

**PROJECT STUDY REPORT (PSR)
Improvements to the Sunset Ave./LK Wood Rd.
and Sunset Ave./US 101 Northbound Ramps Intersections**

Project Limits: The limits of the project are within Arcata and Caltrans right of way along the Sunset Ave. overpass, from LK Wood Blvd. to the US 101 northbound ramps.

1 Need and Purpose

The City of Arcata is a rural community located in Humboldt County, California. Arcata is home to Humboldt State University and has a large portion of student residents who live within the City. The City is currently not able to provide enough housing for residents, especially incoming students. As a result, large housing developments have been constructed or are in the planning and design phase to provide more housing. Many of these developments are located in the Sunset/Alliance neighborhoods and will potentially lead to traffic impacts at major intersections. Notable intersections of concern are the Sunset Avenue/LK Wood Boulevard and the Sunset Avenue/US 101 Northbound ramps.

The purpose of this PSR is to show the need for the improvements at these two intersection between LK Wood Boulevard and Sunset Avenue. The current configuration is confusing to all user types and deteriorating striping makes it even more challenging to navigate. The intersections experiences large volumes of non-motorized and motorized users, especially when Humboldt State University is in session. The two intersection are located directly next to each other (~150 ft) and improvements should be made concurrently.

Not proceeding with this project will result in continued user confusion while maneuvering the adjacent intersections. Cyclists will continue to have to share facilities with vehicles. Additionally, both pedestrians and cyclists will face unprotected crossing from vehicles accessing US 101 North on-ramp and vehicles accessing LK Wood Boulevard from Sunset Avenue.

2 Brief Project Description

W-Trans prepared a Central Arcata Areawide Traffic Study in 2017 to assess traffic impacts surrounding 12 intersection within the vicinity of newly constructed/potential developments. The study found that the LK Wood Boulevard/Sunset Avenue location needs improvements to maintain and achieve operation.

2.1 Current Condition

The project area is located directly adjacent to Humboldt State University and is comprised of two intersection, the Sunset Avenue/ US 101 Northbound Ramps and Sunset Avenue/LK Wood Boulevard (Figure 2.1). The Sunset Avenue/US 101 Northbound Ramps is a four-legged intersection with the off-and on-ramps forming the south and north legs of the intersection. The southern off-ramp leg also acts as a connection between G Street and Sunset Avenue. The off-ramp is stopped control and has a

crosswalk that connects Sunset Avenue to LK Wood Boulevard. The western leg has an eastbound left turning lane to access the northbound on-ramp. The Sunset Avenue/ LK Wood Boulevard intersection is an all-way stop, tee intersection. It is located less than 150 feet east of the Sunset Avenue/US 101 northbound ramps intersection. It has a left turn



Figure 2.1 The current configuration of the two intersections located within the project area. The Sunset Avenue/US 101 northbound ramp intersection is a four-legged intersection with the north and south leg acting as US 101 Northbound on- and off- ramps. The Sunset Avenue/LK Wood Boulevard is an all-way stop located 150 feet east of the Sunset Ave/US 101 northbound ramps intersection.

intersection. It has a left turn lane at its western leg. A crosswalk is across the southern leg and crosses the right-turn lane from Sunset Ave. to LK Wood Boulevard. This intersection is owned and operated by Humboldt State University.

W-Trans Traffic Study examined the Level of Service (LOS) at each intersection to determine current and projected traffic operation. LOS is ranked between A and F, with LOS A being free flow conditions and LOS F being forced flow or breakdown conditions. Between the City of Arcata, Caltrans, and Humboldt State University, minimal operation was allowed to be LOS D. This low LOS was due to Arcata and Humboldt State University favoring pedestrian and cyclist access and safety over vehicle traffic. For current conditions, the Sunset Avenue/LK Wood Boulevard intersection was the only intersection that scored below the minimum LOS.

W-Trans proceeded to analyze future traffic operations at each intersection into 2036. Analysis was provided for future operation with and without the proposed developments. With the new developments in place, the LOS is expected to decrease as more traffic is expected at the two intersections. Projections into the future show that population growth will further decrease the LOS of the intersections due to more users.

3 Project Alternatives

Two alternatives conceived by W-Trans are proposed for the LK Wood Blvd./Sunset Ave. location that are designed to make the intersections more safe for pedestrians, cyclists and motorists. All the following alternatives are within the right-of-way (ROW) of the City, Caltrans and Humboldt State University.

3.1 Alternative One: One-Lane Roundabout

Alternative One proposes installing a one-lane roundabout that is centered between the current Sunset Avenue/LK Wood Boulevard and Sunset Avenue/US 101 North ramps intersections. The proposed alternative will be a five-legged roundabout that accesses Sunset Avenue, LK Wood Boulevard and the US 101 on- and off-ramps (Figure 3.1). The G Street connection will be closed and vehicles on G Street can access the project area by way of to the Sunset Ave./US 101 South ramps-G/H Streets intersection. The US 101 off-ramp will have an additional turnoff lane prior to arriving at the roundabout that allows access to southbound LK Wood Boulevard. The proposed roundabout estimates to have an improved LOS rating of LOS C. The LOS is analyzed assuming future population projections and that all the developments are in place.

The alternative will provide a Class IV bikeway along the southern side of the roundabout. This will provide pedestrians and cyclists with a separate path that crosses LK Wood Boulevard and accesses Sunset Avenue. Cyclists remaining on LK Wood Boulevard will be required to share the roundabout with motorists. Parking will still be available the southern side of the Sunset Avenue Overpass.

Table 3.1 provides a preliminary cost estimate for the project. Each housing development will be required to pay a fee for surrounding traffic improvements based on estimated increased trips added by each development. All together, the housing developments will provide 12% of the total estimated project cost.

Table 3.1 Preliminary project cost for Alternative One.

Task	Cost
Project Approval & Environmental Document (1% of Construction Costs)	\$ 500,000
Plans, Specifications, & Estimates (30% of Construction Costs)	\$ 261,880
Right of Way Support	\$ 25,000.00
Right of Way Capital	\$ 0.00
Construction Support (10% of Construction Cost)	\$250,000.00
Construction Capitol Cost	\$ 2,500,000.00
Contingency (30% of Construction Costs)	\$ 750,000.00
SUBTOTAL	\$ 4,286,880.00

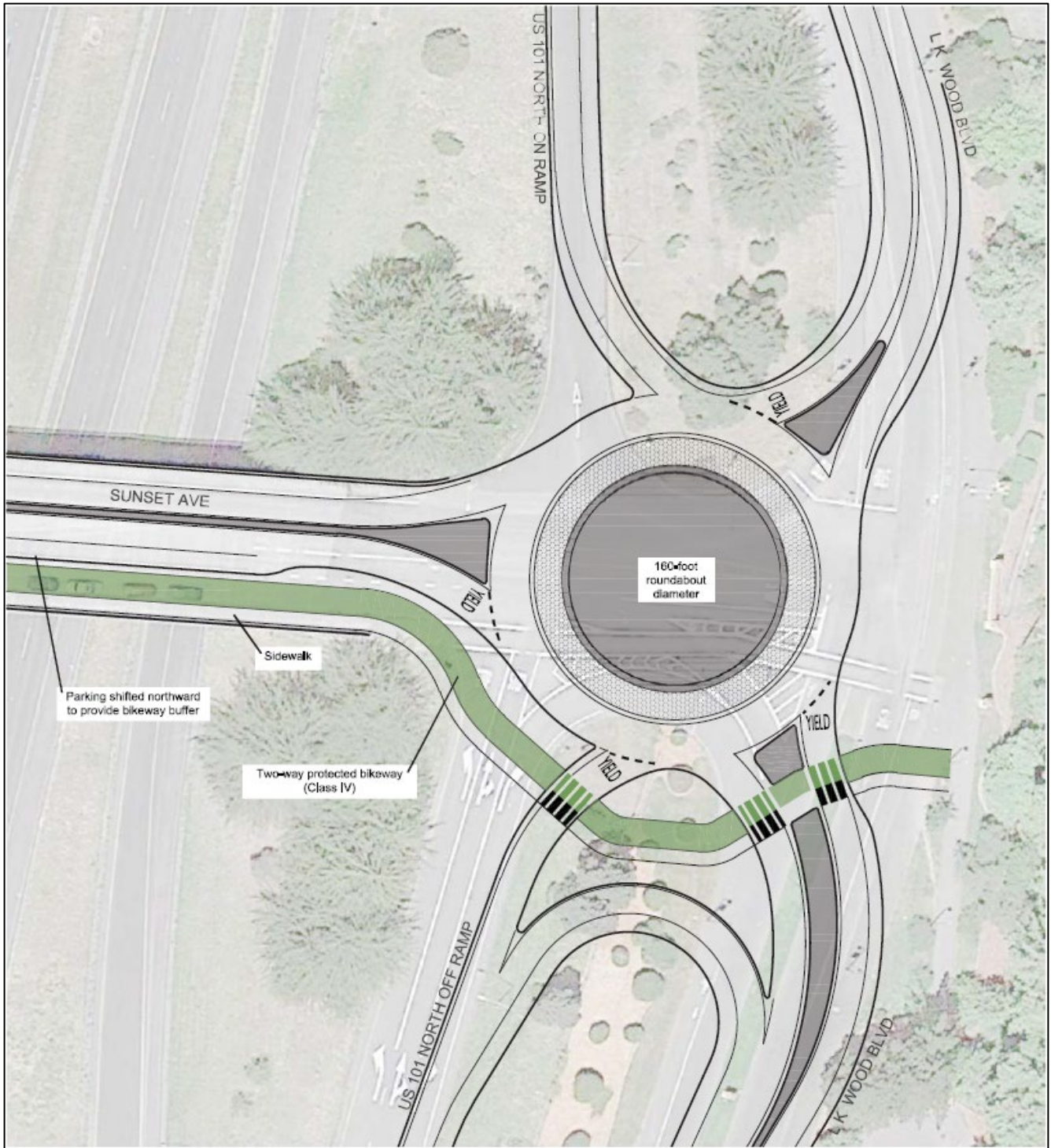


Figure 3.1 Proposed Alternative One for the Sunset Avenue/LK Wood Boulevard project area. This alternative will provide a Class IV path for cyclist and pedestrians. The G Street Connection will be closed and parking along Sunset Avenue will still be available.

3.2 Alternative Two: Raised Islands

Alternative Two proposes a similar configuration to the current one, but with additional safety features installed to benefit all users. Alternative Two is proposed as a long-term interim option by W-Trans. The proposed alternative will redo the striping and add green markings along bicycle lanes to provide more visibility. Raised islands will be added along the pedestrian crosswalk along the south side of the intersection. Some of the improvements proposed in this alternative with a left turn lane on LK Wood Blvd was completed in 2019.

Alternative Two will slightly change the configuration for eastbound Sunset Avenue who are accessing southbound LK Wood Boulevard. The current separate lane that crosses between the intersection will be blocked. Sunset Avenue between the two intersections will now have two lanes, with the additional lane being a right turn lane to access LK Wood Boulevard. This will remove the two adjacent yield lanes that currently exist to access LK Wood Boulevard. The additional lane will still allow for a Class II bike lane to be present (Figure 3.2).

Table 3.2 provides a preliminary cost estimate for the project. Each housing development will be required to pay a fee for surrounding traffic improvements based on estimated increased trips added by each development. The development fee is not included in this estimate since it would cover the entire portion of Alternative Two.

Table 3.2 Preliminary project cost for Alternative Two.

Task	Cost
Project Approval & Environmental Document (1% of Construction Costs)	\$ 625.00
Plans, Specifications, & Estimates (30% of Construction Costs)	\$ 18,800.00
Right of Way Support	
Right of Way Capital	
Construction Support (10% of Construction Cost)	\$ 6,300.00
Construction Capitol Cost	\$ 62,750.00
Contingency (25% of Construction Costs)	\$ 15,700.00
SUBTOTAL	\$ 104,175.00
Development Fee	\$ 98,890.00
TOTAL	\$ 5,285.00



Figure 3.1 Proposed Alternative Two for the Sunset Avenue/LK Wood Boulevard project area. This alternative will provide more visible striping and install raised islands along the southern side of the project area. A right turn lane will be added to Sunset Avenue to access southbound LK Wood Boulevard.

3.3 Alternative Analysis

Installing traffic signals was initially considered as an alternative, but was determined to be infeasible. The City currently does not maintain and operate any traffic lights within its limits. Adding traffic signals would require the City to create a maintenance contract with an out of area contractor that would only benefit the two intersections. Additionally, the signs would require costly programming to allow the flow of both traffic, pedestrians and cyclists in the confusing configuration.

Alternative Two was suggested by W-Trans to increase pedestrian safety. However, this was suggested as a long-term interim alternative prior to installing a roundabout (Alternative One). Alternative Two retains the same current configuration and does not provide as great a level of safety for pedestrians and cyclist. For this reason, Alternative One is the preferred alternative.

4 **Environmental Status**

An initial environmental study will be prepared once the preliminary engineering design is finalized. The project is anticipated to have a Mitigated Negative Declaration determination.

5 **Additional Considerations**

The following section describes additional considerations that need to be considered when planning for this project.

5.1 System Planning

The project is consistent with the Transportation Element of the City of Arcata General Plan. This includes adding striped bicycle lanes to arterial roads and increasing pedestrian facilities.

5.2 Construction Considerations

Some utility poles may require location. Utility companies will be contacted early in the project to initiate pole relocation per their Arcata franchise agreement.

No prolonged closures are anticipated during construction and construction flagging and traffic control will be used. One 5-foot wide paved shoulder in each direction will try to be provided for bicyclists during construction. Certain phases may require vehicles and bicyclists to share the traffic lane.

5.3 Hazardous and Waste Material

There are no expected hazardous materials to be encountered for any aspect of the project. AC grinding and aggregate base will be reused for the road base and will not require disposal of the current material. If removal is necessary, it will be removed from the project site and stockpiled at City facilities for future use.

5.4 Additional Agencies

City will coordinate work with Caltrans and Humboldt State University. Arcata will also coordinate with local emergency responders, law enforcement and school districts.

6 **Potential Funding Sources**

Portion of the funding for this project will be provided by the housing development projects in the City, Caltrans and Humboldt State University. Other funding opportunities are potentially available through the State Transportation Improvement Program (STIP) and public transportation funding.

Current funding estimates for each component of the project can be seen in the Table 1.

Table 1. Funding estimates breakdown for each component of the project.

Project Component	Cost Estimate	STIP Funding Contribution	Other Fund Contribution
Environmental Studies and Permits	\$500,00	\$500,000	
Plans, Specifications and Estimates	\$261,880		\$261,880
Right of Way	\$25,000		\$25,000
Construction	\$3,500,000		\$3,500,00
TOTAL	\$4,286,880	\$500,000	\$3,786,880

7 Tentative Schedule

Below is a tentative schedule of project milestones. The project will begin at the beginning of 2021 and take three years to complete.

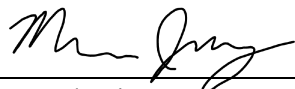
Start of Environmental Study	January 2022
Final Environmental Study	December 2023
Begin Design Engineering	October 2023
Completion of Plans, Specifications, and Estimates	June 2024
Start Right-of-Way Acquisition	NA
Right-of-Way Certificate	January 2024
Ready to Advertise	July 2024
Start Construction (Contract Award)	September 2024
Project Completion	December 2025


8 Project Support

Survey, design, and preparation of final plans, specifications & estimates will be performed by City Engineering staff or contracted. City forces will perform environmental review, preliminary design and public meetings. Construction related testing will be performed by contracted consultant.

9 Report Preparation

This Project Report (PSR) has been prepared by the Arcata Engineering Department, and I hereby attest to its technical content.

Prepared By: 
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 City Engineer

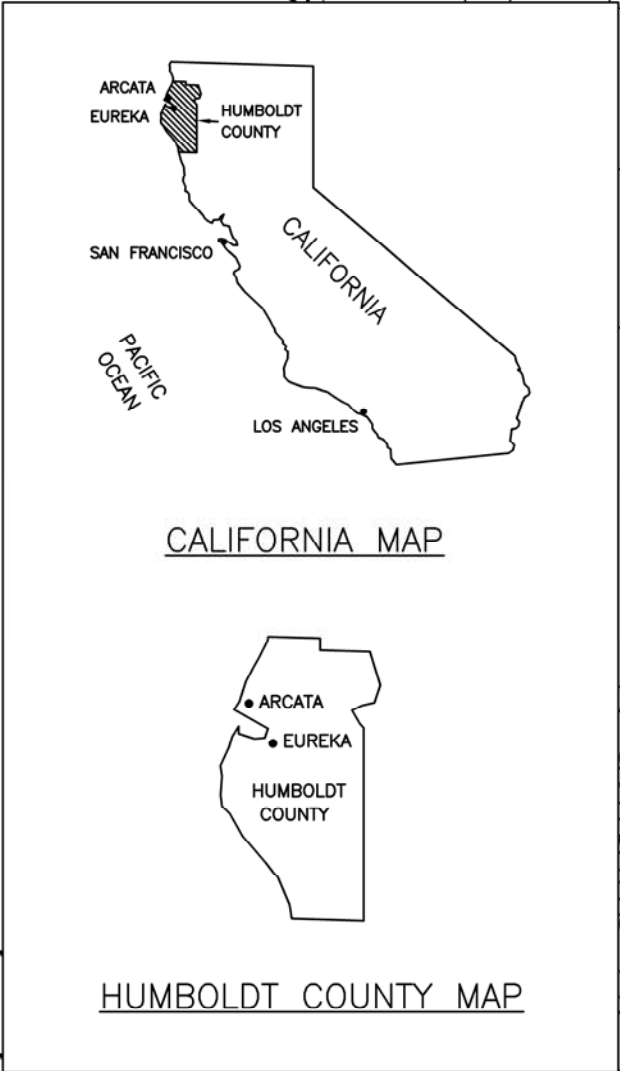
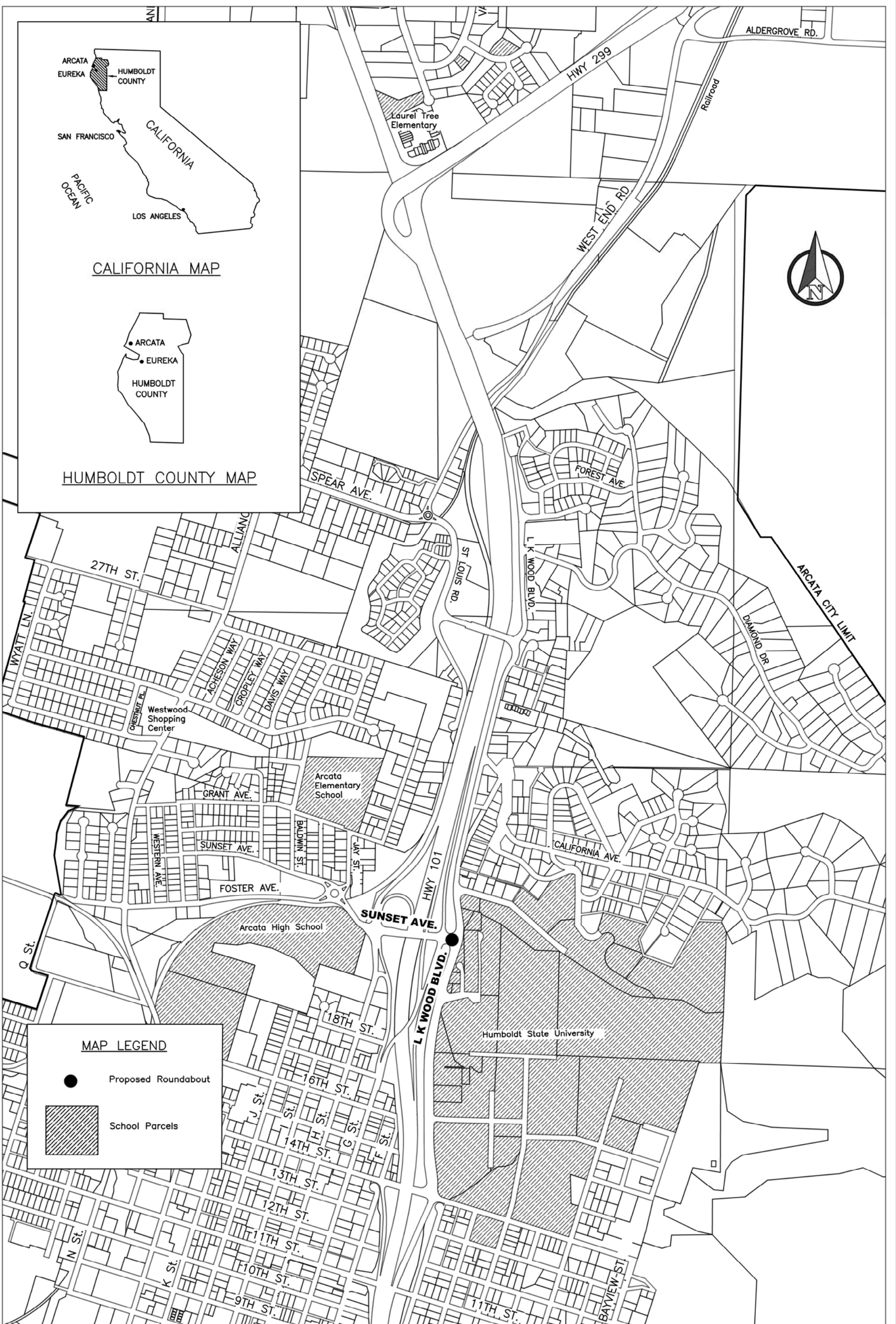
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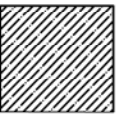
10 References

W-Trans. (2017). *Central Arcata Areawide Traffic Study, 2017.*

List of Attachments: Location Map



MAP LEGEND

-  Proposed Roundabout
-  School Parcels



CITY OF ARCATA
PROJECT LOCATION MAP

Sunset Ave. & L K Wood Blvd.
PROPOSED ROUNDABOUT SITE

SCALE: 1" = 800' DATE: 9/13/2021

FILE: Arcata STIP Map_2021_Sunset & LK Wood.dwg