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1. Introduction and Summary

The Santa Cruz County Regional Transportation Commission (SCCRTC) is leading this study of the State Route 9 San Lorenzo Valley Corridor using a “Complete Streets” study grant from Caltrans. Working with a team of County and state agencies and the office of Supervisor Bruce McPherson, and supported by a team of transportation consultants, SCCRTC is conducting a thorough public outreach and participation process to ensure that this is a true “community-based plan.” The study builds on extensive prior studies, plans and public input regarding improvements to the highway transportation facilities in the San Lorenzo Valley (SLV).

This Phase 1 report presents:

- The goals, objectives and performance criteria for improvement projects;
- The background of studies, standards and existing conditions;
- Prior public input about improvements;
- Project funding opportunities;
- A “toolkit” of different improvement options applicable to this rural setting, and;
- Prior public and agency ideas for site-specific improvements.

The purpose of this phase is to get your input on these elements and ideas so we can create an action plan to implement a range of projects along Highway 9 through SLV that will address community concerns and priorities along this important travel corridor, taking advantage of $10 million in funding for SLV approved by the voters as part of Measure D, and other funding opportunities.

1.1. Project Goal

The ultimate goal of the SR9/SLV Plan is to improve multi-modal access and connectivity, safety and security, operations, economic vitality and environmental quality. It will seek to be consistent with and implement other pertinent plans and policies, and it will seek to clarify and prioritize projects where there is the most need/demand, while considering cost and feasibility, so improvement priorities reflect the most “bang for the buck.” This is a “Complete Streets” project, which means per Caltrans policy, “a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.”

A well-designed complete street doesn’t just work better; it feels better, particularly for bicyclists and pedestrians, and it looks better, with enhanced aesthetics and amenities that complement the setting and adjacent uses.
1.2. Study Area

The study area is the Highway 9 travel corridor through San Lorenzo Valley, from Henry Cowell State Park in Felton, near Glengarry Road, to the northern intersection of Highway 236 with Highway 9 north of Boulder Creek – a distance of approximately 16.2 miles (see Figure 1). The focus of the study is on the more "urbanized" areas from the Felton to Boulder Creek town centers, a distance of approximately seven miles. The study also considers some of the parallel county roadways that SLV residents use as an alternate to Highway 9.

While the focus of this study is on the Highway 9 corridor between Felton and Boulder Creek, the study also recognizes that many people in San Lorenzo Valley travel south to the City of Santa Cruz, west and east to Bonny Doon and Scotts Valley, and north to the San Francisco Bay Area. However, these routes to other areas could not be addressed within the limited budget for the current study and community members had determined that the area from Felton to Boulder Creek needed a focused study. The connection from Felton to Santa Cruz was the focus of the 2003 San Lorenzo Valley Trail Study. Caltrans also has Transportation Concept Reports for all of Highway 9, which provide a high-level overview of this state highway. Concepts identified for more rural sections of Highway 9 through the study area could also be applied to other areas of Highway 9 which have lower traffic volumes.
1.3. Project Objectives
The main goal of the project is to create an actionable short-term and long-term multi-modal plan – with specific projects – to increase safety and accessibility along Highway 9 and within the area’s town centers. Several overarching draft objectives have been framed to support the overall goal. Public and stakeholder input is being sought in study Phase 1 regarding these DRAFT objectives and their relative priorities. (Public input is also sought on the more specific improvement ideas and alternatives, as outlined in Section 5)

1. Increase safety along the corridor
   • Reduce crashes
   • Traffic calming – slowing speeds while maintaining efficiency
   • Intersection safety improvements
   • Maintain roadways

2. Increase pedestrian and bicyclist access and safety along the corridor
   • Make it easier to walk or bike in town centers
   • Better bicycling connections between town centers and schools
   • Better pedestrian connections between town centers and schools
   • Make it easier to cross Highway 9
   • Improve health, especially for youth

3. Improve transit facilities, routes to transit, and transit options
   • Transit stop areas locations and amenities, including pathways to bus stops
   • Access for people with limited mobility (e.g. seniors, people with disabilities, youth)
   • Transit service, paratransit service,
   • Rideshare/school pools, vanpools, Lyft/Uber

4. Provide economic benefits
   • Greater flexibility in use of sidewalks/right-of-way near businesses
   • Better organized commercial parking/frontages and access/driveways
   • Maintain traffic flow and predictable travel times

5. Environmental improvements
   • Maintain/enhance rural mountain character (avoid urban type improvements)
   • Have less pavement; preserve vegetation where feasible
6. Create a plan that can be realistically implemented in both short and medium term
   - Pursue projects that can be implemented quickly (incl. “low-hanging fruit”)
   - Purpose projects that have greatest benefit per dollar
   - Identify priorities for Measure D 30-year revenues
   - Capture maximum state, federal, and grant funding to leverage local measure funding

7. Create a vision and blueprint for the ultimate future corridor
   - Have a plan that identifies improvements through the entire corridor
   - Avoid piecemeal disconnected improvements – have a phased plan
   - Provide design guidelines that facilitate Caltrans incorporating multi-modal improvements into other project types (drainage, bridges, repaving, etc.)

1.4. Study Process
This study and plan does not start with a blank slate – it builds on many years of prior public input and previous studies and plans, particularly the Felton Town Plan (1987), the Ben Lomond Town Plan (1990), the Boulder Creek Specific Plan (1992), and the 2003 San Lorenzo Valley Trail Study funded by Caltrans and prepared for the Santa Cruz County Public Works Department. The study team also considered the collected comments from several years of public meetings regarding transportation improvements in the SLV/Highway 9 corridor. These comments are summarized in Appendix A and the results are reflected in the conceptual improvement options presented below in the “toolkit” and the site-specific improvement ideas and options described below.

Corridor Plan Oversight Team
Consisting of staff from Caltrans District 5, the Santa Cruz County Regional Transportation Commission, County Public Works Department, County of Santa Cruz Planning, Santa Cruz Metropolitan Transit District (Metro), and Supervisor Bruce McPherson’s office this group met at key intervals to guide and help complete the study and plan.

Study Stages
The study and plan is expected to be completed in late 2017 or early 2018. There are three basic stages; the first two include a thorough public outreach and engagement effort:
Phase 1: Overall project goal, objectives, initial project ideas

Addresses:
- Draft study goals, objectives
- Project evaluation criteria and proposed process
- Background documents and data
- Illustration of improvement options – specific and general
- Best potential funding sources

Outreach efforts:
- RTC staff meets with key community groups and leaders
- Press release, coverage in local media, social media, RTC and other agency web sites
- Public workshop May 31
- Public opinion survey (overlaps workshop)

Phase 2: Draft plan development, review and refinement

Addresses:
- Response to public and agency input from Phase 1
- Top ranked specific ideas – conceptual illustrations and description, costs/requirements
- Criteria and process used for initial ranking
- Overall long-term corridor vision (illustrate typical improved conditions, describe and quantify overall)
- Assembly into an organized plan

Outreach efforts:
- RTC staff meets with key community groups and leaders
- Press release, coverage in local media, RTC and other agency web sites
- Public workshop (in October? – an “open house” show casing draft improvement ideas and priorities)
- Virtual workshop/survey online to receive input on the draft plan from the community

Phase 3: Plan Finalization

Addresses:
- Response to public and agency input from Phase 2
- Finalization of the plan

Outreach efforts:
- Final plan available online
- Present Final Plan to Board of Supervisors and Regional Transportation Commission
2. Study Area Conditions

This plan focuses on State Route 9 (SR9) and connecting streets, roads and paths between Felton and Boulder Creek in the Santa Cruz mountains. SR 9 begins in the City of Santa Cruz at SR1 in Caltrans District 5. It winds through the Santa Cruz Mountains, intersects with SR 236 in Boulder Creek and again near the San Mateo County line, intersects with SR 35 at the Santa Cruz/Santa Clara County line, and continues into Caltrans District 4 until terminating at SR 17 in the Town of Los Gatos in Santa Clara County. This project focuses on the section of State Route 9 from Felton to Boulder Creek. State Route 9 is a regional corridor in Santa Cruz County that serves as the “Main Street” for the unincorporated San Lorenzo Valley communities of Felton (population 4,057), Ben Lomond (6,234), Brookdale (1,991), and Boulder Creek (4,923), as well as the main shopping and service area for the communities of Mount Hermon and Zayante (approx 2,000). SR 9 is also the only route providing access between San Lorenzo Valley communities. The corridor is characterized by a mix of commercial, office and educational land uses, two State Parks and other popular recreational destinations. This corridor also provides regional access to jobs in Santa Cruz and Silicon Valley. The area is currently served by 3 Santa Cruz METRO bus routes, with an average monthly ridership of approximately 40,000. There are approximately 3,000 K-12 students along the corridor and businesses employing over 8,000 people.¹

¹ Based on 2010 American Community Survey data.
2.1. Background Documents and Plans
Many documents and data or idea sources were reviewed and referenced to provide background for the study and plan. The most relevant documents and plans include:

Caltrans SR 9 and SR 236 Route/Transportation Concept Reports

Caltrans As-Builts and Right-of-Way Maps
In the absence of a full survey, Caltrans As-builts and right-of-way maps dating from the 2000s to the 1960s were used to establish existing roadway dimensions and right-of-way widths.

Felton Town Plan, Ben Lomond Town Plan, and Boulder Creek Specific Plan
The Town Plans for the communities of Felton and Ben Lomond as well as the Boulder Creek Specific Plan served as starting points for investigating and developing complete streets concepts in these downtown areas.

San Lorenzo Valley Trail Feasibility Study (2003)
The 2003 San Lorenzo Valley Trail Feasibility Study was a comprehensive study and inventory of the existing conditions and constraints along the SLV SR 9 corridor. This Complete Streets Transportation Plan draws heavily on portions of this prior study, including the inventory of existing pavement and roadway conditions, background research, and conceptual improvements. The remaining documents and plans are listed below, and summaries of these plans and their relevance to the SR 9 Complete Streets Corridor Transportation Plan are provided in Appendix B.

- Relevant Caltrans Documents and Programs
  - SR 9 and SR 236 Route/Transportation Concept Reports
  - District System Management Plan
  - *Smart Mobility 2010: A Call to Action for the New Decade* ([The Smart Mobility Framework](#))
  - *Main Street, California: A Guide for Improving Community and Transportation Vitality*
  - 10-Year State Highway Operations and Protection Program (SHOPP)
  - Right-of-way maps of project area
  - As-built/record drawings
  - California Transportation Plan
  - Strategic management Plans
Santa Cruz County General Plan – Circulation Element updates currently under development
- Felton Town Plan (1987)
- Ben Lomond Town Plan (1990)
- Boulder Creek Specific Plan (1992)
- County of Santa Cruz Town Hall Meetings (2013-2016)
- Santa Cruz County Capital Improvement Program
- Santa Cruz County Economic Vitality Study (EVS) and Economic Development Vision and Strategy (EDVS),
- Sustainable Santa Cruz County
- San Lorenzo Valley Trail Feasibility Study (2003)
- Santa Cruz County Regional Transportation Plan (RTC)
- Monterey Bay Area Metropolitan Transportation Plan and Sustainable Communities Strategy (AMBAG)
  - SCS Implementation Toolkit from AMBAG
- Monterey Bay Area Complete Streets Guidebook
- METRO Short Range Transit Plan, Bus Stop Guidelines, COA, and transit rider information
- Bike and Pedestrian Hazard Reports (RTC)
- Federal Highway Administration Small Town and Rural Multimodal Networks
- Other information from local social service providers, elected officials, Santa Cruz METRO, schools, colleges.
2.2 Prior Public Input
There has been ongoing public input on the topic of Highway 9 corridor improvements. The consultant team reviewed and aggregated collected comments and project ideas from the sources listed below. Some sources stand out as sources of improvement project ideas: The SLV Trail Feasibility Study, completed in 2006, included three public workshops for input on bicycle and pedestrian improvements between Boulder Creek and Santa Cruz. The connection between Felton and Santa Cruz tended to dominate the conversation, but the study also reflected ideas and preferences for many locations from Felton to Boulder Creek. In 2007 neighbors in the section of SR 9 in south Felton, between Laurel St. and San Lorenzo Ave advocated for improvements to be installed in conjunction with a Public Works project. There is documented correspondence between area residents, RTC, and Caltrans. In 2013 Supervisor Bruce McPherson of the Fifth District sponsored a tour of Highway 9 and initiated meetings with all three Boulder Creek Town Plan committees plus the SLV Marketing and Branding Committee.² The findings from this tour and related committee meetings were summarized in a series of memos.

Public Input Source Documents
Supervisor Bruce McPherson Summary Letter, Oct 7, 2013
Comments by Hal Anjo on Supervisor Bruce McPherson Summary Letter, Oct 28, 2013
San Lorenzo Valley Town Committees Current Issues/Projects, December 5, 2013
Supervisor Bruce McPherson Nov 8 Meeting Outcomes Letter, December 10, 2013

Memo “Opportunities to improve safety near the highway 9 schools” to Adam Fukushima, Caltrans, from Bryan Largay, SLV Walking and Bike Path Team, cc’ed Cory Caletti, RTC, November 13, 2012

Email “Bike and Ped improvements for Hwy 9” from Bill Le Bon to Cory Caletti, RTC, May 13, 2007
Email “Public Works Sponsorship for Hwy 9 improvements” from Bill Le Bon to John Presleigh, County Public Works, July 2, 2007.
Email, “Re: Caltrans”, Bill Le Bon to Cory Caletti, with attachments “South Felton Neighbor Letter,” “Questionnaire,” and “Statement of Need,” June 25, 2007
South Felton Neighbor Letter (attachment from Bill Le Bon email “J”)
Statement of Need (attachment from Bill LeBon email “J”)

Regional Transportation Plan (RTP) summary of public comments related to Highway 9
SLV/SR9 Priority Projects document
San Lorenzo Valley Highway 9 Committee Issues

Draft 2040 Regional Transportation Plan (RTP) – list of projects in San Lorenzo Valley

2.3. **Overall Transportation Corridor Condition Maps**

Appendix F provides overview maps of conditions from an overall transportation standpoint, including traffic volumes, collisions, existing signals and crosswalks, and significant local facilities and destinations such as schools, parks, commercial centers, and the denser residential neighborhoods. Figure 3 is a sample of these maps.
Figure 3: Sample Vehicular Conditions Map
2.4. Existing Bicycle and Pedestrian Access Conditions Maps

Appendix E contains a map series that gives an overview of existing bicycle and pedestrian connectivity and barriers. The colors on the maps denote the existence of space in the corridor to accommodate bicyclists and pedestrians (green) and the level of constraints to improve the corridor to provide more room for access (yellow to red range). These condition types are explained in appendix E.

Table 1: Key for Typical Existing Conditions

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<th>Color on Maps</th>
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<tr>
<td>A –</td>
<td></td>
<td>Areas with adequate existing bike and pedestrian access</td>
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<tr>
<td>B –</td>
<td></td>
<td>Areas with relatively level topography, few barriers to creating/improving bike and pedestrian access</td>
</tr>
<tr>
<td>C –</td>
<td></td>
<td>Areas with moderate topography, but significant adjacent trees, and/or private use and improvement barriers</td>
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<tr>
<td>D –</td>
<td></td>
<td>Areas with steep topography immediately adjacent to the roadway</td>
</tr>
<tr>
<td>E –</td>
<td></td>
<td>Area with steep topography immediately adjacent to the roadway and adjacent trees, and/or private use and improvement barriers</td>
</tr>
<tr>
<td>F –</td>
<td></td>
<td>Areas with major retaining walls close to the roadway</td>
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3. Funding Opportunities

Roadway, bicycle, pedestrian, transit, and other transportation projects are funded from a variety of state, federal, local, and regional funding sources. The public and businesses contribute to transportation funding programs through taxes and fees, primarily collected at the gas pump and at cash registers. A small portion of automobile registration fees also help fund some local transportation projects. Caltrans, the California Transportation Commission (CTC), the Regional Transportation Commission (RTC), and Santa Cruz Metropolitan Transit District (METRO) are responsible for evaluating and selecting projects to receive most of these funds. SCCRTC is the designated regional transportation agency that acts as a clearinghouse for identifying competing transportation project needs.

The majority of revenues available for transportation projects are highly restricted (or “dedicated”) by federal, state, or local regulations for use by specific jurisdictions, agencies and/or types of projects specifically limited to certain types of projects, such as state highway safety, ongoing maintenance, transit operations, freight, rail, and/or bicycle and pedestrian projects. While the state and local voters approved measures (Senate Bill 1 and Measure D) that will allow for increased investments in transportation, revenues available for transportation projects and programs are still insufficient to address all of the priorities that have been identified by the community. In identifying projects that can be reasonably implemented along the Highway 9 corridor, this study also considers which projects could reasonably compete for funding from available funding programs.

The following programs stand out as the best opportunities to secure funds for projects along the Highway 9 corridor through SLV. Appendix C contains detailed information on a full range of project funding opportunities through discretionary federal, state, regional and local grants and the Caltrans project programming process.

Measure D
The passage of Santa Cruz County Measure D in 2016 provides $10 million for improvements in the Highway 9 corridor over 30 years. This funding will be valuable to initiate more detailed planning and design, construct some high-priority projects, and provide matching funds to leverage additional grant funding. An important objective of the study and plan is to leverage this money with other funding sources to be able to accomplish more significant improvements in the corridor.

State Highway Operation and Protection Program (SHOPP)
The Caltrans’ State Highway Operation and Protection Program (SHOPP) is focused on reducing collisions and maintaining the state highway system. Adding Complete Streets elements to state highway projects may be one of the best ways to tap into traditional sources such as the State Highway Operations and Protection Program (SHOPP) which has recently been significantly augmented by state SB 1.
Active Transportation Program (ATP) Grants
This statewide program consolidates funding from federal transportation sources and state funding (approximately $340 million statewide next year) for projects that improve facilities for walking and bicycling.

Key criteria: address existing walking and biking safety issues evidenced by collisions; show potential to reduce driving trips to key destinations such as schools and increase the number of people walking and bicycling; show benefits to economically disadvantaged areas; be part of a comprehensive, coordinated multi-agency plan with strong public support.

Probably the best opportunity for bicycle and pedestrian projects, in terms of funding available and match to SLV conditions and projects envisioned. Santa Cruz County Public Works has identified access to SLV schools as a priority for these funds and successfully received funding for speed-feedback signs which slow traffic near schools. Showing a larger-scale phased project with demonstrated benefits may increase chances to win one of these highly-competitive grants.

Urban Greening Grant Program
A statewide program with approximately $76 million available this year that focuses on urban greening through conversion of pavement to green space, incorporating more natural drainage and stormwater treatment features, combined with elements to reduce vehicle miles travelled by improving bicycle, pedestrian and transit access.

Transportation Investment Generating Economic Recovery (TIGER) Grants
This U.S. Department of Transportation program invests in road, rail, transit and port projects that enhance economic development and improve access to reliable and safe transportation. Over $213 million has been awarded for 16 bicycle and pedestrian projects since 2009. This highly-competitive program is oriented to large scale visionary projects and tends to award larger grant amounts than ATP. Comparable recent examples include $10 million in 2016 to the City of Live Oak, CA, near Chico, for a $17.3 million project to reconstruct SR 99 through downtown with Complete Streets elements; and a planning grant of $236,000 to the City of Goleta, CA in 2014 toward the $700,000 design of a Complete Streets corridor in the 0.8 mile Old Town neighborhood corridor along Hollister Avenue.

Surface Transportation Block Grant program and State Transportation Improvement Program (STIP)
The Surface Transportation Block Grant Program (STBG) and State Transportation Improvement Program (STIP) are federal and state funding programs which are distributed to regional agencies statewide based on formulas that consider population and lane miles. The Regional Transportation Commission (RTC) is responsible for selecting projects throughout Santa Cruz County to receive these funds, based on evaluation criteria set forth in the Regional Transportation Plan (RTP). In recent years, the RTC has prioritized projects that serve the greatest number of users and preserve existing transportation infrastructure, improve safety, reduce the number of miles driven and associated air pollution and greenhouse gas emissions.
3. Draft Evaluation Criteria

To meet the study goal and objectives, a set of draft performance criteria was prepared to evaluate improvement concepts and site-specific projects. Public and stakeholder input on project objectives and evaluation criteria is sought in study Phase 1 – the evaluations would be completed for Phase 2.

This evaluation is not intended to result in a formal, weighted scoring to determine preferences; rather it would be used to compare and contrast alternatives. A set of symbols illustrated be used to “score” the improvement projects and options against each criterion. This provides an “at a glance” sense of project performance, but reasons for the score would be the most important consideration.

**Bike and Pedestrian Barriers**

**Definition:** Physical conditions that place bicyclists and pedestrians in close proximity to traffic with minimal space/separation, especially in areas with higher posted speed limits and high traffic volumes.

**Available data:** Physical conditions data from GIS maps; traffic and speed limit data from Caltrans; public and stakeholder input.

**Evaluated by:** Mapping constrained locations based on GIS data and site observations; public input regarding constrained locations that need improvement.

**Safety**

**Definition:** Addresses documented condition to reduce/avoid collisions, especially those involving fatalities, injuries, or bicyclists and pedestrians.

**Available data:** Collision data from Caltrans, CHP and the Statewide Integrated Traffic Records System (SWITRS); public input.

**Evaluated by:** Mapping or correlating post mile tables of this data with other GIS data and reviewing on map.

**High Use/Potential**

**Definition:** Serves common destinations that have existing or anticipated high level of use and/or demand for bike, pedestrian or transit access; connects between significant community facilities; schools, parks, town centers, denser residential neighborhoods, major connection roads.
Available data: GIS mapping of facilities; past and current public input.

Evaluated by: Analyzing by GIS mapping; observing levels of use; considering public input.

**Benefit to/Impact on Adjacent Properties and Businesses**

**Definition:** How the project affects existing private facilities in the ROW and/or adjacent private properties; economic benefits or impacts; access to businesses; aesthetics, compatibility.

**Available Data:** Existing physical layout/setting; prior and current public input – especially from property and business owners.

**Evaluated by:** Anticipated benefits or impacts on businesses, resident, property values based on precedents from this and other communities; business/property owner support or opposition.

**Environmental Impacts**

**Definition:** Potential environmental impacts and benefits to air quality, as well as vegetation, waterways, wildlife, and other other environmental assets.

**Available Data:** GIS-based data on sensitive environmental areas, California Air Resources Board data on emissions.

**Evaluated by:** Analysis of potential to change vehicles miles traveled/increase transit ridership, bicycling, walking, carpooling; and plan-level analysis of potential impacts on natural environment.

**Compliance with Standards**

**Definition:** Ability to meet Caltrans standards for facility design, geometrics, ADA access, etc.; or other adopted local, state or federal design criteria; right of way availability/requirements; known environmental or permitting constraints (mature trees, creeks); consistency with current plans, policies, regulations, etc.

**Available Data:** project descriptions and illustrations for the study; data from analysis of corridor conditions; review of applicable standards, policies and plans.

**Evaluated by:** Analysis of improvement concepts by Caltrans and other transportation staff on the Technical Advisory Group.

**Constructability/Sustainability**
Definition: Relative physical opportunities and constraints, potential environmental impacts and benefits, and implied cost for constructing the improvements and maintaining them.

Available data: GIS-based classification of existing conditions in roadway and along shoulders (on site, Google Earth and Streetview inventory); Caltrans record drawings; planning-level cost estimates.

Evaluated by: Comparing estimated cost overall and per mile for potential improvements; considering maintenance requirements, responsibilities, abilities and costs.

Cost/Funding Availability

Definition: How well the project meets criteria for grant or other funding source.

Available Data: Analysis of best potential funding sources.

Evaluated by: Review by the Technical Advisory Group.

Public Support

Definition: The level of public need and support expressed for the project and geographic balance.

Available Data: Prior and current public input from on-line survey, workshops and other comments.

Evaluated by: How many people were concerned about the issue/location being addressed, and/or how many supported (or opposed) the project concept.

Stakeholder Support

Definition: Support or concerns expressed by the transportation system operators (e.g. Caltrans, County of Santa Cruz, METRO) and other stakeholder agencies and entities, including CHP, fire, etc.

Available Data: Comments from agency or entity representatives.

Evaluated by: Review and response to comments – extent of positive or negative.
4. Alternative Improvement Types - Toolkit

There is a wide range of potential transportation improvements that may be appropriate for the redwood and riverside setting of San Lorenzo Valley on Highway 9 and connecting roads. Appendix D contains a detailed set of corridor improvement options, or “toolkit” with technical information regarding design to meet Caltrans standards, and potential variance from standards that may be needed to make them work in this constrained setting.

The summary toolkit presented below illustrates options in several different categories for a general idea of the choices. Public input on the summary toolkit is/was requested at a May 31, 2017 Open House, stakeholder meetings and through an online survey on phase 1 of the study. Input is sought on which options are most needed/desired, most feasible, and in what locations. The more technical, detailed toolkit is focused on the Caltrans, public works, and other public agency review process.

Improvement type options

- **Roadway improvements:** guardrails; pull-outs; passing and turning lanes; roundabouts; green drainage
- **Pedestrian facilities:** shared bike/ped space; grade separated path; trails; conventional sidewalk; crosswalks with controls
- **Bicycle facilities:** bike lane; green bike lane; buffered bike lane; cycletrack
- **Transit, Other:** Bus stop; parking; wayfinding signs; park & ride/carpool; bus service
- **Traffic Calming and Crossing improvements:** Narrowed lanes; raised crosswalks; colored crossings; bulb outs; reduce speeding
<table>
<thead>
<tr>
<th>Roadway/Traffic Improvements</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Guardrails</strong></td>
<td><strong>Pull-outs</strong></td>
<td><strong>Passing and turning lanes</strong></td>
<td><strong>Roundabouts</strong></td>
<td><strong>Green drainage</strong></td>
</tr>
<tr>
<td>Provides space for slower vehicles to pull-over and crashes to be removed from roadway</td>
<td>Prevents turning vehicles from contributing to traffic back-ups, allows vehicles to pass</td>
<td>Roundabouts at intersections can reduce delay, improve traffic flow, and reduce collisions compared to intersections with stop signs or traditional traffic lights.</td>
<td>“Green” drainage such as rain gardens, planter boxes and bioswales slow, infiltrate, and filter storm water flows while also providing additional green space/landscaping</td>
<td></td>
</tr>
</tbody>
</table>

Guardrails protect pedestrians and/or minimize severity of auto accidents.
### Pedestrian Facilities

<table>
<thead>
<tr>
<th>Shared bike/ped space</th>
<th>Grade-separated path</th>
<th>Conventional sidewalk</th>
<th>Trails</th>
<th>Crosswalk with controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paved multiuse path. (requires at least 10’)</td>
<td>Pedestrian path built above or below retaining wall</td>
<td>Conventional concrete sidewalks with curbs</td>
<td>Informal paths separated from roadways.</td>
<td>Crosswalks with flashing lights alerting drivers when pedestrians are in the crosswalk.</td>
</tr>
</tbody>
</table>
## Bicycle Facilities

<table>
<thead>
<tr>
<th>Bike lane</th>
<th>Green bike lane</th>
<th>Buffered bike lane</th>
<th>Cycle track</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Green bike lane" /></td>
<td><img src="image2" alt="Buffered bike lane" /></td>
<td><img src="image3" alt="Cycle track" /></td>
</tr>
</tbody>
</table>

- **Bike lane**: A minimum of 4’ wide, 5’ – 6’ desirable
- **Green bike lane**: Green bike lanes or green-backed sharrows further accentuate bike space
- **Buffered bike lane**: Buffer provides space between bicyclists and passing cars and/or “dooring” from parked cars
- **Cycle track**: Bi-directional “Cycle track” on one side of road, buffered from vehicle lane
<table>
<thead>
<tr>
<th>Transit, Other</th>
<th>Transit</th>
<th>Bus service</th>
<th>Park and ride/carpool</th>
<th>Parking</th>
<th>Wayfinding signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved transit stops with shelters</td>
<td>More frequent bus service in SLV</td>
<td>Designates locations and parking to support commuter and other carpooling</td>
<td>Parking that avoids backing into the highway and/or bike and pedestrian space.</td>
<td>Signage must be well organized, visible, and compliant with the Manual of Uniform Traffic Control Devices.</td>
<td></td>
</tr>
</tbody>
</table>
## Traffic Calming

<table>
<thead>
<tr>
<th>Narrowed Lanes</th>
<th>Higher visibility crosswalk</th>
<th>Bulb out</th>
<th>Colored Crossings</th>
<th>Reduce Speeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrowing lanes from 12’ to 11’ can slow down traffic and provide more space for other modes</td>
<td>Raised crosswalks, decorative crosswalk to slow cars in town centers and near schools (allowed on county roads, may not be possible on Hwy 9)</td>
<td>Curb “bulb outs” reduce the crossing distance for pedestrians; reduced curve radius can be a potential challenge for trucks</td>
<td>Decorative paved crosswalks can slow traffic and emphasize walking areas</td>
<td>Increase CHP presence and enforcement of speed limits</td>
</tr>
</tbody>
</table>
5. Site-Specific Improvement Concepts and Alternatives

This Phase 1 report attempts to pick up where prior studies, plans and public input left off. The objective of the current public participation process is to obtain comments and preferences regarding these previously-submitted ideas; get additional ideas, and use this input to develop alternative projects and concepts that respond to community needs and preferences, as well as the standards and constraints of Caltrans, Metro Transit, funding opportunities, and other practical considerations.

A series of site-specific concepts for improving bicycle and pedestrian connectivity, parking organization, and overall traffic safety was prepared based on ideas from cumulative public and agency input. These ideas get quite detailed in order to present realistic scenarios to address some significant specific barriers and challenges, but they are only in the conceptual stage – not proposals, let alone plans. Some of the concepts have only one solution idea – others have alternative or additive ideas to consider for the same challenge area.

On-line surveys and in-person outreach is intended to collect input and preferences about these ideas. Informed input depends on reviewing this report to understand the conditions, concepts, and considerations. Based on survey results and individual public and agency comments, these improvement concepts will be defined, refined, and evaluated and other concepts identified by the community in Phase 1 will be evaluated as part of Study Phase 2.
Conditions/Challenges

This section of highway is generally flat and has relatively gentle curves. The south half is suburban residential with some commercial and a church. The northern half is in the Felton commercial district. Significant constraints occur only at the southern part. From the end of the central commercial district at Kirby Street there are wide (approximately 8’) paved/gravel shoulders and some sections of sidewalk. Ladd’s Auto Body has a similar pull-in parking configuration to downtown. South of Laurel Drive the shoulder diminishes to 4 feet or less. There is a crosswalk at Redwood Drive near the entrance to the state park, but there is no signal or lights.

Improvement Idea

Add minimum 4’ shoulders/bike Lanes with path on east side (Survey option 1): The SLV Trail Study proposed widening shoulders to at least 4’ where they are currently less, and adding a path on the east side to the Big Trees Road/park entrance.\(^3\)

Part of the shoulder widening could potentially be accomplished by narrowing lanes from 12’ to 11’. Adding a sidewalk or path on the east would require extending large box culverts/bridges at PM 5.55 and 5.8 and some minor grading. Barriers such as utility poles, signs, drainage ditches, trees, and driveways would have to be addressed.

The crosswalk at Redwood Drive could be improved with lighting and a user-activated warning light (RRFB).

Pros: would improve bicyclist and pedestrian safety from downtown south to the park.
Cons: moderately expensive.

\(^3\) This suggestion was also put forth by resident advocates.
Add path on east
Widen shoulders to at least 4’
Improve existing crosswalk at Redwood Drive
2. More organized parking/frontage in downtown Felton

**Conditions/Challenges**

In the commercial area between Graham Hill Road and Kirby Street much of the parking is perpendicular, requiring backing into the highway, which does not meet Caltrans standards and would not be allowed if it was not “grandfathered.” This configuration leaves no safe designated space for bicyclists and pedestrians in the right-of-way, and tends to create an aesthetically unappealing frontage. The right-of-way (ROW) line is generally at the edge of the existing roadway on the west – the parking is on private property, but on the east the parking is in the ROW and the businesses generally have other parking lots.

**Alternative Improvement Ideas**

a. Convert to 45-degree angled parking, improve walkways at store fronts; add center turn lane (Survey option 2). The Felton Town Plan proposed 45-degree angled parking with a back-up aisle that occupies the space where the sidewalk and bike lane would normally be. It includes improved, more continuous sidewalks along the building frontages, and a 2-way left turn lane in the center.

*Figure 6: Highway 9 pedestrian improvements from Felton Town Plan*
Pros: Maintains existing storefront parking spaces while providing improved pedestrian facilities; provides some additional greenery in the medians; easier to turn into and pull out of specific businesses.

Cons: Does not meet Caltrans standards and could not be funded with transportation grants. Provides no dedicated space for bicyclists. Requires coordination with/between business/property owners.

b. Convert to separated 30 degree angled parking or conventional parallel parking with sidewalks in ROW (Survey option 3). Where there is at least 35 feet of space from the white lane stripe or “fog line” the parking could be reorganized to have consolidated entrances, and exits with 30-degree angled parking. A sidewalk could be constructed, separated from the parking by a narrow potentially landscaped median. Where there is less space, the parking would have to be parallel.

Pros: Maintains existing storefront parking spaces while allowing for protected bicycle and pedestrian facilities; improved traffic circulation; better aesthetics and green space.

Cons: Requires coordination with/between business/property owners. Existing pull in parking on west side is on private property and not within Caltrans right-of-way, requires negotiation and coordination with businesses and property owners to plan improvements.
Figure 8: Conceptual layout of sidewalk protected angled parking and bike lanes

Figure 9: Cross-Section
c. Colored/textured shoulders. A colored and textured shoulder has been used in similar settings to define a clearer zone for pedestrians and bicyclists. This would be a less intense treatment option that would designate the pedestrian space, and alert drivers to the presence of pedestrians.

**Pros:** Avoids interfering with private property and existing parking; relatively low cost. Can be done within Caltrans ROW.

**Cons:** Does not address traffic safety issue and non-compliance with current standards. Does not separate pedestrians and bicyclists from cars as much as other options.
3. Bicycle and pedestrian access at Graham Hill Road intersection

Conditions/Challenges

This corner has no formal bike or pedestrian facilities and little to no space except by walking or biking through the adjacent gas stations/repair shop parking lots. The lack of consolidated driveways exacerbates this condition. There is a redwood tree in a rock planter in the ROW on Graham Hill that occupies the space where the shoulder and sidewalk would otherwise be. There is little to no available ROW to add shoulder or sidewalk.

Aerial view of northwest corner of Graham Hill Road and Highway 9 and insets showing potential path/sidewalk
Alternative Improvement Ideas

a. Narrow the lanes to add space for bikes on the shoulder and a continuous sidewalk (Survey option 4). The existing lanes are typically 12 feet. If they were narrowed to 11 there would be enough space to add a sidewalk without impacting the private businesses, except by creating consolidated driveways. The redwood tree would still be a barrier - the walkway could potentially go around the back of the tree while the additional space is used to create at least a 4 foot shoulder (there may or may not be enough space in the ROW, or the tree and planter could be removed. Note that narrowing lanes on Highway 9 for this project conflicts with narrowing them to add more bike/ped space on the west side - doing both may require some ROW acquisition and additional impact on adjacent businesses.

Pros: supports safer biking and walking in a congested area.

Cons: narrower lanes may bother some driver; impact on businesses; moderate construction cost

b. Convert the intersection to a roundabout (Survey option 5).
Roundabouts have been accepted by Caltrans as a preferred approach for heavily used intersections. Roundabouts have been shown to move traffic more efficiently with less delay than signalized intersections, and can be designed to accommodate bicyclists and pedestrians safely and efficiently. The space in the center is often used for community monument signs or signature elements such as a sculpture

Pros: provides for more efficient traffic flow, provides more space for bicyclists and pedestrians, provides opportunity for landmark feature.

Cons: may not fit in available area, expensive, disruptive during construction, some people are uncomfortable with the concept.
4. Bicycle and pedestrian connection to SLV schools from central Felton

Conditions/Challenges

The section of Highway 9 between Graham Hill Road/Empire Grade and the SLV schools complex currently includes a series of retaining walls that leave minimal space for bicyclists or pedestrians on the west side, and little space on the east side near Graham Hill Road. This is a very constrained section for bicyclist and pedestrian access in a location with high demand and relatively heavy traffic. Because the schools are on the west side, that is the most desirable alignment for access improvements. The constraints change in a number of ways along this stretch, but the primary challenges are a series of retaining walls on the west side in the central and southern portions of this section. In the central portion tall retaining walls have only approximately 4’ shoulders at the base. Near the southern end a few residential properties on the west have steep driveways and tall retaining walls with as little as 2 feet of shoulder space.

The roadway in this section is approximately 43 feet wide, which leaves ample room for bike and pedestrian space if there are only 2 lanes, but there is a left turn lane at the north end of the largest wall, and at the south end the road widens into 4 lanes, including 2 southbound left turn lanes. Narrowing lanes would not provide enough space to create a separate pedestrian facility.

On the east side the commercial and residential properties toward the south end have driveways dropping down, and to the north the mostly residential properties have low retaining walls. The 1/3 mile from Clearview Place north to the schools has some constraints – slopes, trees, and landscaping in the ROW, but is relatively unconstrained compared to the section to the south.

Figure 11 details the structures along the west side from Felton Empire Road/Graham Hill Road north to Clearview Place/San Lorenzo Way.
Figure 10: SLV Schools to Felton Corridor
Figure 11: Constrains on west side of SR 9

- 160' - gas station - has sidewalk except at N end
- 110' - apartments - access from the rear. Retaining wall close to shoulder on S
- 95' - residence - steep driveways and short retaining wall
- 95' - residence - steep driveways w/ hedge and low retaining wall
- 155' - residence - steep driveways, retaining wall
- 150' - driveway to residence above; open slope (would need retaining wall); guardrail at N end
- 200' - retaining wall increases to 12' tall; build pathway above?
- 200' - retaining wall increases to 12' tall; build pathway above?
- 280' - guardrail, then commercial properties with pull-in parking, 8' shoulder
- 350' - retaining wall, increases to 14' height; shoulder narrows to 4 feet
- 450' - retaining wall, increases to 14' height; shoulder narrows to 4 feet
Commercial property

Sloped driveway

Slopes beyond commercial property

Second, taller wall
Taller wall

End of wall at Clearview Place

North of Clearview Place

At mobile home park
Alternative Improvement Ideas

a. Separate Class I path on west side (Survey option 6). A path could theoretically be constructed above the highway retaining wall, as illustrated in Figure 12. The ROW line is approximately 12’ – 14’ behind the walls. This would require an additional low retaining wall, and extension walls may be needed to climb and descend behind the wall at an ADA-compliant maximum 5% grade. Completing the path south past the residential structures with walls may require the acquisition and removal of some residential structures.

Constructing a Class I path or pedestrian path in the highway ROW on the west side the remaining approximately 1/3 mile to the schools is constrained by some slope and mature trees, but would be far more feasible/less expensive than the portion to the south.

**Pros:** safest for bike/ped connection to schools.

**Cons:** Impacts private properties; likely very expensive.

b. Narrow lanes and add buffered bike (and pedestrian) lane on west side (Survey option 7). While adding a separate path would get into expensive acquisition and construction, if the lanes were narrowed from present 12 feet to 11 feet and shifted to the east slightly a buffered bike lane or shared bike/pedestrian lane at least 8’
wide could be provided on the west side for most of the way – portions at the north and south ends of the wall sections may still require some reconstruction to get the necessary space. To remind/deter drivers from crossing into the bike/ped lane, “rumble strips” or raised “armadillos” could be installed.

**Pros:** safer for bikes and pedestrians than current condition; far less expensive and more easily implemented than separate path; narrower lanes often used to slow/calm traffic.

**Cons:** narrower lanes may bother some drivers, may not be acceptable to Caltrans depending on speed limits, etc.

c. **Add sidewalk on east side.** Adding a sidewalk on the east side may be feasible independent of lane narrowing or shift. There are mailboxes, signs and other private features in the public right-of-way that would have to be moved. The descending driveways would make it difficult for the sidewalk to comply with ADA access standards without reconstructing the driveways to be steeper – having the sidewalk slightly below the level of the highway with a curb might help.

**Pros:** safer for pedestrians; far less expensive and more easily implemented than separate path; don’t need to alter lanes.

**Cons:** not safer for bicyclists; school kids would have to cross 9 at least once, may discourage use. Impacts private fixtures and driveways. Slopes, cost.

d. **Cooper/Clearview/Fall Creek Bypass (Survey option 8).** (no access improvements). Cooper Street is a quiet residential street that parallels Hwy 9 to the west. It connects to Hwy 9 via Clearview Place (now a private road with steep slope – approximately 30% gradient) to the north of the segment with the retaining walls. This would be a much safer alternative to walking along the shoulder of the highway. It is closed to vehicles but physically open to bikes and pedestrians. In addition to this connection to Highway 9 there is a longer route via Fall Creek Road that some kids use to reach the back of the schools.

**Pros:** a safer alternative for walking or biking than continuing along the highway.
Cons: formal legal access or improved gradients on Clearview Place would may require an easement or re-acquisition of the roadway; channeling significant bike and pedestrian traffic may be objectionable to the residential neighborhood; the route is longer than the highway – particularly the Fall Creek Road connection, and some kids may not use it

5. Transit and sidewalk access improvements SLV school entrance to Fall Creek Drive (Survey option 9).

Conditions/Challenges
The entrance to the SLV schools is not fully improved for bicycle and pedestrian access, including to the transit stops. Kids must walk or bike on the shoulders or in the dirt or mud, and the relationship of the transit stop to vehicle drop-off is awkward.

Improvement Idea
The proposed improvements include a relocated and improved bus stop shelter on the west side, sidewalks and paving around that shelter and connecting from the shelter on the east side to the crosswalk, and extension of a sidewalk on the west side to south of Fall Creek Drive.
**Pros:** provides safer access for walking or biking, including to the transit stops, and generally a better organized/improved drop-off area at the schools. Could be done more quickly and costs less than other options.

**Cons:** minor impact on adjacent properties.
6. Improved bicycle and pedestrian connection from schools north to El Solyo Heights Drive

Conditions/Challenges

Along the west side of Highway 9 north of San Lorenzo Valley Middle School a series of retaining walls in the ROW present a major constraint for extending a path or sidewalk. The shoulder is approximately 8’ wide at the south end of the walls, but narrows to approximately 3 feet at the north end. There is not sufficient lane or shoulder width to create space for a path. Given the proximity to the schools, and heavy, fast traffic in this vicinity, access improvements would be highly desirable. The stretch of constrained roadway only extends along the frontage of four residential properties; to the north and south there are few constraints to adding a sidepath. North of El Solyo Heights Drive there are no roads or structures fronting Highway 9 for about 1,800 feet, so there is less need for access improvements.

As shown in Figure 13, based on Caltrans record drawings, the wall is a substantial structure supported by deep piers. The top of the wall is approximately 7.5’ above the roadway, and the ROW line is approximately 8 feet behind the wall.

Alternative Improvement Ideas

a. Add a sidewalk or path on west side above/behind the existing retaining walls (Survey option 10). The path could be constructed behind the existing wall and barrier, with the addition of a low retaining wall and fence as shown in Figure 13. The path would need to descend and climb to/from the intersecting driveways at a maximum 5% gradient to comply with ADA standards. This would be accomplished by the added retaining walls.

Ideally the 12’ lanes would be narrowed to 11’ to add space for bicyclists at the current “pinch point.”

Pros: Access for pedestrians to the schools as well as to other destinations would be improved, and potentially access for southbound bicyclists.

Cons: Would reduce the yard area of existing residences; relatively expensive to implement.
b. Bypass via El Solyo Heights Drive/Hacienda Way (Survey option 11). A bypass already exists for Middle School students (and potentially other students) in the form of an informal path leading to a small wooden bridge over a drainage, and connecting to Hacienda Way, near the northeast corner of the school grounds. Improving the bridge and constructing a formal multi-use path would involve construction on school property, but would be outside the fenced school yard, in an area with moderate slopes.

Figure 14: Connection from SLV Schools North

The connection back to Highway 9 via Hacienda Way and El Solyo Heights Drive could be improved by providing route signs and minor frontage improvements. A potential disadvantage is that it would be inappropriate to invite the public to use a route that crosses school property. This bypass would be for school access only – not for through public access.

**Pros:** The improvements would be relatively inexpensive to construct.

**Cons:** This is really formalizing a route that exists – it would only be useful for school students and would not improve conditions for bicyclists and pedestrians who are not headed to the schools.
7. Crossing and Pedestrian Improvements at/to Mill Street/Highway 9 in Ben Lomond (Survey option 12).

Conditions/Challenges
Along Mill Street from the post office to Highway 9 and along Glen Arbor east to Pine Street (a populous residential area) there is no walking area and pedestrians of all ages must contend with cars, trucks and buses by walking in the roadways. In the winter both of these streets have significant runoff and there really is no place to walk safely. Also, Main Street at SR 9 is a wide intersection with long crossing times and frequently heavy, fast traffic. The curve limits sight distance ahead.

Improvement Ideas
a. Add crosswalk warning lights and lighting at Highway. At the Mill Street/Glen Arbor intersection add warning devices such as in-pavement flasher to overhead beacons to actively alert drivers to pedestrians crossing, install additional electrolier and convert to LED lights on Route 9.

b. Add a walkway from Pine Street to Highway 9. Add a formal walkway, with associated drainage improvements on Glen Arbor Road connecting Highway 9 to Pine Street.
8. Pathway on SW side of SR 9 from Quality Inn/bridge south to Mill Street in Ben Lomond (Survey option 13)

**Conditions/Challenges**

There is a sidewalk and crosswalk at Mill Street but no formal pedestrian facility north until the sidewalk on the bridge over the river. There are private landscape improvements and several mature redwoods and firs at or near the shoulder that block the normal location of a sidewalk, and pull-in parking that would cross.

**Improvement Idea**

An informal paved path could wind behind or in front of the trees, assuming there is room in the highway ROW, to avoid or minimize tree removal. This situation is similar to many locations in SLV where mature trees and private landscaping or other features occupy what would otherwise be the pedestrian space.

**Pros:** would provide safer pedestrian access

**Cons:** would impact private improvements in the ROW and potentially mature trees
9. Add crosswalk bulb-outs in downtown Boulder Creek (Survey option 14)

Conditions/Challenges

This is a long straight stretch of “main street” highway with parking on both sides. Parking and traffic can block visibility of people trying to cross. The street can also appear bleak without trees or planting along the frontage.

Improvement Idea

Bulb-outs (or curb extensions) could be installed at crosswalks at Mountain, Lomond and Forest Streets and Highway 236. This would shorten crossing distance, make it easier to be seen, tend to slow traffic, and provide the opportunity for green drainage and to add trees and planting to the street. Closer to the southern town limits at Mountain Street there is no sidewalk to connect to the bulb-out, so rapid-flashing beacons or other enhanced pedestrian signage and striping may be an alternative to a bulb-out to help increase visibility and safety there.

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4 See Caltrans Highway Design Manual Chapter 300
Figure 15: Proposed bulb-out and pedestrian safety improvement locations
**Pros:** decreases crossing distance and/or crossing visibility, traffic calming, potential for green drainage and landscaping

**Cons:** potential limits or conflicts related to Caltrans standards

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*Figure 303.4A
Typical Bulb-Out with Class II Bikeway (Bike Lane)*

*Example bulb-out*

*Caltrans bulb-out guidelines*
10. Sidewalk seating and storefront improvements in downtown Boulder Creek (Survey option 15).

**Conditions/Challenges**

Sidewalks in downtown are within the state highway ROW. Merchants would like to create outdoor eating/seating areas on sidewalks and do other sidewalk or storefront improvements, but the limitations and process to get approval from Caltrans are challenging.

**Improvement Idea**

Create guidelines that clarify limitations and standards; what can be done without a permit, and the process for obtaining one for improvements that may be acceptable.

**Pros:** Would make it easier for merchants and property owners to know what is possible and how to achieve it.

**Cons:** Some of the desired uses or improvements may conflict with Caltrans standards. Would require funding and a responsible party to prepare the guidelines.
Figure 16: As-builts for Highway 9 in Boulder Creek