

# HCAOG

## 2026 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP) – PROJECT CANDIDATE FORM

**RTIP programming background:**

If the project is on a State Highway, a Project Study Report (PSR) is required. If not, a PSR equivalent is required. The PSR equivalent at a minimum must be adequate to define and justify the project scope, cost and schedule. The PSR or PSR equivalent must be submitted with this programming request.

**Applicant Agency:** City of Arcata

**Project Title:** South Arcata Multi-Modal Safety Improvements Plan (SAMSIP)

**Project Purpose:** What transportation deficiency will this project address (safety, congestion, operations, plan implementation, etc.)? If a safety project, will the project reduce fatalities or number and severity of injuries?

- The purpose of this project is to address the barriers created by the U.S. Highway 101 which separates the east and west sides of Arcata for non-vehicular modes of transportation. The existing structure provides a high level of traffic stress for bicyclists and pedestrians, leading non-vehicular traffic to cross the interchange in unsafe conditions or causing individuals to have to travel over a mile out of their way to go between Sunnybrae or downtown Arcata. Redesigning the U.S. Highway 101 and State Route 255 interchange offers the opportunity to provide bicycle and pedestrian facilities along the corridor while also reducing the number of conflict points between all modes of transportation.

**Project Location (community name, corridor, street name, etc.):**

- Arcata, California; Between F Street and Union Street along State-Route 255 and including the U.S. Highway 101 Interchange on and off ramp system. Please see Figure 1 for reference.

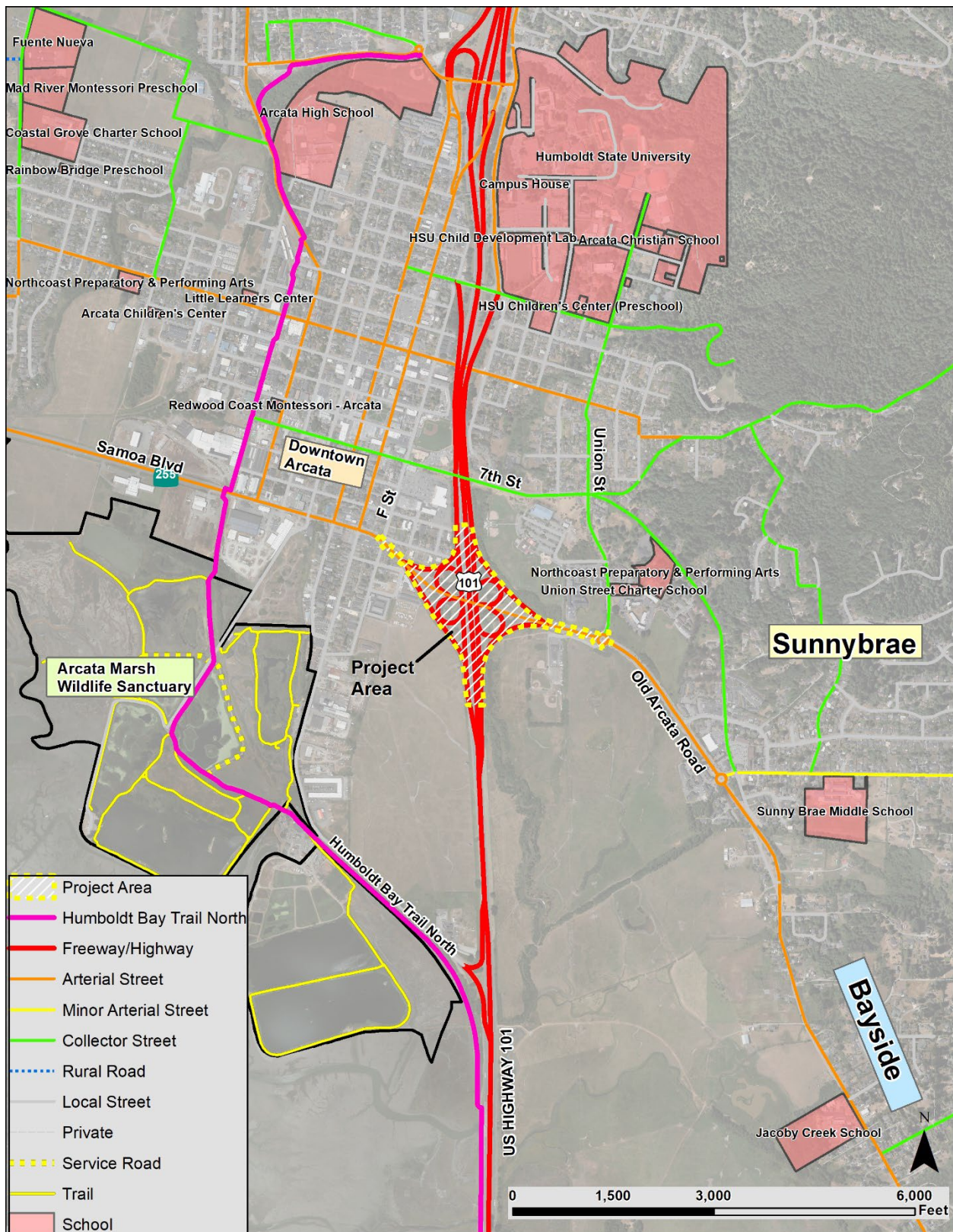


Figure 1: Map of SAMSIP Project Area

## **Project Description:**

- The State Route 255 and US Highway 101 interchange is located between South Arcata to the west and the Sunnybrae neighborhood to the east. Both US 101 and SR 255 are designated truck routes – US 101 serves interstate transportation and SR 255 provides truck access between Arcata, the Samoa peninsula, and the city of Eureka. The interchange is a full cloverleaf interchange with collector-distributor roads, and on/off ramps for all directions of travel serviced by free-flowing merge, diverge, and weaving lanes. This interchange is the terminus of SR 255, which continues as Old Arcata Road to the east. On the west side of the project area along Samoa Blvd / SR 255, this route provides access to downtown Arcata and the Arcata Marsh Wildlife Sanctuary.

The existing bridge structure crossing the US Highway 101 currently has no bicycle or pedestrian facilities that allow the public to safely cross and access Southern Arcata and the eastern neighborhoods along Old Arcata Road and Sunnybrae. Although there are no existing facilities for bicyclists and pedestrians, this has not stopped the public from attempting to cross this interchange to avoid travelling about a mile out of the way to reach the same destination. The public benefits from the completion of this project would be a strong reduction in collisions for this area and easier access to other neighborhoods and community resources. According to the UC Berkeley Transportation Injury Mapping System (TIMS), there have been at least 36 traffic collisions in the project area between 2011 - 2021.

The preferred alternative concept design that was chosen by our community would provide bicycle and pedestrian facilities along the SR 255 corridor as it crosses over the US Highway 101 interchange. This project would reduce the number of travel lanes heading east and west by half but will not affect the level of service for traffic. The desired alternative would utilize the existing structure and require minimal work to construct a bi-directional bicycle and pedestrian shared use path that would be entirely separated from vehicular traffic along the north side of the corridor. Lighting would be added to improve sight visibility of all users within the project area. The northern on and off ramps would be eliminated and offer the opportunity to restore the land to native vegetation, provide beautification and drainage improvements, and to reduce the number of conflict points between vehicular and non-vehicular users. Roundabouts will be introduced on the east and west side of the interchange to provide traffic calming in the project area.





Figure 2: Concept Drawing with Cross Section View of Proposed SR-255 Corridor Over US Highway 101

#### Is the project in the 2022 RTP?

- Yes, the project was nominated for the Asset Management Program Pilot by Caltrans in 2015, and was listed under the Humboldt County Association of Governments (HCAOG) RTP “Variety in Rural Options of Mobility (VROOM) 2022-2042” under the project title ‘Hwy 255 at Hwy 101 –



Roundabouts’.

### Are you requesting State only funding?

- Yes, for the PA&ED phase of the project

### What community engagement activities have been conducted for this project so far?

- A Project Taskforce was formed early on with members of the community who assisted in outreach and informing the public of the initial concept design phase and associated work. The project taskforce was composed of stakeholders with a vested interest in the development of the SAMSIP concept designs. The project taskforce included members of the community that lived within, or adjacent to the project area, as well as parents, and a member of the Coalition for Responsible Transportation Parties.
- A “Social Pinpoint Map” survey was conducted throughout the SAMSIP project which allowed the community to place comments on a geospatial online map to help identify facilities around Arcata that the community loves, but also what could be improved in the SAMSIP project area. At least 228 comments were provided through the Social Pinpoint Map survey.

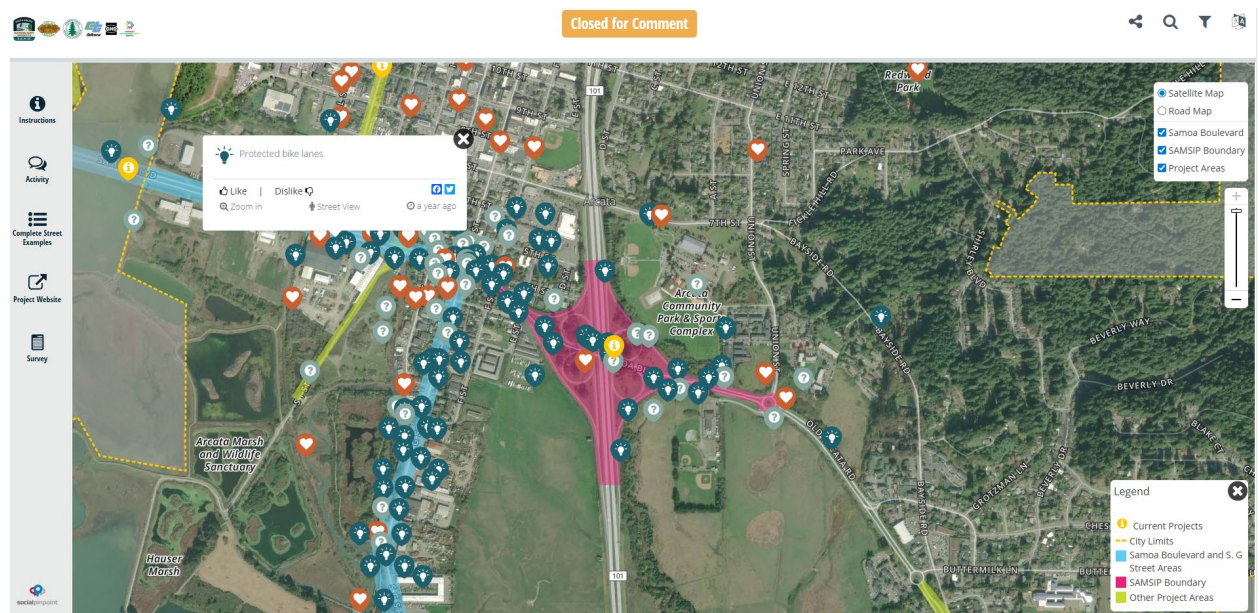


Figure 3: Screenshot of Social Pinpoint Map

- Two surveys were posted on City website during the initial concept development phase of SAMSIP. The first survey helped gauge the types of facilities and improvements that the community would like to see as a result of the SAMSIP project, while the second provided the community with another opportunity to provide comments and feedback on the alternative designs being proposed for the US 101 / SR 255 interchange. 119 people participated between both surveys.

- The City hosted two Community Workshop events on 08/29/24 and 04/29/25. Both workshops provided a summary of the outreach and work conducted to-date. Community members were able to provide questions and comments to the team concerning the project and alternative designs being proposed. At least 30 members of the community attended the first workshop while around two dozen members attended the second workshop.



Figure 4: Photo from Second Community Workshop

- A Walking Tour was conducted on 10/19/24 where 22 members of the community were able to go on a guided tour around the SAMSIP project area. The team also provided feedback for how they felt when walking in and around the project area and for what changes they'd like to see.





*Figure 5: Photo from Walking Tour at Community Center Trail & the East Side of the US Highway 101 & SR 255 Interchange*

- A pop-up demonstration was held along South G Street on 04/26/25 where Complete Streets related alternatives were illustrated for the public to show what could be possible as part of the SAMSIP and Samoa and South G Street projects. This demonstration included bulb-outs with native landscaping, buffered bike lanes with green paint in the bike lane, and enhanced crosswalks.





Figure 6: Photo from Pop-Up Event Along South G Street.

**To the maximum extent feasible, have complete streets elements been included in the project? Explain.**

- Yes. This project would provide bicycle and pedestrian facilities where there are currently none existing along the State Route 255 corridor as it crosses the U.S. Highway 101 interchange. The proposed alternative would provide a separated bicycle and pedestrian path adjacent to vehicular traffic as it crosses over the US Highway 101. The proposed alternative pathway would also have no conflict points with vehicular traffic until arriving at F Street to the west, and Union Street to the east, outside of the project area. This project will also provide lighting improvements to help increase visibility for all modes of transportation in the project area.

**Does your project funding request include uncommitted funds? Explain.**

- No

**If a rehabilitation project, is it located on a federal-aid eligible road (higher than a local or minor collector road)? Link to Caltrans maps: [http://www.dot.ca.gov/hq/tsip/hseb/crs\\_maps](http://www.dot.ca.gov/hq/tsip/hseb/crs_maps)**

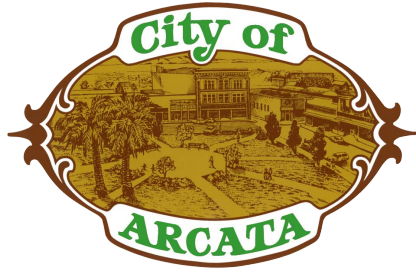
- Based on the Caltrans California Road System, the functional classification of this interchange is considered to be "Other Principal Arterial" for the majority of the project area, and "Minor Arterial" on the east side of the interchange as it enters the City of Arcata's jurisdiction.



**Provide Project Component funding needs:**

<b>Project Component</b>	<b>Cost Estimate</b>	<b>STIP Funding Request</b>	<b>Other fund contribution</b>	<b>Allocation Schedule</b>
Environmental Studies & Permits	\$1,240,000.00	\$1,140,000.00	\$100,000.00	Early 2026
Plans, Specifications & Estimates	\$2,480,000.00	\$	\$100,000.00	2027
Right of Way	\$200,000.00	\$	\$0.00	2028
Construction	\$32,000,000.00	\$	\$100,000.00	Late 2028
<b>Total</b>	<b>\$35,920,000.00</b>	<b>\$</b>	<b>\$300,000.00</b>	

Please describe any other relevant information about this project you feel will be useful in project selection. Additional attachments (i.e. maps, photos) may also be included with the submittal.



City of Arcata

## **PROJECT STUDY REPORT (PSR)**

### **South Arcata Multimodal and Safety Improvement Project (SAMSIP)**

**Project Limits:** The limits of the project are within City of Arcata and Caltrans rights-of-way along the SR 255 (Samoa Boulevard) and US 101 interchange from F Street to Union Street.

## **1 Purpose and Need**

### **1.1 Purpose**

The purpose of the South Arcata Multimodal and Safety Improvement Project (SAMSIP) is to increase east-west connectivity between South Arcata (areas adjacent to Samoa Boulevard west of US 101) and the Sunnybrae and Bayside neighborhoods through safe, comfortable transportation facilities for all modes. The Project aims to address transportation inequities felt by residents, including disproportionately limiting access across US 101 for those taking active modes of transportation. The Project will improve connectivity to key destinations, specifically for those walking and bicycling across the US 101 and State Route 255 (SR 255) interchange.

### **1.2 Need**

The US 101 – SR 255 / Samoa Boulevard interchange is a barrier to people walking and bicycling safely. US 101 is a significant regional route, providing connectivity to coastal communities include the City of Eureka, greater Humboldt County, and adjacent Del Norte and Mendocino counties. US 101 bisects the City of Arcata. There are other routes that provide pedestrian and bicycle connectivity across US 101, including 7<sup>th</sup> Street, 11<sup>th</sup> Street, and 14<sup>th</sup> Street. However, the southernmost connection, Samoa Boulevard, does not feature pedestrian or bicycle facilities, leaving people to walk or bike across the overpass in the vehicle lane or the 4-foot shoulder. The existing interchange configuration has far more vehicular capacity than required to meet current and forecasted travel demand. Potential conflicts at existing ramps with short weaving areas, high travel speeds approaching the mid-block crosswalk at F Street, speed differentials with through traffic and entering/exiting vehicles, and a lack of active transportation facilities all create a high stress environment for pedestrians, bicyclists, transit users, and motorists. During the most recent collision reporting period (2019-2023), there was one bicyclist-involved collision reported at the Samoa Boulevard and F Street intersection. Community members identified hazards and near miss collisions using the “Street Story” interactive map that was available during the community engagement process. Community members reported walking and bicycling across the interchange and identified several hazards, including lack of safe pedestrian and bicycle facilities, unsafe vehicle speeds, drivers not yielding to pedestrians and bicyclists, poor lighting conditions and

more. Community members reported three near miss collisions involving bicyclists, located on Samoa Boulevard across the interchange at the Union Street Roundabout<sup>1</sup>. A Bicycle Level of Traffic Stress (LTS) analysis resulted in an LTS 4 rating across the interchange based on existing conditions, which is a high stress environment.

## **2 Brief Project Description**

### **2.1 Current Condition**

The project study area is shown in Figure 1 and included in *Attachment A*. The SR 255 / US 101 interchange is located between South Arcata to the west and the Sunny Brae neighborhood to the east. Both US 101 and SR 255 are designated truck routes; US 101 serves interstate transportation and SR 255 provides truck access between Arcata, the Samoa peninsula, and the city of Eureka. The interchange is a full cloverleaf interchange with collector-distributor roads, and on/off ramps for all directions of travel serviced by free-flowing merge, diverge, and weaving lanes. The posted speed limit is 35 mph on Samoa Boulevard through the interchange, and there are mostly two lanes in each direction. The interchange is the eastern terminus of SR 255. The road continues as Samoa Boulevard to the east. West of the study area, Samoa Boulevard provides access to Downtown and South Arcata including several recreational opportunities in the Arcata Marsh. At the west end of the study area, the Samoa Boulevard and F Street intersection features a crosswalk with a refuge island and retro-reflective flashing beacons, located approximately 410 feet west of the US 101 southbound on- and off-ramps. West of F Street there are sidewalks along both sides of Samoa Boulevard. West of G Street, there are Class II bicycle facilities on both sides.

East of the interchange at Union Street and Samoa Boulevard, there is a single-lane roundabout that provides access to nearby Cal Poly Humboldt facilities, student housing, Union Street Charter School, the Arcata Sports Complex and Community Center, the Arcata little league fields, and the California Highway Patrol station. The Union Street roundabout has marked pedestrian crosswalks on all legs except for the west leg. Within the study area, bike lanes exist on Samoa Boulevard east of the Union Street roundabout. Paved off-street paths run along both sides of Samoa Boulevard east of Union Street, then continue on the north side of Samoa Boulevard to connect with a trail about 400 feet west of Union Street that leads to the Arcata Community Center.

The interchange and overcrossing are designed for motor vehicles only and there are no pedestrian or bicycle facilities to connect to existing multimodal facilities on either side.

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<sup>1</sup> Feedback from the Street Story dashboard can be found at [https://streetstory.berkeley.edu/reports.php?juris\\_type=custom&juris\\_name=000407](https://streetstory.berkeley.edu/reports.php?juris_type=custom&juris_name=000407).



**Figure 1 SAMSIP Study Area**



### **3 Project Alternatives**

Initially, six alternatives were developed for consideration including new traffic controls for the ramp termini as either roundabouts or traffic signals. A seventh “no build” alternative was also considered. Of the seven alternatives, two alternatives were chosen for further evaluation based on community input, the project goals, and cost considerations with the overcrossing structure. Both alternatives are designed to enhance safety and connectivity for motorists, pedestrians, and bicyclists. All seven alternatives are within Caltrans and City of Arcata rights-of-way (ROW). For a table comparing all six alternatives analyzed, see Section 3.3: Alternatives Analysis. A traffic operations analysis was performed for existing conditions and 2050 design year conditions for the two alternatives evaluated, and the results are documented in *Attachment B*.

The design vehicle used for the roundabout concept was a Bus (Bus-45). Truck turns were run for Bus-45 and CA-Legal type vehicles. Additional modifications will need to be made for the southbound ramps to accommodate Cal-legal truck access from SR 255.

With both alternatives, there is a pedestrian and bicycle crossing opportunity at F Street and at G Street, and crossing opportunities at Union Street, to improve pedestrian and bicycle access to active transportation facilities on the opposite side of the street.

#### **3.1 Roundabout Alternative**

The roundabout alternative proposes roundabouts at both existing ramp termini, reconfiguring the ramps to be only on the south side of Samoa Boulevard and removing the ramps on the north side.

The alternative also eliminates one travel lane in each direction. Based on the traffic operations analysis, the roundabout alternative operates acceptably under both existing and design year conditions, with LOS A/B at both ramps during the peak hours. The queuing analysis presented acceptable results between the intersections and on the ramps.

This alternative also includes pedestrian and bicycle facilities between F Street and Union Street. A 12-foot bi-directional bikeway and 6-foot sidewalk are proposed on the north side of Samoa Boulevard. Due to existing bridge width limitations, the project proposes to merge the separate pedestrian and bicycle facilities into a 12-foot shared-use path across the bridge deck. The design for the shared-use path across the bridge deck proposes physical separation from vehicles via flexible delineator posts. The physical separation treatment for the pedestrian and bicycle treatment will need to be determined during the design phase based on the existing structure allowances. Alternatively, the flexible posts can be glued down instead of bolted if adding static weight to the structure is not viable.

At Union Street, the proposed separate sidewalk and two-way bikeway on the north side of Samoa Boulevard merge into a shared-use path around the intersection, connecting to the existing paths along Samoa Boulevard. Marked crosswalks with ADA ramps will be added to the west leg of the Union Street roundabout to provide access to paths on either side of the intersection. Bike ramps are proposed on the east leg of the Union Street roundabout to connect the proposed shared-use path to the existing bike lanes along Samoa Boulevard.

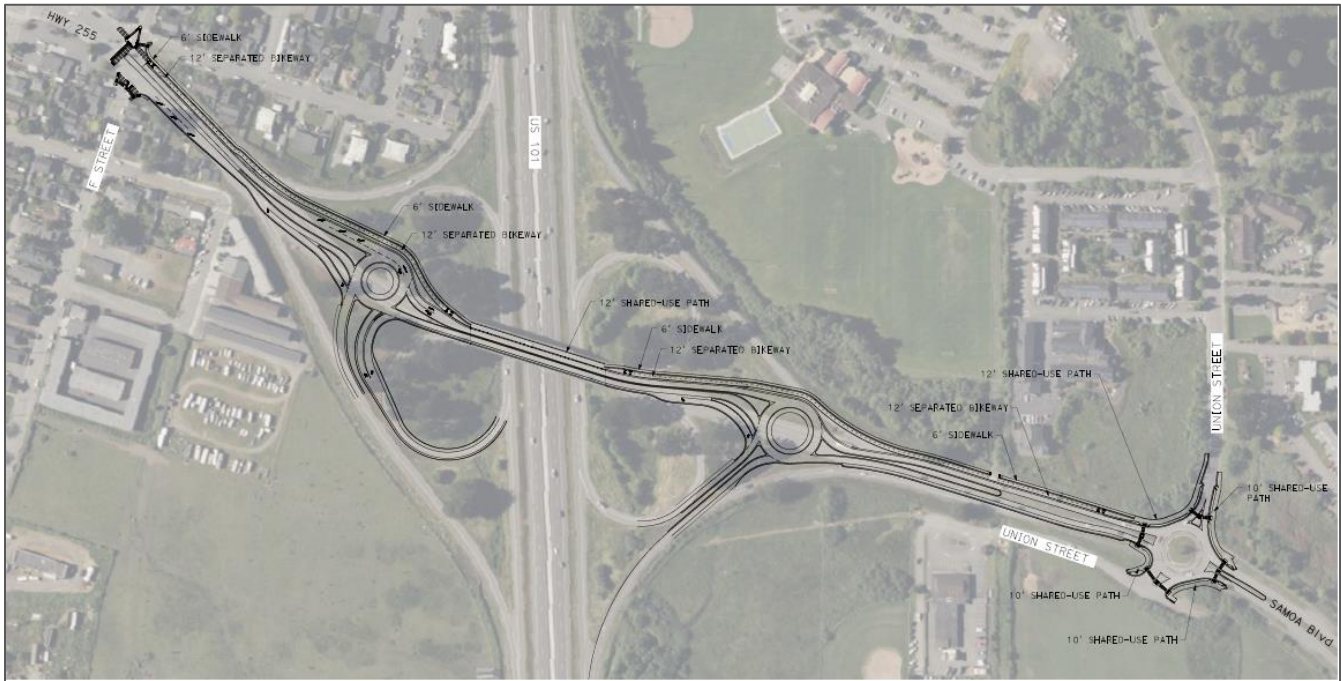
On the west side, pedestrians will be connected from the proposed sidewalk to existing sidewalk on either side of Samoa Boulevard via the existing crossings at F Street. The project proposes expanding the existing mid-block crosswalk across Samoa Boulevard at F Street to accommodate bicyclists. Bicyclists and pedestrians can also cross Samoa Boulevard at G Street at the existing traffic signal.

The City has completed 30% Conceptual Plans for the Roundabout Alternative; see *Attachment C*. The detailed cost estimate is included in *Attachment D*. Table 1 provides a preliminary cost estimate for the Roundabout Alternative.

**Table 1 Preliminary project cost for Roundabout Alternative**

<b>Task</b>	<b>Cost</b>
Project Approval & Environmental Document (2.5% of Construction Costs)	\$782,725
Plans, Specifications, and Estimates (15% of Construction Costs)	\$4,696,350
Right of Way Capital	\$200,000
Right of Way Support (1.0% of Construction Costs)	\$313,090
Construction Support (10% of Construction Costs)	\$3,130,900
Construction Capitol Cost	\$23,929,500
Contingency (30% of Construction Costs)	\$7,178,900
<b>Subtotal</b>	<b>\$40,232,000</b>
Total Construction Cost (Rounded)	\$31,109,000
Total Support Cost	\$9,124,000
<b>Total Project Cost (Rounded)</b>	<b>\$40,250,000</b>

Figure 2 – Roundabout Alternative





### 3.2 Traffic Signal Alternative

The Traffic Signal Alternative proposes traffic signals at both existing ramp termini. This alternative includes removing the southwest ramps and retaining access to the north side of Samoa Boulevard and removing the northeast ramps and retaining access to the south side of Samoa Boulevard. This results in the ramps being offset on either side of Samoa Boulevard. Similar to the Roundabout Alternative, the Signal Alternative removes one travel lane in each direction. Based on the traffic operations analysis, the Signal Alternative operates acceptably under both existing and design year conditions. For the 2050 design year, the signal at the US 101 Southbound Ramps operates at an LOS B during the AM peak hour and LOS C during PM peak hour. The signal at the US 101 Northbound Ramps operates at LOS A during the AM peak hour and LOS B during the PM peak hour. The queuing analysis showed that at the southbound ramps, queues at the southbound right turn may result in lane starvation for the southbound left in both AM and PM peak hours. queues exceed the available storage during the PM peak hour. The

This alternative also includes pedestrian and bicycle facilities between F Street and Union Street. Similar to the Roundabout Alternative, a 12-foot bi-directional bikeway and 6-foot sidewalk are proposed on the north side of Samoa Boulevard. Due to existing bridge width limitations, the project proposes to merge the separate pedestrian and bicycle facilities into a 12-foot shared-use path across the bridge deck. The shared-use path across the bridge deck proposes physical separation from vehicles via flexible delineator posts. This alternative proposes the same pedestrian and bicycle connections east and west of the project area as the Roundabout Alternative, at Union Street and F Street.

Table 2 provides a preliminary cost estimate for the Traffic Signal Alternative.

**Table 2 Preliminary project cost for Signal Alternative**

Task	Cost
Project Approval & Environmental Document (2.5% of Construction Costs)	\$817,500
Plans, Specifications, and Estimates (15% of Construction Costs)	\$4,905,000
Right of Way Capital	\$200,000
Right of Way Support (1.0% of Construction Costs)	\$327,000
Construction Support (10% of Construction Costs)	\$3,270,000
Construction Capitol Cost	\$25,000,000
Contingency (30% of Construction Capitol Costs)	\$7,500,000
<b>Subtotal</b>	<b>\$42,020,000</b>
Total Construction Cost (Rounded)	\$32,700,000
Total Support Cost (Rounded)	\$9,320,000
<b>Total Project Cost (Rounded)</b>	<b>\$42,050,000</b>

**Figure 3 – Signal Alternative**



### 3.3 No Build Alternative

A “no build” alternative was considered but does not meet the purpose and need of the SAMSIP. The improvements identified by the traffic signal and roundabout alternatives are warranted as they aim to address the existing deficiencies outlined in the purpose and need.

### 3.4 Alternative Analysis

The traffic signal alternative ultimately did not meet the purpose and need of the project. A key need for the project is to reduce vehicles speeds to enhance safety for all users. Roundabouts reduce the speed differential between entering and circulating traffic, providing a traffic calming benefit, while traffic signals do not slow down vehicular speeds.

Additionally, with the US 101 Southbound Ramps configuration in the Traffic Signal Alternative, there are potential conflicts between motorists and non-motorized users at the signal. The traffic signal design alternative maintains the southbound ramp on the north side of Samoa Boulevard to allow for the turn lanes to be located outside of the overpass, eliminating the need to widen or replace the bridge at this time. This results in an interrupted pedestrian and bicycle facility where potential conflicts with vehicular traffic would occur at the proposed traffic signal. The Roundabout Alternative proposes uninterrupted pedestrian and bicycle facilities across the interchange.

Both signal and roundabout alternatives had acceptable traffic operations though the roundabout alternatives operated slightly better with less delay.

Table 3 provides a preliminary analysis of the six alternatives developed for the project. Other alternatives considered different ramp configurations and pedestrian and bicycle facilities. Five alternatives were eliminated; the recommended alternative is “Alternative 1: Roundabouts with Ped/Bike Facilities on the North Side”.

**Table 3 Preliminary Alternative Analysis**

	<b>Alternative 1 (Roundabout Alternative)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>	<b>Alternative 5 (Traffic Signal Alternative)</b>	<b>Alternative 6</b>
<b>Ramp Configuration</b>	Southside Ramps	Southside Ramps	Southside Ramps	Southside Ramps	Offset Ramps	Offset Ramps
<b>Traffic Control</b>	Roundabout	Roundabout	Roundabout	Traffic Signal	Traffic Signal	Traffic Signal
<b>Multimodal facility</b>	Ped/Bike Facilities on North Side*	Shared-use path (North) + Sidewalk (South)	Bike lanes + Sidewalks (Both Sides)	Shared-use path (North Side)	Ped/Bike Facilities on North Side*	Bike Lanes + Sidewalks (Both Sides)
<b>Traffic Calming Benefits</b>	✓	✓	✓	✗	✗	✗
<b>Ped and Bike Facilities Separated from Vehicle Traffic</b>	✓	✓	✗	✓	✓	✗
<b>Separate Pedestrian and Bicycle Facilities</b>	✓*	✓	✓	✗	✓*	✓
<b>Eliminates Intersection Conflicts Between Drivers, Bicyclists, and Pedestrians</b>	✓	✗	✗	✓	✗	✗
<b>Maintains Existing Bridge Width</b>	✓	✓	✓	✗	✓	✗
<b>Forecasted 2050 Design Year Traffic Operations (LOS and Queuing)</b>	LOS A/B Acceptable Queues	LOS A/B Acceptable Queues	LOS A/B Acceptable Queues	LOS B-D Potential Queueing	LOS A-C Potential Queueing	LOS A-C Potential Queueing

\* Based on community feedback this alternative proposes a separate bike path and sidewalk on the north side of Samoa Boulevard, except across the overpass where a shared-use path is proposed due to limited available bridge width.

## 4 Environmental Status

A reconnaissance-level assessment, including a desktop review and site visit, was completed for potential biological constraints.. Based on the preliminary assessment, a rare plant survey is not

recommended. A formal wetland delineation is needed to assess if potential permanent or temporary disturbances to wetlands are avoidable. The City of Arcata should scope for an Initial Study / Mitigated Negative Declaration (IS/MND), rather than a Categorical Exemption.

A cultural resource conditions and constraints analysis was also completed. The project is not anticipated to have significant impacts on cultural or historical resources.

## **5 Additional Considerations**

### **5.1 System Planning**

The project is consistent with the Circulation and Mobility Element of the City of Arcata General Plan, which calls for interchange improvements including roundabouts. The General Plan includes Class II bicycle lanes on Samoa Boulevard through the interchange, while the SAMSIP recommends a lower stress Class IV bikeway and sidewalk to physically separate users from vehicle traffic. The General Plan also includes policies that seek to expand low-stress pedestrian and bicycle facilities and connectivity within Arcata.

This project is consistent with the Caltrans District 1 “HUM 255 Electronic Corridor Management Plan” (eCMP), including locally maintaining SR 255/Samoa Boulevard as a 2-4 lane conventional highway. The project is also consistent with proposed interchange improvements identified in the Arcata General Plan Circulation and Mobility Element to accommodate planned urban growth in the City of Arcata.

### **5.2 Construction Considerations**

A utility pole at the northeast corner of F Street will require relocation. 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. Construction flagging for one-way traffic may be needed and standard traffic control will be used. Traffic Control Plans will be provided as necessary.

### **5.3 Hazardous and Waste Material**

There are no expected hazardous materials to be encountered for any aspect of the project. An Initial Site Assessment (ISA) will be completed in a future phase of the project to verify. If hazardous materials are present, proper procedures will be followed for waste removal and disposal.

### **5.4 Additional Agencies**

The City will work with Caltrans and Humboldt County Association of Governments (HCAOG). Arcata will also coordinate with Humboldt Transit Authority, local emergency responders, law enforcement and school districts.

## **6 Potential funding sources**

A portion of the funding for this project will be provided by local City funds. Other funding opportunities are potentially available through state and federal grants including the State



Transportation Improvement Program (STIP), Safe Streets and Roads for All (SS4A), the Caltrans Reconnecting Communities Program (RCP), Strengthening Mobility and Revolutionizing Transportation (SMART) grants, Better Utilizing Investments to Leverage Development (BUILD) discretionary grant program, and the Active Transportation Program (ATP).

## 7 Tentative Schedule


PID Approval	June 2026
Start of Environmental Study	April 2026
Final Environmental Study	January 2027
Begin Engineering Design	September 2026
Completion of Plans, Specifications, and Estimates	December 2027
Right-of-Way Certificate	March 2028
Ready to Advertise	July 2028
Start Construction (Contract Award)	September 2028
Project Completion	December 2029

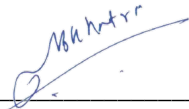
## 8 Project Support

Survey, design and preparation of final plans, specifications and estimates will be performed by City Engineering staff or contracted. City forces or contracted consultant 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:   
Rosanna Southern, EIT  
GHD Inc.

Reviewed By:   
Netra Khatri, PE  
City Engineer

Date: 9/16/2025

Date: 9-17-25

## 10 List of Attachments

- A. Study area map
- B. Traffic Operations Memorandum
- C. 30% Conceptual Plans for the Roundabout Alternative
- D. 30% Preliminary Cost Estimate for the Roundabout Alternative

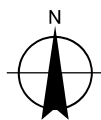
# **Attachment A.**

## **Study Area Map**



Paper Size ANSI A  
0 110 220 330 440  
Feet

Map Projection: Mercator Auxiliary Sphere  
Horizontal Datum: WGS 1984  
Grid: WGS 1984 Web Mercator Auxiliary Sphere



City of Arcata  
South Arcata Multimodal Safety Improvement Plan

Project No.  
Revision No. -  
Date 07/29/2025

**Project Study Area**

**FIGURE 1**



# **Attachment B.**

## **Alternatives Traffic Operations Analysis**

# Technical Memorandum

July 30, 2025

<b>To</b>	Netra Khatri, City Engineer Jak Kirchubel (City of Arcata)		
<b>Copy to</b>	Oona Smith, HCAOG Catharine Crayne, Caltrans D1		
<b>From</b>	Rosanna Southern, EIT	<b>Project No.</b>	12625945
<b>Project Name</b>	Arcata US 101 SR 255 Multi-Modal Accessibility and Safety Improvements Project		
<b>Subject</b>	Alternatives Traffic Operations Analysis		

## 1. Introduction

GHD was retained by the City of Arcata to develop the South Arcata Multimodal Safety Improvements Plan (SAMSIP). The City of Arcata received funding for the SAMSIP through the Caltrans Sustainable Communities Planning Grant. The project includes the US 101 interchange with State Route (SR) 255, also known as Samoa Boulevard, between the roundabout east of the interchange (at Union Street), to F street west of the interchange. In Arcata, the US 101 and SR 255 interchange has created inequitable conditions that exacerbate disconnection between communities east and west of US 101.

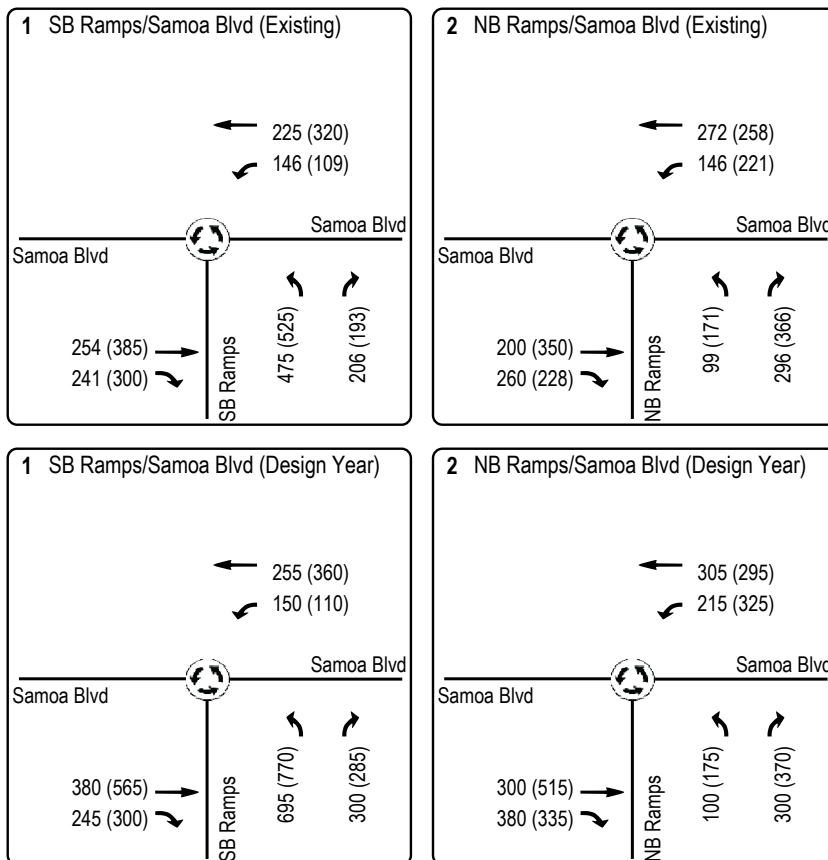
The purpose of this memorandum is to present the traffic operations results for two interchange alternatives for Existing and 2050 Design Year conditions.

### 1.1 Purpose

The purpose of the SAMSIP is to increase east-west connectivity in southern Arcata through safe, comfortable transportation facilities, specifically addressing barriers to non-motorized transportation. The Plan aims to address transportation inequities and improve access to key destination for all residents, specifically for those walking and bicycling.

## 2. Existing and Forecasted Turning Movement Volumes

Figure 2.1 presents Existing and projected 2050 Design Year intersection volumes with the roundabout intersection configuration for the AM and PM peak hours. Existing conditions ramp volumes for the interchange are based on weekday volume data provided by Caltrans from August 23, 2022 through August 29, 2022. 2050 Design Year forecasts were projected using growth rates determined from the Humboldt County Regional Travel Demand Model. The traffic forecast methodology is documented in a separate memorandum dated March 14, 2025, which was approved by Caltrans D1 staff for the purposes of the SAMSIP.



#### Legend

XX (YY) AM (PM) Peak Hour Volumes

Turn Lane



Stop Sign

Traffic Signal



Roundabout



City of Arcata  
South Arcata Multimodal Safety  
Improvement Plan (SAMSIP)  
Existing and Design Year Conditions  
Peak Hour Traffic Volumes,  
Lane Geometries & Traffic Control

Project No. 12625945  
Report No. 001  
Date 5/2/25

**FIGURE 2.1**

### 3. Traffic Analysis Policies and Methodology

#### 3.1 Level of Service Methodologies

Traffic operations are quantified through the determination of "Level of Service" (LOS). LOS is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection, representing progressively worsening traffic operations as determined by vehicle delay or congestion. LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions. These LOS letters correspond to numerical ranges of delay that are included in Table 3.1. Delay was calculated for the study intersection control types using the methods documented in the Transportation Research Board Publication Highway Capacity Manual, Sixth Edition (HCM 6).

##### 3.1.1 Intersection Operations

Synchro 11 (Trafficware) was used to implement HCM 6 analysis methodologies to evaluate AM and PM peak hour conditions. Synchro 11 has the capability to produce results based on HCM 2000, HCM 2010, HCM 6, and Synchro methodologies, and considers intersection signal timing and queuing constraints when calculating delay, the corresponding delay, and queue lengths. Intersection Level of Service (LOS) was determined for the signalized intersections using the methods documented in HCM 6. For signalized intersections, a LOS determination is based on the calculated averaged delay for all approaches and movements. SimTraffic was used to determine 95th percentile queue results for the signalized alternative. SIDRA Intersection 9.0 and the Sidra Standard Roundabout Capacity Model were used to determine LOS and 95th percentile queue results for the roundabout alternative. The vehicular-based LOS criteria for different types of intersection controls are presented in Table 3.1. All Synchro and SimTraffic reports are included in Attachment 1, and all Sidra results are included in Attachment 2.

#### Agency Level of Service Guidelines and Policies

##### Caltrans

Caltrans' Guide for the Preparation of Traffic Impact Studies contains the following policy pertaining to the LOS standards within Caltrans jurisdiction:

*Caltrans has transitioned away from LOS thresholds in favor of considering Vehicle Miles Traveled (VMT). Caltrans' Transportation Analysis Framework (TAF) and Transportation Analysis Under CEQA (TAC) state that intersection improvement projects are "not likely to lead to a measurable and substantial increase in VMT and which therefore generally should not require an induced travel analysis per OPR's Technical Advisory."*

##### City of Arcata

The Arcata General Plan 2045 contains the following policy pertaining to the LOS standards within the City's jurisdiction:

**Operational analysis and intersection level of service (LOS) summary.** *Deprioritize level of service as a management consideration for City streets, and shift focus to methods of analysis that better measure a project's transportation-related environmental impacts such as Vehicle Miles Traveled.*

As this project will be looking at implementing intersection traffic controls at the interchange, it will not create an increase in VMT. As the City and Caltrans do not have a defined LOS threshold for intersection operations, a reference of LOS D was used since the interchange is in an urbanized area.



**Table 3.1: Level of Service (LOS) Criteria for Intersections**

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay per Vehicle (seconds per vehicle)	
				Signalized	Un-signalized
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤10.0	≤10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and ≤20.0	>10.0 and ≤15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and ≤35.0	>15.0 and ≤25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and ≤55.0	>25.0 and ≤35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and ≤80.0	>35.0 and ≤50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

## 4. Alternatives

Two interchange alternatives were analyzed to determine feasible intersection controls and geometries that meet the existing and projected future demand of the interchange: Roundabouts vs Traffic Signals.

Alternative 1 consists of two roundabouts at the ramp termini, with one through lane in each direction on the overcrossing, and a multi-use path on the north side of the interchange. The US 101 Ramps were located on the south side of Samoa Boulevard for the Roundabout Alternative to determine the feasibility of creating a multi-use path north of Samoa Boulevard that is completely separated from vehicular traffic, and can fit within the available bridge width for the US 101 overcrossing.

The roundabouts are spaced approximately 1,000 feet apart with turn pockets that provide access to the US 101 ramps. The roundabout alternative also reduces the number of lanes west of the interchange to provide space for the multi-use path into the city (or separate pedestrian and bicycle facilities if desired). Figure 4.1 presents a concept layout for this alternative in Sidra software.

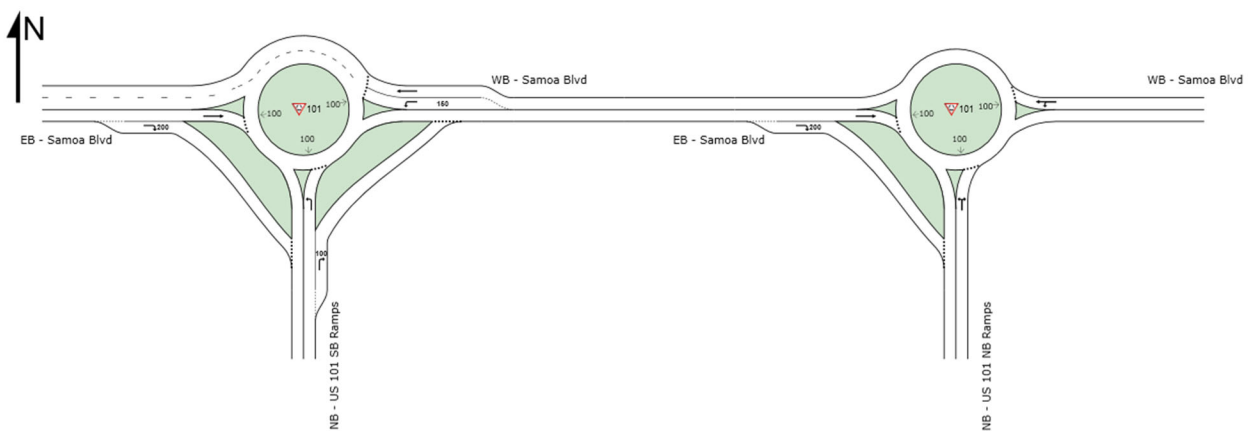


Figure 4.1: Alternative 1 – Roundabouts in Sidra

Alternative 2 consists of two signalized intersections at the ramp termini that also provides one lane in each direction on the overcrossing to preserve the structure's width and provide space for a multi-use path on the north side. The US 101 Ramps are "offset" where the southbound ramps are on the north side, and the northbound ramps are on the south side of the interchange. This configuration was chosen to allow the existing overcrossing to be retained with a proposed multi-use path proposed across the interchange on the north side.

The intersections were spaced approximately 1,000 ft apart with turn pockets that provided access onto the US 101 ramps. The number of lanes west of the interchange were reduced to provide space for the multi-use path to continue west from the overcrossing into the city. Figure 4.2 presents a concept layout for this alternative in Synchro software.



Figure 4.2: Alternative 2 – Signals in Synchro

## 5. Existing Conditions – Alternatives Traffic Operations

The Existing conditions analysis utilized existing traffic volumes, proposed interchange geometry and intersection controls to determine anticipated traffic operations with current travel patterns. The roundabout and signalized intersection alternatives were analyzed to determine feasible options that will adequately serve existing volumes.

### 5.1 Roundabouts

Table 5.1 presents the delay (s/veh) and LOS results for the roundabout alternative in Existing conditions. Both roundabouts operate acceptably.

Table 5.1: Existing Conditions LOS Operations – Roundabout

#	Intersection	Control Type <sup>1</sup>	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Samoa Blvd & US 101 SB Ramps	RNDBT	D	5.4	A	6.4	A
2	Samoa Blvd & US 101 NB Ramps	RNDBT	D	5.8	A	8.6	A

Notes:

1. LOS = Delay based on average of all approaches for Signalized intersections

2. **Bold** = Unacceptable Conditions

Table 5.2 presents the roundabout alternative 95<sup>th</sup> percentile queue results for Existing conditions. The 95<sup>th</sup> percentile queues do not exceed the available storage provided at the intersections in Existing conditions.

Table 5.2: Existing Conditions 95th Percentile Queue Results – Roundabout

Int. #	Intersection/Approach	Control Type	Existing Roundabout Alternative 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	Samoa Blvd & US 101 SB Ramps				
	Eastbound Thru	RNDBT	25	55	700
	Eastbound Right		30	40	200
	Westbound Left		30	25	150
	Westbound Thru		40	70	1000
	Northbound Left		75	95	
	Northbound Right		25	30	100
2	Samoa Blvd & US 101 NB Ramps				
	Eastbound Thru	RNDBT	20	50	1000
	Eastbound Right		30	30	200
	Westbound Left/Thru		70	95	1000
	Northbound Left/Right		65	180	275

Note: **Red** text indicates queues that exceed available storage

## 5.2 Signalized Intersections

Table 5.3 presents the delay (s/veh) and LOS results for the signalized alternative in Existing conditions. Both intersections operate acceptably.

Table 5.3: Existing Conditions LOS Operations – Signals

#	Intersection	Control Type <sup>1</sup>	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Samoa Blvd & US 101 SB Ramps	Signal	D	11.5	B	16.9	B
2	Samoa Blvd & US 101 NB Ramps	Signal	D	8.8	A	14.5	B

Notes:

1. LOS = Delay based on average of all approaches for Signalized intersections
2. **Bold** = Unacceptable Conditions

Table 5.4 presents the signalized alternative 95<sup>th</sup> percentile queue results for Existing conditions. The 95<sup>th</sup> percentile queues do not exceed the available storage provided at the intersections in Existing conditions.



Table 5.4: Existing Conditions 95th Percentile Queue Results – Traffic Signals

Int. #	Intersection/Approach	Control Type	Existing Signal Alternative 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	Samoa Blvd & US 101 SB Ramps				
	Eastbound Left	Signal	140	185	250
	Eastbound Thru		85	125	730
	Westbound Thru		140	195	1000
	Westbound Right		80	75	200
	Southbound Left		150	155	300
	Southbound Right		130	180	900
2	Samoa Blvd & US 101 NB Ramps				
	Eastbound Thru	Signal	115	205	1000
	Eastbound Right		85	140	200
	Westbound Left		90	165	250
	Westbound Thru		90	105	920
	Northbound Left		90	125	300
	Northbound Right		115	165	900

Note: **Red** text indicates queues that exceed available storage. **Bold** text indicates queues resulting in turn lane starvation.

## 6. 2050 Design Year Conditions – Alternatives Traffic Operations

The 2050 Design Year conditions analysis utilized forecasted 2050 traffic volumes, proposed interchange geometry, and intersection controls to determine future year traffic operations.

### 6.1 Roundabouts

Table 6.1 presents the delay (s/veh) and LOS results for the roundabout alternative in 2050 Design Year conditions. Both roundabouts are projected to operate acceptably.

Table 6.1: 2050 Design Year Conditions LOS Operations – Roundabout

#	Intersection	Control Type <sup>1</sup>	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Samoa Blvd & US 101 SB Ramps	RNDBT	D	7.4	A	11.3	B
2	Samoa Blvd & US 101 NB Ramps	RNDBT	D	6.0	A	10.2	B

Notes:

1. LOS = Delay based on average of all approaches for Roundabouts
2. **Bold** = Unacceptable Conditions

Table 6.2 presents the roundabout alternative 95<sup>th</sup> percentile queue results for 2050 Design Year conditions. All 95<sup>th</sup> percentile queues are projected to be within the available storage in Design Year conditions. Queuing is not anticipated to exceed capacity on the bridge between intersections. Additionally, queuing is not expected to

exceed capacity on the US 101 off ramps. Therefore, it is unlikely queuing will spill back into freeway traffic in 2050 Design Year conditions.

**Table 6.2: 2050 Design Year Conditions 95th Percentile Queue Results – Roundabout**

Int. #	Intersection/Approach	Control Type	2050 Roundabout Alternative 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	Samoa Blvd & US 101 SB Ramps				
	Eastbound Thru	RNDBT	50	85	700
	Eastbound Right		30	40	200
	Westbound Left		45	45	150
	Westbound Thru		70	170	1000
	Northbound Left		175	395	
	Northbound Right		45	55	100
2	Samoa Blvd & US 101 NB Ramps				
	Eastbound Thru	RNDBT	35	90	1000
	Eastbound Right		50	50	200
	Westbound Left/Thru		85	130	
	Northbound Left/Right		70	260	

Note: **Red** text indicates queues that exceed available storage

## 6.2 Signalized Intersections

Table 6.3 presents the delay (s/veh) and LOS results for the signalized alternative in 2050 Design Year conditions. Both intersections are projected to operate acceptably.

**Table 6.3: 2050 Design Year Conditions LOS Operations – Signals**

#	Intersection	Control Type <sup>1</sup>	Target LOS	AM Peak Hour		PM Peak Hour	
				Delay	LOS	Delay	LOS
1	Samoa Blvd & US 101 SB Ramps	Signal	15.1	B	21.2	C	15.1
2	Samoa Blvd & US 101 NB Ramps	Signal	10.0	A	17.1	B	10.0

Notes:

1. LOS = Delay based on average of all approaches for Signalized intersections

2. **Bold** = Unacceptable Conditions

Table 6.4 presents the signalized alternative 95<sup>th</sup> percentile queue results for 2050 Design Year conditions. All 95<sup>th</sup> percentile queues are projected to be within the available storage in Design Year conditions. However, in the PM peak at the Samoa Boulevard & US 101 southbound ramps, the westbound through queue exceeds the westbound right turn pocket storage, and the southbound right queue exceed southbound left turn pocket storage, resulting in potential lane starvation. The same is true for the Samoa Boulevard and US 101 northbound ramps at the PM peak for the eastbound through lane, which exceeds the eastbound right turn pocket storage.

Table 6.4: 2050 Design Year Conditions 95th Percentile Queue Results – Traffic Signals

Int. #	Intersection/Approach	Control Type	2050 Signal Alternative 95th Percentile Queue (ft)		Available Storage
			AM Peak Hour	PM Peak Hour	
1	Samoa Blvd & US 101 SB Ramps				
	Eastbound Left	Signal	165	225	250
	Eastbound Thru		120	185	730
	Westbound Thru		180	270	1000
	Westbound Right		115	140	200
	Southbound Left		260	285	300
	Southbound Right		235	375	900
2	Samoa Blvd & US 101 NB Ramps				
	Eastbound Thru	Signal	165	270	1000
	Eastbound Right		135	175	200
	Westbound Left		160	245	250
	Westbound Thru		100	95	920
	Northbound Left		100	165	300
	Northbound Right		130	185	900

Note: **Bold Red** text indicates queues that exceed available storage. **Bold** text indicates queues resulting in turn lane starvation.

## 7. Conclusion

The following conclusions are made based on the results of the alternative analysis for Existing and Design Year conditions.

- Both interchange alternatives operate acceptably in Existing conditions. 95<sup>th</sup> percentile queues do not exceed storage, and queues do not spill back onto the freeway.
- The roundabout alternative is projected to operate with acceptable LOS in 2050 Design Year conditions. Queues along the overcrossing are not projected to exceed the available space between intersections, and queues are not projected to exceed the storage for any movements.
- The signal alternative is projected to operate with acceptable LOS in 2050 Design Year conditions. Queues along the overcrossing are not projected to exceed the available storage between intersections. However, at the intersection of Samoa Boulevard and US 101 southbound ramps during PM peak hour, there are potential for lane starvation for the westbound right and southbound left turn pockets. Lane starvation may also occur at the intersection of Samoa Boulevard and US 101 northbound ramps for the eastbound right turn pocket. Queues are not anticipated to spill back onto the freeway.

# **Attachment C.**

**30% Conceptual Plans for the  
Roundabout Alternative**







# US 101 SR 255 MULTI-MODAL IMPROVEMENTS PROJECT

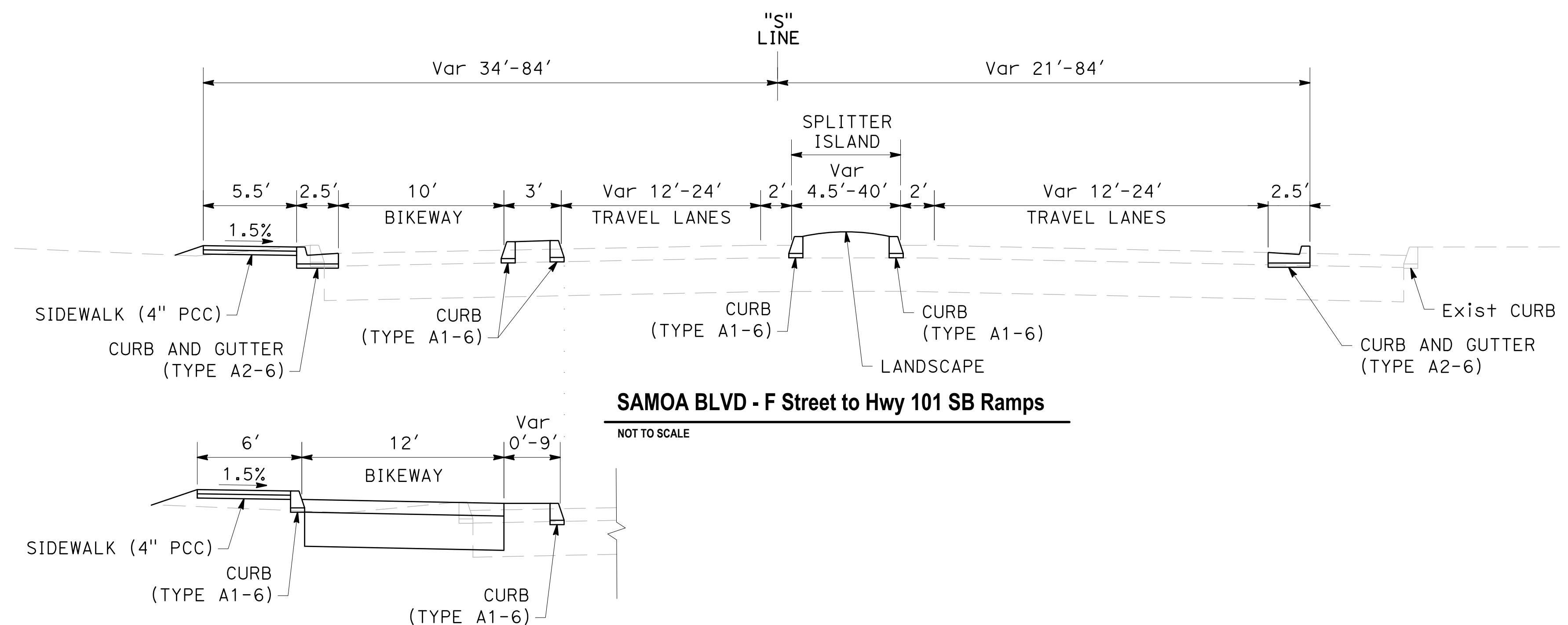
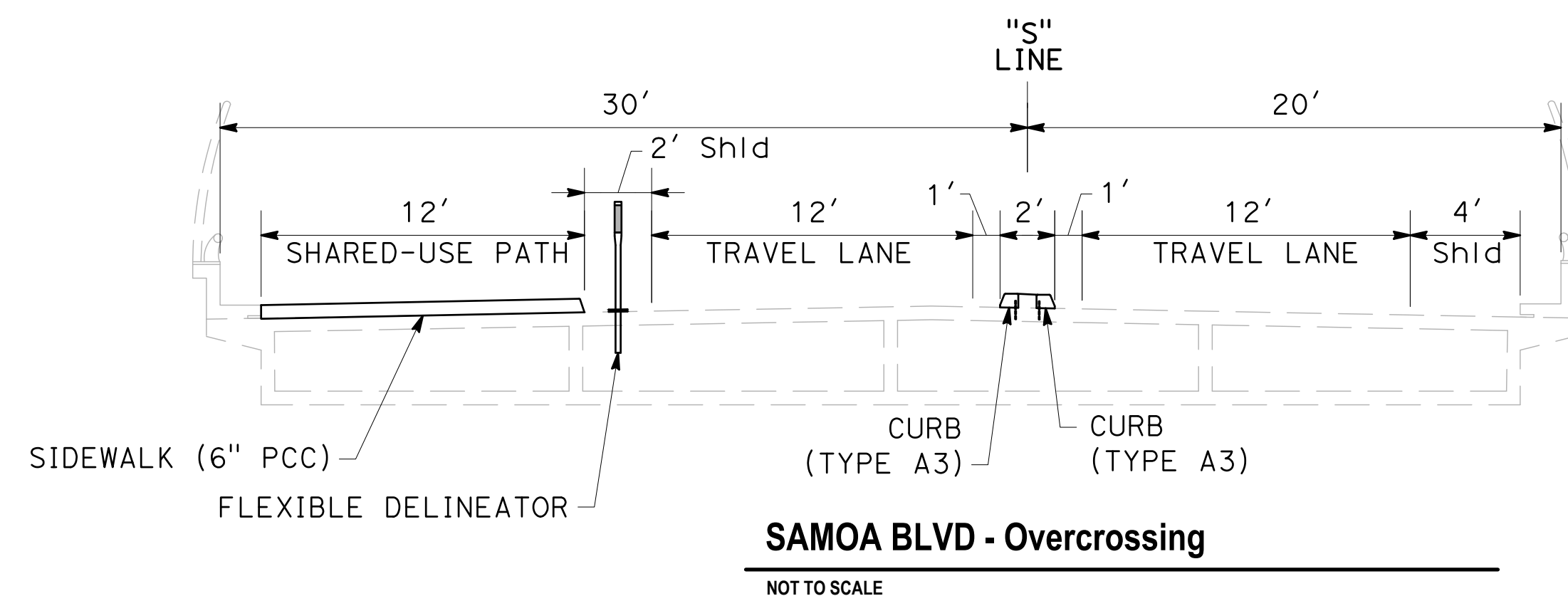
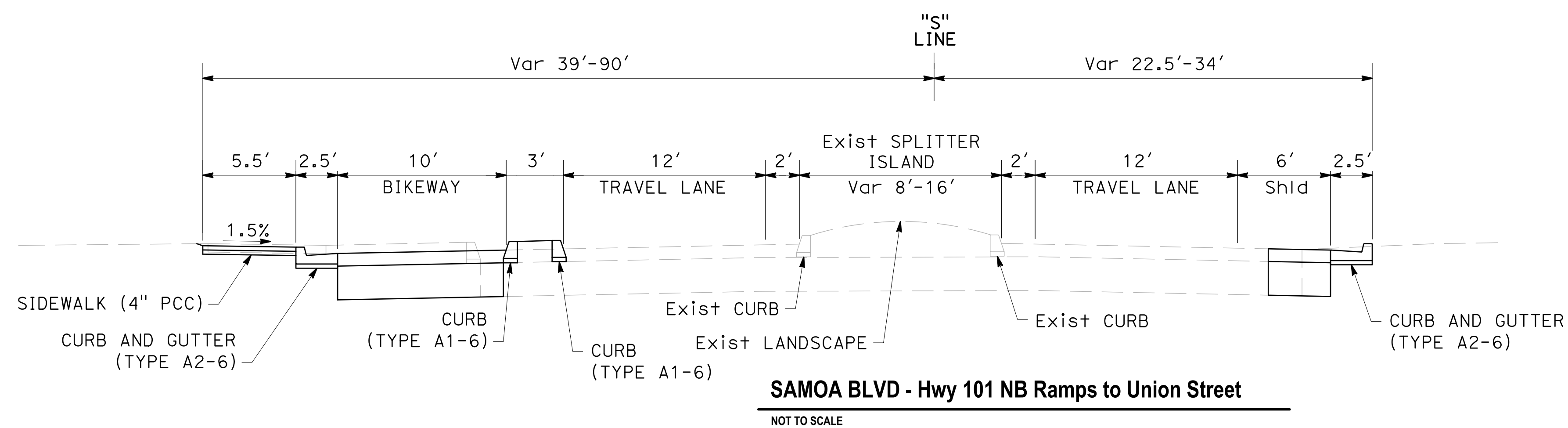
June 2025  
PROJECT NUMBER: 12625945

AREA MAP	LOCATION MAP	APPROVALS	SHEET INDEX														
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30% CONCEPTS

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No. Issue					Checked Approved Date						Conditions of Use		Project No. <b>12625945</b>		Date <b>2025-07-22</b>		Scale <b>AS NOTED</b>		Sheet No. <b>G-1</b>		Sheet 1 of X	
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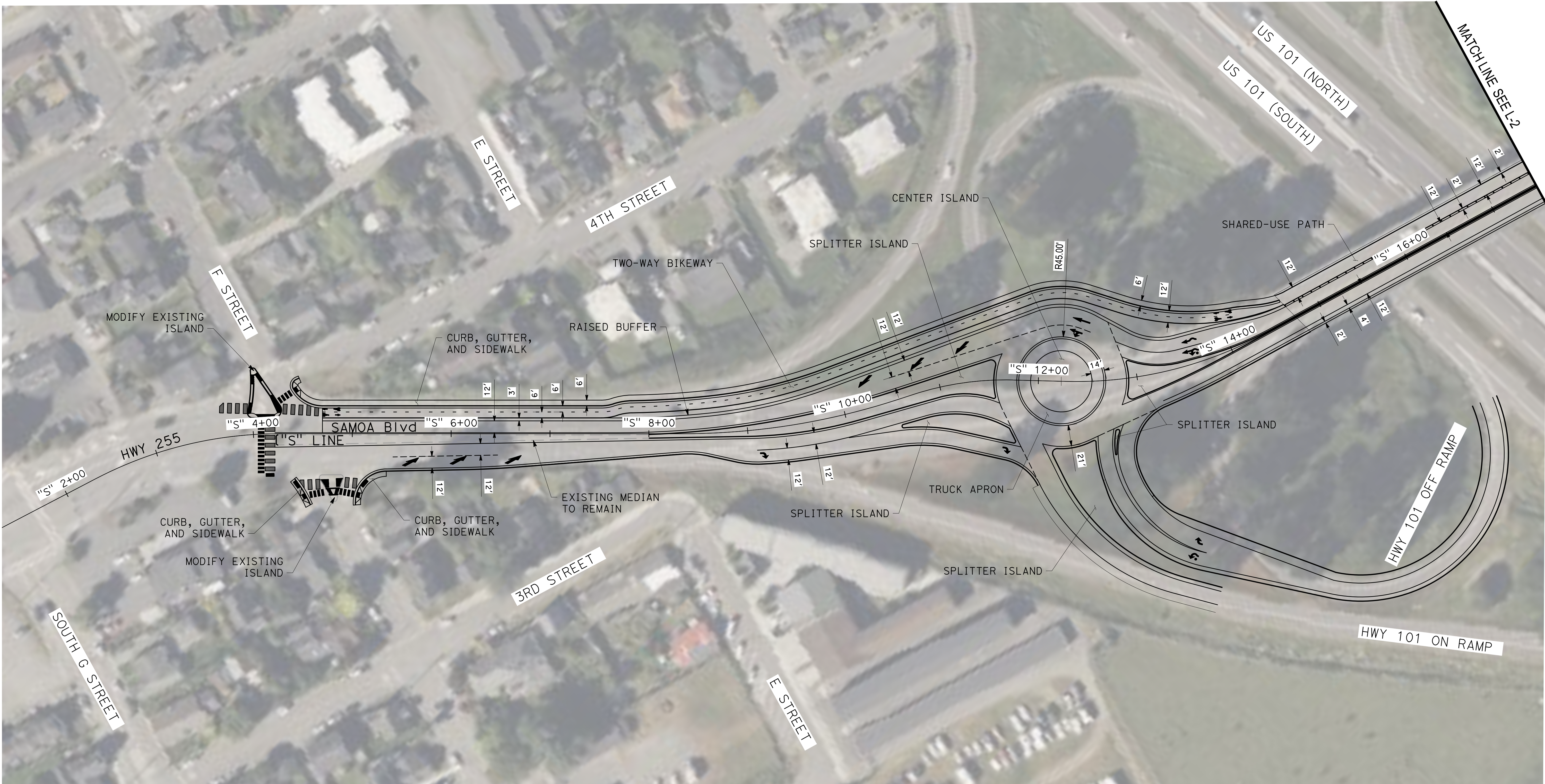




## 30% CONCEPTS

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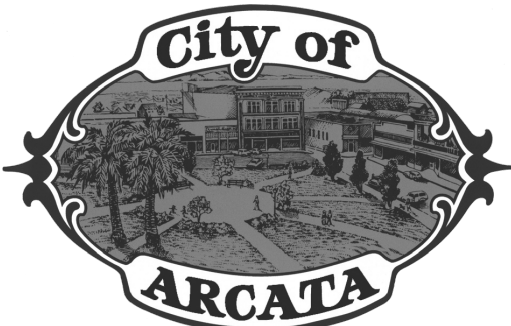




PLAN VIEW: STA 4+00 TO 17+50  
SCALE: AS SHOWN

30% CONCEPTS

No.	Issue	Checked	Approved	Date
Author	C. O'SULLIVAN	Drafting Check	O. GOODE	Project Manager
Designer	C. O'SULLIVAN	Design Check	O. GOODE	Project Director
			J. WOLF	



Bar is one inch on original size sheet  
0 1"



GHD Inc.  
2200 21st Street  
Sacramento California 95818 USA  
T 916 372 6606

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Client CITY OF ARCATA

Project US 101 SR 255 MULTI-MODAL IMPROVEMENTS PROJECT

Project No. 12625945

Date 2025-07-22

Scale AS NOTED

Title LAYOUT

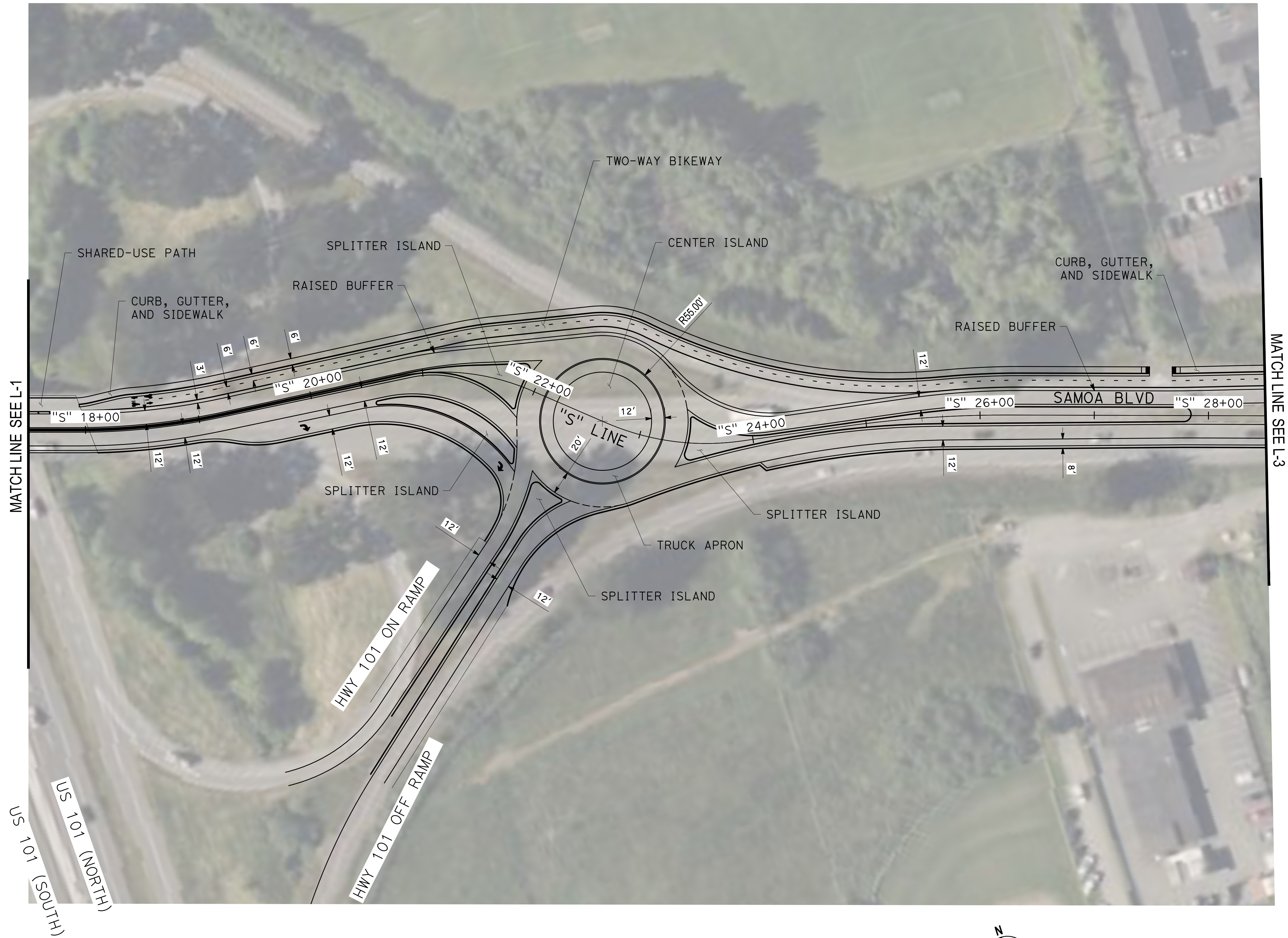
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Status Code

Sheet No. L-1

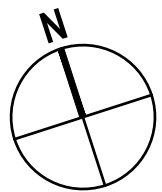
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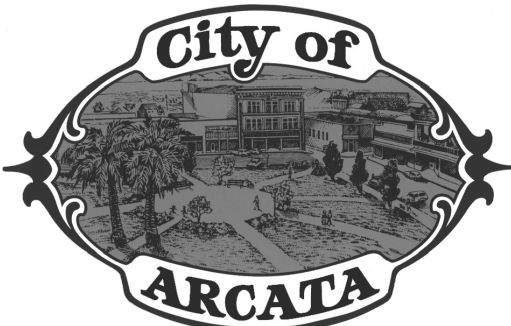
PLAN VIEW: STA 17+50 TO 28+50

SCALE: AS SHOWN



30% CONCEPTS

No.	Issue	Checked	Approved	Date	
Author	C. O'SULLIVAN	Drafting Check	O. GOODE	Project Manager	T. TREGENZA
Designer	C. O'SULLIVAN	Design Check	O. GOODE	Project Director	J. WOLF



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Client CITY OF ARCATA

Project US 101 SR 255 MULTI-MODAL IMPROVEMENTS PROJECT

Project No. 12625945

Date 2025-07-22

Scale AS NOTED

Title LAYOUT

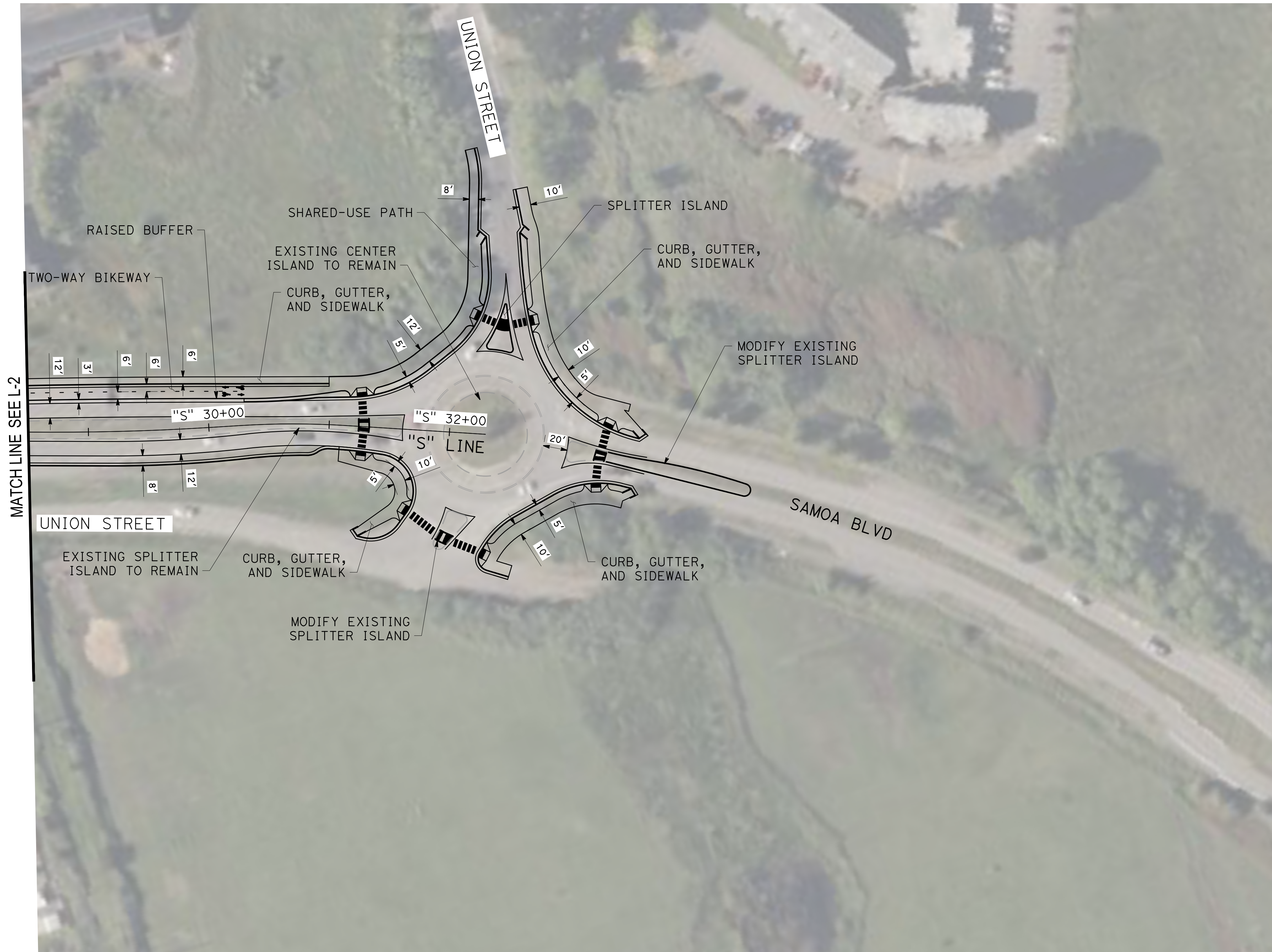
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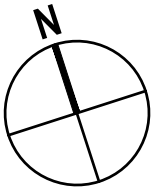
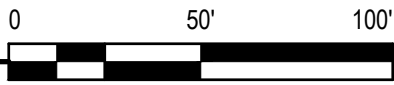
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Sheet 4 of X



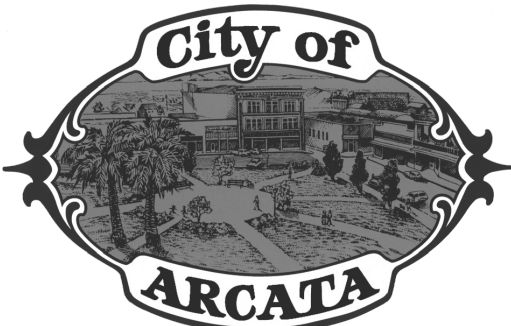


PLAN VIEW: STA 28+50 TO END  
SCALE: AS SHOWN



30% CONCEPTS

No.	Issue	Checked	Approved	Date	
Author	C. O'SULLIVAN	Drafting Check	O. GOODE	Project Manager	T. TREGENZA
Designer	C. O'SULLIVAN	Design Check	O. GOODE	Project Director	J. WOLF



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Client		CITY OF ARCATA	
Project		US 101 SR 255 MULTI-MODAL IMPROVEMENTS PROJECT	

Title LAYOUT

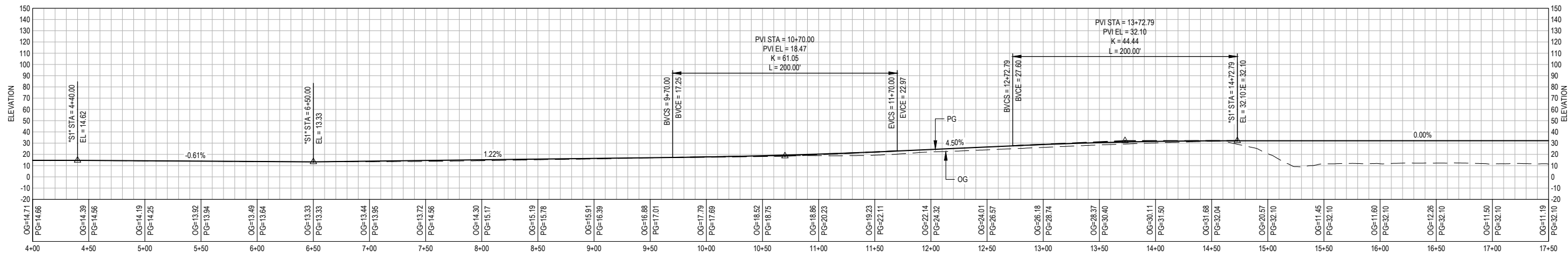
Project No.	Date	Scale
12625945	2025-07-22	AS NOTED

Size ANSI D

Status Code

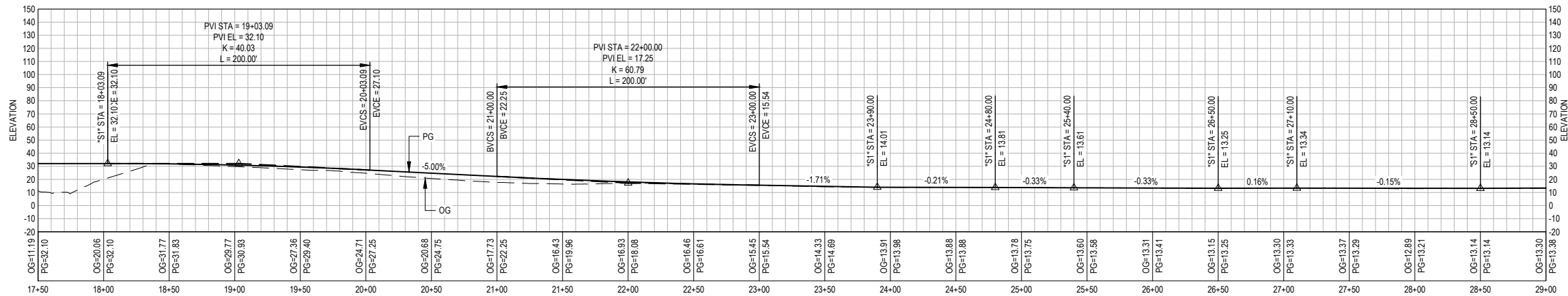
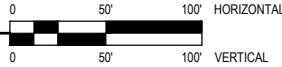
Sheet No. L-3  
5 of X





PROFILE VIEW: STA 4+00 TO STA 17+50

SCALE: AS SHOWN



PROFILE VIEW: STA 17+50 TO STA 29+00

SCALE: AS SHOWN



30% CONCEPTS

						Bar is one inch on original size sheet 0  1"				 <div>GHD Inc. 2200 21st Street Sacramento California 95818 USA T 916 372 6606</div>		 <div>www.ghd.com</div>		Client <b>CITY OF ARCATA</b>		Title <b>PROFILE</b>		Size <b>ANSI D</b>			
														Project <b>US 101 SR 255 MULTI-MODAL IMPROVEMENTS PROJECT</b>				Status Code			
														Project No. <b>12625945</b>		Date <b>2025-07-22</b>		Scale <b>AS NOTED</b>		Sheet No. <b>PD-1</b>	
																				Sheet <b>6 of X</b>	

# **Attachment D.**

**30% Preliminary Cost Estimate for the  
Roundabout Alternative**

**PROJECT**  
**PLANNING COST ESTIMATE ©**



EA:

EA: PID:

PID:

District-County-Route: 01-HUMBOLDT-1

PM: 8.6 / 85.7

Type of Estimate : Project Initiation Document

Program Code :

Project Limits : On Route 101 in Arcata

Project Description: Multi-modal Accessibility and Safety Improvements Project

Scope : Construct curb, gutter, sidewalk, bike lanes, shared-use paths, roundabouts

Alternative : #1

**SUMMARY OF PROJECT COST ESTIMATE**

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	\$ 31,108,400	\$ 35,850,084
TOTAL STRUCTURES COST	\$ -	\$ -
SUBTOTAL CONSTRUCTION COST	\$ 31,108,400	\$ 35,850,084
TOTAL RIGHT OF WAY COST	\$ 200,000	\$ 206,400
TOTAL CAPITAL OUTLAY COSTS	\$ 31,309,000	\$ 36,057,000
PA/ED SUPPORT	\$ 782,725	\$ 807,772
PS&E SUPPORT	\$ 4,696,350	\$ 5,001,725
RIGHT OF WAY SUPPORT	\$ 313,090	\$ 333,448
CONSTRUCTION SUPPORT	\$ 3,130,900	\$ 3,441,187
TOTAL SUPPORT COST	\$ 8,924,000	\$ 9,585,000

<b>TOTAL PROJECT COST</b>	<b>\$ 40,250,000</b>	<b>\$ 45,650,000</b>
---------------------------	----------------------	----------------------

Programmed Amount

Date of Estimate (Month/Year) Month / Year  
July / 2025

Estimated Construction Start (Month/Year) Sept / 2028

Number of Working Days (Assumes Delayed Start Clause for Signal Equip Acquisition) = 180

Estimated Mid-Point of Construction (Month/Year) April / 2029

Estimated Construction End (Month/Year) December / 2029

Number of Plant Establishment Days 360

**Estimated Project Schedule**

PID Approval	1/1/2026
PA/ED Approval	1/1/2027
PS&E	9/1/2026
RTL	7/1/2028
Begin Construction	9/1/2028

Reviewed by District O.E. or  
Cost Estimate Certifier

Office Engineer / Cost Estimate Certifier

Date

Phone

Approved by Project Manager

Project Manager

Date

Phone

## PROJECT COST ESTIMATE

EA: PID:  
Alternative 1



# I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	\$ 6,775,000
2	Pavement Structural Section	\$ 3,436,500
3	Drainage	\$ 758,200
4	Specialty Items	\$ 55,000
5	Environmental	\$ 1,159,500
6	Traffic Items	\$ 4,125,500
7	Detours	\$ 50,000
8	Minor Items	\$ 1,636,000
9	Roadway Mobilization	\$ 1,799,600
10	Supplemental Work	\$ 130,000
11	State Furnished	\$ 2,204,600
12	Time-Related Overhead	\$ 1,799,600
13	Roadway Contingency	\$ 7,178,900

<b>TOTAL ROADWAY ITEMS</b>	<b>\$ 31,108,400</b>
----------------------------	----------------------

Estimate Prepared By :

Name and Title	Date	Phone
----------------	------	-------

Estimate Reviewed By :

Meghan Sigler, GHD, PM	(530) 242-1700
Name and Title	Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.



## PROJECT COST ESTIMATE

Alternative 1

EA: PID:

**SECTION 1: EARTHWORK**

Item code	Unit	Quantity		Unit Price (\$)		Cost
190101 Roadway Excavation	CY	7,000	x	300.00	= \$	2,100,000
190101 Roadway Excavation (Ramp Removal)	CY	9,500	x	300.00	= \$	2,850,000
152320 Lead Compliance Plan	LS	1	x	5,000.00	= \$	5,000
19801X Imported Borrow	CY	7,000	x	250.00	= \$	1,750,000
160102 Clearing & Grubbing	LS	1	x	50,000.00	= \$	50,000
100100 Develop Water Supply	LS	1	x	20,000.00	= \$	20,000

<b>TOTAL EARTHWORK SECTION ITEMS</b>	<b>\$</b>	<b>6,775,000</b>
--------------------------------------	-----------	------------------

**SECTION 2: PAVEMENT STRUCTURAL SECTION**

Item code	Unit	Quantity		Unit Price (\$)		Cost
190185 Shoulder Backing	TON	200	x	80.00	= \$	16,000
378000 Micro-Surfacing	TON	1,000	x	250.00	= \$	250,000
390132 Hot Mix Asphalt (Type A)	TON	4,500	x	165.00	= \$	742,500
260203 Class 2 Aggregate Base	CY	6,000	x	120.00	= \$	720,000
730010 Minor Concrete (Curb)	LF	1,200	x	40.00	= \$	48,000
730070 Detectable Warning Surface	SQFT	1,000	x	50.00	= \$	50,000
731504A Minor Concrete (Curb and Gutter)	LF	6,000	x	60.00	= \$	360,000
731623 Minor Concrete (Curb Ramp)	SQFT	2,000	x	25.00	= \$	50,000
731521A Minor Concrete (Sidewalk)	CY	800	x	1,500.00	= \$	1,200,000

<b>TOTAL PAVEMENT STRUCTURAL SECTION ITEMS</b>	<b>\$</b>	<b>3,436,500</b>
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Alternative 1

EA: PID:

**SECTION 3: DRAINAGE**

Item code		Unit	Quantity	Unit Price (\$)		Cost
510090	Structural Concrete, Box Culvert	CY	x	= \$		-
15080X	Remove Culvert	EA/LF	x	= \$		-
150820	Modify Inlet	EA	x	= \$		-
155232	Sand Backfill	CY	x	= \$		-
15020X	Abandon Culvert	EA/LF	x	= \$		-
152430	Adjust Inlet	LF	x	= \$		-
155003	Cap Inlet	EA	x	= \$		-
510501	Minor Concrete	CY	x	= \$		-
510502	Minor Concrete (Minor Structure)	CY	50	x 2,000.00	= \$	100,000
5105XX	Minor Concrete (Type XX)	CY	x	= \$		-
620XXX	XX" Alternative Pipe Culvert (Type X)	LF	x	= \$		-
6411XX	XX" Plastic Pipe	LF	x	= \$		-
65XXXX	18" Reinforced Concrete Pipe	LF	1,000	x 500.00	= \$	500,000
6650XX	XX" Corrugated Steel Pipe (0.XXX" Thick)	LF	x	= \$		-
68XXXX	XX" Plastic Pipe (Edge Drain)	LF	x	= \$		-
69011X	XX" Corrugated Steel Pipe Downdrain (0.XXX" Thick)	LF	x	= \$		-
70321X	XX" Corrugated Steel Pipe Inlet (0.XXX" Thick)	LF	x	= \$		-
70XXXX	XX" Corrugated Steel Pipe Riser (0.XXX" Thick)	LF	x	= \$		-
7050XX	18" Steel Flared End Section	EA	4	x 500.00	= \$	2,000
703233	Grated Line Drain	LF	x	= \$		-
72XXXX	Rock Slope Protection	CY	120	x 500.00	= \$	60,000
72901X	Rock Slope Protection Fabric	SQYD	120	x 10.00	= \$	1,200
721420	Concrete (Ditch Lining)	CY	x	= \$		-
721430	Concrete (Channel Lining)	CY	x	= \$		-
750001	Miscellaneous Iron and Steel	LB	10,000	x 2	= \$	20,000
XXXXXX	Additional Drainage	LS	1	x 75,000.00	= \$	75,000

Assumed 5CY per inlet. Assumed 10 inlets.

<b>TOTAL DRAINAGE ITEMS</b>	<b>\$</b>	<b>758,200</b>
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**SECTION 4: SPECIALTY ITEMS**

Item code		Unit	Quantity	Unit Price (\$)		Cost
080050	Progress Schedule (Critical Path Method)	LS	1	x 15,000.00	= \$	15,000
800321	Chain Link Fence (Type CL-4)	LF	300	x 100.00	= \$	30,000
070030	Lead Compliance Plan	LS	1	x 10,000.00	= \$	10,000

<b>TOTAL SPECIALTY ITEMS</b>	<b>\$</b>	<b>55,000</b>
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## PROJECT COST ESTIMATE

Alternative 1

EA: PID:

**SECTION 5: ENVIRONMENTAL****5A - ENVIRONMENTAL MITIGATION**

Item code	Unit	Quantity	Unit Price (\$)	Cost
Biological Mitigation	LS	1 x	100,000.00 = \$	100,000
<i>Subtotal Environmental Mitigation</i>				<i>\$ 100,000</i>

**5D - NPDES**

Item code	Unit	Quantity	Unit Price (\$)	Cost
130300 Prepare SWPPP	LS	1 x	10,000.00 = \$	10,000
130100 Job Site Management	LS	1 x	250,000.00 = \$	250,000
130330 Storm Water Annual Report	EA	2 x	2,000.00 = \$	4,000
130310 Rain Event Action Plan (REAP)	EA	1 x	500.00 = \$	500
130320 Storm Water Sampling and Analysis Day	EA	20 x	500.00 = \$	10,000
130520 Temporary Hydraulic Mulch	SQYD	302,000 x	1.50 = \$	453,000
130550 Temporary Hydroseed	SQYD	302,000 x	0.50 = \$	151,000
130505 Move-In/Move-Out (Temporary Erosion Control)	EA	1 x	2,500.00 = \$	2,500
130640 Temporary Fiber Roll	LF	11,000 x	5.00 = \$	55,000
130900 Temporary Concrete Washout	LS	1 x	3,000.00 = \$	3,000
130710 Temporary Construction Entrance	EA	1 x	8,000.00 = \$	8,000
130610 Temporary Check Dam	LS	2 x	5,000.00 = \$	10,000
130620 Temporary Drainage Inlet Protection	EA	10 x	250.00 = \$	2,500
130730 Street Sweeping	LS	1 x	100,000.00 = \$	100,000
<i>Subtotal NPDES</i>				<i>\$ 1,059,500</i>

<b>TOTAL ENVIRONMENTAL</b>	<b>\$ 1,159,500</b>
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**Supplemental Work for NPDES**

066596 Additional Water Pollution Control**	LS	1 x	40,000.00 = \$	40,000
066597 Storm Water Sampling and Analysis***	LS	1 x	10,000.00 = \$	10,000
<i>Subtotal Supplemental Work for NDPS</i>				<i>\$ 50,000</i>

\*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

\*\*Applies to both SWPPPs and WPCP projects.

\*\*\* Applies only to project with SWPPPs.

**5B - LANDSCAPE AND IRRIGATION**

Item code	Unit	Quantity	Unit Price (\$)	Cost
20XXXX Highway Planting	LS	1 x	200,000.00 = \$	200,000
20XXXX Irrigation System	LS	1 x	300,000.00 = \$	300,000
204099 Plant Establishment Work	LS	1 x	50,000.00 = \$	50,000
204101 Extend Plant Establishment Work	LS	1 x	15,000.00 = \$	15,000
208304 Water Meter	EA	2 x	3,000.00 = \$	6,000
<i>Subtotal Landscape and Irrigation</i>				<i>\$ 571,000</i>

**5C - EROSION CONTROL**

Item code	Unit	Quantity	Unit Price (\$)	Cost
210010 Move In/Move Out (Erosion Control)	EA	2 x	3500.00 = \$	7,000
210350 Fiber Rolls	LF	15000 x	5.00 = \$	75,000
210300 Hydromulch	SQFT	302000 x	0.5 = \$	151,000
210420 Straw	ACRE	7 x	20000 = \$	140,000
210430 Hydroseed	SQFT	302000 x	0.5 = \$	151,000
<i>Subtotal Erosion Control</i>				<i>\$ 524,000</i>

**SECTION 6: TRAFFIC ITEMS****6A - Traffic Electrical**

Item code	Unit	Quantity	Unit Price (\$)	Cost
870700 Flashing Beacon System	LS	1 x	200,000.00 = \$	200,000
870200 Lighting System	LS	1 x	3,000,000.00 = \$	3,000,000
870600 Traffic Monitoring Station System	LS	1 x	40,000.00 = \$	40,000
<i>Subtotal Traffic Electrical</i>				<i>\$ 3,240,000</i>

**6B - Traffic Signing and Striping**

Item code	Unit	Quantity	Unit Price (\$)	Cost
120204A Portable Radar Speed Feedback System Day (LS)	LS	1 x	40,000.00 = \$	40,000
129161A Automated Flagger Assistance Device (LS)	LS	1 x	50,000.00 = \$	50,000
820760 Furnish Single Sheet Aluminum Sign (0.080" unframed)	SF	2,000 x	30.00 = \$	60,000
820840 Roadside Sign - One Post	EA	180 x	400.00 = \$	72,000
820850 Roadside Sign - Two Post	EA	20 x	500.00 = \$	10,000
846030 Remove Thermoplastic Traffic Stripe	LF	34,000 x	1.00 = \$	34,000
846035 Remove Thermoplastic Pavement Marking	SQFT	2,000 x	6.00 = \$	12,000
840591 6" Thermoplastic Traffic Stripe (Recessed)	LF	x	2.00 = \$	-
840563 8" Thermoplastic Traffic Stripe (Recessed)	LF	x	5.00 = \$	-
840515 Thermoplastic Pavement Marking	SQFT	x	13.50 = \$	-
150742 Remove Roadside Sign	EA	100 x	100.00 = \$	10,000
152320 Reset Roadside Sign	EA	x	= \$	-
152390 Relocate Roadside Sign	EA	x	= \$	-
82010X Delineator	EA	34 x	70.00 = \$	2,380
840502 Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF	20,000 x	1.50 = \$	30,000
846012 Thermoplastic Crosswalk and Pavement Marking (Enhance)	SQFT	2,200 x	8.00 = \$	17,600
872146 Removing Flashing Beacon Systems	LS	1 x	25,000.00 = \$	25,000
Relocate Speed Radar Sign	EA	x	5,000.00 = \$	-
120090 Construction Area Signs	LS	1 x	50,000.00 = \$	50,000
<i>Subtotal Traffic Signing and Striping</i>				<i>\$ 412,980</i>

**6C - Traffic Management Plan**

Item code	Unit	Quantity	Unit Price (\$)	Cost
128652 Portable Changeable Message Signs	LS	1 x	\$ 80,000 = \$	80,000
<i>Subtotal Traffic Management Plan</i>				<i>\$ 80,000</i>

**6C - Stage Construction and Traffic Handling**

Item code	Unit	Quantity	Unit Price (\$)	Cost
120199 Traffic Plastic Drum	EA	1 x	100,000.00 = \$	100,000
120165 Channelizer (Surface Mounted)	EA	300 x	75.00 = \$	22,500
120120 Type III Barricade	EA	10 x	500.00 = \$	5,000
129100 Temporary Crash Cushion Module	EA	5 x	300.00 = \$	1,500
120100 Traffic Control System	LS	1 x	200,000.00 = \$	200,000
129110 Temporary Crash Cushion	EA	5 x	5,000.00 = \$	25,000
120159 Temporary Traffic Stripe (Paint)	LF	9,000 x	3.50 = \$	31,500
120149 Temporary Pavement Marking (Paint)	SQFT	2,000 x	3.50 = \$	7,000
120320 Temporary Barrier System	LF	x	90.00 = \$	-
129110 Temporary Crash Cushion	EA	x	4,000.00 = \$	-
<i>Subtotal Stage Construction and Traffic Handling</i>				<i>\$ 392,500</i>

<b>TOTAL TRAFFIC ITEMS</b>	<b>\$ 4,125,500</b>
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## PROJECT COST ESTIMATE

Alternative 1

EA: PID:

**SECTION 7: DETOURS**

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
Detour Signing	LS	1	x 50,000	= \$ 50,000

\* Includes constructing, maintaining, and removal

<b>TOTAL DETOURS</b>	<b>\$ 50,000</b>
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<b>SUBTOTAL SECTIONS 1 through 7</b>	<b>\$ 16,359,700</b>
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**SECTION 8: MINOR ITEMS****8A - Americans with Disabilities Act Items**

ADA Items	2.0%	\$ 327,194
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**8B - Bike Path Items**

Bike Path Items	7.0%	\$ 1,145,179
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**8C - Other Minor Items**

Other Minor Items	1.0%	\$ 163,597
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Total of Section 1-7	\$ 16,359,700	x 10.0%	= \$ 1,635,970
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<b>TOTAL MINOR ITEMS</b>	<b>\$ 1,636,000</b>
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**SECTIONS 9: ROADWAY MOBILIZATION**

Item code 999990	Total Section 1-8	\$ 17,995,700	x 10%	= \$ 1,799,570
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<b>TOTAL ROADWAY MOBILIZATION</b>	<b>\$ 1,799,600</b>
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**SECTION 10: SUPPLEMENTAL WORK**

Item code	Unit	Quantity	Unit Price (\$)	Cost
066670 Payment Adjustments For Price Index Fluctuations	LS	1	x 20,000.00	= \$ 20,000
066070 Maintain Traffic	LS	1	x 60,000.00	= \$ 60,000

Cost of <b>NPDES</b> Supplemental Work specified in Section 5D	= \$ 50,000
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<b>TOTAL SUPPLEMENTAL WORK</b>	<b>\$ 130,000</b>
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## PROJECT COST ESTIMATE

Alternative 1

EA: PID:

**SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES**

Item code		Unit	Quantity		Unit Price (\$)		Cost
066105	Resident Engineers Office	LS	1	x	60,000.00	=	\$60,000
066063	Traffic Management Plan - Public Information	LS	1	x	50,000.00	=	\$50,000
066062	COZEED Contract	LS	1	x	180,000.00	=	\$180,000
066916	Annual Construction General Permit Fee	LS	1	x	5,000.00	=	\$5,000
066901	Water Expenses	LS	1	x	10,000.00	=	\$10,000
870600	Traffic Monitoring System	LS	1	x	100,000.00	=	\$100,000

Total Section 1-8      \$    17,995,700      10%      =    \$    1,799,570

<b>TOTAL STATE FURNISHED</b>	<b>\$2,204,600</b>
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**SECTION 12: TIME-RELATED OVERHEAD**

Total of Roadway and Structures Contract Items excluding Mobilization

\$17,995,700 (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency)

\$22,129,900 (used to check if project is greater than \$5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) =

10%

Item code		Unit	Quantity		Unit Price (\$)		Cost
090100	Time-Related Overhead	WD	180	X	\$9,998	=	\$1,799,600

<b>TOTAL TIME-RELATED OVERHEAD</b>	<b>\$1,799,600</b>
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**SECTION 13: ROADWAY CONTINGENCY**

Total Section 1-12      \$    23,929,500      x      30%      =    \$7,178,850

<b>TOTAL CONTINGENCY</b>	<b>\$7,178,900</b>
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## II. STRUCTURE ITEMS

### Bridge 1

DATE OF ESTIMATE  
 Bridge Name  
 Bridge Number  
 Structure Type  
 Width (Feet) [out to out]  
 Total Bridge Length (Feet)  
 Total Area (Square Feet)  
 Structure Depth (Feet)  
 Footing Type (pile or spread)  
 Cost Per Square Foot

<b>COST OF EACH</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>
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### Building 1

DATE OF ESTIMATE  
 Building Name  
 Bridge Number  
 Structure Type  
 Width (Feet) [out to out]  
 Total Building Length (Feet)  
 Total Area (Square Feet)  
 Structure Depth (Feet)  
 Footing Type (pile or spread)  
 Cost Per Square Foot

<b>COST OF EACH</b>	<b>\$0</b>		<b>\$0</b>		<b>\$0</b>
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<b>TOTAL COST OF BRIDGES</b>	<b>\$0</b>
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<b>TOTAL COST OF BUILDINGS</b>	<b>\$0</b>
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<b>STRUCTURES MOBILIZATION</b>	10%	<b>\$0</b>
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Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total recommended percentages includes any quantified risk based contingency from the risk register.

<b>STRUCTURES CONTINGENCY</b>	10%	<b>\$0</b>
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<b>TOTAL COST OF STRUCTURES</b>	<b>\$0</b>
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Estimate Prepared By: N/A  
 ----- Division of Structures

\_\_\_\_\_  
 Date