3. Priority Projects by Location

A primary goal of the Highway 9/San Lorenzo Valley Complete Streets Corridor Plan (Highway 9/SLV Corridor Plan) is to create an actionable short-term and longer-term multi-modal plan that addresses key transportation challenges in the San Lorenzo Valley and provides a vision for the corridor in the future. Community members, public agencies, and stakeholder groups have identified hundreds of challenge areas and project ideas for the corridor (see Appendices B, D, and E), with 7 corridor-wide and 28 location specific potential transportation improvements and concepts identified as priorities along the Highway 9/San Lorenzo Valley Corridor from Henry Cowell State Park in Felton to the northern junction of Highway 9 with Highway 236.

The priority project concepts were developed based on:

- Evaluation of existing corridor conditions (including collision data, traffic volumes, land uses);
- Physical and regulatory constraints;
- Goals, objectives, and evaluation measures established for this planning effort (see Chapter 1 *Introduction* and Chapter 4 *Implementation Plan*);
- Challenges and project ideas identified by over 600 participants in surveys and at public meetings from 2017 to 2019;
- Priorities identified in past planning efforts;
- Input from focus groups of key stakeholders for the towns, schools, and overall corridor; and,
- Public input on the draft Highway 9/SLV Corridor Phase 1 Report (2017) and draft plan (2019).

While some preliminary analysis has been done regarding possible designs and constraints for these project concepts, projects would undergo subsequent analysis for feasibility and impacts when implementation is pursued. As funding becomes available and projects are implemented, they would then undergo formal environmental review and design engineering. Information on how well each project addresses safety, mobility, and other objectives for the corridor, as well as the recommended plan for implementation of priority projects in the near, short, medium, and long term is described in Chapter 4 *Implementation Plan*.

Location-specific priority projects are presented here in a roughly south-to-north format, beginning at the southern end of the planning area where Highway 9 (State Route 9) enters Henry Cowell State Park south of Felton. In addition, corridor-wide Priorities A – G in **Section 2.4 *Corridor Wide Priorities*** represent broader corridor-wide goals to be enacted throughout the SLV and are not limited to particular physical locations.

Feasibility considerations and potential constraints for each project are outlined briefly in this chapter. Right-of-way (ROW) constraints/impacts (the potential need for easements, encroachment permits and/or to purchase land next to the current right-of-way to have room to build the project), bridge reconstruction, and retaining wall reconstruction are among the most difficult and/or expensive to address.

For descriptions of specific infrastructure options (such as two-way center turn lane (TWLTL), sidepath, bulb-out, etc.) included in these projects, as well as federal and state guidelines for design of these improvement options, see **Appendix A *Complete Streets Improvements Toolkit.***

In addition to these priority locations and project concepts, **Appendix B *Identified Projects List*** contains a consolidated list of over 800 ideas that public agencies and community members have identified for the corridor. A map of these challenge areas is available online at: *http://arcg.is/1nnW95*. This more exhaustive list of transportation improvements is expected to be considered by Caltrans, the County of Santa Cruz, Santa Cruz METRO, RTC, and other project sponsors as maintenance, new development, and other projects are implemented along the corridor.

To guide future improvements beyond the priority projects, **Section 2.3 *Preferred Typical Cross Sections*** also defines preferred cross sections with Complete Streets features for a variety of land use densities. The 2006 *SLV Trail Feasibility Study* identifies a more comprehensive list of proposed locations and analysis of future bicycle and pedestrian facilities, including options to provide bicycle and pedestrian connections from Felton to Santa Cruz, which is outside the scope of this study.

Transportation conditions occurring through the San Lorenzo Valley are quite variable and complex. Each section of this chapter contains an overview of transportation conditions for areas around each town and the SLV Schools Campus and maps of proposed infrastructure changes.

Additional overview maps focused on vehicular conditions are included in **Appendix F *Existing Corridor Conditions*.** They include information about traffic volumes, collisions, existing signals and crosswalks, and significant local facilities and destinations such as schools, parks, commercial centers, and the denser residential neighborhoods. Appendix F also includes maps showing existing bicycle and pedestrian connectivity and barriers and information on potential space and constraints to accommodate bicyclists and pedestrians on Highway 9.

3.1. Felton

Existing Conditions

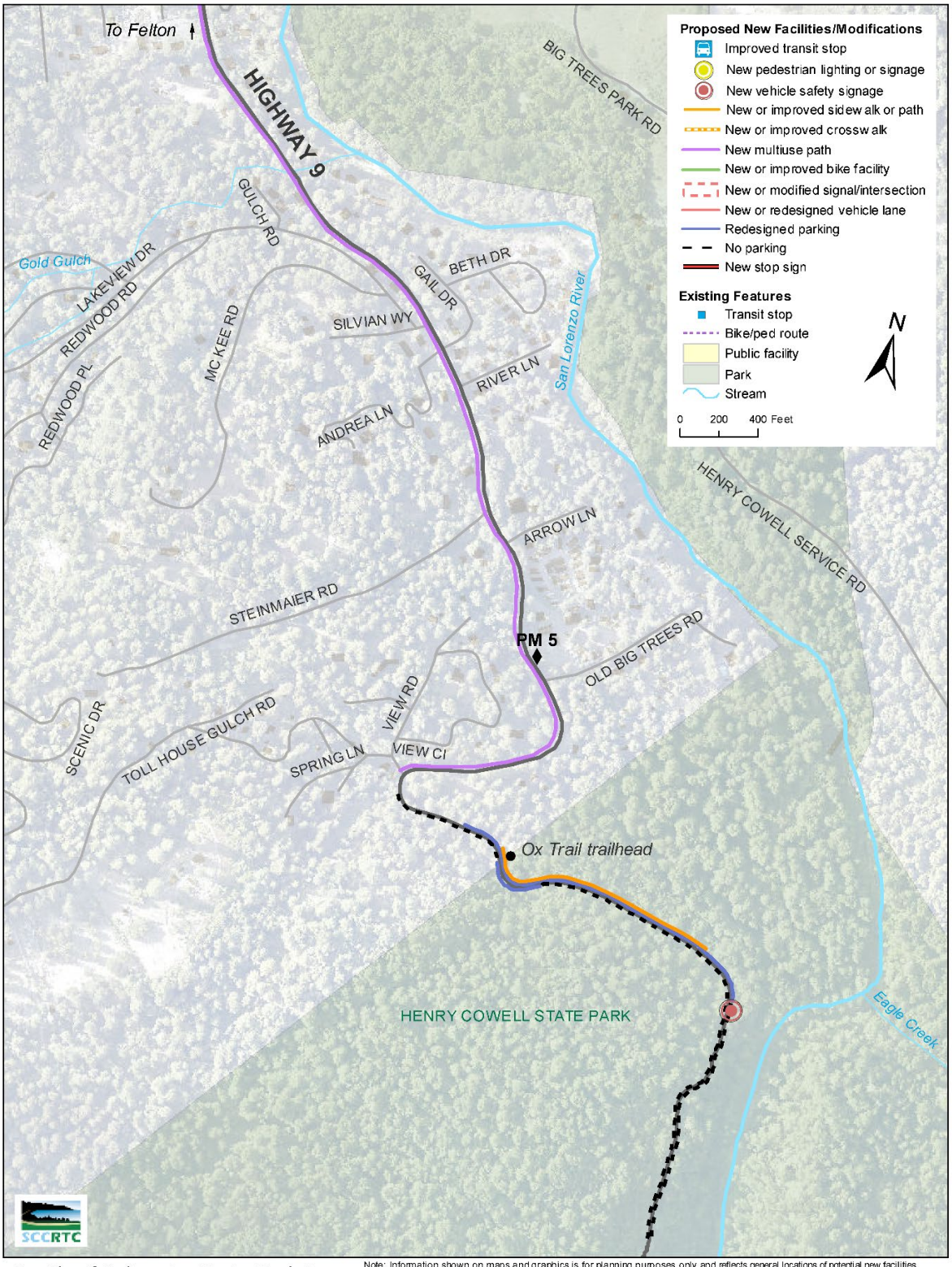
South Felton, Henry Cowell State Park Boundary to Big Trees Park Road. This segment is rural and suburban in character. It begins at approximately Highway 9 Post Mile 4.6 where the highway leaves Henry Cowell State Park land and ends at the main Henry Cowell State Park entrance road (N Big Trees Park Rd). A sharp curve near Glengarry Rd presents serious slope and tree constraints. Then the highway enters flatter terrain in a residential area where there is generally room to widen the highway or create a separate path, but not both. The significant constraints include trees, fences, utility poles, and on the west side, embankments and drainage ditches. Cars often park along the shoulders of Highway 9, especially to access the State Park. Traffic volumes drop significantly south of Redwood Dr and the main Henry Cowell State Park entrance. Santa Cruz METRO bus route 34 primarily serving students from Lakeview Dr to the San Lorenzo Valley schools, operates just twice a day. This segment has average daily traffic volumes of approximately 6,300 vehicles.

Central Felton, N Big Trees Park Road/Redwood Drive to Graham Hill Road. This segment (3300 feet) is straight and in relatively flat terrain. The southern half is primarily residential, while the northern half includes the central business district of Felton. Highway 9 generally has adequate shoulders for bicycles but is not currently striped for bike lanes. Pedestrian access is informal and discontinuous, with barriers created by trees, fences, utility poles, and signs. Much of the commercial area is continuously paved, with parking areas and driveways merging with each other and the highway shoulder, leaving no clearly designated space for pedestrians. Santa Cruz METRO bus route 34, primarily serving students from Lakeview Dr to the San Lorenzo Valley schools, operates just twice a day. This segment has average daily vehicle traffic volumes of approximately 7,600 (near Redwood Dr) to 12,000 (south of Graham Hill Rd).

Priority Projects

Priority projects for Felton are mapped and described on the following pages.

Figure 3.1: South of Felton to State Park Area

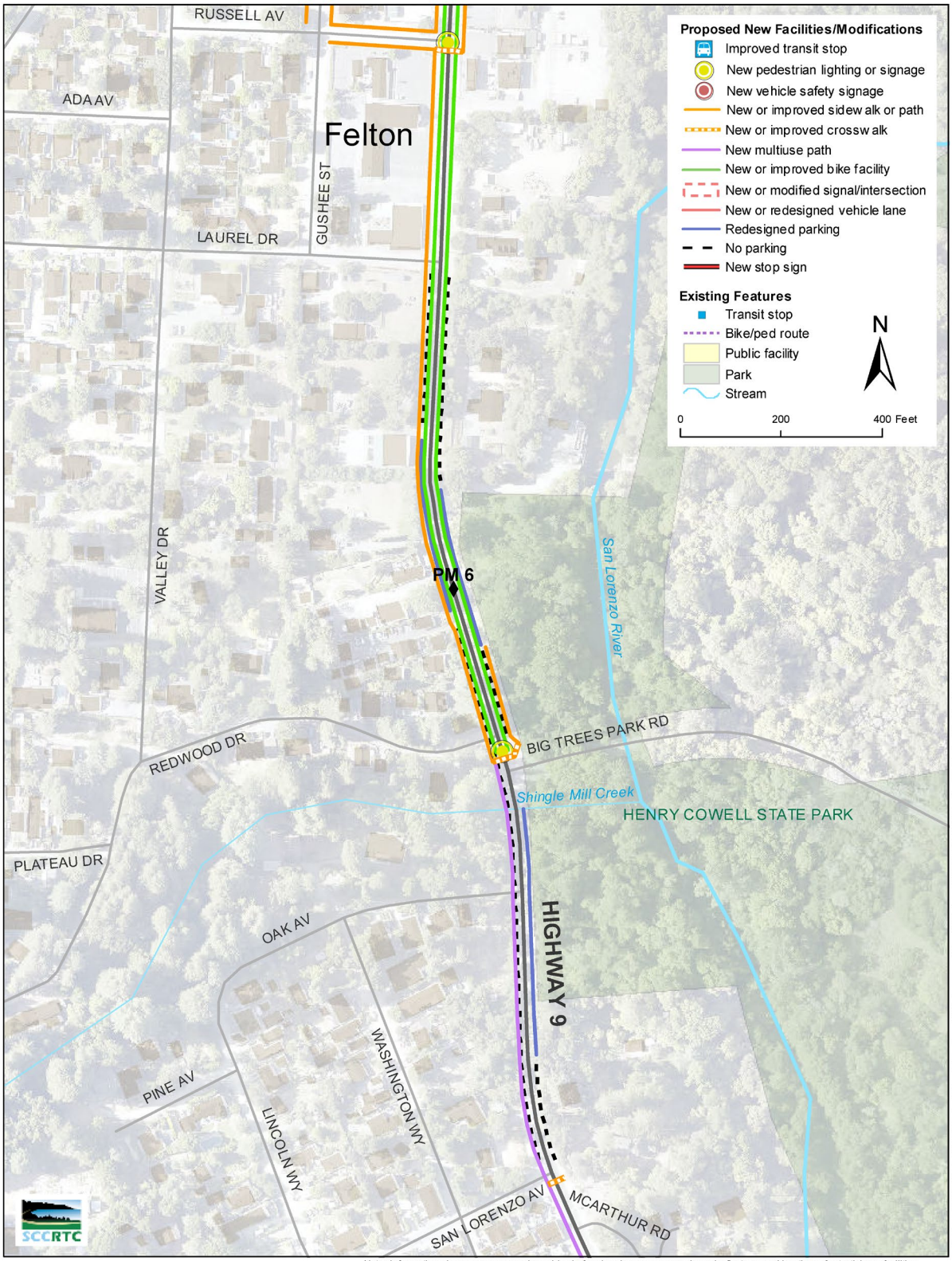


South of Felton to State Park Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.2: South Felton Area

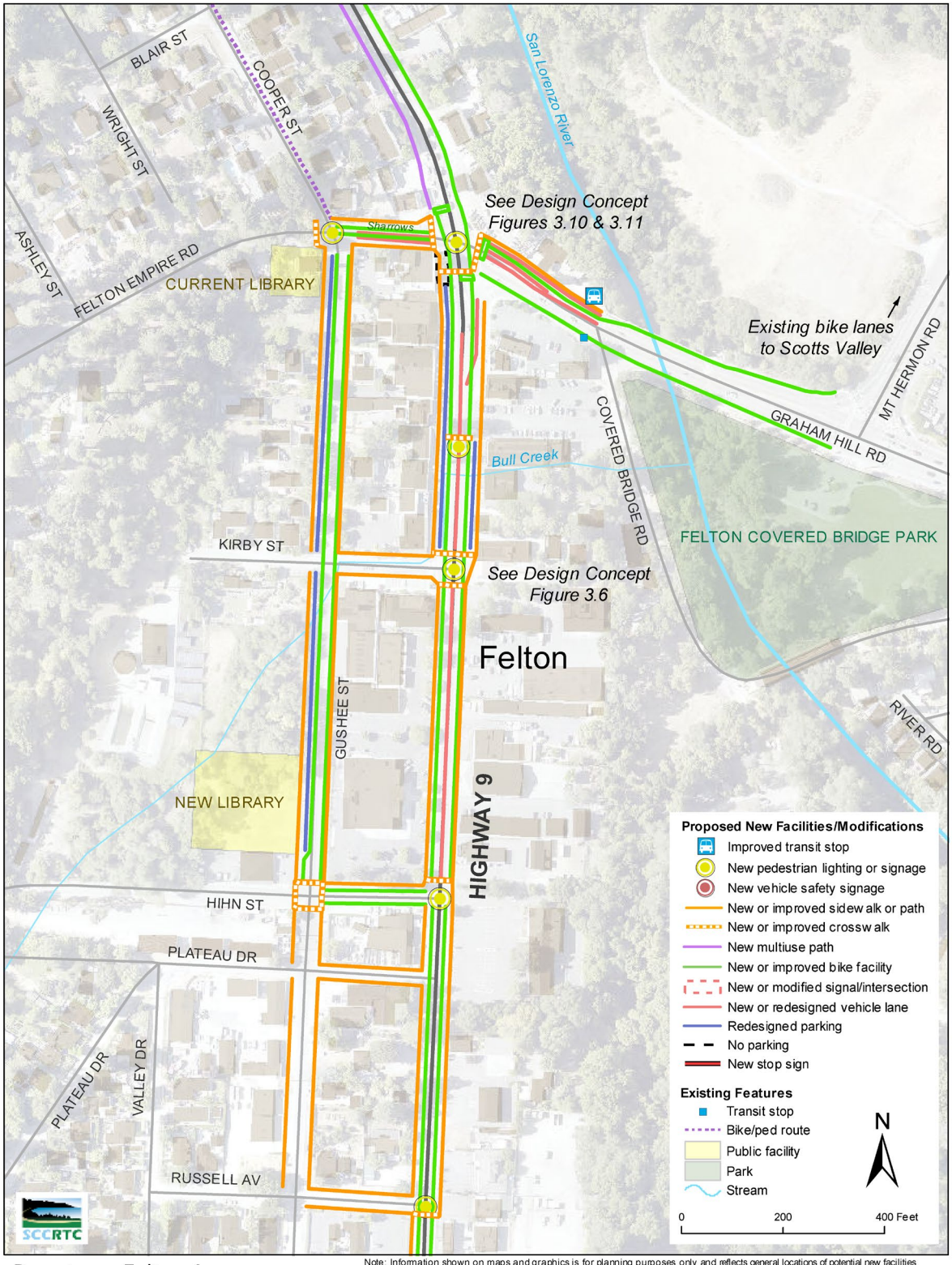


South Felton Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.3: Downtown Felton Area



Downtown Felton Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Project 1 – Henry Cowell State Park Access and Parking

This project seeks to evaluate and formalize parking and pedestrian facilities on Highway 9 for safer access to Henry Cowell State Park, both at the main entrance near Redwood Dr and the "Garden of Eden"/Ox Trail parking area just south of Glengarry Rd.

Figure 3.4: Existing Parking Outside Henry Cowell State Park

Credit: SCCRTC

Modifications that would be considered as part of this project include:

- At both the main Henry Cowell State Park and Ox Trail entrances, install parking signs to delineate acceptable parking areas on Highway 9 where existing space outside of the travel way for parked cars is 9 feet or greater.
- Formalize current parking into striped parking stalls wherever feasible, possibly utilizing brightly painted timbers in lieu of painting stripes or paving on State Park property, as described in Appendix A Section 1.1 *Parking.*
- Install "No Parking" signs at 200 – 400-foot intervals for the necessary distance north and south of Redwood Dr/ Highway 9 and north and south of the Ox Trail Parking Lot, wherever formalized parking is not feasible.
- Add signage clarifying that angled parking is illegal on shoulders and clarifying "no parking" areas. "No parking" and parking rules would need to be supported by a Santa Cruz County local ordinance.
- Construct sidepaths connecting formalized parking spaces to their respective park entrances (see Appendix A Section 6.3 *Sidepath*). At the main State Park entrance near Redwood Dr these paths may be combined with the pedestrian facilities in Project 3.
- Pave and stripe parking stalls on Ox Trail lot. Pedestrian access for Ox Trail lot and on west side of Highway 9 at Henry Cowell main entrance could require paving of shoulder.
- Restripe the roadway to define travel way limits, consider narrowing travel lanes to 11-foot lanes and adding pedestrian crossing warning signs on Highway 9.

Currently, vehicles are parked haphazardly on the shoulders of Highway 9, as visitors park their vehicles to access the State Park along blind turns or partially within the vehicle travel lane. This section of Highway 9 currently has narrow paved shoulders less than four feet wide and there are no designated bicycle facilities in the project area. There are limited opportunities on Highway 9 to widen the road or install a consistent pathway due to trees, utility poles, drainage ditches, and embankments next to the travel way. A crosswalk is located at Redwood Dr, but it is does not connect to any pedestrian facilities and there are no other pedestrian facilities further south in the project area.

Possible Alternative Improvements: A crosswalk at Ox Trail Parking Lot connecting formalized parking on the west side of Highway 9 (if any) to the Ox Trail trailhead was proposed during the

process, but this project would likely be rejected during the engineering analysis of crosswalks due to the blind curve and lack of an adjacent intersection. Parking on shoulders could also be formalized by paving the shoulder areas and striping parking spaces.

Possible Feasibility Considerations: Project components feasible, existing shoulder width and grade varies. Access and parking will need to be considered and addressed in coordination with State Parks.

Project 2 – Southern Felton Neighborhood Bicycle and Walking Paths

This project would extend pedestrian and bicycle facilities on Highway 9 to the neighborhoods south of the Felton town center. If necessary, the modifications could be incrementally phased in tiers, as funding opportunities become available.

- **Tier I:** Expand pedestrian and bicycle facilities south along Highway 9 from the main entrance of Henry Cowell State Park and Redwood Dr to the school bus stop just past San Lorenzo Ave (in front of the Big Foot Museum). Potentially add a new crosswalk near San Lorenzo Ave, though the feasibility of this location will require additional analysis due to the existing crosswalk at Redwood Dr one block north.
- **Tier II:** Extend the facilities from San Lorenzo Ave to Lakeview Ave and the Forest Lakes neighborhood.
- **Tier III:** Extend facilities through to Glengarry Rd and the end of the populated area.
- Bicycle and pedestrian facilities would need to cross over Shingle Mill Creek in Tier I and Gold Gulch Creek in Tier II. Current bridges would need to be widened or exclusive bike/ped bridges would need to be built.
- In the interim period before work begins on this project, consistent tree trimming in this segment, particularly between Redwood Dr and Oak Dr, would improve line of sight for motorists and increase safety for pedestrians and bicycles.

This section of roadway currently has narrow paved shoulders less than 4 feet wide and there are no designated pedestrian or bicycle facilities in the project area. There are limited opportunities to widen this section of Highway 9 or install a consistent pathway due to trees, utility poles, fences, drainage ditches, and embankments next to the travel way.

For this narrow section of highway, a FHWA-defined multiuse “sidepath” configuration is proposed, see Appendix A Section 6.3 *Sidepath*. A sidepath is proposed for the western side of Highway 9, pending further study, due to the higher number of residences on the western side of the highway. The vehicle lanes could need to be shifted east to accommodate the sidepath.

Possible Feasibility Considerations: Roadway section between Redwood Dr/Henry Cowell and Glengarry Rd is constrained and would require extensive grading, as well as tree removal and bridge construction or reconstruction. Access and parking need to be considered, coordinated and addressed with State Parks. Sight distances will need to be evaluated for any crosswalks in the area.

Project 3 – Henry Cowell State Park to Downtown Felton Pedestrian and Bicycle Connection Improvements

This project would create pedestrian and bicycle connections on Highway 9 from the Felton town center to the Henry Cowell State Park entrance near Redwood Dr and improve the existing crosswalk at the park entrance.

Improvements that would be considered as part of this project include:

- Widen shoulders to at least four feet to provide space for pedestrians (see Chapter 2 Section 2.3A *Rural Cross Section: Wider Shoulders*), and additionally or alternatively create a separate trail or sidepath on the west side of Highway 9 from the Russell Ave intersection (and the sidewalks in Project 6), extending south to the Redwood Dr crosswalk at the park entrance. If the path proposed in Project 2 is built on the east side of Highway 9 instead of the west side as currently proposed, the path from Russell to the park entrance should also be on the east side.
- Add bike lanes from Laurel Dr (and the bike lanes in Project 7) to the Henry Cowell entrance
- Improve the crosswalk providing access to the Park Entrance/Big Trees Park Rd near Redwood Dr (walkways from crosswalk to Oak Ave and south included in Project 2). This may include moving current crosswalk south to the center of the park entrance, out of a vehicle blind spot, and restriping the crosswalk with high-visibility ladder striping, all of which is under evaluation as part of a successful Fall 2018 Highway Safety Improvement Program (HSIP) grant.

  A Rectangular Rapid Flashing Beacon (RRFB) or similar low-profile pedestrian activated flasher, bulb-outs, and/or pedestrian refuge island to shorten the crossing distance for pedestrians and to narrow and slow traffic as vehicles approach Felton could also be evaluated, though initial analysis indicates visibility distances are not sufficient for an RRFB. Narrowing of vehicle travel lanes and slowing of vehicle traffic at this location using bulb-outs would be complemented by similar facilities at the Pool Dr intersection north of Boulder Creek (see Project 28) to create a “gateway” effect at either end of the more populated Felton to Boulder Creek core segment of the San Lorenzo Valley slowing vehicles from speeds reached in the more rural, unpopulated segments.

The project area currently has uneven shoulders and drainage ditches along both sides of Highway 9 adjacent to the travel way north of N. Big Trees/Park Entrance to Laurel Dr. There are currently no formal pedestrian facilities other than the Redwood Dr crosswalk in the project area. Current paved shoulders are less than 4 feet wide and there are no designated bicycle facilities in project area. Many vehicles are also regularly parked haphazardly on both shoulders (see Project 1).

The current location of the crosswalk to access Henry Cowell State Park requires pedestrians to wait to cross on a blind corner next to a steep embankment on the west side of Highway 9. Many pedestrians currently jaywalk on the south side of the intersection where the shoulder of Redwood Dr lines up with the Henry Cowell State Park entrance rather than use the existing crosswalk. Initial analysis indicates that in order to move the crosswalk south, the guardrail of the bridge over Shingle Mill Creek and the embankment must be shifted to accommodate a paved pedestrian landing. There is currently very limited space in this area due to bridges, guardrails, embankment, and utility poles. Bulb-outs and a pedestrian refuge island would require drainage improvements. Pedestrian and bicycle paths may require new paved shoulders or other paved areas.

Possible Feasibility Considerations: Guardrail at Shingle Mill Creek could require relocation to improve Redwood Dr crosswalk. Existing dirt paths behind guardrails along Highway 9 do not meet standards. Room for pedestrian landings at either end of crosswalks is limited. Concrete box culvert under Highway 9 south of the park entrance constrains width of road and shoulders. In order to provide access to trail on south side of N. Big Trees Rd (Henry Cowell entrance), an additional crosswalk could be considered across N. Big Trees Rd, though the park entrance is

currently very wide. Truck and bus turning radius will need to be considered at bulb-outs. State Park access and parking need to be considered, coordinated and addressed with State Parks.

Project 4 – Downtown Felton Crosswalks

This project seeks to improve pedestrian crossings in Downtown Felton on Highway 9, including the addition of bulb-outs, high-visibility ladder striping and other safety and visibility improvements at each crossing of Highway 9 listed below.

- The existing midblock crossing between Graham Hill Rd and Kirby St at the Wild Roots Grocery Store
- Kirby St, including new crosswalk at the north leg of intersection if determined feasible
- Hihn St
- Possibly Russell Ave, see Alternative Improvements

Installation of double-acorn style pedestrian scale lighting on the shoulder at Felton crosswalks and other locations is described in *Corridor Priority E* (Chapter 2 Section 2.4).

Figure 3.5: Existing Midblock Crossing Outside Wild Roots Market

Credit: SCCRTC

Additional safety features that may be considered for the existing midblock crossing at Wild Roots include:

- Pedestrian refuge island (in center turn lane, see Project 4),
- Rectangular Rapid Flashing Beacon (RRFB) or similar low-profile pedestrian activated flasher, and
- Analysis of moving the existing midblock crossing approximately 20 feet south to allow a space cushion between the crosswalk and vehicles turning left out of the Wild Roots parking lot.

A Preliminary Concept Design for upgrades to the existing mid-block crossing at the Wild Roots grocery store and crosswalk improvements at Kirby St is shown in **Figure 3.6**. The midblock crosswalk was identified in a successful 2018 HSIP grant.

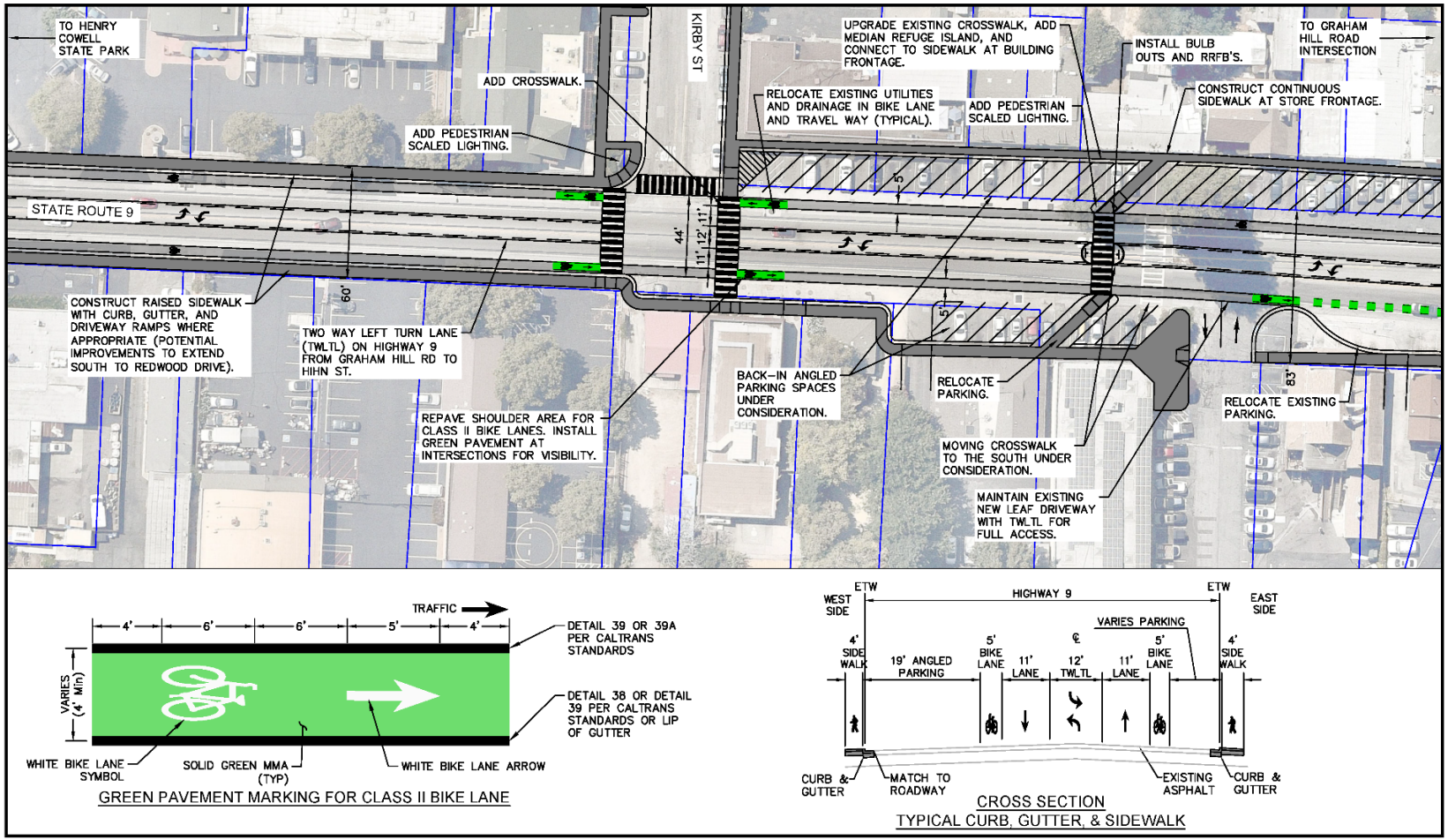
Reducing speeding and implementing traffic calming elements throughout Felton town center is described in Chapter 2 *Priority A*.

In downtown Felton, parking areas and driveways merge with each other and the highway shoulder, particularly in the commercial area, leaving little or no designated safe space for pedestrians. Pedestrian access is discontinuous with barriers created by trees, ditches, unorganized parking, fences, utility poles, and signs. Current crosswalk designs include traditional parallel lines for striping at most locations.

Possible Alternative Improvements: Analyze addition of a new crosswalk at Russell Ave to increase safety for the Tuesday Farmer's Market. A new crossing at Russell is initially determined to be feasible but must be vetted through a Caltrans review process, see Appendix A Section 4.1: *New Crosswalks.*

Possible Feasibility Considerations: No major constraints were identified. Initial analysis determined that raised bulb-out facilities are feasible for Felton crosswalks along Highway 9, however bulb-out design would need to address drainage, bus and truck turning radius, and maintenance, accommodate potential future bike lanes and connect to pedestrian sidewalks on Highway 9 and cross streets. Bulb-outs could require repaving of the crosswalk areas, or connection to curb and gutter sidewalks if/when such sidewalks are installed.

Figure 3.6: Felton Town Center Design Concept



Kimley»Horn

FV-197061001 JUNE 2019

*EXHIBIT IS FOR ILLUSTRATIVE PURPOSES ONLY. PROPERTY LINES, SATELLITE PHOTO OF BUILDINGS, ETC. MAY NOT BE IN PRECISE LOCATIONS. EXACT LOCATION OF PARKING SPOTS, SHADED TREES, AND OTHER ELEMENTS TBD DURING DESIGN PHASE.

PROJECT 4 AND PROJECT 7
BIKE / PED CONNECTION IN DOWNTOWN FELTON
HENRY COWELL TO GRAHAM HILL ROAD

SR 9 COMPLETE STREETS CORRIDOR STUDY

Project 5 – Downtown Felton Bicycle and Walking Connections near Library

This project on county roads adjacent to Highway 9 would connect the Felton town center to the new library location near the corner of Gushee St and Hihn St and connect the new library to future pedestrian and bicycle facilities leading to the San Lorenzo Valley Schools Campus (see Project 9). This project provides an alternative pedestrian and bicycle route on a lower volume road with less congestion than Highway 9.

Figure 3.7: Gushee Street at Hihn Street, Looking North

Credit: SCCRTC

Proposed improvements include:

- Improve pedestrian crossing connecting Gushee St to Cooper St across Felton Empire Rd, one block west of Highway 9 – Improvements may include squaring up the crossing, adding high-visibility ladder striping, bulb-outs to make it easier for cars and pedestrians to see one another, new signage, analysis of new dome rumble strips before curve or speed humps to alert drivers. This crosswalk would connect this project to Project 8 and Project 9.
- Narrow auto travel lanes on Gushee St to 11 or 12 feet to free up right-of-way space for complete streets components
- Add bicycle facilities on Gushee St from Felton Empire Rd to Hihn St (near term add sharrows, longer term add bicycle lanes)
- Add new sidewalks on Hihn St from Highway 9 to Gushee St (with north side as higher priority), including shade trees
- Add bicycle facilities on Hihn St from Highway 9 to Gushee St (add sharrows near term)
- Widen and update current sidewalk on west side of Gushee St from Hihn St to Felton Empire Rd, connecting pedestrians to a bike/ped connection to SLV Schools Campus (see Project 9). Add new sidewalk on the east side of Gushee St from Hihn St to Felton Empire Rd, including shade trees. If additional funding becomes available, extend these sidewalks south to Russell Ave
- Add new crosswalks at intersection of Gushee St and Hihn St (at Felton Post Office)
- Add parking on Gushee St from Hihn St to Felton Empire Rd. May include angled parking (back-in or nose-in) on one or both sides if there is sufficient right-of-way and found to be feasible. This component of the project may serve as the new location of relocated parking from Project 8.

There are no existing pedestrian or bicycle facilities in the project area other than two blocks of sidewalk on the west side of Gushee St, and all streets have unstriped on-street parking on both side sides of the street. This project could require repaving of Gushee St, as well as construction of curb and gutter sidewalks and drainage. The minimum 4-foot width for bike lanes should be provided.

Possible Feasibility Considerations: Potential right-of-way impacts for sidewalk on east side of Gushee St. Right-of-way on Gushee St from Kirby St to Felton Empire Rd is constrained and may be insufficient for all defined project components, specifically angled parking. Roadway grades, parking spot widths, and community concerns also need to be considered when analyzing parking options, including any angled parking.

Project 6 – Downtown Felton Pedestrian Walking Facilities

This project would entail updating existing sidewalks and constructing new sidewalks along Highway 9 and on county roads in the Felton town center to the end of the continuous commercial area at Laurel Dr.

This project is tiered so that the project can be incrementally phased as funding opportunities become available.

Figure 3.8: Kirby Street and Highway 9, Looking North

Credit: SCCRTC

- **Tier I**: Improvements to existing sidewalks in front of businesses and gap closure to provide continuous walkways on both sides of Highway 9 between Graham Hill Rd and Kirby St, and fill gaps in sidewalks on south side of Kirby St from Highway 9 to Gushee St Sidewalks would be updated to current ADA standards and include shade trees where feasible.
- **Tier II:** Extend pedestrian facilities on both sides of Highway 9 from Kirby St to Hihn St and connect to pedestrian facilities around the new library (see Project 5). In this segment, many businesses are set well back from the street varying distances by parking lots. New sidewalks could be located closer to the vehicle lanes, immediately adjacent to the proposed bike lanes (see Project 7) and within the Highway 9 right-of-way as proposed by the Felton Town Plan. Install new sidewalk on north side of Kirby St from Highway 9 to Gushee St. Include shade trees where feasible.
- **Tier III:** Extend pedestrian facilities on Highway 9 from Hihn St to Laurel Dr, the south end of the Felton commercial area, and on Plateau Dr and Russell Ave from Highway 9 to Gushee St Sidewalks would follow the boundary of the highway right-of-way as described in Tier II and include shade trees where feasible. Sidewalks on the east side of Highway 9 would end at Russell and connect to the path to Henry Cowell State Park described in Project 3.

Add or include shade trees, benches, tree wells, and other aesthetic features, consistent with *Caltrans' Main Street-California (2013)*. Reducing speeding and implementing traffic calming elements throughout Felton town center is described in Chapter 2 *Priority A*.

Preliminary Concept Designs for downtown Felton are shown in **Figure 3.6**. Infrastructure changes from Projects 4, 6, 7, and 8 are shown together in this figure, although they may be analyzed and implemented separately.

The project area is congested, especially during peak periods. Most of the downtown core is continuously paved, and parking areas and driveways merge with each other and the highway shoulder, leaving no designated space for pedestrians. Pedestrian access is discontinuous and not compliant with ADA accessibility standards in many locations, with barriers created by unstriped shoulder parking, utility poles and signs.

Possible Feasibility Considerations: Construction of continuous sidewalks along Highway 9 is feasible provided drainage and utilities in the shoulder are relocated and Highway 9 shoulders are repaved. Parking, driveways, and landscaping could require reconfiguration or reconstruction.

Project 7 – Downtown Felton Roadway, Bicycle, and Parking Improvements

This project seeks to improve auto and bicycle operations and organize parking in the Felton town center on Highway 9 from Graham Hill Rd to Hihn St.

The project may include:

- Add two-way center turn lane to ease congestion resulting from vehicles turning into parking spaces on Highway 9 shoulders between Graham Hill Rd and Hihn St, if feasible. A two-way center turn lane would also remove the issue of vehicles passing on the right shoulder around left-turning vehicles, which occurs frequently in the current design and decreases the safety of pedestrians and cyclists. Consider installation of temporary “keep clear” markings at high traffic driveways along Highway 9 through downtown in interim to maintain access to businesses. Access to driveways close to Graham Hill/Highway 9 intersection should ultimately be evaluated as part of Project 8.
- Add bicycle lane striping and green lanes at intersections and some heavily used driveways.
- Analyze and modify parking in order to provide for more efficient vehicle maneuvers and minimize conflicts, especially when backing up and returning into highway traffic. Modifications may include back-in angled parking to replace current perpendicular parking, if feasible. Back-in angled parking requires only the first move of entering a parallel parking space to completely park, and offers drivers better visibility of bicyclists and other traffic when they are exiting a parking space. Caltrans recently removed a ban on angled parking on state highways and since then has approved back-in angled parking in several locations (see Appendix A, Section 1.1 *Parking*), though to date no nose-in parking has been approved. Roadway grades will need to be considered when analyzing parking options.
- Increase amount of formalized car parking and bicycle parking in the downtown core, on Highway 9 and neighboring blocks.
- Add bicycle lanes on Highway 9:
    - **Tier I**: Bike lanes on Highway 9 from Graham Hill Rd to Kirby St
    - **Tier II:** Bike lanes on Highway 9 from Kirby St to Hihn St and bicycle connection to new Felton library (see Project 5)
    - **Tier III:** Bike lanes on Highway 9 from Hihn St to Laurel Dr and connection to bike lanes in Project 3 for bicycle access to Henry Cowell State Park entrance

Preliminary Concept Designs for downtown Felton are shown in **Figure 3.6**. Infrastructure changes from Projects 4, 6, 7, and 8 are shown together in this figure, although they may be analyzed and implemented separately.

This area of Felton is congested as vehicles turn, park, reverse into traffic (see **Figure 3.9**) or into other vehicles also reversing, drive against traffic in the shoulder, drive in the shoulder around vehicles turning left, and queue as the northbound traffic waits for the traffic signal at Graham Hill Rd or as the southbound traffic waits for an opportunity to turn left into the Wild Roots parking lot and other parking spaces. Parking areas and driveways merge with each other and the highway shoulder, particularly in the commercial area, leaving no designated safe space for pedestrians. While there are adequate shoulders for bicycles, the shoulder is not currently striped for bike lanes.

Possible Alternative Improvements: If a two-way left turn lane is deemed unnecessary due to back-in angled parking design, left turn pockets for Kirby St and the Wild Roots parking lot should be analyzed instead. Two-way left turn lane or left turn pocket for Wild Roots parking lot would create space for a pedestrian refuge island for the existing midblock crossing, see Project 4.

Possible Feasibility Considerations: Roadway widening could be necessary in some locations to incorporate parking improvements, roadway turn lane improvements, and bike lanes. Roadway widening is feasible with the relocation of utilities and drainage in the shoulder as part of the sidewalk improvement. Parking and driveway landscaping and frontage could require reconfiguration. Current perpendicular parking design not permissible by Caltrans standards. Back-in angled parking would require Caltrans approval. No example of nose-in angled parking has been approved by Caltrans previously. See Appendix A Section 1.1 *Parking* for more information. Some community members have expressed concern about back-in angled parking and additional community discussions will be necessary. Some also expressed preference for wider bicycle lanes and sidewalks over increased parking. Balancing different uses will require additional analysis during the design phase.

Project 8 – Highway 9 and Graham Hill Road Intersection Redesign

This project would redesign of the intersection of Highway 9/Graham Hill Rd/Felton Empire Rd. The goal of the intersection improvement is to reduce delay and back-ups, increase throughput, and improve pedestrian, bicycle, and transit access through the intersection.

Intersection redesign would require a more detailed analysis as intersection modifications are implemented. For descriptions of specific infrastructure improvement options mentioned here and their associated Federal and State guidelines, see Appendix A: *Complete Streets Improvements Toolkit.*

Redesign of the Graham Hill Rd intersection would consider the following components: *(Tiers reflect potential order if phased implementation is necessary due to funding or other constraints)*

- **Tier I**: Make pedestrian, bicycle, and transit modifications to intersection
- **Tier II:** Extend vehicle queuing and turn lanes on all legs to maximum extent possible to increase intersection capacity
- **Tier III:** Widen to add any bicycle lane segments not feasible within existing right-of-way and additional vehicle lanes if feasible

Components of this project include:

- **Crosswalks**: Restripe crosswalks with high-visibility ladder markings, “square up” crosswalks to run perpendicular to the travel lanes to minimize crossing distances and increase pedestrian visibility.

- **Pedestrian island:** Reconstruct existing pedestrian island on the southeast side of the intersection crossing Graham Hill Rd to accommodate bike lanes and maximize protected space available for pedestrians. Community members have expressed interest in incorporating landscaping and/or public art.
- **Sidewalk on Graham Hill Rd:** Install pedestrian walkway on the north side of Graham Hill Rd from the Highway 9 intersection to the northbound transit stop on Graham Hill Rd where there is currently no sidewalk. These facilities would require infrastructure build-out to the edge of the right-of-way and may require acquisition of some right-of-way.
- **Right turn pocket Highway 9 northbound to Graham Hill Rd:** Lengthen the existing right turn pocket from Highway 9 northbound onto Graham Hill Rd. This has the potential to reduce backup through Felton on northbound Highway 9 by more effectively separating northbound traffic and allowing the heavier volumes of right-turning traffic onto Graham Hill Rd to continue flowing during red lights. Modification to current driveway access on southeast corner of intersection should be considered along with this component.
- **Graham Hill Rd travel lanes:** Lengthen existing queuing pockets on Graham Hill Rd for autos going straight onto Felton Empire Rd or turning left into downtown Felton. Longer separated left turn and straight lanes would increase the number of vehicles through the intersection per light cycle. Analyze if this improvement would require removal of a redwood tree planter just north of the Graham Hill Rd westbound lanes.
- **Parking:** Relocate parking stalls on Highway 9 in the southwest corner of the intersection that back up into the intersection or area within 20 feet of the edge of the improved crosswalk location. Current parking design is contrary to Caltrans parking regulations at intersections (see Appendix A, Section 1.*1 Parking*).

Figure 3.9: Cars Backing into Travel Lanes and Waiting to Park South of Graham Hill Road Intersection

Credit: SCCRTC

- **Felton Empire Rd travel lanes:** Separate queuing lanes for left and straight/right movements from Felton Empire Rd east-bound onto Highway 9 and Graham Hill Rd per Felton Library CEQA mitigation measures. Prioritize maintaining existing parking spaces on Felton Empire Rd. County Planning anticipates this lane restriping will take place ahead of other intersection improvements outlined in this project.
- **Bicycle facilities**: Add bike lanes and other bicycle facilities through the intersection on Highway 9 and Graham Hill Rd. Green bike lanes would increase visibility of bicycle space, including hatched green bike lanes across the intersection and bike boxes to increase safety for bicyclists making left turns. Four-foot bike lanes on Highway 9 may require that the vehicle lanes be narrowed to 11 feet, which requires a Caltrans Design Exception. If right-of-way can be obtained on northeast corner, Graham Hill Rd should also be widened to accommodate bike lanes.

- **Felton Empire Rd sidewalks and bicycle facilities:** Add sidewalks and bicycle facilities (potentially sharrows) on Felton Empire Rd to Cooper St, connecting Highway 9 to the Felton Empire/Gushee St crosswalk improvements (Project 5) and/or the pedestrian and bicycle facilities leading to the SLV Schools Campus (see Project 9).
- **Intersection throughput:** Increase throughput per traffic light cycle from Highway 9 southbound to Graham Hill Rd and continuing south on Highway 9. Possible improvements include modifying queuing lanes from current left and right/straight/left pockets to a left only (splitting into two ahead of the light) and a right/straight.
- **Signal Timing**: Optimize signal timing to maximize throughput in all directions, after improvements detailed above are completed, particularly from Graham Hill Rd onto northbound Highway 9 during the evening commute and to include pedestrian priority signals that allow pedestrians to begin walking before cars receive a green light.
- **Transit:** Upgrade existing northbound transit stop #2559 at Graham Hill Rd and Covered Bridge Rd, with paved bus pullout, landing pad, and shelter.

Figure 3.10 shows the proposed concept design for this intersection redesign project, as well as components of Projects 4, 7, and 9. This design is a potential concept for discussion purposes only and would require additional study and engineering analysis. Intersection design modifications would require repaving, and construction of new curb/gutter sidewalks and drainage. See also feasibility considerations below.

Possible Alternative Improvements: Improvements to circulation through the Highway 9/ Graham Hill Rd intersection could be accomplished without major changes to the current structure of traffic flow, as described above. However, these improvement goals could also be met through a larger-scale redesign of traffic circulation at the intersection. Some options include:

- A multi-lane roundabout. Although this option could improve operations at the intersection and add new bicycle and pedestrian access, a roundabout would require significant right-of-way and many members of the community expressed opposition to this concept.
- Closure of the west leg of the intersection (Felton Empire Rd) with diversion of Felton Empire Rd traffic onto Gushee St. However, this would result in increased traffic on Gushee and northbound on Highway 9 through the Felton commercial area, and this option contradicts recommendations from the CEQA traffic study for the new Felton library location.

Figure 3.10: Highway 9 and Graham Hill Road Intersection Design Concept

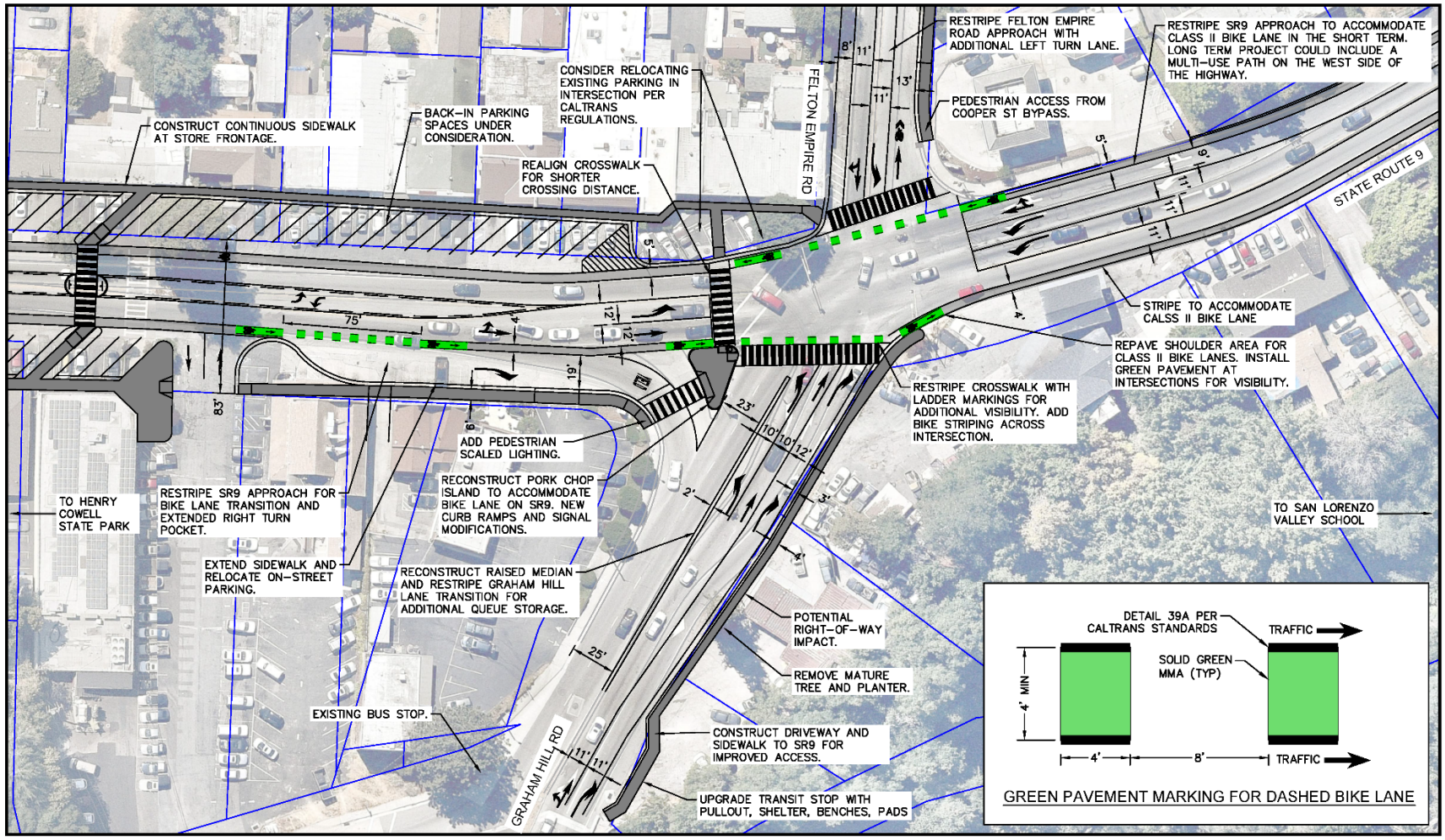


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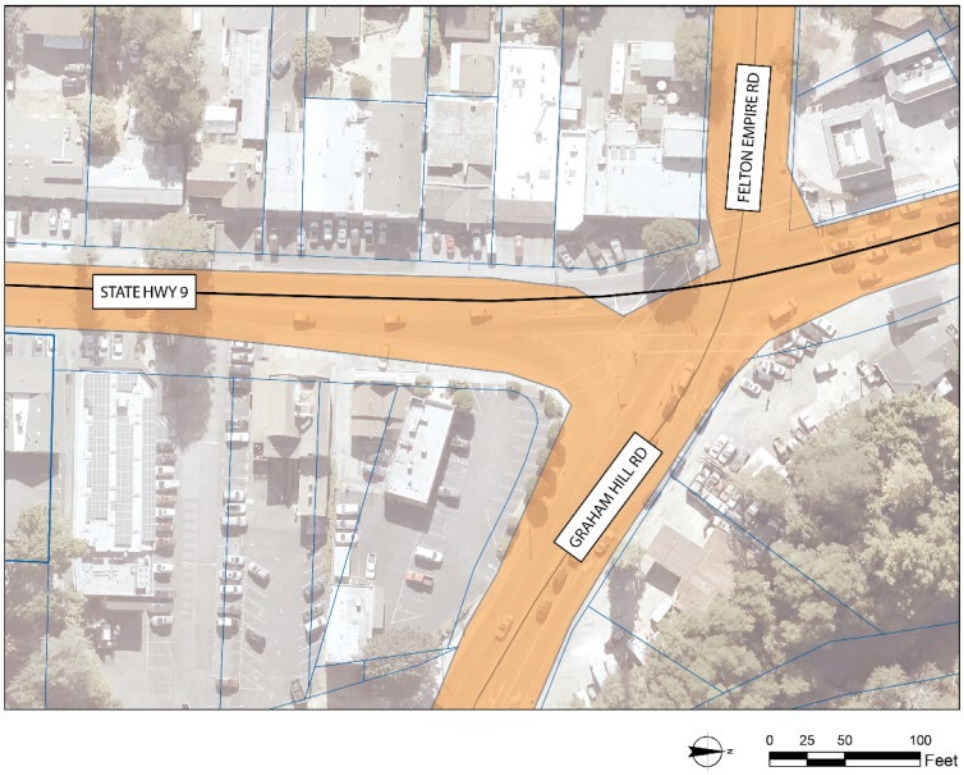
*EXHIBIT IS FOR ILLUSTRATIVE PURPOSES ONLY. PROPERTY LINES, SATELLITE PHOTO OF BUILDINGS, ETC. MAY NOT BE IN PRECISE LOCATIONS. EXACT LOCATION OF PARKING SPOTS, SHADED TREES, AND OTHER ELEMENTS TBD DURING DESIGN PHASE.

PROJECT 8A: SHORT-TERM
GRAHAM HILL / SR9 INTERSECTION IMPROVEMENTS
SANTA CRUZ COUNTY

SR 9 COMPLETE STREETS CORRIDOR STUDY

- Reconstruction of the intersection to align the northern portion of Highway 9 with Graham Hill Rd to increase throughput between Graham Hill Rd and Highway 9 north of the intersection. The primary traffic direction (the "proceeding straight" movement) in this new design would be a left onto Graham Hill Rd from Highway 9 and right onto Highway 9 from Graham Hill Rd. Felton Empire Rd and the southern portion of Highway 9 would meet this thoroughfare at two separate intersections, see **Figure 3.11**.

Figure 3.11: Alternative Improvement Option – Realignment of Graham Hill Road Intersection



Credit: SCCRTC

Possible Feasibility Considerations: Right-of-way widths for this project are generally constrained. Potentially constrained components of this project include: northbound transit stop improvements and connecting pedestrian facilities on Graham Hill Rd; lengthening straight and left turn pockets on Graham Hill Rd; bike lanes on Graham Hill Rd over bridge, Felton Empire Rd new turn pocket, pedestrian facilities on Felton Empire Rd to Gushee/Cooper. Travel lane widths could require narrowing throughout the intersection, to the extent feasible for truck turning movements, to provide bicycle and pedestrian space as well as additional or lengthened auto turn lanes. Bike boxes would require additional traffic operations study. Right turn lane from northbound Highway 9 onto Graham Hill Rd would require parking relocation. Access to businesses will also need to be evaluated in more detail, including the potential relocation of parking and driveways, and mitigations to maintain traffic flow and access to driveways, such as "do not block" or "keep clear" markings, so stopped traffic does not block entrance/exit of parking lots.

3.2. SLV Schools Campus Area

Existing Conditions

Central Felton to SLV Schools Campus Area, Graham Hill Road to High School Entrance.

The 0.7-mile section of Highway 9 between Graham Hill Rd/Felton-Empire Rd and the SLV schools complex has relatively heavy traffic volumes (nearly 21,000 vehicles per day) and significant constraints due to sloping terrain. Constraints vary along this stretch, but a primary challenge is a series of immediately adjacent residences and retaining walls on the west side that leave less than 1-3 feet of shoulder and no separate walkway space (see photos below). Some of these walls are at the frontage of an apartment building and four single family structures with steep driveways, with extremely narrow shoulders at the base. The east side of the highway also has 3-4-foot shoulders due to businesses and residences in close proximity to the highway with steep slopes down, though these constraints diminish in the northern half of this segment. This segment is served by the primary METRO line for the San Lorenzo Valley, Route 35, which runs on a 30-minute headway in both directions and connects the SLV to downtown Santa Cruz.

Existing Conditions: Retaining Walls, Steep Driveways, Pedestrian Walking Without Shoulders on Highway 9 Just North of Graham Hill Road

Around and north of the SLV Schools Campus, Clearview Place to Glen Arbor Road South. This segment (7100 feet) features San Lorenzo Valley Elementary School, Middle School, and High School in the central portion on the west side. It is similar to the segment described above in terms of retaining walls at the schools, but generally has wider shoulders and fewer constraints to improvement. The significant constraints include Fall Creek Bridge and the retaining walls at the school frontage; the twin bridges north of the schools and south of the southernmost intersection of Glen Arbor Rd with Highway 9 (Glen Arbor South) around Post Mile 7.8 that feature 3 - 4-foot sidewalks but virtually no shoulder, and a dense stand of redwoods adjacent to the road at Post Mile 7.5. This segment is served by the primary METRO line for the San Lorenzo Valley, Route 35, which runs on a 30-minute headway in both directions and connects the SLV to downtown Santa Cruz.

Existing Conditions:
Retaining Walls on Highway 9 North of El Solyo

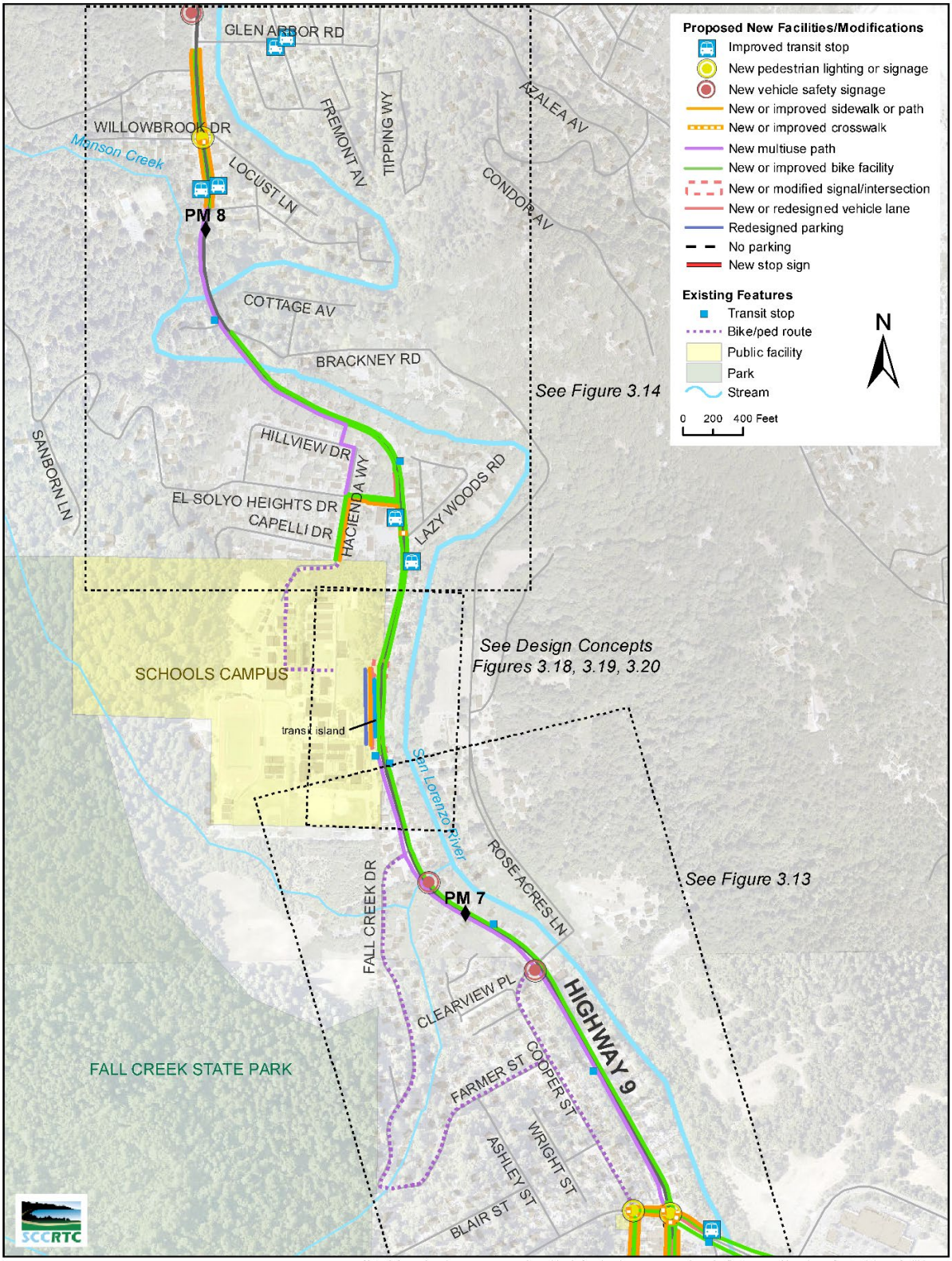
Credit: Google Earth

Hacienda Way

Priority Projects

Priority projects for the SLV Schools Campus area – north of Graham Hill Rd to Glen Arbor Rd South – are mapped and described on the following pages.

Figure 3.12: SLV Schools Campus Access Overview

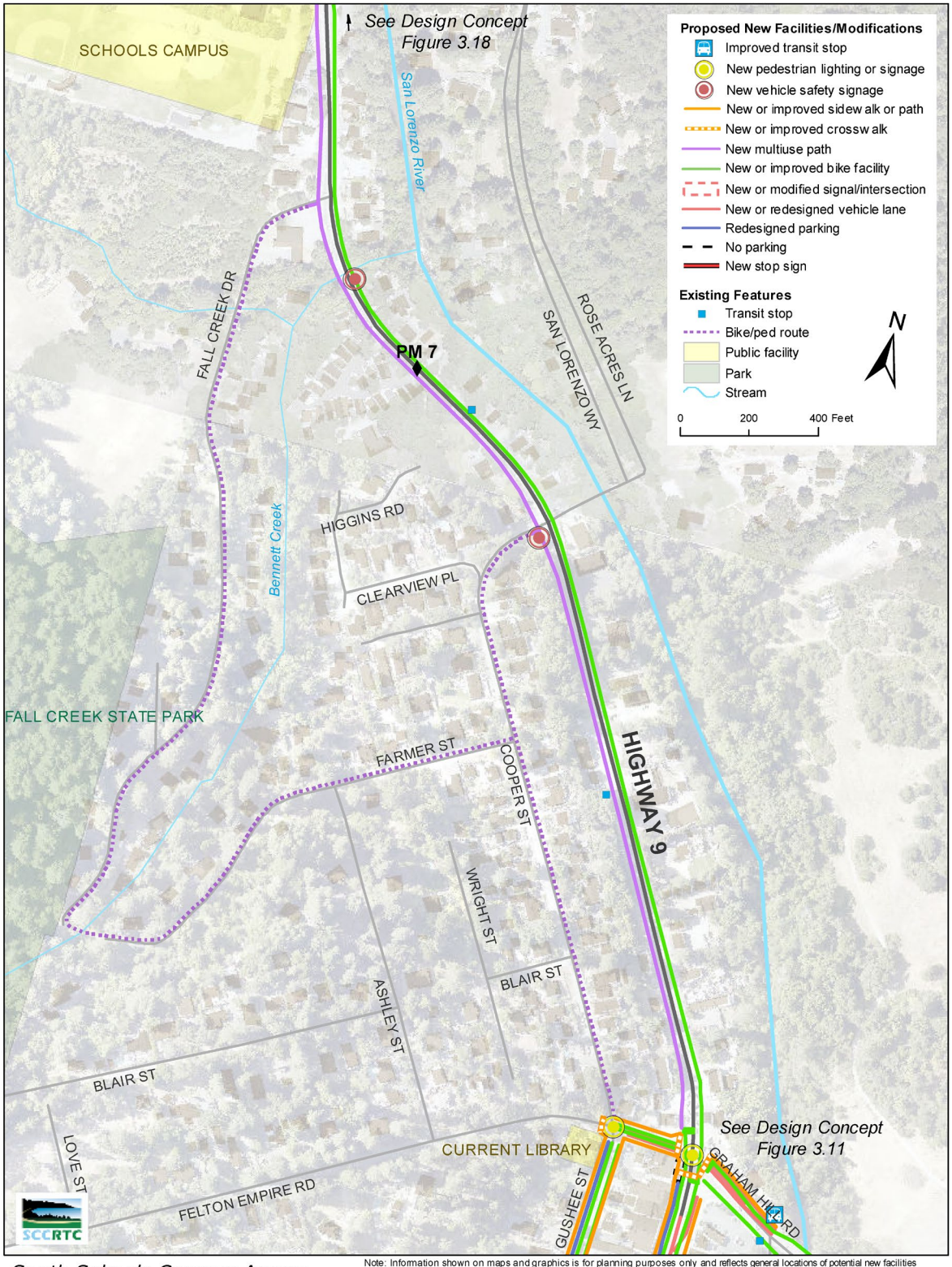


SLV Schools Campus Access Overview

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.13: South Schools Campus Access

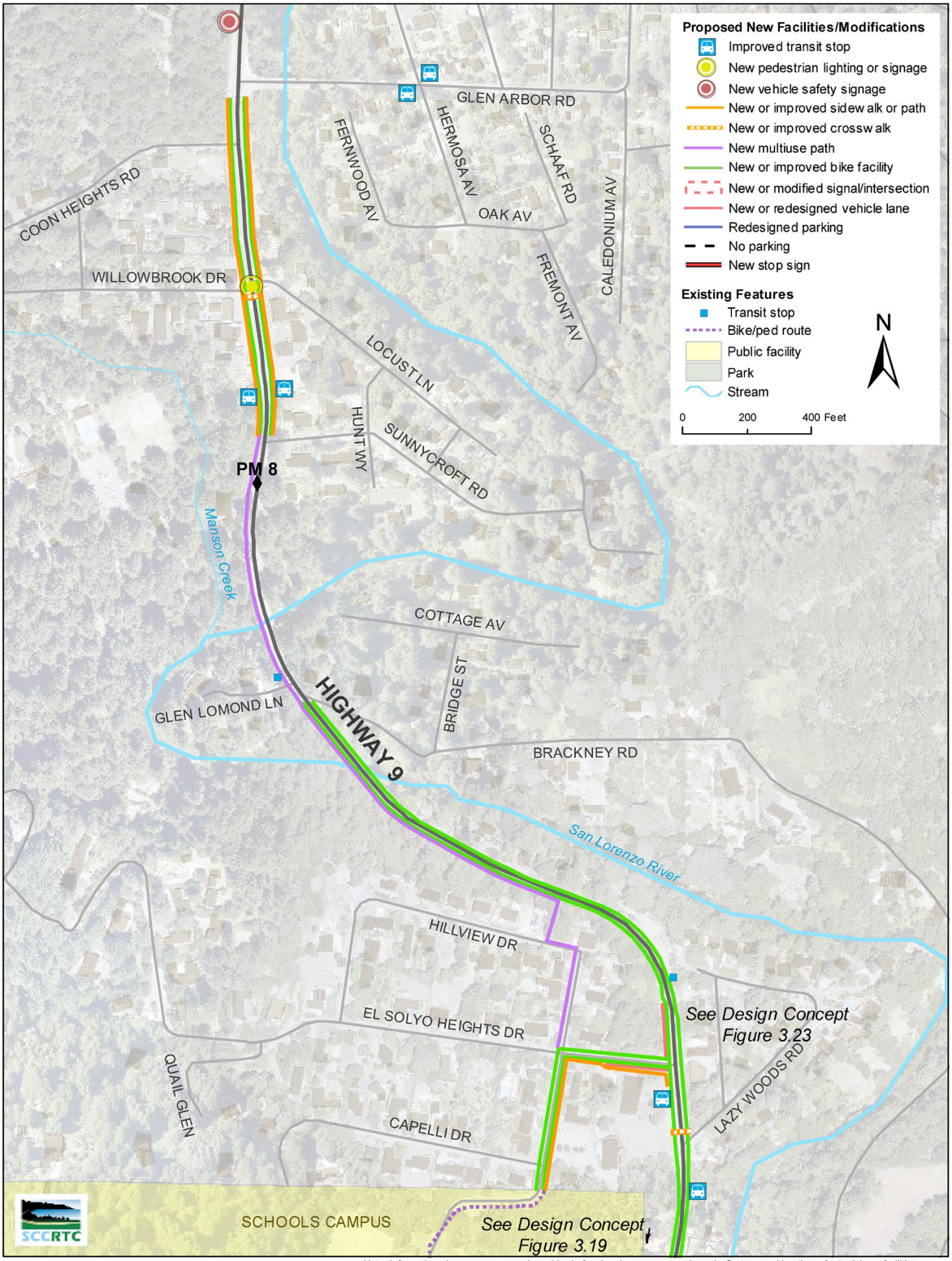


South Schools Campus Access

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.14: North Schools Campus Access



North Schools Campus Access

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Priority Projects

Project 9 – Pedestrian and Bicycle Connections to San Lorenzo Valley Schools Campus from Felton

This project seeks to create safe pedestrian and bicycle access between the Highway 9/Graham Hill Rd/Felton Empire Rd intersection (Felton town center) and the SLV Schools Campus (San Lorenzo Valley Elementary, Middle, and High Schools), and has consistently been identified as one of the highest priority projects in the San Lorenzo Valley. This project may occur exclusively on Highway 9, or additionally on a combination of county and privately maintained roads.

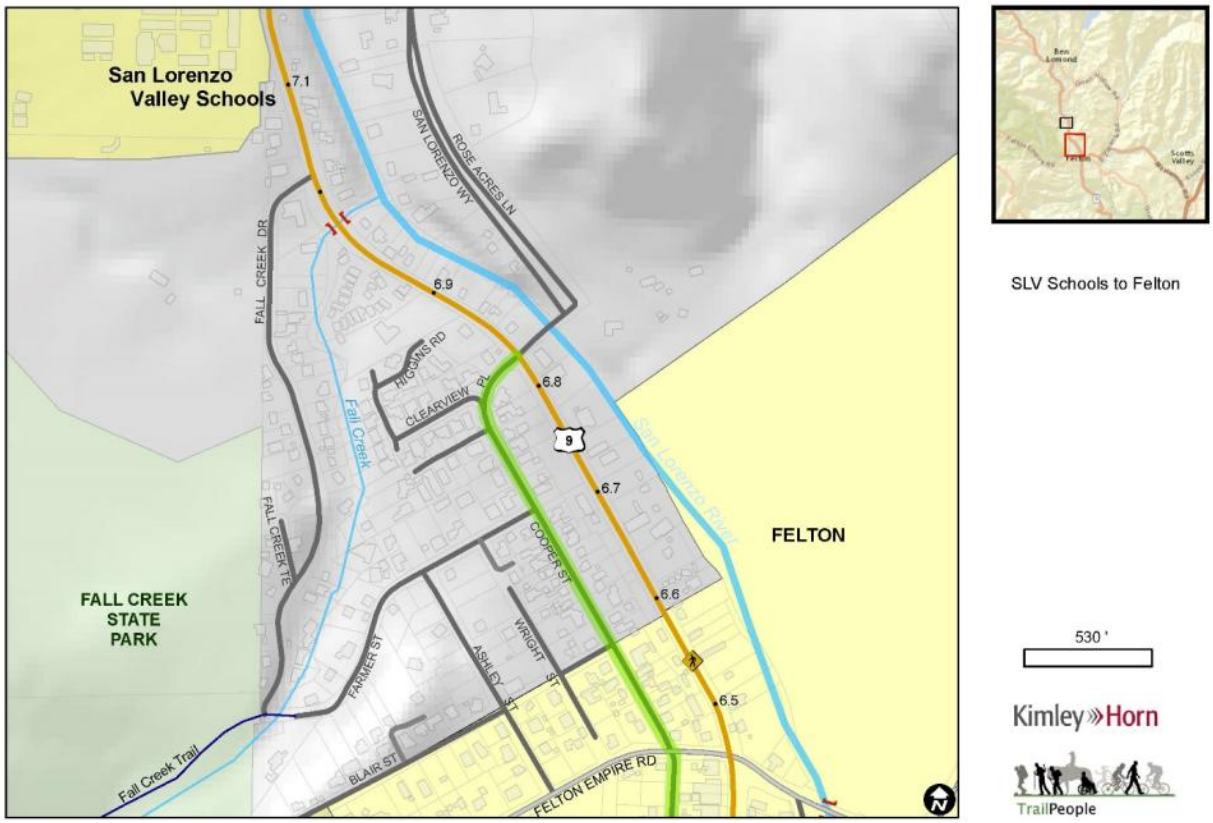
Three potential options have been identified for pedestrian and bicycle facilities, pending further feasibility analysis. Because the schools are on the west side of Highway 9, that is generally the most desirable alignment for pedestrian facilities to minimize students crossing the highway and this alignment may require shifting or narrowing auto travel lanes.

- ***SLV Schools Campus to Fall Creek Drive Multiuse Path:*** This option includes a multiuse path on the west side of Highway 9 from the High School entrance to Fall Creek Dr, a low-volume residential street. An existing pedestrian bridge at the end of Fall Creek Dr crosses Fall Creek and connects to the end of Farmer St. Farmer St is not a County-maintained road, and as a private road an easement or maintenance agreement may be required to formalize this access route. Farmer St and Cooper St are low-volume residential streets that can serve as a bicycle and pedestrian route to Felton Empire Rd and Gushee St and the other proposed bicycle and pedestrian facilities in the Felton town center (see Projects 4 through 8).
- ***SLV Schools Campus - Cooper Street Bypass:*** This option would extend the path on Highway 9 from Fall Creek Dr south to roadways that connect to Cooper St, then install signage to indicate Cooper St as bike/ped route enabling users to bypass the narrowest sections of Highway 9. Cooper St is a quiet residential street that parallels Highway 9 one block to the west (see **Figure 3.15**). It connects to Highway 9 via a short road segment across from San Lorenzo Wy (Clearview Pl) at the north end that the County closed as a public road several years ago. The County retained a 15-foot easement down the center of Clearview Pl for non-vehicular access. There are also two private driveways on Highway 9 between Fall Creek Dr and Clearview Pl that connect to Higgins Rd, which leads to Cooper St. Exploration of public easements on these two private roads could also be considered, as they are less steep than the existing public easement on Clearview Pl.

  A multiuse path or FHWA sidepath connecting to one of these easement options could provide a formalized alternative connection to downtown Felton, compared to walking along the shoulder of Highway 9. Cooper St could serve as a connection to the Felton Empire/Gushee crosswalk (see Project 5) and the rest of the bicycle and pedestrian improvement proposed around the Felton town center (see Projects 4 through 8).

  A significant challenge of this bypass is that the short section of Clearview Pl that connects to the highway has a steep slope (approximately 30% gradient). Access could potentially be improved by construction of a series of ramps, but this would require extending beyond the 15-foot access easement. The two alternate easement options on private property have slightly gentler slopes.

Figure 3.15: Cooper Street Bypass Concept



- ***SLV Schools Campus to Felton Empire Road via Highway 9:*** Class 1 multiuse path or sidepath on the west side of Highway 9 from Clearview Pl to the Highway 9/Graham Hill Rd intersection, as well as northbound bike lane on the east side from Graham Hill Rd to the SLV Schools Campus.

  This may include narrowing travel lanes to 11 feet (requiring a Caltrans design exception), a physically buffered pedestrian/bike space (see Appendix A, Section 5.4: *Buffered Bike Lane – Physical Buffer),* a path above west side retaining wall, and/or pedestrian facilities on the eastside of Highway 9.

  Due to the extremely constrained right-of-way widths, slopes, retaining walls, and steep driveways in the section of Highway 9 between Clearview Pl and Graham Hill Rd, building new bike and/or pedestrian facilities south of Clearview Pl would be significantly more expensive than options described above. However, this is the flattest, most direct route between the town center and schools.

Children Walking Along Highway 9 North of Graham Hill Road

Credit: Trail People

- ***Near term:*** While adding a grade separated path is preferable, nearer-term options under evaluation and described in Section 4.3 of this document include: signage to encourage pedestrians and bicyclists to use county roads and to alert drivers that pedestrians may be in the area, narrowing lanes to 11 feet, which may require a Caltrans design exception, shifting lanes east, and reducing landscaping on the west side of Highway 9 to widen shoulders and provide for a buffered bike lane or shared bike/pedestrian space (see Appendix A Section 5.4 *Buffered Bike Lane – Physical Buffer)*, pavement treatments that remind/deter drivers from crossing into the shoulder and paths, and barriers separating autos on Highway 9 from shoulders (such as buffered bicycle lanes/multiuse paths, flexible posts or moveable delineators, inflexible posts/barriers, guardrails, k-rail, reflective bumps, raised "armadillos", and/or landscaping). An additional 25 mph speed limit sign and increased enforcement in this area could help reduce vehicle speeds approaching the Graham Hill intersection.

Installation of a 4-foot striped northbound bike lane may require additional widening and repaving. See Appendix A Toolkit Sections 2.6 *Rumble Strips,* 2.7 *Guardrails*, 5.4, *Buffered Bike Lane – Physical Buffer* and 5.6 *Bicycle Safety Signage* for a description of other potential physical buffers and treatments that provide separation between autos and bicyclists/ pedestrians.

Rumble strips were also considered (see Appendix A Section 2.6 *Rumble Strips*) but rumble strips are opposed by stakeholder cyclist groups due to the difficulty maneuvering over rumble strips on a bicycle. A maintenance agreement between Caltrans and the County of Santa Cruz may be required to allow the installation of some buffers, such as flexible delineators.

Temporary Movable Buffers

Armadillo Buffers

Painted Buffers

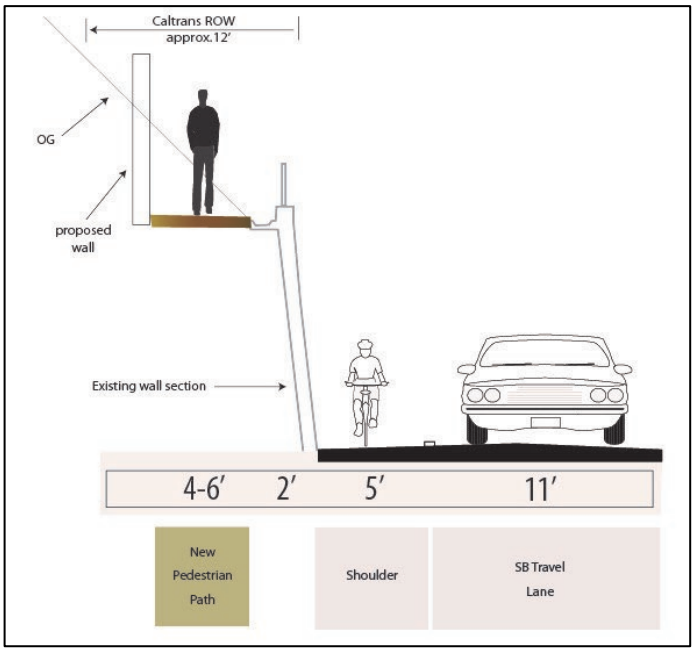
Possible Feasibility Considerations: Residences immediately adjacent to the existing auto travel lanes on Highway 9 and retaining walls on the west side currently leave only as little as 12 inches of shoulder and no separate walkway space, presenting a considerable feasibility constraint. About 4 feet of shoulder exists on the east side, with a steep drop off to private property below. No existing pedestrian or bicycle facilities in this segment.

In addition to constraints discussed above, reaching Fall Creek Dr might require driveway reconstruction and narrowed travel lanes. Reaching Clearview Pl might additionally require significant grading, bridge reconstruction, and right-of-way. Farmer St is not a County-maintained road and an easement may be required from the owners to formalize any access improvements. Reaching Graham Hill Rd might require significant retaining wall reconstruction. Evaluate utility undergrounding and new water line as method to cost-share and widen the roadway to provide space for bicyclists and pedestrians.

A path could theoretically be constructed above highway retaining walls, as illustrated in **Figure 3.16**. The right-of-way (ROW) line is approximately 12 – 14 feet 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 farther south towards Graham Hill Rd.

Figure 3.16: Path Above Retaining Wall Concept



Credit: Kimley Horn

Project 10 –San Lorenzo Valley Schools Campus Site Access

This project seeks to re-organize access to the San Lorenzo Valley High School, Middle School, and Elementary School (jointly referred to as the SLV Schools Campus in this plan) to improve access to the SLV Schools Campus for all modes of transportation, and to improve traffic flow for traffic traveling past the campus. Components of this project could occur on the Caltrans right-of-way or SLVUSD property.

Currently, there are three separate entrances to the school campuses, one each for the Elementary, Middle, and High Schools. This design results in delays on Highway 9 during peak student pick up and drop off times, particularly in the morning when it coincides with the morning commute. Currently, there is a stop light at the High School entrance only. There is currently no formal pedestrian or bicycle access to the schools, and students in Middle School and older do not benefit from school bus service. Without access to traditional yellow school bus service, many middle school and high school students utilize Santa Cruz METRO public transit buses to travel to and from school.

Initially, some shorter-term, lower-cost options to make improvements to circulation could be considered, such as:

- **At the High School entrance,** the area adjacent to the transit stop currently serves as a staging area for recycling/refuse collection and a trade skills outdoor classroom. This area could be converted to internal campus circulation instead, to create pedestrian walking and crossing facilities, and to allow more space for vehicles entering and exiting the High School to navigate what is currently a very tight turn. The right and left turn lanes into the High School entrance could also be lengthened to hold more waiting vehicles, so that through traffic could continue flowing.

- Evaluate adding a “no right turn on red” sign at the High School entrance signal light for traffic traveling southbound on Highway 9 to reduce conflicts with cars exiting campus.
- To aid circulation in this area, the current bus-only entrance road into the High School Campus could be widened to include a right turn-only exit for other vehicles exiting the High School parking lot.
- **At the Elementary School entrance**, the driveway could be widened to allow two lanes each for inbound and outbound traffic. The current inbound design of one lane for student drop off and one for a left turn into the Elementary School parking lot for staff and school buses would remain in place. Two lanes outbound would allow more storage capacity for vehicles seeking to turn left or right. A dedicated right turn lane on Highway 9 and a sidewalk on the north side of the Elementary School entrance road would allow multiple vehicles to drop off their students simultaneously while removing waiting cars from the travel lane. In the short term, limit drop-off/pick-up parking to one side of the Elementary School parking lot to increase traffic flow.
- Between the High School and Elementary School entrances along the boundary between the Caltrans right-of-way and the SLV Schools campus property, a multiuse path or sidepath could be built to allow Elementary School students using the multiuse path to travel from Felton to the SLV Schools Campus (see Project 9) to complete their trip to the Elementary school on bicycle or foot. This path would continue up the south side of the Elementary School entrance and cross the Elementary School parking lot. There is currently a steep embankment with retaining walls along this section. The retaining walls would need to be moved or the path would have to be constructed above the walls on school property and an additional retaining wall and a fence to separate the path from school grounds would be needed above the path.

Figure 3.17: San Lorenzo Valley High School Entrance

Credit: SCCRTC

In the short-term, both school campus entrances would benefit from re-striping to narrow highway vehicle lanes, addition of bike lanes, and lengthening of all turn/merge lanes, see **Figures 3.18** and **3.19.** In the medium and longer-term, projects involving grading and tree removal such as the path between the high school and elementary school entrances could be completed. In the long-term, the SLV Campus circulation long-term redesign concept could be considered, with displaced left turn and transit island described below.

Possible Alternative Improvements:

a) **Major SLV Campus circulation redesign:** This concept (see **Figure 3.20**) could provide a higher level of congestion relief than projects listed above, but more detailed environmental and engineering analysis would be needed prior to pursuing this high cost project. The project would entail extensive grading and retaining wall construction, with temporary

impacts on the highway and school access. Such a project would likely need to be locally led, through a partnership between the San Lorenzo Valley Unified School District and County of Santa Cruz, with Caltrans providing oversight. Property acquired for additional right-of-way would likely be County owned. Modifications could include:

- Redesign of schools site access and circulation for drop-offs, pick-ups, and parking into unified loop pattern for all schools;
- Redesign of turn lanes/signals at school entrances, which could include unification of all school traffic and its separation from highway through traffic via campus traffic/bypass lane, adding/extending turn lanes, adding a traffic light at the elementary entrance for exiting transit buses only;
- Relocation and redesign of the existing transit stop into a new transit stop between Highway 9 and the proposed campus bypass lane; and
- Construction of a multiuse path and/or bike lanes between the High School and Elementary School entrances, as well as the sidewalks and crosswalks needed for students to safely access the new transit stop and the pedestrian and bicycle facilities heading south toward Felton (see Project 9).

The basis of the SLV Campus circulation redesign long-term concept is a “displaced left turn” intersection, where traffic turns left well in advance (at the current High School entrance) of its intended left turn (at the current Elementary School entrance) so that that intersection at the current Elementary School entrance has no left turn phase in the signal. At the current Elementary School entrance, through traffic would flow continuously, unless stopped to allow transit buses to exit the northbound side of the transit boarding island. See Appendix A Section 1.5 *Displaced Left Turn* for more information on displaced left or “continuous flow” intersections.

Schools campus traffic coming from Ben Lomond on southbound Highway 9 would also have free-flowing access into the new SLV Schools Campus unified entrance, at the site of the current Elementary School entrance. Drivers dropping off Elementary or Middle School students would do so in the Elementary School parking lot before using the unified exit at the signal (at the current High School entrance), while drivers dropping off High School students would drive past the Elementary School parking lot and drop their students off in front of the High School. High School student drivers would continue to the High School student lot at the far southern end of the SLV Schools Campus.

Northbound transit buses would also turn left into the displaced left turn and pull onto the campus frontage road to drop off and pick up riders at the transit island before re-entering northbound Highway 9 through traffic at a new signal at the current Elementary School entrance. Southbound transit buses would pull off of southbound Highway 9 to drop off/pick up at the transit island and merge back into through traffic at a modified signal light at the current High School entrance.

New pedestrian walking and crossing facilities with shorter pedestrian-scale lighting would connect the transit boarding island to the SLV Schools Campus, as well as the path heading south to Felton that is proposed in Project 9. Bike lanes on Highway 9 in front of the SLV Schools Campus would connect to bicycle facilities north and south of the SLV Schools Campus (see Projects 9, 11, and 12).

*Credit: The long-term improvement concept drawing shown in **Figure 3.20** was created by Jim Helmer, a practicing Registered California Traffic Engineer and Civil Engineer and resident of Ben Lomond, in collaboration with Shawn Vogtman of WMH Engineering and*

with input from administration, teachers, and staff of the SLV Elementary, Middle, and High Schools.

b) **Alternate school bypass:** This community member-provided concept would create pedestrian and bicycle access which would skirt the school campus. Modifications for a bypass on the eastern boundary of the campus complex could include:

- Repair/replacement of foot bridge at Hacienda Dr to edge of Elementary School campus
- Pedestrian and bicycle path on SLVUSD land between Elementary School campus and Highway 9 from the foot bridge to the southeastern corner of the campus complex (high school baseball fields)
- Acquisition of right-of-way behind residences on Highway 9 between the SLV Schools Campus and Fall Creek Dr, so that the path could connect to Fall Creek Dr and the pedestrian and bicycle improvements outlined in Project 9.

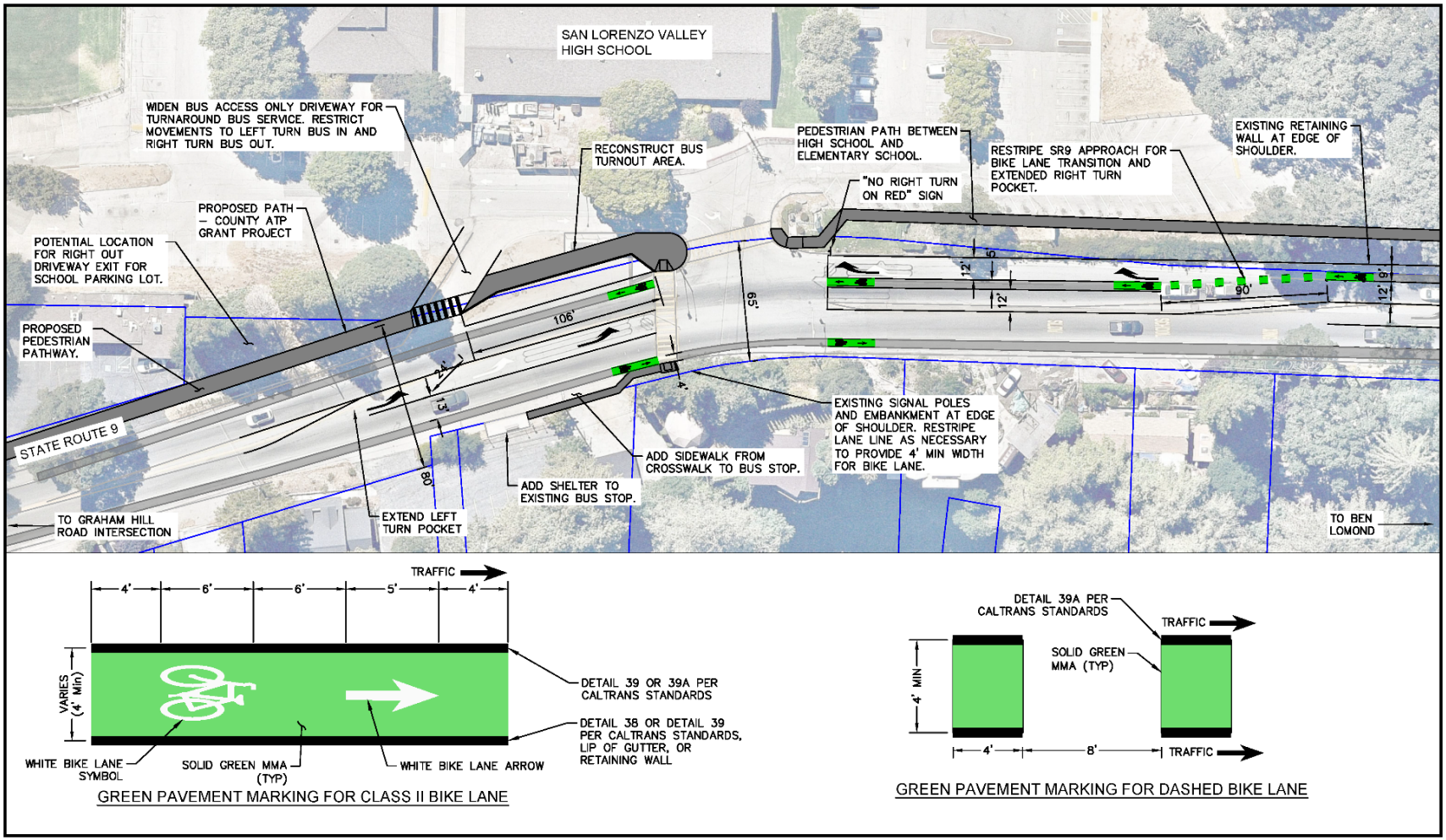
A second option of the western boundary of the campus complex could include:

- Pedestrian and bicycle path on SLVUSD land behind the Middle School soccer field in the northwest corner of the campus complex
- Modification of current service road around the western and southern boundaries of the campus complex (High School playing fields)
- This option would also require acquisition of right-of-way to connect to Fall Creek Dr

SLVUSD district staff have initially indicated these proposals represent “a significant investment and responsibility from the district to fix [pedestrian and bicycle access on] Highway 9, which the district cannot afford. The bridge alone involves many aspects including ADA and Fish and Game due to the creek, [the district] had this estimated out and it was not economically feasible to replace.”

Possible Feasibility Considerations: All options to improve access past and through the campuses would have potential feasibility constraints, though they would increase significantly for the major circulation redesign alternative. The existing High School and Elementary School entrances are located on a steep grade, and retaining walls are utilized to create the current roadway design. Any modifications to this design creating transportation facilities on the property between the current travel lanes and the existing parking lots between the two entrances would require additional grading, tree removal, and the construction of new retaining walls. Grading and retaining walls would create additional concerns regarding sight distances for and visibility of pedestrians using any new pedestrian facilities in the area, as well as ADA accessibility concerns.

Figure 3.18: SLV Schools Campus Improvement Short-Term Design Concept – Existing High School Entrance



Kimley»Horn

GRAPHIC SCALE IN FEET
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— APPROXIMATE R/W PER SANTA CRUZ COUNTY GIS

FV-197061001 JUNE 2019

*EXHIBIT IS FOR ILLUSTRATIVE PURPOSES ONLY. PROPERTY LINES, SATELLITE PHOTO OF BUILDINGS, ETC. MAY NOT BE IN PRECISE LOCATIONS. EXACT LOCATION OF PARKING SPOTS, SHADED TREES, AND OTHER ELEMENTS TBD DURING DESIGN PHASE.

PROJECT 10 - ALTERNATIVE 1 (SHORT-TERM)
SLV HIGH SCHOOL DRIVEWAY IMPROVEMENTS
SANTA CRUZ COUNTY

SR 9 COMPLETE STREETS CORRIDOR STUDY

Figure 3.19: SLV Schools Campus Improvement Short-Term Design Concept – Existing Elementary School Entrance

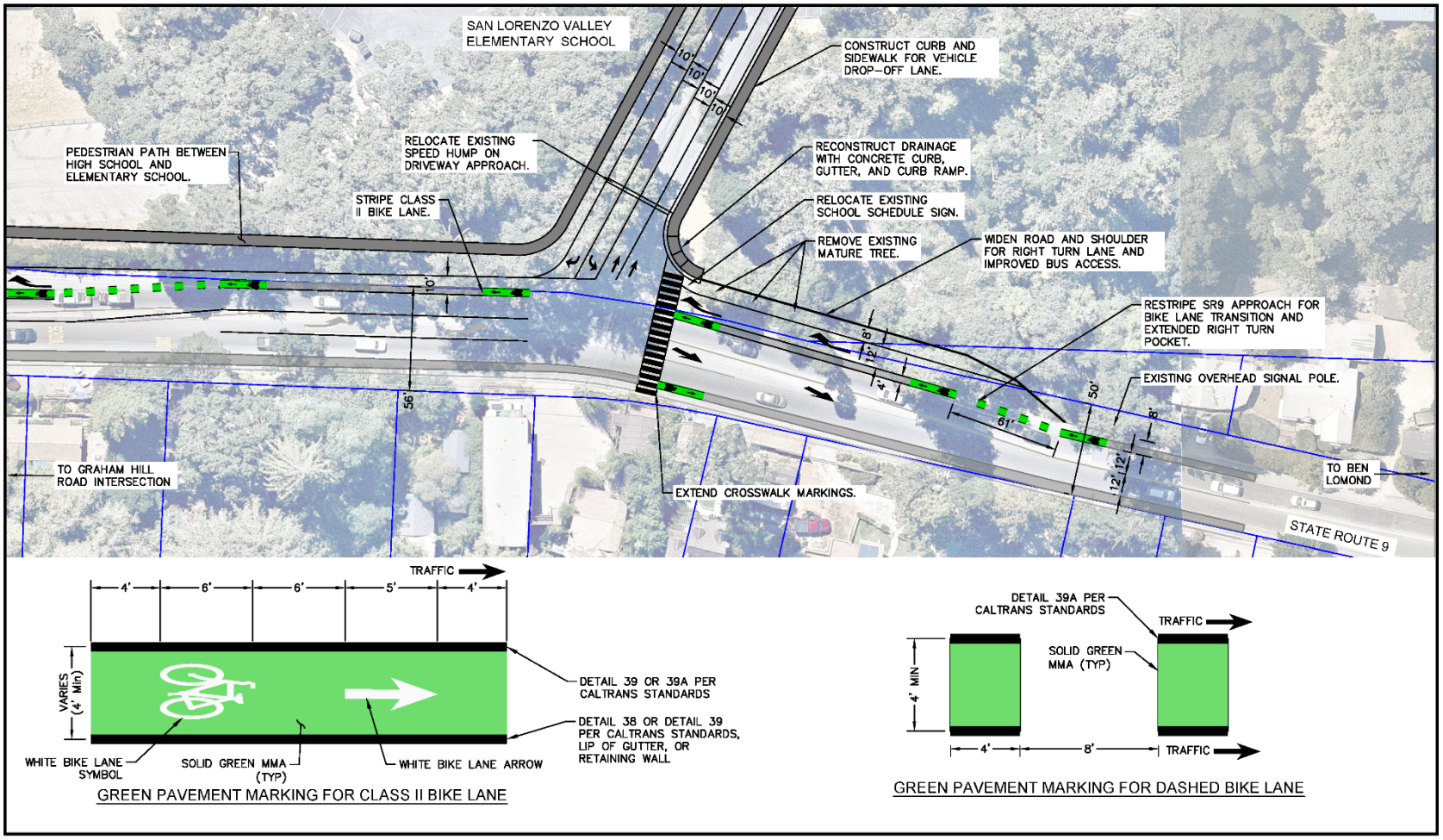
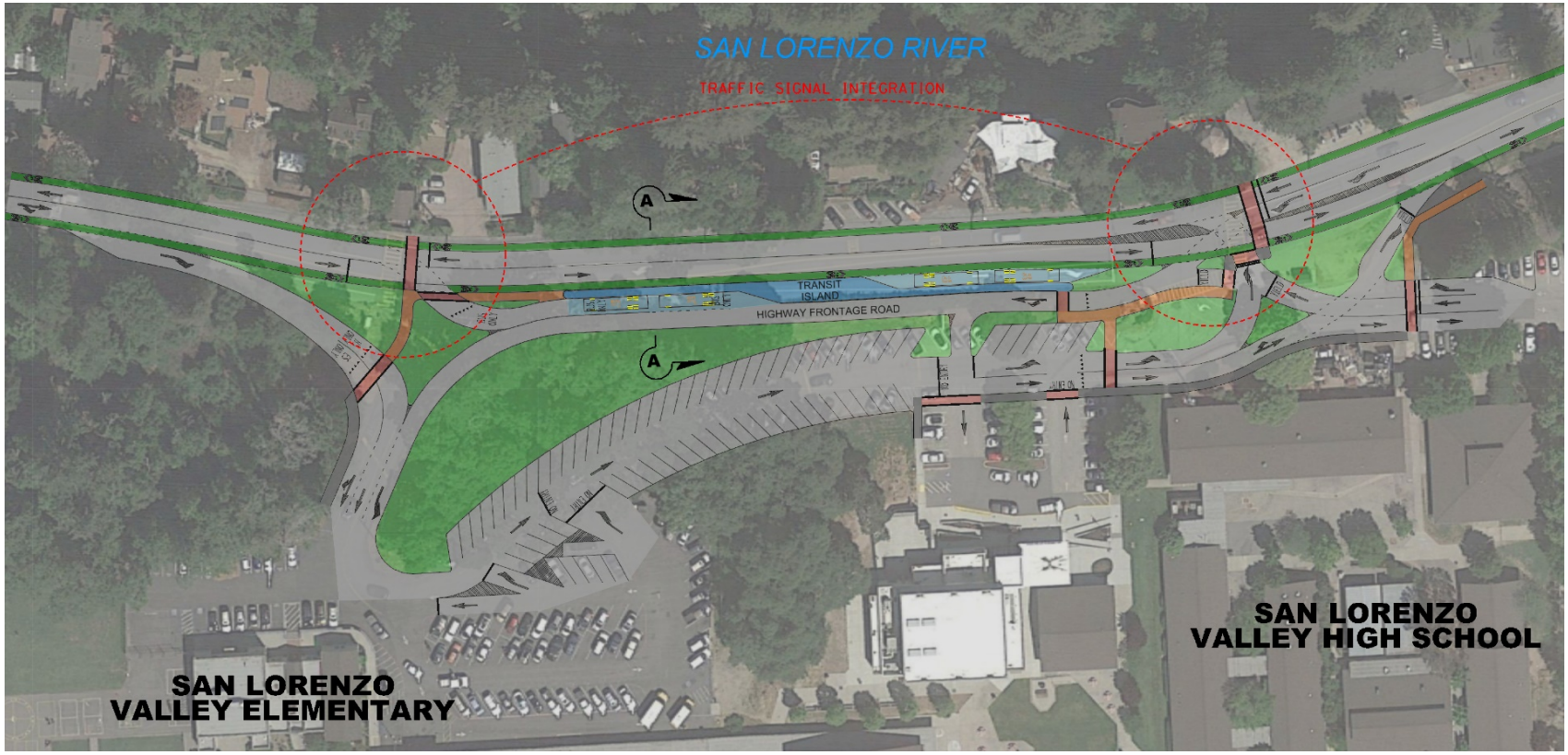


Figure 3.20: SLV Schools Campus Improvement Long-Term Design Concept



Credit: Concept produced by Jim Helmer and Shawn Vogtman of WMH Engineering. Concept only, would be considered in future planning efforts. Some aspects of this design may not be feasible but would be further evaluated as funding becomes available.

Project 11 – North San Lorenzo Valley Schools Pedestrian and Bicycle Connections

This project seeks to improve pedestrian and bicycle connections to the San Lorenzo Valley Schools from Brackney Rd in the north and improve transit access for transit stops serving El Solyo Heights Dr and the Middle School. Project improvements could occur on Highway 9, county roads, and/or private property, see **Figure 3.23**. Improvements may include:

- Bicycle sharrows markings on Hacienda Wy and El Solyo Heights downhill, with a bike lane on the uphill side of El Solyo Heights from Highway 9 to Hacienda Way.
- Right turn pockets on both El Solyo Heights and Highway 9 at this intersection to formalize queuing that currently occurs. Current sight lines around the curve of Highway 9 southbound may affect Highway 9 right turn pocket length or feasibility.
- Pedestrian facilities (path or sidewalk) on El Solyo Heights and Hacienda Wy
- Upgrade the crosswalk on Highway 9 at Lazy Woods Rd, near El Solyo Heights, potentially including analysis of a pedestrian activated flasher (RRFB).
- Upgrade both El Solyo area transit stops, add shelters, and analyze moving the northbound transit stop closer to the existing crosswalk.
- Pedestrian and bicycle facilities connecting the Middle School to Brackney Rd in the north. This component may include a trail bypass of Highway 9 via Hacienda Wy and Hillview Dr to the Middle School (see description below), or a pathway on Caltrans property above the retaining wall along Highway 9.
- Longer-term bicycle facility options may include widening the shoulder on Highway 9 between El Solyo Heights and Brackney Rd to create space for bike lanes.

Figure 3.21: Existing Informal Brackney Trail Location

An informal trail to the SLV schools currently exists between the southeast end of the closest bridge over the San Lorenzo River (between El Solyo Heights Dr and Brackney Rd) and corner of Hillview Dr and Hacienda Wy (see **Figure 3.21**).

If an easement were secured, the trail could be formalized. This trail would allow students, other pedestrians, and potentially bicyclists to avoid the curve on Highway 9 north of El Solyo Heights that has poor sight distance and narrow shoulders.

Project 11 would connect to bicycle and pedestrian facilities that would run from Brackney Rd past Willowbrook Dr area businesses to the southernmost intersection of Glen Arbor Dr with Highway 9 (Glen Arbor Dr S), as outlined in Project 12, allowing bicycle and pedestrian access to the schools to become available for the Glen Arbor neighborhood, one of the larger and more densely populated neighborhoods in the San Lorenzo Valley.

Figure 3.22: Start of Existing Informal Trail from Brackney to Hillview

Credit: SCCRTC

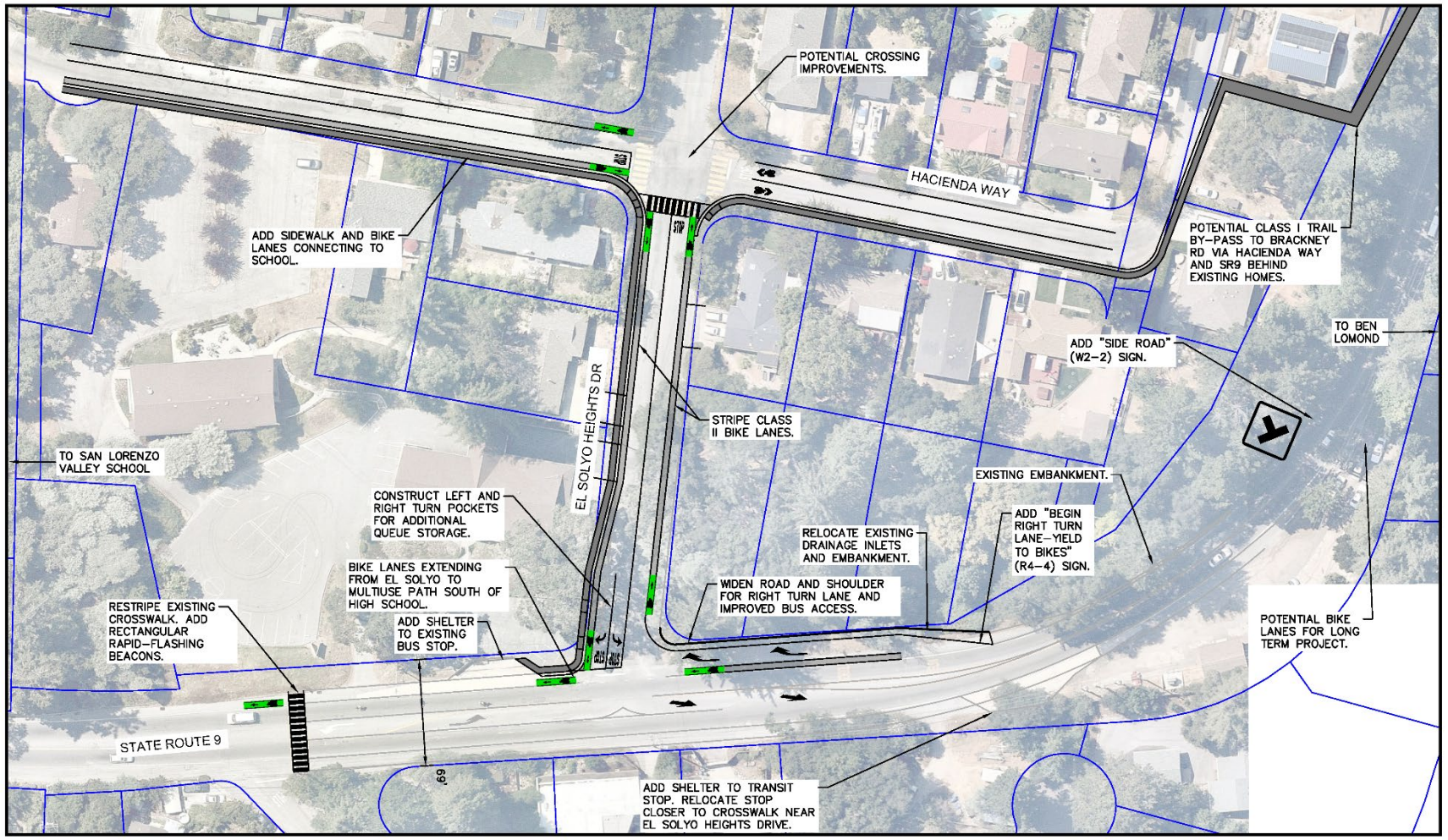
Converting the existing informal dirt trail from just south of the bridge at Brackney Rd to Hacienda Wy into Class I multiuse path or FHWA sidepath would require extensive retaining wall and embankment work, as well as right-of-way (ROW) acquisition. Other components of this project could require widening or repaving, as well as the construction of curb and gutter, sidewalks, and accompanying drainage. Formalizing the current informal trail would be contingent on building ADA-accessible facilities north to a pedestrian crosswalk that allows pedestrians and bicycles to cross to the east side of Highway 9. This crosswalk is a component of Project 12.

Possible Alternative Improvements: Other community suggestions have included:

- Relocate crosswalk at Lazy Woods farther north to El Solyo Heights and install a crosswalk/stop light that intersection. This would require additional analysis of sight and stopping distances for Highway 9 traffic traveling southbound.
- Keep northbound transit stop at current location, adding pathway on Highway 9 to crosswalk. The current transit stop has a wider shoulder than locations south, though it is quite far from the El Solyo Heights intersection and the Middle School.
- Install additional crosswalk on northern “high” side of Hacienda at El Solyo Heights. Requires lengthening culvert.

Possible Feasibility Considerations: Potential right-of-way impacts for Hacienda and El Solyo Heights sidewalks, Hacienda to Brackney trail, and relocation of northbound transit stop north of El Solyo Heights. Bike lane on El Solyo could require grading and tree removal. Converting existing informal trail to an ADA accessible facility could require extensive retaining wall and grading work and lighting to make feasible. Adding a merge lane on Highway 9 from El Solyo was also suggested, but due to right-of-way constraints would require additional analysis.

Figure 3.23: EL Solyo Heights and Highway 9 Intersection Improvement Design Concept



Project 12 – Willowbrook Drive Commercial Area Improvements and Glen Arbor Bike/Ped Connection

This project would improve pedestrian and bicycle access on Highway 9 to the businesses and neighborhoods surrounding the intersections of Willowbrook Dr, Locust Ln, and Sunnycroft Rd with Highway 9, as well as bike/ped connections south to Brackney Rd and north to the southern intersection of Glen Arbor Rd with Highway 9 (Glen Arbor Rd S).

This project could be implemented in phases as funding opportunities become available:

- **Tier I:** Analyze installation of a crosswalk on Highway 9 at the intersection with Willowbrook Dr, including RRFB or other pedestrian actuated lights, bulb-outs, and/or a pedestrian refuge island within the existing two-way left turn lane. Installation of new crosswalks is subject to Caltrans review process. This intersection is currently not striped, but is a legal crossing location, and there have been multiple collisions involving pedestrians at this location in the last decade.
- **Tier II:** Create bicycle and pedestrian facilities from Brackney Rd (and the terminus of the path in Project 11) to the transit stops at Sunnycroft Rd. Due to right-of-way constraints, particularly on the narrow bridges over the San Lorenzo River, a Class I multiuse path or sidepath would likely be a more feasible option than sidewalks and bike lanes.
- **Tier III:** Extend bicycle and pedestrian facilities along the frontage of the businesses around Willowbrook Dr to Glen Arbor Rd S. The right-of-way is likely wide enough in this area for separated pedestrian sidewalks and bike lanes. Add bicycle parking at businesses.
- Improvement of the Highway 9 and Sunnycroft transit stops (Stop ID# 1535 and 2125) by adding a paved area, a bench, and shelters would also be analyzed as part of this project.

This segment of Highway 9 has a center turn lane for driveway access. Parking areas and driveways merge with each other and the highway shoulder, leaving no designated space or facilities for pedestrians in the area. The bridge between El Solyo Heights and Brackney is approximately 270 feet long and has 5-foot sidewalks, on each side but no bike lanes or shoulders. North of Brackney to Glen Arbor S, the Caltrans right-of-way is 55 feet or wider, though the paved roadway is considerably narrower.

Pedestrian refuge islands are feasible where they do not conflict with turns onto local streets. Improvements would require reconstruction of drainage facilities, existing parking layout and driveway access to reduce conflict points. Other components of this project could require widening or repaving, as well as the construction of curb/gutter sidewalks and accompanying drainage.

Possible Feasibility Considerations: Potential right-of-way impacts for multiuse path Brackney to Sunnycroft, and sidewalks Sunnycroft to Glen Arbor Rd S. Reconstruction of private driveways and landscaping could also be necessary.

3.3. Ben Lomond

Existing Conditions

South of Ben Lomond, Glen Arbor Road S to Highlands Park. This short segment features very steep terrain and sharp curves, and the highway is very close to the river. This segment is served by the primary METRO line for the San Lorenzo Valley, route 35, which runs on 60-minute headways in this segment, as half of the departures run via Glen Arbor Rd instead. This segment has average daily traffic volumes of approximately 15,400 vehicles.

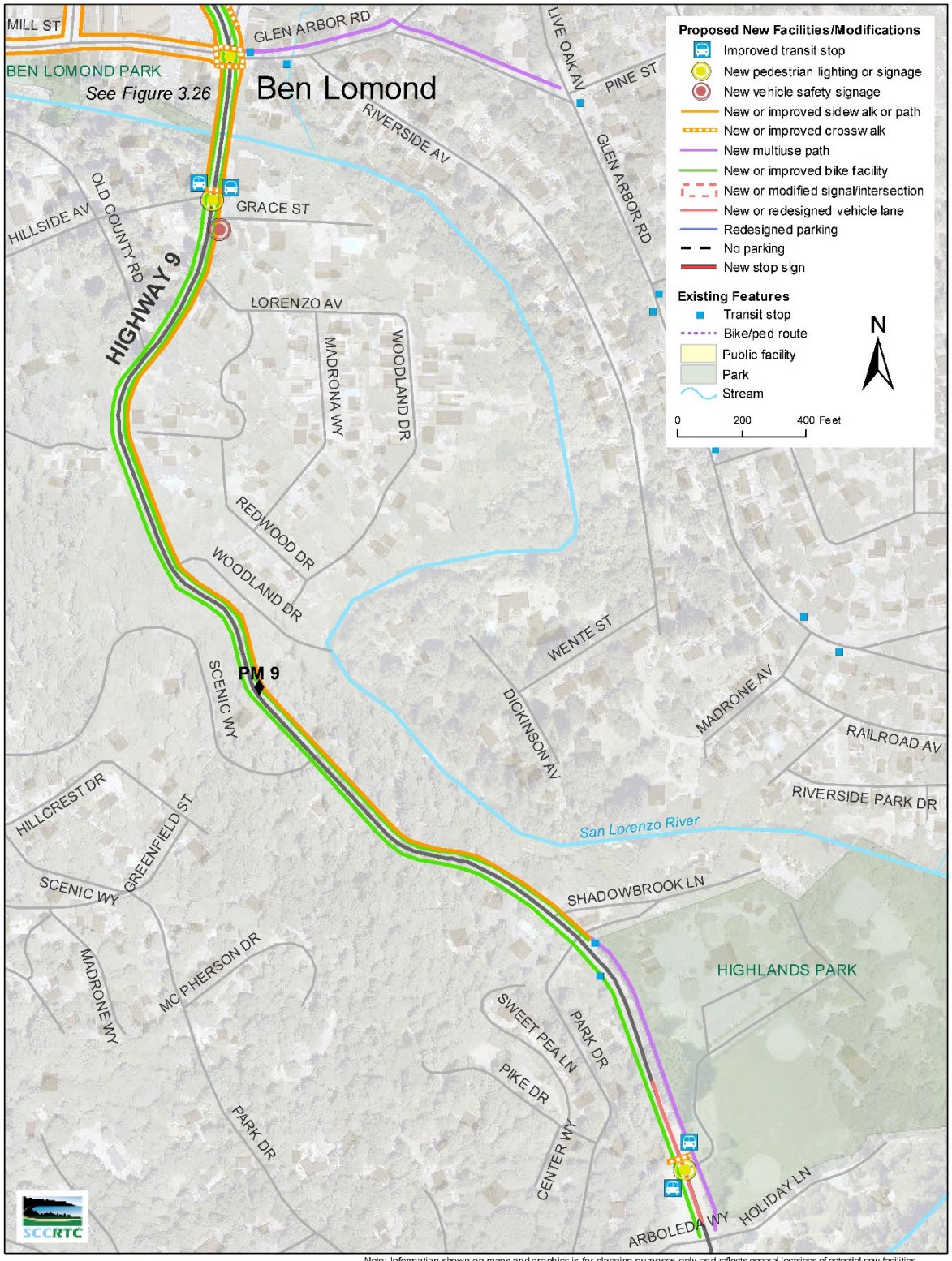
South Ben Lomond, Highlands Park to Hillside Avenue. This segment (4,000 feet) passes through more gentle topography in a suburban/rural residential setting that generally offers some room for widening and/or a separate path, though there are at least two constrained spots. A better bicycle and pedestrian connection to Highlands Park has been mentioned as a priority in community meetings. This segment is served by the primary METRO line for the San Lorenzo Valley, Route 35, which runs on a 60-minute headway in this segment, as half of the departures run via Glen Arbor Rd instead. This segment has average daily traffic volumes of approximately 16,000 vehicles.

Central and North Ben Lomond, Hillside Avenue to California Drive The south end of this segment (5,600 feet) passes through the central business district of Ben Lomond. To the north are residential areas. The terrain consists of gentle slopes and the highway is straight or has wide sweeping curves. The shoulders are relatively wide, and sidewalks exist on both sides of Highway 9 between the two ends of Mill St (Mill St N and Mill St S), though they are not continuous on the east side. Where there are no sidewalks, the paved shoulder often blends in to the parking and access for roadside business. There is ample room for improvements through most of the area, though utility poles, fences, and some trees create constraints, and there is a narrow section around Post Mile 9.6. This segment is served by the primary METRO line for the San Lorenzo Valley, Route 35, which runs on 30-minute headways in both directions and connects the SLV to downtown Santa Cruz. This segment has average daily traffic volumes of approximately 15,900 vehicles.

Figure 3.24: Downtown Ben Lomond Showing Existing Sidewalks

Credit: SCCRTC

Figure 3.25: Highlands Park Area

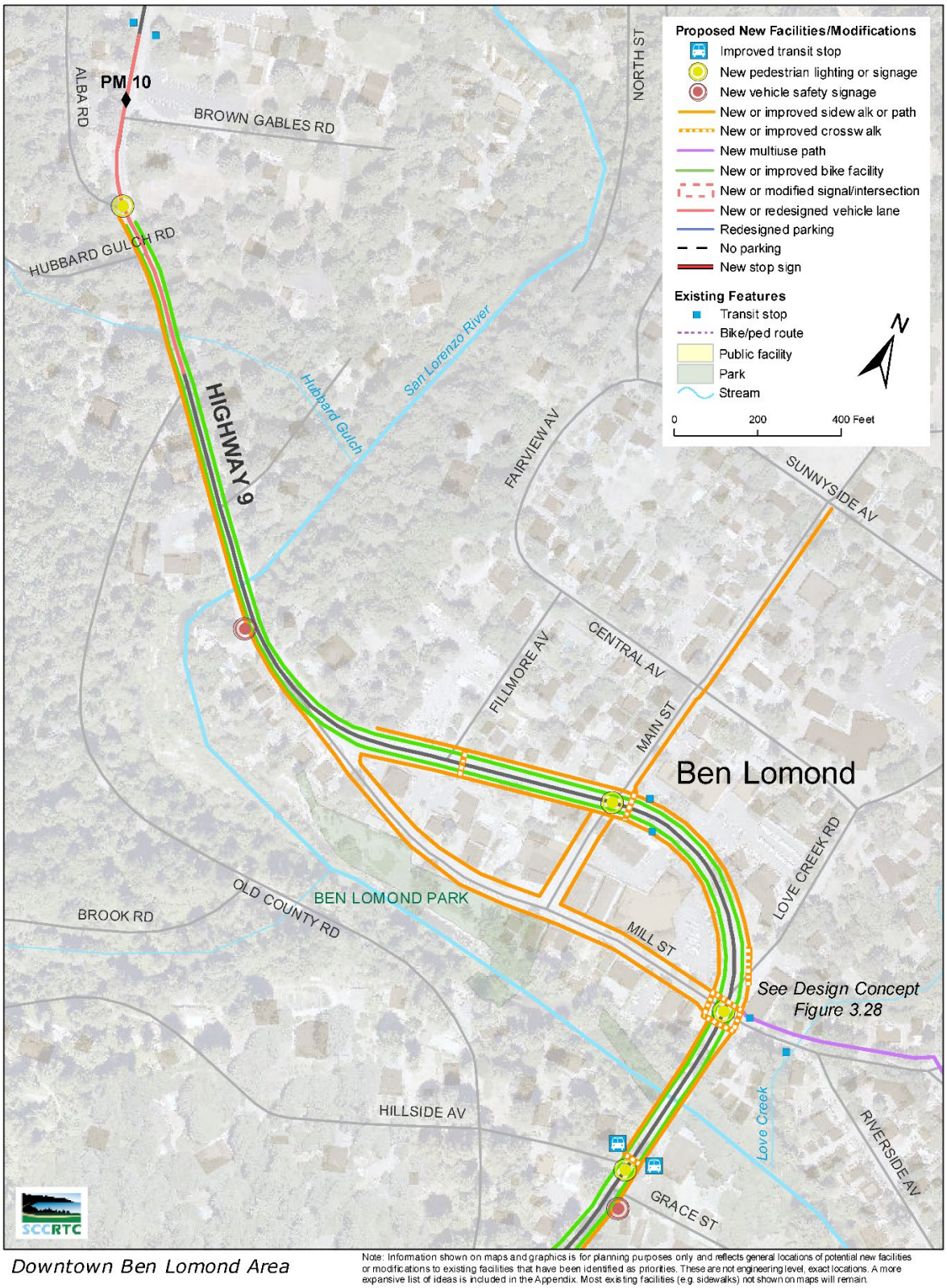


Highlands Park Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.26: Downtown Ben Lomond Area



Downtown Ben Lomond Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Priority Projects

Project 13 –Pedestrian and Bicycle Connections from Ben Lomond to Highlands Park

This project would improve bicycle and pedestrian access between Ben Lomond and Highlands Park. Improvements would likely occur on Highway 9 but could occur on county roads. Bicycle and pedestrian facilities options include:

- Bike lanes/shoulder widening to 5 feet on both sides of Highway 9 from Ben Lomond south to Highlands Park;
- Walking path on east side of Highway 9 from Hillside Ave in Ben Lomond south to Highlands Park. If this segment is found to be too constrained for both bike lanes and a pedestrian path a multiuse path should be considered, see **Figure 2.12** in Chapter 2 *Corridor Vision* for a sample highway section with sidepath.
- *Longer-term option:* Highlands Park to the southern intersection of Glen Arbor Rd with Highway 9 (Glen Arbor Rd S). This short section of Highway 9 features very steep terrain and sharp curves in close proximity to the river. The SLV Trail Feasibility Study (Segment 9) recommends limited shoulder widening to 4 feet on both sides of Highway 9 and an informal path on east side behind the guardrail.

Adding wider shoulders for bicycles and adding pedestrian facilities along either of these sections of Highway 9 may involve realigning the roadway, putting drainage systems under the shoulder and building new retaining walls.

Improvements to the front entrance of Highlands Park on Highway 9 include:

- Upgrading the Highlands Park transit stops on Highway 9 with concrete pads, benches, and shelters;
- Upgrading the existing crosswalk on Highway 9 with bulb-outs, high-visibility striping, signage, and potentially a Rectangular Rapid Flashing Beacon (RRFB);
- Left turn and merge pockets for vehicles turning from or merging onto Highway 9 southbound.

Possible Alternative Improvements: Glen Arbor Rd winds through a suburban/rural residential setting, adjacent to the San Lorenzo River, roughly parallel to Highway 9. A bypass of Highway 9 via multiuse bicycle/pedestrian facilities on Glen Arbor Rd from Pine St south to a connection to Highland Park over the San Lorenzo River was analyzed but eliminated from consideration in the *SLV Trail Feasibility Study* (2006) and the draft of this plan due to cost, physical, land use, and environmental constraints. A path on Glen Arbor from Mill St S/Highway 9/Glen Arbor N intersection to Pine St north of this section is part of Project 15.

Adding a bicycle and pedestrian bridge over the San Lorenzo River to connect Glen Arbor Rd to the back/eastside of Highlands Park near Maple Dr or Riverside Park Dr was also considered and eliminated from the priority project list due to several practical challenges, including cost, potential easements across or purchase of private land, limited parking opportunities, slope, grading and tree removal, and other constraints at the river. An additional study connecting Glen Arbor Rd and Highlands Park, including any footbridge over the San Lorenzo River would be necessary to determine the most appropriate route and bridge location, the extent of impacts and feasibility.

Possible Feasibility Considerations: Similar to other areas along Highway 9 with right-of-way constraints, a continuous pedestrian and bicycle connection may require new or relocating

drainage, embankments and utilities, repaving and potential narrowing of the auto travel lanes, removal of tress, and/or modifications to guardrails or retaining walls.

Project 14 – Ben Lomond Crosswalk and Transit Improvements

This project seeks to improve crosswalks and transit connections on Highway 9 in the Ben Lomond town center.

Improvements in this area could include:

- On Highway 9 at Main St, re-striping the crosswalk to "square up" the crosswalk and shorten crossing distances. "Corral-style"/staggered/offset crosswalks with refuge island and/or bulb-outs may also be considered (see Appendix A Section 4.4, **Figure A11b**), if found to be feasible immediately adjacent to the Main St transit stops. The signpost of the existing RRFB on the northbound side of the road should be moved further south, to increase visibility of the activated sign for vehicles traveling northbound and to ensure stopped buses no longer obstruct the sign and activated flasher. A pedestrian refuge island at this location would not likely be feasible due at the current crosswalk location at the intersection but moving the crosswalk could be analyzed.

Figure 3.27: Existing Northbound Hillside Avenue Transit Stop

Credit: SCCRTC

- Addition of a new crosswalk at the intersection with Hillside Ave to provide better access to the transit stops, which would require the full Caltrans design process.
- Transit stop improvements for the Hillside Ave transit stops, including concrete pads, benches, and shelters.
- A new crosswalk on Highway 9 at Fillmore St, with at least one bulb-out on the west side of Highway 9 has also been proposed by the community. Caltrans has indicated that the feasibility of this location will require additional analysis due to the existing crosswalk at Main St one block south. See Appendix A Section 4.1 *New Crosswalk* for more information.

Preliminary Concept Designs for downtown Ben Lomond are shown in **Figure 3.28**. Infrastructure changes from Projects 14, 15, 16, and 17 are shown together in this figure, although they may be analyzed and implemented separately.

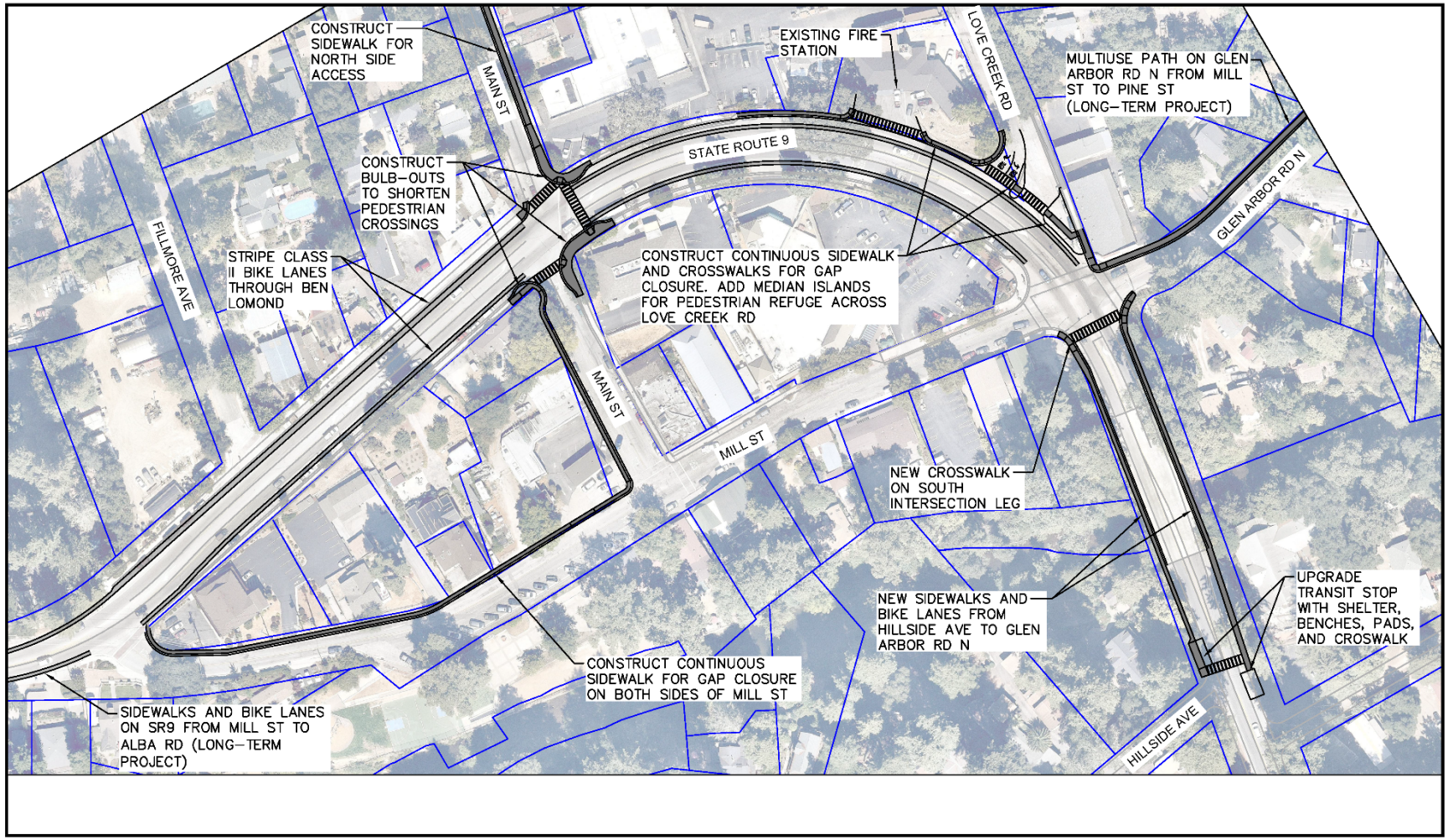
The terrain at these project locations consist of gentle slopes and the highway is straight. Shoulders are relatively wide, and sidewalks exist on both sides of Highway 9 between Mill St N and Main St, and on the south/west side to Mill St S/Glen Arbor Rd N. In areas without sidewalks, paved shoulder often blends into the parking and access for roadside business. No

pedestrian facilities currently exist south of the San Lorenzo River bridge at Mill St S/Glen Arbor Rd N.

Bulb-outs are feasible at Main St with the existing cross-section based on the available Right-of-Way (ROW), but they would conflict with current turn movements. Bulb-outs would need to be designed to accommodate drainage to/from the existing curb & gutter. A striped crosswalk at the Hillside Ave intersection was found to be feasible during initial analysis, as well as improvements at the existing transit stops. Paved bus pullout and crossing improvements on east side could require relocation of an existing utility pole and a rock wall near a parking area, while the west side could require shoulder paving and landscape removal.

Possible Feasibility Considerations: Grading and landscaping reconstruction could be required for the upgrades to the Hillside Ave transit stops.

Figure 3.28: Ben Lomond Town Center Design Concept



Kimley»Horn

NORTH

GRAPHIC SCALE IN FEET
0 50 100 200

— EXISTING R/W PER SANTA CRUZ COUNTY GIS

FV-197061001 JUNE 2019

*EXHIBIT IS FOR ILLUSTRATIVE PURPOSES ONLY. PROPERTY LINES, SATELLITE PHOTO OF BUILDINGS, ETC. MAY NOT BE IN PRECISE LOCATIONS. EXACT LOCATION OF PARKING SPOTS, SHADED TREES, AND OTHER ELEMENTS TBD DURING DESIGN PHASE.

PROJECT 14, 15, 16, 17
BIKE / PED CONNECTION IN BEN LOMOND
HILLSIDE AVENUE TO ALBA ROAD

SR 9 COMPLETE STREETS CORRIDOR STUDY

Project 15 – Mill Street and Glen Arbor Road Pedestrian Improvements

This project would fill gaps in pedestrian facilities in Ben Lomond on Highway 9 and county roads and increase visibility of crossing facilities. Improvements could include:

- Adding a fourth crosswalk on the south leg of the Mill St S/Glen Arbor Rd N/Highway 9 intersection.
- Installing pedestrian signal heads with walk/don't walk indications to both new and existing crosswalks at that intersection.
- On Mill St between its two intersections with Highway 9, fill gaps in existing sidewalks on both sides of the street, per the Ben Lomond Town Plan.
- Add a multiuse path or sidepath connection on north/eastside of Glen Arbor Rd from Hwy 9 to Brookside Ave in the short term, and then continuing on to the Glen Arbor Rd and Pine St transit stop in the longer term. See Project 13 for potential bicycle and pedestrian connections further south to Highlands Park.

Preliminary Concept Designs for downtown Ben Lomond are shown in **Figure 3.28**. Infrastructure changes from Projects 14, 15, 16, and 17 are shown together in this figure, although they may be analyzed and implemented separately.

At Mill St S/Glen Arbor Rd N/Highway 9 intersection, a crosswalk on the south leg can be added by reconstructing curb ramps and modifying signal operations.

Possible Alternative Improvements: A potential long-term project could extend the walkway on the north/east side of Glen Arbor Rd from Brookside Ave to Newell Creek Rd with a crosswalk at Madrone Ave.

Possible Feasibility Considerations: Bicycle and pedestrian connection on Glen Arbor Rd between Mill St/Highway 9 and Pine St could require significant landscaping and driveway reconstruction, as well as narrowing travel lanes and right-of-way impacts. Filling gaps in sidewalks on Mill St could have potential driveway reconstruction and right-of-way impacts, the county has indicated that completing the sidewalk on the east side of Mill St is a low priority due to these constraints and the existing sidewalk on the west side.

Project 16 – Ben Lomond Downtown Core Multiuse Improvements

This project seeks to improve facilities for autos, pedestrians, and bicycles on Highway 9 and county roads in the Ben Lomond town center. This project is tiered, as it can be incrementally phased as funding opportunities become available. Concurrent with improving pedestrian and bicycle facilities, formalizing parking stalls adjacent to sidewalks and/or bike lanes wherever feasible in the town center and adding bicycle parking at businesses.

- **Tier I:** Install new walkways and crosswalk striping to close the gap in pedestrian facilities on Highway 9 in front of 9450 Highway 9 (Henflings), the Ben Lomond Fire Department, and across Love Creek Rd at Highway 9 to the Mill St S/Glen Arbor Rd S signal to provide continuous pedestrian facilities on both sides of Highway 9 between Mills St N and Mill St S.

  Evaluate options to redesign Highway 9/Love Creek Rd/Glen Arbor Rd N intersection to provide safer pedestrian access, particularly on the northeast corner of the intersection. Upgrade the existing unmarked crossing at the Love Creek Rd intersection with Highway 9,

including striping and shortening the crossing distance via bulb-outs, wider sidewalks, or other design modifications, could be included in this tier or completed separately.

- **Tier II:** Fill gaps in sidewalks and lighting on Main St from Highway 9 to the Post Office and Sunnyside Ave (potentially on the east side only).
- **Tier III**: Stripe bike lanes on Highway 9 between Mill St N and Mill St N/Glen Arbor S, including green hatch markings in intersection approaches where autos cross the bike lane.
- **Tier IV:** Fill gaps in sidewalks on Main St between Mill St and Highway 9, per the Ben Lomond Town Plan.

Tier V: Add sidewalks and bike lanes on Highway 9 from Hillside Ave to the San Lorenzo River bridge and the Mill St S/Glen Arbor Rd S intersection to provide access to the Hillside Ave transit stops. Add or include shade trees, benches, tree wells, and other aesthetic features, consistent with *Caltrans' Main Street-California (2013)*. Reducing speeding and implementing traffic calming elements throughout Ben Lomond town center is described in Chapter 2 *Priority A*.

The terrain consists of gentle slopes and minor curves. Shoulders are relatively wide, and sidewalks exist on the west side of Highway 9 between either end of Mill St (Mill St N and Mill St S), as well as on the east side of Highway 9 between Mill St N and 9450 Highway 9 (Henflings). Outside of the town center, paved shoulders often blend in to the parking and access for roadside business. There are currently no pedestrian facilities south of the San Lorenzo River bridge at Glen Arbor Rd N/Mill St S. Initial analysis indicates shoulders are wide enough for bicycle facilities and parking along Highway 9 in the town center, however the shoulders narrow past the San Lorenzo River bridge near Hillside Ave.

A sidewalk on the east side of Main St may be easier to implement than both sides. Some utility poles and private driveways may need to be relocated. Crosswalk and curb ramps required at intersections and design should meet ADA Standards.

Sidewalk gap closure on Highway 9 between the 9450 Highway 9 (Henflings) and the corner of Love Creek Rd could require reconstruction of the existing fire station driveway to meet ADA standards and minimize crossing length across the Love Creek Rd intersection. The Fire Department requests informal parking and perpendicular parking at Henflings be maintained for volunteers responding to calls.

Possible Feasibility Considerations: All components of this project could require landscaping and reconstruction of some driveways. Bike lanes and walkways have the potential to also require relocation of some on-street parking.

Project 17 – Pedestrian and Bicycle Connections from Mill Street to Alba Road

This project would improve pedestrian and bicycle connections on Highway 9 from the intersection of Highway 9 and Mill St N to Hubbard Gulch Rd and Alba Rd. This project could include:

- Pedestrian walkway and lighting on the west side of Highway 9 from Mills St N to Alba Rd, potentially a first segment could be a walkway on Highway 9 from Mill St N to 9733 Highway 9 (Quality Inn) north of the San Lorenzo River, before extending the facilities to Alba Rd. These facilities could entail either a path around a stand of redwood trees between Mills St N and the Quality Inn, or a traditional sidewalk which would require the removal of several trees within the Caltrans right-of-way.

- Bike lanes on Highway 9, extending the bike lanes provided in Project 16 from the Mill St N intersection to the Alba Rd intersection. Bike lanes could require repaving or widening of roadway.

Figure 3.29: Trees at West Shoulder of Highway 9, North of Mill Street N

Credit: Kimley Horn

Currently, there are sidewalks and a crosswalk across Mill St N at Highway 9, but no formal pedestrian or bicyclist facilities continue north, except the sidewalk on the bridge over the San Lorenzo River. There are private landscape improvements and several mature redwoods and firs at or near the shoulder that block the potential location of a sidewalk, and private pull-in parking that would cross the route of potential pedestrian facilities.

Possible Alternative Improvements: A shorter-term option to create right-of-way space for bicyclists and possibly pedestrians would entail moving the vehicle travel lanes eastward to create more space on the westside of Highway 9.

Possible Feasibility Considerations: Pedestrian facilities could have right-of-way impacts and could require tree removal and landscaping and driveway reconstruction.

Project 18 – Hubbard Gulch/Alba Road Operational Improvements

This project seeks to improve operations for autos and pedestrians at the intersection of Highway 9 and Alba Rd and Highway 9 and Hubbard Gulch Rd.

Currently, a center turn lane between Hubbard Gulch and Alba Intersections exists, but striping is ambiguous, with turn/merge areas not clearly marked and which could require advanced warning signage. This project could include:

- Restripe the Alba Rd and Hubbard Gulch Rd turn/merge pockets on Highway 9 to comply with current Caltrans guidelines, see Appendix A Section 1.4 *Turn and Merge Pockets.*
- New crosswalk with high-visibility reflective ladder markings to provide pedestrian access across Highway 9 near transit stops just north of Alba Rd intersection. Installation of new crosswalks is subject to Caltrans review process.
- Improve line of sight at these intersections, potentially through tree trimming, fence modifications, or vegetation removal.

Realignment of Hubbard Gulch Rd and Alba Rd approaches to optimize sight distance is constrained by existing right-of-way, utility poles, and trees. Reconstruction of the intersections could be investigated as a long-term improvement.

Possible Feasibility Considerations: Improving line of sight could have right-of-way impacts, require utility pole relocation, and require landscaping or tree removal. Sight distance and transit stop locations should be considered when determining crosswalk location.

3.4. Brookdale

Existing Conditions

Existing Conditions South of Brookdale, California Drive to Western Avenue. This segment (3,500 feet) passes through very steep terrain and has sharp curves. It is a low-density residential area, with some areas undeveloped due to steep slopes. The highway is close to the river at the north end, with steep drop-offs and one recent major slope failure. This segment is served by the primary METRO line for the San Lorenzo Valley, route 35, which runs on 30-minute headways in both directions and connects the SLV to downtown Santa Cruz.

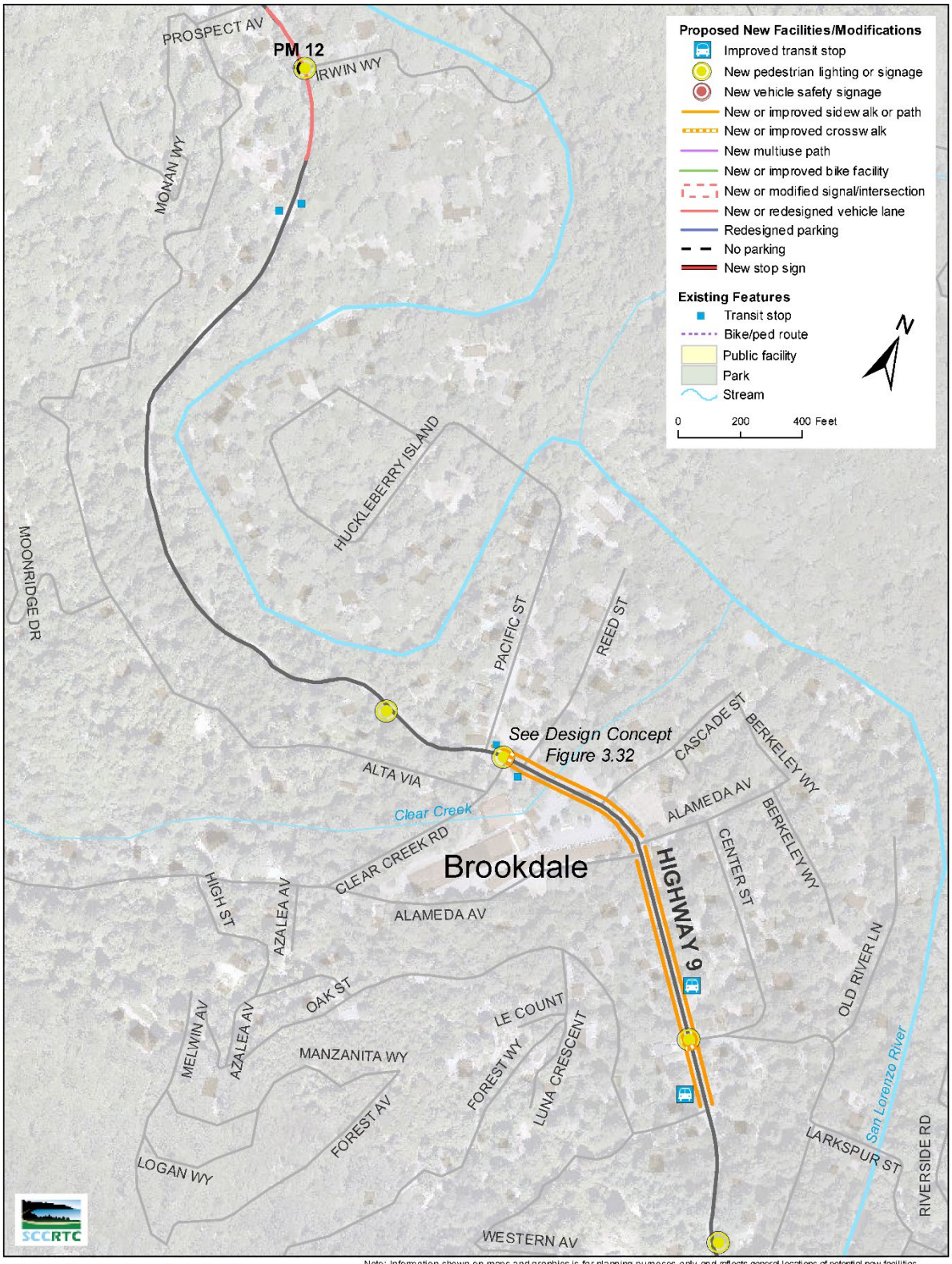
Existing Conditions in Central Brookdale, Western Avenue to Pacific Street. The road straightens out and the terrain is less steep through this short segment (1,900 feet), however it is densely developed with older residences and commercial uses, primarily on small lots. Though the terrain offers opportunity for widening or a separate path, there are many redwood trees and private improvements close to the road that present constraints. But because of the residential population and tourist activity centered around the historic Brookdale Lodge, improvements may be desirable in this area. This segment is served by the primary METRO line for the San Lorenzo Valley, route 35, which runs on 30-minute headways in both directions and connects the SLV to downtown Santa Cruz. This segment has average daily traffic volumes of approximately 11,900 vehicles.

Existing Conditions North of Brookdale, Pacific Street to River Street. This segment (approx. 4,350 feet) has steep slopes and is in close proximity to the river in the southern portion, however there is room for improvements in the north central portion. This segment is served by the primary METRO line for the San Lorenzo Valley, route 35, which runs on 30-minute headways in both directions and connects the SLV to downtown Santa Cruz.

Priority Projects

Priority projects for Brookdale are mapped and described on the following pages.

Figure 3.30: Downtown Brookdale Area



Downtown Brookdale Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Priority Projects

Project 19 – Brookdale Sidewalks

This project would create pedestrian facilities along Highway 9 in the Brookdale town center where no such facilities currently exist.

While the preference is to construct sidewalks as a complete project, the project could be incrementally phased as new developments and maintenance are constructed or funding opportunities become available. Potential improvements include:

- **Tier I:** Construction of sidewalks along one or both sides of Highway 9 from Pacific St to Alameda Ave
- **Tier II:** Extend sidewalk(s) from Alameda Ave to the transit stops at Western Ave

Preliminary Concept Designs for Brookdale are shown in **Figure 3.32**. Infrastructure changes from Projects 19 and 20 are shown together in this figure, although they may be analyzed and implemented separately.

Add or include shade trees, benches, tree wells, and other aesthetic features, consistent with *Caltrans' Main Street-California (2013)*.

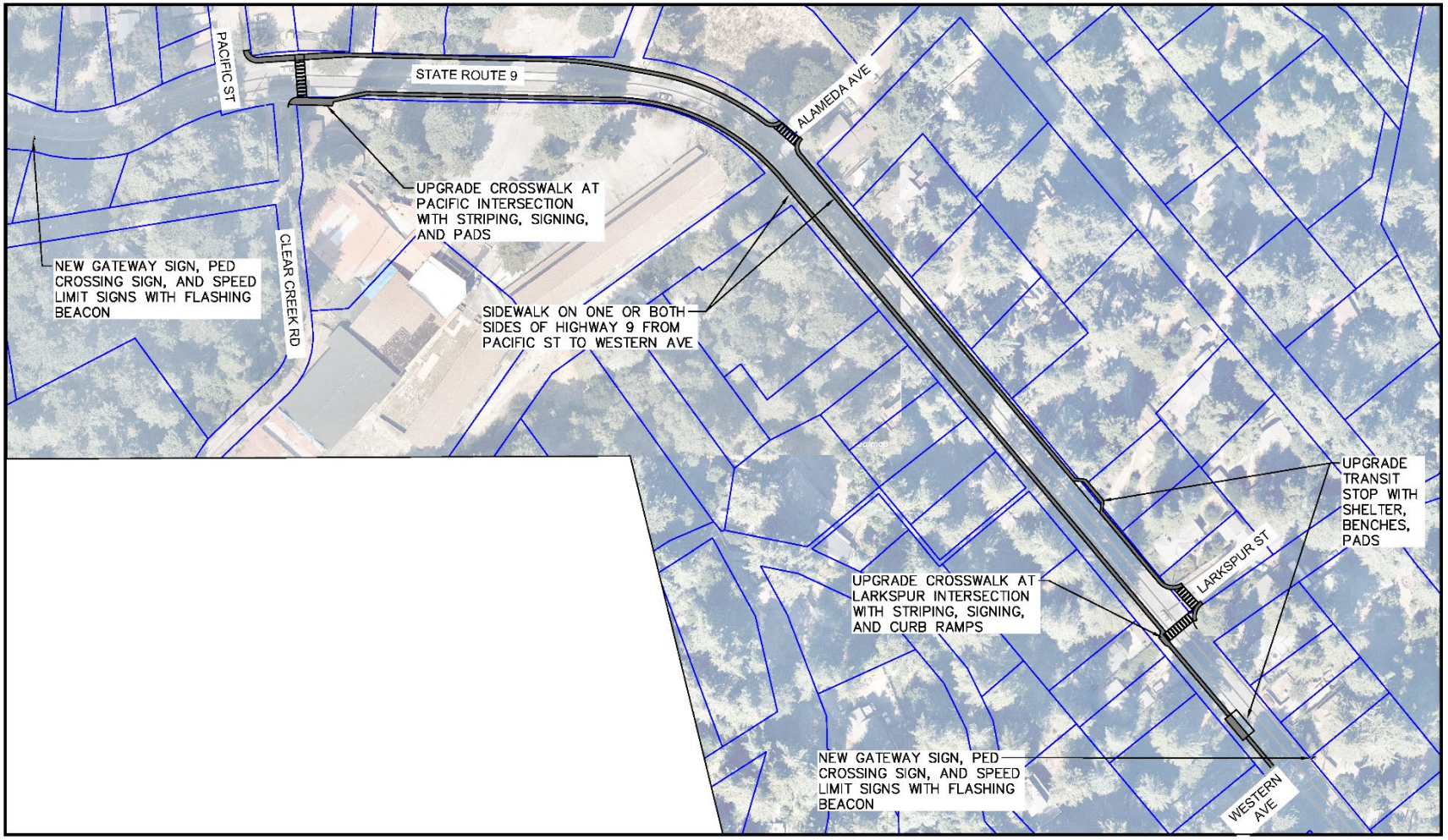
Figure 3.31: Berkeley Way and Highway 9 in Brookdale, Looking North

Credit: SCCRTC

The area has many mature redwood trees and private improvements close to the road that present constraints for widening past the travel way. Curb and gutter sidewalks could require the relocation of poles, guardrails, drainage ditches, and bridge cross sections, as well as installation of accompanying drainage and tree removal.

Possible Feasibility Considerations: Sidewalks in Brookdale, especially on both sides, could require significant tree removal, landscaping and driveway reconstruction, and have right-of-way impacts.

Figure 3.32 Brookdale Town Center Design Concept



Project 20 – Brookdale Crosswalk Improvements

This project seeks to add enhanced safety features to existing pedestrian crosswalks on Highway 9 in Brookdale at Pacific St/Clear Creek Rd and Larkspur St. Improvements could include:

- Install high-visibility ladder markings, yield striping, high-visibility pedestrian signs, and bulb-outs or protected concrete landing pads at existing pedestrian crossings at Pacific/Clear Creek and Larkspur St.
- Analyze a potential pedestrian refuge island and RRFB at the Pacific St/Clear Creek Rd crosswalk. This location has feasibility concerns but has been consistently identified by the community as a priority location for a refuge island and flashing beacons.
- Advanced warning beacons on the north and south ends of the town as gateway signs to alert drivers of the approaching crosswalk and the posted speed limit. Such beacons are part of Priority A for other locations throughout the SLV (see *Corridor Wide Priorities*, Section 2.4), but because Brookdale has no stop, control beacons were included here as a priority component of crosswalk improvements.
- Remove redwood tree at east side of Pacific crosswalk to enhance pedestrian visibility, pending further analysis. Stakeholders and community leaders at the 2018 focus groups supported tree removal if it would provide a major improvement in safety for pedestrians and bicyclists, particularly children. Tree removal is typically mitigated by planting several trees elsewhere.

Figure 3.33: Larkspur Street and Highway 9 in Brookdale, Looking North

Credit: SCCRTC

Preliminary Concept Designs for Brookdale are shown in **Figure 3.32**. Infrastructure changes from Projects 19 and 20 are shown together in this figure, although they may be analyzed and implemented separately.

Bulb-out and pedestrian refuges would need to address drainage, complement pedestrian paths, and may require widening of the roadway.

Possible Alternative Improvements: An all-way stop sign at the intersection of Pacific/Clear Creek and Highway 9, and/or relocation of the crosswalk from the current Clear Creek Rd location would require additional study and intersection analysis including an intersection control evaluation (ICE).

Possible Feasibility Considerations: A pedestrian island refuge at the Pacific/Clear Creek crossing may not be feasible due to engineering constraints and would require further analysis. Pedestrian activated flashers at Pacific/Clear Creek could also be considered, but initial analysis indicates they may be infeasible due to a blind curve just north of the crossing.

The crosswalk north of Pacific St/Clear Creek Rd is undergoing evaluation as part of a successful 2018 HSIP grant.

Project 21 – Irwin Way and Highway 9 Intersection Improvements

This project seeks to reduce collisions and improve intersection operations at the intersection of Irwin Wy and Highway 9. The project could include:

- Installation of a center left turn pocket and merge pocket, or a two-way left turn lane on Highway 9 at Irwin Wy intersection.
- Installation of smaller pedestrian-scale streetlights (e.g. double-acorn style) at the intersection, as described in *Corridor Priority E*, see Chapter 2 Section 2.4.

Possible Feasibility Considerations: Roadway widening could require removal of large native redwoods, relocation of several utility poles, require retaining walls/drainage, and require Right-of-Way (ROW) acquisition to the west. High construction cost and complexity would make this project difficult to implement. Turn/merge pocket could require extensive grading and tree removal, potential right-of-way impacts. While lighting Irwin Wy and other intersections has been identified as a safety need, several community members have expressed concerns about light pollution and potential impacts on wildlife.

3.5. Boulder Creek

Existing Conditions

Central Boulder Creek, River Street to Bear Creek Road

This segment (approx. 5,000 feet) passes through relatively flat terrain and the road straightens out. The shoulders are narrow in the southern portion. There is room to widen or create a separate path except there are many adjacent utility poles, fences, ditches, and low embankments on the west side. In some cases, there are already informal paths or walkways. The northern portion of this segment consists of the central business district of Boulder Creek. North of River St there are wide shoulders, most of which are taken up by parallel parking, and sidewalks along the storefronts. The central portion has narrower shoulders and discontinuous space for pedestrians off the shoulder due to encroaching fences, signs, and some embankments. This segment is served by the primary METRO line for the San Lorenzo Valley, route 35, which runs on 30-minute headways in both directions and connects the SLV to downtown Santa Cruz. This segment has average daily traffic volumes of approximately 12,000 to 18,000 vehicles.

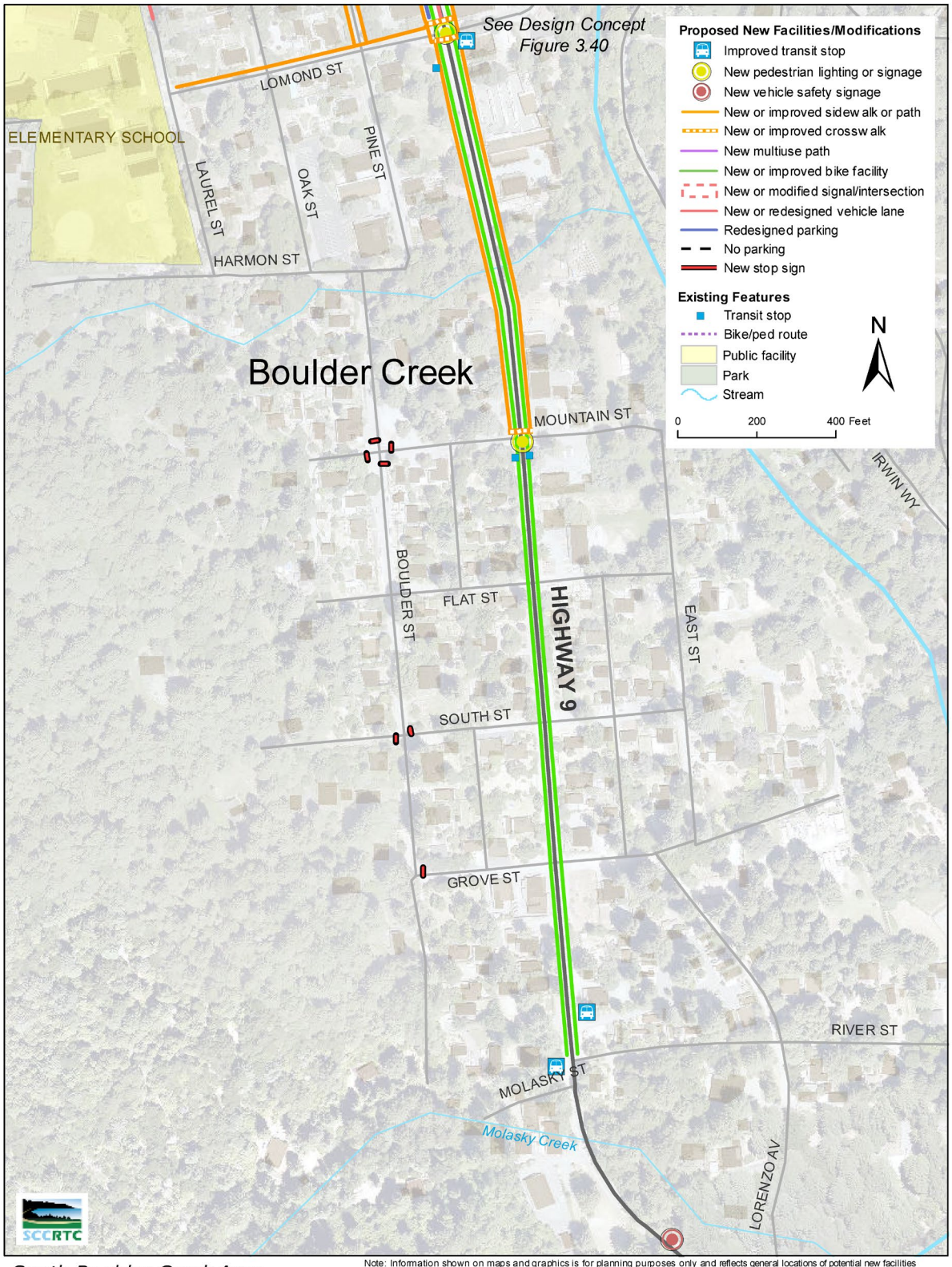
North of Boulder Creek, Bear Creek Road to Northern Intersection of Highway 9 and Highway 236

The northern portion of the project area is mountainous redwood forest with fewer connecting roads than the other portions of the study area. Much of the adjacent land includes a series of rural residential neighborhoods. A few small commercial businesses dot a stretch of Highway 9 between Pleasant Wy and Pool Dr, along with one school – Ocean View Charter, and a YMCA camp. This segment is served only intermittently by the primary METRO line for the San Lorenzo Valley, route 35, which alternates between serving the Country Club on Highway 236 and the Mountain Store at Pool Dr. The Pool Dr transit stop is the final stop on the route and is served every 60 minutes. This segment has average daily traffic volumes of approximately 10,000 (north of Bear Creek Rd) to 4,200 vehicles (near North Junction Highway 236).

Figure 3.34: Lomond Street and Highway 9 in Boulder Creek, Looking North

Credit: SCCRTC

Figure 3.35: South Boulder Creek Area

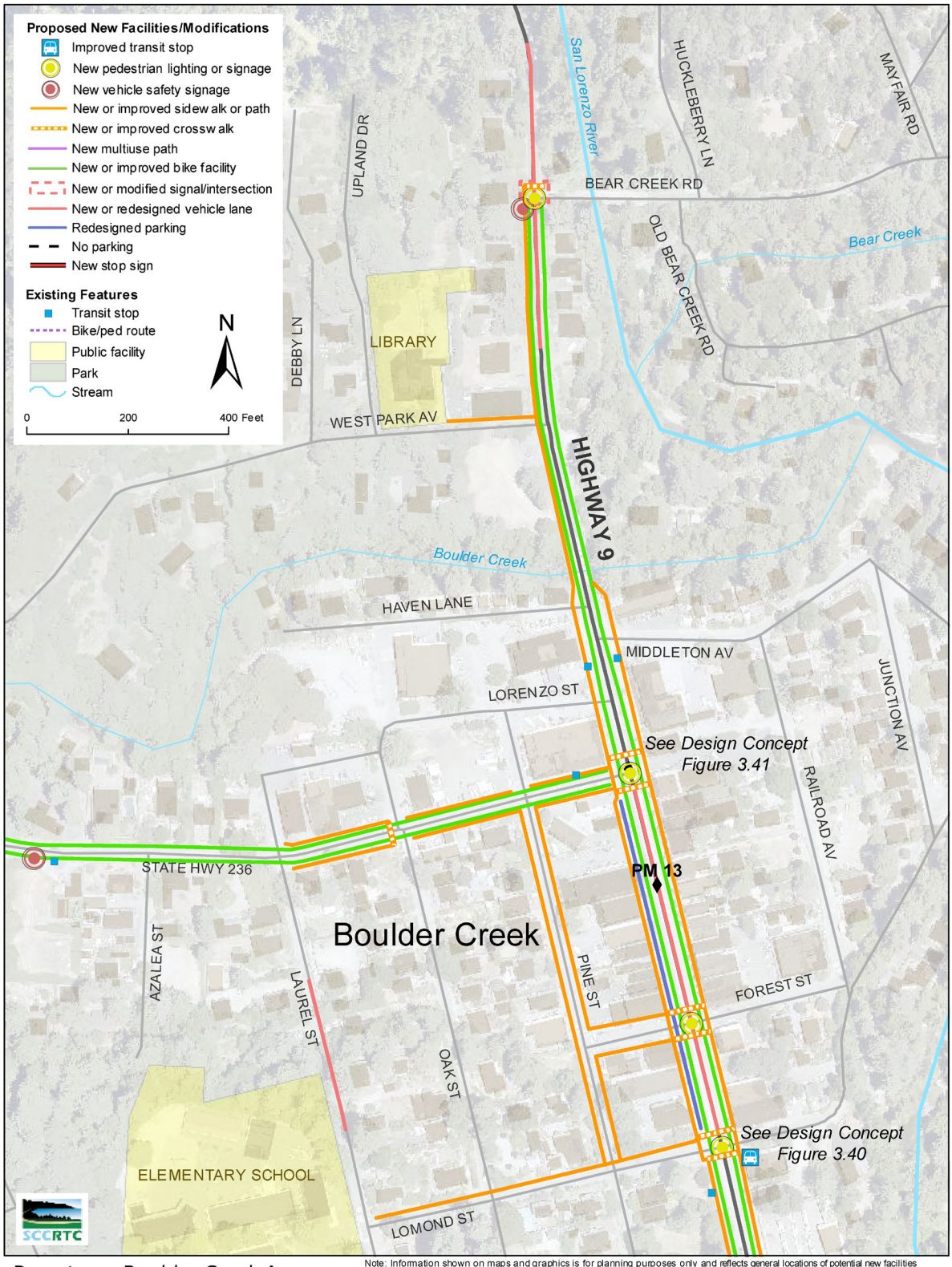


South Boulder Creek Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.36: Downtown Boulder Creek Area

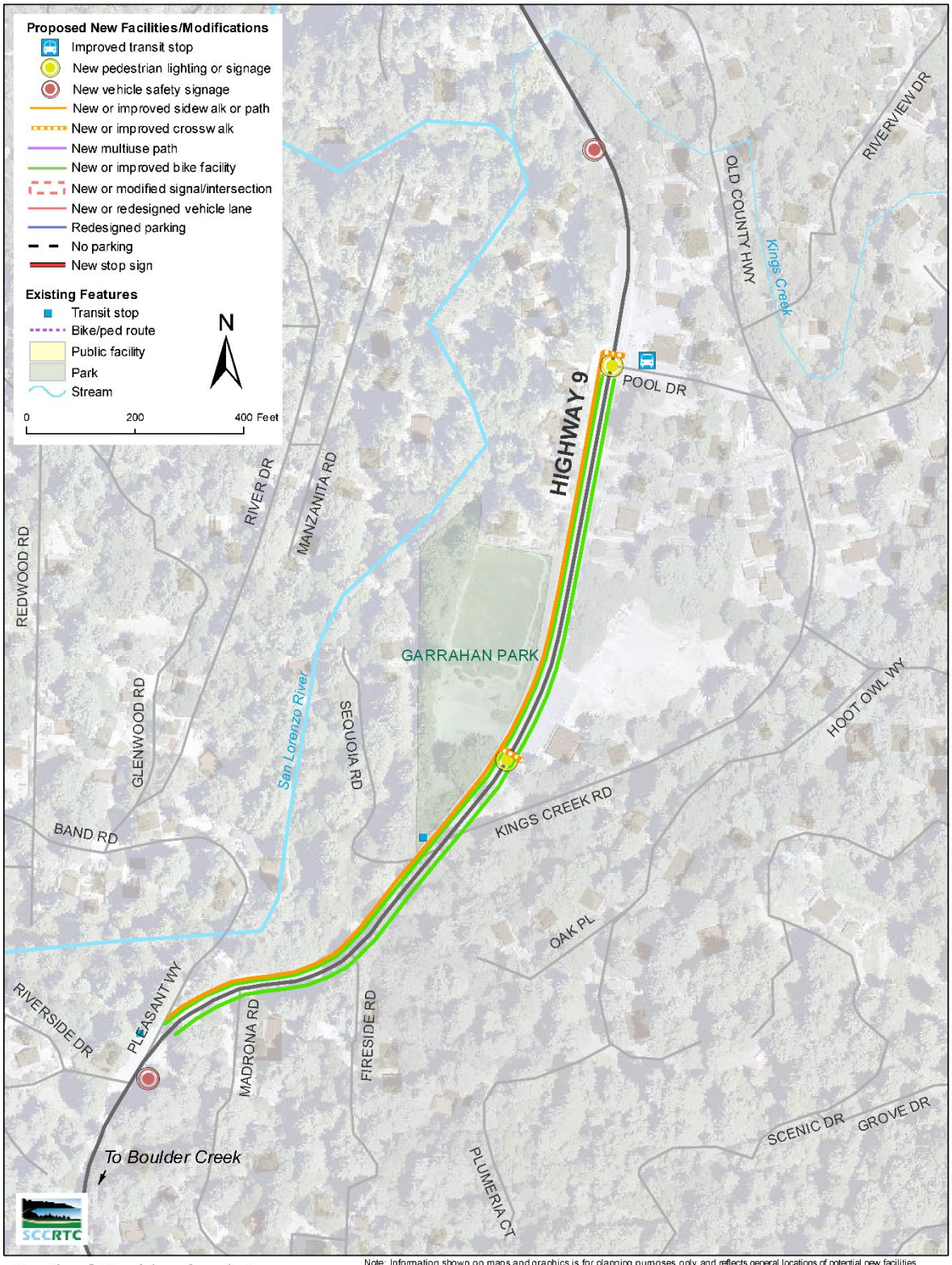


Downtown Boulder Creek Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Figure 3.37: North of Boulder Creek Area



North of Boulder Creek Area

Note: Information shown on maps and graphics is for planning purposes only and reflects general locations of potential new facilities or modifications to existing facilities that have been identified as priorities. These are not engineering level, exact locations. A more expansive list of ideas is included in the Appendix. Most existing facilities (e.g. sidewalks) not shown on maps will remain.

Credit: SCCRTC

Priority Projects

Project 22 – Boulder Creek Elementary Neighborhood Multimodal Improvements

This project seeks to improve multimodal safety and connectivity on Highway 9 and county roads, to Boulder Creek Elementary School and the surrounding neighborhood from Highway 9 (Central Ave). Potential options include:

- New transit stop for northbound buses on the southeast corner of the Highway 9/Lomond St intersection. Currently, transit users must board/alight from northbound buses on the other end of the town. This transit stop would include a bench and shelter.
- A new crosswalk on the south leg of the Lomond St intersection with Highway 9 (Central Ave) to provide access to and from the new transit stop, as well as improve pedestrian access to the existing transit stop for southbound buses on the southwest corner of the intersection. This new crosswalk would include bulb-outs. Analyze if the existing paint striped pedestrian island could be converted to a concrete refuge island, and the potential for landscaping in the refuge island and a pedestrian activated flasher to be added. Consider features to prevent vehicles, including delivery trucks, from parking in middle of highway, obstructing view of pedestrians crossing.
- Upgrade existing crosswalk on the north leg of the intersection of Highway 9 and Lomond St, including bulb-outs.
- Pedestrian facilities on the north side of Lomond St between Highway 9 and Boulder Creek Elementary, connecting to curb ramps at Lomond St and Laurel St. Pedestrian facilities should include safe path of travel from elementary school bus drop-off locations to the elementary school entrance.
- Speed bumps/humps on neighborhood streets near Elementary School.
- Evaluate stop control warrant for Mountain St, Flat St, South St, and Grove St where they cross Boulder St and consider adding stop signs to these uncontrolled intersections to improve safety for vehicles accessing Boulder Creek Elementary.

Figure 3.38: Lomond Street and Pine Street, Looking Toward the Elementary School

Credit: SCCRTC

- Reconstruction of Laurel St between Lomond St and Highway 236 (Big Basin Wy). Currently, the width of the deteriorating roadway cannot consistently accommodate two-way traffic. This component has considerable feasibility concerns, see Feasibility Considerations below.

Preliminary Concept Designs for southern downtown Boulder Creek are shown in **Figure 3.40**. Infrastructure changes from Projects 22, 23, 24, and 25 are shown together in this figure, although they may be analyzed and implemented separately.

Traffic calming features on Highway 9 north of Lorenzo Ave before curve to slow traffic traveling northbound into town center would complement this project. This may include speed feedback signs, signage alerting drivers that pedestrian present, and/or other methods discussed under *Corridor Priority A* in Chapter 2. Pedestrian scale lighting at the intersections near Boulder Creek Elementary on Laurel and Lomond streets is described in *Corridor Priority E* (Chapter 2 Section 2.4)

To fit a sidewalk along Lomond St would likely require removal of some on-street parking and right-of-way acquisition. Curb and gutter sidewalks require accompanying drainage. Additionally, the sloping terrain on Lomond St would require roadway reconstruction to meet ADA sidewalk standards. A sidewalk or sidepath on the north side of Lomond St could be provided to connect with existing non-accessible wood step path on the north side of Lomond St west of Oak St.

This project extends work done as part of the County's 2016/2017 Boulder Creek Elementary School Safe Routes to Schools Improvement Project, which included crosswalks, a curb, gutter, sidewalk, a 300-foot retaining wall, and drainage improvements on Laurel St between Lomond St and Harmon St along Boulder Creek Elementary School. In addition, a short walkway was constructed on the east side of Laurel St at the intersection of Lomond St in order to provide a connection to an existing railroad tie and gravel staircase that was constructed by volunteers. A walkway was also constructed on Harmon St from Laurel St to Oak St.

Possible Feasibility Considerations: New stop signs would require stop sign warrant analysis. Pedestrian facilities on Lomond and the reconstruction of Laurel St could both require extensive grading and landscaping/driveway reconstruction and have right-of-way impacts. It is unlikely the Lomond St pedestrian facilities would be able to meet ADA compliance due to the steep hill. Bicycle facilities were also considered for Lomond St, but were eliminated from the priority list due to community opposition regarding the steepness of roadway and prioritization of pedestrian facilities on limited right-of-way. Such facilities may be considered in the future, or on alternate routes such as Laurel St for Safe Routes to School bicycle access.

Project 23 – Boulder Creek Crosswalk Improvements

This project would provide additional crosswalk safety features at pedestrian crossings on Highway 9 and Highway 236 throughout the commercial area of Boulder Creek. Improvements in this project could include pedestrian crossing visibility and safety upgrades to:

- Highway 9 at Mountain St, south of Lomond St.
- Highway 9 at Forest St, including pedestrian activated flashers (RRFBs)*
- Highway 9 at Highway 236, stripe new crosswalk on the north leg of the intersection to improve transit stop access, increase stop sign visibility, and add pedestrian scale lighting. Though not typical at stop-controlled intersections, addition of a pedestrian activated flasher could also be analyzed here as this stop sign is frequently ignored by drivers.
- Highway 236 at Oak St, stripe new crosswalk on west leg of intersection.

Preliminary Concept Designs for downtown Boulder Creek are shown in **Figures 3.40 and 3.41**. Infrastructure changes from Projects 22, 23, 24, 25, and 26 are shown together in this figure, although they may be analyzed and implemented separately.

Treatments at these crosswalks could include signage, high-visibility striping, and curb extensions (bulb-outs) to shorten crossing distance and increase visibility of pedestrians. Bulb-outs are feasible within the existing highway cross-section due to available Right-of-Way (ROW) and sidewalk facilities. Bulb-outs should be designed to accommodate drainage with existing curb and gutter, consider right turns, as well as vehicle and truck turning movements.

Reducing speeding and implementing traffic calming elements throughout Boulder Creek town center is described in Chapter 2 *Priority A*.

Possible Alternative Improvements: A midblock pedestrian crossing with high-visibility laddering and pedestrian refuge island was also proposed for Highway 9 between Forest St and Highway 236 near the alley south of 13141 CA-9, but due to the existing crosswalks at Highway 236 and Forest St, half a block to the north and south this may not be feasible. New midblock crossings are not supported by Caltrans. See Appendix A Section 4.1 *New Crosswalk* for more information.

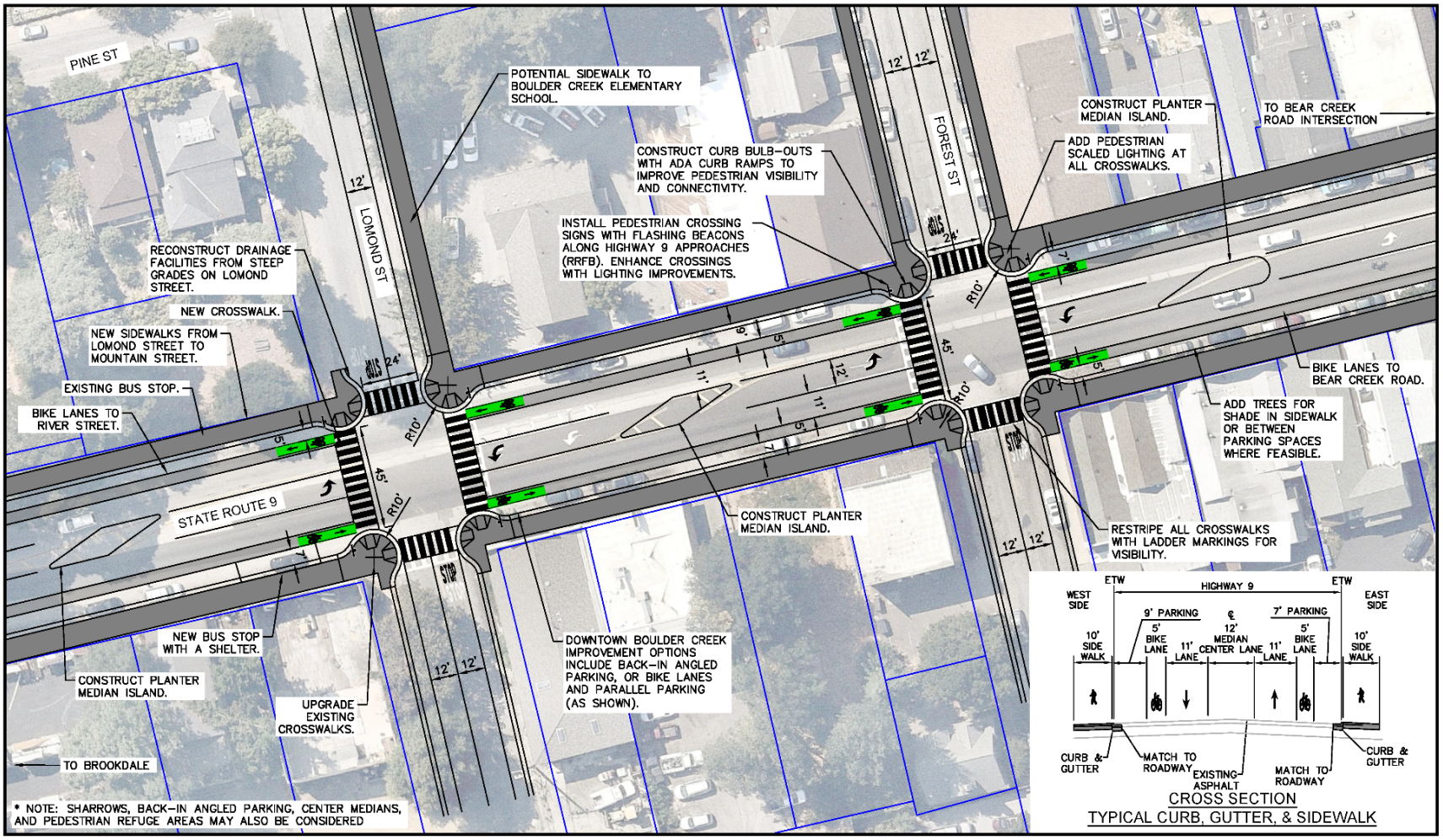
Figure 3.39: Existing Crosswalk at Forest Street and Highway 9

Credit: SCCRTC

Possible Feasibility Considerations: No major feasibility constraints. Truck and bus turning radius will need to be considered. Some community members have expressed interest in landscaped medians; Caltrans does not typically support planting of trees or other landscape that may impact sight distances. Any additional lighting, including flashing lights at crosswalks, should take into consideration historic rural character.

**Crosswalk improvements at Forest St are currently funded by Caltrans.*

Figure 3.40: Boulder Creek Town Center Design Concept – Lomond Street and Forest Street Intersections



Kimley»Horn

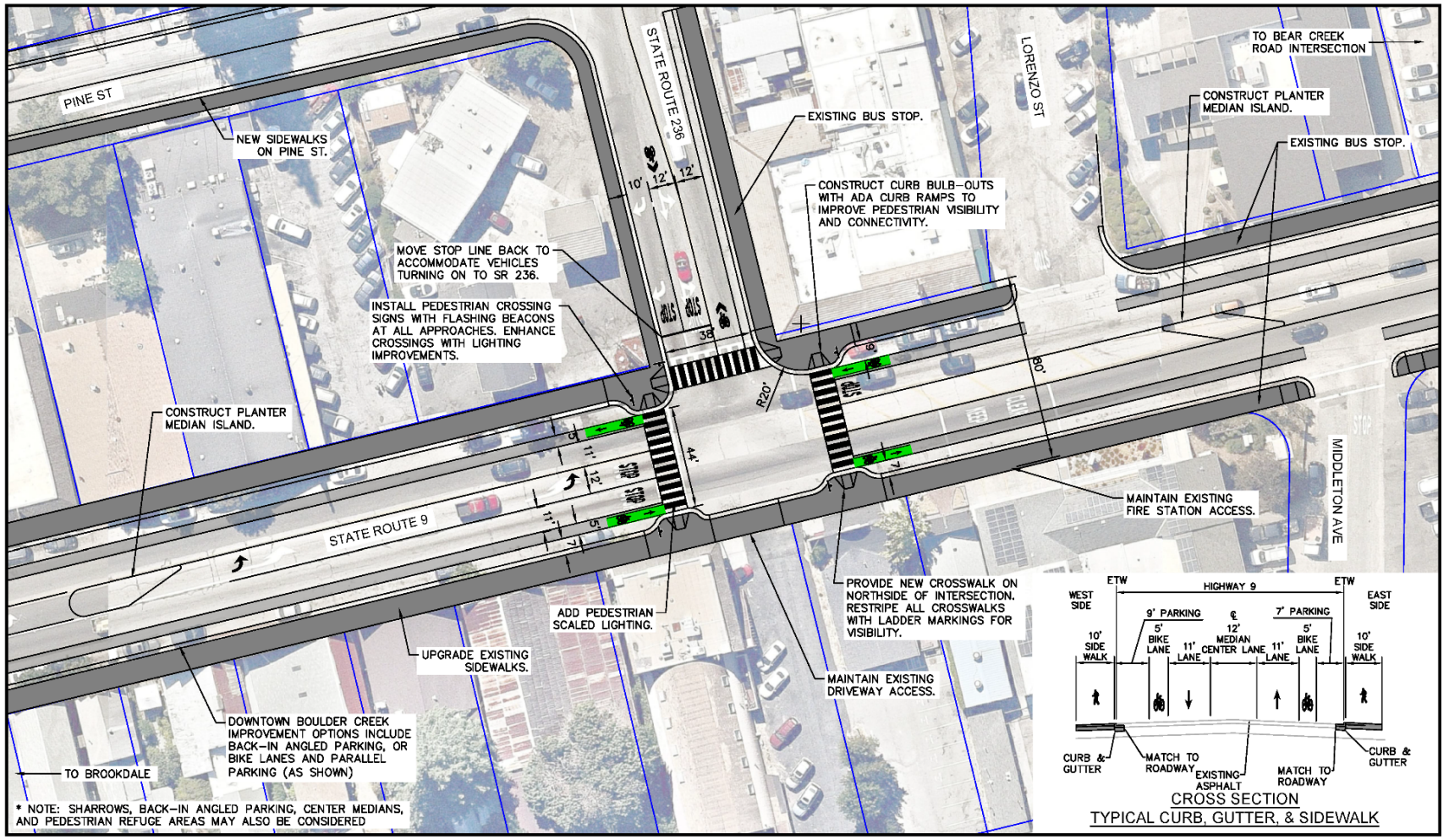
FV-197061001 JUNE 2019

*EXHIBIT IS FOR ILLUSTRATIVE PURPOSES ONLY. PROPERTY LINES, SATELLITE PHOTO OF BUILDINGS, ETC. MAY NOT BE IN PRECISE LOCATIONS. EXACT LOCATION OF PARKING SPOTS, SHADED TREES, AND OTHER ELEMENTS TBD DURING DESIGN PHASE.

PROJECT 23, 24
LOMOND ST / FOREST ST / SR9 INTERSECTION IMPROVEMENTS
SANTA CRUZ COUNTY

SR 9 COMPLETE STREETS CORRIDOR STUDY

Figure 3.41: Boulder Creek Town Center Design Concept – Highway 236 Intersection



Kimley»Horn

GRAPHIC SCALE IN FEET
0 20 40 80

– APPROXIMATE R/W PER SANTA CRUZ COUNTY GIS

PROJECT 23, 24
SR236 / SR9 INTERSECTION IMPROVEMENTS
SANTA CRUZ COUNTY

SR 9 COMPLETE STREETS CORRIDOR STUDY

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Project 24 – Parking Improvements or Bicycle Facilities in Downtown Boulder Creek

This project seeks to improve the Caltrans right-of-way in downtown Boulder Creek, to narrow the travel way and slow vehicle speeds, and to increase available parking or provide facilities for cyclists. Improvements would either involve converting some of the current parallel parking to back-in angled parking in the Boulder Creek town center to increase the number of available parking spaces, or providing bicycle facilities (see Feasibility Considerations). Improvements could include:

- Adding parking: Pave shoulders on side streets and install back-in angled parking with tree wells on Highway 9 from Highway 236 to Lomond St, as well as analysis of options for additional formalized parking in the Boulder Creek town center. Back-in angled parking requires only the first move of entering a parallel parking space to completely park, and offers drivers better visibility of bicyclists and other traffic when they are exiting a parking space.
- Adding bicycle facilities. Tiers reflect priorities if bicycle lanes need to be incrementally constructed as funding opportunities become available.
    - **Tier I:** Add bike sharrows on Highway 9
    - **Tier II:** Bike lanes from Middleton Ave and the Boulder Creek Bridge to Mountain St
    - **Tier III:** Bike lanes extended south to River St
- Signage to alert bicyclists of alternate routes on Lomond St - Railroad Ave - Middleton Ave.
- Prohibiting parking in the center turn lane of Highway 9, encourage truck deliveries to occur behind shops to improve traffic flow and increase pedestrian visibility along the highway. Planted medians could be an effective way of meeting this need.
- Modifying center merge lanes on Highway 9 for cars turning left onto Highway 9 from east side streets by including planted medians to reduce speeds between left turn pockets.

Preliminary Concept Designs for downtown Boulder Creek are shown in **Figures 3.40 and 3.41**. Infrastructure changes from Projects 22, 23, 24, 25, and 26 are shown together in this figure, although they may be analyzed and implemented separately. Back-in angled parking option not shown.

Figure 3.42: Highway 9 in Boulder Creek, Looking South from Highway 9/236 Intersection

Credit: SCCRTC

The extent and feasibility of parallel-to-angled parking conversion would require further study, as there is potentially only sufficient space for back-in angled parking on one side of the highway. Class II bicycle lanes on

Highway 9 shoulder are feasible with some restriping and shoulder repaving. Tier III improvements would require shoulder widening to accommodate bicycle facilities south of Mountain St.

Possible Alternative Improvements: The draft plan included a two-way center turn lane through the town center. The Boulder Creek Specific Plan (1992) and some community members and businesses requested a two-way center turn lane not be added along Highway 9. The 1992 plan also notes that strategically located and sized park-and-walk/park-and-ride lot(s) may be beneficial. If back-in angled parking is only feasible on one side, it has been suggested they be placed on the east side, in combination with street trees.

Possible Feasibility Considerations: Purchase of additional right-of-way for this project is highly unlikely due to the dense and historic nature of downtown Boulder Creek. Between Middleton Ave and Mountain St there is not enough roadway width to allow for center turn lanes, bike lanes and angled parking, even on one side only. During project implementation, the community and Caltrans will need to come to a resolution over which improvements (parking, bicycle lanes, turn lanes) are the priority for Boulder Creek. Any improvement combination could require narrowing of auto travel lanes.

Project 25 – Sidewalk and Storefront Improvements in Downtown Boulder Creek

This project expands and improves sidewalks on Highway 9, Highway 236, and county roads in the Boulder Creek town center. Improvements in this project could include:

- Widen existing sidewalks and fill gaps in sidewalks on Highway 9 between Middleton Ave/Boulder Creek Bridge and Lomond St along Highway 9.
- Extend sidewalks on Highway 9 south to Mountain St and the end of the continuous commercial corridor.
- New sidewalks on Pine St from Lomond St to Highway 236/Big Basin Wy, and on Highway 236 from Highway 9 to Laurel St, consistent with the Boulder Creek Specific Plan (1992).
- Add bicycle parking through commercial area.

Preliminary Concept Designs for downtown Boulder Creek are shown in **Figures 3.40 and 3.41**. Infrastructure changes from Projects 22, 23, 24, 25, and 26 are shown together in this figure, although they may be analyzed and implemented separately.

Add or include shade trees, benches, tree wells, and other aesthetic features, consistent with *Caltrans' Main Street-California (2013)*. Reducing speeding and implementing traffic calming elements throughout Boulder Creek town center is described in Chapter 2 *Priority A*.

Possible Feasibility Considerations: New and updated sidewalks should include shade trees, especially on the east side of Highway 9, and pedestrian-scale lighting wherever feasible. Widening sidewalks could impact other options for use of the right-of-way, such as back-in angled parking, bike lanes, or median islands (Project 24). The community should be consulted during the design process for downtown Boulder Creek improvements to determine their priorities.

Previous community input had identified interest, particularly on the part of some businesses, of widening sidewalks to allow dining in the town center sidewalk improvements. Currently, California state law (*California Streets and Highway Code – Section 731*) prohibits tables for dining within Caltrans right of way except under a special event permit or in areas where state property is relinquished to a local municipality. Feasibility of these projects depends on the

ability to relinquish right-of-way, changes in Caltrans design standards, and property owner agreement.

Street furniture such as benches, bicycle racks, planters, water fountains, and trash receptacles are permitted within the Caltrans right-of-way if they do not obstruct walkways and are maintained by a local agency. Installation of or updates to curb and gutter sidewalks could require drainage work.

Potential right-of-way impacts to adjacent businesses. Could require driveway reconstruction or some on-street parking relocation. Reference the 1992 Boulder Creek Specific Plan when considering tree placement. Retain historic pistons and rings along sidewalks.

Project 26 – Pedestrian and Bicycle Connections to the Boulder Creek Library and Bear Creek Road, Traffic Calming on Highway 236

This project seeks to improve pedestrian and bicycle connections on Highway 9 and county roads from the Boulder Creek town center to the Boulder Creek Library and Bear Creek Rd. Improvements in this project could include:

- Sidepath or sidewalk on the west side of Highway 9 from the end of the existing sidewalks on the Boulder Creek Bridge to Bear Creek Rd, including shade trees. Sidepath or sidewalk on West Park Ave, possibly the north side only, to connect to the Boulder Creek Library (and eventually to Ridge Dr).
- Extending the bike lanes proposed in Project 24 past Middleton Ave and the Boulder Creek Bridge to Bear Creek Rd.
- Traffic calming features north of library/near West Park Ave on Highway 9 and on Highway 236 near Redwood Ave to slow traffic traveling into town center. May include speed feedback signs, signage alerting drivers to watch for pedestrians.
- Traffic calming and pedestrian access to transit stops on Highway 236 near Boulder Creek Golf and Country Club neighborhood. May include stop signs at Highway 236/West-East Hilton Dr intersection, radar feedback signage, school bus stop signage, concrete platform for East Hilton transit stop, and installation of curb 200 feet on northwest side of intersection.

Preliminary Concept Designs for northern downtown Boulder Creek are shown in **Figure 3.41**. Infrastructure changes from Projects 23, 24, 25, and 26 are shown together in this figure, although they may be analyzed and implemented separately.

Sidewalks would include shade trees wherever feasible. The existing sidewalks heading north on Highway 9 are inconsistent after Highway 236 and end after the bridge over Boulder Creek. Continuing a sidewalk on the west side of Highway 9 to the library would require grading and reconstruction of existing ditches on the shoulder. Four-foot bike lanes are feasible if pavement is graded and resurfaced. Sidewalks could continue up West Park Ave approximately 250 feet on the north side of the road to connect to the entrance of the Boulder Creek Library.

Possible Feasibility Considerations: Bike lanes could require relocation of on-street parking. Pedestrian facilities have potential right-of-way impacts, could require landscaping and driveway reconstruction, and grades could be a challenge in meeting ADA standards.

Project 27 –Highway 9/Bear Creek Road Intersection Improvements

This project seeks to improve auto circulation and pedestrian access at the Highway 9/Bear Creek Rd intersection. Improvements in this project could include:

- Left turn and merge lanes on Highway 9 to increase throughput and improve safety for vehicles turning from Bear Creek Rd onto Highway 9 southbound
- Improve lines of sight for drivers on Bear Creek Rd entering Highway 9
- Analysis and installation of traffic control (e.g. stop sign) for vehicles on Highway 9, which would increase throughput for vehicles turning left from Bear Creek Rd onto Highway 9 southbound during commute times, reduce speeds as vehicles begin to enter the town on Highway 9, and make it easier for pedestrians to cross. Could include analysis of a stop sign for southbound vehicles on Highway 9, 3-way stop, a roundabout, a traffic light, flashing red lights with new stop signs, flashing yellow signs, and other mechanisms.
- Installation of a crosswalk across Highway 9 at the Bear Creek Rd intersection, likely on the north leg, if a stop sign is installed. Installation of new crosswalks is subject to Caltrans review process.

Bear Creek Rd is narrow at this intersection due to the bridge over the San Lorenzo River. There are ditches and utility poles adjacent to the edge of shoulder. There are no pedestrian or bicycle facilities and the shoulder width is typically less than 4-feet.

Figure 3.43: Bear Creek Road and Highway 9, Looking East During Rush Hour

Credit: SCCRTC

The addition of a center turn lane at the intersection would require a minimum cross-section width of at least 52-feet over a 500-foot-long section on Highway 9. Widening the west side of the road to avoid bridge constraints would impact right-of-way and removal of embankment, trees, and utilities. All pedestrian and bicycle facilities would require roadway widening as well.

Possible Feasibility Considerations: New traffic control at intersection, including stop signs, would require traffic studies and stop sign warrant analysis. There is some community disagreement about adding stop signs, the number of stop signs and any lights; which will need to be evaluated in more detail during project implementation. Turn/merge pocket and improving line-of-sight would require roadway widening and could have right-of-way impacts and/or require tree removal or grading.

Project 28 – Bicycle/Pedestrian Improvements at Garrahan Park and Mountain Store

This project would add bicycle and pedestrian improvements on Highway 9 that would connect Garrahan Park and the Mountain Store transit stop to the surrounding neighborhoods. Improvements could include:

- Two new crosswalks with high-visibility ladder markings, high-visibility pedestrian signs, and yield striping: one connecting the Garrahan Park entrance to the intersection of Kings Creek Rd and Highway 9, and one on the north side of the intersection of Highway 9 and Pool Dr.

  The Pool Dr crosswalk could include an advance warning flashing beacon alerting southbound drivers to the presence of a crosswalk and the posted speed limit and/or an RRFB, bulb-outs to increase visibility of pedestrians, or pedestrian refuge island, though this was initially determined to be infeasible due to the blind curve just north of the intersection. Installation of new crosswalks is subject to Caltrans review process. The crossing at Pool Dr is currently under evaluation as part of a successful 2018 HSIP grant.

- Bike lanes on Highway 9 from Pleasant Wy to Pool Dr
- Sidewalks or sidepath on Highway 9 from Pleasant Wy to Pool Dr, including shade trees. More right-of-way may be available for this project on the west side of Highway 9.

Narrowing of vehicle travel lanes and slowing of vehicle traffic at this location using bulb-outs would be complemented by similar facilities at the Redwood Dr intersection south of Felton (see Project 3) to create a “gateway” effect at either end of the more populated Felton to Boulder Creek core segment of the San Lorenzo Valley slowing vehicles from speeds reached in the more rural, unpopulated segments.

Pedestrian and bicycle facilities on Highway 9 would require roadway widening and relocation of existing ditch facilities. Crosswalks determined to be feasible during initial analysis but could require advance signing or flashing beacons for visibility. A pedestrian refuge island is feasible if the roadway is widened. Bulb-outs are feasible with drainage improvements.

Possible Feasibility Considerations: Bike lanes and pedestrian facilities could both have right-of-way impacts, and require grading, tree removal, or retaining wall/landscape/roadway reconstruction.