very similar to their letters.

In response to the Commissioner's concerns, the County's design consultants for the proposed roundabout, prepared two studies:

A study of roundabout data and safety records for roundabouts throughout the U.S., particularly for pedestrians and bicyclists entitled *Roundabout Safety for Pedestrians and Bicycles* included as Exhibit C to this Staff Report; and

A safety analysis of this particular intersection, functioning in the future as a signalized intersection compared to functioning as a roundabout, based on statistical predictive modeling. This study, entitled "*SR 299 & Lance Gulch Road/Glen Road Roundabout Study – Safety Analysis*", is included as Exhibit D to this Staff Report.

The Benefit/Cost ratio was recalculated using the current cost data for the traffic signal and the roundabout. Those calculations, and the costs used for them, are included in Exhibit E of this Staff Report.

A full discussion of the concerns regarding Mitigation Measure 14.2 can be found in Exhibit A, Response to Comments, in the Response to Scott White's Letter, Comments 1 and 2. The validity of the B/C ratio is discussed in the response to his Comment 10.

**Mitigation Monitoring and Reporting Program:**

The project's Environmental Consultant, ENPLAN, prepared a Mitigation Monitoring and Reporting Program (MMRP) for the County. The MMRP is included as Exhibit G of this staff report. There are no changes from the MMRP submitted previously at the November 8, 2016 meeting.

**Role of the Planning Commission:**

Normally, the Planning Commission can adopt an IS/MND for a project that does not involve a rezone or General Plan amendment. However, due to the controversy surrounding this project, and the Board of Supervisor's long-standing involvement in this project, the final decision on whether to approve the roundabout or revert to the traffic signal will be made by the Board of Supervisors.

The Planning Commission's role is to review the IS/MND, consider all of the public comments and then make recommendations to the Board of Supervisors, including the following:

- A recommendation as to whether the IS/MND has been completed in compliance with CEQA,
- A recommendation regarding selection of an appropriate project alternative (the "proposed project" or the "no project" alternative), and
- A recommendation regarding adoption of the MMRP.

The Board of Supervisors will consider all information in the record, including the Planning Commission's recommendations, then make formal findings and determinations as required by CEQA.

**Staff Recommendation:**

Staff recommends that the Planning Commission:

A. Recommend that the Board of Supervisors adopt the Initial Study/Mitigated Negative Declaration finding that, on the basis of the whole record including the initial study, comments received, and

Mitigation Monitoring and Reporting Program, that there is no substantial evidence that the project will have a significant effect on the environment and that a mitigated negative declaration reflects the Board's independent judgment and analysis.

B. Recommend that the Board of Supervisors select Alternative 2 and Sub-Alternative B, as described in the Initial Study/Mitigated Negative Declaration, finding that the long-term safety and operational benefits outweigh the impacts on local businesses.

C. Recommend that the Board of Supervisors adopt the Mitigation Monitoring and Reporting Program as identified in Exhibit G of this Report.

Respectfully Submitted,

Jan Smith, Sr. Environmental Compliance Specialist  
Trinity County Department of Transportation

## FIGURES

(from Proposed Mitigated Negative Declaration and Initial Study)

1) REGIONAL LOCATION

2) PROJECT LOCATION

3) ALTERNATIVE 1 – ROUNDABOUT DESIGN A

4) ALTERNATIVE 2 – ROUNDABOUT DESIGN B

5) SUB-ALTERNATIVES FOR NUGGET LANE ACCESS

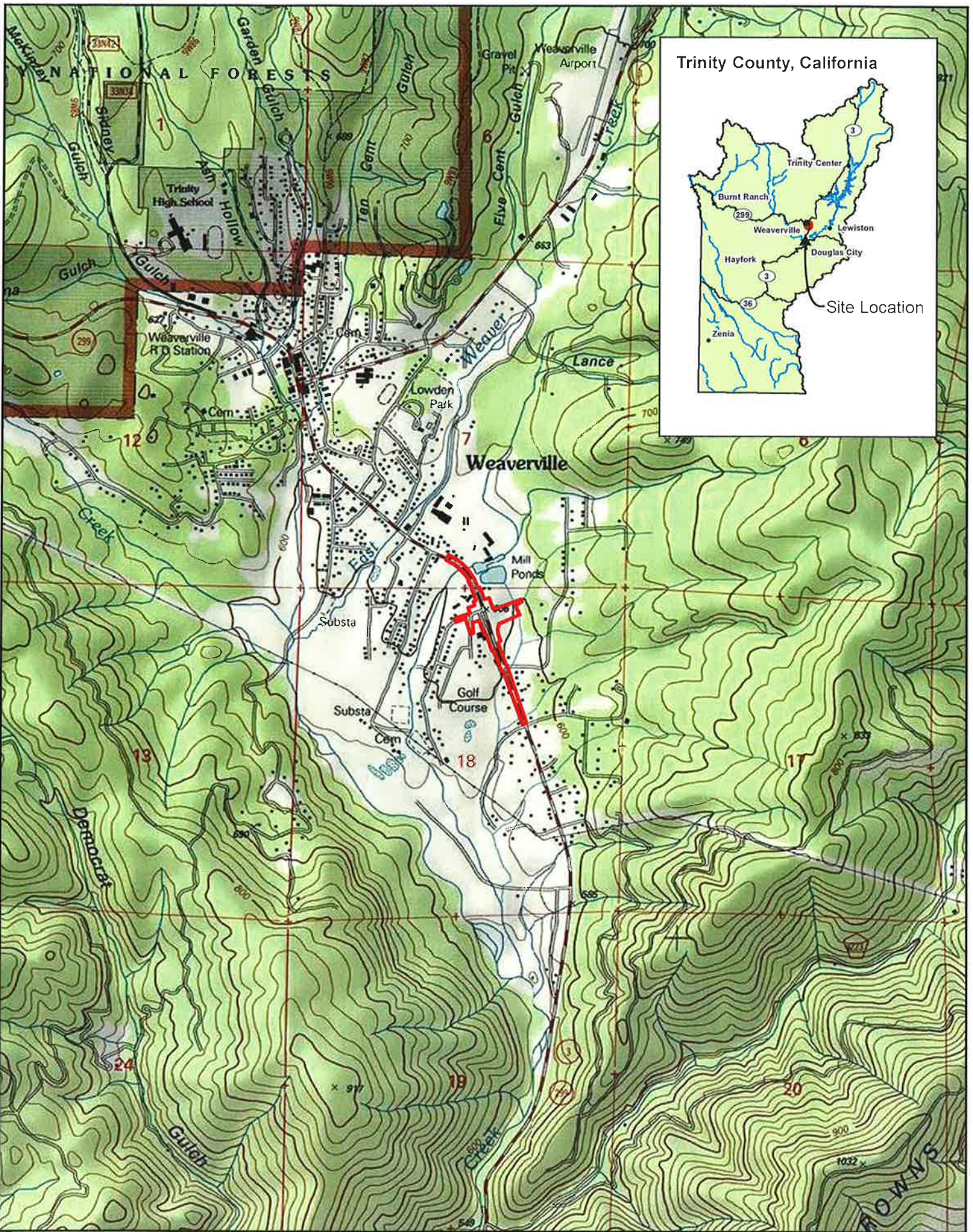
6) NO-PROJECT ALTERNATIVE –SIGNALIZED INTERSECTION

(updated from figure in Proposed Mitigated Negative Declaration & Initial Study)

7) LANDSCAPE VISUAL SIMULATION

8) HARDSCAPE VISUAL SIMULATION

9) AFFECTED PARCELS



Path: N:\companyfiles\01-Jobs Active\056-05 Lanco Gulch Rd SR 299 Intersection Trinity County\3-Project GIS\3-Map Documents\Fig\_1\_Regional\_Location\092616.mxd



Figure 1  
**Regional Location**

All depictions are approximate. Not a survey product.

09.26.16





All depictions are approximate. Not a survey product. 09.26.16



Figure 2  
Project Location

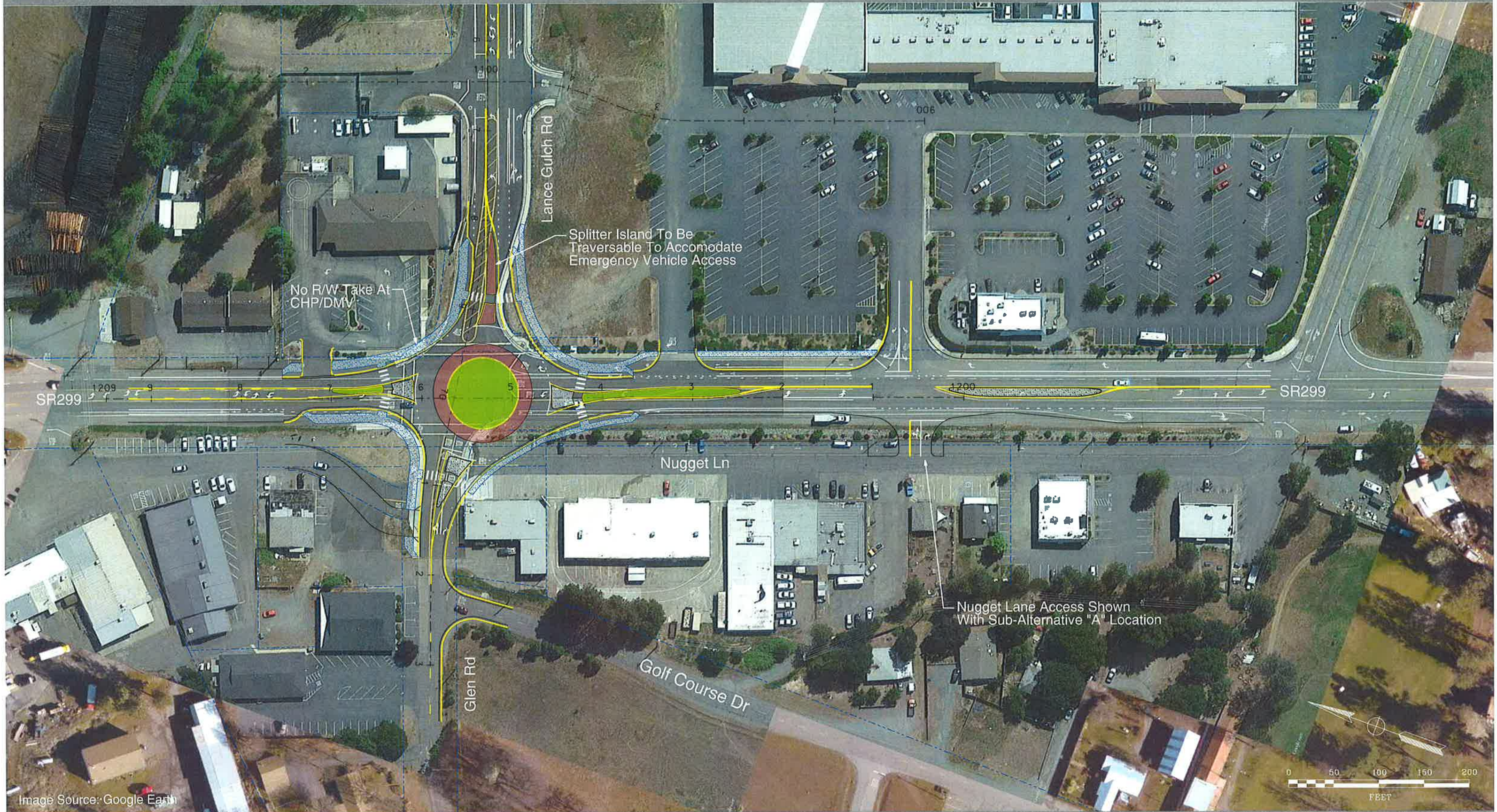


Image Source: Google Earth

Figure 3  
Alternative 1 - Roundabout Design A

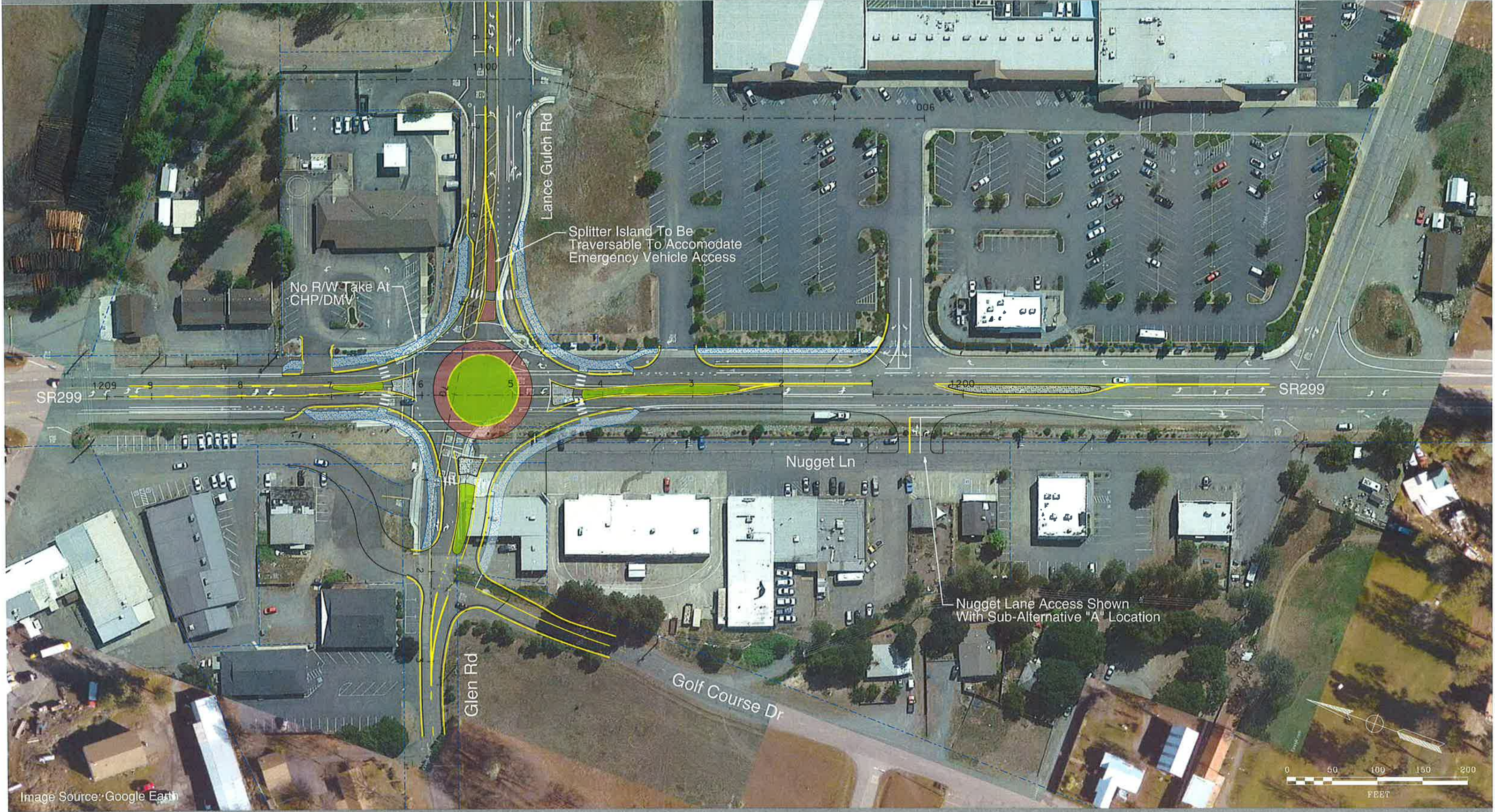


Image Source: Google Earth

Figure 4  
Alternative 2 - Roundabout Design B



SUB-ALTERNATIVE "A":  
BURGER KING



SUB-ALTERNATIVE "B":  
CVS DRIVEWAY



SUB-ALTERNATIVE "C":  
BETWEEN BURGER KING  
AND CVS DRIVEWAY

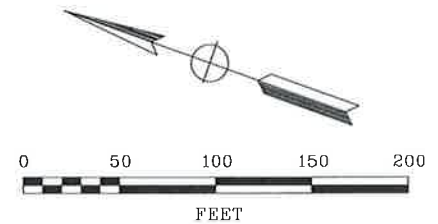


Image Source: Google Earth

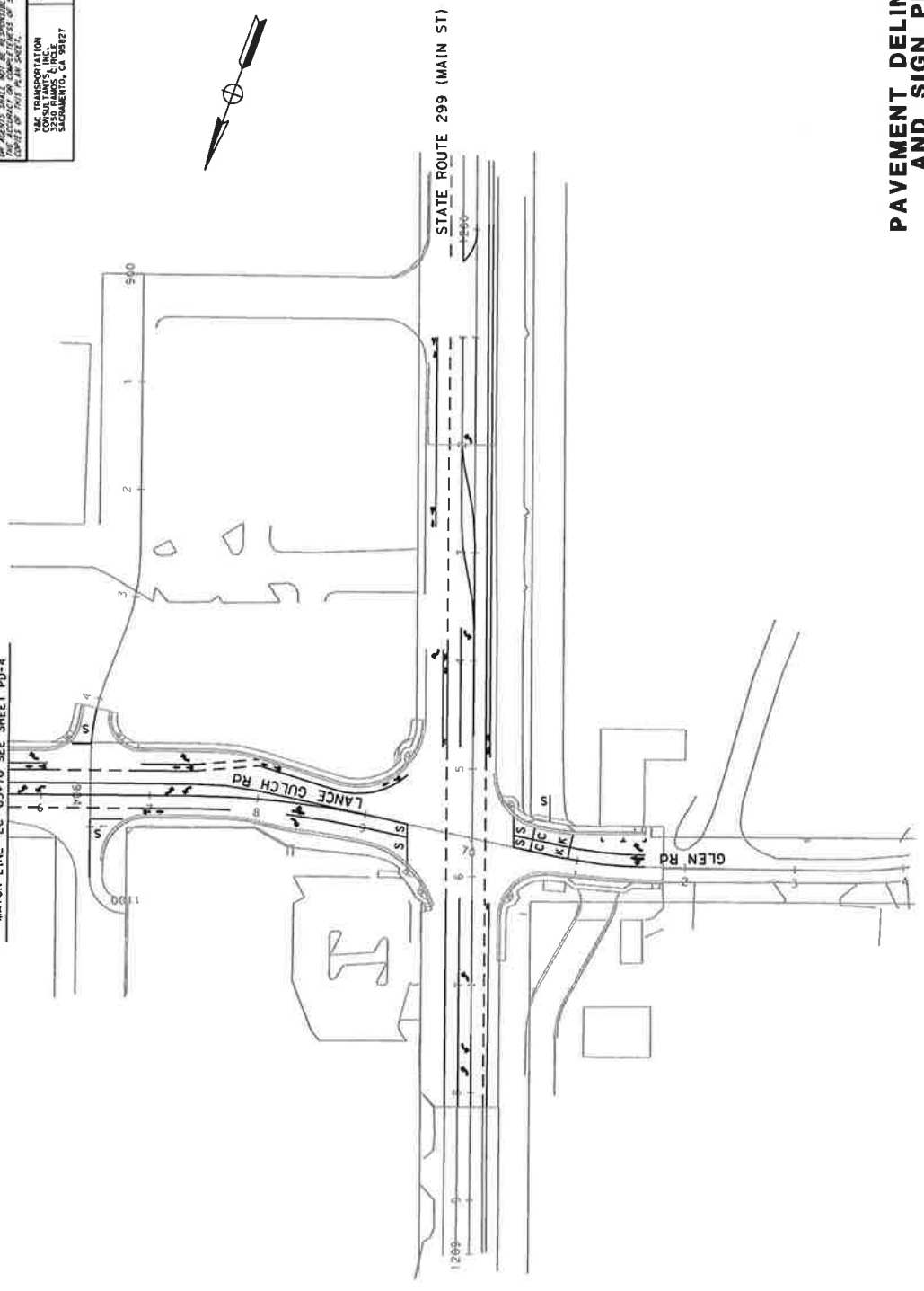
Figure 5  
Sub-Alternatives for Nugget Lane Access

# FIGURE 6 SIGNALIZED INTERSECTION (new)

TRINITY COUNTY		DEPARTMENT OF TRANSPORTATION	
PROJECT ENGINEER	CAROLYN DAVIS	DESIGNED BY	DAN YAU
CHECKED BY		REVISOR	HEIP NGUYEN
CALCULATED BY		DESIGNED BY	

- NOTES: (FOR THIS SHEET ONLY)**
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT PROJECT ENGINEER AT TRINITY COUNTY DEPARTMENT OF TRANSPORTATION.
  - EXACT LOCATION OF SIGNS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

MATCH LINE "C" 65+70 SEE SHEET PD-4



DIST	COUNTY	ROUTE	POST MILEAGE TOTAL PROJECT	SHEET NO. OF TOTAL SHEETS
02	Trinity	CR 266	0.0-1.0	123
REGISTERED CIVIL ENGINEER DATE 10/10/14				
PLANS APPROVAL DATE 10/14/14				
<p>THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION          DIVISION OF TRAVELER SERVICES          DIVISION OF TRAVELER SERVICES          DIVISION OF TRAVELER SERVICES</p>				
<p>YAC TRANSPORTATION          11017 COBBLEROCK DR STE 100          SACRAMENTO, CA 95827</p>				
<p>QUINCY ENGINEERING          11017 COBBLEROCK DR STE 100          SACRAMENTO, CA 95827</p>				

**PAVEMENT DELINEATION AND SIGN PLAN**  
 SCALE: 1" = 50'

**PD-5**

## EXHIBIT A

### RESPONSES TO COMMENTS

- 1) Responses to letters from Scott White and Megan Marshall on the Initial Study/  
Mitigated Negative Declaration that were received too late to include an adequate  
response in the Staff Report for the November 10, 2016 Planning Commission  
Meeting
- 2) Responses to comments made at the November 10, 2016 Planning Commission  
Public Hearing

November 2, 2016

Ms. Diana Stewart, Chair, Trinity County Planning Commission  
Attention: Janice Smith, Senior Environmental Compliance Manager  
Trinity County Department of Transportation  
P.O. Box 2490  
Weaverville, CA 96093

RE: Proposed Mitigated Negative Declaration and Initial Study (PMNDIS): Lance Gulch Road/SR 299 Intersection Control Project (prepared by ENPLAN for the Trinity County Department of Transportation)

I was encouraged when reading the "Community Impacts" section of the PMNDIS that the County recognizes the importance of "the potential social and economic impacts of the proposed project with respect to population growth, demographics, local workforce, land use, relocation of businesses, fiscal matter, and safety and efficiency". Therefore, "these impacts are discussed herein in the interest of public disclosure" (PMNDIS, page 56). There is currently no traffic control device for any through traffic movement on any state highway in the county, in fact there are no signals or roundabouts in the county at all. Whatever decision is made, it will be a tremendous change for our county.

Unfortunately, assumptions, omissions and errors in the PMNDIS render it ineffective in revealing the probable impacts of development of a roundabout and furthermore are completely misleading as to the potential benefits of a roundabout relative to a traffic signal at the project location. Put another way, the PMNDIS fails to achieve the stated goal of valid "public disclosure", rather it selectively uses and/or avoids readily available information to draw a very favorable picture of a roundabout when a balanced evaluation and use of best available information do not sustain such a conclusion. If the "mistakes" had not been almost all in favor of one side (roundabout) they might have really been "mistakes".

To achieve valid disclosure of the potential impacts and benefits of a roundabout relative to a traffic signal at the project location and allow for fully informed public input and decisions by public officials, the following actions should be taken by the Trinity County Planning Commission:

- Receive public and agency input up through the Public Hearing scheduled for November 10, 2016.
- Direct staff to update and prepare a revised PMNDIS in consideration of all information received.
- Recirculate the revised PMNDIS for a second 30-day public review period to allow the public to consider and comment on a more accurate and reasonable assessment of the alternative intersection control options.
- Conduct a second public hearing.

The above is entirely within the authority of the Planning Commission to do. If the purpose of the PMNDIS is truly to achieve "public disclosure" and foster informed public input, this is the minimum the County should do given the magnitude of the flaws in the PMNDIS as currently circulated. The comments that follow will show that, in its current form, the PMNDIS may well lead the public and our elected and appointed officials to conclusions not supported by actual facts.

# Discussion Regarding PMNDIS

## III. Environmental Checklist Form

Section 14. Public Services – Discussion a. i-v and MM 14.2

Section 16. Transportation and Circulation – Discussion e and MM 14.2

In the long-term operation of the project, there could be permanent changes to CHP's access to SR 299. Comments from CHP during an in-person meeting with TCDOT, as well as comments contained in a letter submitted by CHP to TCDOT, focused on the concern that with a roundabout design, a left turn out of the CHP/DMV parking lot onto SR 299 would no longer be permitted (see Section IV, "Community Impacts," and Appendix C for other CHP comments). According to CHP, because officers exiting the driveway and desiring to go eastbound on SR 299 would be limited to a right turn only, they would be required to make an illegal U-turn on SR 299 to go eastbound. By not allowing a left turn out of the parking lot, CHP response time would be delayed and a traffic safety issue would be created. Slowing emergency response time is considered a potentially significant impact. 1

In addition, the CHP was concerned about their emergency vehicles entering Lance Gulch Road from the rear parking lot, and being delayed waiting to enter the roundabout. There would only be one westbound lane approaching SR 299 on Lance Gulch Road, and a queue of vehicles waiting to enter the roundabout from this approach could cause a slight delay for emergency responders. 2

Since CHP's initial meeting with the TCDOT project team, the design features of the roundabout have been revised to accommodate right and left turns in and out of the CHP/DMV driveway from SR 299 by shortening the length of the splitter island in front of the driveway. In addition, the splitter island on the Lance Gulch Road approach to the roundabout would be designed so that CHP and other emergency vehicles could drive on it, providing an emergency lane so that emergency vehicles could pass other vehicles and directly enter the roundabout without delay. The splitter island would be striped to indicate emergency use only. Implementation of Mitigation Measure 14.2 below would ensure that impacts to CHP response, and other emergency services, would be less than significant. (PMNDIS pages 47-48) 1  
2

MM. 14.2. Roundabout design shall provide for right and left turn movement in and out of the California Highway Patrol/Department of Motor Vehicles parking lot from SR 299. The splitter island on the Lance Gulch Road approach to the roundabout shall be designed so that CHP and other emergency vehicles can drive on the island in order to pass other vehicles and enter the roundabout. The splitter island shall be striped or otherwise labeled for emergency use only. (PMNDIS page 48)

Issue #1:

This discussion and accompanying mitigation measure requires that left turns be allowed out of the DMV/CHP parking lot onto SR 299 by shortening the splitter island for the roundabout. According to the 2015 Intersection Control Evaluation (ICE – Appendix A to the PMNDIS) which evaluated the potential impacts and benefits of the roundabout option, "with the roundabout option, the left-turn movement from the CHP driveway would be prohibited, which eliminates the vehicle conflict for two of the broadside collisions. The third broadside vehicle conflict would not be eliminated with the roundabout, but the vehicle through speed would be lower which would reduce the collision severity" (ICE, page 7). The ICE also notes that "the broadside collisions may be less likely to occur with the all-way stop and signal control options since the SR 299 approaches will be controlled" (ICE page 7). 1



The PMNDIS fails to address how the change in the project caused by MM 14.2 (to require left turns be allowed from the CHP/DMV driveway) will affect the purported safety benefits of, and safety calculations used in evaluation of, the roundabout options. This is a significant change to the potential safety benefit of the roundabout alternatives. Two of the accidents previously “removed” in evaluating the purported safety value of the roundabout must be placed back into the analysis. In fact, one could argue based on the above information from the ICE that the traffic signal may eliminate all three of the broadsides while the roundabout would eliminate none of them.

Further, “the benefit to cost (B/C) ratio was calculated factoring in construction cost, right-of-way cost, and collision cost savings “ (ICE page 7). It is clear that the calculation can no longer be valid since two of the “eliminated” collisions attributed to the roundabout design will no longer be eliminated. Correction of the calculation to include the two collisions will show that the safety benefit of the roundabout relative to cost is lower.

Issue #2:

MM 14.2 also requires that the splitter island on the Lance Gulch Road approach to SR 299 be designed so emergency vehicles can drive onto it and it will be labeled for emergency use only. According to the Roundabout Design Concept section of the ICE “an exclusive right-turn lane is provided for the northbound to eastbound movement” (right turn from SR 299 onto Lance Gulch Road) or “the exclusive right-turn lane could be eliminated in favor of an outside truck apron to accommodate the right-turning trucks within the roundabout” (ICE page 8). The PMNDIS fails to disclose and evaluate how the design changes required by MM 14.2 will make it easier for a driver approaching SR 299 on Lance Gulch Road to accidentally (perhaps even intentionally) turn left into the roundabout and travel directly into the path of westbound vehicles on SR 299.

First, there will be no physical barrier to prevent this move (only a painted splitter island). Solid splitter islands are normally used in roundabouts to prevent wrong-direction entrance, but MM 14.2 has eliminated the option for this typical safety feature on the Lance Gulch Road approach.

Second, either option to accommodate right turns from SR 299 onto Lance Gulch Road will provide considerable width to allow trucks to complete the move. This extra width may be inviting for a driver to make a left onto SR 299 as a “shortcut” to avoid traveling through the roundabout, especially given the absence of a solid splitter island.

Section 14. Public Services – Discussion a. i-v

Section 16. Transportation and Circulation – Discussion e

However, the signal does not offer the same improvements to congestion and circulation, and **does not eliminate the potential for severe traffic accidents.** (PMNDIS 48 and 51)

Issue #1:

The above statement (bold emphasis added by reviewer) clearly implies that the reverse conclusion about roundabouts must be true, i.e. that roundabouts **do eliminate** the potential for severe traffic accidents. No data is provided too support this assumption. In fact,

information from Roundabouts: an Informational Guide presented in the PMNDIS actually shows that roundabouts do not eliminate all potential for severe traffic accidents. Also, on September 21, 2016, a firefighter was killed in an accident in a “modern roundabout” (constructed in 2012) on highway 246 in Ventura County (Ventura County Star, September 23, 2016). The conclusion that a roundabout somehow eliminates all potential for severe traffic accidents is clearly not supported by fact. 3

Section 16. Transportation and Circulation – Discussion f

According to the ICE prepared for the project, in the long term, “**bicycle and pedestrian crossings of SR 299 would be provided for both the roundabout and signal options. The roundabout’s splitter islands would slow vehicle speeds and reduce crossing distances.** Pedestrian crossings would be provided on all four legs of the roundabout intersection. When crossing at the roundabout, pedestrians would cross one lane of traffic at a time, coming in one direction at a time. Pedestrians could then take refuge in the splitter island, then cross another 12 feet on single lane traffic coming in a single direction. **The signal would have pedestrian signals to indicate crossing times.** However, pedestrian crossings would be approximately 50 feet long and would have to cross traffic in both directions with no refuge in the middle. In addition, due to issues with signal timing, only three legs of the signalized intersection would have crosswalks. The southern leg, closest to the Nugget Lane and Trinity Plaza shopping districts, would not have a crosswalk. (PMNDIS page 51) 4

Issue #1:

The above discussion in the PMNDIS is attributed to the ICE prepared for the project. However, only the three sentences to which bold has been applied by this reviewer are found there. The other sentences have been crafted by the author of the PMNDIS.

Issue #2:

The discussion above fails to address that MM 14.2 eliminates the raised splitter island on the Lance Gulch Road approach to the intersection. Pedestrians would only have a painted splitter island within which to take refuge. They would need to cross without any protection from potential errant vehicles (taking too wide a turn/travel path) traveling west on SR 299, without any protection from trucks or autos maneuvering through what will effectively be a free right turn from SR 299 onto Lance Gulch Road, and without any physical protection from emergency vehicles moving rapidly across the painted splitter island to avoid the roundabout when entering eastbound SR 299. 2

Signal control would stop all approaching vehicles on either side of SR 299 (Glen Road/Lance Gulch Road)during the pedestrian crossing phase for Lance Gulch Road and emergency preemption for the signal would prevent pedestrians from entering the intersection when emergency vehicles approach. It seems likely this crossing would be much safer under signal control, but the PMNDIS is silent. 2

Issue #3:

The discussion also implies that pedestrian safety would be less with the signalized intersection because the crossing would be about 50 feet long, cross traffic in both directions, there would be no refuge and a crosswalk would not be provided on one leg. There are numerous issues with this assumption. First, crossing in the roundabout would be with vehicles under yield control (never required to stop), versus a signal where vehicles on the approach to be crossed would be under stop control. Second, overall time allowed for 4

pedestrian crossings can often be maximized by the elimination of a certain crosswalk with more time allocated to the remaining movements. A recent project on SR 299 in the City of Redding did just this and the intersection operation has improved for all users. Third, the distance is irrelevant if the pedestrian crossing interval timing is implemented effectively.

Intersection operation is addressed in the California Manual on Uniform Traffic Control Devices, 2014 Edition (including Revision 1). Section 4E.06, Pedestrian Intervals and Signal Phases, addresses pedestrian crossing intervals. This section provides considerable flexibility and guidance regarding the pedestrian clearance time used to establish the length of time to provide for pedestrians to cross an intersection. A walking speed of 3.5 feet per second to at least the far side of the traveled way is the base case for calculating necessary pedestrian crossing time. However, this section also indicates that a walking speed of 2.8 feet per second should be considered where older or disabled pedestrians routinely use the crosswalk. Thus length of crossing time is subject to decision by the public agency, which is allowed to account for both crossing distance and ability (crossing speed) of pedestrians.

In summary, the safety for pedestrians (in fact all users) in any type of intersection is determined by the planning and engineering that is done. Good work and professional judgment equate with better safety, poor work and judgment equate with lesser safety. Given the information discussed here and lack of disclosure in the PMNDIS, it is entirely possible that signalized intersection control can provide greater pedestrian safety at the project location than a roundabout.

#### **IV. Community Impacts**

##### **Section B: Impacts, 2. Land Use and Businesses**

The proposed project would represent a minor, but permanent effect on land use patterns, in which the project may require take of existing buildings (see "Relocation" section below) and impose limitations on future development. In addition, acquiring land from APN 024-500-7100 (the vacant parcel between Lance Gulch Road and CVS Pharmacy) would affect future development of the site, including subdivision and development options. (PMNDIS page 63)

##### **Issue #1:**

That the proposed project would only represent a minor impact to land use is clearly the opinion of the PMNDIS author. To the knowledge of this reviewer, no transportation project in Trinity County (within the last 25 years for sure, probably not ever) has had the level of impact on developed properties in the commercial heart of a community like the proposed roundabout will. While design of the intersection for the traffic signal was able to avoid damage to adjoining properties, no roundabout option can achieve that. Both remaining roundabout alternatives have tremendous impacts to properties, businesses and parking. Yes relocation can occur, but the impacts to prime property in the center of the community will still have happened.

In addition, approval and construction of the Lance Gulch Road (formerly East Connector) was very controversial to county residents. A full Environmental Impact Report was necessary. The project was so controversial that the project approval was challenged in court. The fact

4 cont

5

that the County prevailed did not reduce the controversy. One can easily argue that the impacts of the proposed roundabout (even with mitigation) are actually much greater than any the roadway created. The roadway took no buildings, the roundabout likely will. The roadway had little impact on the vacant pad at the shopping center since it was constructed mostly within right-of-way previously dedicated for it, the roundabout will definitely impact the pad. The roadway impacted no existing parking, the roundabout will. It just does not seem plausible, within the rural context of Trinity County, that the impacts of either roundabout alternative can be deemed only to be "minor".

1  
5, cont  
|

In the case of acquisition of a portion of APN 024-480-3100 (Weaverville Market) that was the site of a former carwash, on the north side of Glen Road, the property owner requested that the existing driveway on Glen Road remain at its current location (just off SR 299). However, the existing driveway is right at the pedestrian crossing in the proposed roundabout designs, and even if the size of the roundabout footprint were decreased, there would not be sufficient room to accommodate the roundabout, pedestrian crossing, and the driveway. In addition, the property owner requested that another driveway off SR 299 be added a short distance north of the SR 299/Glen Road intersection, closer to the front of Weaverville Market. However, a driveway at this location is not feasible because it would be too close to the intersection. It should be noted that even with the signal, it is not likely that these access requests could be met due to Caltrans standards. Therefore, while the roundabout would not improve access to this parcel, the signal would not do so either. (PMNDIS page 63)

Issue #1:

Since neither request for access by the landowner could be met, it seems that this is an unmitigated adverse impact of the roundabout. It is doubtful the business owner would make these requests for access unless he/she believed it to be critical for survival of the business. Since the degree that the much more limited future access to Weaverville Market may reduce or eliminate the economic viability of the business was not explored, the public and its decision-makers are limited in their ability to fully consider the likely impacts of the roundabout alternatives.

6

Issue #2:

The author of the PMNDIS failed to investigate whether either of the driveway locations requested by the market owner could actually meet Caltrans standards (merely assuming "it is not likely"). This is simple laziness on the part of the author, since Caltrans is a responsible agency under CEQA and has sole authority to issue (or not) the encroachment permit required to construct either the signal or roundabout. Various units at the Caltrans District 2 office in Redding have been involved throughout the project. It seems very likely they could have provided a "yes" or "no" answer if they had simply been asked.

6

Despite the lack of current input from Caltrans being sought for the PMNDIS, the statement "it should be noted that even with the signal, it is not likely that these access requests could be met due to Caltrans standards" can be refuted.

First, the existing intersection was designed and constructed to accommodate the traffic signal approved for installation in the original project approval. This includes the "new" (now existing) access opening onto Glen Road constructed as part of the Lance Gulch Road project (which is one of the two openings requested by the business owner), so Caltrans and the County have in fact already approved it. In addition, it is a connection within the County road right-of-way so Caltrans actually has very limited

input into the decision to approve/disapprove it. It seems unlikely either agency would have allowed it to be constructed in preparation of the approved signal if it would not then be acceptable.

Second, the PMNDIS itself documents that the access opening onto Glen Road desired by the business owner will remain with the traffic signal. "Implementation of the signal would not result in direct adverse impacts to parking or access. No business or parking would be taken, and access between Nugget Lane and Glen Road would remain open in both directions" (PMNDIS page 65). Together, the first and second points made here demonstrate that there is sufficient evidence available – despite the failure of the PMNDIS author to contact Caltrans – to demonstrate that the traffic signal will in fact allow access from Nugget Lane onto Glen Road whereas the roundabout will not.

6,cont

Implementation of the proposed project would convert commercial land uses to road right-of-way. Some areas would remain available for commercial use after completion of the project, and would be made available for purchase by the affected business or property owners, or by others. Affected areas are small in size and their conversion is not expected to substantially affect adjacent land uses. The project would ultimately improve circulation and traffic flow, conform to the rural aesthetics of the community, and increase vehicular and pedestrian safety at the intersection, which would ultimately improve land use opportunities in the area. In addition, implementation of the roundabout provides an opportunity to create a gateway to the community on westbound SR 299, which also alerts motorists to the change to an urbanized area—slower vehicle speeds, potential for pedestrians—and offers an aesthetic or "branding" opportunity to welcome motorists into the community. Therefore, land use impacts associated with a roundabout are considered less than significant; however, land use impacts associated with a signal would be even less than those of a roundabout. (PMNDIS page 63)

Issue #1:

The conclusion that a roundabout would somehow "conform to the rural aesthetics of the community" is an opinion. This reviewer's opinion is that a traffic signal will better conform to the rural aesthetics of Weaverville. Since both are merely opinion, there is no way to try and determine how either, neither, or both might improve land use in the area.

Issue #2:

Previous comments by this reviewer call into question just how much a roundabout will "increase vehicular and pedestrian safety at the intersection". Hence, the purported conclusion that the safety aspect of roundabout "would ultimately improve land use opportunities in the area" is doubtful.

Issue #3:

It is merely speculation anyway that a roundabout would somehow "ultimately improve land use opportunities in the area." How does the PMNDIS author know that future development in the area will be sufficient to overcome the direct impacts to land parcels, parking and businesses that result from construction of the roundabout? How does the author know that the impacted pad will actually be developed more intensely in the future than the existing larger pad would have been? Since the project creates no additional land designated for commercial development, where is the "ultimately improved land use supposed to occur? The project results in a net loss of commercial land in the area, so the PMNDIS conclusion is counter-intuitive that there will be more business opportunities when there is less land available to support parking and businesses.

7

Issue #4:

Land use impacts from a roundabout may be “considered less than significant” by the PMNDIS author, but the comments provided herein demonstrate that they are much more significant within the “less than significant” spectrum than the PMNDIS author believes them to be. There is no debate that the “land use impacts associated with a signal would be even less than those of a roundabout”. **Exhibit A** attached to these comments is Figure 9 from the PMNDIS. The white diagonal lines are the existing road and highway right-of-way, which is sufficient for construction of the traffic signal. The yellow diagonal lines represent the potential additional right of way needed for a roundabout. It is the public’s decision to make regarding whether conversion of the yellow area to road right-of-way is significant or not.

Given the information in Exhibit A/Figure 9, elsewhere in the PMNDIS and the observations provided by this reviewer, it is clear that it would be more accurate to conclude “land use impacts associated with a signal would be ~~even~~ **much** less than those of a roundabout.” There is no speculation involved in reaching that conclusion.

7, cont

In addition, as discussed previously in Section III.C.14, “Public Services,” comments from CHP focused on the concern that with a roundabout design, a left-turn out of the CHP/DMV parking lot onto SR 299 would no longer be permitted. According to CHP, because officers and customers exiting the driveway and desiring to go eastbound on SR 299 would be limited to a right turn only, they would be required to make an illegal U-turn on SR 299 to get into the eastbound lane. This would delay CHP’s response time and create a safety issue with on-coming traffic for CHP and the DMV customers. Because emergency response time may be slowed, and because of the increased safety hazard for the public impacts to CHP access would be considered potentially significant. To address this concern, design features of the roundabout have been revised to accommodate right and left turns in and out of the CHP/DMV driveway from SR 299 by shortening the length of the splitter island in front of the driveway. In addition, the splitter island on the Lance Gulch Road approach to the roundabout would be designed so that CHP and other emergency vehicles can drive on it to pass other vehicles waiting to enter SR 299 from Lance Gulch Road. Implementation of Mitigation Measure 14.2 (in Section III.C.14, “Public Service”) would ensure that long-term impacts to CHP response would be less than significant. (PMNDIS page 64)

The above paragraph is a repeat of content provided earlier in the PMNDIS. Refer to comments provided for III. Environmental Checklist.

1, 2

The proposed project would enhance pedestrian safety, requiring only one lane of traffic to be crossed at a time versus four lanes at once with a signal. Crosswalks would be provided on all four legs of the roundabout, but no crosswalk would be provided on the south side of the signalized intersection, which is the closest way to cross between the shopping districts in the Trinity Plaza and Nugget Lane. In regards to transportation safety, as described previously in Section III.C.14, “Public Services,” according to Transportation Research Board’s 2010 *Roundabouts: an Informational Guide*, “roundabouts have an observed reduction of 35 percent in total crashes, 76 percent in injury crashes and 90 percent in fatal accidents compared to conventional intersection control. The crash reduction is due to minimizing of conflict points and the lower speeds needed to traverse the intersection. While traffic signals can reduce the likelihood of broadside crashes, rear-end crashes may increase since drivers may not expect to encounter a traffic signal, particularly on a two-lane highway in a rural county. (PMNDIS page 67)

3, 4

Issue #1:

The debatable PMNDIS conclusion that a roundabout will enhance pedestrian safety more than a traffic signal was addressed elsewhere by this reviewer. Refer to comments provided for III. Environmental Checklist, Section 16. Transportation and Circulation – Discussion f.

Issue #2:

As noted in prior comments, the crash/safety characteristics purported for the roundabout in the PMNDIS are overstated. Refer to comments provided for III. Environmental Checklist, Section 14. Public Services – Discussion a. i-v and MM 14.2.

4

Issue #3:

In numerous locations the PMNDIS makes reference to a single line in the report Roundabouts: an Informational Guide which indicates that roundabouts have better safety characteristics than traditional intersection control. This reviewer does not dispute the conclusion that roundabouts in general have better overall safety characteristics than other forms of intersection control. What the overall findings of that study do not tell us is what the safety characteristics of the proposed roundabout alternatives may be in the location in question given the specific design features to be included. The question in need of answer is: with this specific design, in this specific location, in this specific community with the adjacent land uses, what are the projected safety benefits in this instance?

3

As noted in earlier comments, there are design features required by mitigation measure MM 14.2 that will without question reduce the potential safety of the roundabout alternatives in this specific case. That is what is important for Trinity County residents to know, but has been hidden by the errors and omissions contained in the PMNDIS. If MM 14.2 is eliminated, then the public safety concerns raised by first responders (specifically the CHP) are no longer mitigated. The public has the right to know that with either roundabout option, we either must accept a less safe roundabout or adverse impacts to our safety providers. It would be appropriate to note in this section what has been stated elsewhere in the PMNDIS, that the traffic signal has “different operational impacts that could be resolved by the use of signal pre-emption devices” for safety responders (emphasis added). No safety reducing design features are needed for the traffic signal to accommodate emergency vehicles.

1, 2

Issue #4:

The conclusion that rear-end crashes may increase with a traffic signal because drivers may not expect to encounter a signal on a two-lane highway in a rural county is questionable. Traffic signals are actually located on many two-lane highways in many rural communities throughout rural counties in California, including the seven counties within the Caltrans District 2 area. It seems likely that most drivers would have enough experience to have encountered signals in rural areas and be smart enough to have come to expect them.

Drivers traveling on a rural two-lane highway through a community like Weaverville, however, would not expect to encounter a roundabout. There are zero roundabouts on the mainline of any rural two-lane highway within the seven counties in the Caltrans District 2 area. The few roundabouts that exist north of Sacramento are usually associated with freeway interchanges. If anything, it is roundabout that a driver on a rural two-lane highway won't expect. Speculation about what drivers may or may not expect in rural areas needs to be eliminated from the PMNDIS.

8

## V. Public Comment and Coordination

Comments from the public regarding the project were collected from in-person meetings with business owners and landowners in July and August 2016, as well as from written and verbal comments received before, during, and after a public workshop that was held by TCDOT on August 23, 2016. The following is an overview of the main comments received with respect to the project. (PMNDIS page 68)

### Issue #1:

The above assertion regarding collection and provision of “an overview of main comments received” is patently false. During July 2016, comments from this reviewer were made available to County staff, officials and the public:

- July 6, 2016: Board of Supervisors, Agenda item 1.04 – Transportation  
This matter involved a presentation regarding roundabout designs from Kittelson and Associates, Inc. During the public comment portion of the item, this reviewer provided extensive comments to the Board of Supervisors. Director of Transportation, Rick Tippett, was present. Outline used for presentation attached as **Exhibit B**.
- July 13, 2016: Article in the Trinity Journal newspaper titled “Roundabout discussion moves forward”  
Portions of this reviewer’s comments made during the July 6 Board of Supervisors meeting were included in article. Article is attached as **Exhibit C**.
- July 27, 2016: Letter to the Editor, Trinity Journal  
A letter to the editor from this reviewer was published. The letter contained similar information as presented on July 6. Letter is attached as **Exhibit D**.

It should be of great concern to the Planning Commission that its staff chose to ignore information that this reviewer made readily available for everyone to consider during preparation of the PMNDIS. A reasonable conclusion as to why this information was ignored may well be that it called into question many of the “selling points” that County staff is using to support its roundabout proposal.

### Summary of Written Comments Received Before, During, and After the Public Workshop.

Of the 40 comment cards and letters received before, during, and after the public workshop, 16 people were in favor of construction of a roundabout, 18 people were against the roundabout (for the signalized intersection), and 5 people did not specify their preference. (PMNDIS page 69)

### Issue #1:

This statement demonstrates that the public is very interested and very divided over the question of pursuing a roundabout. The notes from this workshop held on August 23, 2016 (Appendix C to the PMNDIS) show that approximately 60 people were in attendance, with about one-third for, one-third against and one-third unknown regarding pursuit of a roundabout. Given the current level of public interest, coupled with past interest in the Lance Gulch Road project (refer to first comment provided in this section, pages 5 and 6) it is essential that the public be provided with the best/most accurate information so they can reach an informed decision regarding the current options under consideration. The Planning Commission should be concerned with how selective County staff has been in choosing what comments and information they have allowed to be included in the PMNDIS.



## **APPENDIX C**

The following excerpts are taken from notes of the August 23, 2016, Roundabout Workshop included in Appendix C to the PMNDIS. They will be evaluated more fully in the section that follows this.

13: So, the traffic signal wouldn't cost the County anything?

Rick Tippett responded: We have the money for the signal already programmed and available. The roundabout will cost more, about \$2 to \$3 million. But accidents cost money. Signalized intersections have bad, expensive accidents. There is a long-term, life-time social cost. And signals cost more to maintain. This is why we have some money from the Highway Safety Program.

Note Mr. Tippett's comments concerning roundabout cost and that the cost of accidents is a long-term social cost.

21: The Mini Mart, nail salon, Radio Shack, Duane's building all separate property owners, building owners and business owners. The property is owned by Glen Mitchell's land trust, then there is the building and three businesses. What about future development? Ricky at the Weaverville Market wants to put in a gas station. What would you do, eminent domain?

Rick Tippett responded: Not eminent domain. We have to go by the Relocation Act. We appraise the building, the property, the business, negotiate with the owners and come to a resolution. We compensate for physical loss and what we call "goodwill". If there is enough land left, the owner could take the money for the building and build a smaller building on there.

21, cont.: Where does that money come from?

Rick Tippett responded: Roundabout construction is only \$1.2 to \$1.5 million. The rest of the \$2 to \$3 million is for right-of-way and utility relocation.

21, cont.: No eminent domain? What if I don't want to sell?

Rick Tippett responded: The Board of Supervisors decides. You can hire your own appraiser. If we can't reach an agreement, the Board decides. If it is for the good of the community, they would do eminent domain.

20, cont.: Who makes the final decision?

Rick Tippett responded: The Board of Supervisors. **This is a public workshop so you can ask questions because the Board does not have time for all these questions.** You can talk to your Board member or write a letter.

Note Mr. Tippett's comments concerning roundabout costs. In addition, the flippant comment made by Mr. Tippett regarding public participation and his attitude toward the role and involvement of our elected officials should be of concern to everyone.

28: National Transportation Safety Board says 750. A roundabout may not be appropriate for this town. How much does it cost to maintain a signal per year?

Rick Tippett responded: An LED bulb will last 7-10 years and cost \$150 to \$300 per bulb. About \$10,000 per year for the power.

28 cont.: I'm not good at math, but it would take a lot of years to make up for the cost of the roundabout. Rick Tippett responded: Maintenance savings won't pay for the capital costs of the roundabout. Savings is in accidents.

Note Mr. Tippett's acknowledgement that the maintenance savings of the proposed roundabout are insufficient to pay for its capital cost and that the savings that accrue from a roundabout are "in accidents".

#### **IV. Community Impacts**

##### **Section B: Impacts, 2. Land Use and Businesses**

The move back to this section at this point is done in order to demonstrate beyond any doubt the magnitude of errors in the PMNDIS and to show that the Director of Transportation knew that incorrect information was being used.

##### **Costs**

The construction cost for the roundabout is estimated to be three to five times the cost of the signal. In contrast, maintenance costs would be less with the roundabout since a signal requires power to operate, regular replacement of components (lamps and other electronic components), and periodic review of signal timing. When collision, construction, and right-of-way costs are considered, the benefit-to-cost ratio is highest with the roundabout option. While the roundabout option would affect vehicle access and have a greater construction cost, this option would provide lower vehicle delay, enhanced traffic safety, and lower maintenance cost than the signal. (PMNDIS page 66)

##### **Issue #1:**

As presented above, the matter of "lower maintenance costs than a signal" is far too simple. By Mr. Tippett's own admission, the maintenance cost savings for the roundabout will never "pay for the capital costs." If the author of the PMNDIS had attempted to make a balanced comparison between the roundabout and traffic signal costs, a comment something like this would have been made: "A roundabout will achieve an annual maintenance cost savings of about fifteen thousand dollars while the traffic signal will provide a capital cost savings of about three million dollars."

##### **Issue #2:**

Using data provided by Kittelson and Associates to the Trinity County Board of Supervisors on July 6 (see attached **Exhibit E**), this reviewer has calculated that the construction cost for a roundabout is actually four to eight times the construction cost for a signal. Furthermore, using the same information from Kittelson and Associates, the total cost for the roundabout options is seven to 12 times the total cost for a signal. The difference between using the most current cost data for comparison rather than the outdated information from the ICE is substantial and undisclosed in the PMNDIS.

##### **Issue #3:**

Use of the most current data for costs (**Exhibit E**) and correcting for the accident affect of MM 14.2 (refer to comments made for III. Environmental Checklist Form) the actual benefit-to-cost ratio is actually lower for the roundabout alternatives than the traffic signal. The formula for this calculation is projected accident savings divided by total cost.

Using the base information from the ICE, with the adjustments for accident savings and total cost the benefit-to-cost (B/C) ratios are as follows:<sup>1</sup>

- Traffic signal: .44
- Lowest Cost Roundabout Alternative: .37
- Highest Cost Roundabout Alternative: .27

What does this B/C ratio information above tell the public? That the savings in accident costs relative to the total cost for the roundabout has a lower return (benefit) to the public than does the savings in accident costs relative to the public investment in the traffic signal. Put another way, the traffic signal is a more efficient expenditure of taxpayer funds.

The difference between using the most current cost data and accident information to make the B/C calculation and what the PMNDIS includes from the ICE is tremendous. Use of the old data falsely tells the public the roundabout is superior when in fact it is not. How can the public have meaningful participation when they are provided incorrect information?

Issue #4:

What should be of greatest concern to the Planning Commission is that Director of Transportation Rick Tippett is or should be aware of the data issues raised herein. He accepted (via his signature on May 20, 2015) the ICE prepared to compare the traffic signal and roundabout options. Not only does it list "P.E." on his signature block (Professional Engineer) he added the notation "T.E." (Traffic Engineer). Via his signature and standing as an engineer, he accepted that he understands the information in the ICE and that it was accurate.

Based on the information presented to the Board of Supervisors by Kittelson and Associates on July 6, 2016 when Rick was in attendance as well as his comments during the Roundabout Workshop (as the excerpts from Appendix C of the PMNDIS included above show), Mr. Tippett knew the information in the ICE was out of date, yet he allowed it to be included in the PMNDIS anyway. This strikes a fatal blow to the "in the interest of public disclosure" (PMNDIS page 56) the PMNDIS purportedly seeks to make. How has the interest of public disclosure been served by Mr. Tippett allowing such erroneous information to be fed to the public? Especially given that he is the registered engineer in charge and responsible for all staff and consultants involved.

## Conclusion

These comments have been provided not as a sales pitch for a given traffic control option at Lance Gulch Road/SR 299. Rather, they have been provided to help alert the Planning Commission and public as to how deceptive the PMNDIS is. As I stated to the Board of Supervisors and in a letter to the editor of the Trinity Journal back in July, my goal is for facts to be used in the discussion of roundabout versus traffic signal. Given the lopsided (and inaccurate) pro-roundabout presentation provided in the PMNDIS, my comment to the editor back in July that the decision to build a roundabout "certainly isn't the easy choice that Mr. Tippett makes it out to be" is more relevant than ever.

<sup>1</sup>Cost savings per accident not identified in the ICE so an assumption using what data was included was required.

It is grossly unfair to expect the public to wade through the massive volume of history associated with the East Connector/Lance Gulch Road project, the ICE and the PMNDIS in a mere 30 days and provide informed comment/participation. This is particularly true given the clear bias with which the PMNDIS has been prepared. This reviewer has over 20 years professional experience in land use and transportation planning as well as more than a decade of involvement as member of the public in the prior East Connector/Lance Gulch Road project and current intersection control project. It has taken all of that and a tremendous commitment of time the past month to develop and provide these comments.

At this point, the following recommendation from page one of these comments is reiterated:

To achieve valid disclosure of the potential impacts and benefits of a roundabout relative to a traffic signal at the project location and allow for fully informed public input and decisions by public officials, the following actions should be taken by the Planning Commission:

- Receive public and agency input up through the Public Hearing scheduled for November 10, 2016.
- Direct staff to update and prepare a revised PMNDIS in consideration of all information received.
- Recirculate the revised PMNDIS for a second 30-day public review period to allow the public to consider and comment on a more accurate and reasonable assessment of the alternative intersection control options.
- Conduct a second public hearing.

How much consideration can County staff or its consultant really provide to the public's comments when the public hearing for the Planning Commission is eight days after the comments are due? Two of the days are weekend and at least two will be needed to prepare and publish material for the Planning Commission meeting. The answer: four days cannot provide for reasonable consideration of our input.

Failure to revise and recirculate the PMNDIS will also limit the public's access to accurate information and opportunity to evaluate whatever response staff provides. Staff response will literally only be available to the public a day or two before the scheduled hearing. Many people may have decided to attend or not attend the hearing based on the flawed PMNDIS and will have almost no time to reconsider their decision.

The choice facing you is whether you will stand up for the public and provide a meaningful opportunity for us to participate. An opportunity with enough time to review an objective, balanced environmental document upon which both you and the public can confidently rely to make informed decisions. Or will you allow Rick Tippet (an appointed bureaucrat) to push his predetermined vision of the future on us?

Respectfully submitted,

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**RESPONSE TO COMMENTS FROM SCOTT WHITE  
LETTER DATED NOVEMBER 2, 2016**

COMMENT #1: Allowing the left turn from the DMV/CHP driveway onto State route (SR) 299, as allowed by Mitigation measure 14.2 could make the intersection less safe, and was not considered in the analysis done in the 2015 Intersection Control Evaluation (ICE) or in the cost/benefit calculations done for the project.

Response #1: The ICE did state that the left turn movement from the CHP driveway would be prohibited, and assumed that in their safety analysis and cost/benefit calculations. These analyses compared the existing condition at the time with the proposed condition of either a traffic signal or a roundabout. The existing condition at the time was the three-way intersection of Glen Road with SR 299, with a two-way center left turn lane, a CHP driveway very close to where Lance Gulch Road is now, and another driveway for CHP and DMV that was about 20 feet from the intersection. The two-way center turn lane has been channelized into isolated left turn pockets, the CHP driveway immediately adjacent to the intersection has been removed, and CHP vehicles now enter onto Lance Gulch Road instead, and the upper driveway for DMV and the CHP office was moved about 50 feet further away from the intersection. The accidents that occurred at the old intersection included two broadside incidents that occurred in the two-way center turn lane involving left turning vehicles from the DMV driveway colliding with left turning vehicles from Glen Road onto SR 299. With the roundabout, there would be no left turns from Glen Road onto SR 299. All vehicles entering SR 299 would turn right into the roundabout. This will eliminate the conflict that caused the two documented broadside collisions. With the roundabout, vehicles turning left out of the DMV parking lot would only have to cross one lane of traffic on westbound 299, not the westbound lane and the left turn lane as they would under the current conditions, or with a traffic signal. Traffic coming out of the roundabout will be slower, making it safer to cross the westbound lane of 299.

With the signal, there would be gaps in the westbound traffic on 299, but, on the other hand, the traffic signal or four-way stop could back up eastbound traffic across the exit from the DMV, making that movement more difficult. There would still be left turns from Glen Road onto SR 299, but they would not share the center turn lane with opposing movements and the traffic on SR 299 would be stopped by the red light.

COMMENT #2: Mitigation Measure 14.2 also proposes a mountable splitter island on the Lance Gulch Road approach to allow CHP and other emergency vehicles to pass other vehicles and enter the roundabout without waiting. The comment states that this "painted" center island will make it easier for a driver approaching SR 299 on Lance Gulch Road to turn left into the roundabout and travel directly into the path of westbound vehicles on SR 299. Also, without a raised splitter island, there will be no refuge for pedestrians crossing Lance Gulch, particularly from vehicles using the free right turn lane from westbound SR 299 to Lance Gulch Road, or from emergency vehicles using the mountable splitter island to pass vehicles and enter the roundabout, as the mitigation measure intends.

RESPONSE #2: The comment refers to a painted splitter island rather than a solid splitter island. The proposed mountable splitter island would be a raised center island with rounded, mountable curbs. Exhibit B shows a similar mountable center island at a roundabout near a fire station in Bend, Oregon. The splitter island will not just be painted, it will be raised and made of a different material (concrete and/or brick), to make it clear that it is not to be driven on. The maneuver of making an errant left turn

into oncoming traffic would be unlikely with the roundabout, because all of the raised splitter islands and the raised circle serve to channelize vehicles into the correct path. If a vehicle was to enter the roundabout the wrong way and try to head eastbound on SR 299, they would have to follow the roundabout almost to the Glen Road arm, and then make a tight turn around the south corner of the splitter island on westbound SR 299. See Figure 4 of the IS/MND. Otherwise, they would have to proceed the wrong way down SR 299 all the way to the end of the splitter island. With all of the visual clues in the roundabout geometry it would be very unlikely for a person to make this move accidentally. If someone wanted to proceed against traffic intentionally, then it would be even easier to do that directly from the southbound lane of Lance Gulch Road, without mounting center island, or at a signalized intersection without channelization. Such an out-of-control driver might just as easily drive up on the sidewalk at a driveway, or enter a freeway in the wrong direction. Designers use standard methods derived from years of study to plan intersections, but nothing can guarantee that an impaired driver will not make an irrational move at any intersection.

The right turn from eastbound SR 299 onto Lance Gulch Road will be of adequate width to accommodate trucks without them needing to mount the splitter island. The right turn lane is designed to accommodate the turning movements of larger STAA trucks. Presumably, the CHP would watch for pedestrians when they travel on the splitter island, just as they would when crossing a crosswalk, sidewalk or shoulder to exit their driveway. A signalized intersection would not have any splitter island, mountable or otherwise. There would be no refuge for a pedestrian to avoid CHP or other vehicles approaching the intersection, including emergency responders who have pre-empted a traffic signal and are hurrying to get through the intersection.

**COMMENT #3:**

The Initial Study implies that roundabouts eliminate the potential for severe traffic accidents, but no data is provided to support this assumption.

RESPONSE #3: Nothing can completely eliminate the potential for severe accidents, and the document does not make such a claim. Kittelson & Associates, the design consultant for the proposed roundabout, has been studying roundabouts nationwide for many years, and they are considered leading experts in the field. Their studies of roundabout data, summarized in Exhibit C "*Roundabout Safety for Pedestrians and Bicycles*" indicate that there is no question that roundabouts, particularly single lane roundabouts such as the one proposed, are safer than signalized intersections. Kittelson & Associates has prepared a predictive model of possible future accidents at a signalized intersection at this location, versus a roundabout at this location, using methods in the Highway Safety Manual. That analysis is included as Exhibit D "*SR 299 & Lance Gulch Road/Glen Road Roundabout Study – Safety Analysis*", attached to this Staff Report.

**COMMENT #4:**

The Initial Study states that the roundabout would be safer for pedestrians because they would have to cross shorter distances, one lane at a time, against traffic coming from only one direction at a time, but a traffic signal would stop traffic for pedestrians and could be timed to accommodate elimination of a certain crosswalk, or to accommodate older or disabled pedestrians.

RESPONSE #4: The comment is correct. Either option could accommodate safe passage of pedestrians. However, according to Kittelson & Associates, and their sources listed in Exhibit C, national data shows that pedestrians are much more vulnerable at a traffic signal than at a roundabout.

COMMENT #5:

The Initial Study states that the project would represent a “minor, but permanent effect on land use patterns, in which the project may require take of existing buildings”. The commenter disputes calling the impacts “minor”, especially considering that the signalized intersection alternative, and the entire construction of Lance Gulch Road, had no such impacts on businesses but was the subject of a full Environmental Impact Report (EIR) and a lawsuit.

RESPONSE #5: The Initial Study calls the effect on land use patterns “minor”, referring to the overall pattern of land use in the community. As noted in the Initial Study, CEQA does not consider fiscal impacts on businesses to be true “environmental” impacts that can legally trigger an EIR or CEQA based lawsuit. However, the County does not consider the impacts on these individual businesses to be “minor”. County Staff understands the importance of the impacts to businesses, including loss of a building and the adverse changes to access and parking that several businesses will suffer as a result of either alternative roundabout. The comment is correct in stating that none of these impacts will result from a traffic signal, and there were no such impacts resulting from the Lance Gulch Road (East Connector) project with a signalized intersection as originally planned.

COMMENT #6:

The owner of the Weaverville Market requested two modifications to the roundabout proposal: 1) that the access from his property to Glen Road be left where it is now, and 2) that an additional access to SR 299 be placed near the front of his store. The Initial Study failed to investigate whether either of these requests could be accommodated, and this may reduce or eliminate the economic viability of the business.

RESPONSE #6: Unfortunately, there is some confusion between the two requests as reported in the cited section of the Initial Study, which may have confused the reader. These are two separate requests as enumerated above.

1) is the encroachment onto Glen Road from the Market property at the end of Nugget Lane. For the roundabout, this access would have to be moved further south, almost to the Coast Central Credit Union Building. If the traffic signal is installed, this driveway can remain where it is today. This encroachment is to a County Road and does not require Caltrans approval.

2) is the new driveway onto SR 299 in front of the market. County Department of Transportation’s Senior Engineer Andrew Pence contacted Rob Stinger, Chief of Traffic Engineering & Operations for Caltrans District 2 and asked if an encroachment would be allowed at that location, and he responded that it would not be allowed there, for either the roundabout or the signalized intersection, because it is too close to the intersection. Being an encroachment onto SR 299, Caltrans would have the final say.

These requests were not to ensure the survival of the existing market. The owner has indicated in several meetings with the Dept. of Transportation that he wishes to install fuel pumps at this location. He purchased the market thinking it could be turned into a gas station, as it had been in the past. Relocation of the driveway onto Nugget Lane towards the back of his lot will cut across a large section of his lot, at the location of the former car wash, where he expected to install fuel pumps. With this driveway cutting through the area, there is no way to fit the number of fuel pumps desired by any fuel company that would otherwise be interested in a franchise operation. He even considered demolishing the market and moving it to the back of the property, but this idea did not turn out to be economically feasible. This is why he wanted the encroachment to Glen Road to stay where it is now. Director of Transportation and Planning Rick Tippett is willing to consider vacating the County right-of-way at this

end of Nugget Lane, and turning it over to the property owner. This would eliminate any setbacks from the County road that would otherwise be required, and give the owner more flexibility in planning his site. However, the road vacation would be subject to Planning Commission and Board of Supervisor's approval, and it still might not provide enough room to install the required number of fuel pumps. The additional access to SR 299 was an attempt to improve site circulation, and provide a direct route for passersby to enter the Market as soon as they see it, rather than doubling back from the next entrance to Nugget Lane further north, or having to travel down Glen Road to enter. This is especially important for trucks, RV's and vehicles pulling trailers who are unfamiliar with the area and may not immediately understand how to get into the Market property.

COMMENT #7: The commenter disagrees with statements in the Initial Study regarding the overall impacts on aesthetics, community character and land use opportunities in the area.

RESPONSE #7: Comment noted. These issues are speculative and generally based on opinion. It is not possible to quantify these types of impacts. The readers and the decision makers are encouraged to form their own opinions based on the facts presented in the documents, public comments and staff reports that have been provided. However, it is clearly stated in the document that none of the land use impacts discussed in this section will occur if a traffic signal is installed.

COMMENT #8: The document contains speculation that drivers may not expect to encounter a signal on a two-lane highway in a rural county, and rear-end collisions could result. The commenter believes most drivers would have experienced signals in rural areas but would not expect a roundabout on a state highway, since there are none in Caltrans District 2. Comment states that speculation should be eliminated from the Initial Study.

RESPONSE #8: Comment noted. The commenter is correct; speculation is not useful in the environmental analysis or traffic analysis.

COMMENT #9: Comments made to the Board of Supervisors on July 6, 2016 and in a letter to the Trinity Journal on July 27, 2016 were not included in the Public Comment section of the Initial Study.

RESPONSE #9: Planning staff typically does not include letters to the editor in with comments on an environmental document. Comments made to the Board of Supervisors are already part of the public record that will be available to the Board of Supervisors when they make the ultimate decision.

COMMENT #10: The benefit-to-cost (B/C) ratio calculated for the ICE and reported in the Initial Study should be revised to reflect the updated project costs presented to the Board of Supervisors on July 6, 2016 and the reduction in safety caused by reintroducing the left turn movement out of the DMV.

RESPONSE #10: When the B/C ratio is calculated, dollar values are assigned to different types of accidents, such as property damage only, minor injury, severe injury or fatality, in increasing order. When a proposed safety improvement is expected to reduce these types of accidents, those dollar values go toward the project's Benefit factor. Actual accident history at that location is used to calculate the Benefit factor. Costs of design, right of way, utility relocation and construction are considered for the Cost factor. Maintenance costs are not usually considered. A B/C ratio greater than one indicates that the benefits outweigh the costs. The greater the B/C ratio, the more beneficial the project is, relative to its costs.



Accidents at the previously existing 3-way intersection with the two-way left turn lane and adjacent CHP/DMV driveways had to be used as accident history to calculate the B/C ratio, because there is no safety data yet at this location for a traffic signal or roundabout. Using that accident history and the previous 2015 cost estimates for the signal and the roundabout, the B/C reported in the ICE for a single lane roundabout was 1.27, and the B/C ratio for the signalized intersection was 0.62. The roundabout scored slightly over one, and the signal was less than one.

The B/C ratios for both alternatives have been calculated using the most current project cost estimate for Alternative 2, (the more expensive and preferred roundabout alternative) and for the traffic signal. Costs for both are assumed to be higher than those estimated in the ICE. Using the same accident data, the updated B/C ratios are 1.71 for the roundabout and 6.24 for the traffic signal. Both B/C ratios are greater than one, so either project would result in a net benefit. The signal has a much greater B/C ratio, due to its much lower cost. However, the roundabout does have a higher “crash reduction factor” and is proven to result in less severe crashes, as shown by Kittelson & Associates in Exhibit C. The new B/C ratio calculation is attached as Exhibit E. The B/C should not be used in a vacuum, however, because the actual value of a human life cannot really be quantified and fairly compared to the cost to install the improvement.

Note, this calculation is not affected by the reintroduction of the left turn movements from DMV, because that movement is included in both future intersection designs, and neither of these future designs includes a two-way center left turn lane. (See response to Comment #1). Since the same accident data was used for both calculations, the comparison is “apples-to-apples”, and what matters is the comparison of the signal to the roundabout, not to what existed before.

**RESPONSE TO COMMENTS FROM MEGAN MARSHALL  
LETTER DATED NOVEMBER 3, 2016**

COMMENT #1: Potential traffic options include a two-way stop, four-way stop, traffic light or roundabout. A survey of residents conferment that the public prefers a two-way stop.

RESPONSE #1: During the development of the East Connector, since 1998, there have been at least 4 traffic studies of the Weaverville area which calculated intersection delay in terms of level of service (LOS), which rates an intersection with letter grades from “A” for very good to “F” for excess delay leading to unsafe conditions. The Circulation Element of the Trinity County General Plan includes a policy for the Weaverville area related to traffic congestion: “The minimum acceptable LOS standard for county roadway and intersection operation in the Weaverville Community Plan Area is “D”. For unsignalized intersections, LOS is calculated based upon the average peak hour delay for the worst movement, using the current version of the Highway Capacity Manual. No public highway or roadway within the Weaverville Community Plan Area should be allowed to fall to or below LOS “E”. Calculations of level of service for an unsignalized intersection (two way stop) at the Glen Road/ SR 299/ future Lance Gulch Road intersection have resulted in the following:

Study year	Projection year	study	LOS result
1998	2020	Weaverville Basin Traffic Circulation Study	F
2002	2020	East Connector Roadway Project EIR	F
2005	2030	2005 Regional Transportation Plan	F
2011	2040	2011 Regional Transportation Plan & Signalization Study	F

Therefore, a two-way stop at the intersection does not meet the standards in the Circulation Element of the Trinity County General Plan, and to install one would be a General Plan violation.

Caltrans has clearly stated that the four-way stop cannot remain indefinitely on their State Highway, so it can only be considered a temporary solution until either a traffic signal or roundabout is installed.

COMMENT #2: The underlying purpose of the Lance Gulch Road project was to reduce traffic congestion on Main Street at Washington St, Mill Street, etc. A roundabout will not reduce traffic congestion on Main Street, but will maintain constant traffic flow on Main Street. A signal would meter traffic and allow gaps for cross traffic travel. The roundabout will not meet the purpose of the road project.

RESPONSE #2: The comment is correct. The purpose of the Lance Gulch Road project was to reduce traffic congestion on Main Street (SR 299) by diverting local traffic to another route as well as creating opportunities to enter SR 299 from other side streets between SR 3 and Glen Road, thus improving their levels of service, by reducing traffic on SR 299 and by creating gaps. That, along with the studies listed above, is why the project was developed with a traffic signal at its intersection with SR 299 and Glen Road. A traffic signal would create gaps along Main Street. A roundabout will not. Another essential element of the Lance Gulch Road project is that it's better access to SR 299 is what makes it attractive as an alternate route, thus diverting traffic off of SR 299. If the intersection does not provide an advantage to getting onto SR 299 (particularly if a two-way stop were installed making it just another poorly functioning intersection in Weaverville) then the entire purpose of the Lance Gulch is lost, resulting in a waste of over \$17 million. Either a roundabout or a traffic signal or even the four-way stop would be effective in making Lance Gulch Road an attractive way to access SR 299.

COMMENT #3: The roundabout will negatively impact surrounding businesses and the CHP/ DMV. It will destroy the intersection of Glen Road, Nugget Lane and SR 299, cutting off access for numerous businesses (comment names several businesses, some of which are located off Glen Road). It will interfere with truck access to Nugget Lane, which is too narrow for trucks to turn around in.

RESPONSE #3: the Initial Study discloses the impacts on the businesses adjacent to the intersection, and on Nugget Lane. However, the intersection with Glen Road and Highway 299 will remain open to all turning movements. Businesses accessed from Glen Road, such as the Trinity Alps Golf Course and Coast Central Credit Union, will not be adversely impacted. The issue of trucks accessing businesses on Nugget Lane can be addressed by selecting Sub-Alternative B or C, which provides additional access to Nugget Lane from SR 299 at a location that would not require much, if any, backing of trucks to access all of the businesses on Nugget Lane. However, as disclosed in the document, the CHP/DMV truck inspection area (in Caltrans right-of-way) in front of the DMV station will be lost, and no replacement is proposed.

COMMENT #4: After Lance Gulch Road was completed, the electrical wiring was placed under the roadway prior to paving to prepare for the already planned traffic light. Rick Tippett ordered transportation workers to remove the electrical wiring and ordered Lance Gulch Road to be paved over with the wiring removed. This will cost additional money to install the traffic light.

RESPONSE #4: No wiring was installed and then later removed from the intersection. Wiring and conduits were installed for street lighting and for the flashing beacons at the four-way stop. If the traffic signal is selected, additional wiring will have to be installed beneath Lance Gulch Road and SR 299. This could be installed by trenching across the new pavement, or hopefully by boring beneath the pavement

without disturbing the paved surface. This work is part of the anticipated cost of the Traffic Signal, and can be completed with the money originally programmed for the Lance Gulch Road project, provided the decision is made soon, without a lot of further study.

COMMENT #5: The roundabout would not be safe or effective in this specific intersection. There are numerous pedestrians and cyclists using the intersection. The roundabout would create confusion. The crosswalks are around the corner, out of the line of sight of vehicles entering the roundabout. There is no metered stop of traffic to allow pedestrians or cyclists to cross. The raised splitter islands will be hard to mount with bicycles or strollers and will not provide refuge. There have been a number of fatal accidents at roundabouts around the globe, and some countries are removing them and replacing them with signalized intersections.

RESPONSE #5: The comment does not include any citations of references for the statements given. See response to Comments #3 and 4 in the previous Scott White letter, and Exhibit C. Exhibit C explains the safety benefits of roundabouts for pedestrians and bicyclists. It specifically mentions setting crosswalks back from the yield line to separate them from the driver's merging process so the driver can concentrate fully on the crosswalk. Exhibit C refers to numerous studies, particularly in the U.S., documenting safety performance at roundabouts.

COMMENT #6: An accident in a single lane roundabout would completely shut down SR 299, the main artery through Weaverville to points east and west. A signalized intersection would have more than one lane, so traffic could be routed through the intersection around the accident.

RESPONSE #6: The comment is correct, this is a possibility. However, studies show a two-lane roundabout is less safe than a single lane roundabout, and would take substantially more right-of-way, so a two-lane roundabout is not desirable. If an accident occurs in a single lane roundabout, the delay would not be long term. It may be possible to temporary route traffic onto Lance Gulch road or Nugget Lane if necessary, for a short period of time.

**Responses to comments made at the November 10, 2016 Planning Commission  
Public Hearing**

RESPONSE TO PUBLIC HEARING COMMENTS AT NOVEMBER 10, 2016 PLANNING COMMISSION MEETING

JOHN HAMILTON: Mr. Hamilton provided a drawing of a roundabout that could be constructed closer to the vacant lot adjacent to CVS, without impacting Nugget Lance. He stated that he used to work for a traffic engineer, and that he had presented this concept before but got no response.

RESPONSE: The drawing is attached as **Exhibit F**. Kittelson & Associates, the design consultant for the proposed roundabout, as well as County Engineers and roadway design consultants from Quincy Engineering, consultants for the Lance Gulch Road project all reviewed and commented on the drawing. They found it similar to a drawing that Rob Stinger, Chief of Traffic Engineering & Operations for Caltrans District 2, had provided a couple of years ago, but that was rejected mainly because it eliminated the left turn from westbound SR 299 onto Glen Road, and because it would require realignment and reconstruction of long sections of Lance Gulch Road and SR 299. The roundabout provided by Mr. Hamilton would probably also require realignment of Lance Gulch Road and SR 299, but the drawing has no background or scale so it is difficult to see how much.

From a traffic engineering standpoint, the roundabout has several fatal flaws: The intersection of Lance Gulch Road, Glen Road and eastbound SR 299 looks essentially like a standard three-way intersection with no traffic control. The approaches line directly up with oncoming traffic, especially in the case of Glen Road and Lance Gulch Road. There is no deflection of the movements from eastbound SR 299, Lance Gulch Road or Glen Road. Vehicles do not have to turn to enter the roundabout, so they would enter at full speed. The approach from Glen Road could lead a driver to enter the roundabout in the wrong direction, crossing straight to Lance Gulch Road. The view travelling on Glen Road toward the intersection is not obstructed by the center island, which is a key part of controlling drivers' perceptions when entering a roundabout. The entrance to the roundabout for Glen Road is too close to the entrance for eastbound SR 299, especially without a deflection to slow down vehicles on that approach. Any efforts to make this design conform to current roundabout standards would greatly impact the CHP/DMV property.

DUANE HERYFORD: I have been a developer here for 50 years, working with many Planning Commissioners and Building Officials. I own a 50,000 square foot building on Nugget Lane, and no one ever came and asked me about this. In order to make the comment deadline, I had to hire a Real Estate lawyer to write a letter. (See Letter #9 in the Staff Report for the November 10, 2016 Planning Commission meeting).

RESPONSE: Staff apologizes for not contacting Mr. Heryford. Building owners and businesses that would be directly affected by the project were contacted, including one of Mr. Heryford's tenants at The Floor Store, regarding the feasibility of large truck deliveries to this location on Nugget Lane.

ALLEN HOUSTON: An on-demand traffic light would be safer and cheaper. I almost got clobbered twice in roundabouts, when I had the right of way. Last summer, a fire engine got up on the mountable center and rolled and killed the driver. It is stupid to spend that many tax dollars for a spot where a roundabout doesn't fit. There are too many impacts here. The moral thing is to put in a traffic light. An on-demand light would be green on SR 299 most of the time.

RESPONSE: Comment noted. The story of the fire truck is true. The comment contains valid points and opinions.

EVERETT HARVEY: I am in favor of roundabouts, but not at this location. We already have a well thought out traffic signal without any right-of-way take, impacts or mitigation. You have satisfied Caltrans requirement to look at it. The Planning Commission is perfectly capable of making a decision that goes against the DOT staff recommendation.

RESPONSE: Comment noted. The comment contains valid points and opinions. See also Letter #8 in the Staff Report for the November 10, 2016 Planning Commission meeting for more comments from Mr. Harvey.

RICKY, OWNER OF WEAVERVILLE MARKET: I don't think the roundabout is the right decision. It is not appropriate here. The CHP/DMV access is too close. It will impact businesses. Our access will be moved back to the back of our property, by the Credit Union. We would have to demolish our store in order to put in fuel pumps like we planned, but it would not be cost effective for us. There are a lot of pedestrians walking across the highway at this location. A signal would give them more time to cross. A signal light would not impact businesses. Our delivery drivers are concerned that their trucks will not be able to come in and out without impacting cars. The light costs so much less to build. The roundabout doesn't make sense.

RESPONSE: The impacts on Weaverville Market, particularly on their truck access and their ability to add fuel pumps to their store, as they had planned when they purchased the property, has been disclosed in the document and the previous staff report. If the encroachment onto Glen Road is not moved to the back of the property, it will be too close to the intersection and the crosswalk. It could only accommodate right turns in and out, which would direct exiting vehicles to the end of Glen Road, usually requiring a U-turn, and entering vehicles would have to make a tight turn off Glen Road, which would not work for delivery trucks. Additional access to the business directly from SR 299 was denied by Caltrans because it is too close to the intersection. A partial solution suggested by the Director of Transportation and Planning is to vacate that part of Nugget Lane, turning ownership over to the Market owners. This would eliminate the need for setbacks from a County road, and provide some more flexibility for the Market to lay out their property, but the encroachment to Glen Road would still have to be at the back of the property, as planned. If the signal is constructed, the encroachment onto Glen Road would remain where it is, which is currently serving the Market adequately. It is unknown if fuel pumps would be feasible with the current site layout or not. See also Letter #15 in the Staff Report for the November 10, 2016 Planning Commission meeting for more comments from Weaverville Market, and the response to Comment #6 in the Scott White letter in the previous section of this Exhibit.

DAN STODDARD: My wife owns the Radio Shack Building. I was broadsided at a traffic signal and injured. Today there were 20 to 30 cars backed up at the four-way stop sign. A roundabout would alleviate that. I understand the costs would not come out of the County's pocket, correct?

RICK TIPPETT, DIRECTOR OF TRANSPORTATION

All but 10% of the cost would come from grants. The match would come from the State Match Exchange Program. We get \$300,000 per year, and we usually use it for maintenance. My goal is to get all of it paid for.

DAN STODDARD: If it saves one life it is worth it, even though my building is affected the most of any.

RESPONSE: This comment supporting the roundabout is significant coming from the owner of the building, housing two businesses that would be removed if the roundabout is constructed. It should be noted that Mr. Stoddard does not own the businesses within the building; the Radio Shack and U.S.

Nails, which are operated by renters who did not speak at the meeting. The building owner would be compensated at fair market value for the building, and the business owners would receive relocation benefits to help them move their businesses. It is possible that a smaller building could be constructed on the site after the roundabout is constructed, but there may not be enough room to provide adequate parking.

SCOTT WHITE:

1) I am a Transportation Planner, (not a Traffic Engineer) and I review traffic studies professionally. The ICE is the only traffic study that was done for this project. Mitigation Measures added to the document put left turns out of the DMV back into the equation, but the traffic study was not re-done.

2) Director Tippett misspoke to Mr. Stoddard. The Staff Report clearly states that \$500,000 to relocate utilities for the roundabout will be the responsibility of the County because the utilities were already relocated once for this project. This will come out of County Road Funds. This is as much as the signal would cost.

3) See Letter #21 in the Staff Report for the November 10, 2016 Planning Commission meeting for the remainder of Mr. White's comments, which are essentially the same as his oral comments at the meeting.

RESPONSE:

1) The ICE was adequate as a traffic study for this project. The design of the roundabout has been further developed since the ICE was done, but the way it would function, and the way a traffic signal would function, have not changed. Traffic studies are not used to assess the safety of driveways entering the road. They evaluate the level of service of intersections. See Response to Written Comments in the previous section of this exhibit, for a further response to this comment.

2) Caltrans previously stated that the utility relocation costs could not be paid for with the existing grant money. There is now potential additional grant money available, but the exact amount and what it can be used for is unclear at this time. Director Tippett may have additional information about this funding at the meeting on December 8, 2016.

3) See the previous section of this Exhibit for responses to Mr. White's letter dated November 2, 2016, which was substantially the same as the remainder of his comments at the Planning Commission.

MEGAN MARSHALL: See Letter #22 in the Staff Report for the November 10, 2016 Planning Commission meeting for a written version of Ms. Marshall's comments, which are essentially the same as her oral comments at the meeting.

RESPONSE: See the previous section of this Exhibit for responses to Ms. Marshall's email dated November 3, 2016, which was substantially the same as her comments at the Planning Commission.

**RESPONSE TO COMMENTS FROM SCOTT WHITE  
LETTER DATED NOVEMBER 2, 2016**

COMMENT #1: Allowing the left turn from the DMV/CHP driveway onto State route (SR) 299, as allowed by Mitigation measure 14.2 could make the intersection less safe, and was not considered in the analysis done in the 2015 Intersection Control Evaluation (ICE) or in the cost/benefit calculations done for the project.

Response #1: The ICE did state that the left turn movement from the CHP driveway would be prohibited, and assumed that in their safety analysis and cost/benefit calculations. These analyses compared the existing condition at the time with the proposed condition of either a traffic signal or a roundabout. The existing condition at the time was the three-way intersection of Glen Road with SR 299, with a two-way center left turn lane, a CHP driveway very close to where Lance Gulch Road is now, and another driveway for CHP and DMV that was about 20 feet from the intersection. The two-way center turn lane has been channelized into isolated left turn pockets, the CHP driveway immediately adjacent to the intersection has been removed, and CHP vehicles now enter onto Lance Gulch Road instead, and the upper driveway for DMV and the CHP office was moved about 50 feet further away from the intersection. The accidents that occurred at the old intersection included two broadside incidents that occurred in the two-way center turn lane involving left turning vehicles from the DMV driveway colliding with left turning vehicles from Glen Road onto SR 299. With the roundabout, there would be no left turns from Glen Road onto SR 299. All vehicles entering SR 299 would turn right into the roundabout. This will eliminate the conflict that caused the two documented broadside collisions. With the roundabout, vehicles turning left out of the DMV parking lot would only have to cross one lane of traffic on westbound 299, not the westbound lane and the left turn lane as they would under the current conditions, or with a traffic signal. Traffic coming out of the roundabout will be slower, making it safer to cross the westbound lane of 299.

With the signal, there would be gaps in the westbound traffic on 299, but, on the other hand, the traffic signal or four-way stop could back up eastbound traffic across the exit from the DMV, making that movement more difficult. There would still be left turns from Glen Road onto SR 299, but they would not share the center turn lane with opposing movements and the traffic on SR 299 would be stopped by the red light.

COMMENT #2: Mitigation Measure 14.2 also proposes a mountable splitter island on the Lance Gulch Road approach to allow CHP and other emergency vehicles to pass other vehicles and enter the roundabout without waiting. The comment states that this "painted" center island will make it easier for a driver approaching SR 299 on Lance Gulch Road to turn left into the roundabout and travel directly into the path of westbound vehicles on SR 299. Also, without a raised splitter island, there will be no refuge for pedestrians crossing Lance Gulch, particularly from vehicles using the free right turn lane from westbound SR 299 to Lance Gulch Road, or from emergency vehicles using the mountable splitter island to pass vehicles and enter the roundabout, as the mitigation measure intends.

RESPONSE #2: The comment refers to a painted splitter island rather than a solid splitter island. The proposed mountable splitter island would be a raised center island with rounded, mountable curbs. Exhibit B shows a similar mountable center island at a roundabout near a fire station in Bend, Oregon. The splitter island will not just be painted, it will be raised and made of a different material (concrete and/or brick), to make it clear that it is not to be driven on. The maneuver of making an errant left turn



into oncoming traffic would be unlikely with the roundabout, because all of the raised splitter islands and the raised circle serve to channelize vehicles into the correct path. If a vehicle was to enter the roundabout the wrong way and try to head eastbound on SR 299, they would have to follow the roundabout almost to the Glen Road arm, and then make a tight turn around the south corner of the splitter island on westbound SR 299. See Figure 4 of the IS/MND. Otherwise, they would have to proceed the wrong way down SR 299 all the way to the end of the splitter island. With all of the visual clues in the roundabout geometry it would be very unlikely for a person to make this move accidentally. If someone wanted to proceed against traffic intentionally, then it would be even easier to do that directly from the southbound lane of Lance Gulch Road, without mounting center island, or at a signalized intersection without channelization. Such an out-of-control driver might just as easily drive up on the sidewalk at a driveway, or enter a freeway in the wrong direction. Designers use standard methods derived from years of study to plan intersections, but nothing can guarantee that an impaired driver will not make an irrational move at any intersection.

The right turn from eastbound SR 299 onto Lance Gulch Road will be of adequate width to accommodate trucks without them needing to mount the splitter island. The right turn lane is designed to accommodate the turning movements of larger STAA trucks. Presumably, the CHP would watch for pedestrians when they travel on the splitter island, just as they would when crossing a crosswalk, sidewalk or shoulder to exit their driveway. A signalized intersection would not have any splitter island, mountable or otherwise. There would be no refuge for a pedestrian to avoid CHP or other vehicles approaching the intersection, including emergency responders who have pre-empted a traffic signal and are hurrying to get through the intersection.

**COMMENT #3:**

The Initial Study implies that roundabouts eliminate the potential for severe traffic accidents, but no data is provided to support this assumption.

RESPONSE #3: Nothing can completely eliminate the potential for severe accidents, and the document does not make such a claim. Kittelson & Associates, the design consultant for the proposed roundabout, has been studying roundabouts nationwide for many years, and they are considered leading experts in the field. Their studies of roundabout data, summarized in Exhibit C "*Roundabout Safety for Pedestrians and Bicycles*" indicate that there is no question that roundabouts, particularly single lane roundabouts such as the one proposed, are safer than signalized intersections. Kittelson & Associates has prepared a predictive model of possible future accidents at a signalized intersection at this location, versus a roundabout at this location, using methods in the Highway Safety Manual. That analysis is included as Exhibit D "*SR 299 & Lance Gulch Road/Glen Road Roundabout Study – Safety Analysis*", attached to this Staff Report.

**COMMENT #4:**

The Initial Study states that the roundabout would be safer for pedestrians because they would have to cross shorter distances, one lane at a time, against traffic coming from only one direction at a time, but a traffic signal would stop traffic for pedestrians and could be timed to accommodate elimination of a certain crosswalk, or to accommodate older or disabled pedestrians.

RESPONSE #4: The comment is correct. Either option could accommodate safe passage of pedestrians. However, according to Kittelson & Associates, and their sources listed in Exhibit C, national data shows that pedestrians are much more vulnerable at a traffic signal than at a roundabout.

**COMMENT #5:**

The Initial Study states that the project would represent a “minor, but permanent effect on land use patterns, in which the project may require take of existing buildings”. The commenter disputes calling the impacts “minor”, especially considering that the signalized intersection alternative, and the entire construction of Lance Gulch Road, had no such impacts on businesses but was the subject of a full Environmental Impact Report (EIR) and a lawsuit.

**RESPONSE #5:** The Initial Study calls the effect on land use patterns “minor”, referring to the overall pattern of land use in the community. As noted in the Initial Study, CEQA does not consider fiscal impacts on businesses to be true “environmental” impacts that can legally trigger an EIR or CEQA based lawsuit. However, the County does not consider the impacts on these individual businesses to be “minor”. County Staff understands the importance of the impacts to businesses, including loss of a building and the adverse changes to access and parking that several businesses will suffer as a result of either alternative roundabout. The comment is correct in stating that none of these impacts will result from a traffic signal, and there were no such impacts resulting from the Lance Gulch Road (East Connector) project with a signalized intersection as originally planned.

**COMMENT #6:**

The owner of the Weaverville Market requested two modifications to the roundabout proposal: 1) that the access from his property to Glen Road be left where it is now, and 2) that an additional access to SR 299 be placed near the front of his store. The Initial Study failed to investigate whether either of these requests could be accommodated, and this may reduce or eliminate the economic viability of the business.

**RESPONSE #6:** Unfortunately, there is some confusion between the two requests as reported in the cited section of the Initial Study, which may have confused the reader. These are two separate requests as enumerated above.

1) is the encroachment onto Glen Road from the Market property at the end of Nugget Lane. For the roundabout, this access would have to be moved further south, almost to the Coast Central Credit Union Building. If the traffic signal is installed, this driveway can remain where it is today. This encroachment is to a County Road and does not require Caltrans approval.

2) is the new driveway onto SR 299 in front of the market. County Department of Transportation’s Senior Engineer Andrew Pence contacted Rob Stinger, Chief of Traffic Engineering & Operations for Caltrans District 2 and asked if an encroachment would be allowed at that location, and he responded that it would not be allowed there, for either the roundabout or the signalized intersection, because it is too close to the intersection. Being an encroachment onto SR 299, Caltrans would have the final say.

These requests were not to ensure the survival of the existing market. The owner has indicated in several meetings with the Dept. of Transportation that he wishes to install fuel pumps at this location. He purchased the market thinking it could be turned into a gas station, as it had been in the past. Relocation of the driveway onto Nugget Lane towards the back of his lot will cut across a large section of his lot, at the location of the former car wash, where he expected to install fuel pumps. With this driveway cutting through the area, there is no way to fit the number of fuel pumps desired by any fuel company that would otherwise be interested in a franchise operation. He even considered demolishing the market and moving it to the back of the property, but this idea did not turn out to be economically feasible. This is why he wanted the encroachment to Glen Road to stay where it is now. Director of Transportation and Planning Rick Tippet is willing to consider vacating the County right-of-way at this

end of Nugget Lane, and turning it over to the property owner. This would eliminate any setbacks from the County road that would otherwise be required, and give the owner more flexibility in planning his site. However, the road vacation would be subject to Planning Commission and Board of Supervisor's approval, and it still might not provide enough room to install the required number of fuel pumps. The additional access to SR 299 was an attempt to improve site circulation, and provide a direct route for passersby to enter the Market as soon as they see it, rather than doubling back from the next entrance to Nugget Lane further north, or having to travel down Glen Road to enter. This is especially important for trucks, RV's and vehicles pulling trailers who are unfamiliar with the area and may not immediately understand how to get into the Market property.

COMMENT #7: The commenter disagrees with statements in the Initial Study regarding the overall impacts on aesthetics, community character and land use opportunities in the area.

RESPONSE #7: Comment noted. These issues are speculative and generally based on opinion. It is not possible to quantify these types of impacts. The readers and the decision makers are encouraged to form their own opinions based on the facts presented in the documents, public comments and staff reports that have been provided. However, it is clearly stated in the document that none of the land use impacts discussed in this section will occur if a traffic signal is installed.

COMMENT #8: The document contains speculation that drivers may not expect to encounter a signal on a two-lane highway in a rural county, and rear-end collisions could result. The commenter believes most drivers would have experienced signals in rural areas but would not expect a roundabout on a state highway, since there are none in Caltrans District 2. Comment states that speculation should be eliminated from the Initial Study.

RESPONSE #8: Comment noted. The commenter is correct; speculation is not useful in the environmental analysis or traffic analysis.

COMMENT #9: Comments made to the Board of Supervisors on July 6, 2016 and in a letter to the Trinity Journal on July 27, 2016 were not included in the Public Comment section of the Initial Study.

RESPONSE #9: Planning staff typically does not include letters to the editor in with comments on an environmental document. Comments made to the Board of Supervisors are already part of the public record that will be available to the Board of Supervisors when they make the ultimate decision.

COMMENT #10: The benefit-to-cost (B/C) ratio calculated for the ICE and reported in the Initial Study should be revised to reflect the updated project costs presented to the Board of Supervisors on July 6, 2016 and the reduction in safety caused by reintroducing the left turn movement out of the DMV.

RESPONSE #10: When the B/C ratio is calculated, dollar values are assigned to different types of accidents, such as property damage only, minor injury, severe injury or fatality, in increasing order. When a proposed safety improvement is expected to reduce these types of accidents, those dollar values go toward the project's Benefit factor. Actual accident history at that location is used to calculate the Benefit factor. Costs of design, right of way, utility relocation and construction are considered for the Cost factor. Maintenance costs are not usually considered. A B/C ratio greater than one indicates that the benefits outweigh the costs. The greater the B/C ratio, the more beneficial the project is, relative to its costs.

Accidents at the previously existing 3-way intersection with the two-way left turn lane and adjacent CHP/DMV driveways had to be used as accident history to calculate the B/C ratio, because there is no safety data yet at this location for a traffic signal or roundabout. Using that accident history and the previous 2015 cost estimates for the signal and the roundabout, the B/C reported in the ICE for a single lane roundabout was 1.27, and the B/C ratio for the signalized intersection was 0.62. The roundabout scored slightly over one, and the signal was less than one.

The B/C ratios for both alternatives have been calculated using the most current project cost estimate for Alternative 2, (the more expensive and preferred roundabout alternative) and for the traffic signal. Costs for both are assumed to be higher than those estimated in the ICE. Using the same accident data, the updated B/C ratios are 1.71 for the roundabout and 6.24 for the traffic signal. Both B/C ratios are greater than one, so either project would result in a net benefit. The signal has a much greater B/C ratio, due to its much lower cost. However, the roundabout does have a higher “crash reduction factor” and is proven to result in less severe crashes, as shown by Kittelson & Associates in Exhibit C. The new B/C ratio calculation is attached as Exhibit E. The B/C should not be used in a vacuum, however, because the actual value of a human life cannot really be quantified and fairly compared to the cost to install the improvement.

Note, this calculation is not affected by the reintroduction of the left turn movements from DMV, because that movement is included in both future intersection designs, and neither of these future designs includes a two-way center left turn lane. (See response to Comment #1). Since the same accident data was used for both calculations, the comparison is “apples-to-apples”, and what matters is the comparison of the signal to the roundabout, not to what existed before.

**Email from Megan Marshall received on November 3, 2016, past the comment deadline. This comment is included for the Commission's review and consideration, but there was no time to prepare a formal response.**

The roundabout is not the preferable option at the Lance Gulch/ Glen Road/ Hwy 299 intersection. Currently, there is a four-way stop at this intersection. Potential traffic options include transform the intersection into a two-way stop, maintain the four-way stop, install a four-way traffic light, or build a roundabout. A survey of approximately 100 Trinity County residents confirmed that the public clearly preferred the two-way stop option. |

During the public forum, questions were posed requesting that a two-way stop be considered at this intersection. Mr. Tippet responded that the two-way stop was not considered because the underlying intent of this traffic project was to reduce traffic congestion on Main Street in town at Washington St. and Mill Street, etc. A roundabout will not reduce traffic congestion on Main Street. To the contrary, a roundabout will maintain constant traffic flow throughout Main Street. In comparison, a traffic light will create metered traffic stops and allow gaps for cross traffic travel. If the purpose of this traffic project is truly to reduce congestion on Main Street, then a roundabout is not the solution. If the purpose of reducing traffic congestion on Main Street is not the genuine underlying reason for this traffic project, then a two way stop may be sufficient at this location. The proposed roundabout will not benefit the alleged purpose of this traffic project. 2

The roundabout will negatively impact the surrounding businesses. The CHP and the local DMV is located at the Lance Gulch/ Hwy 299 intersection. The CHP conducts truck inspections in their small parking lot area. In addition, the ability to depart quickly is absolutely critical for the CHP to function. The CHP is strongly opposed to a roundabout at this intersection. The intersection at Glen Road, Nugget Road and Hwy 299 is the point of entry for many Trinity County businesses. The proposed roundabout will destroy this access point. This intersection provides access to the Trinity Alps Golf Course and Country Club, Behavioral Health, Weaverville Market, the Credit Union, the Stoddard Building (Radio Shack), The Floor Store, Owens Pharmacy, Mountain Valley Physical Therapy, Trinity Lanes Bowling Alley, the Lunch Box Restaurant, Merinos Italian Restaurant, Round Table restaurant and Saw Mill Restaurant. Most of these businesses require deliveries by large trucks. Those large trucks need to use the thorough-fare on Nugget Lane. Nugget Lane is not wide enough to allow a large delivery truck to turn around. Requiring a large delivery truck to drive backwards down Nugget Lane is a dangerous suggestion that is untenable. If the intersection at Nugget Road, Glen Road and Hwy 299 is destroyed by a roundabout, this will create a significant negative impact to all of these businesses. Damaging our local business community is not the proper solution here. The anticipated cost for the roundabout is astronomical. Mr. Tippet indicated that the roundabout 3

would cost \$2-\$3 million dollars. A portion of this cost is expected to be paid by Trinity County local funds. Placing a roundabout at this intersection is not an appropriate use of our limited funds. The Lance Gulch intersection was originally planned for and approved as a signalized intersection. As Lance Gulch Road was completed, the electrical wiring was placed under the roadway prior to paving to prepare for the already planned traffic light. However, Mr. Tippett ordered transportation workers to remove the electrical wiring for the traffic light and ordered Lance Gulch Road to be paved over with the wiring removed. Not only did it cost money to remove the already placed electrical wiring, but this unilateral decision will cost this county additional money to correctly install a traffic light. The cost of the proposed roundabout is not supported in this location. Our county needs to make financially sound decisions.

4

A roundabout would not be effective in this specific intersection. When you review the other locations where roundabouts have been installed, none mirror the make-up of our intersection. The Lance Gulch Road/ Glen Road/ Hwy 299 intersection is a prominent business high-traffic location. Not only are there businesses on all four corners, this intersection is also directly adjacent to Nugget Lane which contains our business neighborhood. It is important to note that zero fatal accidents have occurred in this intersection. According to the CHP, only one traffic collision has occurred in the Lance Gulch/ Hwy 299 intersection since the introduction of the four-way stop. Considering the amount of traffic on the highway at this intersection, this single collision within the four way stop intersection is actually significantly smaller than the number of accidents in many roundabouts. In addition, many studies of roundabouts have shown increased accidents for pedestrians and bicyclists at roundabout intersections. The sidewalks and wide bike lanes on Lance Gulch Road are filled with pedestrians and bicyclists enjoying physical activity in our beautiful Trinity County. Numerous pedestrians and cyclists cross the intersections at Lance Gulch Road and Hwy 299 on a daily basis. A roundabout at the end of Lance Gulch would create significant confusion and a dangerous intersection for pedestrians and cyclists. The location of the cross walks on the proposed roundabout is around the corner, out of the line of sight of vehicles who are entering a roundabout. This creates a serious hazard. In addition, there is no metered stop of traffic which would allow pedestrians or cyclists to safely cross. Requiring pedestrians to stand on the splitter island (and a cyclist would have to hoist his bicycle onto that splitter island before getting struck by traffic, not to mention parents with strollers) while traffic merges around them does not sound like a refuge of safety. There have been a number of fatal accidents at roundabout intersections around the globe. Many roundabouts that existed in the UK and other countries, including numerous locations in the United States, are now being removed at a large cost due to the increased accidents in roundabouts. These roundabouts are now being replaced with lighted intersections. Our intersection at Lance Gulch Road is not a good location for a roundabout.

5

An accident in a single lane roundabout would completely shut down the access to our town. The intersection at Hwy 299 and Lance Gulch is the pivotal intersection for ingress and egress for many residents in Trinity County. Residents in Junction City, Big Bar, Burnt Ranch, Salyer, Hawkins Bar, Denny, Trinity Center, Coffee Creek, Covington Mill, and Weaverville all use this

6

intersection to travel east on Hwy 299. Furthermore, residents in Lewiston, Douglas City, Hayfork, and other Trinity County communities all use this main intersection to travel west on Hwy 299. This intersection cannot be easily avoided in the event of a traffic accident. If this intersection remained a two way stop or a lighted intersection, emergency vehicles could shut off one lane and still manage traffic through this intersection in the event of an accident. This option will not be available if this intersection were transformed into a single lane roundabout.

6, cont

The concerned community members of Trinity County came to the Public Forum and expressed their dissatisfaction with the proposed roundabout project. I am ever hopeful that the decision makers will listen and promote the will of the people.

**RESPONSE TO COMMENTS FROM MEGAN MARSHALL  
LETTER DATED NOVEMBER 3, 2016**

COMMENT #1: Potential traffic options include a two-way stop, four-way stop, traffic light or roundabout. A survey of residents conferment that the public prefers a two-way stop.

RESPONSE #1: During the development of the East Connector, since 1998, there have been at least 4 traffic studies of the Weaverville area which calculated intersection delay in terms of level of service (LOS), which rates an intersection with letter grades from “A” for very good to “F” for excess delay leading to unsafe conditions. The Circulation Element of the Trinity County General Plan includes a policy for the Weaverville area related to traffic congestion: “The minimum acceptable LOS standard for county roadway and intersection operation in the Weaverville Community Plan Area is “D”. For unsignalized intersections, LOS is calculated based upon the average peak hour delay for the worst movement, using the current version of the Highway Capacity Manual. No public highway or roadway within the Weaverville Community Plan Area should be allowed to fall to or below LOS “E”. Calculations of level of service for an unsignalized intersection (two way stop) at the Glen Road/ SR 299/ future Lance Gulch Road intersection have resulted in the following:

Study year	Projection year	study	LOS result
1998	2020	Weaverville Basin Traffic Circulation Study	F
2002	2020	East Connector Roadway Project EIR	F
2005	2030	2005 Regional Transportation Plan	F
2011	2040	2011 Regional Transportation Plan & Signalization Study	F

Therefore, a two-way stop at the intersection does not meet the standards in the Circulation Element of the Trinity County General Plan, and to install one would be a General Plan violation.

Caltrans has clearly stated that the four-way stop cannot remain indefinitely on their State Highway, so it can only be considered a temporary solution until either a traffic signal or roundabout is installed.

COMMENT #2: The underlying purpose of the Lance Gulch Road project was to reduce traffic congestion on Main Street at Washington St, Mill Street, etc. A roundabout will not reduce traffic congestion on Main Street, but will maintain constant traffic flow on Main Street. A signal would meter traffic and allow gaps for cross traffic travel. The roundabout will not meet the purpose of the road project.

RESPONSE #2: The comment is correct. The purpose of the Lance Gulch Road project was to reduce traffic congestion on Main Street (SR 299) by diverting local traffic to another route as well as creating opportunities to enter SR 299 from other side streets between SR 3 and Glen Road, thus improving their levels of service, by reducing traffic on SR 299 and by creating gaps. That, along with the studies listed above, is why the project was developed with a traffic signal at its intersection with SR 299 and Glen Road. A traffic signal would create gaps along Main Street. A roundabout will not. Another essential element of the Lance Gulch Road project is that it’s better access to SR 299 is what makes it attractive as an alternate route, thus diverting traffic off of SR 299. If the intersection does not provide an advantage to getting onto SR 299 (particularly if a two-way stop were installed making it just another poorly functioning intersection in Weaverville) then the entire purpose of the Lance Gulch is lost, resulting in a



waste of over \$17 million. Either a roundabout or a traffic signal or even the four-way stop would be effective in making Lance Gulch Road an attractive way to access SR 299.

COMMENT #3: The roundabout will negatively impact surrounding businesses and the CHP/ DMV. It will destroy the intersection of Glen Road, Nugget Lane and SR 299, cutting off access for numerous businesses (comment names several businesses, some of which are located off Glen Road). It will interfere with truck access to Nugget Lane, which is too narrow for trucks to turn around in.

RESPONSE #3: the Initial Study discloses the impacts on the businesses adjacent to the intersection, and on Nugget Lane. However, the intersection with Glen Road and Highway 299 will remain open to all turning movements. Businesses accessed from Glen Road, such as the Trinity Alps Golf Course and Coast Central Credit Union, will not be adversely impacted. The issue of trucks accessing businesses on Nugget Lane can be addressed by selecting Sub-Alternative B or C, which provides additional access to Nugget Lane from SR 299 at a location that would not require much, if any, backing of trucks to access all of the businesses on Nugget Lane. However, as disclosed in the document, the CHP/DMV truck inspection area (in Caltrans right-of-way) in front of the DMV station will be lost, and no replacement is proposed.

COMMENT #4: After Lance Gulch Road was completed, the electrical wiring was placed under the roadway prior to paving to prepare for the already planned traffic light. Rick Tippett ordered transportation workers to remove the electrical wiring and ordered Lance Gulch Road to be paved over with the wiring removed. This will cost additional money to install the traffic light.

RESPONSE #4: No wiring was installed and then later removed from the intersection. Wiring and conduits were installed for street lighting and for the flashing beacons at the four-way stop. If the traffic signal is selected, additional wiring will have to be installed beneath Lance Gulch Road and SR 299. This could be installed by trenching across the new pavement, or hopefully by boring beneath the pavement without disturbing the paved surface. This work is part of the anticipated cost of the Traffic Signal, and can be completed with the money originally programmed for the Lance Gulch Road project, provided the decision is made soon, without a lot of further study.

COMMENT #5: The roundabout would not be safe or effective in this specific intersection. There are numerous pedestrians and cyclists using the intersection. The roundabout would create confusion. The crosswalks are around the corner, out of the line of sight of vehicles entering the roundabout. There is no metered stop of traffic to allow pedestrians or cyclists to cross. The raised splitter islands will be hard to mount with bicycles or strollers and will not provide refuge. There have been a number of fatal accidents at roundabouts around the globe, and some countries are removing them and replacing them with signalized intersections.

RESPONSE #5: The comment does not include any citations of references for the statements given. See response to Comments #3 and 4 in the previous Scott White letter, and Exhibit C. Exhibit C explains the safety benefits of roundabouts for pedestrians and bicyclists. It specifically mentions setting crosswalks back from the yield line to separate them from the driver's merging process so the driver can concentrate fully on the crosswalk. Exhibit C refers to numerous studies, particularly in the U.S., documenting safety performance at roundabouts.

COMMENT #6: An accident in a single lane roundabout would completely shut down SR 299, the main artery through Weaverville to points east and west. A signalized intersection would have more than one lane, so traffic could be routed through the intersection around the accident.

RESPONSE #6: The comment is correct, this is a possibility. However, studies show a two-lane roundabout is less safe than a single lane roundabout, and would take substantially more right-of-way, so a two-lane roundabout is not desirable. If an accident occurs in a single lane roundabout, the delay would not be long term. It may be possible to temporary route traffic onto Lance Gulch road or Nugget Lane if necessary, for a short period of time.

Responses to comments made at the November 10, 2016 Planning Commission  
Public Hearing

RESPONSE TO PUBLIC HEARING COMMENTS AT NOVEMBER 10, 2016 PLANNING COMMISSION MEETING

JOHN HAMILTON: Mr. Hamilton provided a drawing of a roundabout that could be constructed closer to the vacant lot adjacent to CVS, without impacting Nugget Lane. He stated that he used to work for a traffic engineer, and that he had presented this concept before but got no response.

RESPONSE: The drawing is attached as Exhibit F. Kittelson & Associates, the design consultant for the proposed roundabout, as well as County Engineers and roadway design consultants from Quincy Engineering, consultants for the Lance Gulch Road project all reviewed and commented on the drawing. They found it similar to a drawing that Rob Stinger, Chief of Traffic Engineering & Operations for Caltrans District 2, had provided a couple of years ago, but that was rejected mainly because it eliminated the left turn from westbound SR 299 onto Glen Road, and because it would require realignment and reconstruction of long sections of Lance Gulch Road and SR 299. The roundabout provided by Mr. Hamilton would probably also require realignment of Lance Gulch Road and SR 299, but the drawing has no background or scale so it is difficult to see how much.

From a traffic engineering standpoint, the roundabout has several fatal flaws: The intersection of Lance Gulch Road, Glen Road and eastbound SR 299 looks essentially like a standard three-way intersection with no traffic control. The approaches line directly up with oncoming traffic, especially in the case of Glen Road and Lance Gulch Road. There is no deflection of the movements from eastbound SR 299, Lance Gulch Road or Glen Road. Vehicles do not have to turn to enter the roundabout, so they would enter at full speed. The approach from Glen Road could lead a driver to enter the roundabout in the wrong direction, crossing straight to Lance Gulch Road. The view travelling on Glen Road toward the intersection is not obstructed by the center island, which is a key part of controlling drivers' perceptions when entering a roundabout. The entrance to the roundabout for Glen Road is too close to the entrance for eastbound SR 299, especially without a deflection to slow down vehicles on that approach. Any efforts to make this design conform to current roundabout standards would greatly impact the CHP/DMV property.

DUANE HERYFORD: I have been a developer here for 50 years, working with many Planning Commissioners and Building Officials. I own a 50,000 square foot building on Nugget Lane, and no one ever came and asked me about this. In order to make the comment deadline, I had to hire a Real Estate lawyer to write a letter. (See Letter #9 in the Staff Report for the November 10, 2016 Planning Commission meeting).

RESPONSE: Staff apologizes for not contacting Mr. Heryford. Building owners and businesses that would be directly affected by the project were contacted, including one of Mr. Heryford's tenants at The Floor Store, regarding the feasibility of large truck deliveries to this location on Nugget Lane.

ALLEN HOUSTON: An on-demand traffic light would be safer and cheaper. I almost got clobbered twice in roundabouts, when I had the right of way. Last summer, a fire engine got up on the mountable center and rolled and killed the driver. It is stupid to spend that many tax dollars for a spot where a roundabout doesn't fit. There are too many impacts here. The moral thing is to put in a traffic light. An on-demand light would be green on SR 299 most of the time.

RESPONSE: Comment noted. The story of the fire truck is true. The comment contains valid points and opinions.

EVERETT HARVEY: I am in favor of roundabouts, but not at this location. We already have a well thought out traffic signal without any right-of-way take, impacts or mitigation. You have satisfied Caltrans requirement to look at it. The Planning Commission is perfectly capable of making a decision that goes against the DOT staff recommendation.

RESPONSE: Comment noted. The comment contains valid points and opinions. See also Letter #8 in the Staff Report for the November 10, 2016 Planning Commission meeting for more comments from Mr. Harvey.

RICKY, OWNER OF WEAVERVILLE MARKET: I don't think the roundabout is the right decision. It is not appropriate here. The CHP/DMV access is too close. It will impact businesses. Our access will be moved back to the back of our property, by the Credit Union. We would have to demolish our store in order to put in fuel pumps like we planned, but it would not be cost effective for us. There are a lot of pedestrians walking across the highway at this location. A signal would give them more time to cross. A signal light would not impact businesses. Our delivery drivers are concerned that their trucks will not be able to come in and out without impacting cars. The light costs so much less to build. The roundabout doesn't make sense.

RESPONSE: The impacts on Weaverville Market, particularly on their truck access and their ability to add fuel pumps to their store, as they had planned when they purchased the property, has been disclosed in the document and the previous staff report. If the encroachment onto Glen Road is not moved to the back of the property, it will be too close to the intersection and the crosswalk. It could only accommodate right turns in and out, which would direct exiting vehicles to the end of Glen Road, usually requiring a U-turn, and entering vehicles would have to make a tight turn off Glen Road, which would not work for delivery trucks. Additional access to the business directly from SR 299 was denied by Caltrans because it is too close to the intersection. A partial solution suggested by the Director of Transportation and Planning is to vacate that part of Nugget Lane, turning ownership over to the Market owners. This would eliminate the need for setbacks from a County road, and provide some more flexibility for the Market to lay out their property, but the encroachment to Glen Road would still have to be at the back of the property, as planned. If the signal is constructed, the encroachment onto Glen Road would remain where it is, which is currently serving the Market adequately. It is unknown if fuel pumps would be feasible with the current site layout or not. See also Letter #15 in the Staff Report for the November 10, 2016 Planning Commission meeting for more comments from Weaverville Market, and the response to Comment #6 in the Scott White letter in the previous section of this Exhibit.

DAN STODDARD: My wife owns the Radio Shack Building. I was broadsided at a traffic signal and injured. Today there were 20 to 30 cars backed up at the four-way stop sign. A roundabout would alleviate that. I understand the costs would not come out of the County's pocket, correct?

RICK TIPPETT, DIRECTOR OF TRANSPORTATION

All but 10% of the cost would come from grants. The match would come from the State Match Exchange Program. We get \$300,000 per year, and we usually use it for maintenance. My goal is to get all of it paid for.

DAN STODDARD: If it saves one life it is worth it, even though my building is affected the most of any.

RESPONSE: This comment supporting the roundabout is significant coming from the owner of the building, housing two businesses that would be removed if the roundabout is constructed. It should be noted that Mr. Stoddard does not own the businesses within the building; the Radio Shack and U.S.

Nails, which are operated by renters who did not speak at the meeting. The building owner would be compensated at fair market value for the building, and the business owners would receive relocation benefits to help them move their businesses. It is possible that a smaller building could be constructed on the site after the roundabout is constructed, but there may not be enough room to provide adequate parking.

SCOTT WHITE:

1) I am a Transportation Planner, (not a Traffic Engineer) and I review traffic studies professionally. The ICE is the only traffic study that was done for this project. Mitigation Measures added to the document put left turns out of the DMV back into the equation, but the traffic study was not re-done.

2) Director Tippett misspoke to Mr. Stoddard. The Staff Report clearly states that \$500,000 to relocate utilities for the roundabout will be the responsibility of the County because the utilities were already relocated once for this project. This will come out of County Road Funds. This is as much as the signal would cost.

3) See Letter #21 in the Staff Report for the November 10, 2016 Planning Commission meeting for the remainder of Mr. White's comments, which are essentially the same as his oral comments at the meeting.

RESPONSE:

1) The ICE was adequate as a traffic study for this project. The design of the roundabout has been further developed since the ICE was done, but the way it would function, and the way a traffic signal would function, have not changed. Traffic studies are not used to assess the safety of driveways entering the road. They evaluate the level of service of intersections. See Response to Written Comments in the previous section of this exhibit, for a further response to this comment.

2) Caltrans previously stated that the utility relocation costs could not be paid for with the existing grant money. There is now potential additional grant money available, but the exact amount and what it can be used for is unclear at this time. Director Tippett may have additional information about this funding at the meeting on December 8, 2016.

3) See the previous section of this Exhibit for responses to Mr. White's letter dated November 2, 2016, which was substantially the same as the remainder of his comments at the Planning Commission.

MEGAN MARSHALL: See Letter #22 in the Staff Report for the November 10, 2016 Planning Commission meeting for a written version of Ms. Marshall's comments, which are essentially the same as her oral comments at the meeting.

RESPONSE: See the previous section of this Exhibit for responses to Ms. Marshall's email dated November 3, 2016, which was substantially the same as her comments at the Planning Commission.

**EXHIBIT B**

**EXAMPLE OF MOUNTABLE SPLITTER ISLAND  
BEND, OREGON**

EXHIBIT B



**Bend Oregon**

Mountable Splitter Island for local Fire Dept.

Google earth

© 2016 Google

7.34 ft



**EXHIBIT C**

**TECHNICAL MEMORANDUM:  
ROUNDAABOUT SAFETY FOR PEDESTRIANS AND BICYCLISTS  
KITTELSON & ASSOCIATES, INC.**



# KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

610 SW Alder Street, Suite 700, Portland, OR 97205 F 503.228.5230 F 503.273.8169

## TECHNICAL MEMORANDUM

Roundabout Safety for Pedestrians and Bicycles

### EXHIBIT C

Date: November 28, 2016

Project #:19856

To: Carolyn Davis, Quincy Engineering

From: Brian L. Ray, Erin M. Ferguson and Julia K. Knudsen

This technical memorandum provides an overview of pedestrian and bicycle safety at roundabouts. The information in this memorandum is based on our review of national publications including Federal Highway Administration (FHWA) publications, *NCHRP Report 672 Roundabouts: An Informational Guide, Second Edition (1)* and roundabout data regarding motor vehicle-pedestrian and motor vehicle-bicycle crashes at roundabouts.

FHWA identifies roundabouts as a proven countermeasure for reducing crashes at intersections based on their documented positive safety performance in the United States. By eliminating or altering conflict types and causing drivers to reduce speeds as they proceed into and through the intersection, roundabouts have shown to decrease the number and severity of intersections crashes. The FHWA research states that compared to stop or signalized intersections, roundabouts resulted in an overall crash reduction of between 44% to 48%. When considering the most severe types of crashes (those that resulted in either injuries or fatalities) the roundabouts exhibited a 78% to 82% reduction of these crash types.<sup>(2)</sup> As will be discussed below, roundabouts also have a documented record of reducing the risk of motor vehicle-pedestrian and motor vehicle-bicycle crashes.

Roundabouts enable the motorist to slow down as they approach and pass through the crosswalks which can provide a safer environment for pedestrians and bicycles compared to conventional intersection forms. The splitter islands on each approach of a roundabout allow users to cross one direction of traffic at a time. In addition, crosswalks at roundabouts are typically set back from the yield line, which prevents users from having to cross in front of motorists who are looking for a gap in the circulating traffic. This also simplifies the driver's decision making tasks by separating the two actions.<sup>(3)</sup>

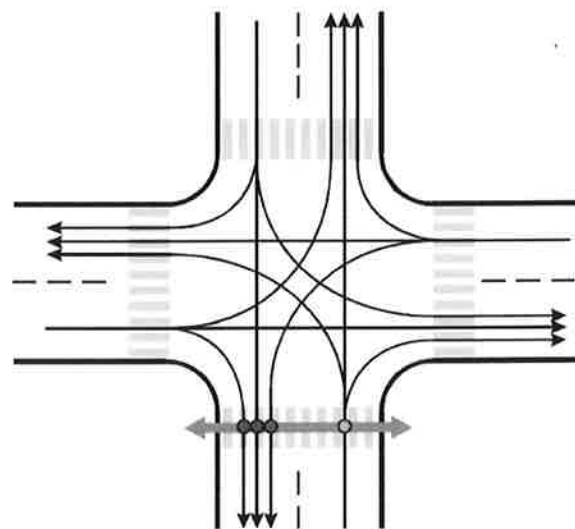
## PEDESTRIAN AND BICYCLE SAFETY AT ROUNDABOUTS

The following sections discuss the geometric characteristics of roundabouts that help reduce the risk of motor vehicle-pedestrian and vehicle-bicycle crashes and present crash statistics known to-date about motor vehicle-pedestrian and vehicle-bicycle crashes at roundabouts in the United States.

## Geometric Characteristics

NCHRP Report 672 *Roundabouts: An Informational Guide, Second Edition* describes how decreased vehicle speeds at roundabouts also decrease the speed differential with other road users, such as pedestrians and bicycles. For pedestrians, the risk of being involved in a severe collision or the risk of a crash resulting in a fatality is lower at roundabouts than at other intersection forms because of the slower vehicle speeds. NCHRP Report 672 reports a pedestrian is about eight times more likely to die when struck at 30 mph than at 20 mph. Therefore, the difference in vehicle speeds between roundabouts and conventional intersections is critical to pedestrian and bicycles first avoiding conflicts with motor vehicles and then reducing the severity of potential conflicts if they occur. (1)

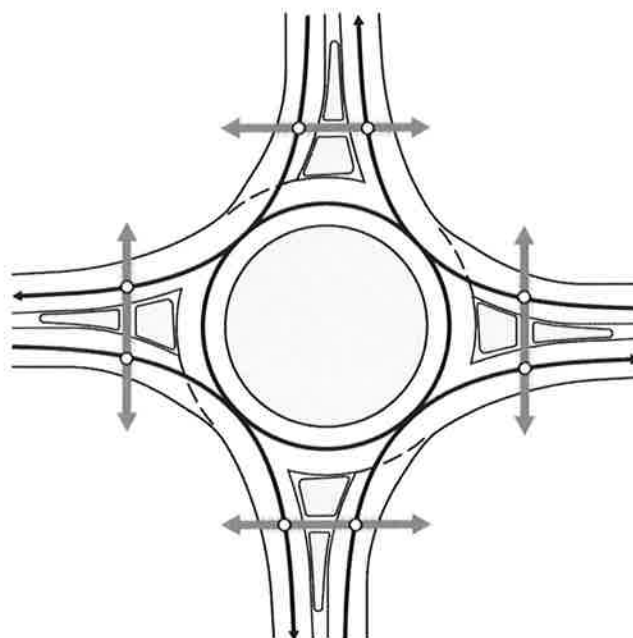
In addition, the number of conflict points for pedestrians is lower at roundabouts (particularly single-lane roundabouts) than conventional intersections. This reduces pedestrians' exposure to crashes. Exhibit 1 illustrates the vehicle-pedestrian conflicts for one crosswalk at a signalized intersection. As shown, there are four vehicle movements at signalized intersections that create potential conflicts with pedestrians under common signal phasing schemes. (1)



- Right turn on green conflict
- Red light running conflict
- Left turn on green conflict
- Red light running or right turn on red conflict

**Exhibit 1: Vehicle-Pedestrian Conflicts for One Crosswalk at Signalized Intersections (1)**

Pedestrians at roundabouts face two conflicting vehicular movements on each approach, as shown in Exhibit 2.



○ Vehicle/Pedestrian Conflicts

**Exhibit 2: Vehicle-Pedestrian Conflicts at Single-lane Roundabouts (1)**

The splitter island between the entry and exit provides a refuge for pedestrians and allows pedestrians to resolve conflicts with entering and exiting vehicles separately. Bicycles have the flexibility to navigate through the roundabout as a pedestrian giving them the same reduced exposure benefits. Bicycles can also travel through a roundabout as a vehicle, which when compared to a conventional intersection, also results in fewer conflict points (eight at roundabout vs. 32 at a conventional intersection).

Design features such as bicycle ramps on roundabout approaches and multiuse paths around the roundabout are often used to allow bicyclists to operate as pedestrians through roundabouts. Wider sidewalks or adjacent multiuse paths and wider crosswalks can help mitigate potential conflicts between pedestrians and bicyclists as they travel through or around a roundabout. (1)

Research conducted by the Insurance Institute of Highway Safety (IIHS) supports the design principles above concluding that pedestrian circulation on the perimeter for the roadway, crossing only one direction of travel at a time, shorter crossing distances, and slower vehicle speeds may provide significant safety benefits for pedestrians compared to conventional intersections. (4)

### Crash History at Roundabouts

Research to-date for U.S. roundabouts indicates there are fewer severe pedestrian-vehicle and bicycle-vehicle crashes at roundabouts than there are at signalized intersections. One of the FHWA most recent

research studies, “*Accelerating Roundabout Implementation in the United States*”, found a total of 47 fatal crashes have occurred at roundabouts in the U.S. ever – that is considering 3,000+ roundabouts in the U.S., some of which have been in place for over 15 years. None of those fatal crashes involved a pedestrian. One of the crashes resulted in a bicycle fatality. Compared to other intersection types (non-roundabouts) in the U.S., 4% of fatal crashes involve bicyclists and 16% involve pedestrians. (5)

While there is limited information regarding injury crashes for pedestrians and bicycle at roundabouts and signals in general, the research trends shows pedestrian and bicycle crashes at roundabouts are rare. Two examples of their rarity are discussed below based on a national research project and a study conducted by the Washington Department of Transportation (WSDOT).

- Kittelson & Associates, Inc. (KAI) is leading ongoing research to better understand safety performance of roundabouts in the United States. As part of that on-going research project, KAI assembled a database that includes over 228 roundabouts in urban and suburban areas. From this database, we can determine pedestrian and bicycle crashes are rare; as indicated by the following crash statistics from the database:
  - There are 228 urban and/or suburban roundabouts in the database with an average of about 7 years of crash data per site. A total of 4,452 reported crashes over those seven years and 228 roundabouts. Of those 4,452 reported crashes 0.4% involved a pedestrian and 1.3% involved a bicycle.
  - Specific to urban/suburban single lane roundabouts, pedestrian involved crashes was 0.5% and bicycle involved crashes were 2% of total reported crashes. This is the equivalent of 0.01 pedestrian crashes per year per roundabout and 0.03 bicycle crashes per year per roundabout. The motorvehicle crashes for these sites were 1.53 crashes per year per roundabout.
  - Specific to urban/suburban multilane roundabouts, pedestrian involved crashes was 2.6% and bicycle involved crashes were 0.9% of total reported crashes. This is the equivalent of 0.03 pedestrian crashes per year per roundabout and 0.05 bicycle crashes per year per roundabout. The motorvehicle crashes for these sites were 5.18 crashes per year per roundabout.
- Washington Department of Transportation conducted a study specifically comparing pedestrian-vehicle crashes at roundabouts to signals and found pedestrian-vehicle crashes at roundabouts were 40% lower than at signalized intersections. Based on the research conducted in the U.S., roundabouts have a better safety track record for pedestrians and bicyclists relative to signals. Roundabouts have also been found to have overall safety benefits as well – FHWA reports in converting a signalized intersection to a roundabout, a location can exhibit a 78% reduction in severe (injury/fatal) crashes and a 48% reduction in overall crashes. (6,7)

## SUMMARY

Roundabouts are a proven countermeasure for reducing intersections crashes based on their documented positive safety performance in the U.S. By eliminating or altering conflict types and causing drivers to reduce speeds as they proceed into and through the intersection, roundabouts have shown to decrease the number and severity of crashes at intersections. Roundabouts have been installed throughout the U.S. The overall safety performance trends seen at roundabouts nationally would also be expected at the SR 299/Lance Gulch Road intersection.

## REFERENCES

1. National Cooperative Highway Research Program (NCHRP). *NCHRP Report 672, Roundabouts: An Informational Guide, Second Edition*. Washington, DC: TRB, 2010.
2. FHWA Website: <http://safety.fhwa.dot.gov/intersection/innovative/roundabouts/>
3. Roundabout Resources Website: <http://www.roundaboutresources.org/roundabouts-near-schools.html>
4. Insurance Institute of Highway Safety Website: <http://www.iihs.org/iihs/topics/t/roundabouts/topicoverview>
5. FHWA. *Accelerating Roundabout Implementation in the United States*. Publication No. FHWA-SA-15-072, September 2015.
6. FHWA Website: [http://safety.fhwa.dot.gov/provencountermeasures/fhwa\\_sa\\_12\\_005.cfm](http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_005.cfm)
7. Washington Department of Transportation (WSDOT) Website: <http://www.wsdot.wa.gov/Safety/roundabouts/benefits.htm>

**EXHIBIT D**

**TECHNICAL MEMORANDUM:  
SR 299 & LANCE GULCH ROAD/GLEN ROAD ROUNDABOUT STUDY  
SAFETY ANALYSIS  
KITTELSON & ASSOCIATES, INC.**



**TECHNICAL MEMORANDUM**

**SR-299 & Lance Gulch Road/Glen Road Roundabout Study**

Safety Analysis

**EXHIBIT D**

Date: November 28, 2016 Project #: 19856  
 To: Carolyn Davis, PE QSD/QSP, Quincy Engineering  
 From: Matt Braughton, Brian L. Ray  
 cc: Erin M. Ferguson, P.E.

**HIGHWAY SAFETY MANUAL ANALYSIS**

Kittelison & Associates, Inc. (KAI) applied crash prediction tools and methods based on the *Highway Safety Manual* (HSM) to estimate the predicted crash frequency at the SR-299 & Lance Gulch Road/Glen Road intersection. We evaluated the intersection’s predicted safety performance as a signalized intersection and as a roundabout. The fundamental purpose for using the HSM crash prediction methods is to compensate for the randomness in crash occurrence. Crashes include a human component that is not directly related to geometry or the presence of certain roadway features. Any given set of crash data, for any given period of time, will reflect randomness in crash frequency not related to changes to the roadway.

**Results**

Table 1. SR-299 & Lance Gulch Rd/Glen Rd HSM Analysis Results

Traffic Volume Scenario	Intersection Control	Observed Annual Number of Crashes per Year <sup>1</sup>	Predicted Number of Total Crashes per Year	Predicted Number of Fatal and Injury Crashes per Year
Existing	Signalized Intersection	0.40	1.06	0.36
Existing	Roundabout	0.40	0.48	0.08

<sup>1</sup> The most recent 5 years of available SWITRS data, covering the years 2011 to 2015, was used to calculate the average annual number of crashes per year for existing conditions.



Based on the HSM analysis, the roundabout alternative is expected to reduce overall crash frequency by 0.58 crashes per year under existing traffic volumes. This is a 55% reduction in total crashes. Additionally, the roundabout alternative is expected to reduce fatal and injury crash frequency by 0.28 crashes per year under existing traffic volumes. This equals a 78% reduction in fatal and injury crash frequency for the roundabout compared to the signal.

## Methodology

KAI estimated the predicted number of crashes for a signalized intersection using existing and 2040 volumes using the crash prediction models from Part C of the HSM. The predicted number of crashes serves as a baseline crash estimate for comparison with the roundabout alternative. KAI used the October 2014 signal configuration and the volumes from the 2011 Weaverville Traffic Signalization Study as the basis for the analysis.

KAI predicted crash frequency and severity using safety performance functions (SPFs). SPFs are regression equations estimating the frequency and severity of crashes based on multiple factors, including intersection geometry, roadway configuration, and traffic volume. SPFs are based on national research and are intended to reflect a range of driver and roadway characteristics. Calibration factors can be used to adjust national predicted crash values to local conditions. KAI applied a crash modification factor (CMF) to evaluate the predicted safety performance of the roundabout compared to the predicted safety performance of the signalized intersection. A crash modification factor (CMF) is a measure of the safety effectiveness of a particular treatment or design element. CMFs are applied to the estimated crashes without treatment to compute the estimated crashes with treatment.

Calibration factors are not available for California to account for the differences in crash prediction between California and the states represented by the national models in the HSM. Variations could include driver characteristics, roadway design, terrain, and driving environment. The national model values represent the best-available information at the time of this analysis. Without calibration factors, the predicted crashes frequency can still be used as a relative comparison of intersection control strategies. A summary of the crash prediction models applied in this analysis is described below.

The predicted crash frequency is calculated using the following equation:

$$N_{predicted} = N_{spf_x} \times (CMF_{1x} \times CMF_{2x} \times \dots \times CMF_{yx}) \times C_x \quad (HSM \text{ Equation } 10-1)$$

Where:

$N_{predicted}$  = predicted average crash frequency for a specific year for site type  $x$ ;

$N_{spf_x}$  = predicted average crash frequency determined for base conditions of the SPF developed for site type  $x$ ;

$CMF_{1x}$  = crash modification factors specific to site type  $x$  and specific geometric design and traffic control features  $y$ ; and

$C_x$  = calibration factor to adjust SPF for local conditions for site type  $x$ .

KAI computed crash prediction estimates for the signalized intersection using HiSafe's Part C Predictive Method for Urban and Suburban Arterials. KAI used the CMF from the HSM's Part D for converting a signalized intersection to a roundabout for all settings to estimate the predicted average crash frequency for the roundabout alternative.

## Conclusion

The HCM analysis provides the basis to quantitatively assess intersection safety performance. As there are no calibration factors, the predicted safety performance serves as a relative comparison between the signalized and roundabout concepts. As consistent with national trends, the single lane roundabout at this location would be expected to operate with fewer and less severe crashes compared to the signalized form.

The roundabout alternative is expected to reduce overall crash frequency by 0.58 crashes per year under existing traffic volumes compared to the signalized alternative. This is a 55% reduction in total crashes. The roundabout alternative is expected to reduce fatal and injury crash frequency by 0.28 crashes per year under existing traffic volumes compared to the signal alternative. This equals a 78% reduction in fatal and injury crash frequency for the roundabout compared to the signal.

**EXHIBIT E**

**BENEFIT/COST RATIO CALCULATIONS**

- 1) CONVERT INTERSECTION TO ROUNDABOUT**
- 2) INSTALL TRAFFIC SIGNAL**
- 3) CURRENT PROJECT COSTS USED IN CALCULTIONS**

## I) V. Countermeasures, Crash Data and Benefit/Cost Ratio *(See Instructions)*

In the process of completing this application, the Local Agency is required to utilize the Benefit/Cost Ratio Calculation Tool that is included in the Safe Transportation research and Education Center (SafeTREC) Transportation Injury Mapping System (TIMS) web site. This **web site** can be assessed at <http://tims.berkeley.edu/>

The final output summary page from TIMS must be included as part of the official application (both electronically and hard copy). The hard copy page must be included in the application as one of the attachments.

In order to facilitate the electronic collection and tracking of this data, Caltrans is requiring agencies to manually enter some of the key "input data" and "output data" used in their final TIMS B/C Ratio. ***NOTE: If any of the values inputted on this sheet do not match the values from the TIMS B/C Ratio Output Summary sheet, THE APPLICATION WILL BE REJECTED. Be careful and confirm the numbers!***

**TIMS Application ID:**  (This ID is generated by this form. TIMS Application ID must match this ID.)

**Version (from TIMS):**  **Crash Data Period:** from  to

**Total Project Cost:**  (This must match the total project cost in Section III.)

### Countermeasure Information

Number of countermeasures utilized:

#### Countermeasure

#1:	NS4: Convert intersection to roundabout (from 2-way stop or Yield control)	<b>CRF:</b>	<b>45</b>
#2:		<b>CRF:</b>	
#3:		<b>CRF:</b>	
<b>Combined CRF:</b>			<b>45</b>

### B/C Ratio Calculation

	Expected Benefit (Life)	Expected Cost	Resulting B/C
Countermeasure #1	\$6,178,401	\$3,621,000	1.71
Countermeasure #2			0.00
Countermeasure #3			0.00
<b>Project's Total (Overall)</b>	<b>\$6,178,401</b>	<b>\$3,621,000</b>	<b>1.71</b>

**2) V. Countermeasures, Crash Data and Benefit/Cost Ratio** *(See Instructions)*

In the process of completing this application, the Local Agency is required to utilize the Benefit/Cost Ratio Calculation Tool that is included in the Safe Transportation research and Education Center (SafeTREC) Transportation Injury Mapping System (TIMS) web site. This **web site** can be assessed at <http://tims.berkeley.edu/>

The final output summary page from TIMS must be included as part of the official application (both electronically and hard copy). The hard copy page must be included in the application as one of the attachments.

In order to facilitate the electronic collection and tracking of this data, Caltrans is requiring agencies to manually enter some of the key "input data" and "output data" used in their final TIMS B/C Ratio. ***NOTE: If any of the values inputted on this sheet do not match the values from the TIMS B/C Ratio Output Summary sheet, THE APPLICATION WILL BE REJECTED. Be careful and confirm the numbers!***

**TIMS Application ID:**  (This ID is generated by this form. TIMS Application ID must match this ID.)

**Version (from TIMS):**  **Crash Data Period:** from  to

**Total Project Cost:**  (This must match the total project cost in Section III.) Error: this total project cost does not match that in Section III.

**Countermeasure Information**

Number of countermeasures utilized:

**Countermeasure**

#1:	<input type="text" value="NS3: Install signals"/>	<b>CRF:</b>	<input type="text" value="25"/>
#2:	<input type="text"/>	<b>CRF:</b>	<input type="text"/>
#3:	<input type="text"/>	<b>CRF:</b>	<input type="text"/>
<b>Combined CRF:</b>			<input type="text" value="25"/>

**B/C Ratio Calculation**

	Expected Benefit (Life)	Expected Cost	Resulting B/C
Countermeasure #1	<input type="text" value="\$3,432,445"/>	<input type="text" value="\$550,000"/>	<input type="text" value="6.24"/>
Countermeasure #2	<input type="text"/>	<input type="text"/>	<input type="text" value="0.00"/>
Countermeasure #3	<input type="text"/>	<input type="text"/>	<input type="text" value="0.00"/>
<b>Project's Total (Overall)</b>	<input type="text" value="\$3,432,445"/>	<input type="text" value="\$550,000"/>	<input type="text" value="6.24"/>

3)

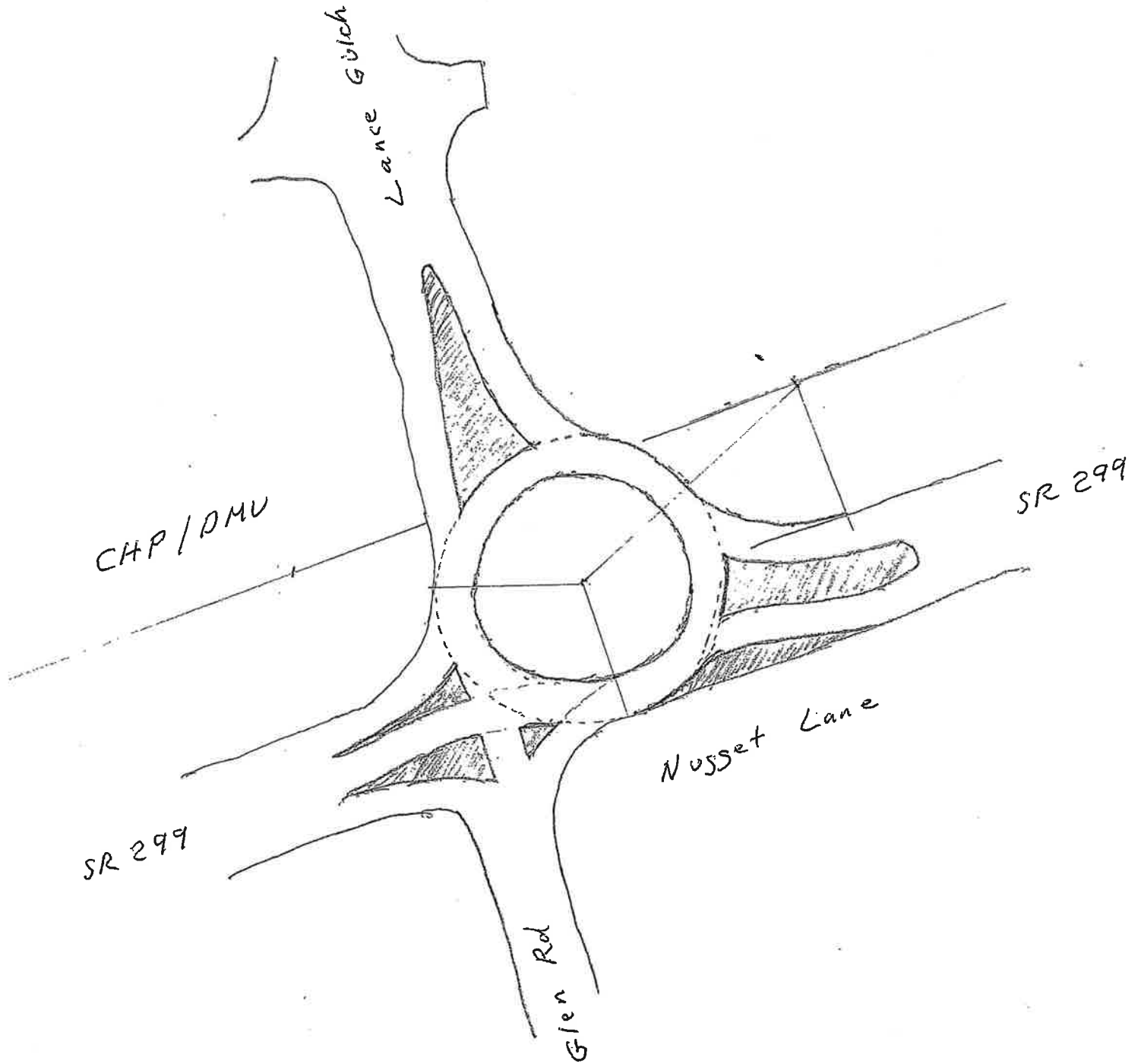
**Exhibit D**  
**Comparison of Roundabout Alternatives for the Lance Gulch Roach/State Route 299 Intersection in Trinity County**

		Traffic Signal	Roundabout - Alternative 1-Option 1	Roundabout - Alternative 1-Option 2	Roundabout - Alternative 2
<b>Design Vehicle</b>		Lance Gulch Road & SR 299 = STAA Truck			
		Glen Road = CA Legal 50'			
		Nugget Lane = School Bus/Delivery Truck			
<b>Utility Impacts</b>	No utility relocations.	Two above ground utilities in this quadrant (Verizon fiber optic and coaxial) will likely require relocation. A Verizon manhole may be located in the travel lane.			
		The two southern most above ground utilities will not be impacted.			
<b>Parking Impacts</b>	No impact to parking.	Significant parking impacts along the front of the Nail Salon and Nugget Lane.			
			CHP/DMV parking will be impacted.		
<b>Right-of-Way Acquisition (1)</b>	No additional right-of-way acquisition.	Limits access to CHP/DMV parcel. A crossover easement may be considered to improve access.			
		Nail Salon building is retained, but parcel is impacted.		Requires a full acquisition of the Nail Salon.	
			Requires partial acquisition of the CHP/DMV parcel.		
<b>Pros</b>	Lower capital cost.	Reduced on-going maintenance compared to Traffic Signal.			
	No utility and parking impacts.	Enhanced pedestrian crossings on all approaches.			
	Lower overall right-of-way impacts.	Limited to no right-of-way impact to CHP/DMV compared to Alternative 1, Option 2.	Lower impact to Nail Salon parcel, compared to Alternative 1, Option 1.	Most ideal roundabout geometry compared to other alternatives.	
				Improves alignment of the approach at Glen Road.	
<b>Cons</b>	Greater vehicle delay compared to roundabout alternatives.	Requires reconfiguring access to CHP/DMV parcel with a potential crossover easement.			
	Signal has potential for higher frequency and severity of crashes.	Requires some utility relocation.			
	Does not provide the same opportunity for landscape and gateway features as roundabout.	Significant parking impacts to the Nail Salon may require redevelopment of parcel.		Requires full acquisition of Nail Salon.	
		Less desirable roundabout approach geometry at the Glen Road approach compared to Alternative 2.	Additional right-of-way impacts to CHP/DMV parcel compared to Alternative 1, Option 1. Compared to other alternatives, requires more reconstruction to SR 299. Less desirable roundabout geometry compared to other alternatives.		
<b>Preliminary Range of Costs</b>	<b>Right of Way (1)</b>	\$0	\$456,000	\$569,000	\$591,000
	<b>Utility Relocation</b>	\$0	\$400,000	\$515,000	\$515,000
	<b>Construction (2)</b>	\$ 0.25 M to \$ 0.35 M	\$ 1.5 M to \$1.8 M	\$ 1.7 M to \$ 2.0M	\$ 1.8 M to \$2.1 M
	<b>PE (Engineering/ Environmental/ Permitting)</b>	\$250,000	\$800,000	\$800,000	\$800,000
	<b>Total Range of Costs</b>	\$500,000 to \$600,000	\$3,156,000 to \$3,456,000	\$3,584,000 to \$3,884,000	\$3,706,000 to \$4,006,000

(1) It is not the County's intention to initiate eminent domain, but rather to evaluate different alternative options for the intersection.  
 (2) Preliminary Construction Costs based on square footage unit costs with footprint of improvements. Developed to provide ranges and relative cost difference between alternatives.

**EXHIBIT F**  
**ROUNDAABOUT DESIGN SUGGESTION**  
**FROM JOHN HAMILTON**

# EXHIBIT F





**EXHIBIT G**

**MITIGATION MONITORING AND REPORTING PROGRAM**

## Lance Gulch Road/State Route 299 Intersection Control Project Mitigation Monitoring and Reporting Program

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<b>Biological Resources</b>				
<p><b>MM 4.1</b></p> <p>To ensure that active nests of migratory birds are not destroyed, vegetation removal and building demolition activities shall occur before February 1 or after August 31 to avoid impacts on nesting migratory birds. If vegetation removal or building demolition must occur during the nesting season, a nesting survey shall be conducted by a qualified biologist to identify active nests in the work area. The survey shall be conducted no more than one week prior to the beginning of vegetation removal or building demolition. If nesting birds are found, the nest site shall not be disturbed until after the young have fledged.</p> <p><u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> <li>If vegetation removal or construction must occur between February 1 and August 31, check pre-construction survey report provided by biologist regarding the presence/absence of active nests.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>If active nests are present, inspect project area to verify applicable buffers are maintained until after the young birds have fledged.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> <li>One-time check of biologist's documentation.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check on a weekly basis until the birds have fledged to confirm that buffers are maintained.</li> </ul>		
<b>Cultural Resources</b>				
<p><b>15.1</b></p> <p>any human remains are encountered during any phase of construction, all earth-disturbing work shall stop within 50 feet of the find. The county coroner shall be contacted to determine whether investigation of the cause of death is required as well as to determine whether the remains may be Native American in origin. Should Native</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> <li>If any human remains are encountered, confirm all</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>If any human remains are encountered, confirm all</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to confirm temporary construction stoppage</li> </ul>		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p>American remains be discovered, the county coroner must contact the Native American Heritage Commission (NAHC). The NAHC will then determine those persons it believes to be most likely descended from the deceased Native American(s). Together with representatives of the people of most likely descent, a qualified archaeologist shall make an assessment of the discovery and recommend/implement mitigation measures as necessary.  <u>Responsibility:</u> TCDOT</p>	<p>construction activities stop within the affected area and that a qualified archaeologist and the county coroner are contacted.</p> <ul style="list-style-type: none"> <li>If human remains are recognized as Native American, additional monitoring requirements may be specified by the archaeologist in consultation with representatives of the people of most likely descent.</li> </ul>	<p>within buffer zone.</p> <ul style="list-style-type: none"> <li>The archeologist shall specify the timing/frequency of additional monitoring, as appropriate.</li> </ul>		
<p><b>MM 5.2</b>                      If any previously unevaluated cultural resources (i.e., burnt animal bone, midden soils, projectile points or other humanly-modified lithics, historic artifacts, etc.) are encountered, all earth-disturbing work shall stop within 50 feet of the find until a qualified archaeologist can make an assessment of the discovery and recommend/implement mitigation measures as necessary.  <u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>If any cultural resources are encountered, confirm all construction activities stop within the affected area and a qualified archaeologist is contacted.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to confirm temporary construction stoppage within the buffer zone.</li> <li>The archeologist shall specify the timing/frequency of additional monitoring, as appropriate.</li> </ul>		
<b>Hazards and Hazardous Materials</b>				

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p><b>MM 8.1</b>                      The contractor shall prepare a Lead Compliance Plan for approval by TCDOT in compliance with Caltrans Standard Special Provision 7-1.02K(6)(j)(ii): <i>Lead Compliance Plan</i> prior to initiation of construction. The contractor shall be responsible for implementation of the plan during project construction.  <u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to ensure implementation.</li> </ul>		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p><b>MM 8.2</b></p> <p>If any building or other infrastructure is to be demolished as part of this project, the building or other infrastructure shall be surveyed for asbestos-containing building materials by a qualified consultant. Worker protection, training, and material handling requirements as defined by Title 8, Section 1529 of the California Code of Regulations (8 CCR 1529) shall govern work affecting potentially hazardous materials found during the survey. Materials determined to contain detectable concentrations of asbestos shall be removed by a licensed abatement contractor prior to the demolition of the structure. Additionally, any interior Cal/OSHA Class II asbestos abatement work shall be performed within sealed, negatively-pressurized regulated area containments. If asbestos-containing building materials are present, the North Coast Unified Air Quality Management District (NCUAQMD) shall be notified at least 10 working days prior to the start date of the demolition. The Contractor shall follow the recommendations of the NCUAQMD regarding demolition, dust control, removal and disposal of asbestos-containing building materials.</p> <p><u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to ensure compliance.</li> </ul>		
<p><b>MM 8.3</b></p> <p>To minimize potential impacts from lead-containing paint (LCP), all work shall be conducted in compliance with Caltrans Standard Special Provision 14-11.12 <i>Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue.</i></p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to ensure compliance.</li> </ul>		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p><u>Responsibility:</u> TCDOT</p>				
<p><b>MM 8.4</b> To minimize potential impacts from treated wood waste (TWW), all work shall be conducted in compliance with Caltrans Standard Special Provision 14-11.14: <i>Treated Wood Waste</i>. <u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to ensure compliance.</li> </ul>		
<b>Noise</b>				
<p><b>MM 12.1</b> The contractor shall comply with Caltrans' standards contained in Section 14-8.02, Noise Control, as described in the 2011 Traffic Noise Analysis Protocol, where the specifications state: 1) do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.; and 2) equip internal combustion engines with the manufacturer-recommended mufflers. <u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul> <p>DC</p> <ul style="list-style-type: none"> <li>Field check as needed to ensure compliance.</li> </ul>		
<b>Public Services</b>				
<p><b>MM. 14.1</b> Public safety and emergency service providers shall be kept informed of construction activities and schedules for use in planning emergency response routing, if necessary. No roads shall be completely closed at any time during construction. The TCDOT shall use lane closures, as needed, rather than complete road closures or detours.</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm mitigation measure is included in construction contract.</li> <li>Contact applicable public safety and emergency service providers prior to commencement of</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction contract.</li> </ul>		

Mitigation Measure	Monitoring Action	Monitoring Timing/Frequency	Completion	
			Date	Initials
<p><u>Responsibility:</u> TCDOT</p>	<p>construction.</p> <p>DC</p> <ul style="list-style-type: none"> <li>Notify applicable public safety and emergency service providers of any changes to construction schedules or activities.</li> </ul>	<p>DC</p> <ul style="list-style-type: none"> <li>Field check and provide updates to public safety and emergency service providers as needed.</li> </ul>		
<p><b>MM. 14.2</b></p> <p>Roundabout design shall provide for right and left turn movement in and out of the California Highway Patrol/Department of Motor Vehicles parking lot from SR 299. The splitter island on the Lance Gulch Road approach to the roundabout shall be designed so that CHP and other emergency vehicles can drive on the island in order to pass other vehicles and enter the roundabout. The splitter island shall be striped or otherwise labeled for emergency use only.</p> <p><u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Confirm during review of construction documents.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time check of construction documents.</li> </ul>		
<b>Community Impacts</b>				
<p><b>MM. IV.2.1</b></p> <p>TCDOT shall purchase the affected property and provide appropriate compensation to the property owner, building owner, and business owners in compliance with federal and state law and provide relocation assistance to the business owners, if necessary.</p> <p><u>Responsibility:</u> TCDOT</p>	<p>BC</p> <ul style="list-style-type: none"> <li>Complete prior to completion of construction documents.</li> </ul>	<p>BC</p> <ul style="list-style-type: none"> <li>One-time confirmation prior to commencement of construction.</li> </ul>		