

# Appendix A: Summary of Public Outreach and Engagement

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

January 8, 2014



## **Summary of Public Outreach and Engagement**

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

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## Table of Contents

1	Community-Based Planning.....	1
2	Community and Stakeholder Engagement .....	1
	Technical Advisory Group .....	1
	Community Engagement.....	2
	Media Coverage .....	3
	Youth Engagement.....	4
3	Community Workshops.....	5
3.1	Community Workshop #1.....	5
	Presentation Summary .....	5
	Design Station Summary .....	6
	Station 1: State Route 162 .....	6
	Station 2: Downtown.....	7
	Station 3: Off Highway Trails.....	7
	Station 4: West of Henderson.....	8
	Station 5: Station 5: The "Big Picture" .....	8
3.2	Community Workshop #1 Documentation.....	8
	Figure A3-1 State Route 162.....	9
	Figure A3-2 Hurt Road and SR 162.....	10
	Figure A3-3 Howard Street and the School, including Airport Road .....	11
	Figure A3-4 Intersection of Airport Road and Howard Road .....	12
	Figure A3-5 Howard Street.....	13
	Figure A 3-6 Off-Highway Trails Between Henderson Road and SR 162 .....	14
	Figure A3-7 Off-Highway trail opportunities between Henderson Road and SR 162 .....	15
	Figure A3-8 Streets West of Henderson Road.....	16
	Figure A3-9 The "Big Picture" and Implementation & Management.....	17
	Figure A3-10 Streets West of Henderson Road.....	18
	Figure A3-11Design Toolkit.....	19
3.3	Community Workshop #2.....	20
3.4	Community Workshop #2 Documentation.....	23

## **Summary of Public Outreach and Engagement**

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

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## 1 Community-Based Planning



A Flyer promoting the workshop was mailed to every address and post office box in Round valley.

This Non-Motorized Needs Assessment and Engineered Feasibility Study is based on input from community members, Tribal and local government representatives, and funding sources. It builds on a participatory public planning process that resulted in the *Round Valley Walk/Bike Path and Community Revitalization Strategy (2010)*. The 2010 plan identified a broad spectrum of conceptual designs to improve safety and mobility in downtown Covelo, as well as trail segments throughout the valley. This Study focuses on the top priorities from the 2010 plan, provides field studies and survey data, and preliminary engineering of trails and non-

motorized roadway improvements such as sidewalks, high-visibility crossings, traffic calming, and pedestrian-scale lighting. Preparation of a Project Study Report (PSR), a formal report required for projects in the Caltrans right-of-way, will be a next step for projects in the state right-of-way. For all projects, construction documents and securing construction funding are next steps in implementing the designs in this document.

Additionally, this Study takes into consideration the 2012 Caltrans' Project Study Report for State Route 162, which recommends the addition of five foot shoulders on both sides of the highway, which could be designated as Class II bike lanes from East Lane to Biggar Road. These improvements may be constructed by Caltrans in future years and would complement the recommendations in this study.

## 2 Community and Stakeholder Engagement

To foster a community-based planning effort, many outreach activities were offered including the formation of a Technical Advisory Group to guide the project, meetings with Round Valley Indian Tribal Council and staff, youth engagement, and two community workshops. This chapter describes the variety of project outreach activities and summarizes stakeholder and community input received at the community workshops.

### Technical Advisory Group

A Technical Advisory Group (TAG) was convened in October 2012 to kick off the project. The purpose of the TAG was to provide technical information relevant to the project, to coordinate with local agencies, and to act as the “eyes and ears” of the community to guide the project. Group members included Round

Valley residents, representatives from the Round Valley Indian Tribes, Mendocino County Departments of Public Health and Transportation, Mendocino Council of Governments, Caltrans, and the consultant team.

During the October 2012 meeting, the TAG reviewed trail segment priorities identified in the *Walk/Bike Path and Community Revitalization Strategy*, and revised the priorities based on recently completed planning documents and construction projects. The segment priorities provided guidance for field studies and surveying conducted during the winter of 2012-13. The TAG met again in February 2013 to prepare for the first community workshop, and also provided support during the workshop. In July 2013, the TAG met to review a draft of this document and select preferred treatments.



The Technical Advisory Group met periodically throughout the planning process to offer data, coordination, and support

In July, the TAG met to review a progress draft of the *Non-Motorized Needs Assessment and Engineered Feasibility Study* focused on existing conditions and improvement options. Significant input and preferences were gathered through this process, including a desire to re-use the County's green bridge as a new pedestrian/bicycle bridge over Mill Creek. Local TAG members voiced strong support for the SR 162/Howard Street intersection improvements. Agency representatives requested standardization of travel and bike lane

widths. Following the TAG meeting, the design concepts were modified accordingly.

## Community Engagement

The Round Valley Indian Tribes is a sovereign nation of confederated tribes located within the project area. In 2008, the Round Valley Indian Health Center was a prime organizer of the five-day charrette/community workshop that resulted in the 2010 Walk Bike Path and Community Revitalization Strategy. Staff from the Health Center provided support for the February 2013 community workshop by assisting with outreach and participating in the event.



The consultant team and tribal leaders conducted site visits to proposed trail locations.

Tribal Council Vice-President, Joe Dukepoo, and Tribal Transportation Director, Reuben Becerra, participated on the Technical Advisory Group. In December 2012, the consultant team met with the Round Valley Indian Tribal

## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

Council to provide an update on the project and to solicit input. Council was supportive of maintaining a focus on improving pedestrian and bicycle safety in Round Valley, particularly along State Route 162 from Howard Street to Hurt Road. Council was also supportive of non-motorized trails on tribal lands to improve east-west connectivity, and to provide an off-highway trail along the west side of SR 162. Council requested that the consultant team prioritize these trail segments and proceed with surveying and data collection on tribal lands.

On August 5, 2013, members of the consultant team presented design concepts to the Tribal Council for input. Council maintained strong support for improvements to bicycle and pedestrian facilities on and off tribal lands. Council requested modifications to the design at the Tribal Commerce Center to accommodate a new fueling station and relocation of a driveway. , Tribal Council adopted Caltrans' Class I Trail Standards for the trails that are envisioned on Tribal land in this Study. Additionally, Council directed their staff to work with Caltrans or the County to pursue an agreement to formalize public access rights for use of pedestrian/bicycle facilities on tribal lands.

### Media Coverage

KYBU radio helped promote the workshop by airing a ten minute interview with one of the consultants. During the interview, the relationship of this project to previous studies and projects was discussed and details of the workshop were announced. KMUD aired excerpts of the interview on the local news to inform area residents about efforts to improve pedestrian and bicycle facilities in Round Valley.



KYBU radio produced a 10 minute interview about pedestrian and bicycle improvements in Round Valley.

## Youth Engagement

Local cyclist Dean Meyer organized a free bicycle repair event prior to the community workshop. Youth bike mechanics helped tune up and make minor repairs on bikes in preparation for a community bike ride through the valley. Following the ride, over 30 youth joined the workshop and participated in providing input, suggesting trail alignments, and identifying issues and opportunities.



Youth mechanics repair bikes at the Library Commons



Youth gather around a "Design Table" to tell Caltrans staff where bicycle trails are needed.



Youth mechanics repair bikes at the Library Commons



### 3 Community Workshops

Two well-advertized and attended community workshops were held to engage the general public in Covelo and greater Round Valley in the planning and design process.

#### 3.1 Community Workshop #1



Farmers' Market Coffee Company catered the event and extended café hours to serve participants.

#### Presentation Summary

Public input was collected during a community workshop held February 28, 2013 at the Round Valley Library Commons Community Room. The workshop engaged 75 participants in an interactive planning and design process to improve non-motorized transportation options in the valley. Food and hot drinks were provided by the Farmers' Market Coffee Company in the lobby. All participants were encouraged to enter the free raffle for bike gear (helmets, locks, LED lights) donated in part by Dave's Bikes in Ukiah.

The workshop kicked off with an introduction of the consultant team and an overview of the project, including how the current project builds on the 2010 Walk Bike Path and Community Revitalization Strategy and Caltrans' Project Study Report for SR 162. Tribal representatives provided an overview of the new Tribal Transportation Department and its commitment to improving safety and building trails on tribal lands. Consultants engaged in a discussion with the audience of current opportunities and constraints within the project area, and potential design solutions.



Participants recommended trails, bike routes, and safety improvements at the Design Tables .

## Design Station Summary

Following the presentations, participants worked at Design Tables that were staffed by TAG members. Participants drew and wrote on maps of the study area and made recommendations for improving pedestrian, bicycle, and equestrian conditions in the study area. The evening concluded with a summary of major concepts discussed at each of the Design Tables.

Workshop participants supported four main projects along SR 162 (north of downtown), a non-motorized trail along the west side of 162, improvements at the Tribal Commerce Center, and intersection improvements at Hurt Road and Biggar Lane. Overall, participants noted a concern with the high speed of vehicle traffic on 162 and suggested installing speed limit signs, increasing lighting and increasing California Highway Patrol on weekends.

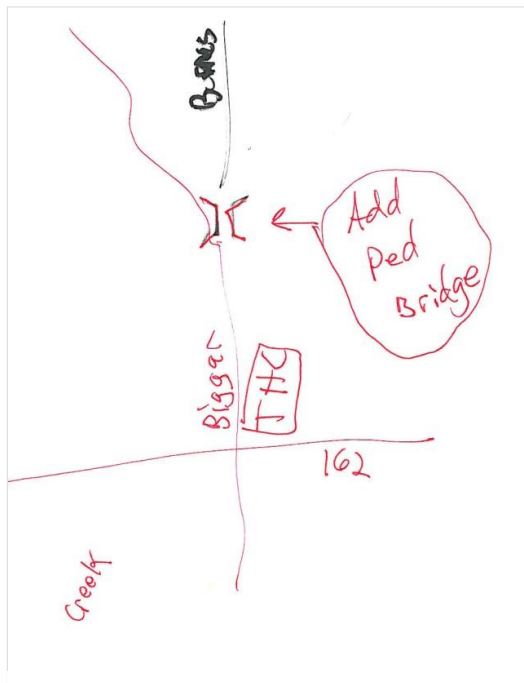
### Station 1: State Route 162

SR 162 is the transportation “spine” of the community and elicited the most interest and concern regarding improvements between downtown and destinations to the north.

#### Non-motorized trail along SR 162

A paved or crushed rock trail separated from the road was supported. Generally, workshop attendees would prefer Class I path but are concerned about cost. People would like to see Class II at minimum but a high number of pedestrians along SR 162 also need accommodation by providing improved sidewalks or paths. There is demand for the trail to provide accommodation for horses from downtown

to Rodeo Grounds. The existing Mill Creek crossing is constrained because of the narrow bridge. Suggestions for crossing Mill Creek include widening the existing bridge or constructing a small log walking bridge. Several attendees wanted to dedicate the proposed trail by naming it after a local cyclist who was killed in a bicycle crash.



At the workshop, participants were invited to sketch design solutions

#### Tribal Commerce Center improvements

Participants noted the need for a crosswalk across SR 162 at the Commerce Center. The proposed trail crossing at the parking lot driveways will need to be addressed with a design solution.

#### Hurt Lane intersection improvements

Participants suggested strategies to slow traffic at the intersection, such as through signs and painting the intersection.

#### Biggar Lane intersection improvements

## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

The intersection of SR162 and Biggar Lane was reported to have a high incident of crashes (4 in 3 years) per the Statewide Integrated Traffic Records System (SWITRS). Low visibility and sight-distance issues from vegetation are a concern. High visibility crosswalks and a pedestrian bridge were suggested improvements.

### Station 2: Downtown

Workshop participants suggested a number of improvements for the downtown area including improvements to the downtown district feel, traffic calming and sidewalk improvements on Howard Street and at the Charter School, and non-motorized connections from Howard St. to Foothill Blvd.

#### Downtown District

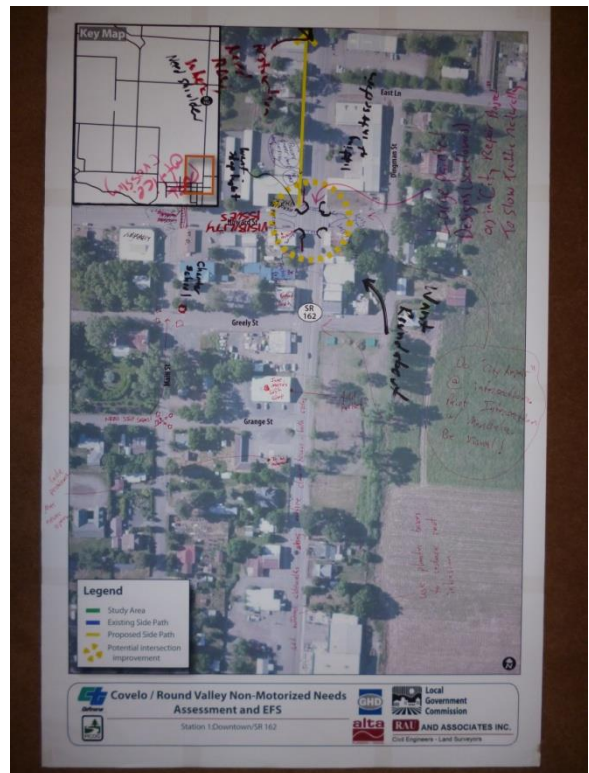
Attendees provided recommendations for making the downtown feel like a business district and improving safety. Suggested improvements include low-level pedestrian lighting or lighted bollards, decorative lighting, and street trees. Attendees also suggested adding a buffer between the sidewalks and SR 162 and repaving the road.

#### Howard Street

There was strong consensus for improving the sidewalks along Howard Street by resurfacing and widening. Traffic calming improvements were suggested including a marked crosswalk at the post office. Recommendations for improving the intersection at SR162 included curb bulb-outs, pedestrian refuge island, traffic light and large pavement mural to slow traffic.

#### School Zone

Improve school zones through traffic calming, sidewalks, crossings and school zone speed limit signs at the Charter school. Also suggested was to strengthen the bike and pedestrian connections from Foothill Boulevard to Howard Street by the elementary and high school.



Large scale aerial maps were provided for participants to draw their ideas on.

### Station 3: Off Highway Trails

Suggestions for improving east-west connectivity included a proposed off-road trail and traffic calming on Henderson Road.

#### Non-motorized trail- Henderson Rd to SR 162

There is a concern with 4-wheel drivers and how to restrict trail use. A need for trail wayfinding signs and trash cans was noted.

### **Henderson Road traffic calming**

Participants wanted to see slower or less traffic on Henderson or shared pedestrian and car use. Speed bumps proposed as a solution for traffic calming.

### **Station 4: West of Henderson**

This is a primarily residential area and participants identified the greatest needs are to provide bike lane connections to schools and provide traffic calming along Foothill Boulevard.

### **Safe Routes to School**

Attendees noted narrow roads and poor visibility a concern to safety. Bike lanes were identified as a priority.

### **Foothill Boulevard**

Traffic calming at intersections along Foothill Blvd was proposed, such as painted intersections.

### **Station 5: Station 5: The "Big Picture"**

This station offered participants the opportunity to view and comment on an overall project area map and design toolkit of various pedestrian and bicycle improvement options. Although participants' comments were recorded on the Station 5 map during the workshop, their location specific comments were incorporated into the Station 1, 2,3, and 4 summaries after the workshop.

## **3.2 Community Workshop #1 Documentation**

The following maps include community input given during first workshop.

# Summary of Public Outreach and Engagement

## Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

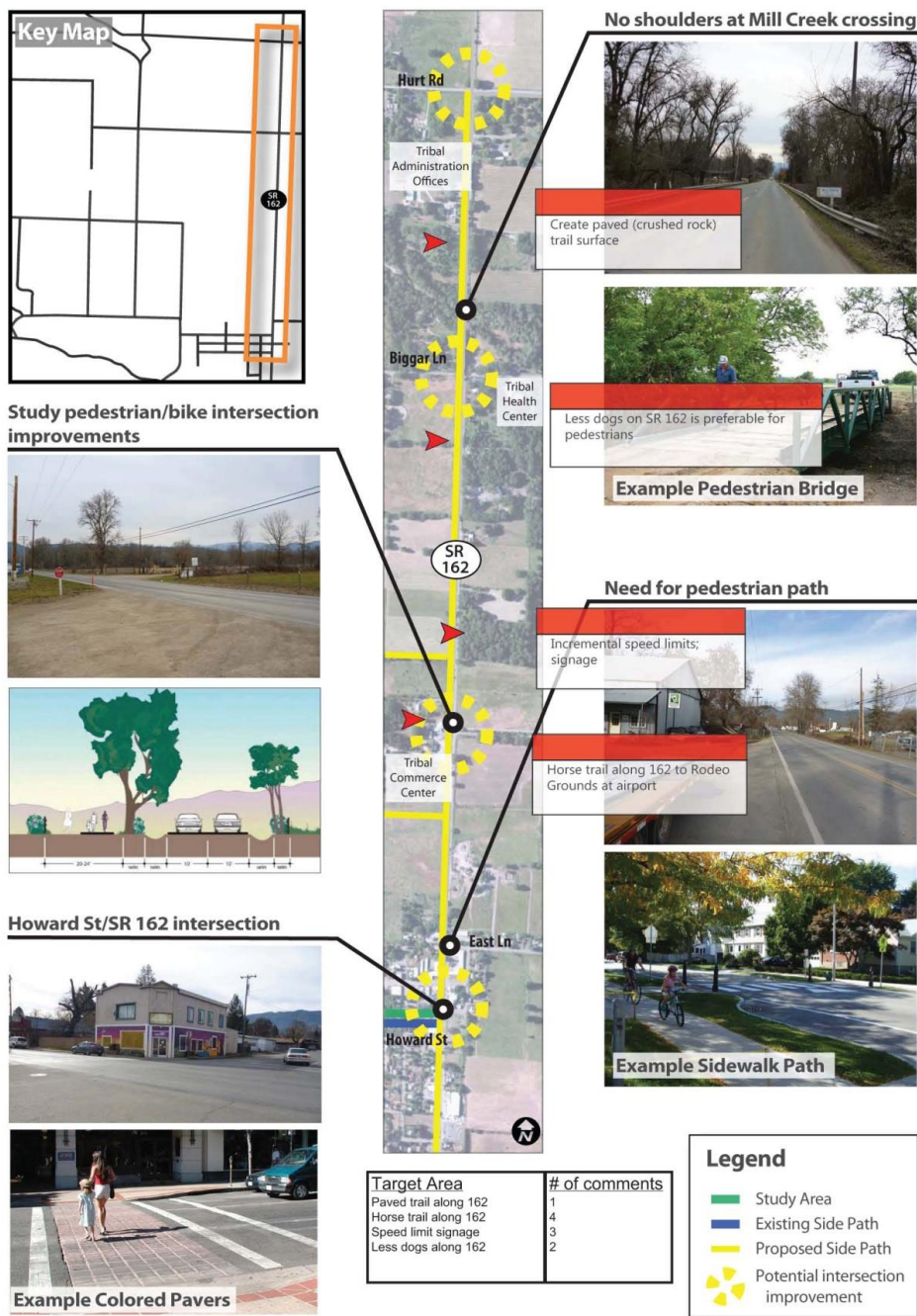






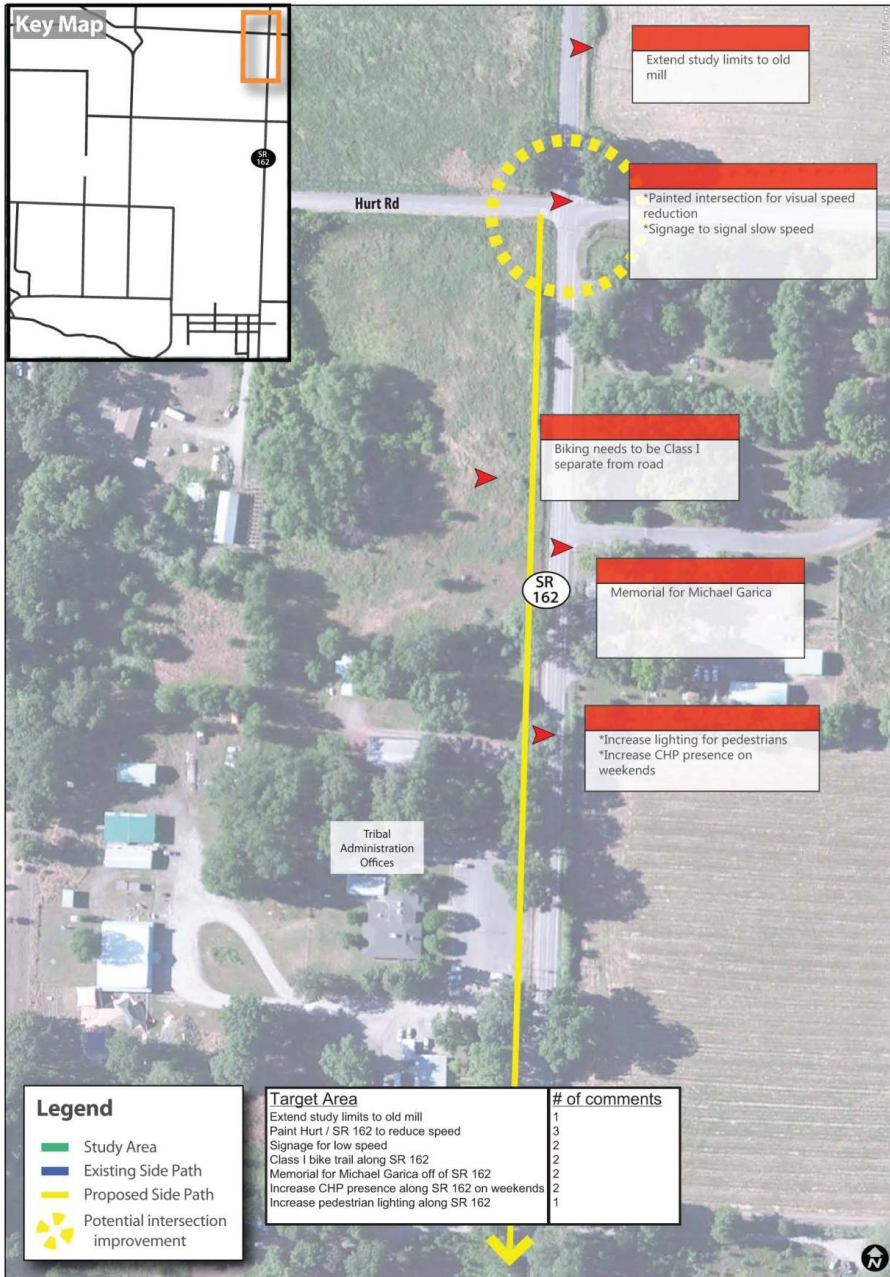


Figure A1 State Route 162



**Covelo / Round Valley Non-Motorized Needs Assessment and EFS**  
 Station 1: State Route 162



**Local Government Commission**  


**RAU AND ASSOCIATES INC.**  
 Civil Engineers - Land Surveyors



**Covel / Round Valley Non-Motorized Needs Assessment and EFS**

Station 1: Hurt Rd and SR 162

**GHD** Local Government Commission

**alta** **RAU AND ASSOCIATES INC.**  
Civil Engineers • Land Surveyors

**Figure A2 Hurt Road and SR 162**

# Summary of Public Outreach and Engagement

## Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

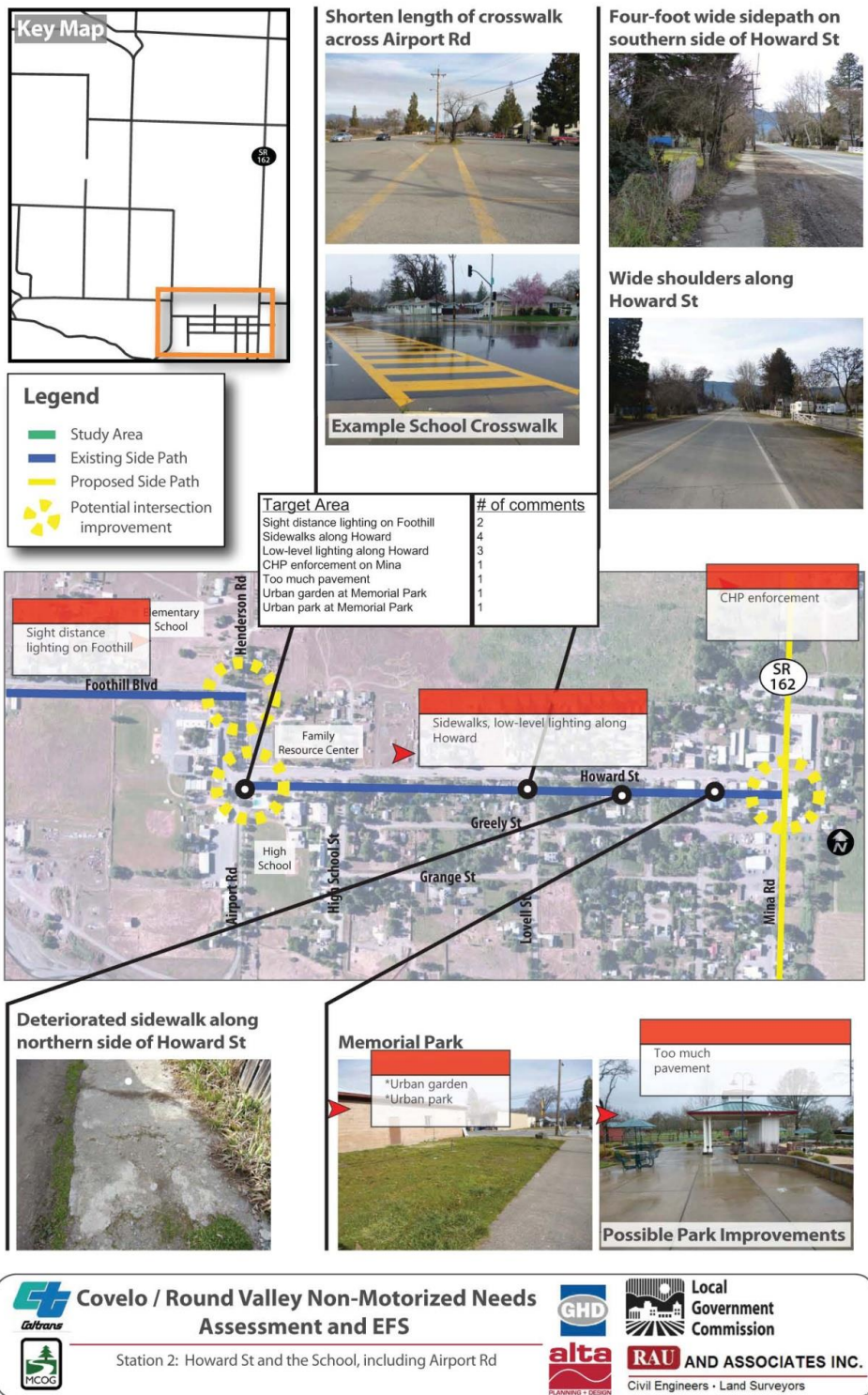
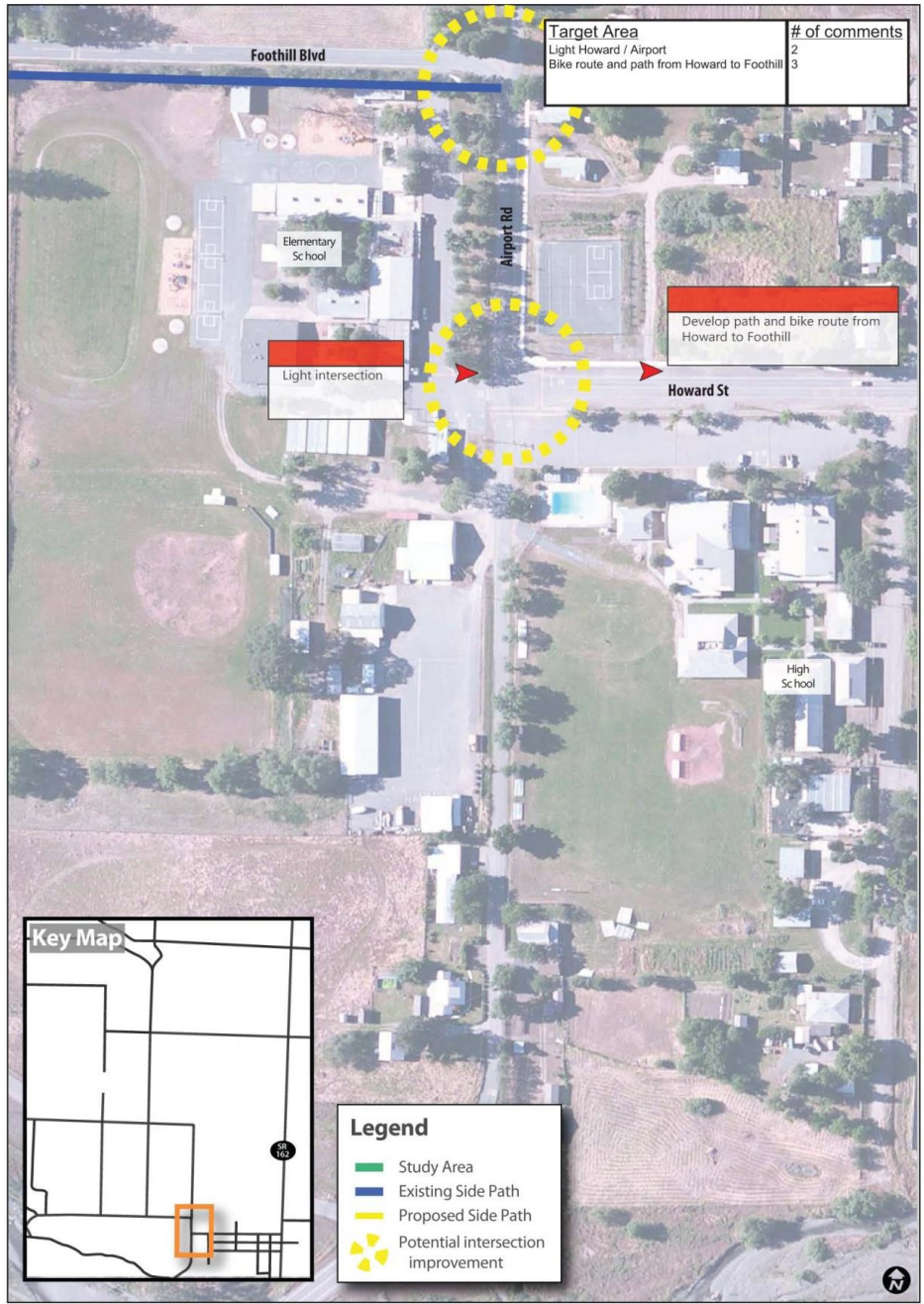








Figure A3 Howard Street and the School, including Airport Road




**Covelo / Round Valley Non-Motorized Needs Assessment and EFS**


 Local Government Commission


 Station 2: Intersection of Airport Rd and Howard Rd
 

**RAU AND ASSOCIATES INC.**  
 Civil Engineers - Land Surveyors

**Figure A4 Intersection of Airport Road and Howard Road**



## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

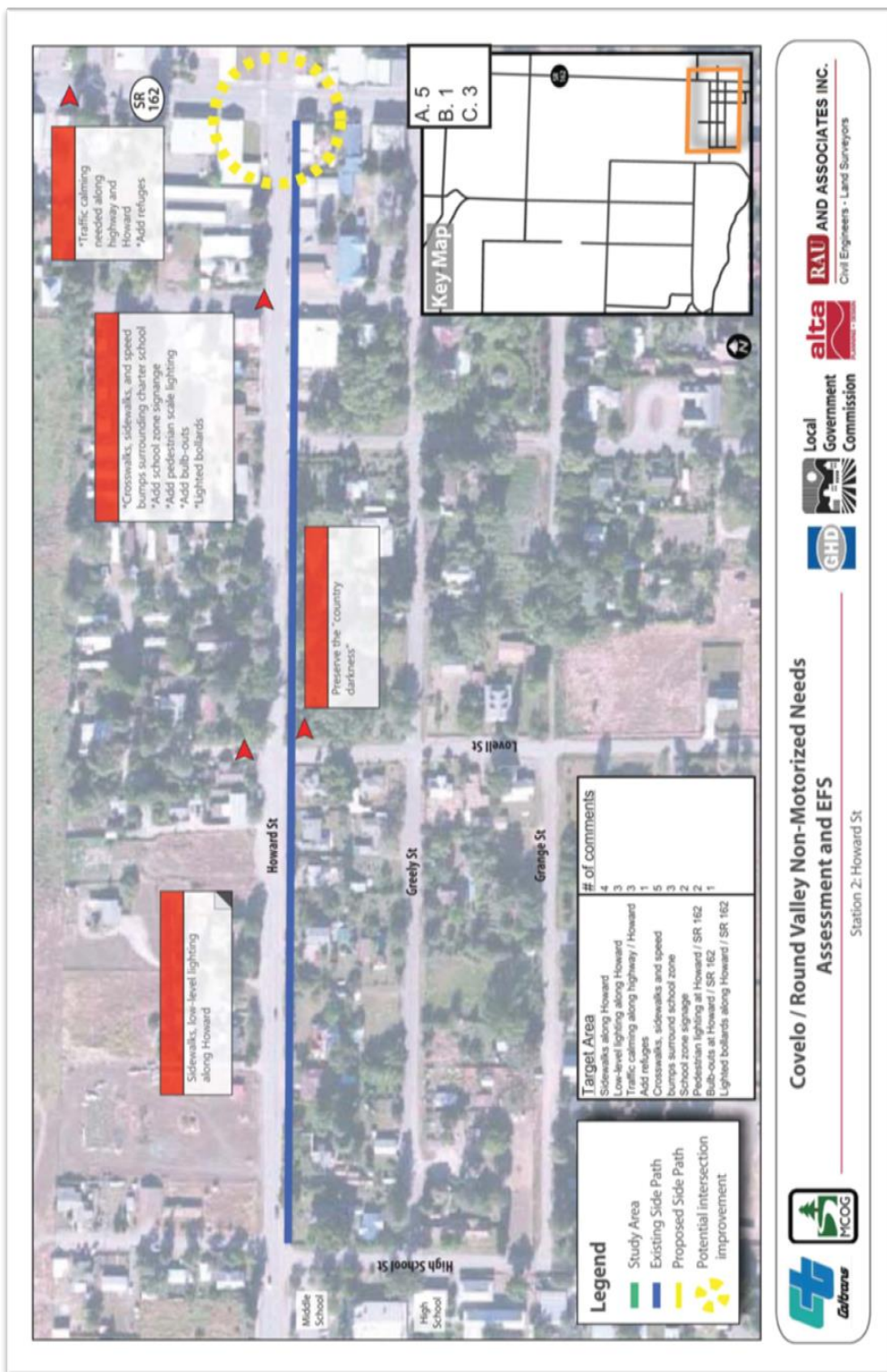
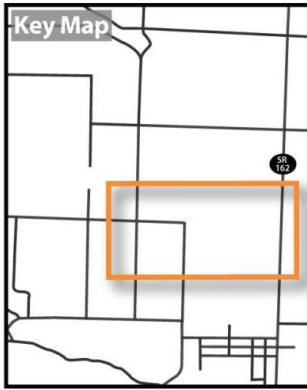


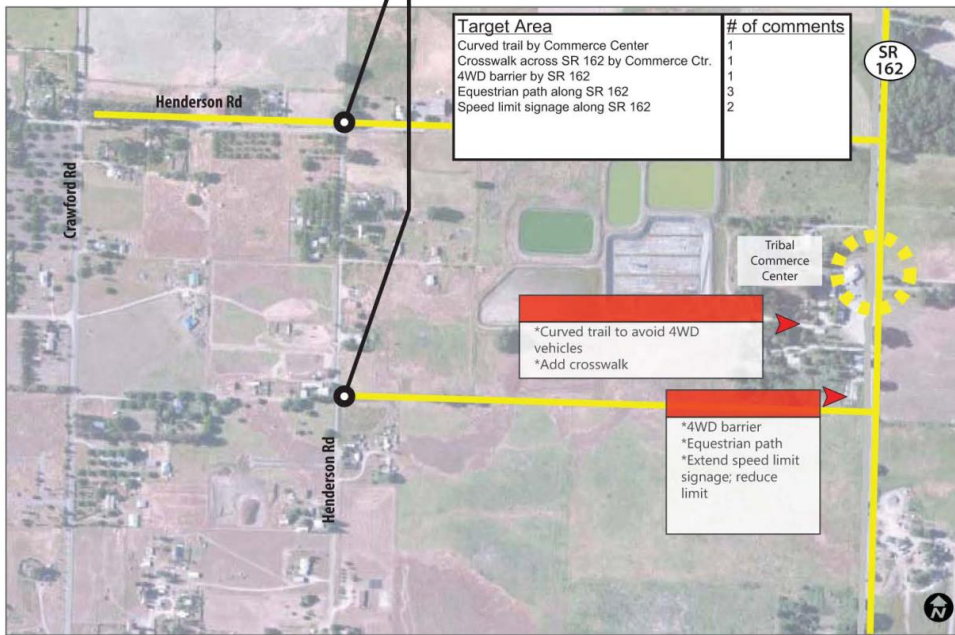
Figure A5 Howard Street



**Legend**

- Study Area
- Existing Side Path
- Proposed Side Path
- Potential intersection improvement

Two potential sites to improve east/west connection



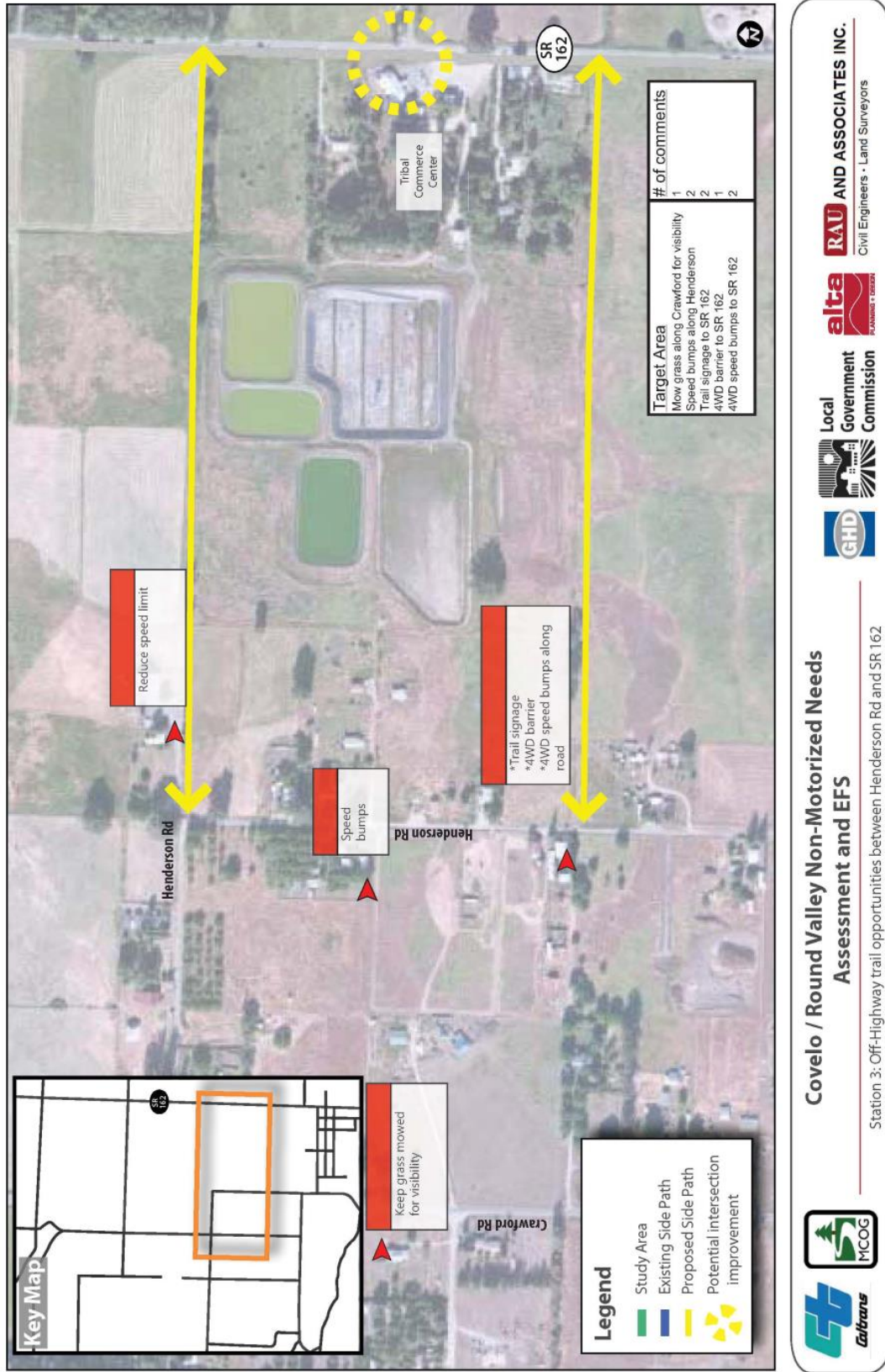
**Covelo / Round Valley Non-Motorized Needs Assessment and EFS**

Station 3: Off-Highway Trails between Henderson Rd and SR 162

Local Government Commission

RAU AND ASSOCIATES INC.  
Civil Engineers - Land Surveyors

**Figure A 6 Off-Highway Trails Between Henderson Road and SR 162**

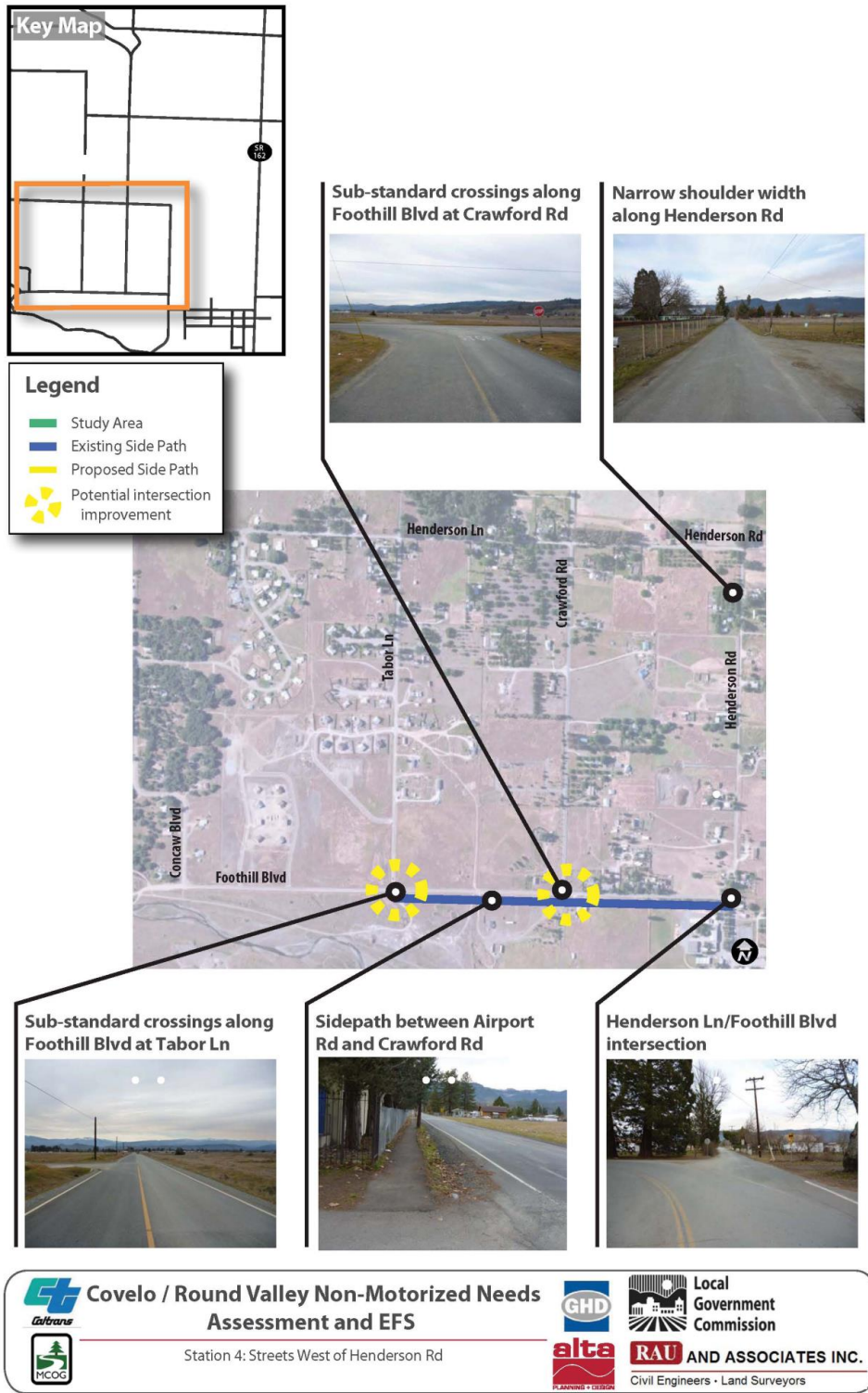


**Covelo / Round Valley Non-Motorized Needs Assessment and EFS**

Station 3: Off-Highway trail opportunities between Henderson Rd and SR 162

Civil Engineers - Land Surveyors

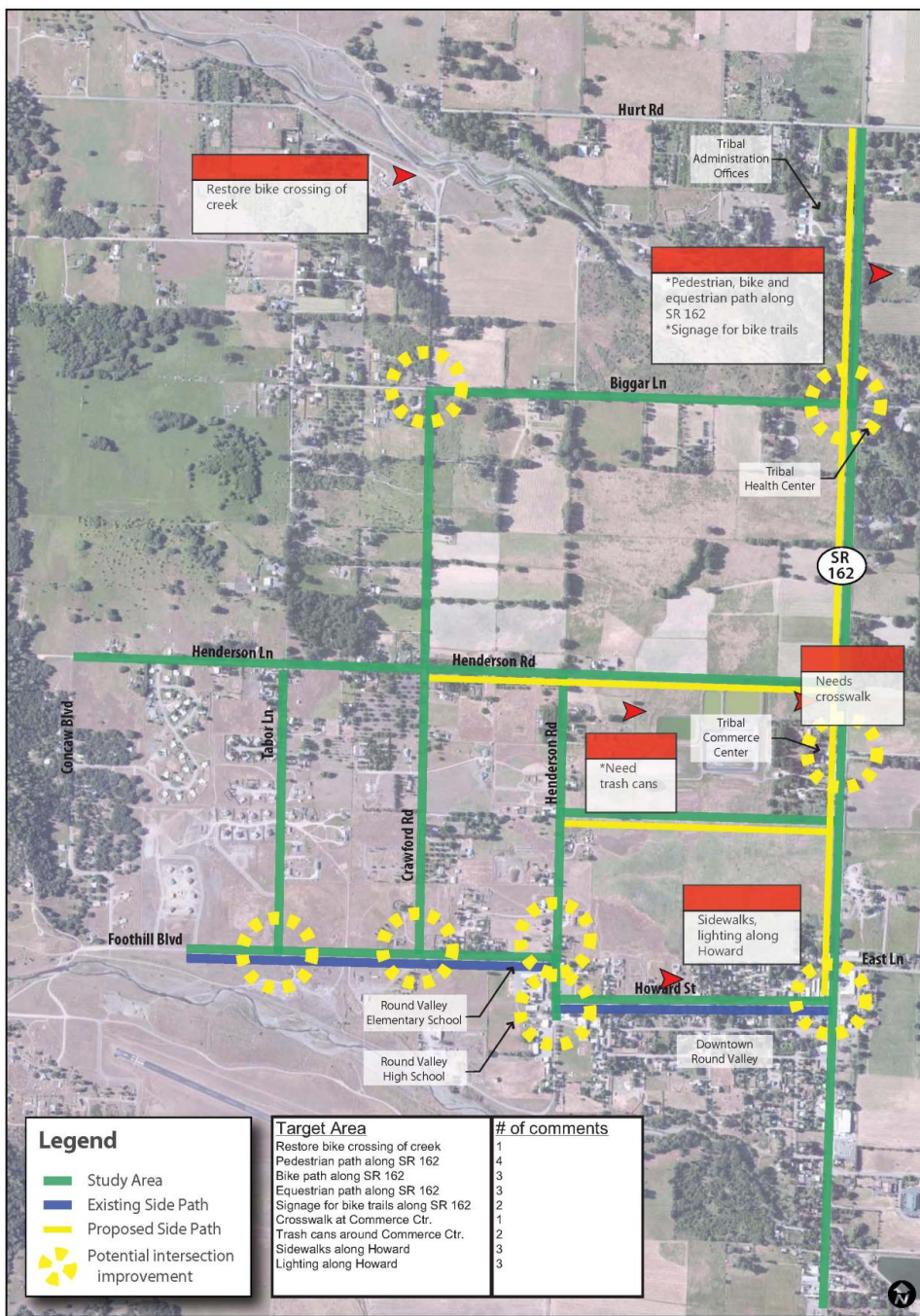
**Figure A7 Off-Highway trail opportunities between Henderson Road and SR 162**








**Figure A8 Streets West of Henderson Road**

## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

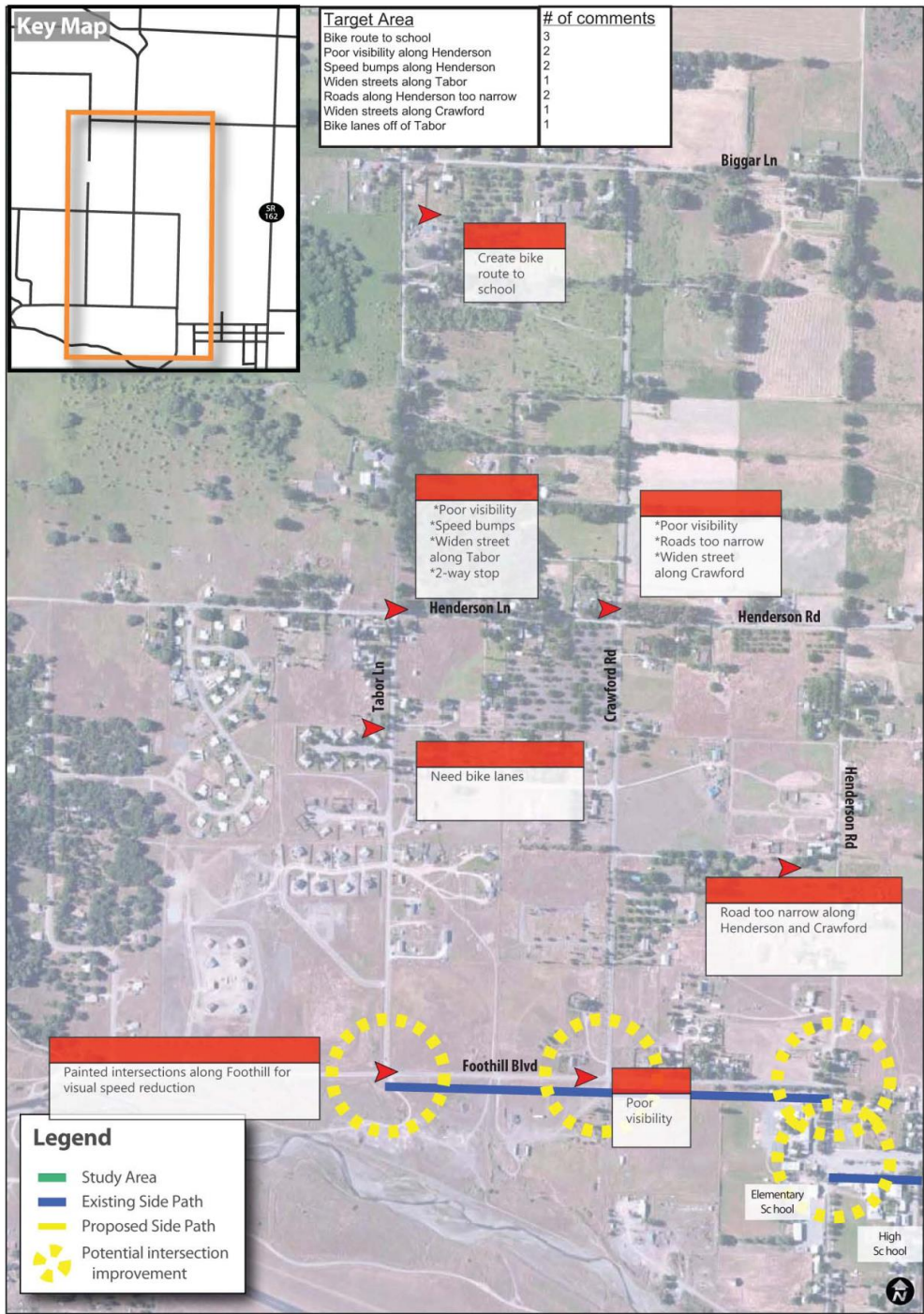



**Covelo / Round Valley Non-Motorized Needs Assessment and EFS**




 Station 5: The "Big Picture" and Implementation & Management
 


Civil Engineers • Land Surveyors

Figure A9 The "Big Picture" and Implementation & Management



**Covelto / Round Valley Non-Motorized Needs Assessment and EFS**

Station 4: Streets West of Henderson Rd

**GHD** Local Government Commission

**alta** **RAU AND ASSOCIATES INC.**  
Civil Engineers · Land Surveyors

**Figure A10 Streets West of Henderson Road**

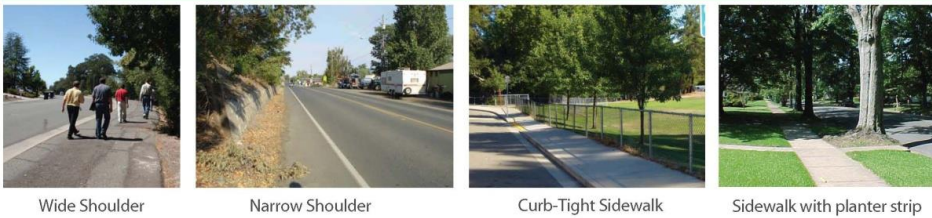
## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

#### Bikeway Types



#### Pedestrian Accomodations



#### Crossing Treatments



#### Traffic Calming



#### Pedestrian Signals



#### Pedestrian Amenities

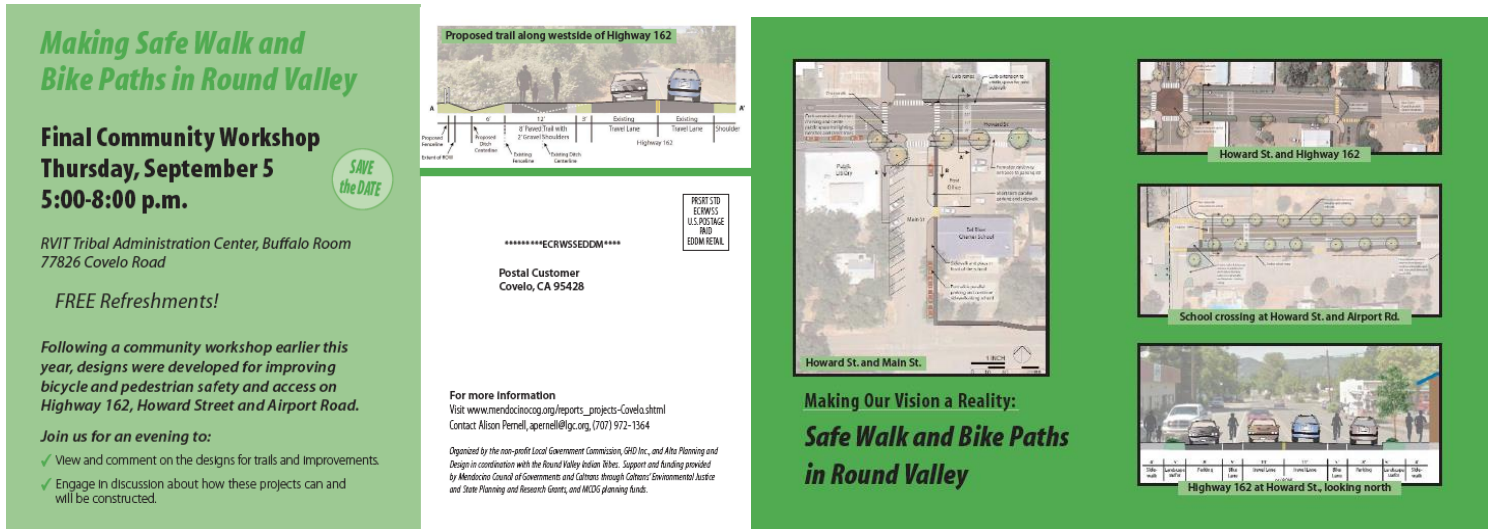


	<b>Covelo / Round Valley Non-Motorized Needs Assessment and EFS</b> Design Toolkit		
		PLANNING • DESIGN	Civil Engineers • Land Surveyors

Figure A11 Design Toolkit

### 3.3 Community Workshop #2

The second and final community workshop was held September 5, 2013 at the Round Valley Indian Tribes' Buffalo Room. Approximately 30 people were in attendance to review revised design concepts and discuss project implementation. Food was provided by the Round Valley Indian Tribes.



A post card mailer showed some of the proposed design concepts and was mailed to every address in Round Valley to promote the second workshop

Outreach for the September 5 workshop included:

- A post card mailer sent to every address and PO Box in Covelo/Round Valley;
- Announcements on KYBU and KZYX Radio stations;
- Emails to all project contacts and participants from the February, 28 workshop;
- Additional grass-roots outreach through the Round Valley Indian Health Center;
- Social media posts;
- Distribution at the Round Valley Library;
- Posting a workshop announcement to Round Valley News online (a Yahoo Group); and
- Posting of the post card to community bulletin boards.

During the final workshop, the consultant team provided a project update since the first community workshop in February. After public input was gathered in February, design concepts were developed and revisions requested by the Technical Advisory Group, Round Valley Tribal Council, and Caltrans. Additionally, field checks revealed that design concepts required modification at Airport Road at Foothill Drive, and SR 162 south of Mill Creek, at the entrance to the Tribal Commerce Center, and along SR 162 in downtown Covelo. In response to final designs and pending construction of a fueling station at the Tribal Commerce Center, the consultant team modified the trail design at this location. The revised design concepts presented at the September 5 community workshop also incorporated other minor suggestions from Tribal Council including driveway re-alignment at the Casino and driveway consolidation at the Tribal Administration Center.



## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study



Community members visited “Design Tables” and provided feedback on the design concepts.

Following an overview of the revised design concepts and cost estimates, workshop participants visited four stations to review and comment on details of the designs. The stations were:

1. Highway 162 and Trails,
2. Howard Street and the schools,
3. Streets West of Henderson, and
4. The “Big Picture” table (overview, funding, implementation).

Stations included maps of the design concepts and were staffed by MCOG, Mendocino County Department of Public Health and Transportation, Caltrans, and the consultant team. Workshop participants asked questions and provided comments about the effectiveness of and support for the concepts. Overall, there was broad support for the proposed pedestrian and bicycle improvements. However, at Station 3 (Streets West of Henderson), there was concern about pedestrian safety in the proposed crosswalks at Airport Road and Foothill Drive. Several suggestions were made to improve safety at this challenging corner.

The evening wrapped up with a moderated discussion about the who’s, when’s, where’s and how’s of project implementation. Randy Anderson (Alta Planning and Design), Phil Dow (MCOG), and Rex Jackman (Caltrans) shared some of the ways that improvements to pedestrian and bicycle facilities are

typically funded and constructed. Vice-President Joe Dukepoo (Round Valley Indian Tribes) emphasized the strong level of support for these projects by the Tribal Council.

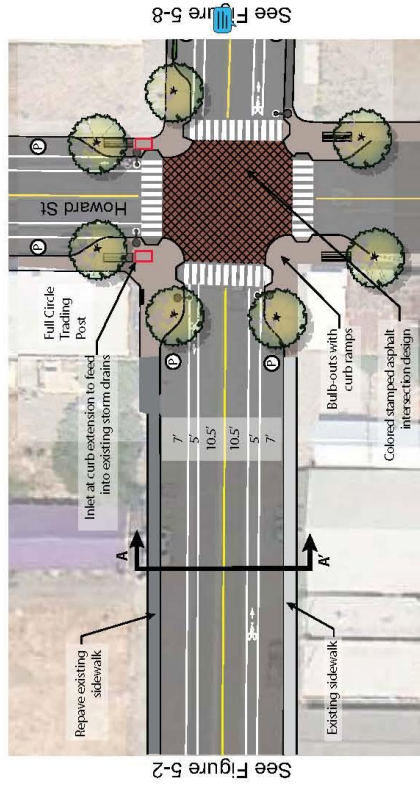
Post-workshop, design concepts underwent final revisions; they appear in this report.

## **Summary of Public Outreach and Engagement**

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

### **3.4 Community Workshop #2 Documentation**

The following maps include community input given during second workshop.



See Figure 5-2

See Figure 5-8

**BENJAMIN WALDO**  
Sticky Note  
Yes to full design

**BENJAMIN WALDO**  
Sticky Note  
This section has new businesses; many people walking

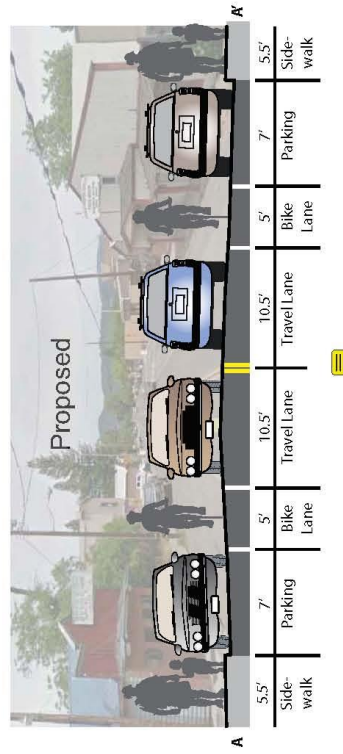
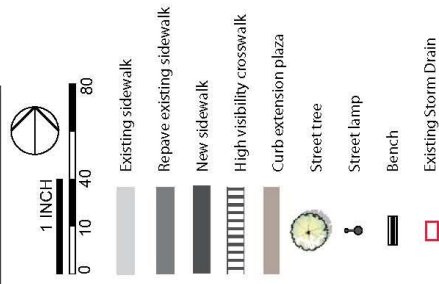
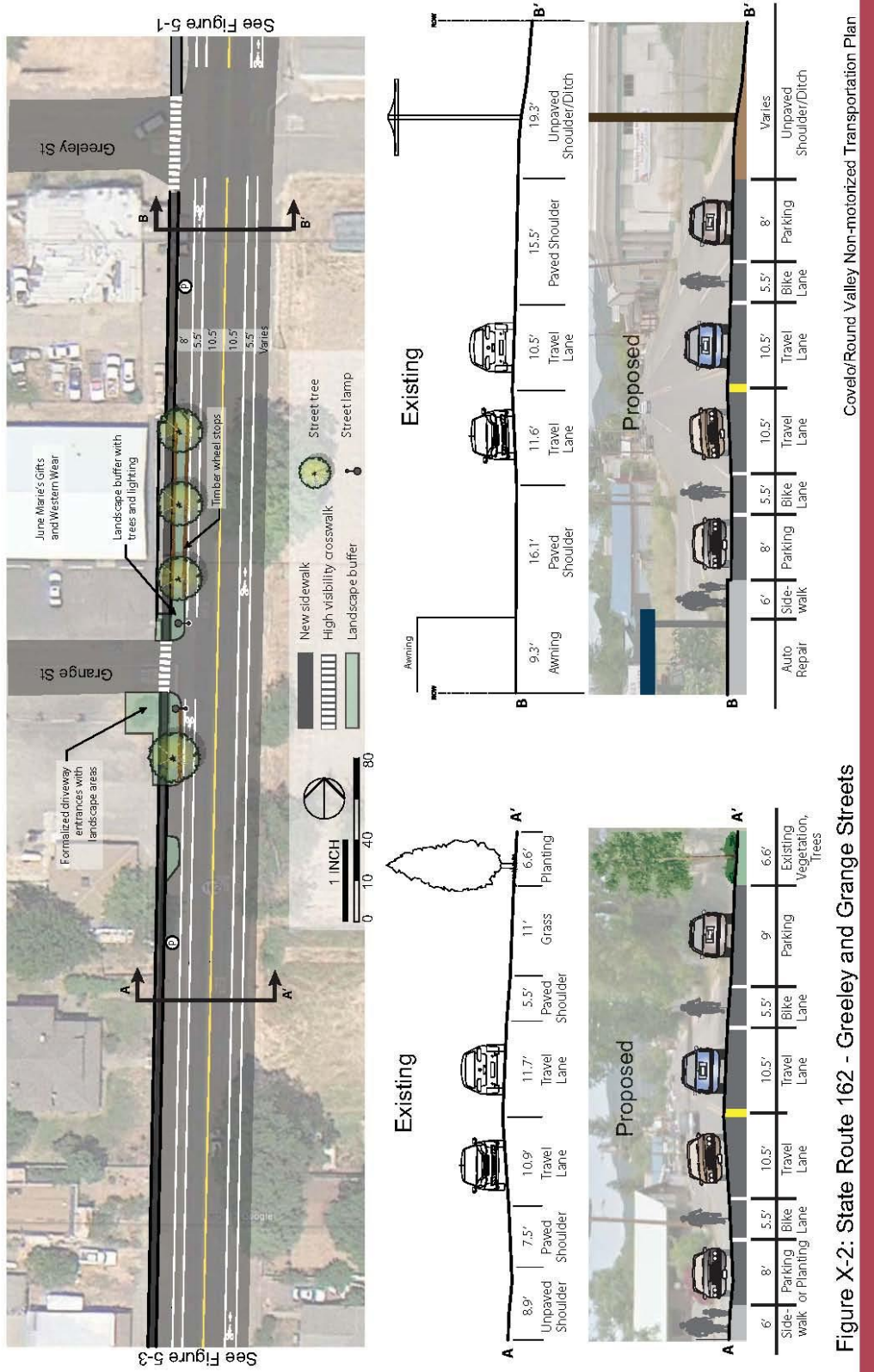


Figure X-1: State Route 162 - Howard Intersection

Summary of Public Outreach and Engagement

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study



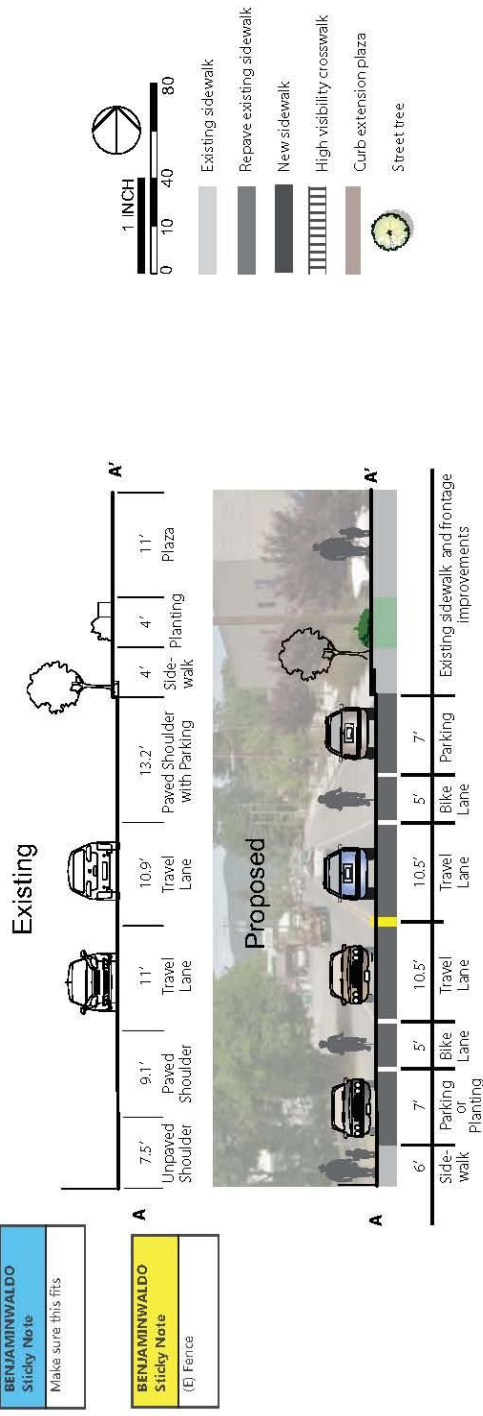
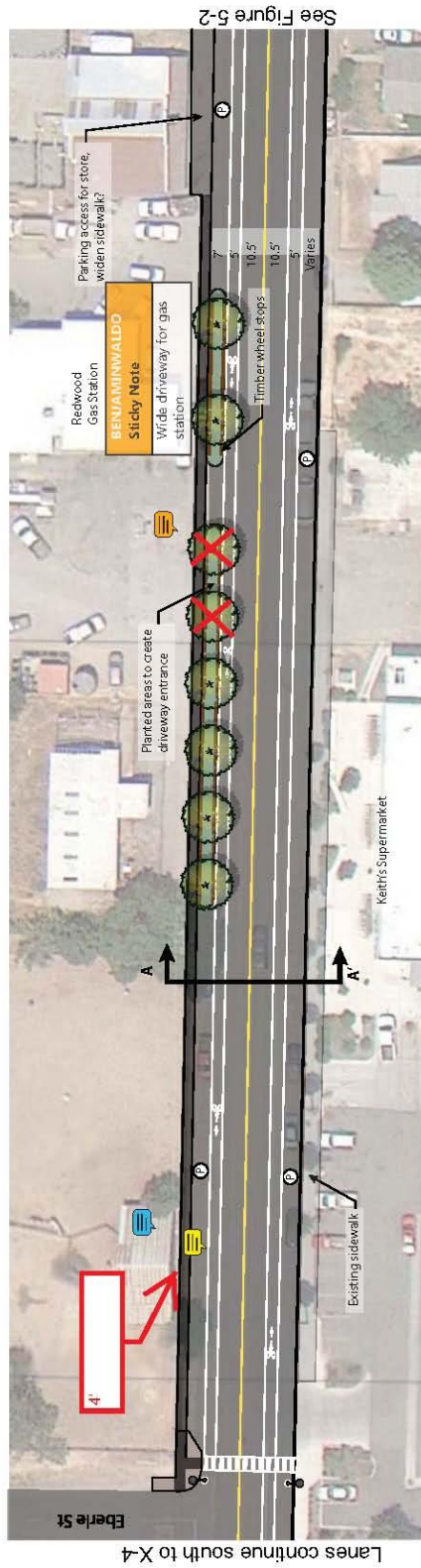


Figure X-3: State Route 162 - Keith's Supermarket

# Summary of Public Outreach and Engagement

## Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

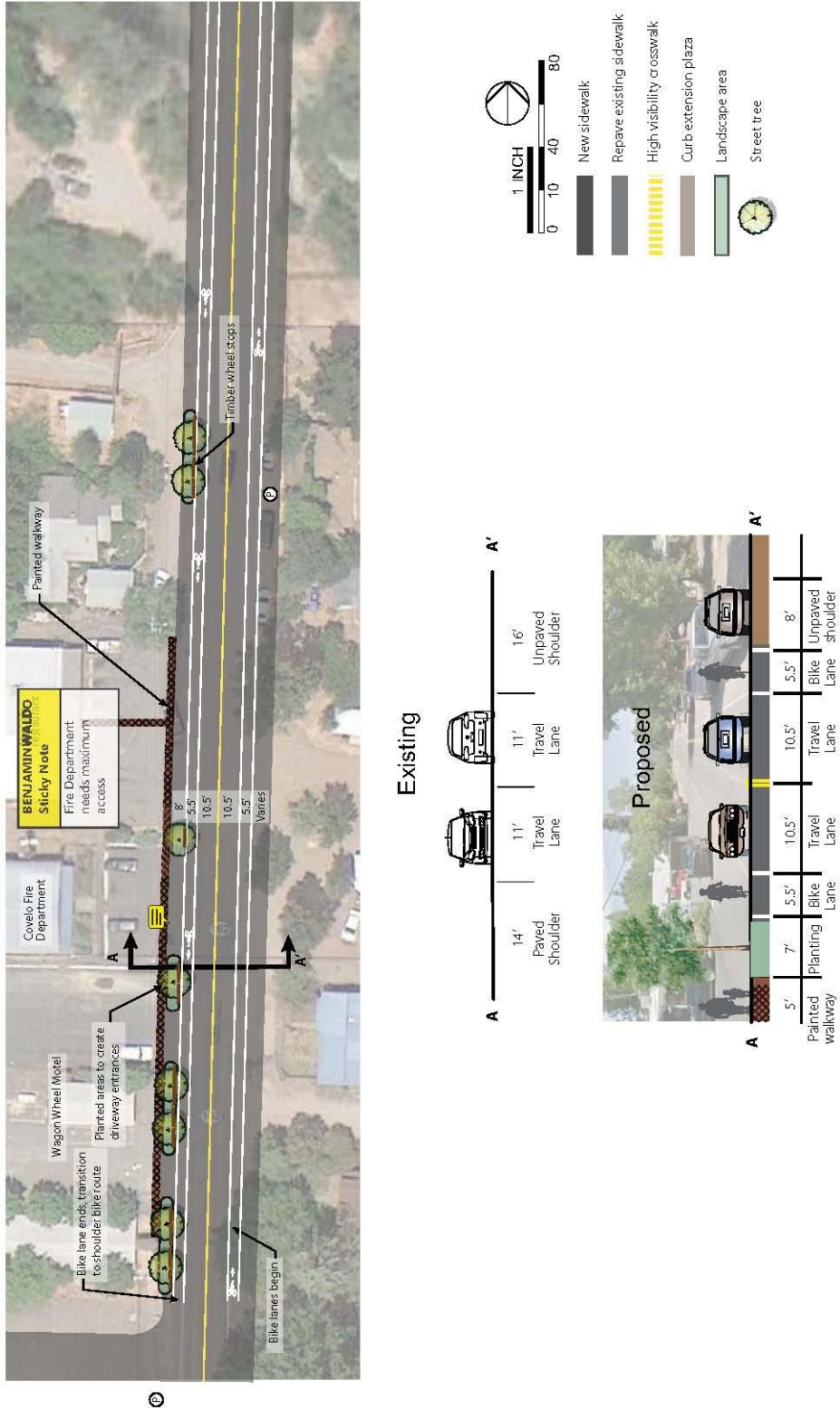


Figure X-4: State Route 162 - South

Covelo/Round Valley Non-motorized Transportation Plan

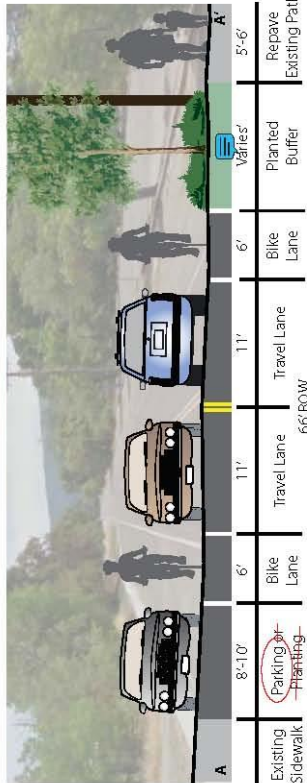
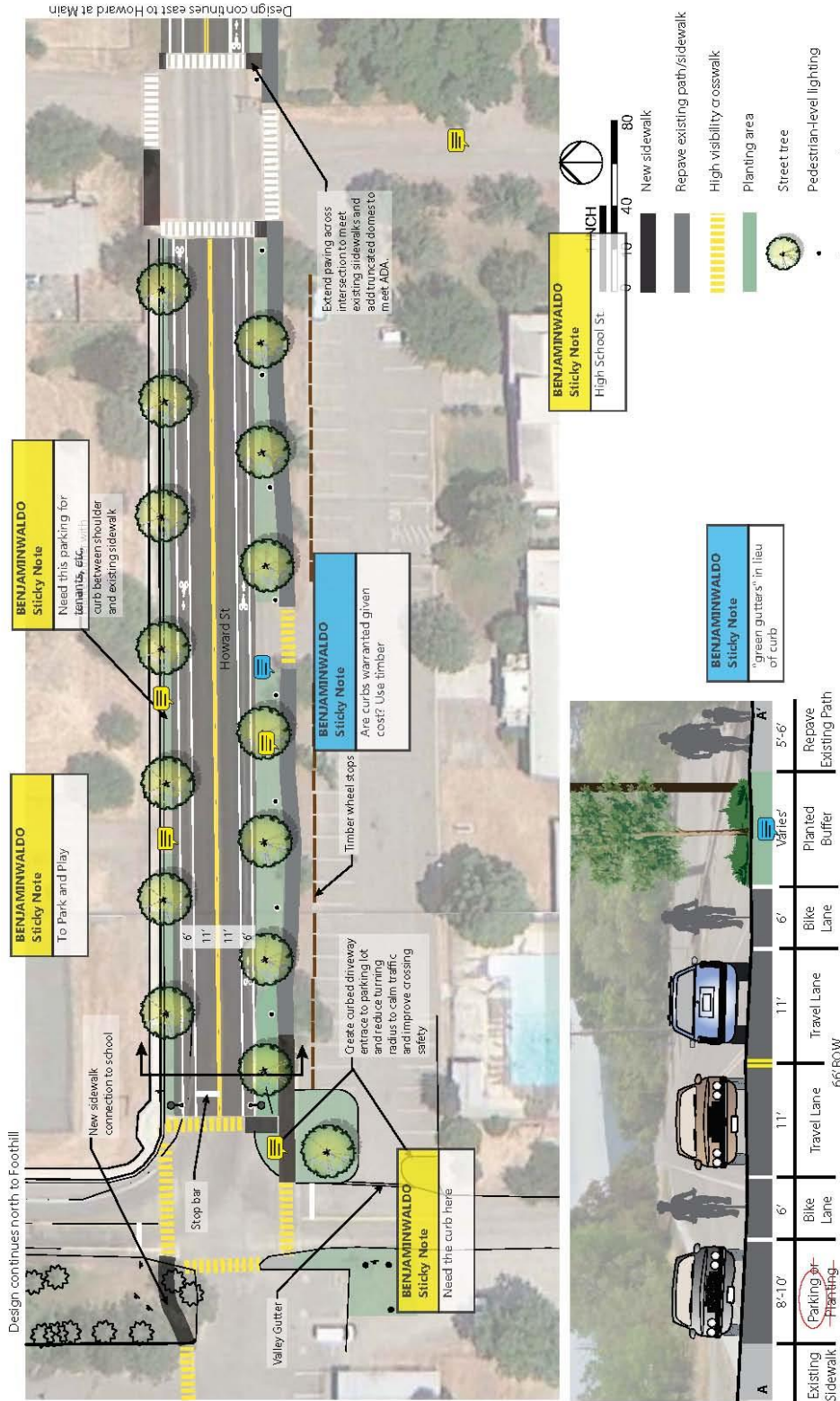


Figure X-5: Howard Street at Airport Road

Covelo/Round Valley Non-motorized Transportation Plan



# Summary of Public Outreach and Engagement

## Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

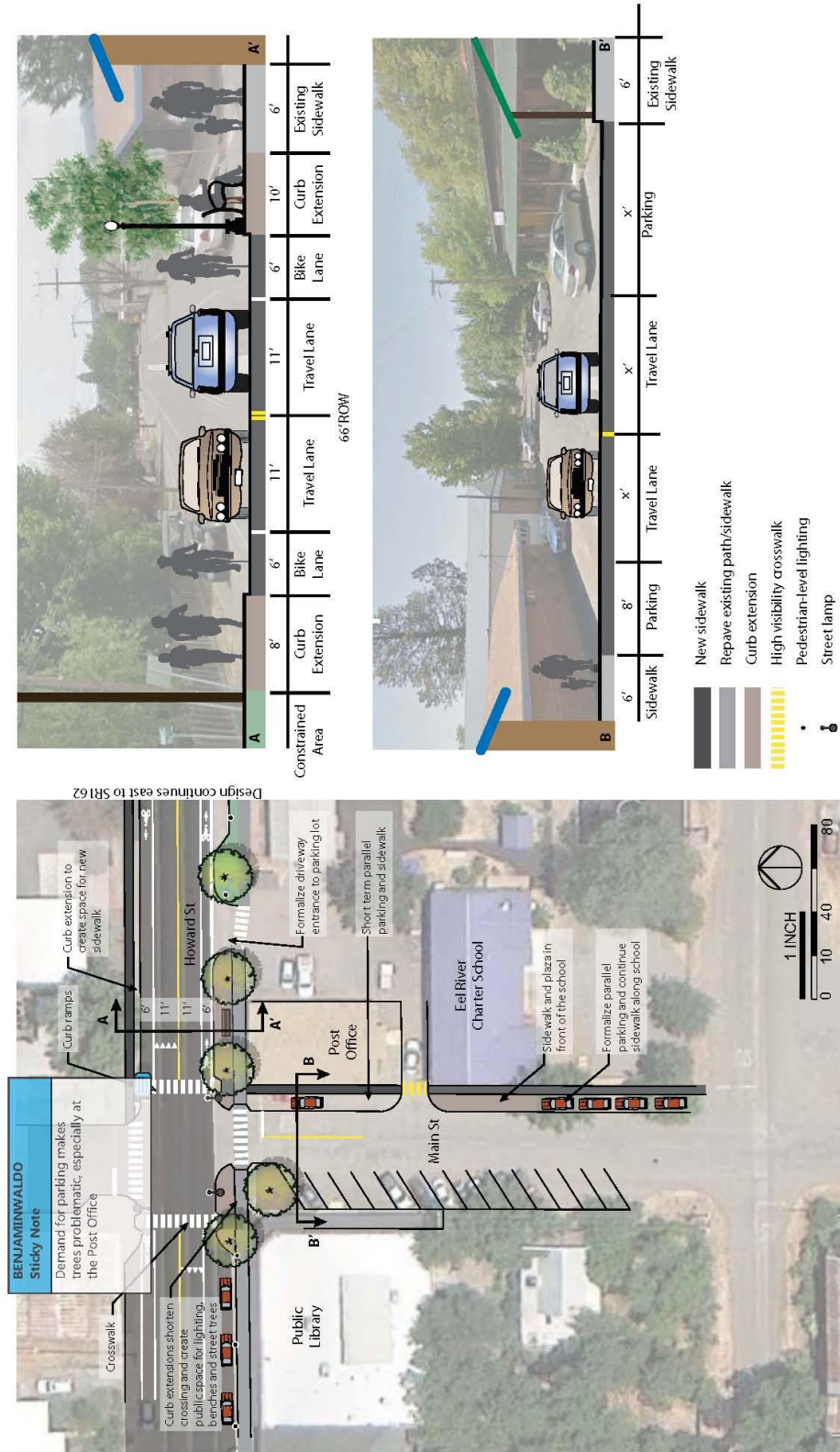


Figure X-6: Howard Street at Main Street

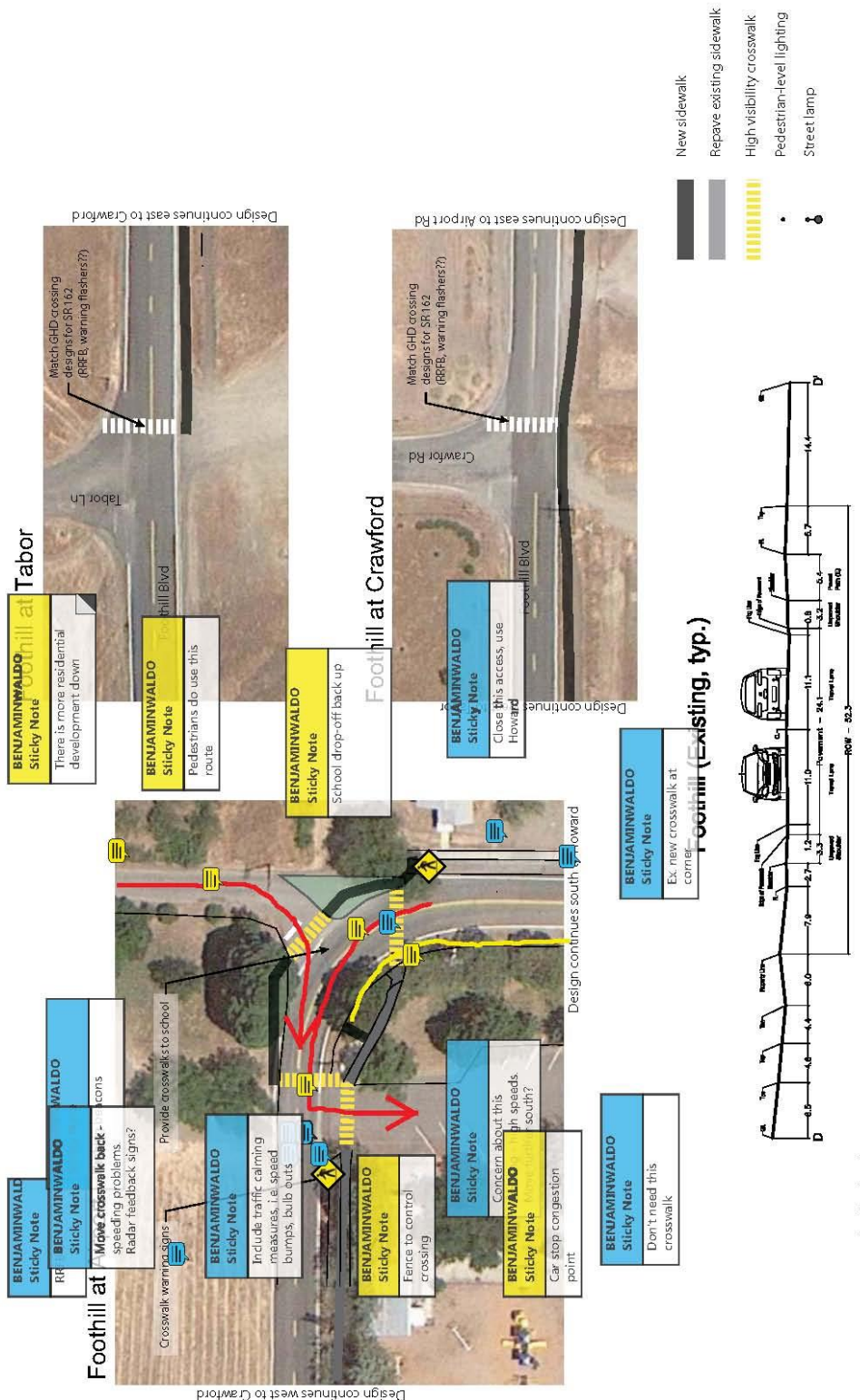


Figure X-7: Foothill Blvd

Covelo/Round Valley Non-motorized Transportation Plan

## Summary of Public Outreach and Engagement

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

#### **ROUND VALLEY INDIAN TRIBES** *A Sovereign Nation of Confederated Tribes*

TRIBAL COUNCIL OFFICE  
POST OFFICE BOX 448  
COVELO, CALIFORNIA 95428  
PHONE: 707-983-6126  
FAX: 707-983-6128



LOCATION: ON STATE HWY 162  
ONE MILE NORTH OF COVELO  
IN ROUND VALLEY  
TRIBAL TERRITORY SINCE TIME BEGAN

**ROUND VALLEY RESERVATION ESTABLISHED 1856**

December 4, 2013

Mr. Tom Origer  
Tom Origer & Associates  
P.O. Box 1531  
Rohnert Park, CA 94927

RE: Covelo/Round Valley Non-Motorized Needs Assessment Project

Dear Mr. Origer,

Thank you for your email of 23 October 2013 referring to the Cultural Resources Surveys for the Round Valley Environmental Justice Project initiating consultation for Robert Holmlund, GHD for the above referenced undertaking.

The Round Valley Indian Tribes understands the National Historic Preservation Act of 1966 and its implementing regulation at 36 CFR Part 800 requires that before any federal agency project or any federally-funded or federally-licensed project is undertaken, the head of the lead federal agency must take into account the effect of that undertaking on any resource that is included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Within the APE, there were numerous historic properties previously identified:

CA-MEN-191,  
CA-MEN-192,  
CA-MEN-193,  
CA-MEN-194,  
CA-MEN-1167,  
CA-MEN-1168,  
CA-MEN-1180, and  
P-28-0002823

Though all of these sites may not be well-developed or incorrectly placed on the location map, it is believed that they all, under California Register of Historical Resources (CR) Criterion 4, have yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation; so they are determined eligible for listing in the CR and NRHP.

Round Valley Non-Motorized Needs Assessment 2013

Therefore, we concur with the following treatment recommendations:

- a) Ground-disturbing activities should be avoided in the site area,
- b) in the case that avoidance is not possible, a treatment plan be should be prepared and implemented, and
- c) the use of a local, tribal monitor with knowledge of the area.

There is also a high possibility that buried archaeological deposits could be present in the area and that accidental discoveries could occur. Following CEQA guidelines, if archaeological remains are uncovered, work at the site of discovery should be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5).

Thank you for considering historic properties in your planning process and I look forward to continuing consultation on this project. If you have any questions, please contact me at 707-983-6351.

Sincerely,



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Round Valley Non-Motorized Needs Assessment 2013

# Appendix B. Trail Implementation Challenges and Solutions

Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

January 8, 2014



## Table of Contents

Trail Implementation Challenges and Solutions.....	1
1.1 Public Safety and Functionality.....	1
1.2 Private Property and Liability .....	2
1.3 Liability Laws and Statutes .....	4
1.4 Operation and Maintenance.....	7
1.5 Property Access .....	9
1.6 Agriculture and Other Land Use Conflicts.....	11
1.7 Environmental Resources.....	14

# 1. Trail Implementation Challenges and Solutions

This document discusses general challenges and solutions for establishing a trail system, focusing on proposed trails outside of the public road right of way, while encompassing considerations for any part of the Round Valley trail system. It provides considerations for the location and design of the proposed trails, and in plans for their operation, management and maintenance. This chapter also discusses the challenges and options for acquiring the right of access for a trail on private property, or on other public property that is not designated for trail/bike/pedestrian use. Finally, this chapter discusses challenges and solutions related to agricultural and environmental resources.

*The best practice to minimize potential legal actions is to manage the trail in a coordinated program that identifies safety issues and addresses them efficiently.*

A number of pertinent challenges were raised at the TAG and community meetings, and others discussed below are typically raised in conjunction with proposed trails. Specific concerns include:

**Adequate Public Safety.** The trail facilities must be designed and maintained to meet standards and best practices for protecting the users, avoiding conflict with motor vehicle traffic, and avoiding impact on adjacent property.

**Security and Emergency Response.** Requirements and arrangements for medical, police, and fire services should also be resolved.

**Liability.** Public entities and private non-profit landowners may incur liability if trail user injuries occur on trails they own or manage. There are laws and statutes in place that provide broad liability protection for trails, and arrangements that can further protect against liability.

**Private Property Security and Loss of Privacy.** It is anticipated that parts of the trail will be located near to private properties, or on them, with permission. Neighbor concerns associated with siting a trail near their properties typically include privacy, security, and liability.

**Adequate Operation and Maintenance.** Well-maintained trails minimize user safety issues and impacts on adjacent properties. The trail will require maintenance to address deterioration due to weather or general use. The trail will require patrol and maintenance to prevent and address potential problems such as damage to signs, litter, graffiti, travel at unsafe speeds, mismanaged pets, or unauthorized motor vehicles on the trail. Maintenance and management activities will require staff, equipment, and the associated funding.

## 1.1 Public Safety and Functionality

The objective of the trail improvements is to create safer conditions for bicyclists and pedestrians, and other users in some cases. To fully achieve this, the trail facilities must be located and designed to meet standards and best practices for bicycle and pedestrian facilities, and accommodating other users where applicable, such as equestrians, ATVs, and maintenance vehicles. Meeting these standards and guidelines not only helps to assure the safety of trail users; it improve the functionality and enjoyment of the trail, and is a legal requirement in the case of ADA compliance, and for facilities in the state right of way and/or receiving state or federal funding. Resolving trail location and design is particularly important at street crossings, driveway crossings, and at “pinch points” where

the trail runs parallel to the roadway in close proximity. The chapter on Design Standards and Guidelines details the standards, guidelines and best practices, which will be reflected in the specific trail project designs developed for this Study.

## 1.2 Private Property and Liability

### 1.2.1 Challenges

Potential impacts to private property and the potential for private and public landowner liability are often raised as issues in response to proposed trails; particularly potential off-right-of-way trails. Specific challenges that are often mentioned include:

- Trespassing. Trail users may trespass on adjoining private property, and if they sustained injuries, create liability for the property owner.
- Liability. Trail users might be injured by activities undertaken by the landowner (e.g., accidental exposure to agricultural spraying or pesticide use), or other activities permitted on private property near the trail.
- Loss of Privacy. Trail implementation may result in loss of privacy for adjacent landowners.
- Property Security. Introduction of a trail may result in theft of private property and/or equipment or contamination of crops.
- Vandalism and Litter. Vandalism concerns include graffiti, littering, and damage or theft of nearby property.

### 1.2.2 Potential Solutions

All public facilities require a careful effort to plan and manage trail use and minimize the potential for problems and exposure to liability. The best practice to accomplish this is to manage the trail in a coordinated program of planning, design, operation and maintenance that anticipates impact or liability issues, addresses them in advance, and remedies them efficiently if they should arise. The section on Operation and Maintenance provides specific details on planning and response measures. The section on Laws and Statutes describes the substantial legal and liability protections afforded to private landowners and public entities by existing laws, statutes, policies and insurance options.

#### Trail Location and Design

Careful siting of the trail with buffer zones, supplemented by existing or planned vegetation, combined with appropriate fencing and signage, and a program for public information, maintenance and management can help protect the privacy and security of the adjacent land owners. Appropriate trail design can avoid impacts from trespassing. While crime or vandalism have not proven to be a common problem along most multi-use paths, fencing is still considered a prudent feature. The type, height and maintenance responsibility of the fencing will be dependent on the specific setting, needs and preference. The installation of fences along the trail is also an integral part of the defense against liability, as it prevents trail users from making attractive nuisance claims. An attractive nuisance claim hinges on the tacit “invitation” of children onto a property by a “nuisance”, such as livestock, that is attractive to children.<sup>1</sup> The construction of a fence, which bars children from entry and warns against nuisance, is a

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<sup>1</sup> McEowen, Roger A. “Recreational Use of Private Lands: Associated Legal Issues and Concerns” (The National Agricultural Law Center, 2003).



## Implementation Challenges and Solutions

### Covelo/Round Valley Non-Motorized Needs Assessment & Engineered Feasibility Study

defensible precaution against attractive nuisance claims. The installation of a fence clearly demarcates the boundary between private or other off-limits land and the trail facility.

#### Public Information and Communication

Good public information and communication, especially with trail neighbors, can also help avoid and address trespassing and other security and liability issues. Printed, posted and on-line maps and information help to “get the word out” regarding rules, off-limits areas, and the fact that keeping the trail open may depend on public cooperation. Signs posted along the trail by the management agency asking trail users to respect private property and ‘no trespassing’ signs posted by the trail managers and property owners can help deter trespassing. Additionally, as discussed under Operation and Maintenance, regular patrols, whether by security or volunteer groups can deter crime and trespassing. Finally, staff or docent walks and talks can educate trail users about agriculture and related challenges and encourage cooperation from trail users.

#### The Record on Trail Issues

Criminal activity is not likely to occur along a path that is well planned, designed, operated, maintained and used. While concerns about liability are understandable, studies show that neither public nor private landowners have experienced significant liability losses from trail development. The Rails-to-Trails Conservancy surveyed management agencies overseeing 372 trails throughout the United States for their 1998 report titled “Rail-Trails and Safe Communities.” This effort documents the level of crime on trails and identifies mitigation measures used by trail designers and managers to minimize the potential for crime. More specifically, the objectives of the study were to: 1) document the levels of crime on urban, suburban and rural rail-trails with current statistics and comprehensive data, 2) examine trail management strategies that can mitigate crime and improve trail safety, and 3) put crime on trails in perspective. The results from the study indicate that rail-trails (including trails created from abandoned rail lines and trails along active rail lines) are safe places, and that liability issues were virtually non-existent. Correspondence from law enforcement agencies consistently reported that rail-trails do not encourage crime. To the contrary, many agencies found that heavy trail usage is a crime deterrent in areas that were isolated prior to implementation of the trail. The study also found that trail managers often utilize design and maintenance strategies to reduce the potential for crime<sup>2</sup>. Several other studies of trail impacts on neighborhood quality and crime conclude that trails have a negligible effect on crime (the most common infringements include illegal motorized use of the trail, litter and unleashed pets) and that neighbors to the trail are either satisfied or neutral on this issue once the trail is in operation<sup>3</sup>.

#### Liability Protections

As sovereign entities, local governments and Tribes are protected by additional limitations or liability for injuries occurring on government-owned property. For private or other public landowners, liability protection beyond that

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<sup>2</sup> Rails-to-Trails Conservancy. (1998). Rail-Trails and Safe Communities: The Experience of 372 Trails.

<sup>3</sup> American Trails. (2000). Trail Effects on Neighborhoods: Home Value, Safety, Quality of Life. Eling, Tim. (2006). Crime, Property Values, Trail Opposition & Liability Issues. Murphy, Michelle Miller. (1992). The Impact of the Brush Creek Trail on Property Values and Crime; Santa Rosa, CA.

provided by the statutes and insurance described below can be afforded by transference of trail ownership to a trail owning/managing agency. Private landowners who grant/sell a public easement to a public entity for a trail or whose property is located adjacent to a public trail are not at risk as long as they abstain from “willful and wanton misconduct” against trespassers, such as recklessly or intentionally creating a hazard. As an alternative to a trail easement, a private landowner could potentially transfer fee ownership of the property containing the public trail to a public entity (subject to property subdivision regulations). This and other mechanisms for granting access and transferring liability are discussed in the section on Property Access.

## **1.3 Liability Laws and Statutes**

This section addresses existing laws and statutes and insurance strategies that address liability and protect trail managers and adjoining and underlying landowners.

### **1.3.1 Protections Provided to Private Landowners**

According to ordinary principles of negligence law, landowners are, in general, liable for injuries sustained by others on their property (Cal. Civ. Code § 1714 (a)). However, the public statutes listed below provide broad protection to private landowners who allow the public to use their land for recreational purposes:

- California Recreational Use Statute (California RUS) (Cal.Civ.Code § 846)
- California Recreational Trails Act (Cal.Pub.Res.Code § 5070 et seq.)

Table BI-1 provides a summary of the legal protections relevant to recreational trails available public entities, private landowners and adjacent landowners.

**Table B1-1: Legal Protections Associated with Trails**

Type of Protection	Entity Protected		
	Public Entity	Private Landowner of property containing a trail segment	Adjacent Landowner to property containing a trail segment
Tort Claims Act	Yes	No	No
California Recreational Use Statute	Some <sup>1</sup>	Yes	No
California Recreational Trails Act	No	Yes	Yes
Insurance	Yes	Yes	Yes

<sup>1</sup> Cal. Civ. Code § 846.1 allows a public entity to present a claim for reasonable attorney’s fees in certain circumstances.

**California Recreational Use Statute**

The California Recreational Use Statute (RUS) protects private landowners who allow the public to use their land for recreational purposes (provided they do not charge a fee). A person injured on land made available to the public for recreational use must prove that the landowner deliberately intended to harm him or her. The California RUS is intended to limit landowners’ liability to encourage them to make their land available for public recreation.

As specified in the California RUS, a recreational purpose includes such activities as fishing, hunting, camping, water sports, hiking, spelunking, sport parachuting, riding, including animal riding, snowmobiling, and all other types of vehicular riding, rock collecting, sightseeing, picnicking, nature study, nature contacting, recreational gardening, gleanings, hang gliding, winter sports and viewing or enjoying historical, archaeological, scenic, natural or scientific sites. For statutory protection to apply, the injured party must have entered the land for recreational purposes. If the party who was injured entered the land for purposes other than recreational, the statute’s protection will not apply.

There are three circumstances for which the California RUS does not apply. Statutory immunity will not apply if the landowner commits a willful or malicious failure to warn or guard against dangerous condition, charges a fee to use their property or extends an express invitation to the injured party to use their property. As long as landowners do not engage in any of these three circumstances, they may be confident they will not be held responsible for an injury sustained by others on their property who entered for a recreational purpose.

In addition to placing limits on liability, the California RUS allows landowners or others with an interest in real property to present a claim for reasonable attorney’s fees (within limits) in certain circumstances. Landowners who have given permission to the public to enter their land pursuant to an agreement with a public or nonprofit agency for purposes of recreational trail use may present a claim for reasonable attorney’s fees when a civil action is

brought against them by a person who alleges to have sustained an injury or property damage while on their land (Cal. Civ. Code § 846.1).

### **California Recreational Trails Act**

The 1974 California Recreational Trails Act aimed to “encourage hiking, horseback riding, and bicycling as important contributions to the health and welfare of the state’s population” (Cal. Pub. Res. Code § 5070.5). The State has recognized 26 different trail corridors as part of the Recreational Trail Act.

The Recreational Trails Act provides liability protection for landowners adjacent to trails designated as part of the California Recreation Trail system as follows:

“No adjoining property owner is liable for any actions of any type resulting from, or caused by, trail users trespassing on adjoining property, and no adjoining property owner is liable for any actions of any type started on, or taking place within, the boundaries of the trail arising out of the activities of other parties” (Cal. Pub. Res. Code §5075.4).

### **1.3.2 Protections Provided to Public Entities**

In California, the following laws and statutes apply to public entities:

- California Tort Claims Act (Cal.Gov’t Code §810-996.6 et seq.)
- California Recreational Use Statute (RUS) (Cal.Civ.Code §846.1)

A public agency could hold an easement over the trail to take responsibility for the trail; thus these protections are relevant to an underlying property owner.

#### **California Tort Claims Act**

California’s Tort Claims Act provides public entities and their employees broad immunity from lawsuits similar to the protections provided by the California RUS. The Tort Claims Act provides that public entities cannot be sued under common law or generally applicable principles of tort law or negligence (e.g., Cal. Civ. Code §1714). In order for a public entity to be held liable for an injury, the injury must have been caused by a dangerous condition of their property (Gov. Code §835). A dangerous condition is defined as “a condition of property that creates substantial (as distinguished from minor, trivial or insignificant) risk of injury when such property or adjacent property is used with due care in a manner in which it is reasonably foreseeable that it will be used” (Gov. Code §830).

The California Tort Claims Act protects public entities, public employees and persons granting a public easement to a public entity from liability for an injury caused by a minor hazard associated with the condition of a trail (paved or unpaved) and some unpaved roads. The trail or unpaved road must be used for access to recreational or scenic areas, fishing, hunting, camping, hiking, riding (including animal and all types of vehicular riding) and water sports. In order for this statute to apply, the public entity must “reasonably attempt to provide adequate warnings” of the existence of any condition along a paved trail that constitutes a hazard to health or safety (Gov. Code §831.4). Warnings are not required along unpaved trails or roads.

The California Tort Claims Act includes specific protections for hazardous recreational activities (Gov. Code §831.7). The Act states that public entities and public employees are generally not liable to any person who

*While landowners have a duty to exercise reasonable care on their premises to avoid unreasonable risk or harm to others on adjacent properties, state-enacted Recreational Use Statutes potentially offset some or all of a local jurisdiction’s or landowner’s increased liability associated with a trail.*

participates in a hazardous recreational activity conducted on their property. As defined by the Act, hazardous recreational activities include animal riding, boating, biking on unpaved surfaces, windsurfing and water contact activities under certain conditions. In order for the statute to limit liability, public entities or their employees must guard or warn of known dangerous conditions and properly construct and maintain facilities. Liability is not limited if the public entity is paid a specific fee (that is, fees other than general park admission fees, vehicle entry or parking fees or group use permit fees) for granting permission to engage in a hazardous recreation activity on their land.

#### **California Recreational Use Statute**

The California RUS provides limited liability protection for public entities. Under California RUS, a public entity can present a claim for reasonable attorney's fees in certain circumstances. In order to receive reimbursement for attorney's fees incurred in a civil action, one of the following must occur: the court must dismiss the civil action, the plaintiff must dismiss the civil action without any payment from the public entity or the public entity must prevail in the civil action (Cal. Civ. Code §846.1). The California Tort Claims Act provides additional liability protections for public entities managing recreational trails.

#### **1.3.3 Insurance**

Though existing laws and statutes may protect against a successful lawsuit, these safeguards do not prohibit a liability suit from being filed. For this reason, private landowners and public entities should maintain some level of general liability insurance that can be used for defending against such suits.

The person or entity responsible for maintaining the trail is most vulnerable to a lawsuit should an injury occur. Most trails are owned and operated by a public entity. In such cases, the responsible entity most often is self-insured or covered by an umbrella insurance policy that protects agency activities and facilities. Other trails are owned by non-governmental organizations. In this case, the organization should purchase a comprehensive liability insurance policy. In addition to liability insurance, non-governmental organization may wish to carry workman's compensation insurance if they have any employees and volunteer workers, and insurance to protect any equipment the group may own from vandalism, theft, or fire.

### **1.4 Operation and Maintenance**

Successful and sustainable trail operation, maintenance, and promoting responsible usage, can be achieved by a number of techniques available to trail managers to ensure safety, functionality, protect private property and guard against trespass, vandalism and lawsuits.

#### **1.4.1 Challenges**

Funding and human resources for initial and ongoing operation, management, and maintenance of a trail, and any other public facility tends to be an even greater challenge than finding the means for construction. It is anticipated that Caltrans or Mendocino County will be responsible for operation and maintenance of bike, pedestrian or trail improvements within its respective right of way, but these agencies do not necessarily have the funds, staff, and organizational plans and arrangements to accomplish this. Additionally, who will be responsible for maintenance

and operation of trail systems on private or Tribal land needs to be resolved. Clearly the Tribe has jurisdiction over their lands and would be the logical operator; however, they may require assistance. Most trail-owning agencies depend on a combination of staff, volunteers, local law enforcement, partnering entities and/or landowners to identify and address operations and maintenance issues.

## 1.4.2 Solutions

Prevention of unsafe conditions is the best approach to maintaining public safety. A policy and practice for trail maintenance and use management is perhaps the best defense a trail manager has to protect public safety and guard against undue injury-related lawsuits. Implementation of a user education program and responsive maintenance and management will be paramount in creating safe trail conditions. Posting trail rules and the reasoning behind them is an effective way to reinforce safe behavior. Peer pressure to abide by the rules is key to successful trail operation and maintenance.

Possible operation and maintenance strategies to improve public safety and mitigate liability include:

- **Implementation of a Safety Program.** The trail management partners should implement a safety program that includes systematic risk management assessment, cooperative design review for proposed improvements, and coordinated accident and crime reporting and response. In addition to managers, planners, designers and engineers, Tribal police, county sheriff and fire/rescue and field maintenance personnel should be consulted in the design and review process.
- **Implementation of an Emergency Response Protocol.** The management entities should implement an emergency response protocol working with law enforcement, EMS agencies, and fire and rescue departments that includes mapping of trail and open space access points, design of trails and access roads (to accommodate loads up to 6.5 tons), an “address system” such as mile markers to identify locations and, where appropriate, 911 emergency phones in remote areas.
- **Operations and Maintenance (O&M) Plan.** Partners responsible for implementation of any specific trail plan should develop an O&M Plan; a schedule of maintenance and management tasks and responsible parties, along with associated costs. Funds and resources for the O & M Plan should be specifically committed, and ideally funded through an endowment that guarantees they will be available in the long term.
- **Implementation of a User Education Program.** The management partners should implement a user education program reaching out to key user groups, such as communities, groups and clubs, to teach safe trail behavior and conflict prevention.
- **Conducting Routine Trail Inspections.** The management partners should routinely inspect for safety hazards, defective structures, missing safety signs, etc. A key part of this oversight is maintaining contacts with neighboring property owners, residents and businesses, and being responsive to their concerns. A



*A policy and practice for trail maintenance and use management is perhaps the best defense a trail manager has to protect public safety and guard against undue injury-related lawsuits.*

properly trained and coordinated volunteer trail patrol/docent staff is used by many regional and local trail agencies to supplement the work of limited paid staff on inspections and routine contacts.

- **Posting and Enforcing Safe Trail Behavior.** The management partners should post and enforce safe user behavior and pathway speed limits (in congested and high risk areas). Again, trained and coordinated volunteers can be key to success in providing information and enforcement.
- **Regular Trail Patrol and Maintenance.** The trail will require maintenance to address deterioration due to weather or general use. Patrol and maintenance will be required to prevent and address potential problems such as damage to signs, litter, and graffiti; travel at unsafe speeds; mismanaged pets; or unauthorized motor vehicles on the trail. The management partners should trim trees, bushes, tall grasses, etc. to address clearance, fire safety and sight distance issues. Control of litter and maintenance of the trail surface, signs, fences and gates are regularly required. Maintenance and management activities will require staff, equipment, and the associated funding. Each trail segment or project should have a specific operation and maintenance plan that identifies tasks, responsible parties, sources of funding and support. Volunteers can play a big role in trail monitoring and maintenance, provided there is overall on-going oversight and coordination.

## 1.5 Property Access

### 1.5.1 Challenges

A significant challenge to trail planning and implementation is obtaining land or permission to use land to build the trail through private areas, or other public land that is not open for public access. This section discusses mechanisms whereby trail access could be legally acquired or granted. The sponsors of the Study do not support the use of eminent domain; and would work only through willing-seller options to gain property access.

### 1.5.2 Potential Solutions

Lead agencies or organizations seeking to implement a trail on private land or another agency's land have several options to gain access to the portion of the property needed for the trail. These options include trail dedications, fee purchase, easement, license, memoranda of understanding, bargain sale and donation. They offer a range of conditions for control of the land and assumed liability.

*Lead agencies seeking to implement a trail on another property owners land typically have four options in gaining access to the property needed for the trail:*

1. *Fee Purchase*
2. *Easement*
3. *License*
4. *Memorandum of Understanding*

#### **Fee Purchase**

Public agencies may purchase a parcel of land (fee title) for a trail. Fee purchase of the land gives the buyer clear title to the property. It provides the simplest, and sometimes the most feasible approach toward acquiring access to land. Trail and greenway lands are often marginally developable and unsuitable for most development activity. The liability of these lands from a real estate tax perspective creates an opportunity for some developers to reduce their tax burden by selling or deeding the property to an agency for a trail.

Some agencies or nonprofits, particularly land trusts, will purchase a parcel of land to retain conservation and trail easement, and then sell it to provide parties for compatible uses – usually agriculture.

### **Easement**

Easements provide the general public with the right to use a specific parcel of property, usually through a defined corridor. Easements come in variety of forms that all involve the landowner's willingness to allow the use of a portion of their property and/or forego development rights for an agreed upon timeframe. Under most circumstances, landowners relinquish liability and management of that portion of the property and the public agency purchases the right to construct and maintain the trail on the property or a portion of the property. Easements are a more affordable option than fee purchase. They typically “run with the land,” meaning the easement stands regardless of a change in ownership.

As part of a development permitting process, an agency may require developers to dedicate an easement for recreational trails and parks. Dedications may be included as conditions of approval of the development.

### **Bargain Sale**

A property owner may sell property or an easement at a price less than the appraised fair market value of the land or easement. Sometimes the seller can derive the same benefits as if the property were donated. Bargain sales are attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has fairly high current income and could benefit from a donation of the property as an income tax deduction. The lost capital gain, which is the appraised value less the sales price, is taken as a tax deduction.

### **License**

A license is usually a fixed-term agreement that provides limited rights to the licensee for use of the property. Typically, these are employed in situations when the property cannot be sold (e.g. a publicly-owned, active electrical utility corridor), or the owner wants to retain use of and everyday control over the property. The trail management authority obtains permission to build and operate a trail; however, it will have little control over the property and may be subject to some stringent requirements that complicate trail development and operation. As with easement agreements, property owners would want a license agreement to address issues on their side. Through cooperative negotiation issues such as access for maintenance, trail management, and future improvements or modifications of the trail can be addressed.

### **Memoranda of Understanding**

Memoranda of Understanding (MOU) are agreements between multiple entities to delegate trail management and/or maintenance duties. MOUs are legally binding on the agreeing entities to carry out their duties in good faith. Entities involved in these agreements may include public, private, non-profit or any other interested party. One such example is a public utilities commission entering into a MOU with a local jurisdiction to develop a trail along the utility corridor as was done by the San Francisco Public Utilities Commission and the County of San Mateo.

### **Donation**

Donations typically include full transfer of property to an agency or non-profit for a specific use or purpose that may be simple or complicated by extensive conditions. Financial incentives in the form of tax credits are available



in most cases. The receiving entity agrees to receive title to a parcel of land or easement at virtually no cost. In most cases, the donor is eligible to receive federal and state deductions on personal income, as describe under bargain sales. In addition, property owners may be able to avoid inheritance taxes, capital gains taxes, and recurring property taxes.

## 1.6 Agriculture and Other Land Use Conflicts

### 1.6.1 Challenges

Another challenge to property access for a trail is potential conflict with current land use or activity. Some land uses and features may be constraints for trail location, such as adjacent residences, agricultural operations, and industrial or public works facilities that could present a hazard.

Careful land use study is critical as part of trail alignment planning to identify conflict areas and avoid conflicts through trail alignment, design or operation. An early step should be contact and coordination with the land owners to understand all the facilities and activities that may be constraints for the trail.

A concern often raised in relation to trails in rural areas is potential impact on agriculture. Specific issues often raised include:

- Impact on farm operations
- Theft or vandalism
- Loss of farm land
- Liability related to spraying and trespassing
- Spread of invasive species or pathogens

Trails and agriculture can coexist, as demonstrated throughout Europe and in many parts of the United States, but this requires understanding and responding to farming operations and methods to reduce or mitigate impacts, and actions to address and ally the specific concerns of farmers.

### 1.6.2 Potential Solutions

The alignment of a trail at the edge of productive agricultural land can result in several desirable outcomes. First, the trail or open space provides a buffer between the agricultural operation and more densely populated residential areas. This buffer can help to reduce edge conflicts by ensuring residential areas and productive agricultural lands do not share a common fence line. Secondly, the presence of the trail along agricultural acreage provides educational opportunities for non-farming residents who may otherwise have limited understanding or appreciation of agricultural operations. This exposure to agricultural production may facilitate community and political support for agricultural land preservation or productivity initiatives, as residents realize the important role



*Trails and agriculture can coexist, but this requires an understanding of farming operations and methods to reduce or mitigate impacts.*

agriculture plays in their lives and in the life of their community. Finally, allowing the construction of a trail on agricultural land may present a financial opportunity for the landowner through compensation and/or tax deductions for the donation, below market sale, market rate sale of land, or an easement.

### **Impact on Farm Operations**

Trail location, design, operation and management can support safe and considerate trail use practices and provide a diminished risk of injury, reducing the risk of liability claims. Some of the most significant features of a trail are inherent in the alignment itself. The distance a trail is set back from crops takes into account typical farm practices. For example, providing room for farm equipment to maneuver without nearing the trail reduces potential conflicts between trail users and farming practices.

Dogs on trails near cattle and other livestock may impact operations. Trail design and regulations can be used to mitigate potential problems. For example, dogs should be required to be on leash at all times so they do not chase cattle. Special fencing separating the trail from the livestock can also improve the situation. Though access for dogs is extremely popular, there may be locations where dogs must be prohibited on the trail.

### **Theft and Vandalism**

The theft of produce is a significant concern of the agricultural community. Like other security issues, this problem is not directly related to trail use, and “daylighting” the area with significant public use could actually reduce theft. To reinforce efforts to prevent theft, trail managing agencies have provided fencing, signage reflecting laws and penalties, public information and trail patrol.

A study done by the Rails to Trails Conservancy found rural trails have incidents of crime at much lower rates per population than suburban and urban trails.<sup>4</sup> In fact, trails can provide additional “eyes” for the agricultural community and can be regarded as an improvement because they bring local community members and families to the area. In many areas of the United States and around the world, trails peacefully coexist with agriculture without significant issues.

### **Loss of Farm Land**

Agricultural land is an important part of the Round Valley region. Agriculture is important to the local economy and supplies crops for California and the United States. The project sponsors do not support taking agricultural lands out of production. Trail access does not require a significant amount of land, and often can be incorporated into boundary and border areas where there is minimal impact on usable agricultural land. Also, the purchase of a portion of land or an easement can provide vital cash to an agricultural owner that would otherwise not be available without ceasing agricultural operations.

### **Spraying**

Typical farming practices such as spraying that may conflict with trail access can be addressed in several ways. First, trail users may be provided with adequate warning about the risks they are assuming. For example, in order to prevent nuisance claims triggered by the spraying of pesticides, warning signs and a spraying schedule may be posted at trailheads and along the trail to notify trail users of the risks associated with trail use. Case law

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<sup>4</sup> Rails to Trails Conservancy, “Rail- Trails and Safe Communities,” 1998.

pertaining to the RUS includes a finding that warning signs are sufficient to show the absence of willful or malicious conduct on part of the land owner.<sup>5</sup> Sonoma County Regional Parks Department manages the 13 mile West County Trail adjacent to vineyards and did not receive complaints about conflicts between trail users and vineyard owners who sprayed grapes.<sup>6</sup>

Additionally, trails can be closed during periods of spraying and during other agricultural operations. This can be part of an easement or other access arrangement or solely due to operations. In some cases, this is accomplished by gates and signs controlled by the farmer.

#### **Spread of Invasive Species**

Many habitats in California have become dominated by non-native species. Many of these non-native species are known as “invasive” species, so-named because they rapidly colonize new areas and cause harm to the native species, agricultural crops or livestock that are present. Some species are deliberately introduced because they are thought to have value for wildlife, horticulture, or agriculture; others are accidentally transferred by vehicles and landscaping equipments. Trails can become avenues of introduction and spread when invasive species, whether seeds or insects, are carried in or on animals, vehicles, bicycle tires, shoes, boats, commercial goods, produce or clothing of trail users.

Each county’s Department of Agriculture works with local agencies and park districts to manage invasive species. In addition to weed seeds and insects, agricultural representatives are concerned about pathogens that can be carried into the fields from the outside. In addition to the potential direct impacts, farmers need to be able to assure their buyers that the growing conditions of their fields are safe from outside contaminants.

Spread of invasive species along trails can be mitigated in the following ways:

- Further research and coordination with the Farm Bureaus, County Agriculture Committees, and agricultural advisory agencies should be undertaken as an early part of detailed trail planning to identify specific issues and potential solutions, including conditions where trails may not be compatible with agriculture, or are feasible only under specific controlled conditions.
- Trails should be kept clear of invasive species and known infected areas should be monitored and maintained.
- Equipment, such as mowers, should be cleaned before leaving the immediate area to prevent spread of any invasive species. This includes water equipment as well as there is the potential for transfer of aquatic organisms on boats, jet skis and other watercraft.
- Train maintenance staff and volunteers to recognize invasive species.
- Vehicles, such as trail maintenance, Caltrans, and PG&E trucks, should be cleaned before leaving the immediate area.
- Encourage collaboration with the public to help identify invasive species. Organizations such as native plant societies or the Sierra Club may help with identification.

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<sup>5</sup> California Recreational Trail Use Statute and Liability Handbook (Bay Area Ridge Trail Council, 1998).

<sup>6</sup> Sonoma County Draft Outdoor Recreation Plan 2003 Appendix 6.

- Educational signage should be used to inform trail users of both native and invasive species. An aware public can help identify potential problem areas. Additionally, the signage can add agricultural value to the trail.

## 1.7 Environmental Resources

### 1.7.1 Challenges

Round Valley includes natural and cultural resources that may constrain trail siting and alignment. Natural resources include natural habitat, special status and protected status species, unique and protected landforms, significant trees, designated wildlife and habitat protection areas and mitigation sites. Cultural resources include historic buildings and structures, historic districts, historic sites, culturally sacred sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts. Scenic resources may also fall into this category.

*While some trail projects can include benefits to natural resources, it is important to balance trail use with preservation.*

Natural and cultural resources can be a significant constraint to planning and implementing a trail. Environmental review for trail projects is required under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). These require projects be analyzed for potential impacts to cultural and historic resources. The requirements include a review by the State Historic Preservation Office (SHPO) for any known significant historic artifacts. The process may also involve obtaining a number of permits from resource management agencies including the California Department of Fish and Wildlife, the California Water Resources Control Board, the U.S. Army Corps of Engineers (where waterways are affected), the U.S. Fish and Wildlife Service (often through consultation with the Army Corps of Engineers).

The development of a trail system can have adverse impacts on natural resources. Examples include temporary or short term disturbances to the foraging behavior of wildlife and longer term, less predictable changes to the overall ecological health of critical habitat and native ecosystems.

Trails are often sited near wetlands, riparian, and other biological rich habitats. When people and their pets stray from trails, native plant habitat can be trampled or picked, soils can be compacted, and conditions can be created that favor non-native weeds and other invasive species. Habitat or vegetation that has been modified or removed during the building of a trail may no longer be available for wildlife and create conditions more prone to flooding, erosion, and wildfire.



*Natural features, such as Mill Creek, can present challenges for trail planning and implementation.*

The introduction of invasive, non-native plants and animals, as discussed in the Agricultural Resources section, is also a threat to natural resources. The harm is generally caused because the invasive species take over the habitat, significantly reducing the diversity of species present and significantly reducing or eliminating the presence of

native species. Some invasive non-native plant species are actually damaging to native wildlife that attempt to feed on or otherwise use the plants.

Trail construction and use could directly or indirectly impact cultural resources. New facilities and changes in land use that affect use patterns or intensify use could impact resources that are important to the entire Delta and beyond through overuse or during construction or maintenance. When a resource is subsurface, it is possible that construction work could damage the resource before crews are aware that the resource is present.

Numerous federal and state agencies oversee natural and cultural resource protection. Coordination with all applicable federal and state agencies will be necessary to ensure that the environmental protections each agency oversees are met.

### 1.7.2 Potential Solutions

Trail projects will be subject to environmental review, as required by the California Environmental Quality Act (CEQA) and, where federal jurisdiction is involved, the National Environmental Policy Act (NEPA). Environmental review includes assessment of potential impacts to biological, cultural, and historic resources, including review by the State Historic Preservation Office (SHPO) for any known significant historic artifacts. Where feasible, CEQA and NEPA require mitigation of any potentially significant impact to a less than significant level. The trail planning process may also require issuance of permits from resource management agencies including the California Department of Fish and Wildlife, the California Water Resources Control Board, the U.S. Army Corps of Engineers (where waterways are affected), and the U.S. Fish and Wildlife Service (often through consultation with the Army Corps of Engineers).

When planning and designing a trail system, several techniques can be employed to avoid or largely mitigate potential negative impacts on natural and cultural resources. Methods such as ecological restoration and promoting public awareness help to compensate for negative effects, while improving natural and cultural landscapes.

Natural resource conservation relies on an understanding and mapping of the locations and extent of geographic constraints and sensitive and critical biological habitats. Areas with known constraints can then be protected through avoidance or by applying conservation policies and standards to development that may otherwise result in significant adverse effects. Coupling trail projects in environmentally sensitive areas with mitigation efforts can help to offset negative impacts to natural resources. Mitigation measures include habitat restoration, erosion control, debris removal, and water quality enhancements. For example, in the Lake Tahoe Basin, new trail segments include drainage systems to divert sediment from the lake. A new trail in Marin County will include removal of a railroad trestle contaminated with creosote from a wetland. In addition, new trail projects are often combined with the acquisition of land or easements, which also serve to protect natural resources.

While some trail projects include benefits to natural resources, it is important to balance trail use with preservation. Early trail planning should identify and consider areas that have significant environmental constraints. Using GIS to map natural resources, including streams, rivers, floodplains, Streamside Management Areas, and National Wetland Inventory wetlands, aids in the identification of environmentally sensitive areas. Additional resources include the U.S. Fish and Wildlife Service's Endangered Species Program and the California Department of Fish and Wildlife's (CDFW's) California Natural Diversity Database (CNDDDB).

The California Historical Resources Inventory System (CHRIS) is an important data source for cultural resource location identification. The Northwest Information Center at Sonoma State University maintains these records for Mendocino County.

Once the locations of cultural resources are identified, or if the trail is being studied through an area that has not been previously disturbed, a consulting archeologist should be hired to determine their significance or cultural importance. Based on the locations and significance of cultural resources, the trail alignment should be charted to avoid negative impacts on these areas. Although avoidance is the preferred option, mitigation should be considered in cases with alignment constraints. Mitigation techniques for impacts on cultural resources are purposely left undefined by state agencies. If it is determined that cultural resources will be adversely impacted, it is often imperative to involve the affected parties directly and solicit their input. Native Americans could have specific cultural or spiritual concerns which cannot be addressed through a standardized environmental evaluation process.

Provided negative impacts are avoided or mitigated, trail projects can also be complementary to cultural resource areas, trails can create awareness of the importance of these areas, as well as foster public stewardship. This can be achieved by providing public access to similar sites, enriched with interpretive signage and kiosks explaining the cultural and historic significance of the area.

# Appendix C: Improvement Cost Estimates

January 8, 2014



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# Table of Tables

- Unit Cost..... 1**
- Table C- 2: Segment Summaries ..... 2**
- Table C- 3: State Route 162 - Howard Intersection ..... 4**
- Table C- 4: State Route 162 - State Route 162 - Greeley and Grange Streets..... 6**
- Table C- 5: State Route 162 - Redwood Market to Eberle Street..... 8**
- Table C- 6: Southern State Road 162 Commercial Area ..... 10**
- Table C- 7: Howard Street at Main Street ..... 12**
- Table C- 8: Howard Street at Airport Road..... 14**
- Table C- 9: Foothill Boulevard..... 16**
- Table C-10: HWY 162 - East Lane to Cultural Performance Grounds Driveway Estimate 1 of 4 Sta 0+00 - 1+61 ..... 18**
- Table C- 11: HWY 162 - East Lane to Cultural Performance Grounds Driveway Estimate 2 of 4 - Sta 1+61 - 3+08 ..... 19**
- Table C- 12: HWY 162 - East Lane to Cultural Performance Grounds Driveway Estimate 3 of 4 - Sta 3+08 - 13+73 ..... 20**
- Table C- 13: HWY 162 - East Lane to Cultural Performance Grounds Driveway Estimate 4 of 4 - Sta 13+73 – 20+157+01..... 21**
- Table C- 14: HWY 162 – Cultural Performance Grounds Driveway to Biggar Lane Estimate 1 of 1 - Sta 20+15 to 53+28..... 22**
- Table C- 15: HWY 162 – Biggar Lane to Hurt Road Estimate 1 of 5 - Sta 53+28 - 56+86..... 24**
- Table C- 16: HWY 162 – Biggar Lane to Hurt Road Estimate 2 of 5 - Sta 56+86 - 60+07..... 25**
- Table C- 17: HWY 162 – Biggar Lane to Hurt Road Estimate 3 of 5 - Sta 60+07 - 66+67..... 26**
- Table C- 18: HWY 162 – Biggar Lane to Hurt Road Estimate 4 of 5 - Sta 66+67 - 71+71..... 27**
- Table C-19: HWY 162 – Biggar Lane to Hurt Road Estimate 5 of 5 - Sta 71+71 - 79+81..... 28**

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## Appendix C: Improvements Cost Estimates

This Appendix presents the detailed planning-level cost estimates prepared for the recommended improvements, including planning, design, construction, and other anticipated implementation costs. These cost estimates required numerous assumptions about the methods of construction and associated requirements. The estimate and assumptions reflect the experience of the consultant team with other similar projects.

These estimates are based upon conceptual designs and are to be used for planning purposes only. The scope of each segment estimate is defined by station points or by distances from intersections as detailed in each estimate's table.

Table C- 1 presents the unit costs for the various trail, staging area, and drainage crossing improvements that were used to create the preliminary cost estimates.

The summary (Table C- 2) and detailed segment estimates (Table C-3 through Table C-) include cost “placeholders” for each stage of project implementation, based on factors of the construction cost, including:

- Construction overhead (costs the contract typically includes over and above the individual work items – calculated as a percentage of the total project cost):
  - Mobilization – 5%
  - General conditions, bonds, and insurance – 2%
  - Erosion control, including all BMPs, SWPPP and reporting – 5%
  - Traffic control – 10%
- Implementation:
  - Survey, technical studies (such as geotechnical or hazardous waste investigations) and design (including preliminary and final plans, cost estimates, and specifications/bid forms) – 20%
  - Environmental analysis and documentation and related permits (percentage varies per segment based upon existing conditions and scope of proposed changes) – 5% to 10%
  - Mitigation (percentage varies per segment based upon existing conditions and scope of proposed changes) – 2-3%
  - Construction engineering – 15%

A contingency for the level of accuracy of the estimate is included at 20% of all items.

If small improvement projects are undertaken separately, the costs may potentially increase significantly from the design, administration, and construction cost factors in the estimates. In any case, actual costs for the projects can only be determined following development of more complete and detailed base information and definition of the specific improvements for design, environmental review and permitting, and construction.

The estimates include right-of-way acquisition, where necessary for the trail alignment. This would be strictly on a willing seller basis. The estimates include an approximate area of right-of-way required, and a “placeholder” cost of \$2.00 per square foot for acquisition, which reflects the acquisition cost estimate from the recent Caltrans SR 162 Improvements PSR. Actual right-of-way costs would be subject to negotiation. Right-of-way acquisition costs are not estimated for trails occupying Tribal land, as the Tribes have made these trails a priority project of their own. It is assumed that an easement would be granted by the Tribes to a public agency to formalize the trail as a public facility, as discussed in Chapter 6, Implementation Steps.

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Table C- 1 Unit Costs

Item & Assumptions	Unit	Unit Cost
<b>Mobilization - maximum of 5% of total bid price</b>	ALLOW	5.00%
<b>General Conditions, Bonds and Insurance</b>	ALLOW	2.00%
<b>Erosion Control - includes all BMPs, SWPPP and Supply QSP</b>	ALLOW	5.00%
<b>Traffic Control</b>	ALLOW	10.00%
<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>		
Sawcut pavement	LF	\$5.00
Remove AC pavement	SF	\$0.25
Remove concrete pavement	SF	\$0.25
Remove Fence	LF	\$10.00
<b>Earthwork</b>		
Clearing and Grubbing	SF	\$0.25
Excavation and Grading	CY	\$18.00
Embankment, Import Borrow	CY	\$30.00
Soil for new landscape areas	CY	\$10.00
<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>		
Construct curb & gutter	LF	\$24.00
Construct AC curb	LF	\$12.00
Construct 4" PCC sidewalk - 6' wide	SF	\$8.00
Construct AC Path - 5' to 10' wide	Ton	\$150.00
Construct new inlet to existing storm drain	EA	\$2,000.00
Aggregate Base and Shoulder Rock	CY	\$50.00
Curb Ramp with truncated dome surface	EA	\$1,400.00
Decorative pavers for curb extensions	SF	\$15.00
Colored stamped asphalt or concrete	SF	\$15.00
<b>Planting</b>		
24" box trees with root barriers, tree grates, and irrigation	EA	\$2,200.00
15 gallon trees with protective posts and root barriers - to be "adopted"	EA	\$1,600.00
1 gallon shrub w/groundcover planting	SF	\$2.50
Irrigation meter/connection, backflow, and controller	EA	\$15,000.00
<b>Site Furnishings</b>		
Benches (bench, footings)	EA	\$1,000.00
Pedestrian Light Type 1 (streetlamp style, placed near intersections)	EA	\$6,000.00
Pedestrian Light Type 2 (along AC path on Howard)	EA	\$2,000.00
Chainlink Fence - 4' vinyl coated	LF	\$25.00
Timber barrier/wheel stop 8'x8"x8"	EA	\$50.00
R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	LF	\$20.00
<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>		
High visibility crosswalk	EA	\$1,750.00
Repaint stop bars and markings	LS	\$1,000.00
Painted pedestrian walkway - per 30' with associated signage	EA	\$1,060.00
Bike lane striping and signage	MI	\$10,000.00
HAWK/RRFB	EA	\$4,000.00

**Table C- 2: Segment Summaries**  
**COVELO/ROUND VALLEY NON-MOTORIZED TRANSPORTATION PLAN**  
**TOTAL COSTS FOR EACH PROJECT AREA**  
 PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013  
 REVIEWED BY: RA - Alta PREPARED BY: JP - Alta

*Note: Estimate based upon conceptual designs and is to be used for planning purposes only.*

Description		Totals
<b>Howard at 162</b>	<b>Construction</b>	<b>\$502,000</b>
Survey, design, environmental, admin and contingency	67.5%	\$338,850
	Total	<b>\$841,000</b>
<b>162 at Greely</b>	Construction	\$91,000
Survey, design, environmental, admin and contingency	67.5%	\$61,425
	Total	<b>\$153,000</b>
<b>162 at Eberle</b>	Construction	\$104,000
Survey, design, environmental, admin and contingency	67.5%	\$70,200
	Total	<b>\$175,000</b>
<b>Southern SR162</b>	Construction	\$102,000
Survey, design, environmental, admin and contingency	67.5%	\$68,850
	Total	<b>\$171,000</b>
<b>Howard at Main</b>	Construction	\$446,000
Survey, design, environmental, admin and contingency	67.5%	\$301,050
	Total	<b>\$748,000</b>
<b>Howard Street at Airport Road</b>	Construction	\$466,000
Survey, design, environmental, admin and contingency	67.5%	\$314,550
	Total	<b>\$781,000</b>
<b>Foothill Boulevard</b>	Construction	\$178,000
Survey, design, environmental, admin and contingency	67.5%	\$120,150
	Total	<b>\$299,000</b>
<b>SR 126 - North of Howard Street Intersection to East Lane</b>	Construction	\$107,787
Survey, design, environmental, admin and contingency	67.5%	\$72,756
Right-of-Way	0	\$0
	Total	<b>\$181,000</b>
<b>East - West Trail</b>	Construction	\$124,275
Survey, design, environmental, admin and contingency	68%	\$83,886
Right-of-Way	0	\$0
	Total	<b>\$209,000</b>
<b>SR 162 - East Lane to Cultural Performance Grounds - 4 Sub-segments - Station 0+00 to 20+15</b>		
SR 162 - East Lane to Cultural Performance Grounds - Sub-segment 1 of 4 - Station 0+00 to 1+61 ( 161FT)	Construction	\$23,058
Survey, design, environmental, admin and contingency	60%	\$13,835
Right-of-Way	3,250	\$6,500
	Total	\$44,000
SR 162 - East Lane to Cultural Performance Grounds - Sub-segment 2 of 4 - Station 1+61 to 3+08 ( 147FT)	Construction	\$28,487
Survey, design, environmental, admin and contingency	63%	\$17,804
Right-of-Way	3,650	\$7,300
	Total	\$54,000
SR 162 - East Lane to Cultural Performance Grounds - Sub-segment 3 of 4 - Station 3+08 - 13+73 ( 1065FT)	Construction	\$134,435
Survey, design, environmental, admin and contingency	68%	\$90,744
Right-of-Way	0	\$0
	Total	\$226,000
SR 162 - East Lane to Cultural Performance Grounds - Sub-segment 4 of 4 - Station 13+73 to 20+15 ( 642FT)	Construction	\$134,640
Survey, design, environmental, admin and contingency	68%	\$90,882
Right-of-Way	0	\$0
	Total	\$226,000
<b>SR 162 - East Lane to Cultural Performance Grounds - Total Segment - Station 0+00 to 20+15</b>		<b>\$550,000</b>
Includes allowance for right-of-way acquisition	\$13,800	
<b>SR 162 - Cultural Performance Grounds to Biggar Lane - Station 20+15 to 53+28 ( 3269FT)</b>	Construction	\$445,368
Survey, design, environmental, admin and contingency	68%	\$300,624
Right-of-Way	14,685	\$29,370
	Total	<b>\$776,000</b>

Description		Totals
<b>SR 162 - Biggar Lane to Hurt Road - 5 Sub-segments - Station 53+28 to 79+81</b>		
SR 162 - Biggar Lane to Hurt Road - Sub-segment 1 of 5 - Station 53+28 to 56+86 ( 358FT)	Construction	\$57,799
Survey, design, environmental, admin and contingency	68%	\$39,014
Right-of-Way	0	\$0
	Total	\$97,000
SR 162 - Biggar Lane to Hurt Road - Sub-segment 2 of 5 - Station 56+86 to 60+07 (321 FT)	Construction	\$303,779
Survey, design, environmental, admin and contingency	68%	\$205,051
Right-of-Way	5,476	\$10,952
	Total	\$520,000
SR 162 - Biggar Lane to Hurt Road - Sub-segment 3 of 5 - Station 60+07 to 66+67 (660 FT)	Construction	\$106,298
Survey, design, environmental, admin and contingency	68%	\$71,751
Right-of-Way	0	\$0
	Total	\$179,000
SR 162 - Biggar Lane to Hurt Road - Sub-segment 4 of 5 - Station 66+67 to 71+71 (504 FT)	Construction	\$71,549
Survey, design, environmental, admin and contingency	68%	\$48,296
Right-of-Way	0	\$0
	Total	\$120,000
SR 162 - Biggar Lane to Hurt Road - Sub-segment 5 of 5 - Station 71+88 to 79+81 (793 FT)	Construction	\$102,090
Survey, design, environmental, admin and contingency	68%	\$68,910
Right-of-Way	18,752	\$37,504
	Total	\$209,000
<b>SR 162 - Biggar Lane to Hurt Road - Total Segment - Station 53+28 to 79+81</b>		<b>\$1,125,000</b>
Includes allowance for right-of-way acquisition	\$48,456	
<b>Total for all segments</b>		<b>\$5,228,000</b>

**Table C- 3: State Route 162 - Howard Intersection**

Including curb extensions at the north end of intersection and improvements 290' south of intersection

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP - Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization</b>	1	LS	5.00%	\$12,269.86	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$4,907.94	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$12,269.86	
4	<b>Traffic Control</b>	1	LS	10.00%	\$24,539.72	
	<b>Sub-total</b>					<b>\$53,987.39</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	889	LF	\$5.00	\$4,445.00	
5.2	Remove AC pavement	6118	SF	\$0.25	\$1,529.50	
5.3	Remove concrete pavement	2221	SF	\$0.25	\$555.25	
	<b>Sub-total</b>					<b>\$6,529.75</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	5,055	SF	\$0.25	\$1,263.75	
6.2	Excavation and Grading	124.8148	CY	\$18.00	\$2,246.67	
6.3	Embankment, Import Borrow	0	CY	\$30.00	\$0.00	
6.4	Soil for new landscape areas	94	CY	\$10.00	\$936.11	
	<b>Sub-total</b>					<b>\$4,446.53</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	848	LF	\$24.00	\$20,352.00	
7.2	Construct AC curb	0	LF	\$12.00	\$0.00	
7.3	Construct 4" PCC sidewalk	2450	SF	\$8.00	\$19,600.00	
7.4	Construct AC Path - 5' to 10' wide	0	Ton	\$150.00	\$0.00	
7.5	Construct new inlet to existing storm drain	2	EA	\$2,000.00	\$4,000.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	8	EA	\$1,400.00	\$11,200.00	
7.8	Curb extension with decorative pavers	4540	SF	\$15.00	\$68,100.00	
7.9	Colored stamped asphalt or concrete	2605	SF	\$15.00	\$39,075.00	
	<b>Sub-total</b>					<b>\$162,377.00</b>
8	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	7	EA	\$2,200.00	\$15,400.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	0	EA	\$1,600.00	\$0.00	
8.3	1 gallon shrub w/goundcover planting	0	SF	\$2.50	\$0.00	
8.4	Irrigation meter/connection, backflow, and controller	1	EA	\$15,000.00	\$15,000.00	
	<b>Sub-total</b>					<b>\$30,400.00</b>
9	<b>Site Furnishings</b>					
9.1	Benches (bench, footings)	4	EA	\$1,000.00	\$4,000.00	



	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL	
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	5	EA	\$6,000.00	\$30,000.00		
9.3	Pedestrian light Type 2 (along AC path on Howard)	0	EA	\$2,000.00	\$0.00		
9.4	Chain link fence - 4' vinyl coated	0	LF	\$25.00	\$0.00		
9.5	Timber barrier/wheel stop 8'x8"x8"	0	EA	\$50.00	\$0.00		
	<b>Sub-total</b>					<b>\$34,000.00</b>	
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>						
10.1	High visibility crosswalk	4	EA	\$1,750.00	\$7,000.00		
10.2	Repaint stop bars and markings	0	LS	\$1,000.00	\$0.00		
10.3	Painted pedestrian walkway - per 30' with associated signage	0	EA	\$1,060.00	\$0.00		
10.4	Bike lane striping and signage	0.06	MI	\$10,000.00	\$643.94		
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00		
	<b>Sub-total</b>					<b>\$7,643.94</b>	
					<b>SUBTOTAL</b>	\$299,384.60	
					CONTINGENCY	20.0%	\$59,876.92
					SURVEYING	5.0%	\$14,969.23
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0%	\$44,907.69
					ENVIRONMENTAL PERMITTING	10.0%	\$29,938.46
					MITIGATION	2.5%	\$7,484.62
					CONSTRUCTION ENGINEERING	15.0%	\$44,907.69
					<b>TOTAL</b>		<b>\$502,000.00</b>

**Table C- 4: State Route 162 - State Route 162 - Greeley and Grange Streets**

From Greeley/SR 162 intersection extending 600' south

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP - Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
<b>1</b>	<b>Mobilization</b>	1	LS	5.00%	\$2,203.89	
<b>2</b>	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$881.55	
<b>3</b>	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$2,203.89	
<b>4</b>	<b>Traffic Control</b>	1	LS	10.00%	\$4,407.77	
	<b>Sub-total</b>					<b>\$9,697.10</b>
<b>5</b>	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	1154	LF	\$5.00	\$5,770.00	
5.2	Remove AC pavement	4015	SF	\$0.25	\$1,003.75	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$6,773.75</b>
<b>6</b>	<b>Earthwork</b>					
6.1	Clearing and Grubbing	5,016	SF	\$0.25	\$1,254.00	
6.2	Excavation and Grading	46	CY	\$18.00	\$828.00	
6.3	Embankment, Import Borrow	12	CY	\$30.00	\$364.08	
6.4	Soil for new landscape areas	35	CY	\$10.00	\$345.00	
	<b>Sub-total</b>					<b>\$2,791.08</b>
<b>7</b>	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	183	LF	\$24.00	\$4,392.00	
7.2	Construct AC curb	75	LF	\$12.00	\$900.00	
7.3	Construct 4" PCC sidewalk	0	SF	\$8.00	\$0.00	
7.4	Construct AC Path - 5' to 10' wide	72.815 6	Ton	\$150.00	\$10,922.34	
7.5	Construct new inlet to existing storm drain	1	EA	\$2,000.00	\$2,000.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	0	EA	\$1,400.00	\$0.00	
7.8	Curb extension with decorative pavers	0	SF	\$15.00	\$0.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$18,264.34</b>
<b>8</b>	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	0	EA	\$2,200.00	\$0.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	3	EA	\$1,600.00	\$4,800.00	
8.3	1 gallon shrub w/goundcover planting	1,868	SF	\$2.50	\$4,670.00	
8.4	Irrigation meter/connection, backflow, and controller	0	EA	\$15,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$9,470.00</b>

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
<b>9</b>	<b>Site Furnishings</b>					
9.1	Benches (bench, footings)	0	EA	\$1,000.00	\$0.00	
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	0	EA	\$6,000.00	\$0.00	
9.3	Pedestrian light Type 2 (along AC path on Howard)	0	EA	\$2,000.00	\$0.00	
9.4	Chain link fence - 4' vinyl coated	0	LF	\$25.00	\$0.00	
9.5	Timber barrier/wheel stop 8'x8"x8"	1	EA	\$50.00	\$50.00	
	<b>Sub-total</b>					<b>\$50.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	2	EA	\$1,750.00	\$3,500.00	
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00	
10.3	Painted pedestrian walkway - per 30' with associated signage	1	EA	\$1,060.00	\$1,060.00	
10.4	Bike lane striping and signage	0.12	MI	\$10,000.00	\$1,168.56	
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$6,728.56</b>
					<b>SUBTOTAL</b>	<b>\$53,774.83</b>
					CONTINGENCY	20.0% \$10,754.97
					SURVEYING	5.0% \$2,688.74
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0% \$8,066.22
					ENVIRONMENTAL PERMITTING	10.0% \$5,377.48
					MITIGATION	2.5% \$1,344.37
					CONSTRUCTION ENGINEERING	15.0% \$8,066.22
					<b>TOTAL</b>	<b>\$91,000.00</b>

**Table C- 5: State Route 162 - Redwood Market to Eberle Street**

from Eberle Street extending 610' north

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP – Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization</b>	1	LS	5.00%	\$2,541.09	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$1,016.43	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$2,541.09	
4	<b>Traffic Control</b>	1	LS	10.00%	\$5,082.17	
	<b>Sub-total</b>					<b>\$11,180.78</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	186	LF	\$5.00	\$930.00	
5.2	Remove AC pavement	736	SF	\$0.25	\$184.00	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$1,114.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	3,055	SF	\$0.25	\$763.75	
6.2	Excavation and Grading	17	CY	\$18.00	\$306.00	
6.3	Embankment, Import Borrow	9	CY	\$30.00	\$283.19	
6.4	Soil for new landscape areas	13	CY	\$10.00	\$127.50	
	<b>Sub-total</b>					<b>\$1,480.44</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	106	LF	\$24.00	\$2,544.00	
7.2	Construct AC curb	64	LF	\$12.00	\$768.00	
7.3	Construct 4" PCC sidewalk	636	SF	\$8.00	\$5,088.00	
7.4	Construct AC Path - 5' to 10' wide	56.6371	Ton	\$150.00	\$8,495.57	
7.5	Construct new inlet to existing storm drain	0	EA	\$2,000.00	\$0.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	2	EA	\$1,400.00	\$2,800.00	
7.8	Curb extension with decorative pavers	130	SF	\$15.00	\$1,950.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$21,695.57</b>
8	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	0	EA	\$2,200.00	\$0.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	4	EA	\$1,600.00	\$6,400.00	
8.3	1 gallon shrub w/goundcover planting	666	SF	\$2.50	\$1,665.00	
8.4	Irrigation meter/connection, backflow, and controller	0	EA	\$15,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$8,065.00</b>

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL	
<b>9</b>	<b>Site Furnishings</b>						
9.1	Benches (bench, footings)	0	EA	\$1,000.00	\$0.00		
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	1	EA	\$6,000.00	\$6,000.00		
9.3	Pedestrian light Type 2 (along AC path on Howard)	0	EA	\$2,000.00	\$0.00		
9.4	Chain link fence - 4' vinyl coated	0	LF	\$25.00	\$0.00		
9.5	Timber barrier/wheel stop 8'x8"x8"	0	EA	\$50.00	\$0.00		
	<b>Sub-total</b>					<b>\$6,000.00</b>	
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>						
10.1	High visibility crosswalk	1	EA	\$1,750.00	\$1,750.00		
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00		
10.3	Painted pedestrian walkway - per 30' with associated signage	8	EA	\$1,060.00	\$8,480.00		
10.4	Bike lane striping and signage	0.12	MI	\$10,000.00	\$1,236.74		
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00		
	<b>Sub-total</b>					<b>\$12,466.74</b>	
					<b>SUBTOTAL</b>	\$62,002.53	
					CONTINGENCY	20.0%	\$12,400.51
					SURVEYING	5.0%	\$3,100.13
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0%	\$9,300.38
					ENVIRONMENTAL PERMITTING	10.0%	\$6,200.25
					MITIGATION	2.5%	\$1,550.06
					CONSTRUCTION ENGINEERING	15.0%	\$9,300.38
					<b>TOTAL</b>		<b>\$104,000.00</b>

**Table C- 6: Southern State Road 162 Commercial Area**

Extending 640' north of south side of Wagon Wheel Motel property

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP – Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	<b>ITEM &amp; ASSUMPTIONS</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>COST</b>	<b>SUB TOTAL</b>
<b>1</b>	<b>Mobilization</b>	1	LS	5.00%	\$2,487.67	
<b>2</b>	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$995.07	
<b>3</b>	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$2,487.67	
<b>4</b>	<b>Traffic Control</b>	1	LS	10.00%	\$4,975.35	
	<b>Sub-total</b>					<b>\$10,945.76</b>
<b>5</b>	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	408	LF	\$5.00	\$2,040.00	
5.2	Remove AC pavement	1150	SF	\$0.25	\$287.50	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$2,327.50</b>
<b>6</b>	<b>Earthwork</b>					
6.1	Clearing and Grubbing	1,150	SF	\$0.25	\$287.50	
6.2	Excavation and Grading	29	CY	\$18.00	\$522.00	
6.3	Embankment, Import Borrow	0	CY	\$30.00	\$0.00	
6.4	Soil for new landscape areas	22	CY	\$10.00	\$217.50	
	<b>Sub-total</b>					<b>\$1,027.00</b>
<b>7</b>	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	173	LF	\$24.00	\$4,152.00	
7.2	Construct AC curb	250	LF	\$12.00	\$3,000.00	
7.3	Construct 4" PCC sidewalk	1038	SF	\$8.00	\$8,304.00	
7.4	Construct AC Path - 5' to 10' wide	0	Ton	\$150.00	\$0.00	
7.5	Construct new inlet to existing storm drain	0	EA	\$2,000.00	\$0.00	
7.6	Aggregate base and shoulder Rock	0	CY	\$50.00	\$0.00	
7.7	Curb Ramp with truncated dome surface	0	EA	\$1,400.00	\$0.00	
7.8	Curb extension with decorative pavers	0	SF	\$15.00	\$0.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$15,456.00</b>
<b>8</b>	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	0	EA	\$2,200.00	\$0.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	8	EA	\$1,600.00	\$12,800.00	
8.3	1 gallon shrub w/goundcover planting	1,150	SF	\$2.50	\$2,875.00	
8.4	Irrigation meter/connection, backflow, and controller	0	EA	\$15,000.00	\$0.00	

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
	<b>Sub-total</b>					<b>\$15,675.00</b>
<b>9</b>	<b>Site Furnishings</b>					
9.1	Benches (bench, footings)	0	EA	\$1,000.00	\$0.00	
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	0	EA	\$6,000.00	\$0.00	
9.3	Pedestrian light Type 2 (along AC path on Howard)	0	EA	\$2,000.00	\$0.00	
9.4	Chain link fence - 4' vinyl coated	0	LF	\$25.00	\$0.00	
9.5	Timber barrier/wheel stop 8'x8"x8"	0	EA	\$50.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	0	EA	\$1,750.00	\$0.00	
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00	
10.3	Painted pedestrian walkway - per 30' with associated signage	11	EA	\$1,060.00	\$11,660.00	
10.4	Bike lane striping and signage	0.26	MI	\$10,000.00	\$2,607.95	
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$15,267.95</b>
					<b>SUBTOTAL</b>	\$60,699.21
					CONTINGENCY	20.0% \$12,139.84
					SURVEYING	5.0% \$3,034.96
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0% \$9,104.88
					ENVIRONMENTAL PERMITTING	10.0% \$6,069.92
					MITIGATION	2.5% \$1,517.48
					CONSTRUCTION ENGINEERING	15.0% \$9,104.88
					<b>TOTAL</b>	<b>\$102,000.00</b>

**Table C- 7: Howard Street at Main Street**

Intersection of Howard Street and extending 200' south on Main St. and 220' east on Howard to SR 162 intersection

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP – Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization</b>	1	LS	5.00%	\$10,910.56	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$4,364.23	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$10,910.56	
4	<b>Traffic Control</b>	1	LS	10.00%	\$21,821.13	
	<b>Sub-total</b>					<b>\$48,006.48</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	1313	LF	\$5.00	\$6,565.00	
5.2	Remove AC pavement	5103	SF	\$0.25	\$1,275.75	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$7,840.75</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	5,726	SF	\$0.25	\$1,431.50	
6.2	Excavation and Grading	0	CY	\$18.00	\$0.00	
6.3	Embankment, Import Borrow	0	CY	\$30.00	\$0.00	
6.4	Soil for new landscape areas	0	CY	\$10.00	\$0.00	
	<b>Sub-total</b>					<b>\$1,431.50</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	1376	LF	\$24.00	\$33,024.00	
7.2	Construct AC curb	0	LF	\$12.00	\$0.00	
7.3	Construct 4" PCC sidewalk	5900	SF	\$8.00	\$47,200.00	
7.4	Construct AC Path - 5' to 10' wide	0	Ton	\$150.00	\$0.00	
7.5	Construct new inlet to existing storm drain	0	EA	\$2,000.00	\$0.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	20	EA	\$1,400.00	\$28,000.00	
7.8	Curb extension with decorative pavers	2277	SF	\$15.00	\$34,155.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$142,429.00</b>
8	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	3	EA	\$2,200.00	\$6,600.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	1	EA	\$1,600.00	\$1,600.00	
8.3	1 gallon shrub w/groundcover planting	0	SF	\$2.50	\$0.00	
8.4	Irrigation meter/connection, backflow, and controller	1	EA	\$15,000.00	\$15,000.00	
	<b>Sub-total</b>					<b>\$23,200.00</b>



	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
<b>9</b>	<b>Site Furnishings</b>					
9.1	Benches (bench, footings)	1	EA	\$1,000.00	\$1,000.00	
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	4	EA	\$6,000.00	\$24,000.00	
9.3	Pedestrian light Type 2 (along AC path on Howard)	3	EA	\$2,000.00	\$6,000.00	
9.4	Chain link fence - 4' vinyl coated	0	LF	\$25.00	\$0.00	
9.5	Timber barrier/wheel stop 8'x8"x8"	8	EA	\$50.00	\$400.00	
	<b>Sub-total</b>					<b>\$31,400.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	5	EA	\$1,750.00	\$8,750.00	
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00	
10.3	Painted pedestrian walkway - per 30' with associated signage	1	EA	\$1,060.00	\$1,060.00	
10.4	Bike lane striping and signage	0.11	MI	\$10,000.00	\$1,100.00	
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$11,910.00</b>
					<b>SUBTOTAL</b>	\$266,217.73
					CONTINGENCY	20.0% \$53,243.55
					SURVEYING	5.0% \$13,310.89
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0% \$39,932.66
					ENVIRONMENTAL PERMITTING	10.0% \$26,621.77
					MITIGATION	2.5% \$6,655.44
					CONSTRUCTION ENGINEERING	15.0% \$39,932.66
					<b>TOTAL</b>	<b>\$446,000.00</b>

**Table C- 8: Howard Street at Airport Road**

From intersection of Howard Street and Airport Road extending 2190' east on Howard and 300' north on Airport  
 PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP – Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization</b>	1	LS	5.00%	\$11,400.57	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$4,560.23	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$11,400.57	
4	<b>Traffic Control</b>	1	LS	10.00%	\$22,801.14	
	<b>Sub-total</b>					<b>\$50,162.51</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	541	LF	\$5.00	\$2,705.00	
5.2	Remove AC pavement	13060	SF	\$0.25	\$3,265.00	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$5,970.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	24,702	SF	\$0.25	\$6,175.50	
6.2	Excavation and Grading	231	CY	\$18.00	\$4,158.00	
6.3	Embankment, Import Borrow	56	CY	\$30.00	\$1,669.23	
6.4	Soil for new landscape areas	173	CY	\$10.00	\$1,732.50	
	<b>Sub-total</b>					<b>\$13,735.23</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	199	LF	\$24.00	\$4,776.00	
7.2	Construct AC curb	1130	LF	\$12.00	\$13,560.00	
7.3	Construct 4" PCC sidewalk	655	SF	\$8.00	\$5,240.00	
7.4	Construct AC Path - 5' to 10' wide	333.8452	Ton	\$150.00	\$50,076.78	
7.5	Construct new inlet to existing storm drain	0	EA	\$2,000.00	\$0.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	6	EA	\$1,400.00	\$8,400.00	
7.8	Curb extension with decorative pavers	0	SF	\$15.00	\$0.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$82,102.78</b>
8	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	0	EA	\$2,200.00	\$0.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	13	EA	\$1,600.00	\$20,800.00	
8.3	1 gallon shrub w/groundcover planting	6,855	SF	\$2.50	\$17,137.50	
8.4	Irrigation meter/connection, backflow, and controller	0	EA	\$15,000.00	\$0.00	

	<b>Sub-total</b>						<b>\$37,937.50</b>
	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL	
<b>9</b>	<b>Site Furnishings</b>						
9.1	Benches (bench, footings)	0	EA	\$1,000.00	\$0.00		
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	2	EA	\$6,000.00	\$12,000.00		
9.3	Pedestrian light Type 2 (along AC path on Howard)	21	EA	\$2,000.00	\$42,000.00		
9.4	Chain link fence - 4' vinyl coated	282	LF	\$25.00	\$7,050.00		
9.5	Timber barrier/wheel stop 8'x8"x8"	0	EA	\$50.00	\$0.00		
	<b>Sub-total</b>						<b>\$61,050.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>						
10.1	High visibility crosswalk	12	EA	\$1,750.00	\$21,000.00		
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00		
10.3	Painted pedestrian walkway - per 30' with associated signage	0	EA	\$1,060.00	\$0.00		
10.4	Bike lane striping and signage	0.52	MI	\$10,000.00	\$5,215.91		
10.6	HAWK/RRFB	0.00	EA	\$4,000.00	\$0.00		
	<b>Sub-total</b>						<b>\$27,215.91</b>
					<b>SUBTOTAL</b>		<b>\$278,173.93</b>
					CONTINGENCY	20.0%	\$55,634.79
					SURVEYING	5.0%	\$13,908.70
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0%	\$41,726.09
					ENVIRONMENTAL PERMITTING	10.0%	\$27,817.39
					MITIGATION	2.5%	\$6,954.35
					CONSTRUCTION ENGINEERING	15.0%	\$41,726.09
					<b>TOTAL</b>		<b>\$466,000.00</b>

**Table C- 9: Foothill Boulevard**

Intersection of Foothill Blvd. and Airport Road, and extending 2590' west to Tabor Lane

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: RA - Alta PREPARED BY: JP - Alta

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization</b>	1	LS	5.00%	\$4,344.05	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$1,737.62	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$4,344.05	
4	<b>Traffic Control</b>	1	LS	10.00%	\$8,688.10	
	<b>Sub-total</b>					<b>\$19,113.83</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	0	LF	\$5.00	\$0.00	
5.2	Remove AC pavement	0	SF	\$0.25	\$0.00	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	15,961	SF	\$0.25	\$3,990.25	
6.2	Excavation and Grading	0	CY	\$18.00	\$0.00	
6.3	Embankment, Import Borrow	66	CY	\$30.00	\$1,971.18	
6.4	Soil for new landscape areas	0	CY	\$10.00	\$0.00	
	<b>Sub-total</b>					<b>\$5,961.43</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	0	LF	\$24.00	\$0.00	
7.2	Construct AC curb	0	LF	\$12.00	\$0.00	
7.3	Construct 4" PCC sidewalk	0	SF	\$8.00	\$0.00	
7.4	Construct AC Path - 5' to 10' wide	394.2367	Ton	\$150.00	\$59,135.51	
7.5	Construct new inlet to existing storm drain	0	EA	\$2,000.00	\$0.00	
7.6	Aggregate base and shoulder Rock	1	CY	\$50.00	\$50.00	
7.7	Curb Ramp with truncated dome surface	0	EA	\$1,400.00	\$0.00	
7.8	Curb extension with decorative pavers	0	SF	\$15.00	\$0.00	
7.9	Colored stamped asphalt or concrete	0	SF	\$15.00	\$0.00	
	<b>Sub-total</b>					<b>\$59,185.51</b>
8	<b>Planting</b>					
8.1	24" box trees with root barriers, tree grates, and irrigation	0	EA	\$2,200.00	\$0.00	
8.2	15 gallon trees with protective posts and root barriers, irrigation???	0	EA	\$1,600.00	\$0.00	
8.3	1 gallon shrub w/goundcover planting	0	SF	\$2.50	\$0.00	
8.4	Irrigation meter/connection, backflow, and controller	0	EA	\$15,000.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
<b>9</b>	<b>Site Furnishings</b>					
9.1	Benches (bench, footings)	0	EA	\$1,000.00	\$0.00	
9.2	Pedestrian light Type 1 (streetlamp style, placed near intersections)	0	EA	\$6,000.00	\$0.00	
9.3	Pedestrian light Type 2 (along AC path on Howard)	0	EA	\$2,000.00	\$0.00	
9.4	Chain link fence - 4' vinyl coated	113	LF	\$25.00	\$2,825.00	
9.5	Timber barrier/wheel stop 8'x8"x8"	0	EA	\$50.00	\$0.00	
	<b>Sub-total</b>					<b>\$2,825.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	5	EA	\$1,750.00	\$8,750.00	
10.2	Repaint stop bars and markings	1	LS	\$1,000.00	\$1,000.00	
10.3	Painted pedestrian walkway - per 30' with associated signage	0	EA	\$1,060.00	\$0.00	
10.4	Bike lane striping and signage	0.52	MI	\$10,000.00	\$5,159.09	
10.6	HAWK/RRFB	1	EA	\$4,000.00	\$4,000.00	
	<b>Sub-total</b>					<b>\$18,909.09</b>
					<b>SUBTOTAL</b>	<b>\$105,994.86</b>
					CONTINGENCY	20.0% \$21,198.97
					SURVEYING	5.0% \$5,299.74
					PLANS, SPECIFICATIONS AND ENGINEERING	15.0% \$15,899.23
					ENVIRONMENTAL PERMITTING	10.0% \$10,599.49
					MITIGATION	2.5% \$2,649.87
					CONSTRUCTION ENGINEERING	15.0% \$15,899.23
					<b>TOTAL</b>	<b>\$178,000.00</b>

**Table C-10: HWY 162 - East Lane to Cultural Performance Grounds Driveway  
Estimate 1 of 4 Sta 0+00 - 1+61**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	<b>ITEM &amp; ASSUMPTIONS</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>COST</b>	<b>SUB TOTAL</b>
1	<b>Mobilization - maximum of 5% of total bid price</b>	1	LS	5.00%	\$944.99	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$378.00	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$944.99	
4	<b>Traffic Control</b>	1	LS	10.00%	\$1,889.98	
	<b>Sub-total</b>					<b>\$4,157.95</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	52	LF	\$5.00	\$260.00	
5.2	Remove AC pavement	328	SF	\$0.25	\$82.00	
5.5	Relocate Existing Utility Pole	1	EA	\$8,000.00	\$8,000.00	
	<b>Sub-total</b>					<b>\$8,342.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	2,254	SF	\$0.25	\$563.50	
6.2	Excavation and Grading	72	CY	\$18.00	\$1,288.00	
	<b>Sub-total</b>					<b>\$1,851.50</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	32	Ton	\$150.00	\$4,765.60	
7.6	Aggregate Base and Shoulder Rock	56	CY	\$50.00	\$2,790.67	
	<b>Sub-total</b>					<b>\$7,556.27</b>
10	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.03	MI	\$5,000.00	\$150.00	
10.7	Private Driveway Crossing	1.00	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$1,150.00</b>
11	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					
11.1	Right-of-Way	3,250	SF	\$2.00	\$6,500.00	
	<b>Sub-total</b>					<b>\$6,500.00</b>
					<b>SUBTOTAL</b>	<b>\$29,557.72</b>
				CONTINGENCY	20%	\$5,911.54
				SURVEYING	5%	\$1,477.89
				PLANS, SPECIFICATIONS AND ENGINEERING	15%	\$4,433.66
				ENVIRONMENTAL PERMITTING	5%	\$2,955.77
				MITIGATION	0%	\$738.94
				CONSTRUCTION ENGINEERING	15%	\$4,433.66
				<b>TOTAL</b>		<b>\$49,600.00</b>

**Table C- 11: HWY 162 - East Lane to Cultural Performance Grounds Driveway  
Estimate 2 of 4 - Sta 1+61 - 3+08**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	Mobilization - maximum of 5% of total bid price	1	LS	5.00%	\$1,167.49	
2	General Conditions, Bonds and Insurance	1	LS	2.00%	\$466.99	
3	Erosion Control - includes all BMPs, SWPPP and Reporting	1	LS	5.00%	\$1,167.49	
4	Traffic Control	1	LS	10.00%	\$2,334.97	
	<b>Sub-total</b>					<b>\$5,136.93</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.4	Remove Fence	47	LF	\$10.00	\$470.00	
5.5	Relocate Existing Utility Pole	1	EA	\$8,000.00	\$8,000.00	
	<b>Sub-total</b>					<b>\$8,470.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	2,058	SF	\$0.25	\$514.50	
6.2	Excavation and Grading	65	CY	\$18.00	\$1,176.00	
	<b>Sub-total</b>					<b>\$1,690.50</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	29	Ton	\$150.00	\$4,351.20	
7.6	Aggregate Base and Shoulder Rock	51	CY	\$50.00	\$2,548.00	
7.11	Construct CMP storm drain pipe	40	LF	\$60.00	\$2,400.00	
	<b>Sub-total</b>					<b>\$9,299.20</b>
9	<b>Site Furnishings</b>					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	137	LF	\$20.00	\$2,740.00	
	<b>Sub-total</b>					<b>\$2,740.00</b>
10	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.03	MI	\$5,000.00	\$150.00	
10.7	Private Driveway Crossing	1.00	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$1,150.00</b>
11	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					
11.1	Right-of-Way	3,650	SF	\$2.00	\$7,300.00	
	<b>Sub-total</b>					<b>\$7,300.00</b>
					<b>SUBTOTAL</b>	<b>\$35,786.63</b>
				CONTINGENCY	20%	\$7,157.33
				SURVEYING	5%	\$1,789.33
				PLANS, SPECIFICATIONS AND ENGINEERING	15%	\$5,368.00
				ENVIRONMENTAL PERMITTING	5%	\$1,789.33
				MITIGATION	2.5%	\$894.67
				CONSTRUCTION ENGINEERING	15%	\$5,368.00
				<b>TOTAL</b>		<b>\$59,000.00</b>

**Table C- 12: HWY 162 - East Lane to Cultural Performance Grounds Driveway  
Estimate 3 of 4 - Sta 3+08 - 13+73**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	<b>ITEM &amp; ASSUMPTIONS</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>COST</b>	<b>SUB TOTAL</b>
1	<b>Mobilization - maximum of 5% of total bid price</b>	1	LS	5.00%	\$5,509.63	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$2,203.85	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$5,509.63	
4	<b>Traffic Control</b>	1	LS	10.00%	\$11,019.25	
	<b>Sub-total</b>					<b>\$24,242.36</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.4	Remove Fence	47	LF	\$10.00	\$470.00	
	<b>Sub-total</b>					<b>\$470.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	16,946	SF	\$0.25	\$4,236.50	
6.2	Excavation and Grading	25	CY	\$18.00	\$458.09	
	<b>Sub-total</b>					<b>\$4,694.59</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	362	Ton	\$150.00	\$54,327.20	
7.6	Aggregate Base and Shoulder Rock	520	CY	\$50.00	\$26,000.74	
7.11	Construct CMP storm drain pipe	40	LF	\$60.00	\$2,400.00	
	<b>Sub-total</b>					<b>\$82,727.94</b>
9	<b>Site Furnishings</b>					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	1,065	LF	\$20.00	\$21,300.00	
0	<b>Sub-total</b>					<b>\$21,300.00</b>
10	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.20	MI	\$5,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$1,000.00</b>
11	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					
11.1	Right-of-Way	0	SF	\$2.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
					<b>SUBTOTAL</b>	<b>\$134,434.89</b>
					CONTINGENCY	20% \$26,886.98
					SURVEYING	5% \$6,721.74
					PLANS, SPECIFICATIONS AND ENGINEERING	15% \$20,165.23
					ENVIRONMENTAL PERMITTING	10% \$13,443.49
					MITIGATION	3% \$3,360.87
					CONSTRUCTION ENGINEERING	15% \$20,165.23
					<b>TOTAL</b>	<b>\$226,000.00</b>



**Table C- 13: HWY 162 - East Lane to Cultural Performance Grounds Driveway**

**Estimate 4 of 4 - Sta 13+73 -- 20+157+01**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	Mobilization - maximum of 5% of total bid price	1	LS	5.00%	\$5,518.03	
2	General Conditions, Bonds and Insurance	1	LS	2.00%	\$2,207.21	
3	Erosion Control - includes all BMPs, SWPPP and Reporting	1	LS	5.00%	\$5,518.03	
4	Traffic Control	1	LS	10.00%	\$11,036.05	
	<b>Sub-total</b>					<b>\$24,279.32</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	540	LF	\$5.00	\$2,700.00	
5.2	Remove AC pavement	3767	SF	\$0.25	\$941.75	
5.5	Relocate Existing Utility Pole	1	EA	\$8,000.00	\$8,000.00	
	<b>Sub-total</b>					<b>\$11,641.75</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	8,500	SF	\$0.25	\$2,125.00	
6.2	Excavation and Grading	448	CY	\$18.00	\$8,069.87	
	<b>Sub-total</b>					<b>\$10,194.87</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.1	Construct curb & gutter	636	LF	\$24.00	\$15,264.00	
7.3	Construct 4" PCC sidewalk - 6' wide	331	SF	\$8.00	\$2,648.00	
7.4	Construct AC Path - 5' to 10' wide	271	Ton	\$150.00	\$40,708.00	
7.6	Aggregate Base and Shoulder Rock	368	CY	\$50.00	\$18,403.93	
	<b>Sub-total</b>					<b>\$77,023.93</b>
10	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	3	EA	\$1,750.00	\$5,250.00	
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.25	MI	\$5,000.00	\$1,250.00	
10.8	Public Street Crossing	1.00	EA	\$5,000.00	\$5,000.00	
	<b>Sub-total</b>					<b>\$11,500.00</b>
11	Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title & Escrow.					
11.1	Right-of-Way	0	SF	\$2.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
					<b>SUBTOTAL</b>	<b>\$134,639.86</b>
					CONTINGENCY	20% \$26,927.97
					SURVEYING	5% \$6,731.99
					PLANS, SPECIFICATIONS AND ENGINEERING	15% \$20,195.98
					ENVIRONMENTAL PERMITTING	10% \$13,463.99
					MITIGATION	3% \$3,366.00
					CONSTRUCTION ENGINEERING	15% \$20,195.98
					<b>TOTAL</b>	<b>\$226,000.00</b>

**Table C- 14: HWY 162 – Cultural Performance Grounds Driveway to Biggar Lane  
Estimate 1 of 1 - Sta 20+15 to 53+28**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW – GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	<b>ITEM &amp; ASSUMPTIONS</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>COST</b>	<b>SUB TOTAL</b>
<b>1</b>	<b>Mobilization</b>	1	LS	5.00%	\$18,252.80	
<b>2</b>	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$7,301.12	
<b>3</b>	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$18,252.80	
<b>4</b>	<b>Traffic Control</b>	1	LS	10.00%	\$36,505.60	
	<b>Sub-total</b>					<b>\$80,312.32</b>
<b>5</b>	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.4	Remove Fence	2609	LF	\$10.00	\$26,090.00	
5.5	Relocate Existing Utility Pole	8	EA	\$8,000.00	\$64,000.00	
5.7	Remove Existing Storm Drain Culvert	1	EA	\$1,000.00	\$1,000.00	
5.8	Remove and Relocate Existing Roadside Sign	4	EA	\$600.00	\$2,400.00	
	<b>Sub-total</b>					<b>\$93,490.00</b>
<b>6</b>	<b>Earthwork</b>					
6.1	Clearing and Grubbing	47,754	SF	\$0.25	\$11,938.50	
6.2	Excavation and Grading	1,422	CY	\$18.00	\$25,604.49	
6.3	Embankment, Import Borrow	156	CY	\$30.00	\$4,689.16	
	<b>Sub-total</b>					<b>\$42,232.15</b>
<b>7</b>	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	688	Ton	\$150.00	\$103,141.20	
7.6	Aggregate base and shoulder Rock	1183	CY	\$50.00	\$59,127.63	
7.10	Extend existing storm drain system	4	EA	\$1,000.00	\$4,000.00	
7.11	Construct CMP storm drain pipe	41	LF	\$60.00	\$2,460.00	
7.12	Construct shallow manhole	1	EA	\$5,000.00	\$5,000.00	
	<b>Sub-total</b>					<b>\$173,728.83</b>
<b>9</b>	<b>Site Furnishings</b>					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	2,606	LF	\$20.00	\$52,120.00	
0	<b>Sub-total</b>					<b>\$52,120.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.5	Miscellaneous Class I trail striping, signage and bollards	0.50	MI	\$5,000.00	\$2,485.00	
10.7	Private driveway crossing	1	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$3,485.00</b>
<b>11</b>	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
11.1	Right-of-Way	14,685	SF	\$2.00	\$29,370.00	
	<b>Sub-total</b>				<b>\$29,370.00*</b>	
					<b>SUBTOTAL</b>	\$445,368.29
					CONTINGENCY	20% \$89,073.66
					SURVEYING	5% \$22,268.41
					PLANS, SPECIFICATIONS AND ENGINEERING	15% \$66,805.24
					ENVIRONMENTAL PERMITTING	10% \$44,536.83
					MITIGATION	3% \$11,134.21
					CONSTRUCTION ENGINEERING	15% \$66,805.24
					<b>TOTAL</b>	<b>\$776,000.00</b>

\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.

**Table C- 15: HWY 162 – Biggar Lane to Hurt Road  
Estimate 1 of 5 - Sta 53+28 - 56+86**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	Mobilization - maximum of 5% of total bid price	1	LS	5.00%	\$2,368.79	
2	General Conditions, Bonds and Insurance	1	LS	2.00%	\$947.52	
3	Erosion Control - includes all BMPs, SWPPP and Reporting	1	LS	5.00%	\$2,368.79	
4	Traffic Control	1	LS	10.00%	\$4,737.59	
	<b>Sub-total</b>					<b>\$10,422.70</b>
5	Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.					
5.5	Relocate Existing Utility Pole	1	EA	\$8,000.00	\$8,000.00	
5.7	Remove Existing Storm Drain Culvert	1	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$9,000.00</b>
6	Earthwork					
6.1	Clearing and Grubbing	4,508	SF	\$0.25	\$1,127.00	
6.2	Excavation and Grading	59	CY	\$18.00	\$1,062.60	
6.3	Embankment, Import Borrow	164	CY	\$30.00	\$4,933.76	
	<b>Sub-total</b>					<b>\$7,123.36</b>
7	Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail					
7.1	Construct curb & gutter	75	LF	\$24.00	\$1,800.00	
7.4	Construct AC Path - 5' to 10' wide	64	Ton	\$150.00	\$9,531.20	
7.6	Aggregate Base and Shoulder Rock	112	CY	\$50.00	\$5,581.33	
7.11	Construct CMP storm drain pipe	50	LF	\$60.00	\$3,000.00	
	<b>Sub-total</b>					<b>\$19,912.53</b>
10	Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.07	MI	\$5,000.00	\$340.00	
10.7	Private Driveway Crossing	1.00	EA	\$1,000.00	\$1,000.00	
10.8	Public Street Crossing	2.00	EA	\$5,000.00	\$10,000.00	
	<b>Sub-total</b>					<b>\$11,340.00</b>
11	Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title & Escrow.					
11.1	Right-of-Way	0	SF	\$2.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
					<b>SUBTOTAL</b>	<b>\$57,798.58</b>
					CONTINGENCY	20% \$11,559.72
					SURVEYING	5% \$2,889.93
					PLANS, SPECIFICATIONS AND ENGINEERING	15% \$8,669.79
					ENVIRONMENTAL PERMITTING	10% \$5,779.86
					MITIGATION	3% \$1,444.96
					CONSTRUCTION ENGINEERING	15% \$8,669.79
					<b>TOTAL</b>	<b>\$97,000.00</b>

\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.

**Table C- 16: HWY 162 – Biggar Lane to Hurt Road  
Estimate 2 of 5 - Sta 56+86 - 60+07**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	Mobilization - maximum of 5% of total bid price	1	LS	5.00%	\$12,449.95	
2	General Conditions, Bonds and Insurance	1	LS	2.00%	\$4,979.98	
3	Erosion Control - includes all BMPs, SWPPP and Reporting	1	LS	5.00%	\$12,449.95	
4	Traffic Control	1	LS	10.00%	\$24,899.89	
	<b>Sub-total</b>					<b>\$54,779.76</b>
5	Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.					
5.4	Remove Fence	125	LF	\$10.00	\$1,250.00	
5.5	Relocate Existing Utility Pole	2	EA	\$8,000.00	\$16,000.00	
5.7	Remove Existing Storm Drain Culvert	1	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$18,250.00</b>
6	Earthwork					
6.1	Clearing and Grubbing	2,254	SF	\$0.25	\$563.50	
6.2	Excavation and Grading	10	CY	\$18.00	\$174.95	
6.3	Embankment, Import Borrow	448	CY	\$30.00	\$13,429.19	
	<b>Sub-total</b>					<b>\$14,167.64</b>
7	Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail					
7.4	Construct AC Path - 5' to 10' wide	32	Ton	\$150.00	\$4,765.60	
7.6	Aggregate Base and Shoulder Rock	56	CY	\$50.00	\$2,790.67	
7.13	Provide and Install (120'x12") Pre-manufactured steel bridge	1	LS	\$205,000.00	\$205,000.00	
	<b>Sub-total</b>					<b>\$212,556.27</b>
8	Planting					
	<b>Sub-total</b>					<b>\$0.00</b>
9	Site Furnishings					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	136	LF	\$20.00	\$2,720.00	
0	<b>Sub-total</b>					<b>\$2,720.00</b>
10	Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.06	MI	\$5,000.00	\$305.00	
10.7	Private Driveway Crossing	1.00	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$1,305.00</b>
11	Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title & Escrow.					
11.1	Right-of-Way	5,476	SF	\$2.00	\$10,952.00	
	<b>Sub-total</b>					<b>\$10,952.00</b>
						<b>SUBTOTAL</b> \$314,730.67
					CONTINGENCY 20%	\$62,946.13
					SURVEYING 5%	\$15,736.53
					PLANS, SPECIFICATIONS AND ENGINEERING 15%	\$47,209.60
					ENVIRONMENTAL PERMITTING 10%	\$31,473.07
					MITIGATION 3%	\$7,868.27
					CONSTRUCTION ENGINEERING 15%	\$47,209.60
					<b>TOTAL</b>	<b>\$528,000.00</b>

\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.

**Table C- 17: HWY 162 – Biggar Lane to Hurt Road  
Estimate 3 of 5 - Sta 60+07 - 66+67**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	<b>Mobilization - maximum of 5% of total bid price</b>	1	LS	5.00%	\$4,356.47	
2	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$1,742.59	
3	<b>Erosion Control - includes all BMPs, SWPPP and Reporting</b>	1	LS	5.00%	\$4,356.47	
4	<b>Traffic Control</b>	1	LS	10.00%	\$8,712.93	
	<b>Sub-total</b>					<b>\$19,168.46</b>
5	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.4	Remove Fence	660	LF	\$10.00	\$6,600.00	
5.5	Relocate Existing Utility Pole	1	EA	\$8,000.00	\$8,000.00	
	<b>Sub-total</b>					<b>\$14,600.00</b>
6	<b>Earthwork</b>					
6.1	Clearing and Grubbing	10,488	SF	\$0.25	\$2,622.00	
6.2	Excavation and Grading	325	CY	\$18.00	\$5,841.52	
	<b>Sub-total</b>					<b>\$8,463.52</b>
7	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	223	Ton	\$150.00	\$33,513.60	
7.6	Aggregate Base and Shoulder Rock	321	CY	\$50.00	\$16,062.22	
	<b>Sub-total</b>					<b>\$49,575.82</b>
9	<b>Site Furnishings</b>					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	642	LF	\$20.00	\$12,840.00	
0	<b>Sub-total</b>					<b>\$12,840.00</b>
10	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.13	MI	\$5,000.00	\$650.00	
10.7	Private Driveway Crossing	1.00	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$1,650.00</b>
11	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					
11.1	Right-of-Way	0	SF	\$2.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
					<b>SUBTOTAL</b>	<b>\$106,297.80</b>
					CONTINGENCY	20% \$21,259.56
					SURVEYING	5% \$5,314.89
					PLANS, SPECIFICATIONS AND ENGINEERING	15% \$15,944.67
					ENVIRONMENTAL PERMITTING	10% \$10,629.78
					MITIGATION	3% \$2,657.44
					CONSTRUCTION ENGINEERING	15% \$15,944.67
					<b>TOTAL</b>	<b>\$179,000.00</b>

\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.

**Table C- 18: HWY 162 – Biggar Lane to Hurt Road  
Estimate 4 of 5 - Sta 66+67 - 71+71**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
1	Mobilization - maximum of 5% of total bid price	1	LS	5.00%	\$2,932.34	
2	General Conditions, Bonds and Insurance	1	LS	2.00%	\$1,172.94	
3	Erosion Control - includes all BMPs, SWPPP and Reporting	1	LS	5.00%	\$2,932.34	
4	Traffic Control	1	LS	10.00%	\$5,864.69	
	<b>Sub-total</b>					<b>\$12,902.31</b>
5	Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.					
5.5	Relocate Existing Utility Pole	3	EA	\$8,000.00	\$24,000.00	
5.6	Remove and Relocate Existing Mailbox	1	EA	\$500.00	\$500.00	
	<b>Sub-total</b>					<b>\$24,500.00</b>
6	Earthwork					
6.1	Clearing and Grubbing	7,056	SF	\$0.25	\$1,764.00	
6.2	Excavation and Grading	237	CY	\$18.00	\$4,273.92	
	<b>Sub-total</b>					<b>\$6,037.92</b>
7	Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail					
7.4	Construct AC Path - 5' to 10' wide	99	Ton	\$150.00	\$14,918.40	
7.6	Aggregate Base and Shoulder Rock	175	CY	\$50.00	\$8,736.00	
	<b>Sub-total</b>					<b>\$23,654.40</b>
10	Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.					
10.4	Bike lane striping and signage	0.10	MI	\$10,000.00	\$954.55	
10.5	Miscellaneous Class I Trail striping, signage and bollards	0.10	MI	\$5,000.00	\$500.00	
10.7	Private Driveway Crossing	3.00	EA	\$1,000.00	\$3,000.00	
	<b>Sub-total</b>					<b>\$4,454.55</b>
11	Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title & Escrow.					
11.1	Right-of-Way	0	SF	\$2.00	\$0.00	
	<b>Sub-total</b>					<b>\$0.00</b>
					<b>SUBTOTAL</b>	<b>\$71,549.18</b>
				CONTINGENCY	20%	\$14,309.84
				SURVEYING	5%	\$3,577.46
				PLANS, SPECIFICATIONS AND ENGINEERING	15%	\$10,732.38
				ENVIRONMENTAL PERMITTING	10%	\$7,154.92
				MITIGATION	3%	\$1,788.73
				CONSTRUCTION ENGINEERING	15%	\$10,732.38
				<b>TOTAL</b>		<b>\$120,000.00</b>

\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.

**Table C-19: HWY 162 – Biggar Lane to Hurt Road  
Estimate 5 of 5 - Sta 71+71 - 79+81**

PLANNING-LEVEL ESTIMATE OF PROBABLE CONSTRUCTION COST - December, 2013

REVIEWED BY: MP - GHD PREPARED BY: JJW - GHD

Note: Estimate based upon conceptual designs and is to be used for planning purposes only.

	<b>ITEM &amp; ASSUMPTIONS</b>	<b>QTY</b>	<b>UNIT</b>	<b>UNIT COST</b>	<b>COST</b>	<b>SUB TOTAL</b>
<b>1</b>	<b>Mobilization</b>	1	LS	5.00%	\$4,184.00	
<b>2</b>	<b>General Conditions, Bonds and Insurance</b>	1	LS	2.00%	\$1,673.60	
<b>3</b>	<b>Erosion Control - includes all BMPs, SWPPP and</b>	1	LS	5.00%	\$4,184.00	
<b>4</b>	<b>Traffic Control</b>	1	LS	10.00%	\$8,368.00	
	<b>Sub-total</b>					<b>\$18,409.59</b>
<b>5</b>	<b>Sitework, Demolition and Removal - includes all demolition, site preparation for all construction; relocation or re-setting of utilities; temporary construction fencing.</b>					
5.1	Sawcut pavement	0	LF	\$5.00	\$0.00	
5.2	Remove AC pavement	0	SF	\$0.25	\$0.00	
5.3	Remove concrete pavement	0	SF	\$0.25	\$0.00	
5.4	Remove Fence	753	LF	\$10.00	\$7,530.00	
5.5	Relocate Existing Utility Pole	3	EA	\$8,000.00	\$24,000.00	
	<b>Sub-total</b>					<b>\$31,530.00</b>
<b>6</b>	<b>Earthwork</b>					
6.1	Clearing and Grubbing	10,978	SF	\$0.25	\$2,744.50	
6.2	Excavation and Grading	341	CY	\$18.00	\$6,146.71	
	<b>Sub-total</b>					<b>\$8,891.21</b>
<b>7</b>	<b>Concrete Work and Asphalt Paving - includes concrete curbs, 4" PCC sidewalk, Type I pedestrian ramps, concrete pads, Class I Trail</b>					
7.4	Construct AC Path - 5' to 10' wide	27	Ton	\$150.00	\$3,996.00	
7.6	Aggregate base and shoulder Rock	328	CY	\$50.00	\$16,392.74	
7.11	Construct CMP storm drain pipe	35	LF	\$60.00	\$2,100.00	
	<b>Sub-total</b>					<b>\$22,488.74</b>
<b>9</b>	<b>Site Furnishings</b>					
9.6	R.O.W. fence - 5-Strand Barbed Wire with Mesh (Dog/Sheep exclusion)	776	LF	\$20.00	\$15,520.00	
0	<b>Sub-total</b>					<b>\$15,520.00</b>
<b>10</b>	<b>Signs and Pavement Markings - includes painted traffic lines and markings on pavement, and traffic signage.</b>					
10.1	High visibility crosswalk	2	EA	\$1,750.00	\$3,500.00	
10.5	Miscellaneous Class I trail striping, signage and bollards	0.15	MI	\$5,000.00	\$750.00	
10.7	Private driveway crossing	1.00	EA	\$1,000.00	\$1,000.00	
	<b>Sub-total</b>					<b>\$5,250.00</b>
<b>11</b>	<b>Right-of-Way Acquisition - includes Acquisition, Project Development Permits, Utility Relocation Assistance and Title &amp; Escrow.</b>					



	ITEM & ASSUMPTIONS	QTY	UNIT	UNIT COST	COST	SUB TOTAL
11.1	Right-of-Way	18,752	SF	\$2.00	\$37,504.00	
	<b>Sub-total</b>				<b>\$37,504.00*</b>	
					<b>SUBTOTAL</b>	\$102,089.54
				CONTINGENCY	20%	\$20,417.91
				SURVEYING	5%	\$5,104.48
				PLANS, SPECIFICATIONS AND ENGINEERING	15%	\$15,313.43
				ENVIRONMENTAL PERMITTING	10%	\$10,208.95
				MITIGATION	3%	\$2,552.24
				CONSTRUCTION ENGINEERING	15%	\$15,313.43

**\*Right-of-way cost is not included in the subtotal used to determine contingencies and allowances; but is included in the Total Cost, based on a "placeholder" assumed acquisition cost of \$2.00 per square foot.**