

## Traffic Calming

Traffic calming interventions slow traffic by modifying the physical environment of a street.

Description	Graphic
<p><b>Speed Table.</b> A speed table is long raised speed hump with a flat section in the middle and ramps on the ends. Speed tables are generally long enough for the entire wheelbase of a passenger car to rest on top. The long, flat design allows cars to pass without slowing as significantly as with speed humps or cushions. Because they slow cars less than similar devices, speed tables are often used on roads with typical residential speed limits. Speed tables are sometimes called flat top speed humps, trapezoidal humps, speed platforms, raised crosswalks, or raised crossings. In addition to application midblock, tables can also be applied at intersections.</p> <p>Communities throughout the nation have used a variety of traffic calming measures on bicycle boulevards and traffic calmed streets. The neighborhood traffic circle is one of the most universally applied measures for streets with a grid system, such as in Berkeley and Portland. It is not possible to implement the traffic circle in the tight, angled intersections found throughout Marin County. The next best way to achieve the same results as the traffic circle is the raised intersection. The raised intersection requires site-specific drainage analysis and is more expensive than the traffic circle, but it is generally worth the additional cost.</p>	 <p><i>Source: <a href="http://www.ite.org/traffic/table.asp">http://www.ite.org/traffic/table.asp</a></i></p>
<p><b>Median Pedestrian/Bicycle Refuge.</b> On wide, multi-lane roadways, bicyclists can benefit from median refuge islands, which offer a place to wait after crossing only half of the street. Refuge islands increase the visibility of bicyclist crossings and can decrease bicyclist collisions by reducing crossing exposure time for bicyclists. They also allow bicyclists to consider cross traffic from one direction at a time, making it easier to find a gap and simplifying crossing.</p>	 <p><i>Source: <a href="http://www.ite.org/traffic/table.asp">http://www.ite.org/traffic/table.asp</a></i></p>

**Curb Extensions.** Curb extensions, also called bulb-outs, are engineering improvements intended to reduce pedestrian crossing distance and increase visibility. Curb extensions can either be placed at corners or at mid-block crosswalk locations, and extend out to about 8 feet to align with the edge of the parking lane. In addition to shortening the crosswalk distance, curb extensions serve to increase pedestrian visibility by allowing pedestrians to safely step out to the edge of the parking lane where they can see into the street, also making them more visible to oncoming drivers. At corners, curb extensions serve to reduce the turning radius, and provide space for perpendicularly-aligned curb ramps. Where bus stops are located, curb extensions can provide additional space for passenger queuing and loading.



*Source: PBIC Image Library*

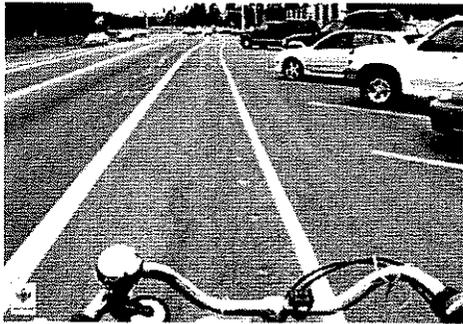
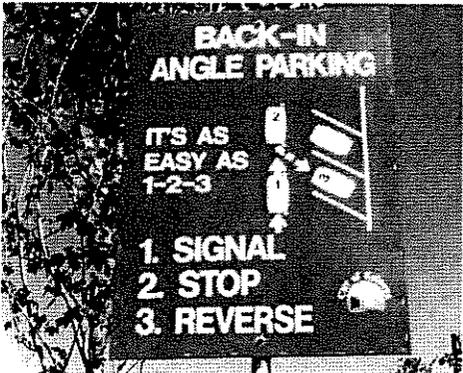
**Colored Pavement.** For aesthetic reasons, crosswalks are sometimes constructed with distinctive paving materials such as colored pavement. Crosswalks with unique materials or colored pavement should use concrete pavers or asphalt, and textures should maintain a smooth travel surface and good traction. Regardless of any colored or unique pavement treatment used, marked crosswalk locations should always be marked with parallel transverse lines.



*Source: Alta Image Library*

## On-Street Parking

On-street parking configuration has a significant effect on bicyclist safety. Design guidelines below present specific design strategies that can improve bicyclists safety where angle parking is located. These design strategies are particularly valuable in commercial and retail areas with angled parking where there is high parking turnover.

Description	Graphic
<p><b>Back-in-Angle Parking.</b></p> <p>Back-in-angle parking is similar to both parallel and standard angle parking, but is intended to improve bicyclist safety through increased visibility. Compared to standard angle parking, the driver is able to see bicyclists more easily when exiting the parking stall. Additionally, with back-in-angle parking vehicle cargo loading is positioned on the curb rather than the street. A potential concern is that vehicles may enter the spaces head-in from the opposite side of the street, but this can be addressed with enforcement, signage, and driver education. In addition, vehicles overhanging the sidewalk or backing into street furniture can be alleviated by proper design and placement.</p> <p>Back-in-angle parking has been implemented in over 26 cities in the United States, including Wilmington, Delaware (in place for over fifty years), Seattle (in place for over thirty years), Washington, D.C. (in place for over twenty years), Tucson, and several cities in California, including San Francisco, Santa Barbara, and Ventura. In cities where this type of parking has been implemented, the number of parking-related collisions has decreased since installation. In Tucson, after implementing back-in-angle parking, bicycle collisions decreased from an average of 3-4 collisions per month to no reported collisions for 4 years following implementation. In Montreal, Quebec, Canada, since the implementation of a back-in-angle pilot project in 2001, no collisions have been reported and speed was reduced by approximately 3 mi/hr.</p>	 <p><i>Source: City of Vancouver, WA</i></p>  <p><i>Source: City of Kelowna, British Columbia, Canada</i></p>

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## 6. Proposed Improvements

This chapter presents proposed improvements to achieve the Fairfax to San Rafael Cross Marin Bikeway project goals that will result in safe and separate bicycle accommodation where feasible. Accommodation should be equivalent to the North-South Greenway. (See Chapter 1 Section 1.3 of this report for the project goals and objectives.) As stated before, much of the proposed corridor is already served by on-street bicycle facilities; therefore, this feasibility study focuses on closing gaps in those facilities, improving existing bicycle facilities, and improving north-south connections to the east-west corridor.

The projects defined in this chapter are designed to respond to and meet the goals and objectives set out at the beginning of this Fairfax to San Rafael Cross Marin Bikeway feasibility study. Other design criteria include functionality and efficiency, historic, environmental, aesthetic and visual impacts, accessibility, estimated usage, safety and liability, right-of-way impacts, roadway crossings, consistency with local plans, estimated levels of use, traffic impacts and cost to implement.

This chapter emphasizes short-term improvements that can be implemented quickly and at low cost within approximately zero to five years. The medium-term alternatives in some cases represent the optimal design, but require additional traffic study, civil engineering analysis, community outreach and potential right-of-way acquisition. Medium-term projects are those that could be completed within approximately five to ten years.

### 6.1. Summary of Proposed Improvements

Table 6-1 summarizes the individual project boundaries, proposed improvements and estimated implementation costs. Each improvement is assigned a number beginning with the westernmost project and progressing to the eastern terminus of the corridor. Each project listed in the table is discussed in detail in the following sections of this chapter. Figure 6-1 illustrates the locations of the improvements along the corridor.

**Table 6-1: Summary of Proposed Improvements**

Project Number	Location	Improvement	Short-Term Project Cost*	Medium-Term Project Cost**
1	SFD/ Olema Road intersection (west), Fairfax	Intersection improvement	\$36,000	--
2	Olema Road, Fairfax	Bicycle boulevard	--	\$16,000
3	SFD/ Olema Road intersection (east), Fairfax	Intersection improvement	\$43,000	--
4	SFD (Olema Road to Claus Road, Fairfax	Bicycle lane striping	\$56,000	--
5	Broadway Boulevard (Olema Road to Claus Road), Fairfax	Bicycle boulevard and intersection treatments	--	\$378,000
6	Broadway Boulevard/Fairfax Parkade, Fairfax	Bicycle lanes and pedestrian improvements	--	\$470,000
7	Center Boulevard, Fairfax	Wayfinding	\$3,400	--
8	Lansdale Avenue/San Anselmo Avenue and Center Boulevard, San Anselmo	Short-term (Lansdale Avenue/San Anselmo Avenue): Bicycle boulevard and speed tabled intersections. Medium-term (Center Boulevard): Cycletrack	\$1,326,000	\$3,186,000

6. Proposed Improvements

Project Number	Location	Improvement	Short-Term Project Cost*	Medium-Term Project Cost**
9	Hub Bypass, San Anselmo	Short-term: Corner bulbs at Bank Street/Sir Francis Drake intersection, bicycle boulevard. Medium-term: Crossing project and creek path modifications	\$225,000	\$559,000
10	Red Hill Avenue/Greenfield Avenue (Lincoln Park to Hilldale Drive), San Anselmo	Short-term: Restripe back-in-angle parking and bicycle boulevard	\$131,000	--
11	Red Hill Avenue/Greenfield Avenue/West End Avenue (Hilldale Drive to 2 <sup>nd</sup> /4 <sup>th</sup> Street intersection), San Rafael	Bicycle boulevard treatment and intersection treatments	--	\$112,000
12	2 <sup>nd</sup> Street (2 <sup>nd</sup> /4 <sup>th</sup> Street intersection to First Street), San Rafael	Short-term: Intersection treatments. Medium-term: Sidewalk extension, bicycle boulevard treatment on G Street	\$116,000	\$1,338,000
13	First Street (2 <sup>nd</sup> Street to B Street), San Rafael	Bicycle boulevard treatment and contraflow bike lane	\$43,000	--
14	First Street (B Street to Anderson Drive), San Rafael	Short-term: Bicycle boulevard treatment. Medium-term: Class I bike path	\$2,600	\$69,000
15	Anderson Drive to Mahon (Creek Pathway), San Rafael	Wayfinding	\$6,600	--
<b>TOTAL COSTS</b>			<b>\$1,988,600</b>	<b>\$6,128,000</b>

\* Summary cost figures rounded to the nearest significant figure.

\*\*Short-Term and Medium-Term Project costs reflect separate projects and are mutually exclusive.

6. Proposed Improvements

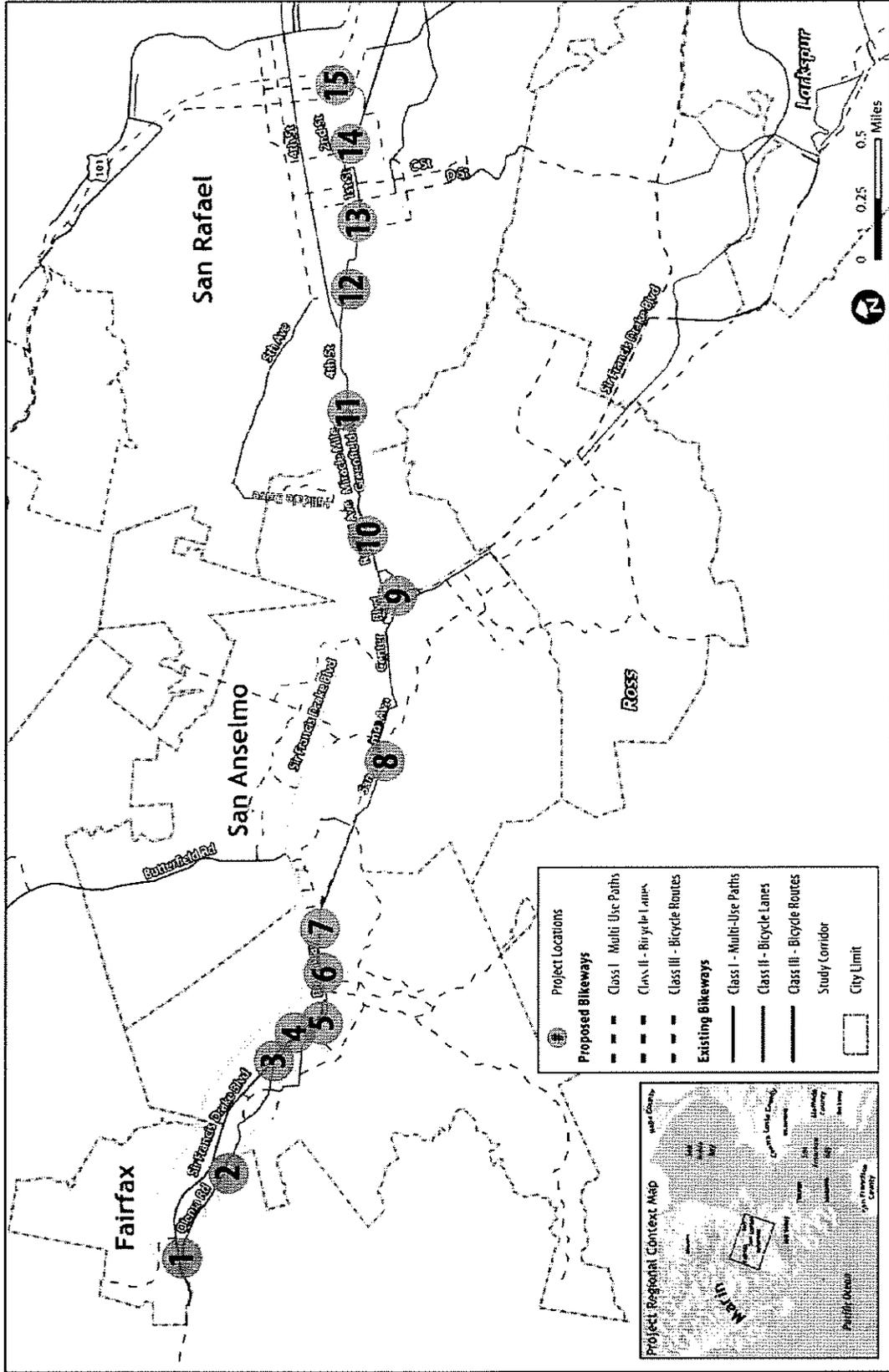


Figure 6-1: Overview Map of Proposed Project Sites

## 6.2. Cost Estimating Methodology

Table 6-2 presents frequently recurring unit costs used in the preparation of the planning level cost estimates. Other unit costs appear in the project cost estimates, but are not frequently used. Unit costs were developed based on recently built projects in the San Francisco Bay Area.

**Table 6-2: Unit Costs**

Item	Unit	Unit Cost
Bench	each	\$1,500.00
Asphalt Parking Area	square foot	\$2.75
Asphalt Pathway with Sub-Base	square foot	\$3.80
Asphalt Pathway with Sub-Base	square foot	\$2.75
Asphalt Pathway with Sub-Base	square foot	\$7.00
Barrier, Metal	linear foot	\$50.00
Bicycle Boulevard Signing	mile	\$15,840.00
Bicycle Boulevard Signing	mile	\$8,500.00
Bicycle Loop Detector	each	\$3,000.00
Bike Locker	each	\$1,200.00
Bike Racks	each	\$400.00
Bollards	each	\$500.00
Curb Extension/Bulb-out	each	\$20,000.00
Bus Concrete Pad	each	\$6,500.00
Bus Shelter	each	\$10,000.00
Class I Path (Total)	mile	\$666,740.00
Class II Bike Lane (Total)	mile	\$22,560.00
Class III Bike Route (Total)	mile	\$8,500.00
Concrete	square foot	\$9.00
Concrete Paving Remove	cubic yard	\$15.00
Crosswalk, Thermoplastic	square foot	\$6.00
Curb	linear foot	\$15.00
Curb and Gutter	linear foot	\$35.00
Curb Ramp	each	\$2,500.00
Curb, Remove	linear foot	\$3.30
Drainage inlet, Relocation	each	\$5,000.00
Fencing, Remove	linear foot	\$9.89
High Visibility Crosswalk	each	\$1,200.00
Median Island	each	\$20,000.00
Raised Crosswalk	each	\$15,000.00
Raised Intersection	each	\$60,000.00
Retaining wall, Structural	square foot	\$150.00
Right Turn Pavement Marking	square foot	\$3.39
Sharrow Pavement Markings	each	\$100.00
Sidewalk Widening	square foot	\$25.00
Sign	each	\$250.00

Item	Unit	Unit Cost
Stop Bar	each	\$200.00
Stop Pavement Marking	each	\$400.00
Striping	linear foot	\$2.00
Striping (Broken)	linear foot	\$1.18
Striping, Remove	linear foot	\$1.50
Textured Concrete	square foot	\$10.00
Joint Pole Relocation	each	\$7,500.00

**6.3. Fairfax to San Rafael Cross Marin Bikeway Improvement Projects**

Each of the projects defined below represents a set of physical improvements that can be implemented by one of the three potential lead agencies in the Fairfax to San Rafael Cross Marin Bikeway project area – Town of Fairfax, Town of San Anselmo, and the City of San Rafael. Each of the projects is defined to address the project goals and a set of operational and physical needs identified through this study. The descriptions below define the following project characteristics:

- Project Need Summary
- Short-Term Project Definition (where applicable)
- Medium-Term Project Definition (where applicable)
- Planning-Level Cost Estimate
  - Short-Term (where applicable)
  - Medium-Term (where applicable)

**6.4. Project 1: SFD/Olema Road Intersection (West)**

**Project Need Summary**

As identified in Chapter 3 of this study, at this intersection, bicyclists have difficulty judging gaps in approaching high speed automobile traffic due to limited sight lines, and there are no clearly defined bike lanes through the intersection.



*SFD facing north toward the Olema Road intersection (western of the two Olema Road intersections)*

The intersection improvements identified here address the needs of bicyclists accessing SFD from Olema Road and the need to provide a defined path for through bicyclists on SFD. In the existing condition, shoulder striping along SFD is discontinued in advance of the intersection, and the travel lanes are not clearly delineated. The following short-term improvements address these conditions.

**Short-Term Project Definition**

Recommended short-term project improvements include both shoulder and striping improvements and are shown in Figure 6-2 and Figure 6-3.

- Continue the shoulder striping along south side of SFD.
- Improve the westbound bike lane along SFD.
- Stripe a buffer area along the north side of SFD between the westbound bicycle lane and the parking lane.
- Install bicycle crossing warning signage for motorists.
- Install a curb extension along the existing no parking zone.
- Install a skip striped bike lane through the intersection for westbound bicyclists.

**Estimated Cost****Table 6-3: Estimated Cost for Project 1: SFD/Olema Road Intersection (West)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Shoulder striping	Striping	LF	\$2.00	465	\$930
Curb extension	Bulb-out	EA	\$20,000.00	1	\$20,000
Skip striped bike lane	Striping (Broken)	LF	\$1.18	265	\$313
Striped buffer area	Striping	LF	\$2.00	650	\$1,300
Bicycle crossing warning signage for motorists	Sign	EA	\$250.00	2	\$500
<b>CONSTRUCTION COST</b>					<b>23,043</b>
Design and Permitting (25%)	25% of Construction Total				\$5,761
Planning Level Contingency (30%)	30% of Construction Total				\$6,913
<b>TOTAL PROJECT COST</b>					<b>\$35,716</b>

6. Proposed Improvements

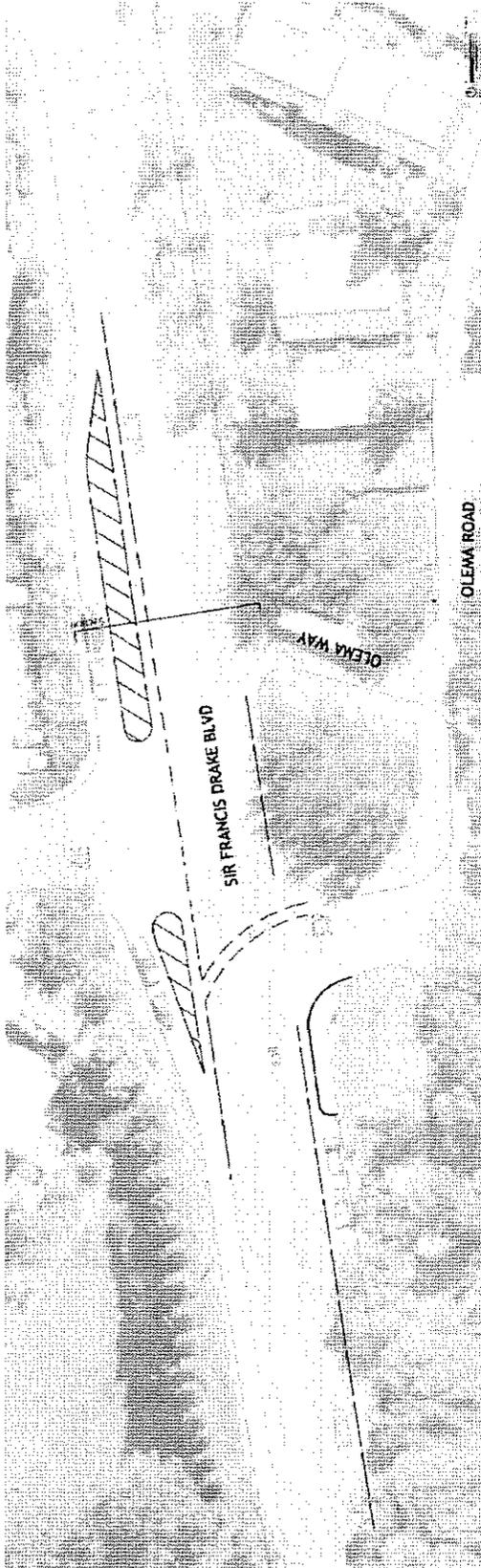


Figure 6-2: Plan View of Proposed Improvements for Project 1: SFD at Olema Road (west)

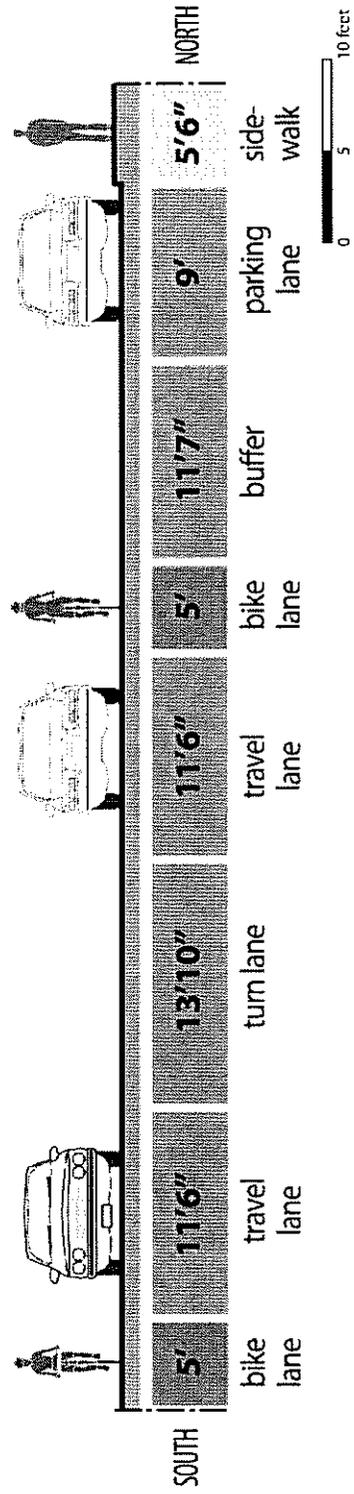


Figure 6-3: Section of Proposed Improvements for Project 1: SFD at Olema Road (west)

## 6.5. Project 2: Olema Road Bicycle Boulevard

### Project Need Summary

Between its two intersections with SFD, Olema Road has no documented bicycle safety issues or functional bikeway concerns. SFD, directly parallel to Olema Road, has continuous bicycle lanes this entire segment of the Fairfax to San Rafael Cross Marin Bikeway corridor and no improvements are envisioned at this point in time. Olema Road is nonetheless an important segment of the overall Fairfax to San Rafael Cross Marin Bikeway and should be identifiable as such in order to provide clear wayfinding for bicyclists, increase driver awareness of bicyclists along the corridor, and to provide overall Fairfax to San Rafael Cross Marin Bikeway continuity.

### Medium-Term Project Definition

Recommended medium-term project improvements for Olema Road include:

- Shared-use pavement arrows, including block begin and block end and at appropriate intervals.
- Fairfax to San Rafael Cross Marin Bikeway identity and wayfinding signage.

### Estimated Cost

**Table 6-4: Estimated Cost for Project 2: Olema Road**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Shared-use pavement arrows	Sharrow Pavement Markings	EA	\$100.00	26	\$2,600
Bikeway identity and wayfinding signage	Bicycle Boulevard Signing	MI	\$8,500.00	0.93	\$7,905
<b>CONSTRUCTION COST</b>					<b>\$12,905</b>
Design and Permitting (25%)	25% of Construction Total				\$2,626
Planning Level Contingency (30%)	30% of Construction Total				\$3,152
<b>TOTAL PROJECT COST</b>					<b>\$16,283</b>

## 6.6. Project 3: SFD/Olema Road Intersection (eastern intersection)

### Project Need Summary

The eastern end of Olema Road intersects SFD at an oblique angle, limiting visibility for motorists leaving Olema Road and entering SFD.



*Olema Road looking east toward SFD (eastern of the two Olema Road intersections)*

As a result, motorists must encroach on the intersection in order to gain visibility. In addition, for southbound motorists on Olema Road, the existing intersection geometry is similar to a free right turn and does not encourage a complete stop.

This intersection is most problematic for bicyclists who are exiting the Class I multi-use path (visible at the bottom of Figure 6-4) that runs between this intersection and the Fairfax library. Motorists southbound on Olema stop,

blocking the path, while attempting to gain sight lines onto Sir Francis Drake. During peak traffic periods and during light traffic periods motorists may not come to a complete stop. In addition, northbound bicyclists do not have a clearly defined path of travel when transitioning from the multi-use path to SFD or Olema Road.

Traffic counts conducted as a part of the Fairfax to San Rafael Cross Marin Bikeway study determined that few motorists turn left onto Sir Francis Drake during the morning peak travel period (7:00AM to 9:00AM).

**Short-Term Project Definition**

Recommended short-term project improvements for the SFD/Olema Road intersection (east) are shown in Figure 6-4 and include:

- Consolidate two turning lanes at SFD/Olema Road (east) into a single turn lane.
- Install a curb extension and extend the multi-use path to the new curb line.
- Continue bike lane striping through intersection.
- Remove 50 feet of existing fence along SFD immediately north of Olema Road.

**Estimated Cost**

**Table 6-5: Estimated Cost for Project 3: SFD/Olema Road (east)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Fence removal	Fencing, Remove	LF	\$9.89	50	\$495
Curb extension and extension of multi-use path	Concrete	SF	\$9.00	1970	\$17,730
	Curb and Gutter	LF	\$35.00	173	\$6,055
	Curb Ramp	EA	\$2,500.00	1	\$2,500
Consolidate two turning lanes into a single turn lane	Striping	LF	\$2.00	28	\$56
	Stop Bar	EA	\$200.00	1	\$200
	Stop Pavement Marking	EA	\$400.00	1	\$400
	Striping, Remove	LF	\$1.50	28	\$42
Bike lane striping	Striping (broken)	LF	\$1.18	160	\$189
Bike lane striping	Striping	LF	\$2.00	110	\$220
<b>CONSTRUCTION COST</b>					<b>\$27,886</b>
Design and Permitting (25%)	25% of Construction Total				\$6,972
Planning Level Contingency (30%)	30% of Construction Total				\$8,366
<b>TOTAL PROJECT COST</b>					<b>\$43,224</b>

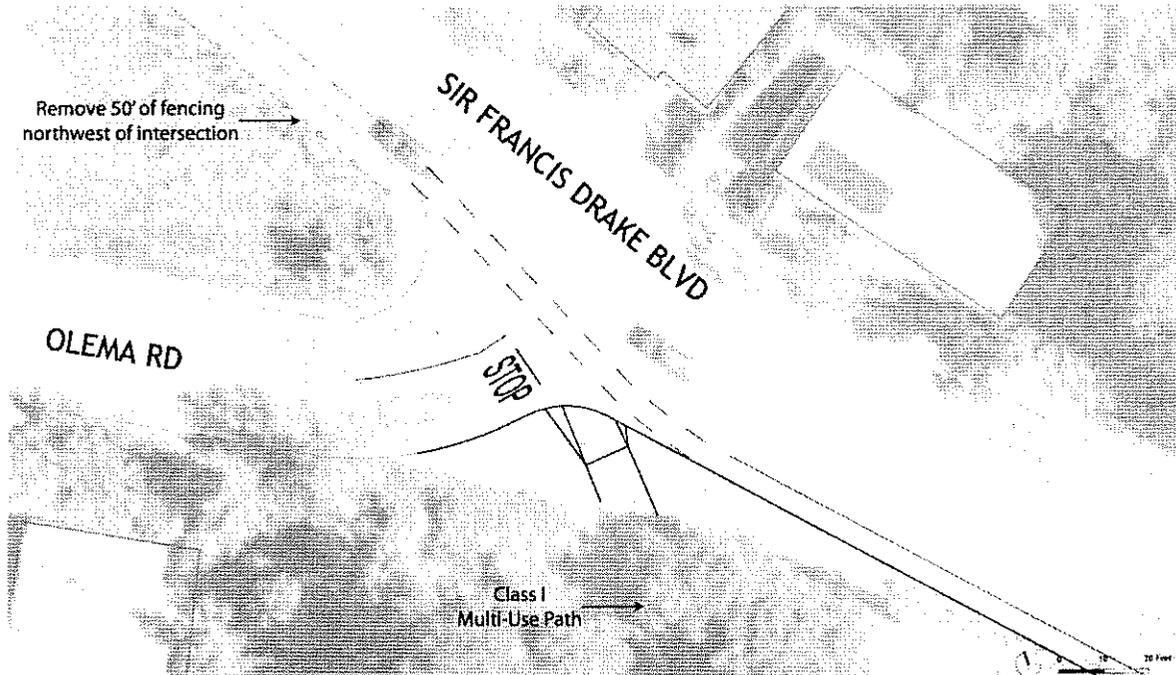


Figure 6-4: Plan View of Proposed Improvements for Project 3: SFD/Olema Road (east)

#### 6.7. Project 4: SFD Bike Lane (Olema Road (east) to Claus Drive)

##### Project Need Summary

The SFD right-of-way along this segment is constrained by existing commercial and residential development. This segment of SFD includes a westbound bike lane and a discontinuous eastbound bike lane. SFD, immediately east of Olema Road (east), includes neither an eastbound bike lane nor shoulder, causing a pinch point for bicyclists. Eastbound bicyclists are expected to use the Class I



East of the SFD/Olema Road (east) intersection

trail leading from that intersection to the library and Broadway Boulevard. This transition is inconvenient to bicyclists who would prefer to stay on SFD. This project proposes to complete the gaps in the eastbound bike lane to provide clearly defined paths of travel for bicyclists and motorists and improve overall east-west bikeway continuity. Based on the needs identified at this location, short-term improvements to the corridor segment are proposed.

##### Short-Term Project Definition

Recommended short-term project improvements for SFD between Olema Road (east) and Claus Drive are shown in Figure 6-5 through Figure 6-8 and include:

- Complete gaps in eastbound bike lane along SFD. (This improvement will require right-of-way acquisition.)

4. Proposed Improvements

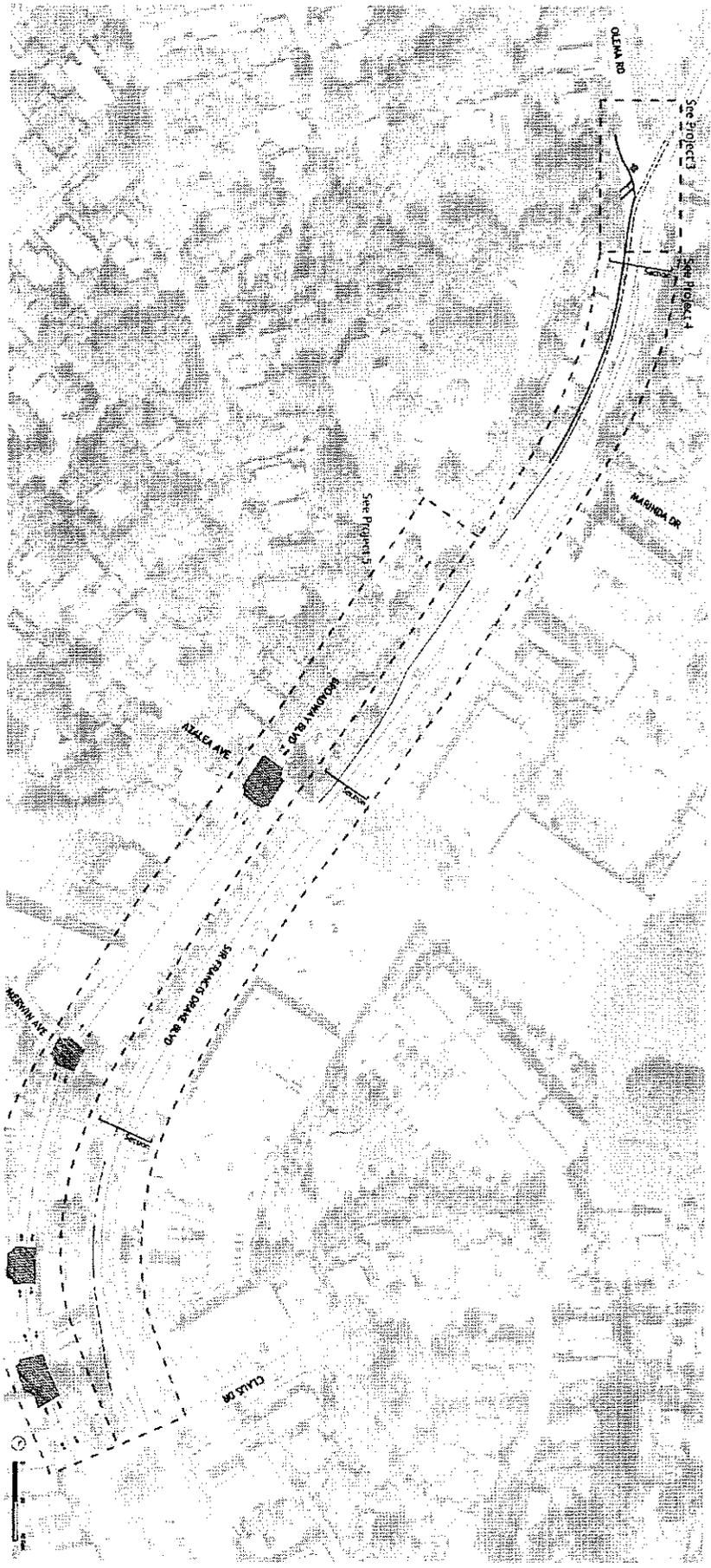
**Estimated Cost**

**Table 6-6: Estimated Cost for Project 4: SFD (Olema Road (east) to Claus Drive)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Eastbound bike lane	Class II Bike Lane (EB only)	MI	\$11,280.00	0.33	\$3,722
	Asphalt Paving	SF	\$2.75	1,260	\$3,465
	ROW Acquisition	Acre	\$1,000,000.00	0.029	\$29,000
<b>CONSTRUCTION COST</b>					<b>\$36,187</b>
Design and Permitting (25%)	25% of Construction Total				\$9,047
Planning Level Contingency (30%)	30% of Construction Total				\$10,856
<b>TOTAL PROJECT COST</b>					<b>\$56,090</b>

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Figure 6-5: Plan View of Proposed Improvements for Project 4: SFD (Olema Road (east) to Claus Drive) and Project 5: Broadway Boulevard Bicycle Boulevard (SFD to Claus Drive)



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6. Proposed Improvements

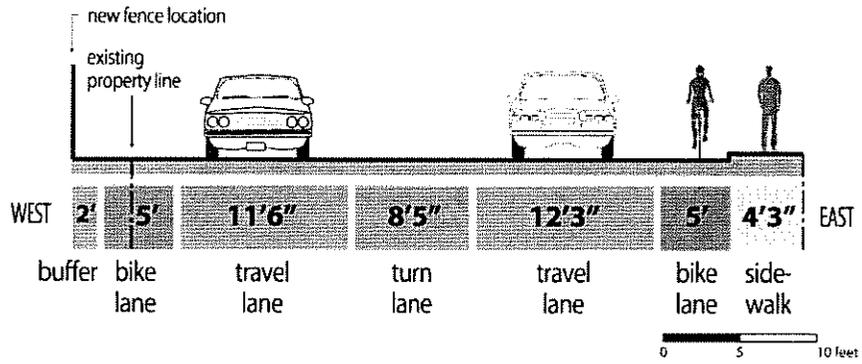


Figure 6-6: Section of Proposed Improvements for Project 4: SFD (Olema Road (east) to Claus Drive): SFD east of the Olema Road (east) Intersection

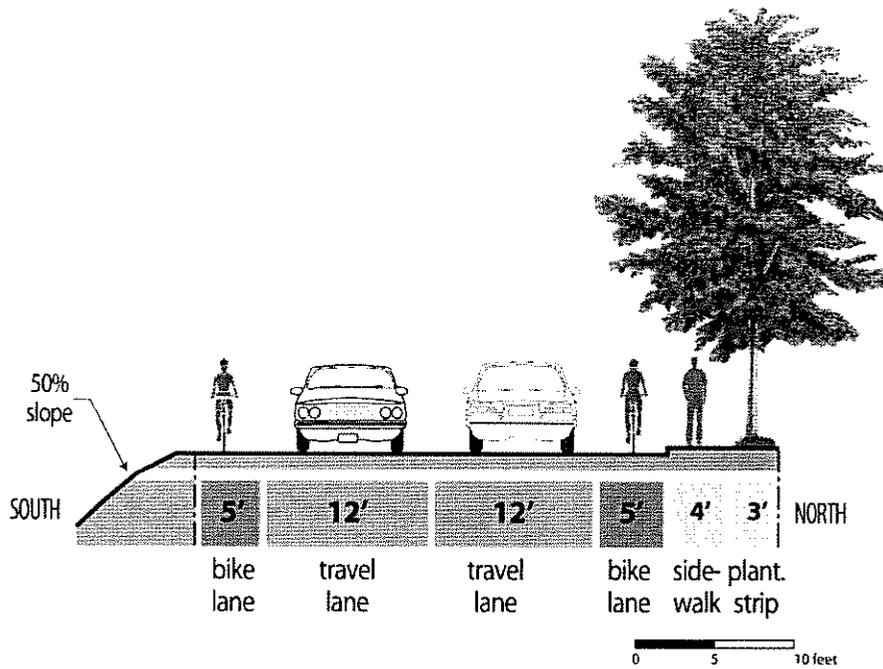


Figure 6-7: Section of Proposed Improvements for Project 4: SFD (Olema Road (east) to Claus Drive): SFD west of Azalea Avenue

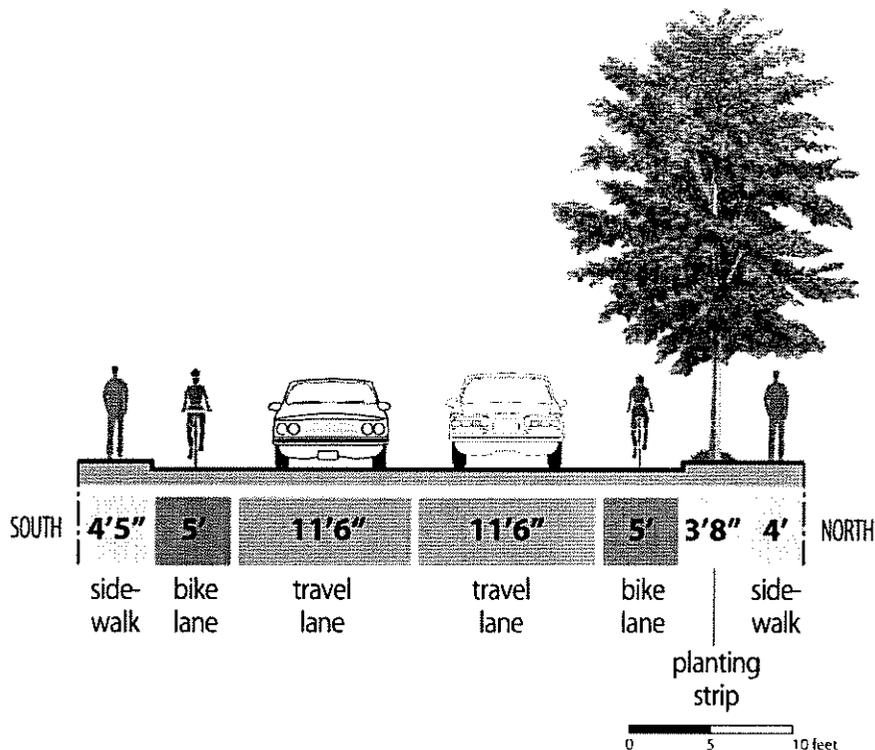
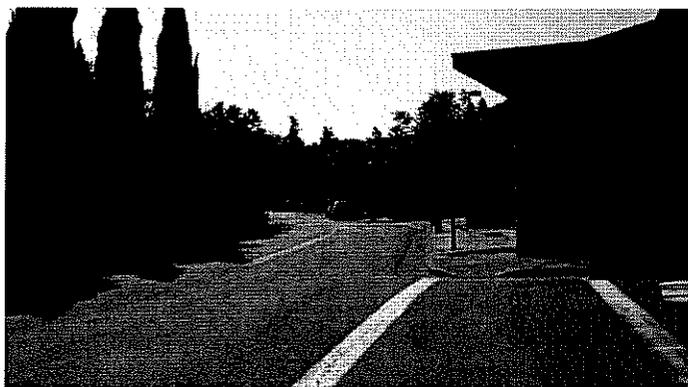


Figure 6-8: Section of Proposed Improvements for Project 4: SFD (Olema Road (east) to Claus Drive): SFD (between Azalea Avenue and Claus Drive)

**6.8. Project 5: Broadway Boulevard Bicycle Boulevard (SFD to Claus Drive)**

**Project Need Summary**

As discussed previously, Broadway is a narrow roadway, precluding construction of bike lanes or off-street bicycle facilities. This segment of Broadway Boulevard experiences lower traffic than SFD, making the roadway ideal for use as a bicycle boulevard. Shared roadway pavement markings and signage are proposed to alert motorists of the need to share the road. The intersections of Broadway Boulevard and Bank Street and Broadway Boulevard and School Street were noted as



*Broadway Boulevard/School Street intersection looking east.*

problematic for pedestrians and bicyclists. This project proposes tabled intersection treatments at the School Street, Bank Street, Merwin Avenue and Azalea Avenue intersections to alert motorists of pedestrians and bicyclists wishing to cross at these locations. A small ramp for bicyclists travelling westbound on Broadway Boulevard leading up to the raised intersection is also proposed. This measure would mediate the grade change between the downhill roadway and

raised intersection for bicyclists. Based on the needs identified at this location, medium-term improvements to the corridor segment are proposed.

**Medium-Term Project Definition**

Recommended short-term project improvements for Broadway Boulevard between SFD and Claus Drive include:

- Install bicycle boulevard roadway and wayfinding signage along Broadway Boulevard.
- Install tabled intersection treatments at the Azalea Avenue, Merwin Avenue, School Street and Bank Street intersections.

Plan view improvements for Project 5 are included in Figure 6-5.

**Estimated Cost**

**Table 6-7: Estimated Cost for Project 5: Broadway Boulevard (SFD to Claus Drive)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Bicycle boulevard roadway and wayfinding signage	Sharrow Pavement Markings	EA	\$100.00	20	\$2,000
	Bicycle Boulevard Signage	MI	\$8,500.00	0.25	\$2,125
Tabled intersection treatments	Raised Intersection	EA	\$60,000.00	4	\$240,000
<b>CONSTRUCTION COST</b>					<b>\$244,125</b>
Design and Permitting (25%)	25% of Construction Total				\$61,031
Planning Level Contingency (30%)	30% of Construction Total				\$73,238
<b>TOTAL PROJECT COST</b>					<b>\$378,394</b>

**6.9. Project 6: Broadway Boulevard Fairfax Parkade**

**Project Need Summary**

Bicyclists have difficulty navigating traffic through the Fairfax Parkade due to narrow traffic lanes and high on-street parking turnover. This area has also experienced several pedestrian collisions in recent years. The improvements identified here address the needs of pedestrians accessing the businesses located north and south of the Parkade and the need to provide a defined path for bicyclists accessing and traveling through the Parkade. In the existing condition, pedestrian circulation through the Parkade is undefined and the transitions between the Parkade and its adjoining streets do not meet ADA standards. The necessary reduction in width of the Parkade in order to achieve the proposed improvements is yet to be determined.



*Broadway Boulevard in Downtown Fairfax.*

**Medium-Term Project Definition**

Recommended medium-term project improvements for the Broadway Boulevard Fairfax Parkade are shown in Figure 6-9 and Figure 6-10 and include:

- Install 5-foot wide bike lanes connecting to existing bike lanes on Center Boulevard and extending to Claus Drive.
- Remove two parking spaces on north side of Broadway Boulevard at the intersection with Claus Drive.
- Widen existing sidewalk and construct new sidewalk where needed on north side of Broadway Boulevard between Claus Drive and Pacheco Avenue to achieve a continuous 5-foot wide sidewalk.
- Widen sidewalk on south side of SFD to achieve a 5-foot wide sidewalk.
- ADA ramp upgrades and tactile inlays at all transition points (intersections and midblock) to and from the Parkade, specifically:
  - Intersections: Claus Drive/SFD, Claus Drive/Broadway Boulevard, Broadway Boulevard/Bolinas Road, Broadway Boulevard Pacheco Avenue and SFD/Taylor Drive.
  - Midblock: Broadway Boulevard crosswalk adjacent to Siam Lotus, Broadway Boulevard crosswalk adjacent to Fairfax Theater, SFD crosswalk at Taylor Drive.
- Reconstruct stairwells leading from the Parkade to Broadway Boulevard. Retaining wall removal and reconfiguration is required, as existing retaining wall is sloped in east section.
- Upgrade bus stop and replace existing transit shelter with larger shelter.
- Install long-term bicycle parking (secure lockers) adjacent to transit shelter. Reorganize and increase supply of short term bicycle parking at this location.
- Install bicycle parking in the Parkade north of the ADA ramp connecting to the Broadway Boulevard crosswalk adjacent to Fairfax Theater.
- Install sidewalk bike racks along SFD.
- Install guide and directional signage on SFD and Broadway Boulevard.
- Install warning advisory signs at midblock crosswalks on Broadway Boulevard, at Taylor Drive crossing on SFD and at approaches to downtown district on SFD and Center/Broadway Boulevard.
- Install raised crosswalks, which slow vehicle speeds and increase pedestrian safety, through the Parkade linking existing ADA ramps and crosswalks on Broadway Boulevard and SFD.
- Upgrade crosswalks with high visibility striping and reflective delineators. Maintain in-roadway 'knockdown signs'.
- Install yield lines in advance of all crosswalks on Broadway Boulevard.

6. Proposed Improvements

**Estimated Cost**

**Table 6-8: Estimated Cost for Project 6: Broadway Boulevard Fairfax Parkade**

Description	Item	Unit	Unit Cost	Amount	Total Cost
ADA Curb Ramps		EA	\$4,500.00	19	\$85,500
Reconstruct Stairwells		EA	\$8,500.00	2	\$17,000
Remove and Reconstruct 5' Sidewalk (South side of SFDB)		SF	\$15.00	3000	\$45,000
Remove and Reconstruct 5' Sidewalk (North side of Broadway)		SF	\$15.00	4200	\$63,000
Signing and Striping (Broadway Blvd.)		SF	\$20.00	1800	\$36,000
Bicycle Parking	Class II Racks	LS	\$15,000.00	1	\$15,000
Bicycle Parking	Class I Lockers	EA	\$250.00	12	\$3,000
Guide/Directional Signage		EA	\$1,000.00	6	\$6,000
Crosswalk Striping	Repair and Replacement	LS	\$2,500.00	1	\$2,500
Landscaping	Bay Friendly	LS	\$15,000.00	1	\$15,000
Transit Shelter	Marin Transit Specs.	LS	\$15,000.00	1	\$15,000
<b>CONSTRUCTION COST</b>					<b>\$303,000</b>
Design and Permitting (25%)	25% of Construction Total				\$75,750
Planning Level Contingency (30%)	30% of Construction Total				\$90,900
<b>TOTAL PROJECT COST</b>					<b>\$469,650</b>

6. Proposed Improvements

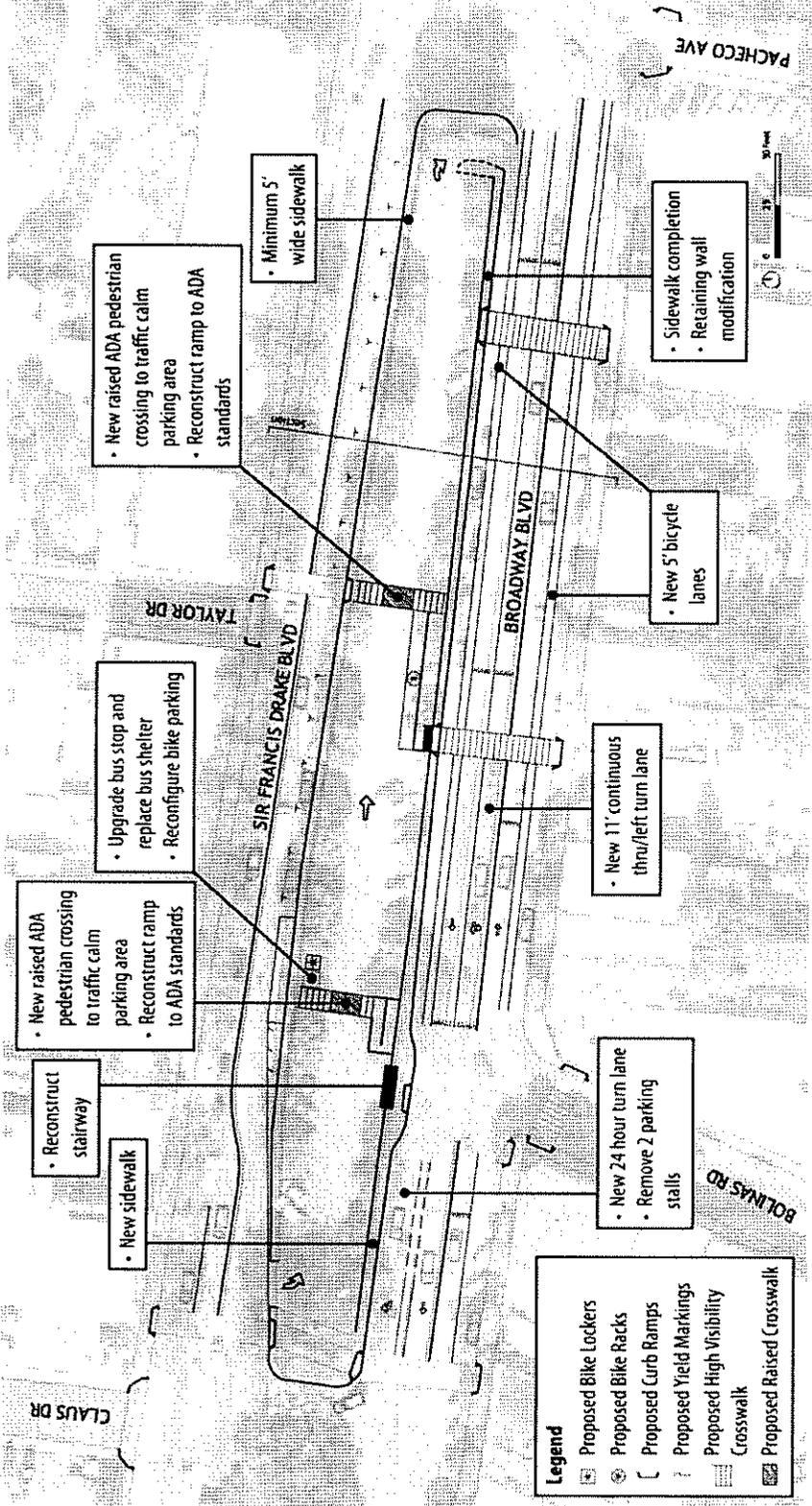


Figure 6-9: Plan View of Proposed Improvements for Project 6: Broadway Boulevard Fairfax Parkade

6. Proposed Improvements

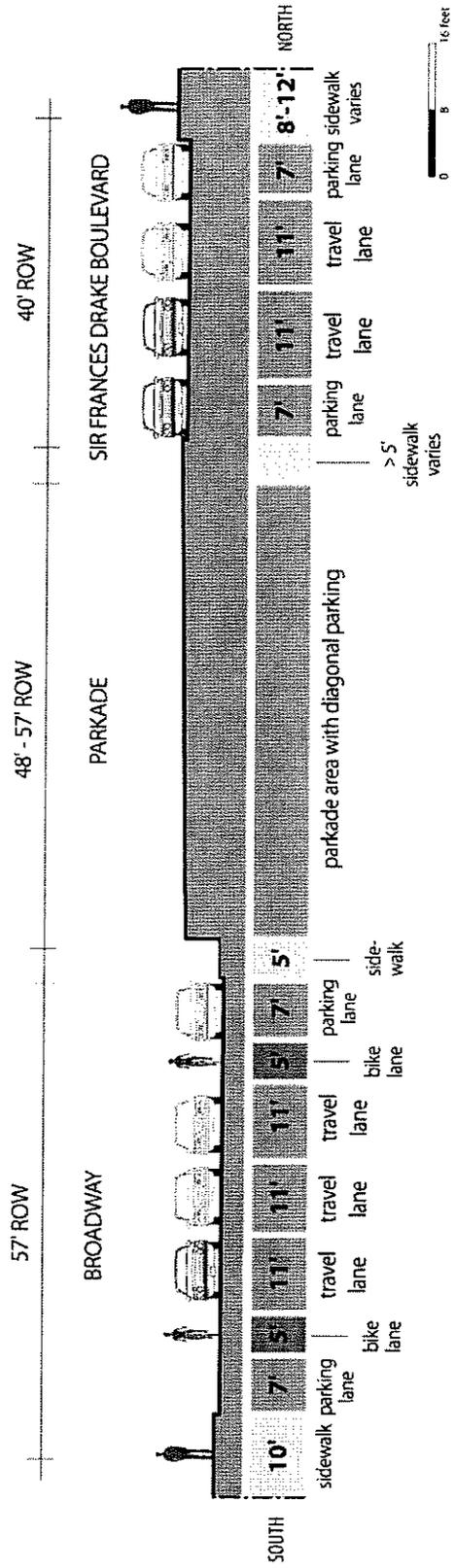


Figure 6-10: Section of Proposed Improvements for Project 6: Broadway Boulevard/Fairfax Parkade

**6.10. Project 7: Center Boulevard Wayfinding (Fairfax Parkade to Pastori Avenue)**

**Project Need Summary**



*Bicyclist on Center Boulevard bike lane.*

Center Boulevard is a continuation of Broadway Boulevard, which also has one travel lane in both directions. Bike lanes have recently been installed along the western portion of this segment. Center Boulevard is an important segment of the overall Fairfax to San Rafael Cross Marin Bikeway and should be identifiable as such in order to provide clear wayfinding for bicyclists, increase driver awareness of bicyclists along the corridor, and to provide overall Fairfax to San Rafael Cross Marin Bikeway continuity.

**Short-Term Project Definition**

Recommended short-term project improvements for Center Boulevard between the Fairfax Parkade and Pastori Avenue include:

- Fairfax to San Rafael Cross Marin Bikeway identity and wayfinding signage.

**Estimated Cost**

**Table 6-9: Estimated Cost for Project 7: Center Boulevard (Parkade to Pastori)**

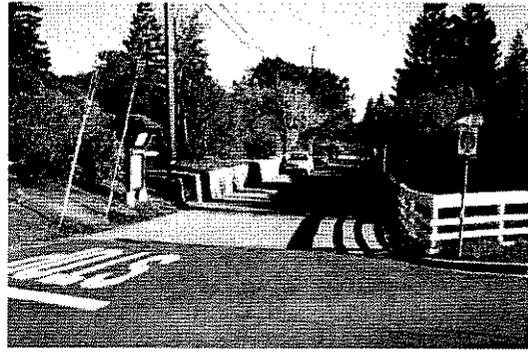
Description	Item	Unit	Unit Cost	Amount	Total Cost
Identity and wayfinding signage	Bicycle Boulevard Signing	Mi	\$8,500.00	0.26	\$2,210
<b>CONSTRUCTION COST</b>					<b>\$2,210</b>
Design and Permitting (25%)	25% of Construction Total				\$553
Planning Level Contingency (30%)	30% of Construction Total				\$663
<b>TOTAL PROJECT COST</b>					<b>\$3,426</b>

**6.11. Project 8: Lansdale Avenue/San Anselmo Avenue Bicycle Boulevard and Center Boulevard Separated One-Way Multi-Use Pathway**

**Project Need Summary**

Lansdale Avenue provides a low-speed alternative to Center Boulevard and is well-used by bicyclists of all abilities. Between 2002 and 2008, no recorded bicyclist or pedestrian collisions occurred on Lansdale Avenue. However, as discussed in Chapter 3 of this report, neighborhood residents have expressed concern about bicyclists failing to stop at stop signs. Additional treatments are needed to slow bicyclists at intersections and alert motorists of the shared roadway. Short-term improvements along Lansdale Avenue are proposed to address these needs.

The segment of Center Boulevard between the Fairfax Parkade and San Anselmo Hub is an important Fairfax to San Rafael Cross Marin Bikeway connection. In the short-term, bicyclists making this connection would be routed onto the proposed Lansdale Avenue/San Anselmo Avenue bicycle boulevard. However, Lansdale Avenue and San Anselmo Avenue include frequent stops, numerous parking and driveway conflicts and notable traffic during peak travel periods. A long-term solution to improve this connection is needed. Center Boulevard provides a more direct connection than Lansdale Avenue and San Anselmo Avenue, has no on-street parking and few driveway conflicts. These characteristics make Center Boulevard ideal for a separated bicycle facility. Medium-term improvements along Center Boulevard are proposed for this segment.



*Lansdale Avenue Class III bike route facing east.*

**Short-Term Project Definition**

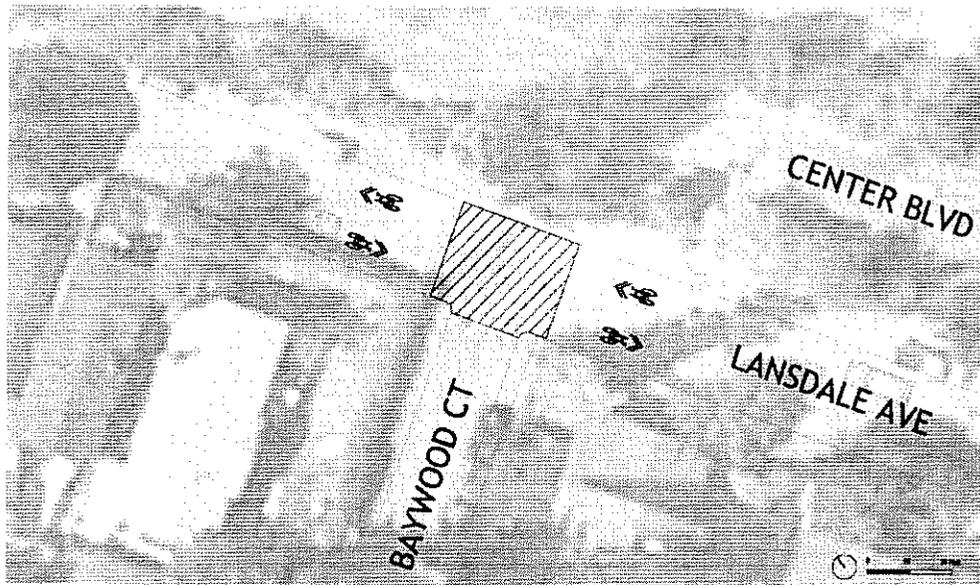
Recommended short-term project improvements for Lansdale Avenue/San Anselmo Avenue are shown in Figure 6-11 and include:

- Bicycle boulevard treatment along Lansdale Avenue.
- Speed tables at intersections.

**Estimated Cost**

**Table 6-10: Estimated Cost for Project 8: Lansdale Avenue/San Anselmo Avenue and Center Boulevard (Short-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Short-Term Improvements</b>					
Lansdale Avenue/San Anselmo Avenue bicycle boulevard	Sharrow Pavement Markings	EA	\$100.00	54	\$5,400
	Bicycle Boulevard Signing	MI	\$8,500.00	1.2	\$10,200
Speed tabled intersections along Lansdale Ave/San Anselmo Avenue	Raised Intersection	EA	\$60,000.00	14	\$840,000
	<b>SHORT-TERM CONSTRUCTION COST</b>				
Design and Permitting (25%)	25% of Construction Total				\$213,900
Planning Level Contingency (30%)	30% of Construction Total				\$256,680
<b>TOTAL SHORT-TERM PROJECT COST</b>					<b>\$1,326,180</b>



**Figure 6-11: Plan View of Proposed Improvements for Project 8: Lansdale Avenue/San Anselmo Avenue Bicycle Boulevard (sample intersection treatment) (Short-Term Improvements)**

#### **Medium-Term Project Definition**

The preferred medium-term project identified for this Fairfax to San Rafael Cross Marin Bikeway segment is identified in the San Anselmo Bicycle Plan. The San Anselmo Bicycle Plan recommends a Class I multi-use pathway along Center Boulevard. This Fairfax to San Rafael Cross Marin Bikeway feasibility study incorporated a preliminary engineering analysis for the construction of a barrier-separated, one-way, multi-use pathway consistent with Caltrans standards along Center Boulevard between Pastori Avenue in Fairfax and San Rafael Avenue in San Anselmo. The existing elevated roadway berm configuration typically is comprised of two eleven-foot travel lanes with shoulders totaling approximately 26 feet. The project team examined the feasibility of increasing the paved width to include two eleven-foot travel lanes plus two seven-foot multi-use pathways for a total width of 36 feet, as depicted in Figure 6-12 through Figure 6-14.

The required improvement to achieve this cross section and provide for the desired facility is presented in detail in Appendix A. In summary, the project will require right-of-way acquisition, sidewalk removal, earthwork for fill and grading, drainage improvements, two utility pole relocations, vegetation removal and retaining wall construction. This study must be supplemented with additional civil engineering cost feasibility analysis in order to gain greater insight on the potential costs of widening and/or modifying this historic railroad berm. This study includes a 100 percent contingency due to the fact that only preliminary engineering analysis has been conducted (see Appendix A).

6. Proposed Improvements

Estimated Cost

Table 6-11: Estimated Cost for Project 8: Lansdale Avenue/San Anselmo Avenue and Center Boulevard (Medium-Term Improvements)

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Medium-Term Improvements</b>					
Center Boulevard Cycletrack	One-Way Separated Multi-Use Path (See Appendix B)	MI	\$1,200,000.00	1.18	\$1,416,000
<b>MEDIUM-TERM CONSTRUCTION COST</b>					<b>\$1,416,000</b>
Design and Permitting (25%)	25% of Construction Total				\$354,000
Planning Level Contingency (100%)	100% of Construction Total				\$1,416,000
<b>TOTAL MEDIUM-TERM PROJECT COST</b>					<b>\$3,186,000</b>

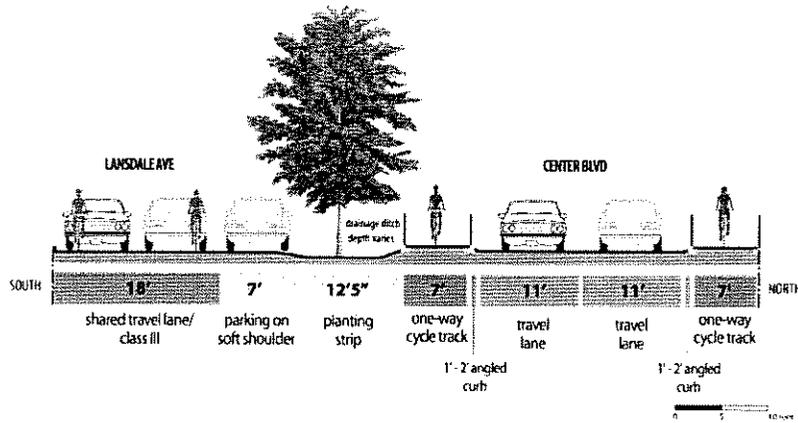


Figure 6-12: Section of Proposed Improvements for Project 8: Center Boulevard (Pastori Avenue – Forrest Avenue) (Medium-Term Improvements)

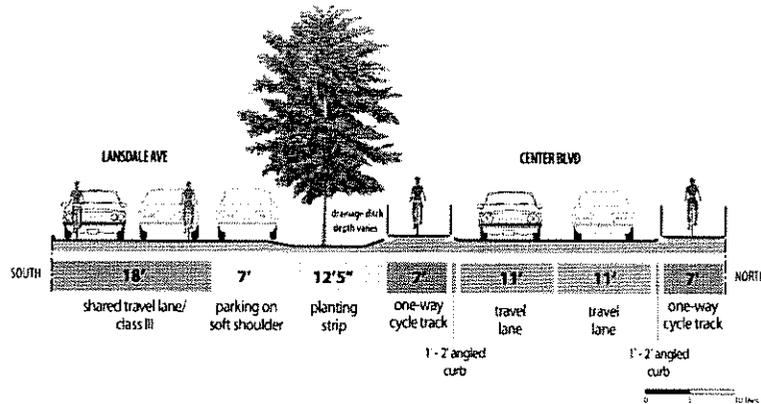


Figure 6-13: Section of Proposed Improvements for Project 8: Center Boulevard (Forrest Avenue – Madrone Avenue) (Medium-Term Improvements)

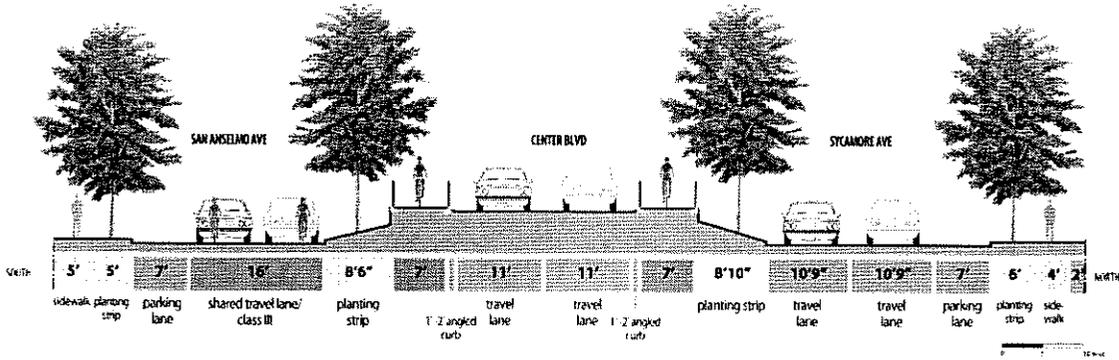


Figure 6-14: Section of Proposed Improvements for Project 8: Center Boulevard (Madrone Avenue – San Anselmo Avenue) (Medium-Term Improvements)

## 6.12. Project 9: SFD, Red Hill Avenue, and Greenfield Avenue (The Hub to Hilldale Drive)

### Project Need Summary

The ‘Hub’ in San Anselmo presents a barrier to commuter bicyclists, both due to the high volume of traffic and the circuitous nature of the designated westbound routes. The large size of the intersection makes it difficult for bicyclists to navigate and signal phasing is such that it takes a long time to cross SFD. Existing free right turn lanes with pork chop islands create potential conflicts between bicyclists and motorists. This Class III designated bike route, which was created in order to bypass the busy Hub intersection, is a somewhat circuitous route that winds through San Anselmo’s Downtown and residential neighborhoods. The improvements identified here address the need for a clearly delineated, well-signed and more direct path of travel. Short- and medium-term improvements are proposed.



*SFD/Center Blvd intersection looking east.*

The improvements identified here address the need for a clearly delineated, well-signed and more direct path of travel. Short- and medium-term improvements are proposed.

### Short-Term Project Definition

Recommended short-term project improvements for the existing Class III bypass including Sir Francis Drake, Bank Street and Lincoln Park are illustrated in Figure 6-15 and include:

- Install bicycle boulevard treatments on Bank Street, Lincoln Park and Greenfield Avenue (east of Lincoln Park).
- Install a raised intersection at the Greenfield Avenue/Lincoln Park intersection.
- Install bulb-outs on all four corners of the Bank Street/SFD intersection.
- Analyze signal timing and add time as feasible for Bank Street at Bank Street/SFD intersection. Install bicycle signal detection and bicycle placement stencil marker. In

6. Proposed Improvements

addition, to provide for left turning bicyclists, a bike box and moving the stop bar back should be considered in future study.

**Estimated Cost**

**Table 6-12: Estimated Cost for Project 9: The Hub to Hilldale Drive (Short-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Short-Term Improvements</b>					
Raised intersection	Raised Intersection	EA	\$60,000.00	1	\$60,000
Bicycle boulevard treatment on Bank Street, Lincoln Park and Greenfield Avenue	Sharrow Pavement Markings	EA	\$100.00	12	\$1,200
	Bicycle Boulevard Signing	MI	\$8,500.00	0.14	\$1,190
Bicycle signal loop detector	Detector and Stencil	EA	\$3,000.00	1	\$3,000
Bulb-outs at Bank Street/SFD intersection	Bulb-out	EA	\$20,000.00	4	\$80,000
<b>SHORT-TERM CONSTRUCTION COST</b>					<b>\$145,390</b>
Design and Permitting (25%)	25% of Construction Total				\$36,348
Planning Level Contingency (30%)	30% of Construction Total				\$43,617
<b>TOTAL SHORT-TERM PROJECT COST</b>					<b>\$225,355</b>

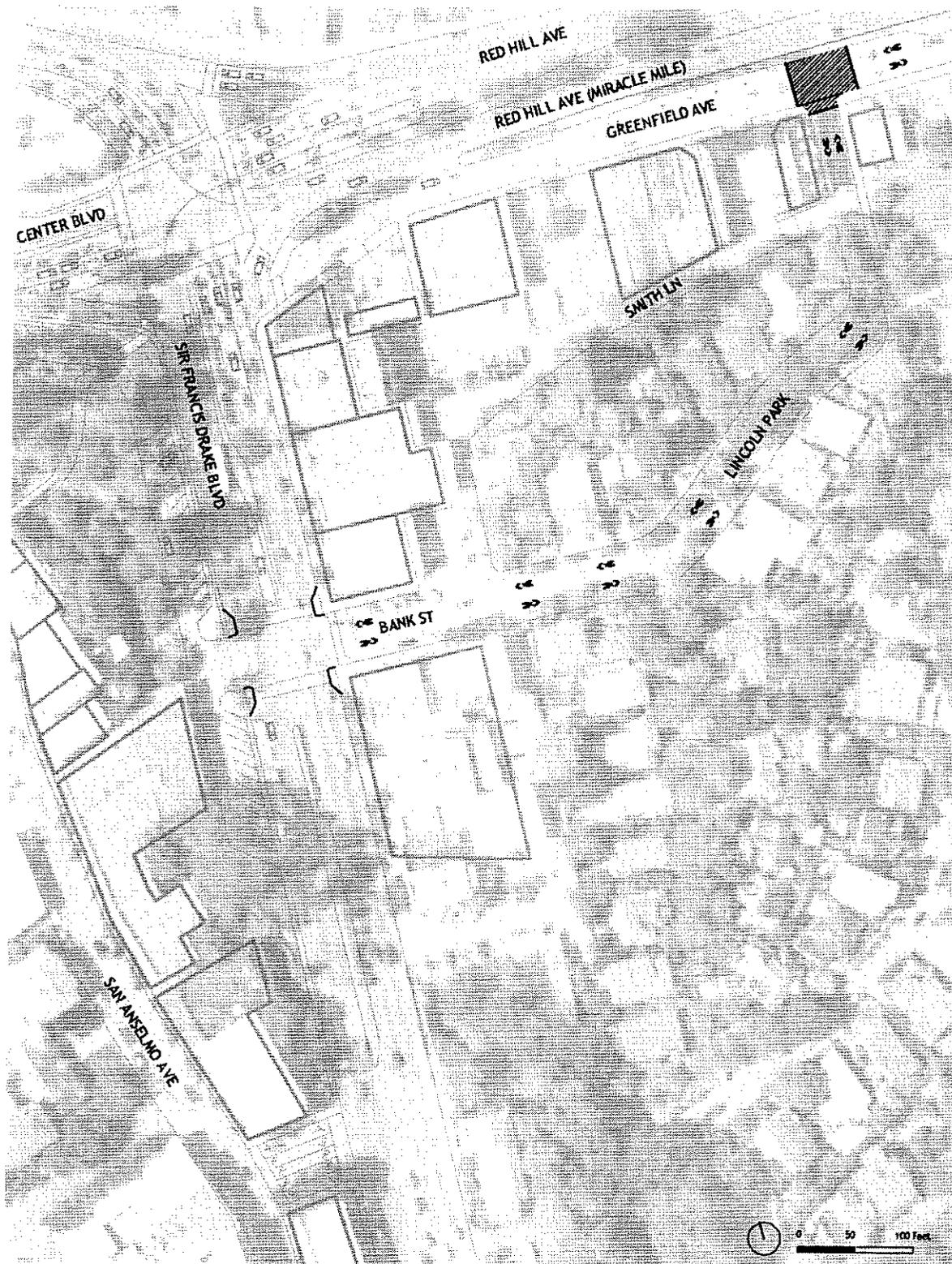


Figure 6-15: Plan View of Proposed Improvements for Project 9: The Hub to Hilldale Drive (Short-Term)

### Medium-Term Project Definition

The Fairfax to San Rafael Cross Marin Bikeway Feasibility Study included development and planning level analysis of several medium-term improvements concepts. Before any modification to traffic lanes through the hub could be considered a comprehensive traffic study would have to be performed to ensure that the level of service would not be adversely impacted. All of the alternatives considered were focused on the improvement goal of providing a safe and direct bicycle facility through the Hub intersection. The recommended medium-term project improvement concept is presented below in Figure 6-16. This alignment and improvement concept provides a direct east-west connection for bicyclists and pedestrians through the Hub. Recommended improvements for SFD, Red Hill Avenue and Greenfield Avenue, include:

- Replace the free right turn lanes and pork chop islands on the southwest and southeast sides of the SFD/Center Boulevard intersection with dedicated, signal-controlled right turn lanes.
- Relocate the slip lane that provides access from SFD to Greenfield Avenue.
- Extend the southeast curb and install a pathway connection to the crosswalk through the new curb.
- Install a multi-use pathway along the south side of Greenfield Avenue between SFD and Lincoln Park.
- Install four (4) raised crosswalks at parking lot ingress/egress along the south side of Greenfield Avenue.
- Provide a wider, high visibility crosswalk across SFD.
- Install a multi-use pathway from San Anselmo Avenue to SFD. Consider redesigning the private alleyway between San Anselmo Avenue and Center Street to allow for bicycle access.
- Expand the existing transit stop located west of the Hub.
- Restripe parking southwest of the SFD/Center Boulevard intersection for back-in angled parking.
- Install sharrows for bicycle boulevard treatment along San Anselmo Avenue.

Given the number of sidewalk utilities that exist in this project segment and the fact that only preliminary engineering analysis has been completed, this project includes a 50 percent cost contingency.

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**Estimated Cost**

**Table 6-13: Estimated Cost for Project 9: The Hub to Hilldale Drive (Medium-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Medium-Term Improvements</b>					
Southwest corner intersection improvements	Concrete	SF	\$9.00	2240	\$20,160
	Curb and Gutter	LF	\$35.00	220	\$7,700
	Striping	LF	\$2.00	108	\$216
	Right Turn Pavement Marking	SF	\$3.39	24	\$81
	Concrete Paving, Remove	CY	\$15.00	14	\$210
	Curb, Remove	LF	\$3.30	100	\$330
Transit stop expansion	Bus Shelter	EA	\$10,000.00	1	\$10,000
	Bus Concrete Pad	EA	\$6,500.00	1	\$6,500
	Bench	EA	\$1,500.00	1	\$1,500
Multi-use pathway from Bridge Street to SFD	Class I Path (Total)	MI	\$666,740.00	0.1	\$66,674
High visibility crosswalk	High Visibility Crosswalk	EA	\$1,200.00	1	\$1,200
Southeast corner intersection improvements	Concrete	SF	\$9.00	3796	\$34,164
	Curb and Gutter	LF	\$35.00	175	\$6,125
	Striping	LF	\$2.00	18	\$36
	Right Turn Pavement Marking	SF	\$3.39	24	\$81
	Concrete Paving, Remove	CY	\$15.00	24	\$360
	Curb, Remove	LF	\$3.30	300	\$990
Slip lane relocation	Concrete	SF	\$9.00	1790	\$16,110
	Curb and Gutter	LF	\$35.00	660	\$23,100
Multi-use pathway along south side of Greenfield Avenue	Class I Path (Total)	MI	\$666,740.00	0.063	\$42,005
Raised crosswalks	Raised Crosswalk	EA	\$15,000.00	4	\$60,000
Private alleyway redesign	Striping	LF	\$2.00	240	\$480
	Easement	EA	\$5,000.00	1	\$5,000
	Sharrow Pavement Markings	EA	\$100.00	4	\$400
Install bicycle boulevard treatment along San Anselmo Avenue	Sharrow Pavement Markings	EA	\$100.00	8	\$800
	Bicycle Boulevard Signing	MI	\$8,500.00	0.06	\$510
Restripe angled parking for back-in angled parking	Concrete	SF	\$9.00	660	\$5,940
	Curb and Gutter	LF	\$35.00	175	\$6,125
	Striping, Remove	LF	\$1.50	720	\$1,080
	Striping	LF	\$2.00	720	\$1,440
<b>MEDIUM-TERM CONSTRUCTION COST</b>					<b>\$319,317</b>
Design and Permitting (25%)	25% of Construction Total				\$79,829
Planning Level Contingency (50%)	50% of Construction Total				\$159,659
<b>TOTAL MEDIUM-TERM PROJECT COST</b>					<b>\$558,805</b>

6. Proposed Improvements

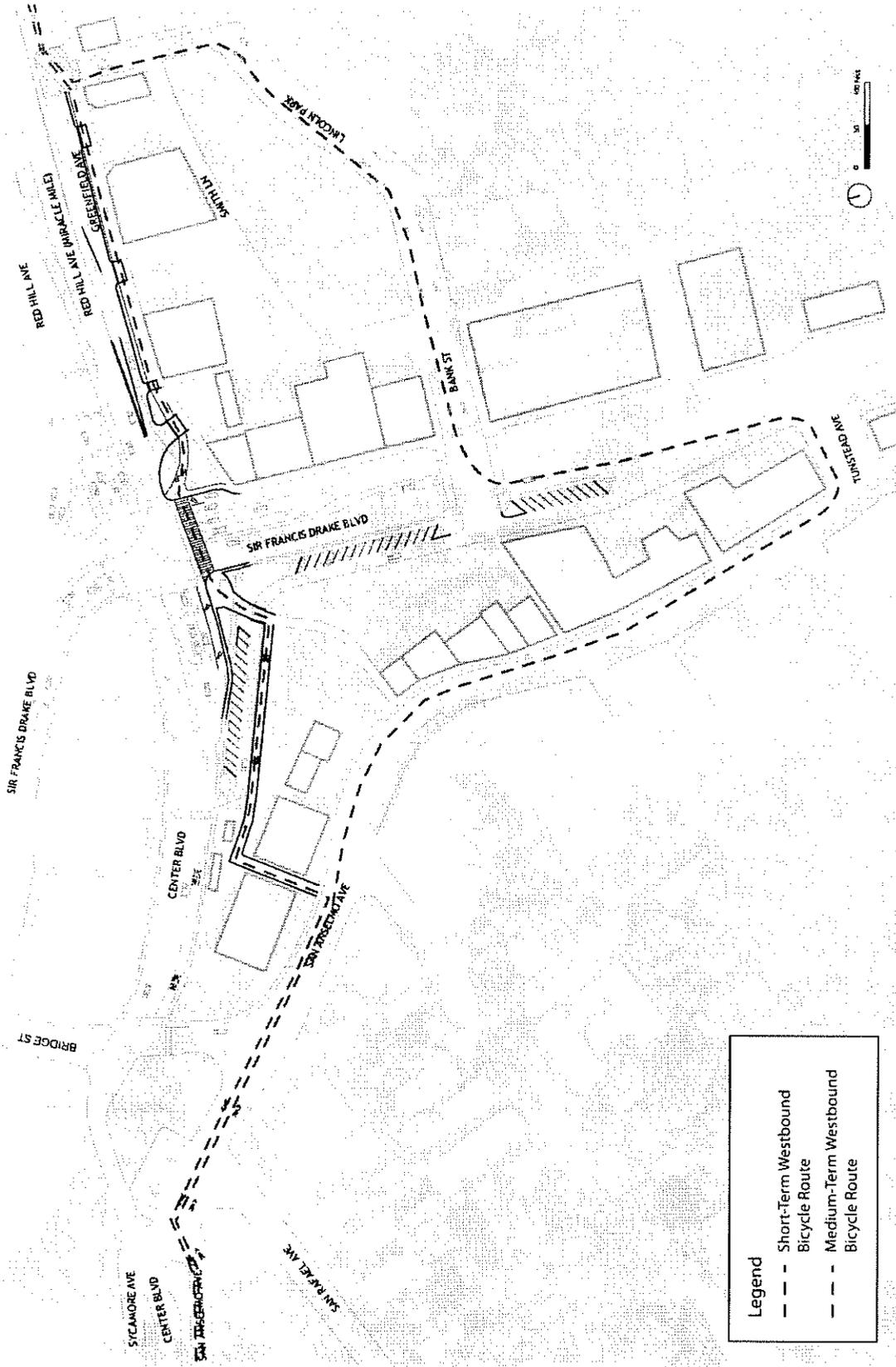
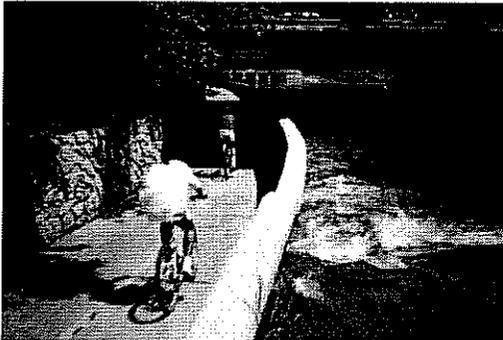


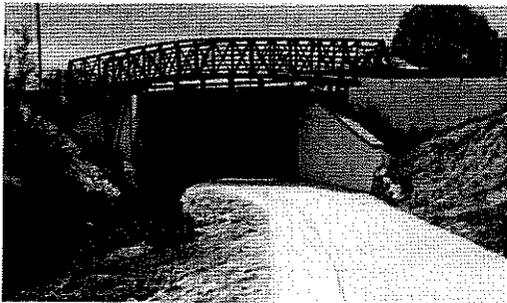
Figure 6-16: Plan View of Proposed Improvements for Project 9: The Hub to Hilldale Drive (Medium-Term Improvements)

### Future Opportunities for the Hub

The Hub is one of the largest combined traffic engineering and civil engineering challenges for the Fairfax to San Rafael Cross Marin Bikeway and will require creative solutions to address. The Fairfax to San Rafael Cross Marin Bikeway Feasibility Study included discussion of a broad range of



*Boulder, Colorado Broadway Street Undercrossing and Boulder Creek channel (Source: Loris Associates)*



*Boulder, Colorado Bikeway Undercrossing and overflow tributary channel (Source: Loris Associates)*

potential solutions including both under-crossing and over-crossing grade separation of pedestrians and bicyclists from the street level. Conceptual analysis of these alternatives identified challenges with ramp placement, compliance with the Americans with Disabilities Act, and interaction with floodway management schemes for San Anselmo Creek located immediately east and south of the Hub intersection itself.

The identification of these engineering challenges may have also uncovered opportunity for joint problem solving through integration of floodway and bikeway project planning and development. Bikeway projects have been successfully integrated with floodway improvement projects in many California communities where multi-use pathways exist in conjunction with flood control channels and managed riparian areas. Most notably, the City of Boulder, Colorado has constructed many bikeway undercrossings of major arterial roadways in conjunction with flood channel improvements. These precedents offer clear guidance to Marin County Flood Control and Water Conservation District and each of the towns and cities along the

Fairfax to San Rafael Cross Marin Bikeway on potential future collaboration opportunities. For example, all floodway management planning for Flood Control Zone 9 (Ross Valley – Corte Madera Creek) as carried out by County staff and the Zone 9 Advisory Board should consider potential bikeway projects along the creek channel and through Downtown San Anselmo. Such potential bikeway projects should be part of discussions of the use of any Flood Control Tax funds that come to Ross Valley.

**6.13. Project 10: Red Hill Avenue/Greenfield Avenue (Lincoln Park to Hilldale Drive)****Project Need Summary**

Greenfield Avenue, which runs parallel to the Red Hill Avenue, is a popular route for bicyclists traveling west from the Hub. This route is a designated Class III bicycle route, and is well-used by commuter and recreational bicyclists and vehicles accessing the adjacent commercial uses. The frequently used parallel and angled on-street parking present potential conflicts for bicyclists. The improvements identified here address the need for adequate signage and wayfinding.

Moving west, Greenfield Avenue intersects with Hilldale Drive and Red Hill Avenue, the latter of which conveys heavy east-west traffic volumes. The large size of the intersection makes it difficult for bicyclists to navigate. Improvements proposed at this intersection would provide a safer path of travel by channelizing traffic, reducing the size of the intersection and lessening on-street parking conflicts.

In order to achieve a separated two-way bikeway, vehicle travel lanes could be narrowed further, resulting in the relocation of the median and curb. This modification would require additional traffic engineering analysis and would increase the cost of the project. The removal of vehicle travel lanes to accommodate a separated two-way bikeway would require considerable additional analysis. The Fairfax to San Rafael Cross Marin Bikeway lies along the primary east-west vehicle route in Marin County. This route is subject to level of service standards set by the Transportation Authority of Marin as the county's Congestion Management Agency. Any removal of vehicle lanes would require a countywide traffic impact study and an update of the general plan circulation element for the county and localities.

**Short-Term Project Definition**

Recommended short-term project improvements for the Lincoln Park to Hilldale Drive corridor segment and Red Hill Avenue/Greenfield Avenue intersection are shown in Figure 6-17 through Figure 6-19 and include:

- Install sharrows for bicycle boulevard treatment to Greenfield Avenue.
- Restripe existing angled parking stalls between Spring Grove Avenue and Red Hill Drive for back-in angled parking.
- Install a 5-foot curb extension at the Greenfield/Red Hill intersection and remove five parking spaces.
- Relocate the stop bar on eastbound Greenfield Avenue at Hilldale Drive intersection.
- Provide intersection treatment such as textured or raised platform at the Greenfield Avenue/Red Hill Avenue intersection.
- Install a median within the Greenfield Avenue/Red Hill Avenue intersection to channelize traffic.
- Provide a skip striped bike lane through Red Hill/Greenfield Avenue intersection.

This project cost estimate does not include the cost of roadway resurfacing, assumed to be included in other current City of San Anselmo projects.

**Estimated Cost****Table 6-14: Estimated Cost for Project 10: Red Hill Avenue/Greenfield Avenue (Short-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Median island	Median Island	EA	\$5,000.00	1	\$5,000
Intersection treatment	Raised Intersection	EA	\$60,000.00	1	\$60,000
Bicycle boulevard treatment	Sharrow Pavement Markings	EA	\$100.00	16	\$1,600
	Bicycle Boulevard Signing	MI	\$8,500.00	0.28	\$2,380
Restripe angled parking stalls for back-in angled parking	Striping, Remove	LF	\$1.50	936	\$1,404
	Striping	LF	\$2.00	936	\$1,872
Curb extension	Concrete	SF	\$9.00	790	\$7,110
	Curb and Gutter	LF	\$35.00	116	\$4,060
Relocate stop bar	Stop Bar	EA	\$200.00	1	\$200
	Stop Pavement Marking	EA	\$400.00	1	\$400
Skip striped bike lane	Striping (Broken)	LF	\$1.18	166	\$196
<b>CONSTRUCTION COST</b>					<b>\$84,222</b>
Design and Permitting (25%)	25% of Construction Total				\$21,055
Planning Level Contingency (30%)	30% of Construction Total				\$25,267
<b>TOTAL PROJECT COST</b>					<b>\$130,544</b>

6. Proposed Improvements

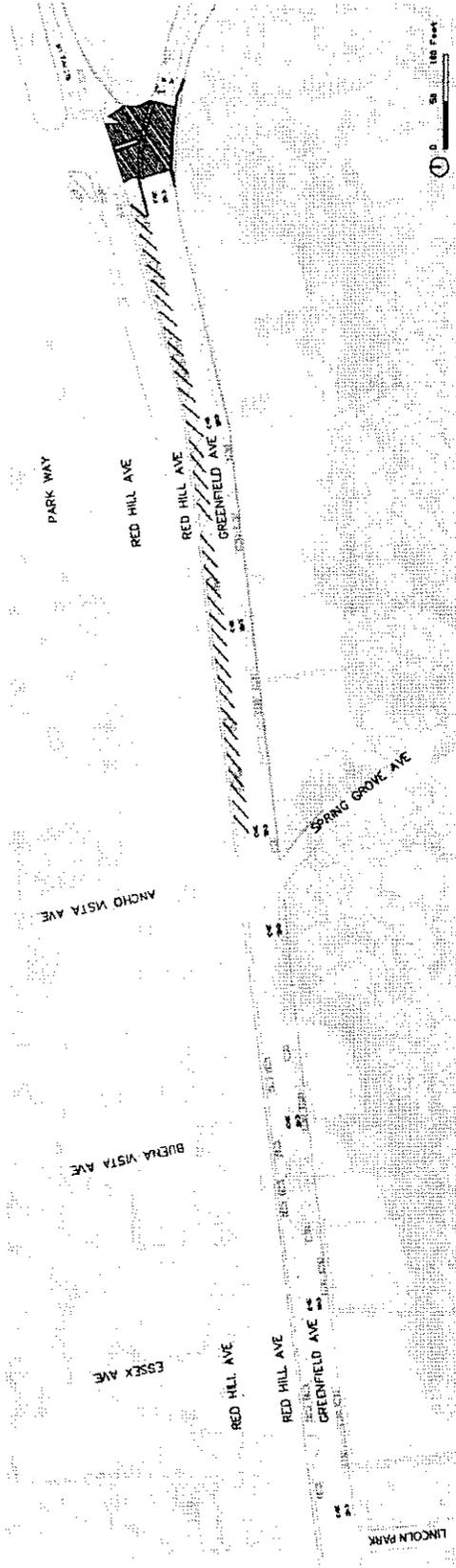


Figure 6-17: Plan View of Proposed Improvements for Project 10: Red Hill Avenue/Greenfield Avenue (Lincoln Park to Hilldale Drive) (Short-Term Improvements)

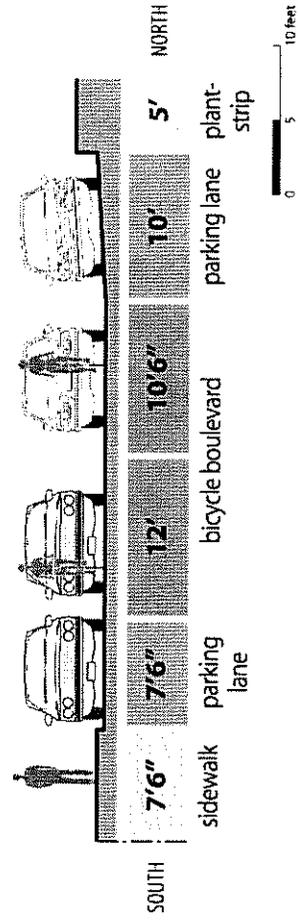
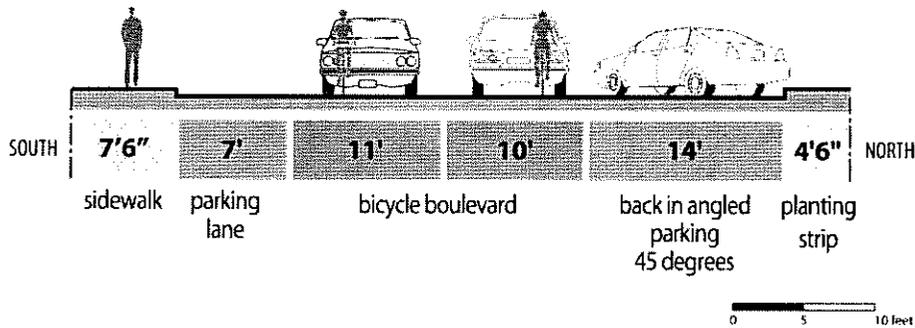


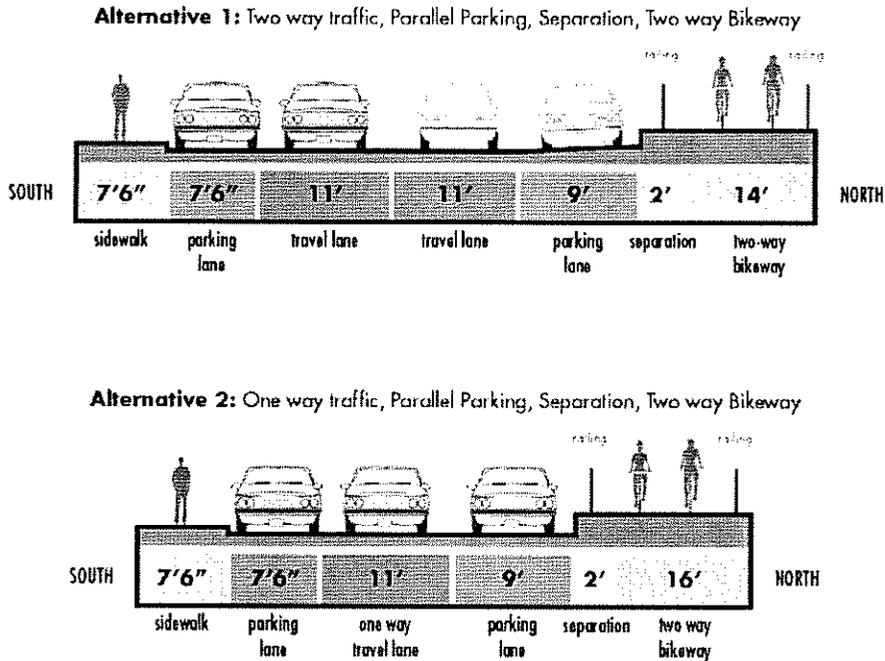
Figure 6-18: Section of Proposed Improvements for Project 10: Greenfield Avenue (Lincoln Park to Spring Grove Avenue) (Short-Term Improvements)



**Figure 6-19: Section of Proposed Improvements for Project 10: Greenfield Avenue (Spring Grove Avenue to Hilldale Drive) (Short-Term Improvements)**

**Medium-Term Project Definition**

The Technical Advisory Committee for the Fairfax to San Rafael Cross Marin Bikeway recommended additional medium-term project improvements for the Lincoln Park to Hilldale Drive corridor segment and Red Hill Avenue/Greenfield Avenue intersection including a separated bikeway requiring reconfiguration of Greenfield Avenue Red Hill Drive. This preferred project concept is illustrated below in Figure 6-20. Reconfiguration of Red Hill Avenue is required in order to reallocate existing median width to the preferred separated bikeway configuration.



**Figure 6-20: Section of Proposed Improvements for Project 10: Greenfield Avenue (Spring Grove Avenue to Hilldale Drive) (Short-Term Improvements)**

#### 6.14. Project 11: Red Hill Avenue/Greenfield Avenue/West End Avenue (Hilldale Drive to the Second Street/Fourth Street Intersection)

##### Project Need Summary

The large size of the Greenfield Avenue/West End Avenue/Red Hill Avenue intersection makes it difficult for bicyclists to navigate between Greenfield Avenue and West End Avenue. Eastbound vehicles turning from Red Hill Avenue onto West End Avenue sometimes shorten their turning movement by driving diagonally through the intersection. Improvements proposed at the Greenfield Avenue/West End Avenue/Red Hill Avenue intersection would provide a safer path of travel by channelizing traffic and call attention to the shared bicycle use by adding pavement texture to the intersection. The following medium-term improvements are proposed.



*West End/Greenfield Avenue intersection looking west.*

##### Short-Term Project Definition

Recommended short-term project improvements for the Red Hill Avenue/Greenfield Avenue/West End Avenue (Hilldale Drive to the Second Street/Fourth Street Intersection) are shown in Figure 6-21 and include:

- Bicycle boulevard signage along Greenfield Avenue.
- Intersection treatment such as textured concrete at the Greenfield Avenue/West End Avenue intersection.
- A median within the Greenfield Avenue/West End Avenue intersection to channelize traffic.
- Bicycle boulevard signage along West End Avenue.
- Raised crosswalk on West End Avenue at Marquard Avenue.
- Bulb-out on the southwest corner of the West End Avenue/Marquard Avenue intersection.

**Estimated Cost**

**Table 6-15: Estimated Cost for Project 11: Red Hill Avenue/Greenfield Avenue/West End Avenue  
(Short-Term Improvements)**

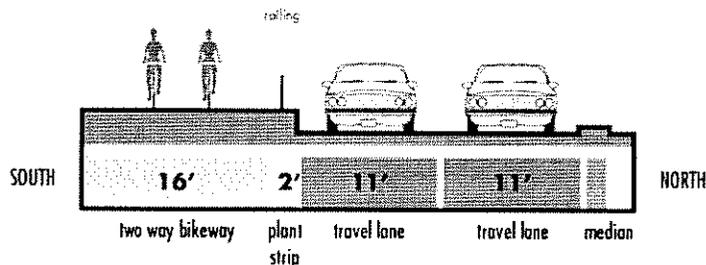
Description	Item	Unit	Unit Cost	Amount	Total Cost
Median	Median Island	EA	\$5,000.00	1	\$5,000
Intersection treatment	Textured Concrete	SF	\$10.00	2595	\$25,950
Bicycle Boulevard treatment	Bicycle Boulevard Signing	MI	\$8,500.00	0.71	\$6,035
Raised crosswalk	Raised Crosswalk	EA	\$15,000.00	1	\$15,000
Bulb-out	Bulb-out	EA	\$20,000.00	1	\$20,000
<b>CONSTRUCTION COST</b>					<b>\$71,985</b>
Design and Permitting (25%)	25% of Construction Total				\$17,996
Planning Level Contingency (30%)	30% of Construction Total				\$21,596
<b>TOTAL PROJECT COST</b>					<b>\$111,577</b>

**Mid-Term Project Definition**

In order to achieve the preferred separated two-way bikeway substantial additional modifications to the median and curb between West End Avenue and Red Hill Avenue and potentially to the Red Hill Avenue lane configuration would be required. The existing surface drainage on the south side of Redhill Avenue and the existing median width on Redhill Avenue could both be reconfigured to create width for a separated bikeway. This modification would require additional traffic and civil engineering analysis and would increase the cost of the project. The removal of vehicle travel lanes to accommodate a separated two-way bikeway would require considerable additional analysis.

Because Red Hill Avenue is subject to level of service standards set by the Transportation Authority of Marin as the county’s Congestion Management Agency any removal of vehicle lanes would require a countywide traffic impact study and an update of the general plan circulation element for the county and localities.

Figure 6-21 illustrates the preferred width of the separated two-way bikeway. Impacts to Redhill Avenue are not illustrated and would require further analysis to determine.

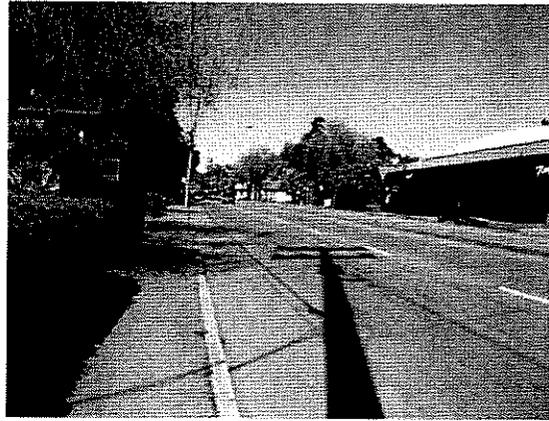


**Figure 6-21: Section of Preferred Improvements for Project 11  
West End Avenue (Mid-Term Improvement)**

**6.15. Project 12: Second Street (Second Street/Fourth Street Intersection to Miramar Avenue)**

**Project Need Summary**

As discussed in Chapter 3 of this report, Second Street serves as an important east-west connection for bicyclists traveling to and from the bicycle lanes on Andersen Drive, as well as various downtown San Rafael locations. The limited right-of-way available for bicyclists and high traffic speeds typically deter all except the most experienced bicyclists from using the roadway. Less experienced bicyclists often share the narrow sidewalk on the south side of the street with pedestrians. This project addresses the need to provide a safe route for pedestrians and experienced and less experienced bicyclists using this segment of the Fairfax to San Rafael Cross Marin Bikeway. Short- and medium-term improvements are proposed.



*Second Street at Miramar Avenue facing west.*

**Short-Term Project Definition**

Recommended short-term project improvements for Second Street between the Second Street/Fourth Street/West End Avenue intersection and Miramar Avenue are shown in Figures 6-21 and 6-23 and include:

- Tabled crosswalks on West End Avenue, Marquard Avenue, East Street, West Street and Miramar Avenue.

**Estimated Cost**

**Table 6-16: Estimated Cost for Project 12 Second Street (Second Street/Fourth Street Intersection to Miramar Avenue) (Short-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Short-Term Improvements</b>					
Tabled crosswalks	Raised Crosswalk	EA	\$15,000.00	5	\$75,000
<b>SHORT-TERM CONSTRUCTION COST</b>					<b>\$75,000</b>
Design and Permitting (25%)	25% of Construction Total				\$18,750
Planning Level Contingency (30%)	30% of Construction Total				\$22,500
<b>TOTAL SHORT-TERM PROJECT COST</b>					<b>\$116,250</b>

**Medium-Term Project Definition**

Recommended medium-term project improvements for Second Street between the Second Street/Fourth Street/West End Avenue intersection and Miramar Avenue are shown in Figures 6-21 through 6-26 and include:

- Sidewalk extension and on-street parking removal from Marquard Avenue to Ida Street.
- Sidewalk extension and new retaining wall along south side of Second Street opposite Ida Street and G Street.

- Sidewalk extension along the south side of Second Street between G Street and Miramar Avenue.
- High visibility crosswalks at the Second Street/G Street intersection<sup>1</sup>.
- Relocation of the median northward within Second Street between G Street and Miramar Avenue. Restripe the eastbound and westbound travel lanes.

This project has significant cost variability including utility relocations, driveway adjustments, and retaining walls. A 50 percent cost contingency is included given that no civil engineering feasibility has been conducted.

### Estimated Cost

**Table 6-17: Estimated Cost for Project 12 Second Street (Second Street/Fourth Street Intersection to Miramar Avenue) (Medium-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Medium-Term Improvements</b>					
Sidewalk widening	Sidewalk Widening	SF	\$25.00	7,867	\$196,675
	Retaining Wall	SF	\$150.00	2,250	\$337,500
	Curb Ramp	EA	\$2,500.00	2	\$5,000
	Earth and Excavation	CY	\$90.00	200	\$18,000
	Utility Pole Relocation	EA	\$7,500.00	8	\$60,000
	Drainage Inlet Relocation	EA	\$5,000.00	6	\$30,000
Class III bicycle route treatment (G Street)	Class III Bicycle Route (Total)	MI	\$8,500.00	0.07	\$595
Median island relocation	Median Island	EA	\$38,000.00	1	\$38,000
	Concrete Paving, Remove	CY	\$15.00	30	\$450
	Curb, Remove	LF	\$3.30	966	\$3,188
	Asphalt Paving	SF	\$2.75	25,358	\$69,733
	Striping	LF	\$2.00	966	\$1,932
	Striping (Broken)	LF	\$1.18	966	\$1,140
High visibility crosswalks	High Visibility Crosswalk	EA	\$1,200.00	2	\$2,400
<b>MEDIUM-TERM CONSTRUCTION COST</b>					<b>\$764,613</b>
Design and Permitting (25%)	25% of Construction Total				\$140,528
Planning Level Contingency (50%)	50% of Construction Total				\$382,306
<b>TOTAL MEDIUM-TERM PROJECT COST</b>					<b>\$1,338,072</b>

<sup>1</sup> Ladder crosswalks are recommended at this location due to the high volume and speed of vehicular traffic along Second Street.

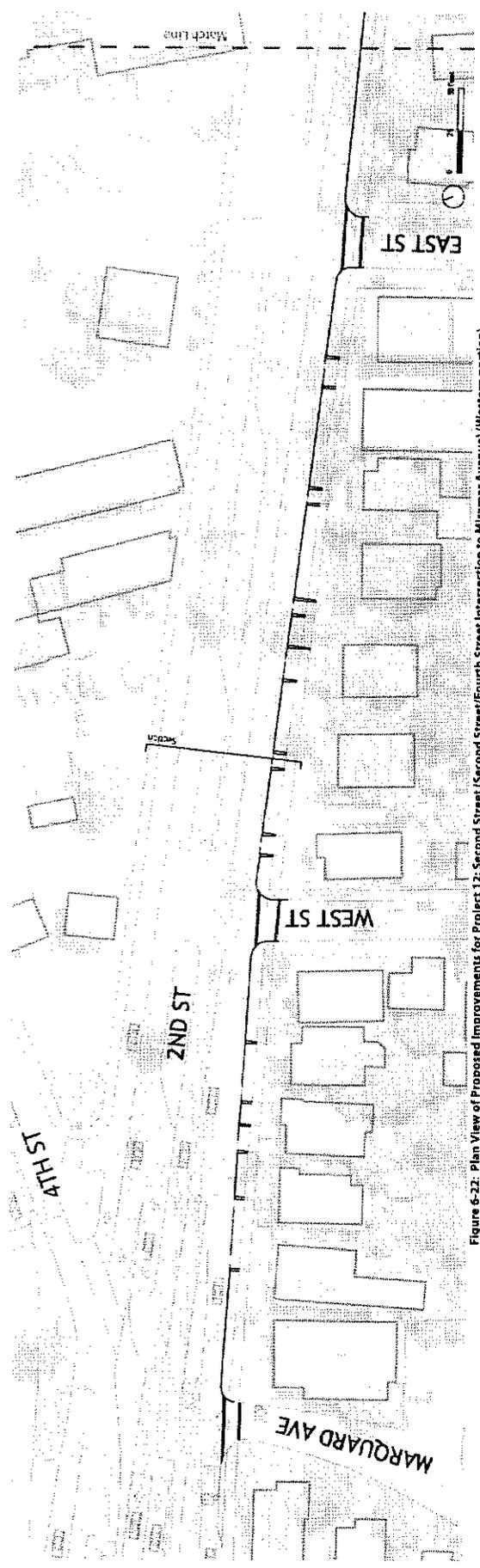


Figure 6-22: Plan View of Proposed Improvements for Project 12: Second Street (Second Street/Fourth Street Intersection to Milamar Avenue) (Western portion)

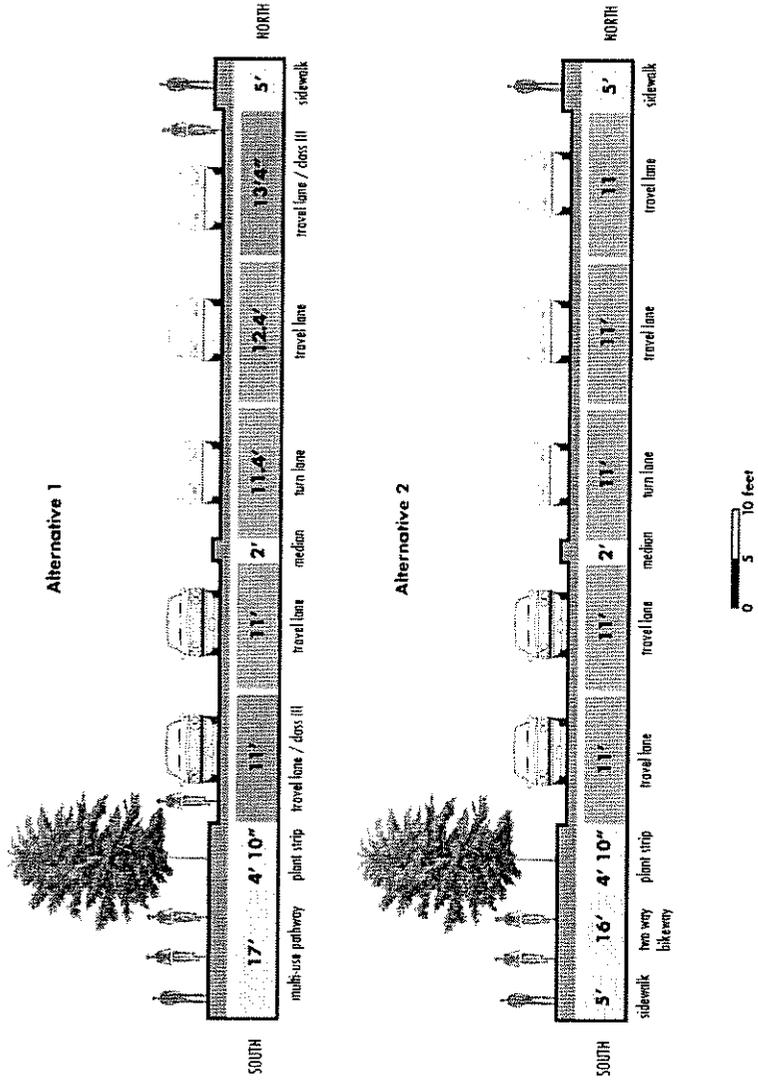


Figure 6-23: Section of Proposed Improvements for Project 12: Second Street (West Street to East Street) (Medium-Term Improvement)

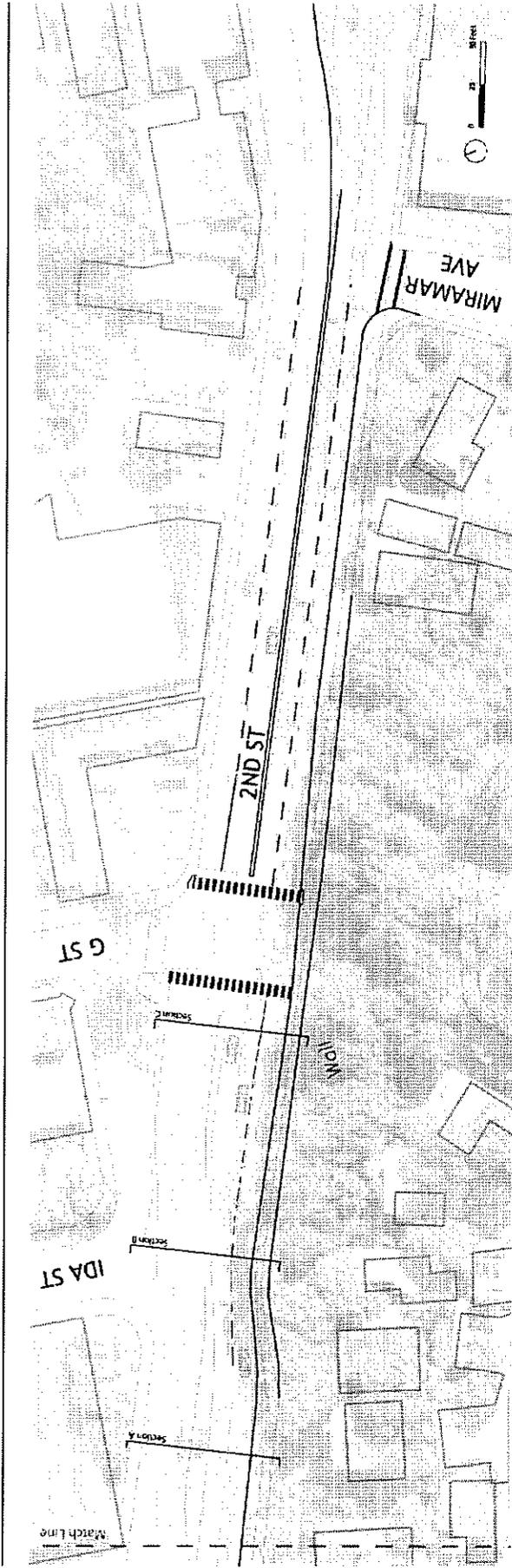


Figure 6-24. Plan View of Proposed Improvements for Project 12: Second Street (Second Street/Fourth Street Intersection to Miramar Avenue) (Eastern portion)

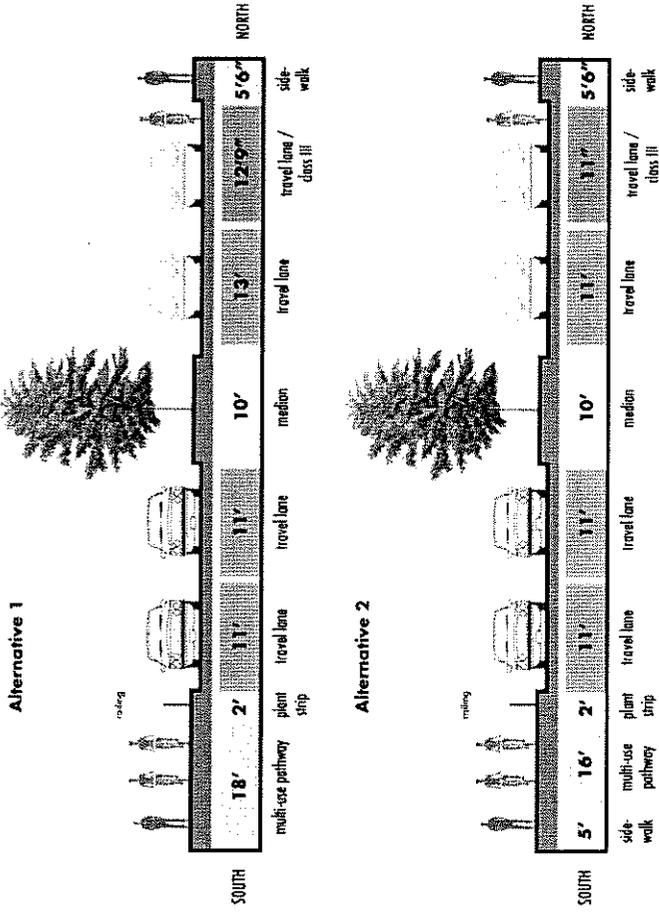


Figure 6-25. Section of Proposed Improvements for Project 12: Second Street (Section A: East Street to Ida Street) (Medium-Term Improvement)

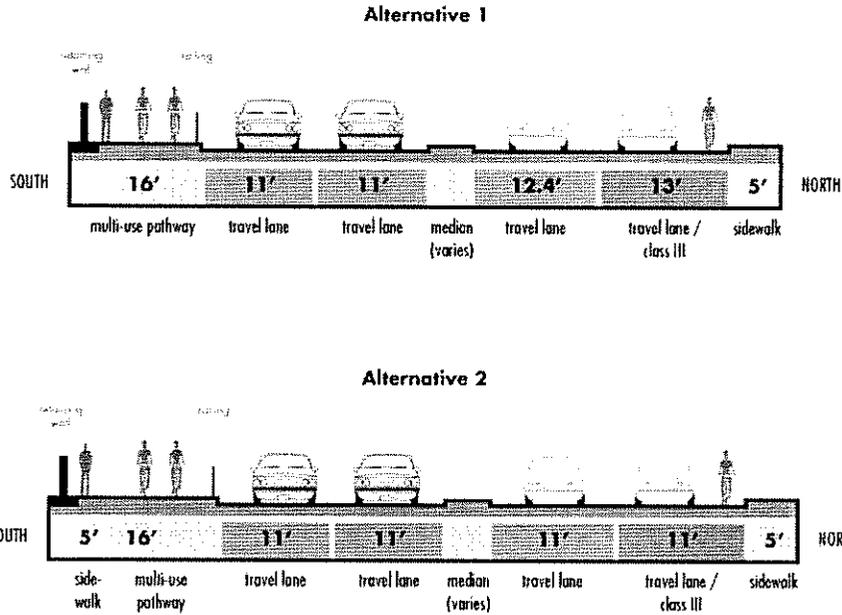


Figure 6-26: Section of Proposed Improvements for Project 12: Second Street (Section B: East of Ida Street Intersection) (Medium-Term Improvement)

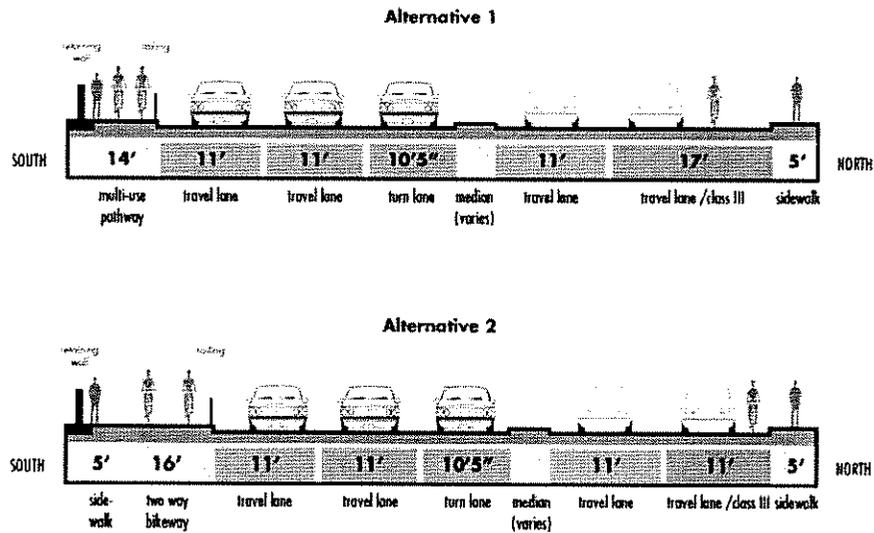


Figure 6-27: Section of Proposed Improvements for Project 12: Second Street (Section C: West of G Street Intersection) (Medium-Term Improvement)

**6.16. Project 13: Miramar Avenue (Second Street to First Street) and First Street (Miramar Avenue to B Street)**

**Project Need Summary**

First Street from Miramar Avenue to B Street is a designated Class III bicycle route popular with commuter bicyclists connecting with the bike lanes on Andersen Drive. This is an important southern bypass for east- and west-bound bicyclists who do not want or need to travel through Downtown San Rafael. The majority of this segment can be improved with pavements stencils and signage.

Between E Street and D Street, First Street is a narrow one-way westbound street parallel to and bounded by San Rafael Creek. This one-way one block segment legally prevents eastbound bicyclists from continuing on First Street, however in practice many bicyclists illegally use this block riding against the flow of traffic. Given the local street network configuration in this area of San Rafael, there is no alternative route to First Street. A modification to the existing configuration is required to complete the Fairfax to San Rafael Cross Marin Bikeway, however the City of San Rafael considered and rejected the idea of a striped contra-flow bicycle lane for this one block segment through its Bicycle Plan Update (Contra-flow bicycle lanes are discussed in Chapter 5).

Local striped contra-flow bicycle lane precedents in Berkeley, California and Santa Cruz, California were implemented on a local experimental basis, observed for a trial period, and then implemented on a permanent basis. The City of San Rafael does not currently have a policy to engage in local experimentation on traffic control devices and cannot endorse this design recommendation. The alternative is to create a barrier separated contra-flow one-way bicycle facility meeting Caltrans minimum width requirements for a one-way separated path (1.5 meters).

**Short-Term Project Definition**

Recommended short-term project improvements for Miramar Avenue between Second Street and First Street and for First Street between the Miramar Avenue and B Street are shown in Figure 6-28 and Figure 6-29 and include:

- Miramar Avenue (Second Street to First Street) and First Street (Miramar Avenue to E Street): Bicycle boulevard treatment.
- E Street to D Street: Reversal of one-way vehicle traffic direction from westbound to eastbound. Separated westbound contra-flow bicycle lane along the north side of the street in order to minimize potential driveway conflicts.
- D Street to B Street: Class III bike route treatment with sharrows.

**Estimated Cost**

**Table 6-18: Estimated Cost for Project 13: Miramar Avenue (Second Street to First Street) and First Street (Miramar Avenue to E Street) (E Street to D Street) (D Street to B Street)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Bicycle boulevard/Class III bike route treatment	Sharrow Pavement Markings	EA	\$100.00	16	\$1,600
	Bicycle Boulevard/Class III Bike Route Signage	MI	\$8,500.00	0.38	\$3,230
Separated Contra-flow bike lane	Striping	LF	\$2.00	650	\$1,300
	Signage	EA	\$250.00	6	\$1,500
	1' Wide Curb	LF	\$30.00	650	\$19,500

4. Proposed Improvements

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				<b>CONSTRUCTION COST</b>	<b>\$27,130</b>
Design and Permitting (25%)	25% of Construction Total				\$6,783
Planning Level Contingency (30%)	30% of Construction Total				\$8,139
				<b>TOTAL PROJECT COST</b>	<b>\$42,052</b>

6. Proposed Improvements

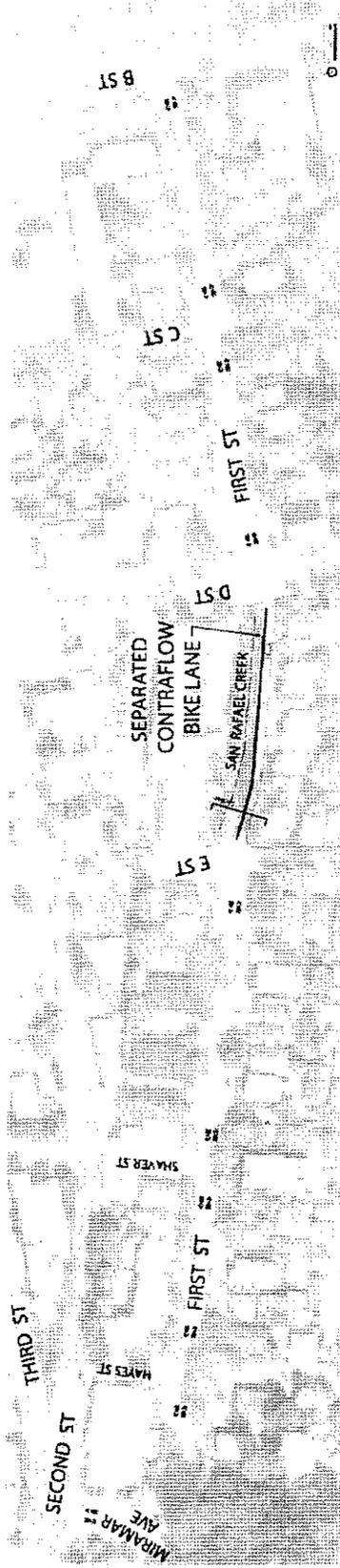


Figure 6-28: Plan View of Proposed Improvements for Project 13: First Street (Second Street to B Street)

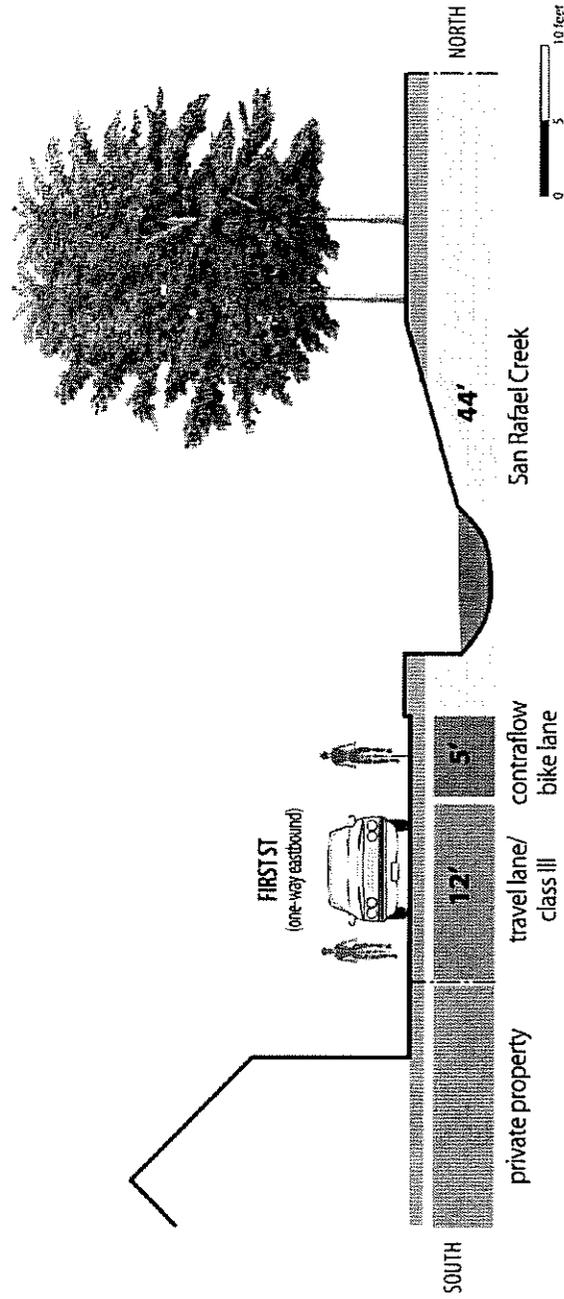


Figure 6-29: Section of Proposed Improvements for Project 13: First Street (E Street to D Street)

## 6.17. Project 14: First Street (B Street to Andersen Drive)

### Project Need Summary

This segment constitutes the final connection with the bike lanes along Andersen Drive. Currently, bicyclists typically travel around the Safeway Grocery by using First Street to the north. This route lacks appropriate signage and the segment of First Street between B Street and Andersen Drive is one-way for westbound traffic only. A long-term solution providing a safer connection is needed. This project addresses these needs by providing increased signage and wayfinding and proposing a separate facility south of the Safeway for bicyclists. The following short-term and medium-term improvements are proposed.

In order to achieve a wider separated two-way bikeway along the Safeway Grocery/Albert Park Community Center property line, vehicle travel lanes in the parking lots could be narrowed further or parking stalls could be removed. This modification would require additional traffic engineering analysis and would increase the cost of the project.

### Short-Term Definition

If City of San Rafael and Safeway Grocery cannot reach an agreement regarding the proposed pathway, then a one-way couplet is recommended. The one-way couplet would direct westbound bicyclists to First Street and eastbound bicyclists to Albert Park Lane. Recommended short-term project improvements include:

- Shared-use pavement arrows, including block begin and block end and at appropriate intervals, along First Street and Albert Park Lane.
- Bicycle boulevard signage along First Street and Albert Park Lane.

### Estimated Cost

**Table 19: Estimated Cost for Project 14: First Street (B Street to Andersen Drive) (Short-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Bicycle boulevard treatment	Sharrow Pavement Markings	EA	\$100.00	8	\$800
	Bicycle Boulevard Signage	MI	\$8,500.00	0.1	\$850
<b>CONSTRUCTION COST</b>					<b>\$1,650</b>
Design and Permitting (25%)	25% of Construction Total				\$413
Planning Level Contingency (30%)	30% of Construction Total				\$495
<b>TOTAL PROJECT COST</b>					<b>\$2,558</b>

### Medium-Term Project Definition

Recommended medium-term project improvements for First Street between B Street and Andersen Drive are shown in Figure 6-30 and Figure 6-31 and include:

- A ten-foot wide two-way path along the Safeway Grocery/Albert Park Community Center property line from B Street and connecting to the pathway along the eastern property boundaries.
- Parking stall restriping immediately north and south of the new path.

**Estimated Cost****Table 6-20: Estimated Cost for Project 14: First Street (B Street to Andersen Drive) (Medium-Term Improvements)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
<b>Long-Term Improvements</b>					
Bike path	Class I Path (Total)	MI	\$666,740.00	0.06	\$40,004
Parking stall restriping	Striping, Remove	LF	\$1.50	1330	\$1,995
	Striping	LF	\$2.00	1330	\$2,660
<b>LONG-TERM CONSTRUCTION COST</b>					<b>\$44,659</b>
Design and Permitting (25%)	25% of Construction Total				\$11,165
Planning Level Contingency (30%)	30% of Construction Total				\$13,398
<b>TOTAL LONG-TERM PROJECT COST</b>					<b>\$69,222</b>

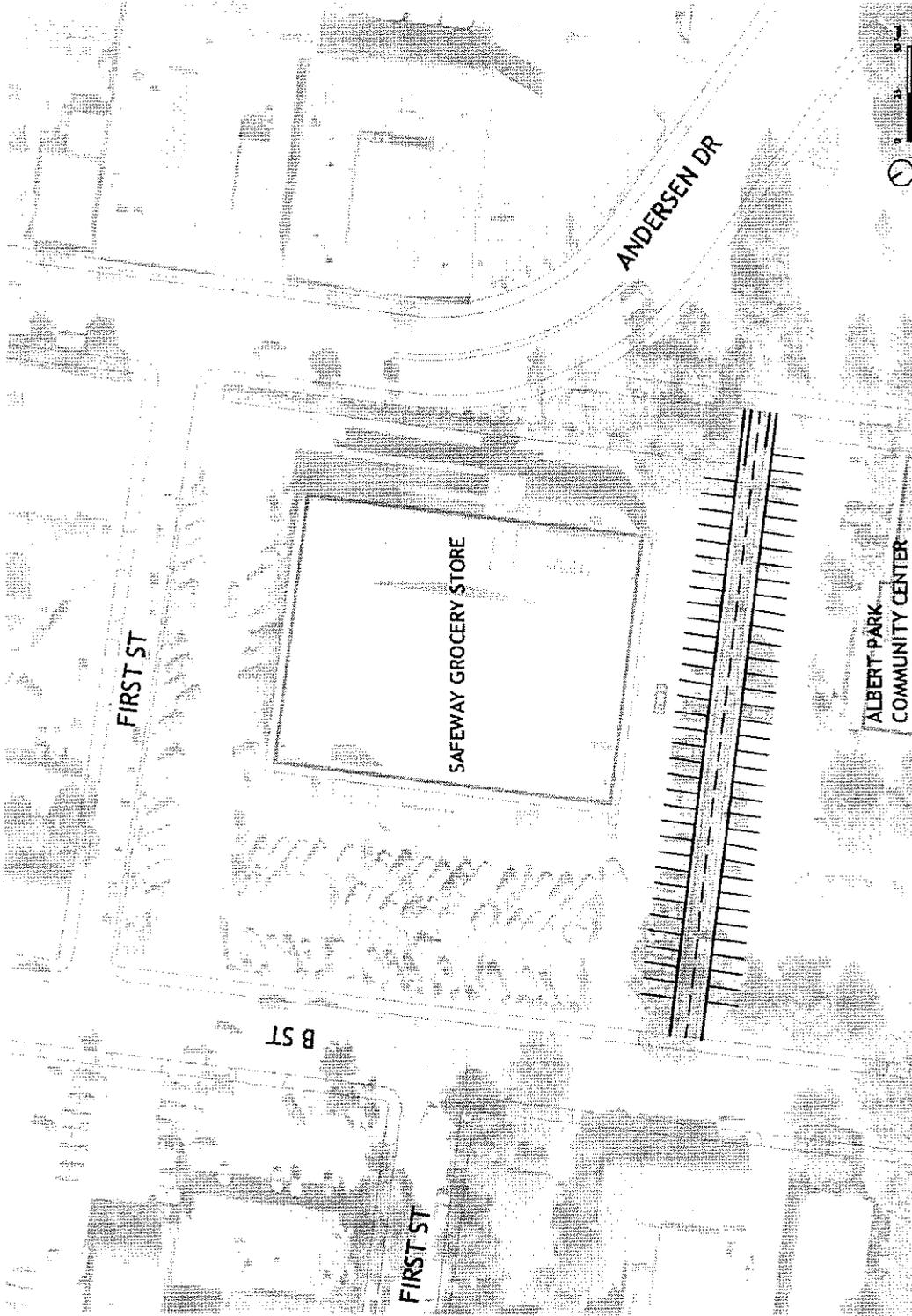


Figure 6-30: Plan View of Proposed Improvements for Project 14: First Street (B Street to Andersen Drive)

6. Proposed Improvements

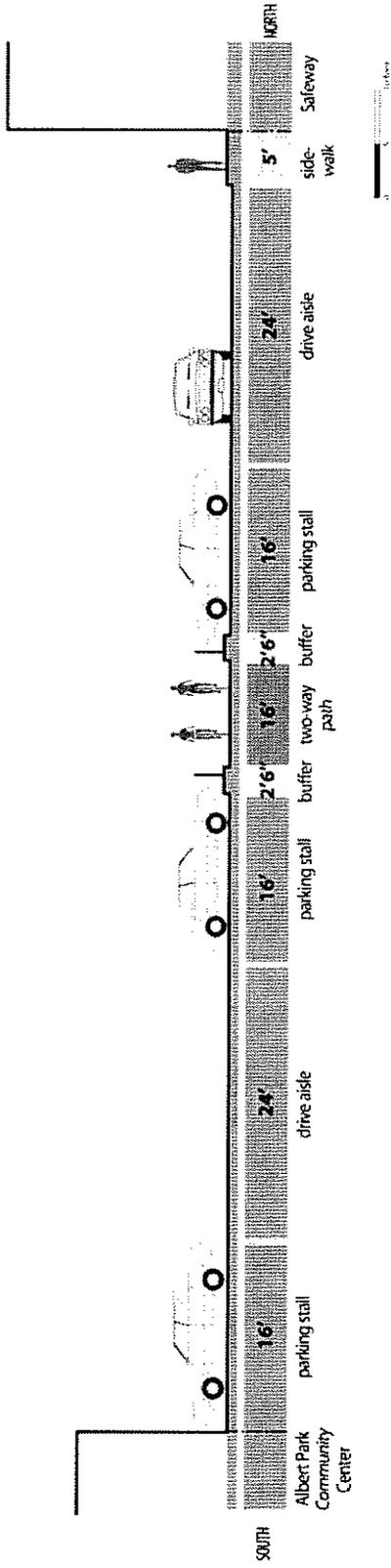


Figure 6-31: Section of Proposed Improvements for Project 14: First Street (B Street to Andersen Drive) (Medium-Term)

## 6.18. Project 15: Andersen Drive to Mahon Creek Pathway

### Project Need Summary

Andersen Drive has Class II bicycle lanes that extend from Lindaro Street to SFD near the western end of the Richmond San Rafael Bridge. Bicyclists traveling along Andersen Drive from First Street and connecting with the transit center are anticipated to use the Mahon Creek Trail, Francisco Boulevard and Second Street to reach their destination. Improvements to three roadway/roadway and trail/roadway intersections along this route (see Figure 6-32) are currently being prepared as a separate project. The proposed improvements include new ADA-accessible ramps, high-visibility crosswalks and pedestrian warning signs. This segment is critical for connection to North-South Greenway, and the City of San Rafael and Marin County should continue to emphasize the importance of this connection.

It is possible to widen the sidewalk on the south side of Andersen Drive to a Class I multi-use path. There are two available options for achieving the necessary right-of-way:

- Remove parking on the south side of Andersen Drive and expand the existing sidewalk into the parking lane. However, this parking is in high demand, especially during sporting events.
- Expand the existing sidewalk into the park, which would require utility pole relocation, tree removal, and reconfiguration of the park maintenance and utility yard.

With either alternative, the Class I multi-use path would continue along the south side of Andersen Drive through the Andersen Drive/Lindaro Street intersection, to connect to a crossing solution to be later identified. As part of the Mahon Creek Connector Project, numerous connection alternatives were analyzed and the City of San Rafael has not provided for improved access to the Mahon Creek Path.

Based on the recommendations of this report, bicycle improvements for the Andersen Drive/Lindaro Street intersection should now be designed. Recommended bicycle improvements at this intersection include a diagonal bike lane from the SW to the NE corners of the intersection and a bicycle signal head and phase to allow them to cross diagonally and connect the bikeway route with the Mahon Creek trail and with westbound from Andersen Drive.

### Short-Term Project Definition

The City is currently investigating improvements to the Andersen Drive/Lindero Street, Lincoln Avenue/Mahon Creek path and Second Street/Francisco Boulevard intersections as part of the Mahon Creek Connector Project. In addition to those improvements, the following short-term improvements are proposed:

- Bikeway identity and wayfinding signage.

### Estimated Cost

**Table 6-21: Estimated Cost for Project 15: Andersen Drive to Mahon (Creek Parkway)**

Description	Item	Unit	Unit Cost	Amount	Total Cost
Bikeway identity and wayfinding signage	Bicycle Boulevard Signage	MI	\$8,500.00	0.5	\$4,250
<b>CONSTRUCTION COST</b>					<b>\$4,250</b>
Design and Permitting (25%)	25% of Construction Total				\$1,063
Planning Level Contingency (30%)	30% of Construction Total				\$1,275
<b>TOTAL PROJECT COST</b>					<b>\$6,588</b>



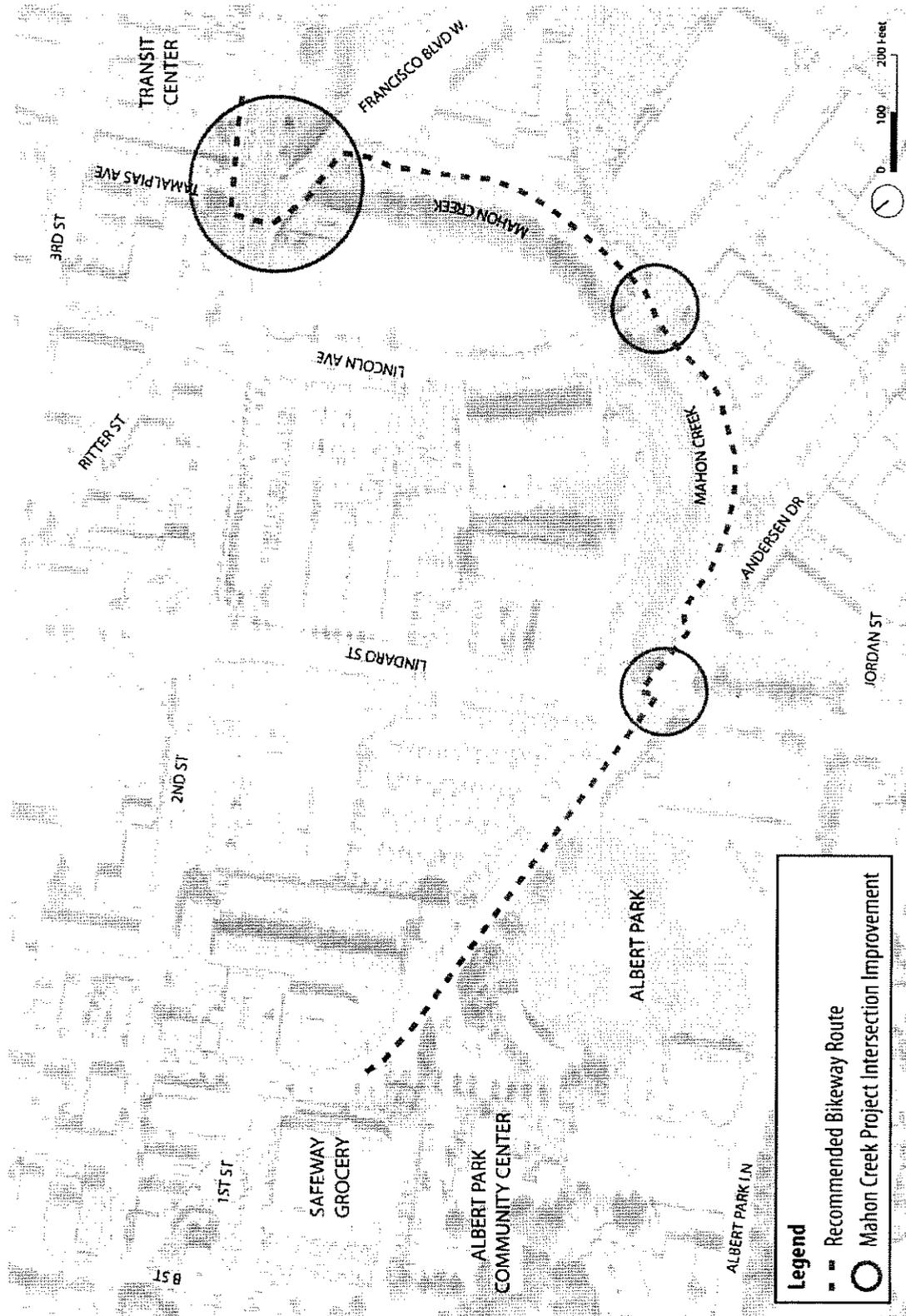


Figure 6-32: Plan View of Proposed Improvements for Project 15: Andersen Drive to Mahon (Creek Parkway)

### **6.19. Regional Connectors**

The Fairfax to San Rafael Cross Marin Bikeway will link the Town of Fairfax, Town of San Anselmo and City of San Rafael via a clearly defined and safe facility. The recommended route links many destinations on the corridor including Downtown Fairfax, Downtown San Anselmo, the Greenfield Avenue commercial corridor, and Downtown San Rafael. There remain, however, several important regional connections that are not directly on the recommended route where additional work is necessary to identify specific improvements that will facilitate regional connections to the Fairfax to San Rafael Cross Marin Bikeway. These important regional connections include:

- Butterfield Road
- Red Hill Shopping Center
- Hilldale Avenue Neighborhood

Each of these is addressed with additional detail below, including recommendations for further study where required.

#### **Butterfield Road Connector**

Butterfield Road connects the Sleepy Hollow Neighborhood to the Ross Valley and the Fairfax to San Rafael Cross Marin Bikeway Connector. Bicyclists seeking to make the connection from the recommended Fairfax to San Rafael Cross Marin Bikeway improvements along San Anselmo Avenue and Center Boulevard to Butterfield Road face several safety challenges. The intersection of Sleepy Hollow Road across SFD does not provide for a clearly defined bicyclist crossing of Sir Francis Drake. Existing Class II bicycle lanes on Butterfield Road terminate at the intersection with Sir Francis Drake. Bicyclists seeking to make a connection to the south must ride on SFD or dismount and act as a pedestrian to use existing crosswalks and sidewalks to connect to San Anselmo Avenue to the east or Oak Knoll Avenue to the west.

Sir Francis Drake is extremely narrow at this intersection with two ten-foot wide travel lanes and an approximately five-foot wide sidewalk. Any change to the Sir Francis Drake right-of-way would require property acquisition. Potential widening of the roadway would require detailed engineering analysis and consultation and negotiation with individual property owners. As of Fall 2009, right-of-way acquisition is not being considered as a part of the overall traffic management scenarios under investigation by the Town of San Anselmo and its consultants.

San Anselmo Avenue is the existing Class III route designated in the Marin County network. Additional improvements on San Anselmo Avenue could include development of bicycle boulevard segments between SFD and Center Boulevard.

#### **Red Hill Shopping Center Connector**

The Red Hill Shopping Center is a significant pedestrian and bicycle trip generator in the Ross Valley, providing a broad range of retail shopping destinations. Bicycle access between the recommended Fairfax to San Rafael Cross Marin Bikeway improvements along San Anselmo Avenue and Center Boulevard could be accomplished via improvements to Saunders Avenue, Karl Avenue, a San Anselmo Creek bridge crossing and Sais Avenue. At Sais Avenue and SFD there is no traffic control on SFD as the primary entrance to the shopping center is one block to the east at Bella Vista Avenue. Bicycle access improvements along Sir Francis Drake between Sais Avenue and

Bella Vista Avenue are not feasible given the constrained roadway right-of-way and narrow sidewalks. Sais Avenue is a low-volume street serving a limited number of private residents and would not meet traffic signal warrants. Bicyclists are able to cross SFD in existing traffic gaps but must exercise caution given the left-turn pockets serving Sais Avenue and Sonoma Avenue. Any changes to the traffic signal configurations on this segment of Sir Francis Drake will require detailed traffic engineering study.

**Hilldale Avenue Neighborhood Connector**

The West End and Sun Valley neighborhoods located north of Red Hill Avenue have limited access to the Fairfax to San Rafael Cross Marin Bikeway. These neighborhoods are not well connected to San Anselmo and southern San Rafael given the historical pattern of streets connecting to the onetime railroad corridor. Hilldale Avenue is the only north-south street that connects these neighborhoods to the proposed Fairfax to San Rafael Cross Marin Bikeway corridor improvements along Greenfield Avenue. A variety of improvements were recommended at this intersection (Hilldale Avenue, Greenfield Avenue, Red Hill Boulevard) as a part of the Marin County Safe Routes to School program. Several improvements are recommended in this Fairfax to San Rafael Cross Marin Bikeway Feasibility Study on the south side of the intersection. Additional improvements to the segment of Hilldale Avenue between Red Hill Avenue and Sequoia Drive could facilitate bicycle travel. This one-block segment adjacent United Market is heavily trafficked and has frequent turning movements into and out of the parking areas. Additional detailed analysis of traffic turning movements and intersection geometry on the north side of the Hilldale Avenue and Red Hill Avenue intersection should be conducted to identify potential lane narrowing or change in configuration to provide for design space for bicyclists.

## 7. Implementation Strategy

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### 7.1. Introduction

This chapter presents recommended phasing for the overall Fairfax to San Rafael Cross Marin Bikeway corridor improvements. A key project goal is to secure major funding to implement significant bikeway connectivity improvements in as short a timeframe as feasible thus the entire Fairfax to San Rafael Cross Marin Bikeway is presented as short- and medium-term potential projects. Definitions for these two categories are:

- **Short-Term Phase (0 to 5 Years):** includes of projects that can be completed within five years including any additional required study, engineering design development and construction. Projects in this phase include signage and striping plans, small scale intersection and traffic calming improvements, and other projects that do not require complex engineering or environmental clearance.
- **Medium-Term Phase (5 – 10 Years):** includes projects that can be completed in 5 to 10 years. The projects in this phase require additional detailed study including traffic operations, civil engineering, environmental clearance, and locally-focused neighborhood public outreach.

Phasing delineation is based on community input gathered throughout preparation of this report and on project team assessment. In determining phasing priorities, the project team considered:

- Existing and forecast facility use level
- Potential to improve safety conditions
- Gap closure in existing local/regional bicycle network
- Preliminary engineering estimates and cost feasibility
- Local agency support and capacity to lead project implementation according to the identified timeframe

Though the projects are assigned a phasing priority, it is important to recognize that the Town of Fairfax, Town of San Anselmo and City of San Rafael will pursue projects within their respective jurisdictions based on success in obtaining dedicated funding for project design and construction, success in neighborhood-specific public outreach affecting specific segments, and strategic opportunities to combine bicycle specific projects with multi-modal transportation improvements benefiting pedestrians, transit, and automobile circulation. An important step is the review of this feasibility plan by local elected officials in order to direct staff to appropriate action.

### 7.2. Short-Term Phase

The short-term phase consists of the following projects:

- Project 3: Sir Francis Drake Boulevard/Olema Road (east) intersection improvements
- Project 4: Sir Francis Drake Boulevard bike lane (Olema Road (east) to Claus Drive)

- Project 7: Center Boulevard wayfinding (Fairfax Parkade to Pastori Avenue)
- Project 8: Lansdale Avenue/San Anselmo Avenue bicycle boulevard (short-term improvements)
- Project 9: The Hub to Lincoln Park (short-term improvements)
- Project 10: Greenfield Avenue bicycle boulevard and Red Hill Avenue/Hilldale Drive intersection improvements
- Project 12: Second Street tabled intersections (Second Street/Fourth Street intersection to Miramar Avenue) (short-term improvements)
- Project 13: First Street bicycle boulevard (Miramar Avenue between Second Street and First Street; First Street between Miramar Avenue and E Street), and Class III bicycle route (First Street between E Street and B Street)
- Project 14: First Street (B Street to Andersen Drive) bike path
- Project 15: Andersen Drive to Mahon (Creek Pathway) wayfinding

### **7.3. Medium-Term Phase**

Medium-term phase projects consist of the following:

- Project 1: Sir Francis Drake Boulevard at Olema Road (West) intersection improvements
- Project 2: Olema Road bicycle boulevard
- Project 5: Broadway Boulevard bicycle boulevard (Sir Francis Drake Boulevard to Claus Drive)
- Project 6: Broadway Boulevard Fairfax Parkade circulation improvements
- Project 8: Center Boulevard one-way separated multi-use path (medium-term improvements)
- Project 9: The Hub to Lincoln Park circulation improvements (medium-term improvements)
- Project 11: Red Hill Avenue/Greenfield Avenue/West End Avenue (Hilldale Drive to the Second/Fourth Street Intersection) wayfinding and intersection improvements
- Project 12: Second Street sidewalk widening (Second Street/Fourth Street intersection to Miramar Avenue) (medium-term improvements)

#### 7.4. Cost Estimates by Phase

Table 7-1 presents the cost for each phase, itemized by jurisdiction. Two of the proposed projects fall within two jurisdictions: Projects 8 and 11. The project costs in the table below have been adjusted to account for jurisdictional boundaries.

**Table 7-1: Cost Estimates by Phase, By Jurisdiction**

Phase	Jurisdiction	Estimated Cost
Short-Term	Fairfax	\$292,990
	San Anselmo	\$1,487,400
	San Rafael	\$202,300
	<i>Total</i>	<i>\$1,982,700</i>
Medium-Term	Fairfax	\$762,700
	San Anselmo	\$2,394,400
	San Rafael	\$702,500
	<i>Total</i>	<i>\$3,859,600</i>

#### 7.5. Funding Sources

There are a variety of potential funding sources including local, state, regional and federal funding programs as well as private sector funding that can be used to construct the proposed improvements. Most of the federal, state and regional programs are competitive and involve the completion of extensive applications with clear documentation of the project need, costs and benefits. The following resources are provided to assist the Town of Fairfax, Town of San Anselmo and City of San Rafael staff in identifying appropriate sources of funding for the projects recommended in this plan. The following should be noted:

- Funding sources are highly competitive, with many agencies competing for the same “pots” of money.
- Funding is limited; capital funding needs far outstrip available funding every year.
- Applying for funding is a time-consuming and staff-intensive process.

##### **Federally-Administered Funding**

The primary federal source of surface transportation funding—a portion of which can be used to fund bicycle and pedestrian facilities—is SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. SAFETEA-LU is the fourth iteration of the transportation vision established by Congress in 1991 with the Intermodal Surface Transportation Efficiency Act. Also known as the federal transportation bill, the \$286.5 billion SAFETEA-LU bill was passed in 2005 and authorizes Federal surface transportation programs for the five-year period between 2005 and 2009.

Marin County bicycle advocates are actively lobbying for \$50 million in funding through the reauthorization of the Federal Transportation Bill, expected in 2010. If this funding becomes available, a portion of it could be used to fund the Fairfax-San Rafael connector.

SAFETEA-LU funding is administered through the state (Caltrans and the State Resources Agency) and regional planning agencies. Most, but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. SAFETEA programs require a local match of between 0% and 20%. SAFETEA funding is intended for capital improvements and safety and education programs and projects must relate to the surface transportation system.

Specific funding programs under SAFETEA-LU include, but are not limited to:

- Congestion Mitigation and Air Quality (CMAQ) – Funds projects that are likely to contribute to the attainment of national ambient air quality standards
- Recreational Trails Program—\$370 million nationally through 2009 for non-motorized trail projects
- Safe Routes to School Program—\$612 million nationally through 2009
- Transportation, Community and System Preservation Program—\$270 million nationally over five years
- Federal Lands Highway Funds—Approximately \$4.5 billion dollars are available nationally through 2009

To be eligible for Federal transportation funds, States are required to develop a State Transportation Improvement Program (STIP) and update it at least every four years. A STIP is a multi-year capital improvement program of transportation projects, and serves to coordinate transportation-related capital improvements of the metropolitan planning organizations and the state.

In California, the STIP includes projects on and off the State Highway System and is funded with revenues from the Transportation Investment Fund and other funding sources. The California STIP is typically updated every two years. To be included in the STIP, projects must be included in the Interregional Transportation Improvement Plan (ITIP), prepared by Caltrans or the Regional Transportation Improvement Plans (RTIPs), prepared by regional agencies. Bicycle and pedestrian projects are eligible for inclusion.

The following programs are administered by the Federal government.

***Transportation, Community and System Preservation (TCSP) Program***

The Transportation, Community and System Preservation (TCSP) Program provides federal funding for transit oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers. The program provides communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. TCSP Program funds require a 20% match. Congress appropriated \$204 million to this program in Fiscal Year 2009.

***Rivers, Trails and Conservation Assistance Program***

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways,

rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based upon criteria which include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation and focusing on lasting accomplishments.

### **State-Administered Funding**

The State of California uses both federal sources and its own budget to fund the following bicycle and pedestrian projects and programs.

#### ***Bicycle Transportation Account***

The Bicycle Transportation Account (BTA) provides state funding for local projects that improve the safety and convenience of bicycling for transportation. Because of its focus on transportation, BTA projects, including trails, must provide a transportation link. Funds are available for both planning and construction. BTA funding is administered by Caltrans and cities and counties must have an adopted Bicycle Transportation Plan in order to be eligible. City Bicycle Transportation Plans must be approved by the local MPO prior to Caltrans approval. Out of \$5 million available statewide, the maximum amount available for individual projects is \$1.2 million.

#### ***Federal Safe Routes to School (SRTS) and California Safe Routes to School (SR2S)***

Caltrans administers funding for Safe Routes to School projects through two separate and distinct programs: the state-legislated Program (SR2S) and the federally-legislated Program (SRTS). Both programs competitively award reimbursement grants with the goal of increasing the number of children who walk or bicycle to school. The programs differ in some important respects.

California Safe Routes to School Program expires December 21, 2012, requires a 10% local match, is eligible to cities and counties and targets children in grades K-12. The fund is primarily for construction, but up to 10% of the program funds can be used for education, encouragement, enforcement and evaluation activities. Forty-eight million dollars are available for Cycle 8 (FY 08/09 and 09/10).

The Federal Safe Routes to School Program expires September 30, 2009, reimburses 100%, is eligible for cities, counties, school districts, non-profits, and tribal organizations, and targets children in grades K-8. Program funds can be used for construction or for education, encouragement, enforcement and evaluation activities. Construction must be within 2 miles of a grade school or middle school. Forty-six million dollars are available for Cycle 2 (FY 08/09 and 09/10).

<http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm>

#### ***Congestion Mitigation and Air Quality Improvement Program***

Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds are directed to transportation projects and programs which contribute to the attainment or maintenance of National Ambient Air Quality Standards in non-attainment or air quality maintenance areas for ozone, carbon monoxide, or particulate matter under provision in the Federal Clean Air Act. The fund is administered

by Caltrans. Bicycle and pedestrian projects and programs are eligible for funding. About \$1.7 billion dollars are available nationwide per year. Estimated annual program level for California is \$360 million. Federal share payable is up to 100% for 2008/09.

[http://www.dot.ca.gov/hq/LocalPrograms/lam/Transportation\\_Funding\\_Guidebook.pdf](http://www.dot.ca.gov/hq/LocalPrograms/lam/Transportation_Funding_Guidebook.pdf)

***Recreational Trails Program***

The Recreational Trails Program of SAFETEA-LU provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized as well as motorized uses. In California, the funds are administered by the California Department of Parks and Recreation. A minimum 12% of local match is required. California's apportionment was \$1.7 million in 2009 and proposals are due October 1, 2009 for 2010 apportionment funds. RTP projects must be ADA compliant. Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails;
- Purchase and lease of trail construction and maintenance equipment;
- Construction of new trails; including unpaved trails;
- Acquisition of easements or property for trails;
- State administrative costs related to this program (limited to seven percent of a State's funds); and
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds).

Six million dollars was available in 2008. More information is available at <http://www.fhwa.dot.gov/environmnet/rectrails/index.htm>.

***California Conservation Corps***

The California Conservation Corps (CCC) is a public service program which occasionally provides assistance on construction projects. The CCC may be written into grant applications as a project partner. In order to utilize CCC labor, project sites must be public land or be publicly accessible. CCC labor cannot be used to perform regular maintenance, however, they will perform annual maintenance, such as the opening of trails in the spring.

<http://www.ccc.ca.gov/>

***Transportation Planning Grant Program***

The Transportation Planning Grant Program, administered by Caltrans, provides two grants that can be used to construct and plan bicycle and pedestrian facilities.

The **Community-Based Transportation Planning Grant** provides funding for projects that exemplify livable community concepts including bicycle and pedestrian improvement projects. Eligible applicants include local governments, MPOs and RPTAs. A 20% local match is required and projects must

demonstrate a transportation component or objective. There are \$3 million dollars available annually statewide.

The **Environmental Justice: Context Sensitive Planning Grants** promote context sensitive planning in diverse communities and funds planning activities that assist low-income, minority and Native American communities to become active participants in transportation planning and project development. Grants are available to transit districts, cities, counties and tribal governments. This grant is funded by the State Highway Account at \$1.5 million annually state-wide. Grants are capped at \$250,000.

***Petroleum Violation Escrow Account (PVEA)***

In the late 1970s, a series of Federal court decisions against various United States oil companies ordered refunds to the States for price overcharges on crude oil and refined petroleum products during the period of price control regulations. To qualify for PVEA funding, a project must save or reduce energy and provide a direct public benefit within a reasonable time frame. In the past, the PVEA has been used to fund programs based on public transportation, computerized bus routing and ride sharing, home weatherization, energy assistance and building energy audits, highway and bridge maintenance, and reducing airport user fees. In California, transportation related PVEA projects are administered by Caltrans. PVEA funds do not require a match and can be used as match for additional Federal funds.

[http://www.dot.ca.gov/hq/LocalPrograms/lam/prog\\_g/g22state.pdf](http://www.dot.ca.gov/hq/LocalPrograms/lam/prog_g/g22state.pdf)

**Funding Administered by Regional Agencies**

Regional bicycle and pedestrian grant programs come from a variety of sources, including SAFETEA-LU, the State budget and vehicle registration fees. The following programs are administered by regional agencies.

***Regional Surface Transportation Program***

The Regional Surface Transportation Program (RSTP) is a block grant program which provides funding for bicycle and pedestrian projects, among many other transportation projects. Under the RSTP, Metropolitan planning organizations, such as the Metropolitan Transportation Commission's (MTC), prioritize and approve projects which will receive RSTP funds. Metropolitan planning organizations can transfer funding from other federal transportation sources to the RSTP program in order to gain more flexibility in the way the monies are allocated. In California, 62.5% of RSTP funds are allocated according to population. The remaining 37.5% is available statewide.

***Transportation for Livable Communities Program***

The Transportation for Livable Communities Program (TLC) provides grant monies to public agencies to encourage land use decisions that support compact, pedestrian and bicycle friendly development near transit hubs. MTC administers the TLC program with funds from the Regional Surface Transportation Project. TLC grants are capped at \$400,000. Funds may be used for capital projects or planning.

***Housing Incentive Program (HIP)***

As part of the TLC program, MTC's Housing Incentive Program (HIP) rewards local governments that build housing near transit stops. HIP funds are intended to be used for transportation capital projects that support TLC goals. Typical capital projects include pedestrian and bicycle facilities that connect the housing project to adjacent land uses and transit; improved sidewalks and crosswalks linking the housing to a nearby community facility such as a school or a public park; or streetscape improvements that support increased pedestrian, bicycle, and transit activities and safety.

The dollar amount of HIP funds that may be requested is determined by the density of the qualifying housing development and the number of affordable and market rate bedrooms that will be provided. The maximum grant amount per jurisdiction is \$3 million.

[http://www.mtc.ca.gov/planning/smart\\_growth/hip.htm](http://www.mtc.ca.gov/planning/smart_growth/hip.htm)

***Transportation Fund for Clean Air Program (TFCA)***

TFCA funds are generated by a four dollar surcharge on automobile registration fees in the nine-county Bay Area. Approximately \$20 million is collected annually which funds two programs: 60 percent of the TFCA monies go to the Regional Fund and 40 percent go to the County Program Manager Fund. The Regional Fund is administered by the Bay Area Air Quality Management District (BAAQMD).

The Bicycle Facility Program (BFP) is a grant program provided by the BAAQMD's Transportation Fund for Clean Air Regional Fund. Bay Area public agencies are eligible to apply for these funds that are applicable for new bicycle facilities, including Class I, II, and III. Eligible projects also include bike parking and bike racks for transit vehicles. The total amount available in fiscal year 2009/2010 is \$600,000. The minimum grant for a single project is \$10,000 and the maximum grant is \$120,000.

[http://www.baaqmd.gov/pln/grants\\_and\\_incentives/bfp/index.htm](http://www.baaqmd.gov/pln/grants_and_incentives/bfp/index.htm)

***Regional Bicycle Network Program (Replaces the Regional Bicycle and Pedestrian Program)***

MTC's Transportation 2035 Plan essentially replaces the former Regional Bicycle and Pedestrian Program with a Regional Bicycle (RBN) Program. The RBN Program will fund projects included in the Regional Bicycle Network as described in MTC's Regional Bicycle Plan. As revised, the program no longer funds pedestrian facilities. Program details will be adopted in RBN Program guidelines early next year.

[http://www.mtc.ca.gov/planning/bicyclespedestrians/MTC\\_Regional\\_Bicycle\\_Plan\\_Update\\_FINAL.pdf](http://www.mtc.ca.gov/planning/bicyclespedestrians/MTC_Regional_Bicycle_Plan_Update_FINAL.pdf)

***Safe Routes to Transit (SR2T)***

Regional Measure 2 (RM2), approved in March 2004, raised the toll on seven state-owned Bay Area bridges by one dollar for 20 years. This fee increase funds various operational improvements and capital projects which reduce congestion or improve travel in the toll bridge corridors.

Twenty million dollars of RM2 funding is allocated to the Safe Routes to Transit Program, which provides competitive grant funding for capital and planning projects that improve bicycle and pedestrian access to transit facilities. Eligible projects must be shown to reduce congestion on one or more of the

Bay Area's toll bridges. The competitive grant process is administered by the Transportation and Land Use Coalition and the East Bay Bicycle Coalition. Funding is awarded in five \$4 million grant cycles. The first round of funding was awarded in December 2005. Future funding cycles will be in 2009, 2011 and 2013.

[http://www.transcoalition.org/c/bikeped/bikeped\\_saferoutes.html](http://www.transcoalition.org/c/bikeped/bikeped_saferoutes.html)

### **Funding Administered by Local Agencies**

#### ***TDA Article 3***

Transportation Development Act (TDA) Article 3 funds are state block grants awarded annually to local jurisdictions for transit, bicycle and pedestrian projects in California. Funds for pedestrian projects originate from the Local Transportation Fund (LTF), which is derived from a ¼ cent of the general state sales tax. LTF funds are returned to each county based on sales tax revenues. Eligible pedestrian and bicycle projects include: construction and engineering for capital projects; maintenance of bikeways; bicycle safety education programs (up to 5% of funds); and development of comprehensive bicycle or pedestrian facilities plans. A city or county is allowed to apply for funding for bicycle plans not more than once every five years. These funds may be used to meet local match requirements for federal funding sources. 2% of the total TDA apportionment is available for bicycle and pedestrian funding.

<http://www.mtc.ca.gov/funding/STA-TDA/>

#### ***Measure A – Local Roads***

In 2004 Marin County voters passed Measure A, which placed a half-cent increase on county sales tax. The money generated from this tax funds transportation improvements including bicycle and pedestrian facilities. The funds (approximately \$43.9 M) will be distributed on an annual basis to each city, town and Marin County based on a combination of miles of roads to be maintained and population. Each project will be required to consider the needs of all roadway users. Where feasible, locally defined bicycle and pedestrian projects will be implemented at the time a roadway is improved. Improvements could include striping and signing for bicycle lanes and bikeways, sidewalk improvements, curb ramps, and other accessibility and safety improvements.

<http://www.tam.ca.gov/index.aspx?page=101>

#### ***Measure A – Safe Pathways Funding***

Safe Pathways to School is the capital improvement element of the Transportation Authority of Marin's (TAM's) Safe Routes to Schools program. The Safe Pathways program provides funding for the engineering, environmental clearance, and construction of pathway and sidewalk improvements in all Marin County communities, including safety improvements at street crossings. In Fiscal Year 2007-08 TAM awarded \$1.762 million in capital projects funding to local jurisdictions in Marin.

<http://www.tam.ca.gov/index.aspx?page=98>

## **Non-Traditional Funding Sources**

### ***Community Development Block Grants***

The CDBG program provides money for streetscape revitalization. Federal Community Development Block Grant Grantees may “use CDBG funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities, paying for planning and administrative expenses, such as costs related to developing a consolidated Plan and managing CDBG funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs.” California distributed \$39 million in CDBG funds in 2008.

<http://www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm>

### ***Assessment Districts***

Local government entities can form an assessment district to fund the construction and maintenance of public facilities, including sidewalks and paths. The process begins with property owners who want an improvement signing a petition. The proposed district includes all property owners who will benefit from the proposed improvement. A public hearing is held, and if a majority of property owners approve, the assessment district is established. Once the assessment district is approved, property owners within the assessment district are levied a special assessment in proportion to the share of the benefit they receive from the improvement.

### ***Business Improvement Districts***

Business improvement districts (BIDs) are public/private partnerships used to promote individual business districts through a variety of means, including the construction and maintenance of streetscape improvements, paths, and bicycle facilities. A city, county or joint powers authority can establish a BID and levy annual assessments on businesses within its boundaries. To establish a BID, a public hearing must be held, and a majority of businesses must agree to the BID. In forming a BID, the boundaries and the improvements and activities to be financed are established. These cannot be changed once the BID is formed.

### ***Developer Fees, Exactions and Impact Fees***

With the increasing support for “routine accommodation” and “complete streets,” requirements for new development, road widening and new commercial development provide opportunities to efficiently construct pedestrian facilities. If a significant nexus to justify the improvements exists, local governments can require such improvements as a condition of project approval.

One potential local source of funding is developer impact fees, typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may attempt to reduce the number of trips (and hence impacts and cost) by paying for on- and off-site pedestrian improvements designed to encourage residents, employees and visitors to the new development to walk rather than drive. Establishing a clear nexus or connection between the impact fee and the project’s impacts is critical to ensure legal soundness.

***Mello-Roos Community Facilities Act***

The Mello-Roos Community Facilities Act was passed by the Legislature in 1982 in response to reduced funding opportunities brought about by the passage of Proposition 13. The Mello-Roos Act allows any county, city, special district, school district or joint powers of authority to establish a Community Facility Districts (CFD) for the purpose of selling tax-exempt bonds to fund public improvements within that district. CFDs must be approved by a two-thirds margin of qualified voters in the district. Property owners within the district are responsible for paying back the bonds. Pedestrian and bicycle facilities, construction and maintenance are eligible for funding under CFD bonds.

<http://mello-roos.com/pdf/mrpdf.pdf>

***Volunteer and Public-Private Partnerships***

Local schools or community groups may use the bikeway projects as a project for the year, possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations ‘adopt’ a bikeway and help construct and maintain the facility.

**Funding Sources Summary**

Table 7-2 presents a summary of potential funding sources by administering agency.

Table 7-2: Funding Sources

<p><b>Acronyms:</b>                  AQMD - Air Quality Management District                  Caltrans - California Department of Transportation                  CMAQ - Congestion Mitigation and Air Quality                  CTC - California Transportation Commission                  FHWA - Federal Highway Administration                  RTPA - Regional Transportation Planning Agency                  State DPR - California Department of Parks and Recreation (under the State Resources Agency)                  SAFETEA - Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users                  TAM - Transportation Authority of Marin</p> <p><b>Jurisdictions for Fairfax, San Anselmo, and San Rafael, California:</b>                  Caltrans District 4                  TAM - Transportation Authority of Marin                  Congressional District 6                  Assembly District 6                  Senate District 3                  County District 1 and 2</p>	<p><b>Resources:</b>                  Caltrans TEA-21 website - <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>                  FHWA - SAFETEA-LU - website - <a href="http://www.fhwa.dot.gov/reauthorization">http://www.fhwa.dot.gov/reauthorization</a>  <a href="http://www.dot.ca.gov/hq/LocalPrograms/">http://www.dot.ca.gov/hq/LocalPrograms/</a>  <a href="http://www.fhwa.dot.gov/environment/recreational/index.htm">http://www.fhwa.dot.gov/environment/recreational/index.htm</a>  <a href="http://www.ccca.ca.gov/">http://www.ccca.ca.gov/</a>  <a href="http://www.mtc.ca.gov/planning/smart_growth/hip.htm">http://www.mtc.ca.gov/planning/smart_growth/hip.htm</a>  <a href="http://www.mtc.ca.gov/funding/STA-TDA/">http://www.mtc.ca.gov/funding/STA-TDA/</a>  <a href="http://www.baaqmd.gov/pln/grants_and_incentives/bfp/index.htm">http://www.baaqmd.gov/pln/grants_and_incentives/bfp/index.htm</a>  <a href="http://www.transcoalition.org/c/bikeped/bikeped_saferoutes.html">http://www.transcoalition.org/c/bikeped/bikeped_saferoutes.html</a>  <a href="http://www.tam.ca.gov/index.aspx">http://www.tam.ca.gov/index.aspx</a>  <a href="http://www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm">http://www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm</a>  <a href="http://mello-roos.com/pdf/mrpdf.pdf">http://mello-roos.com/pdf/mrpdf.pdf</a></p>
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Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Eligible Bikeway Projects			Comments
						Commute	Recreation	Safe/Ed	
<b>Federally-Administered Funding</b>									
Transportation, Community and System Preservation Program	pending	FHWA	\$25 m nationwide	--	state, local, MPOs	--	--	--	Projects that improve system efficiency, reduce environmental impacts of transportation, etc. Contact K. Sue Kiser, Regional FHWA office, (916) 498-5009
Rivers, Trails and Conservation Assistance Program	--	NPS	--	--	Governments, communities	X	X	--	RTCA staff provide technical assistance to communities so they can conserve rivers, preserve open space, and develop trails and greenways. Contact NPS at (202) 354-6900.
<b>State-Administered Funding</b>									
Bicycle Transportation Account	December	Caltrans	\$5 m	min. 10% local match on construction	city, county	X	--	X	State-funded. Projects that improve safety and convenience of bicycle commuters. Contact Ken McGuire, Caltrans, (916) 653-2750

7. Implementation Strategy

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Eligible Bikeway Projects			Comments
						Commute	Recreation	Safety/Ed	
Federal Safe Routes to School (SRTS)	July 18	Caltrans	\$46 m	none	state, city, county, MPOs, RTPAs and other organizations that partner with one of the above	X	--	X	Construction, education, encouragement and enforcement program to encourage walking and bicycling to school. Contact Caltrans District 4 Transportation Planning and Local Assistance office at (510) 286-5226.
California Safe Routes to School (SRTS)	May 31	Caltrans	\$48.5 m	10%	city, county	X	X	X	Primarily construction program to enhance safety of pedestrian and bicycle facilities. Contact Caltrans District 4, (510) 286-5598
Congestion Mitigation and Air Quality Program (CMAQ)	Dec. 1 yearly	RTPAs, Caltrans	\$360 m	None	Local and state governments within federally certified jurisdictions	X	--	--	Only air quality nonattainment and maintenance areas for ozone, carbon monoxide and certain PM-10 projects are eligible.
Recreational Trails Program (RTP)	Oct. 1	State DPR	\$3 m	20% match	jurisdictions, special districts, non profits with management responsibilities over the land	--	X	--	For recreational trails to benefit bicyclists, pedestrians, and other users; contact State Dept. of Parks & Rec., Statewide Trails Coordinator, (916) 653-8803
California Conservation Corps	On-going	California Conservation Corps	Labor	None	Federal and state agencies, city, county, school district, NPO, private industry	X	X	--	Contact the Corps at (916) 341-3100.
Community Based Transportation Planning Grant Program	Nov.	Caltrans	\$3 m	20% local	MPO, RPTA, city, county	X	--	--	Projects that exemplify livable community concepts. Contact Leigh Levine, Caltrans, (916) 651-6012
Environmental Justice: Context Sensitive Planning Grants	Apr. 1	Caltrans	\$3 m	10%	RTPA, MPO, city, county, tribal government, transit agency. Universities and community colleges, community-based organizations, NPOs, other public entities if partnering with one of above.	X	X	X	Requires a local match of 10% with a 5% in-kind contribution maximum. For more information call (916) 651-6889.
Petroleum Violation Escrow Account (PVEA)	On-going	Caltrans	\$0.5 m	--	city, county, transit operators	--	--	--	Bicycle and trail facilities have been funded with this program. Contact Caltrans Federal Resource Office, (916) 654-7287

7. Implementation Strategy

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Eligible Bikeway Projects			Comments
						Commuter	Recreation	Safety/Fd	
<b>Funding Administered by Regional Agencies</b>									
Regional Surface Transportation Program (RSTP)	varies by RPTA	RTPAs, Caltrans	\$320 m	11.47% non-federal match	cities, counties, transit operators, Caltrans, and MPOs	X	X	--	RSTP funds may be exchanged for local funds for non-federally certified local agencies; no match may be required if project improves safety. Contact Cathy Gomes, Caltrans, (916) 654-3271.
Transportation for Livable Communities Program	Jun. 23	MTC	\$16 m	None	City, neighborhood, transit agency, NPO	X	X	--	Program provides technical assistance and capital grants. TLC grants are capped at \$400,000. Contact MTC at (510) 817-5700.
Housing Incentive Program (HIP)	April	MTC	\$3 m per jurisdiction	11.5%	city, county	X	X	--	Projects must be located within 1/3 mile of a bus or ferry terminal or 1/2 mile from a rail transit station. Funds can be used in conjunction with housing development to construct bicycle facilities. Contact MTC at (510) 817-5700.
Transportation Fund for Clean Air Program (Bicycle Facility Program)	Sept. 14 (BFP only)	BAAQMD, CMAAs	\$600K (BFP only)	None	Public agencies within BAAQMD's jurisdiction	X	--	--	Two channels: the Regional Fund (administered by BAAQMD) receives 60% of the TFAC revenues and the Program Manager Fund (administered in coordination with the Bay Area's CMAAs) receives 40% of TFCA revenues. Amount of BFP grant funds requested must be between \$10,000 and \$120,000.
Regional Bicycle Network Program (replaces the Regional Bicycle and Pedestrian Program)	--	MTC, TAM	--	--	Local governments, transit operators, other public agencies	X	X	--	Determination of the fund amount, application due date and any matching requirement is scheduled for Nov. 2009. Funding anticipated to become available in early 2010. Contact MTC at (510) 817-5733.
Safe Routes to Transit	Aug. 12	MTC	\$4 m	None	Public agencies	X	X	--	Eligible projects must have a bridge nexus (i.e., reduce congestion on one or more state toll bridges). Program is run by Transform (510-740-3150) and the East Bay Bicycle Coalition (510-533-7433).

7. Implementation Strategy

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Eligible Bikeway Projects			Comments
						Commute	Recreation	Safety/Ed	
<b>Funding Administered by Local Agencies</b>									
Transportation Development Act (TDA) Article 3 (2% of total TDA)	Jan.	RPTA (MTC)	\$746K for Marin County	None	City, county, joint powers agency	X	X	--	Projects must be included in either a detailed circulation element or plan included in a general plan or an adopted comprehensive bikeway plan and must be ready to implement within the next fiscal year. Contact MTC at (510) 817-5733.
Measure A – Local Roads		TAM	\$43.9 m		City, town and Marin County	X	--	--	Road projects using this funding source are required to consider bicyclists and pedestrians. Contact TAM at (415) 226-0815.
Measure A – Safe Pathways Funding	Jun. 29	TAM	\$1.7 m		Local government, school district	X	--	X	Funds engineering, environmental clearance, and construction of pathway and sidewalk improvements, including safety improvements. Contact TAM at (415) 226-0815.
<b>Non-Traditional Funding Sources</b>									
Community Development Block Grants	--	U.S. Dept. of Housing and Urban Development (HUD)	--	--	City, county	X	X	--	Funds local community development activities such as affordable housing, anti-poverty programs, and infrastructure development.
Assessment Districts	--	City, county, joint powers authority	--	--	Neighborhoods, communities	X	X	X	Only those who benefit from the improvement may be taxed. Taxes should be tied to the amount of benefit received.
Business Improvement Districts	--	City, county, joint powers authority	--	--	City, county, joint powers authority, private industry	X	X	--	A public-private partnership in which businesses in a defined area pay an additional tax or fee in order to fund improvements within the district's boundaries.
Developer Fees or Exactions (developer fee for street improvements - DFSI); Impact Fees	--	City, county	--	--	--	X	X	--	Mitigation required during land use approval process

7. Implementation Strategy

Grant Source	Due Date	Agency	Annual Total	Matching Requirement	Eligible Applicants	Eligible Bikeway Projects			Comments
						Commuter	Recreation	Safety/Ed	
Mello-Roos Community Facilities Act	--	City, county, special district, school district, joint powers authority	--	--	city, county, special district, school district, joint powers of authority	X	X	X	Property owners within the district are responsible for paying back the bonds.
Volunteer and Public-Private Partnerships	--	--	--	--	Public agency, private industry, schools, community groups	X	X	X	Community-based initiative to implement improvements.

## **Appendix A: Civil Engineering Analysis: Developed by ILS Associates.**

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ILS Associates' analysis of Center Boulevard is presented in this Appendix. The plan view graphics at the end of the report are arranged from west to east.

**(DRAFT) Fairfax-San Rafael Bicycle Connector  
Feasibility Analysis**

**July 27, 2009**

**Job No. 8380**

The following report analyzes the feasibility of widening a 6,100 foot length of Center Blvd between San Rafael Avenue in San Anselmo and Pastori Avenue in Fairfax. The existing asphalt concrete road, on average, consists of two eleven (11) foot striped lanes with shoulders totaling approximately twenty-six (26) feet in width. This report examines the feasibility of increasing the paved width to include two eleven (11) foot travel lanes plus two seven (7) foot multi-use pathways for a total width of thirty-six (36) feet. This analysis includes the study of the existing right-of-way, additional paving requirements, earthwork, new retaining walls, additional drainage structures, utility conflicts and vegetation removal. An attached map, showing approximate locations of parcels and rights-of-way, is annotated to show the various requirements for the pavement widening.

A site walk of Center Blvd. was performed during the week of July 13, 2009 to document field measurements and observations. The following section explains the requirements for widening the pavement. Stationing begins with 0 + 00 at the intersection of San Rafael Avenue and Center Blvd. in San Anselmo and increases west to Fairfax:

**Station 0 + 00 to Station 2 + 20**

Centerline to remain in current location. Add approximately five (5) foot width of asphalt to each side of road. Install new fill to raise grade on each side. No major drainage issues. No major utility relocation. No major vegetation removal.



South Side Center Blvd. - Station 0+00 to 2+20

**Station 2 + 20 to Station 5 + 70**

Centerline to remain in current location. Add approximately five (5) foot width of asphalt to each side of road. Install new fill to raise grade on each side. Install 3 – 5 foot tall retaining wall with guardrail on north side of Center Blvd. Remove trees on north side of Center Blvd. No major drainage issues. No major utility relocation.



North Side Center Blvd. Requiring Retaining Wall Installation and Tree Removal -  
Station 2+20 to 5+70

**Station 5 + 70 to Station 8 + 30**

Centerline to remain in current location. Add approximately five (5) foot width of asphalt to each side of road. Install new fill to raise grade on each side. No major drainage issues. No major utility relocation. No major vegetation removal.

**Station 9 + 00 to Station 12 + 00**

Centerline to remain in current location. Add approximately five (5) foot width of asphalt to each side of road. Install new fill to raise grade on each side. No major drainage issues. Guy pole to be relocated at Station 9 + 30. Vegetation removal north side of Center Blvd.