

# 6 . Proposed Bicycle Network

This chapter addresses BTA requirement (c): a map and description of existing and proposed bikeways; and (e): a map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes.

While all streets should be designed to accommodate bicycles, the proposed bikeway network consists of routes that are designed to be the primary system for bicyclists traveling in and through Richmond. The bikeway network is a tool that allows the City to focus and prioritize implementation efforts where they will provide the greatest community benefit. Streets or corridors selected for inclusion in the network should be targeted for specific improvements, such as the installation of bicycle lanes, off-street paths, or signage. It is important to recognize that by law, unless explicitly prohibited (as they are on

the Richmond-San Rafael Bridge, I-580 with the exception of a short segment between the Bridge and Pt. Molate, and I-80), bicyclists are allowed on all streets and roads regardless of whether the streets and roads are a part of the bikeway network. Once completed, the proposed network will provide safer and more direct travel paths throughout the city.

The proposed system was developed according to the following planning criteria:

**Comfort & Access:** The system should provide equitable access from all areas of the city for commute, utilitarian and recreation routes, and should be designed for bicyclists of all levels of ability. Ideally, the system should provide a bicycle path, lane, or route within one-half mile of any residential street.

**Purpose:** Each link in the system should serve one or a combination of these purposes: recreation, commuting, utilitarian and provide a connection to the citywide bike network. On-street facilities should be continuous and direct, and off-street facilities should have a minimal number of arterial crossings and uncontrolled intersections.

**Connection to Transit and Employment/Retail Centers:** The intermodal transit village, Downtown Richmond, Hilltop Mall area, Ford Point and other major retail and employment centers should be accessible from all neighborhoods by a reasonably direct system.

**Connection to Schools and other Community Facilities:** Schools and community facilities, senior centers, recreational centers, the skate park and the Civic Center area should be accessible by bike.

**Connection to the Waterfront, Parks and Open Space:** Richmond's waterfront, parks and open spaces should be accessible so that residents are able to bike from home to both local and regional recreation.

**Connection to Regional Bikeways:** The bikeway system should provide access to regional bikeway routes, regional trails, and routes in adjacent communities.

Table 6-1 | Length of bikeway system (miles)

<i>Bikeway Classification</i>	<i>Existing</i>	<i>Proposed</i>	<i>Total</i>
Class I	28.1	30.0	58.1
Class II	6.7	32.0	38.7
Class III	5.3	42.4	47.7
<b>Total</b>	<b>40.1</b>	<b>104.4</b>	<b>144.5</b>

The maps on the following two pages illustrate the Citywide Existing and Proposed Bikeway Network and a close-up map of Central Richmond. The proposed system includes a total of approximately 100 miles of new bikeway facilities in addition to the 40 miles currently in place. The table above shows the number of proposed miles for each bikeway classification.

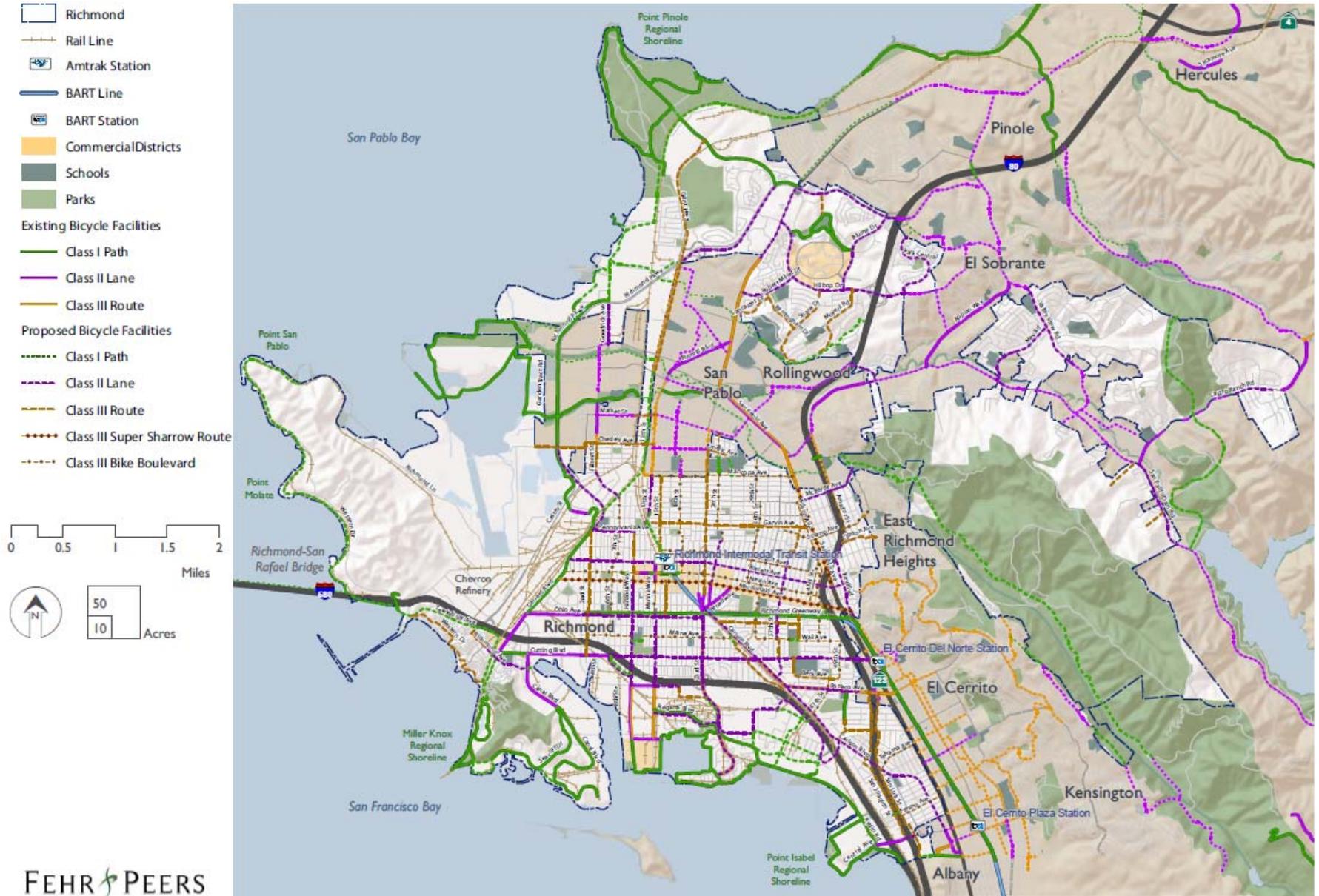
A complete list and description of proposed bikeways is included in Appendix A and is organized in the following way:

- Central Richmond – North-south and east-west routes
- Hilltop Area
- El Sobrante Valley
- The Bay Trail and Wildcat Creek Trail segments

A primary goal is to provide continuous bikeways with the greatest degree of bicycle comfort possible. These on- and off-street bicycle facilities will provide local and regional access across Richmond and to neighboring jurisdictions. Where appropriate, City staff should coordinate the planning of these facilities with the Cities of El Cerrito, San Pablo, Pinole and Hercules to ensure continuity across city boundaries.

In addition, City staff should coordinate closely with local transit providers such as AC Transit and BART to ensure that the bicycle network is well integrated with and supportive of transit access and operations. Proposed bikeways along streets with bus service should be designed to optimize safety and minimize conflicts between bicyclists and buses.

Map 6-1 | Existing and proposed bicycle network





## Central Richmond

The Central Richmond area includes all neighborhoods on the south side of the City of San Pablo, including East Richmond, Point Richmond, and the Richmond Annex. The proposed on-street facility improvements for Central Richmond are organized from north to south and east to west. These include many Class II bike lane segments and Class III routes, as well as several Class I path connections across railroad tracks, and through schools and neighborhood parks. In addition, several short- and long-term recommendations are provided that also aim to calm traffic and enhance the pedestrian environment. For example, the newly built eastern and western spans of the Richmond Greenway have several critical gaps that have been identified as high priorities for the proposed system. The map on the previous page includes the proposed network for Central Richmond. Many of these recommendations are also included in the *Pedestrian Plan*, and should be coordinated to the fullest extent possible.

## Hilltop Area

The Hilltop Area includes the neighborhoods surrounding the Hilltop Mall, as well as Parkchester Village and Hilltop Green. Several bikeways are proposed for the Hilltop area and surrounding neighborhoods of North Richmond. Wherever possible, Class I paths and Class II bike lanes are recommended. A primary objective for the bike network in these neighborhoods is to provide access to the Bay Trail, and regional access to neighboring jurisdictions and Central Richmond.

## El Sobrante Valley

Neighborhoods in the El Sobrante Valley area have a more suburban-rural character, and are defined by the surrounding East Bay Hills and Sobrante Ridge Regional Preserve. Access to open space and connections to regional bikeways are a primary focus for these communities.

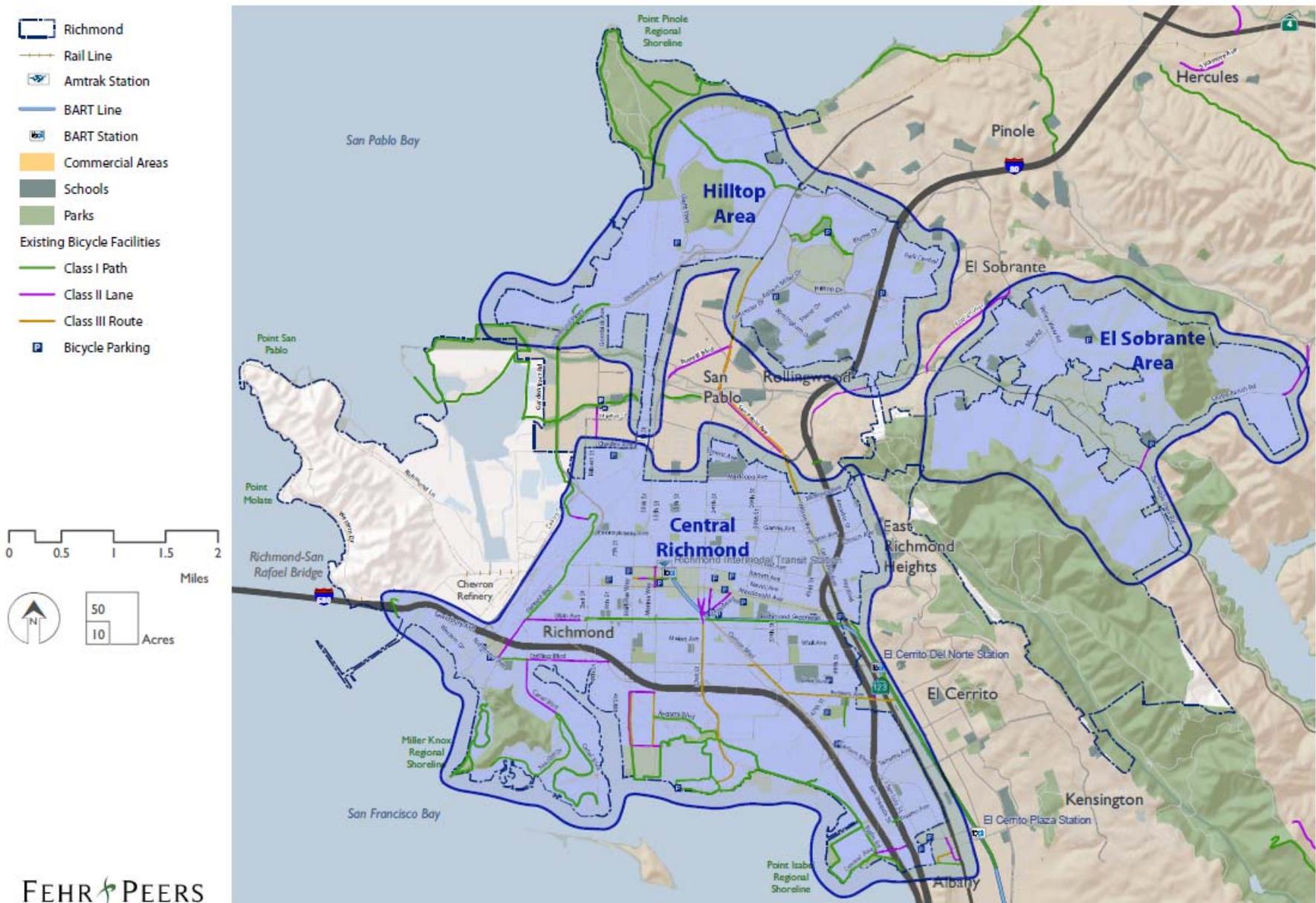
## The Bay Trail and Wildcat Creek Trail

Richmond's system of trails and greenways boasts some of the best multi-use paths in the Bay Area. Thanks to the hard work of TRAC and many others, over 30 miles of the Bay Trail have already been completed and an additional 11 are planned. In addition, the Wildcat Creek Trail provides a scenic ride along the creek, and will benefit from an at-grade crossing at the Richmond Parkway.

Key proposed Class I projects include, but are not limited to:

- All proposed Bay Trail improvements included in the *San Francisco Bay Trail Plan*
- Improvements around the Plunge and tunnel entrances in Point Richmond
- Wildcat Creek Trail – at-grade signalized crossing at the Richmond Parkway

Map 6-3 | Sub-Planning areas



## Focus Areas

As part of the master planning process, several focus areas were identified for site-specific recommendations and conceptual plans. The recommendations include short- to long-term improvements, and should be considered as a resource for best practices in bikeway design for other areas in the city. In addition, these plans can be used to pursue project-specific grant funding. The focus areas include the following:

1. Key Bicycle Corridors
2. Road Diets
3. Neighborhood Routes
4. Connecting the west and east spans of the Richmond Greenway
5. Improving safety and access along freeways and through interchanges
6. Improving access to the Bay Trail and waterfront
7. Pt Richmond Bay Trail Improvements at the Plunge

### Focus Area 1 – Key Bicycle Corridors

Much of Richmond has a well connected street network which provides an excellent opportunity for the City to develop a two-tiered bicycle network for both beginner and more advanced bicyclists. Many residential and regional collector streets provide the most direct connections, but also have heavier and fast-moving vehicle traffic. Wherever possible, Class II bike lanes are recommended for the majority of these streets and should be protected from vehicle traffic to the fullest extent possible. These bikeways may be most appropriate for commuting purposes and access to regional destinations, and will likely attract more experienced bicyclists.

As detailed in the Design Guidelines, bike lanes should be a minimum of five feet wide with a preferred width of six feet, measured from the

face of the curb with a minimum area outside of the gutter pan of four feet (three feet for a five foot bike lane). A four foot lane is allowed where there is no on-street parking and no gutter, but is not preferred. When necessary to provide this width, vehicle lanes should be narrowed to 11 feet and in some circumstances a 10 foot curb-side lane. Parking lanes can be narrowed to seven feet. In implementing projects, the City should endeavor to avoid discontinuous segments. For example, bike lanes should be continuously striped to an intersection, and bikeways and directional signage should be provided on both sides of the street.

#### Recommended Bicycle Facilities for Key Corridors

The following bicycle-friendly treatments may be considered along key corridors. These treatments are described in detail in the Design Guidelines.

- 6' bike lanes
- Physically separated bike lanes or paths with buffer
- Colored bike lanes
- Bicycle loop detection
- Bike boxes
- Super Sharrows
- Accommodation at large intersections and freeway interchanges
- Signage & Wayfinding
- In-street Bicycle Parking

In all cases, bicycle lanes should be striped and marked on both sides of the roadway at one time to provide continuity and discourage wrong-way riding. "Bikes Wrong Way" should be used on the backs of bike lane signs (only visible to riders traveling in the wrong direc-

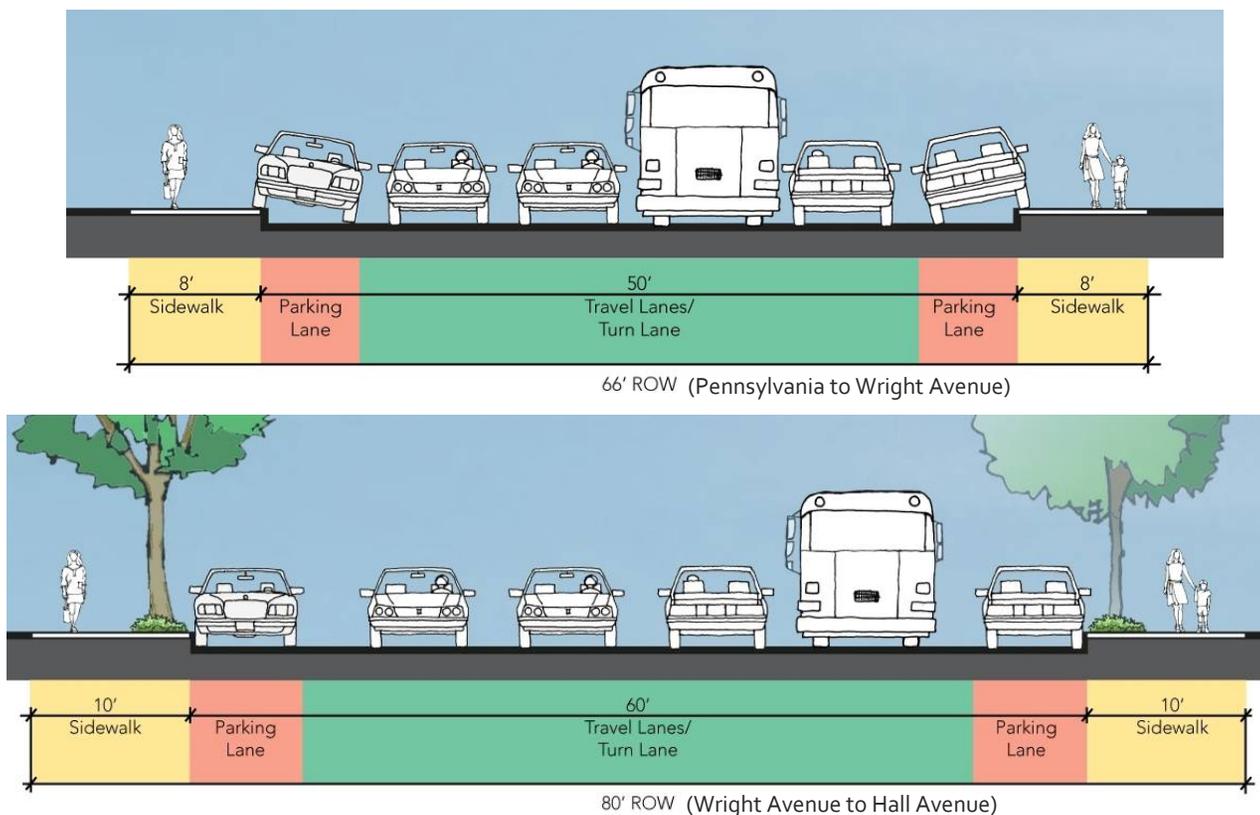
tion). If there are shorter segments of the corridors where there is insufficient width for bicycle lanes, it may be appropriate to provide on-street signage or stencils to raise the visibility of bicyclists and alert motorists that they are likely to encounter cyclists.

In addition to standard bike lanes, several bicycle design and traffic calming treatments should be considered to enhance the comfort and safety along specific routes. These treatments are described in detail in the Design Guidelines. Examples of key corridors in Richmond include, but are not limited to:

- Barrett Avenue
- Cutting Boulevard
- Carlson Boulevard
- Harbour Way
- Marina Bay Pkwy/23rd St
- 37th Street
- San Pablo Avenue
- Hilltop Drive
- Blume Drive
- San Pablo Dam Road

The following graphics provide illustrative examples of proposed improvement options for Key Corridors.

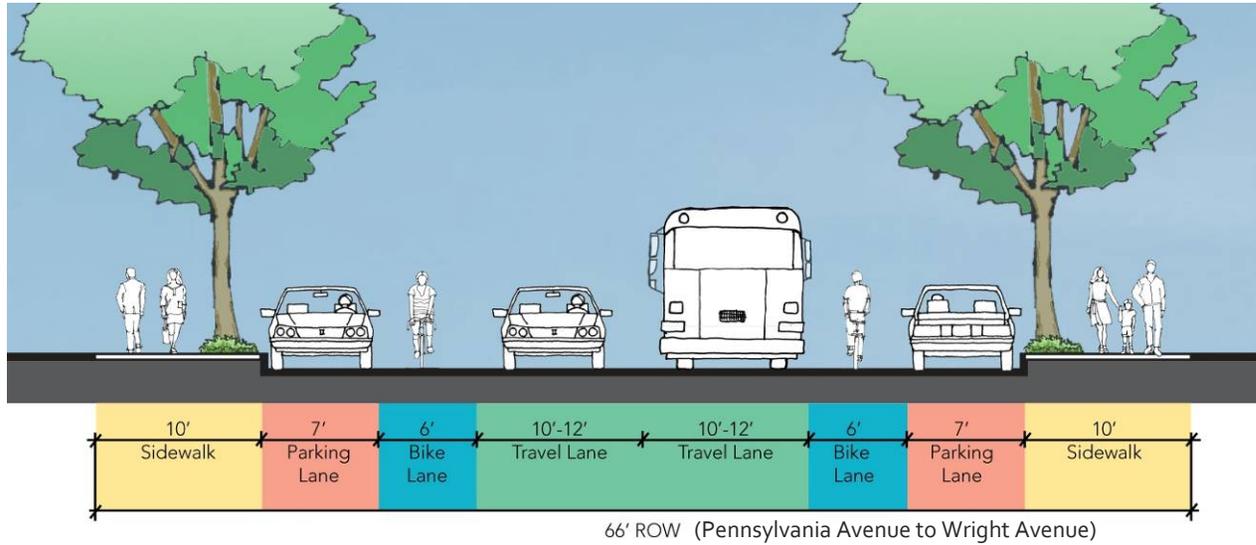
Figure 6-1 | Harbour Way alternative configurations



**Existing Roadway**

Graphic source: Richmond Pedestrian Plan

Harbour Way – Proposed Bike Lanes with Parallel Parking, 66' ROW



Harbour Way – Proposed Bike Lanes with Parallel Parking and Raised Median, 80' ROW

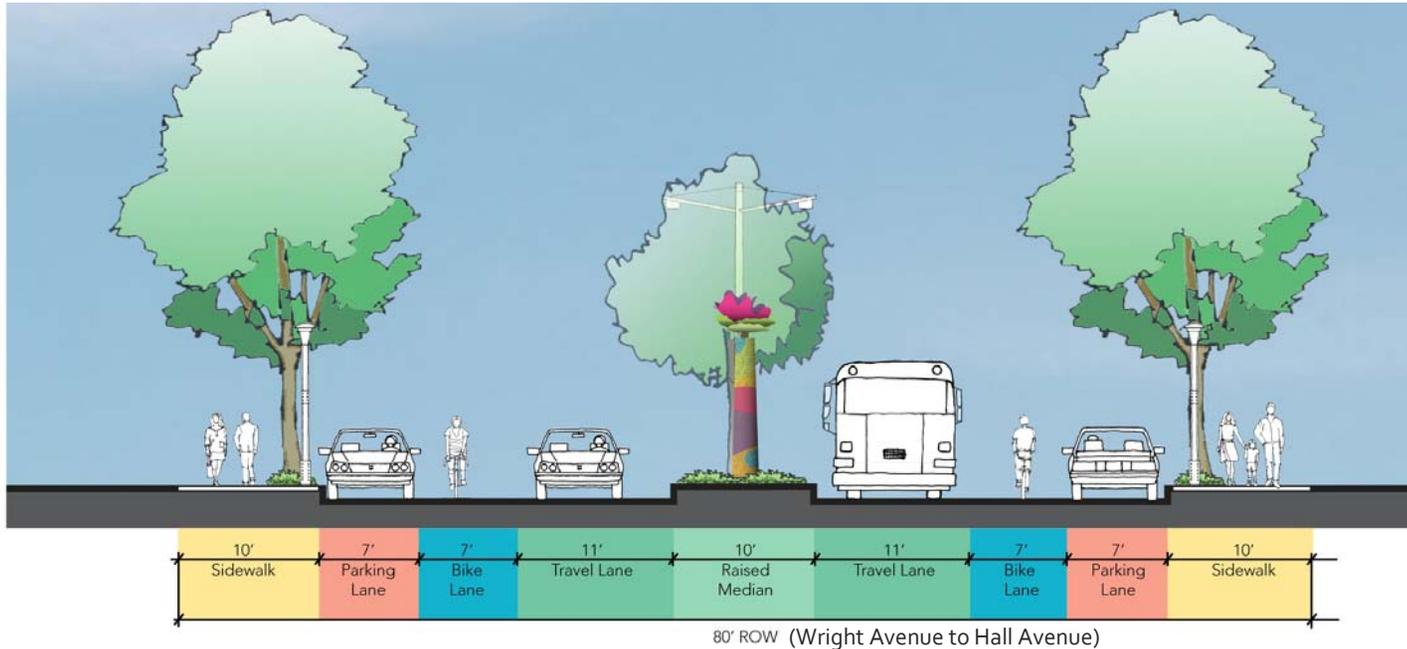
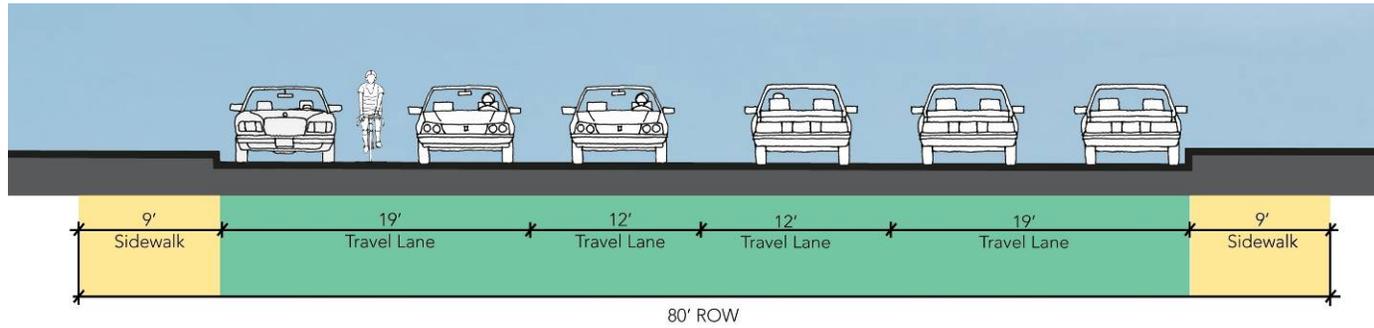
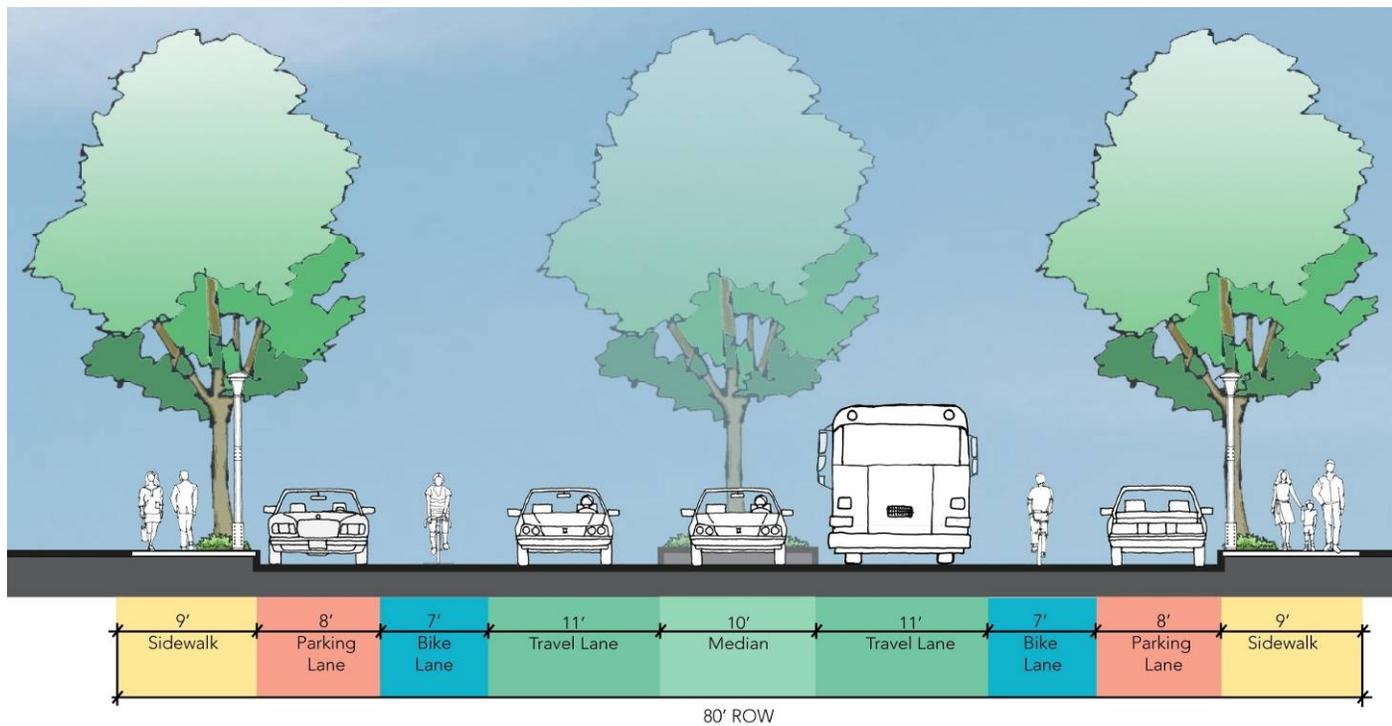


Figure 6-2 | South 23<sup>rd</sup> Street

South 23<sup>rd</sup> Street – Existing Roadway



South 23<sup>rd</sup> Street – Proposed Bike Lanes with Parallel Parking and Raised Median



Graphic source: Richmond Pedestrian Plan

## Focus Area 2 – Road Diets

Many of Richmond’s collector streets are excellent candidates for a road diet. A road diet refers to street improvements in which the number of vehicle travel lanes is reduced by adding bicycle and parking lanes, widening sidewalks, and converting parallel parking to angled or perpendicular parking. In addition to creating more space for bicyclists and pedestrians, road diets are also a good traffic calming and traffic safety tool. Roadways with surplus roadway capacity (typically multi-lane roadways with less than 15,000 to 17,000 vehicles per day) and high bicycle volumes, and roadways that would benefit from traffic calming measures are most appropriate for this type of treatment.

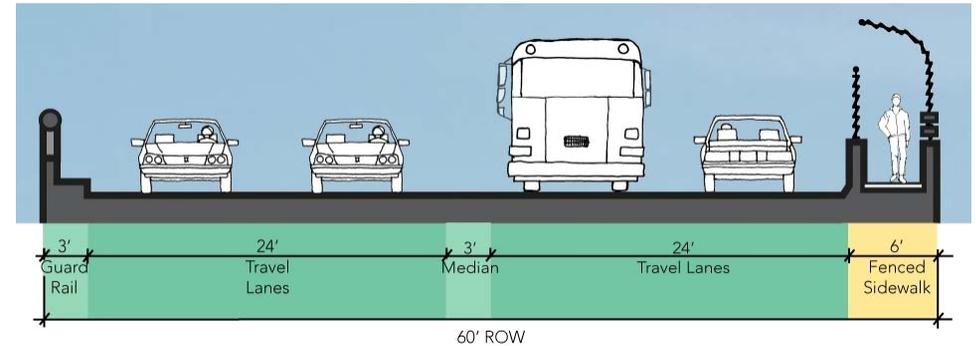
Any candidate road diet project along a current or future planned AC Transit routes should be planned in close coordination with AC Transit to ensure that bus operations are not negatively impacted by changes to the roadway. Candidate streets for road diets include but are not limited to:

- Barrett Avenue
- Cutting Boulevard
- Carlson Boulevard
- Harbour Way
- Marina Bay Pkwy/23rd St
- 37th Street
- Pennsylvania Avenue

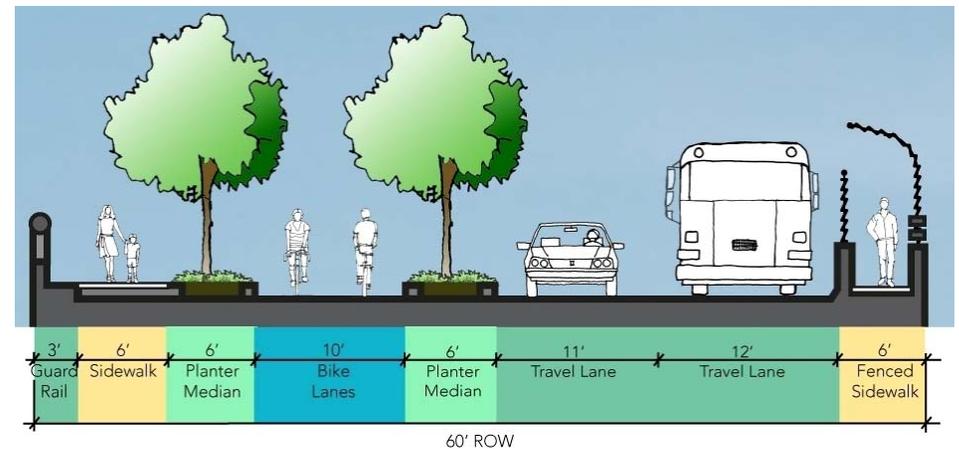
For example, proposed road diet improvements to the Pennsylvania Avenue overpass include sidewalk improvements and a physically separated two-way bike lane. These facilities will improve bicycle and pedestrian access to the Iron Triangle and North Richmond neighborhoods.

Figure 6-3 | Pennsylvania Avenue alternative configurations

### Pennsylvania Avenue Overpass – Existing



### Pennsylvania Avenue Overpass – Proposed



### Pennsylvania Ave/ Harbour Way/13th Street Overpass Improvements



Graphic source: Richmond Pedestrian Plan

### Focus Area 3 – Neighborhood Routes



To complement key corridors, a complete system of neighborhood routes are proposed along residential streets which have lighter and slower moving traffic, and provide access to local destinations such as

schools and parks. Class III bike routes are most appropriate for these streets, which are relatively narrow and require less separation from auto vehicles. Specifically, bicycle boulevards are the recommended facility for many of these routes, which will facilitate and prioritize bicycle travel through various traffic calming treatments and appropriate traffic controls. These neighborhood routes will be appropriate for bicyclists of all ages and abilities, and ideally, encourage new users to the bicycle network. Neighborhood routes include, but are not limited to:

- Maricopa/ Costa Avenue
- Garvin Avenue
- Roosevelt Avenue
- Nevin Avenue
- Wall/ Central/ Maine Avenue
- 6<sup>th</sup>/ 7<sup>th</sup> Street
- Marina Way
- 18<sup>th</sup>/ 19<sup>th</sup> Street
- 24<sup>th</sup> Street
- 29<sup>th</sup>/ 30<sup>th</sup>/ 33<sup>rd</sup> Street
- Wilson Avenue

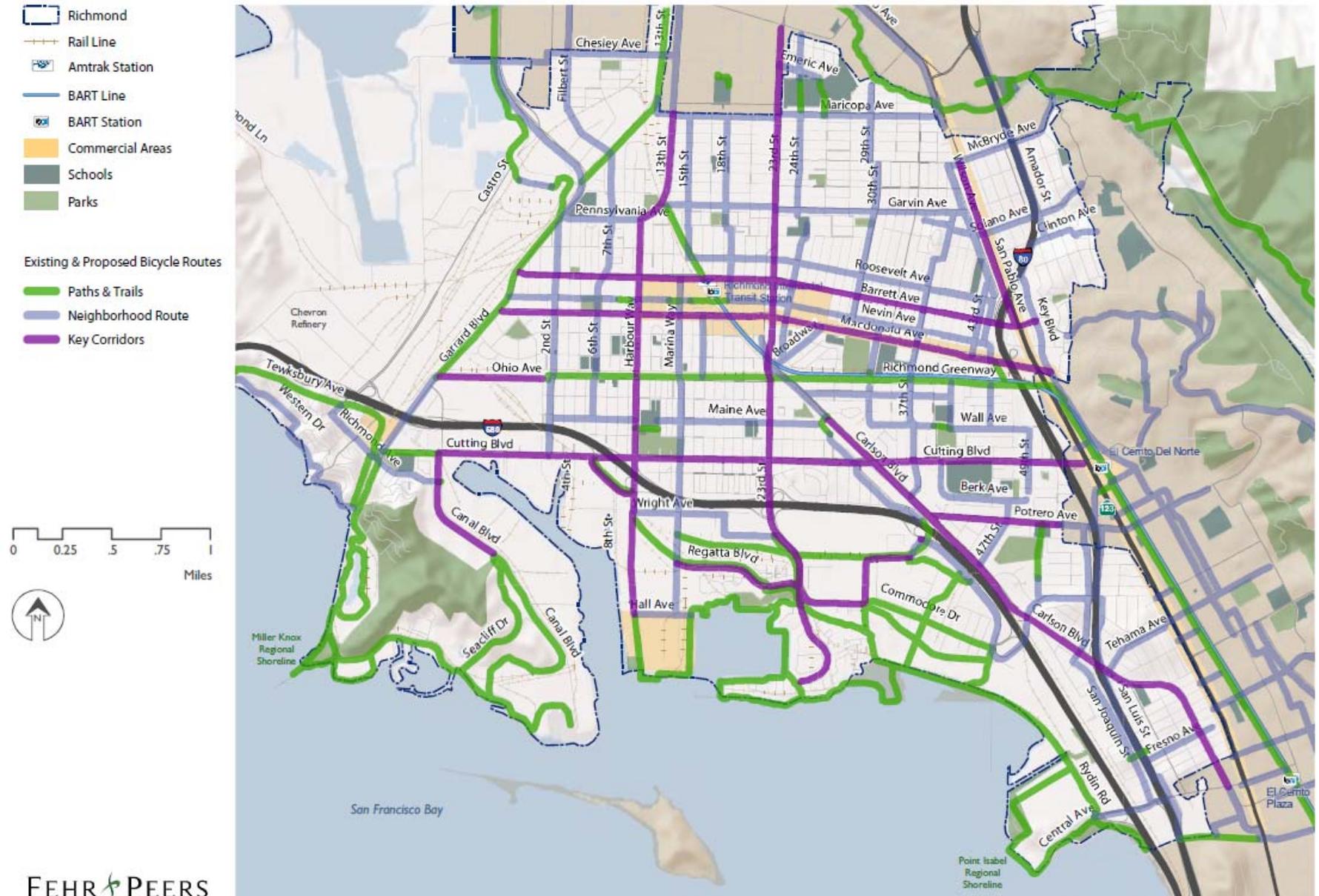
#### Bicycle Facilities for Neighborhood Routes

The following bicycle-friendly treatments may be considered along neighborhood routes. These treatments are described in detail in the Design Guidelines.

- Traffic calming to reduce vehicle speeds such that they mix well with bicyclists and limit non-local traffic
- Changes to stop controlled Intersections to reduce stops on the bikeway (note that some intersections entirely lack any kind of traffic control. Any such intersections along the bikeway network should be prioritized for improvements.)
- Traffic circles and mini roundabouts
- Curb extensions
- Traffic control at busy intersections
- High-visibility crosswalks
- Landscaping
- Signage & Wayfinding

As shown in the complete table of proposed projects in Appendix A, these routes are connected through a series of secondary on- and off-street segments.

Map 6-4 | Key corridors and neighborhood routes



#### Focus Area 4: Connecting the west and east spans of the Richmond Greenway

The intersections of Carlson Boulevard/Broadway, the railroad tracks, and 23rd Street/Ohio Avenue comprise one of the most significant barriers on the City's bicycle network. Located in Central Richmond, just south of the Richmond BART Station and Civic Center area, this site is defined by a series of railroad and BART tracks that restrict bicycle and pedestrian access to key destinations, including the Richmond Greenway, Bay Trail, BART Station and Downtown.

The area's current configuration provides poor bicycle and pedestrian access. Both 23rd Street and Carlson Boulevard have fast-moving vehicle traffic and poor sightlines. At the Carlson Boulevard/Broadway intersection, overhead BART tracks are supported by columns that reduce visibility around the intersection, and at-grade railroad tracks are a significant barrier to east-west connections. Additionally, 23rd Street runs below grade in this location, further limiting east-west access.

As the roadway and railroad track configuration is confusing, bicyclists and pedestrians would benefit from signage and wayfinding directing users to surrounding destinations.

The western portion of the Richmond Greenway ends at Ohio Avenue and 23rd Street, where there is little accommodation for bicyclists or pedestrians. To connect to the eastern portion of the Richmond Greenway, users are supposed to travel under the railroad tracks on 23rd Street, and then loop back to the Greenway on Carlson Boulevard. This route is neither direct nor intuitive, and as a result path users have often used an unmarked trail across private property and cross the railroad tracks to Carlson Boulevard. Once at Carlson Boulevard, there is no marked crosswalk or signal in this location for bicycl-

ists and pedestrians to cross safely. Current efforts to fence the railroad tracks may deter people from using the at-grade crossing route, however the suggested route is not viable and vandalism will likely continue to be an issue along the at-grade route.

The eastern portion of the Richmond Greenway ends at Carlson Boulevard, where there is no comfortable access to and from the north. The Greenway entrance lacks a curb cut, so northbound bicyclists ride on the sidewalk, and southbound bicyclists entering the Greenway must cut across several lanes of fast moving traffic. There is also an opportunity to provide a Class I connection along the east side of Carlson Boulevard adjacent to sidewalk, which may require right-of-way acquisition.

#### In the short-term, the following improvements may be considered:

- ❑ Improve crossings at the Carlson Boulevard/ Broadway/ 22<sup>nd</sup> Street intersection to create a seamless connection between the Greenway and on-street facilities. Provide a pedestrian/bicycle actuated signal phase to allow Greenway users to cross diagonally across the intersection.
- ❑ Construct a Class I spur path along the east side of Carlson Boulevard from the Richmond Greenway to Broadway. Right-of-way acquisition may be necessary.
- ❑ Install Class II physically separated bike lanes on Carlson Boulevard.
- ❑ Potential lane narrowing or lane reduction on Carlson Boulevard and S. 23<sup>rd</sup> Street.
- ❑ Install a two-way cycle track adjacent to southbound S. 23<sup>rd</sup> Street below the railroad tracks. Provide switchback connections to the Greenway at Ohio Avenue on the south end and 22<sup>nd</sup> Street on the north end.

- ❑ Install a bike lane along the section of 22<sup>nd</sup> Street that bridges 23<sup>rd</sup> Street, from the two-way cycle track on S. 23<sup>rd</sup> Street to the Broadway/ Carlson Boulevard intersection.
- ❑ Install a bike box on 23rd Street at Bissell Avenue to transition bicyclists east. Consider a switchback path that would connect to a two-way cycle track on the 23rd Street frontage road to provide a direct connection between 23rd Street northbound bike lane and the eastern span of the Richmond Greenway.
- ❑ Install wayfinding and signage
- ❑ Improve the Ohio Avenue crossing for bicyclists and pedestrians

**In the medium-term, the following improvements may be considered:**

- ❑ At-grade bicycle and pedestrian railroad crossing, and associated crosswalk improvements across Carlson Boulevard and 23rd Street to connect the east and west portions of the Richmond Greenway. Right-of-way acquisition may be necessary to provide a pathway connection from 23rd Street to the railroad tracks. Permission from the Public Utilities Commission to construct a new at-grade railroad crossing at this location may be difficult. This improvement should be considered in combination with safety enhancements of other nearby railroad crossings at Carlson Boulevard/Maine Avenue and Carlson/Cutting Boulevard.
- ❑ Install a staggered crosswalk with median refuge across Carlson Boulevard to connect to the railroad crossing

**In the long-term, the following improvements may be considered:**

Grade-separated bicycle and pedestrian crossing over 23rd Street to connect the east and west portions of the Richmond Greenway.

**Figure 6-4 | Richmond Greenway gap closure  
Proposed short, medium-and long-term improvements**



**Richmond Greenway gap closure – proposed short-term improvements**

Richmond Greenway gap closure – proposed mid to long-term improvements



Graphic Source: Richmond Pedestrian Plan

## Focus Area 5: Improving safety and access along freeways and through interchanges

### Barrett Avenue/ Wilson Avenue/ San Pablo Avenue/I-80 interchange

This area serves as a major interchange for vehicle traffic traveling between San Pablo Avenue (SR 123) and I-80, as well as traveling to Downtown Richmond along Barrett Avenue. This is an area of high volumes of high-speed vehicle traffic, which presents significant challenges to creating an area that is safe and comfortable for bicyclists. Nevertheless, many bicyclists already ride on these streets, demonstrating the demand for improved facilities. In addition, bikeway facilities are proposed for a majority of streets surrounding the interchange, including Wilson, Barrett, Roosevelt and San Pablo Avenue. Engineering and design improvements surrounding the interchange will be critical to completing the bicycle network in this area of the city. Plans to install bicycle lanes along Barrett Avenue as part of a near-term road diet project will greatly improve bicycling conditions along this corridor.

#### In the short-term, the following improvements may be considered:

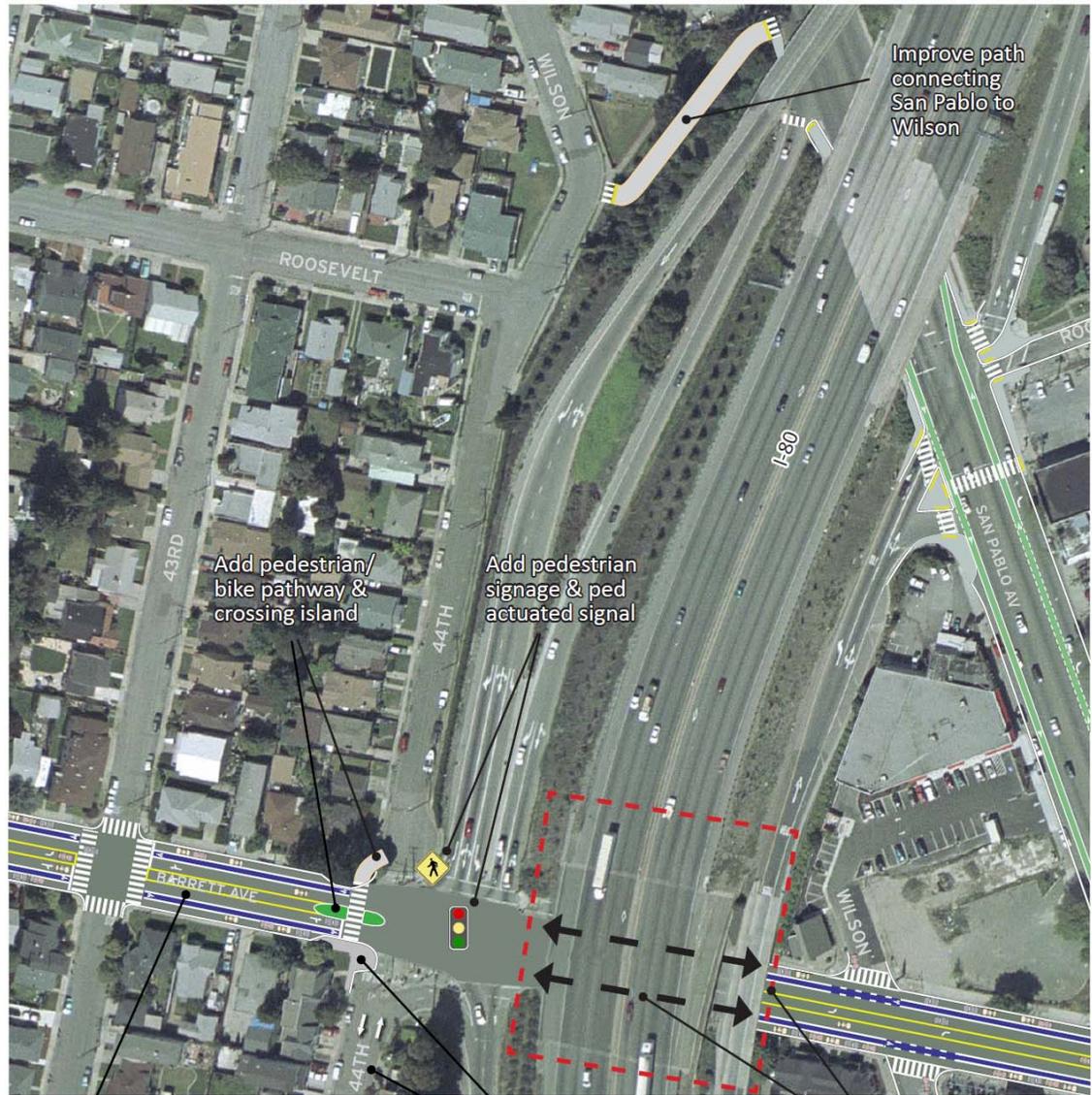
- ❑ Improve the pathway between Wilson Avenue and San Pablo Avenue at Roosevelt Avenue:
  - Realign the path to improve visibility and sightlines
  - Remove debris and improve landscaping
  - Widen the path to 10'-12'. Install ADA-accessible curb ramps
  - Add signage

#### In the medium- to long-term, the following improvements may be considered:

- ❑ Improve bicycle and pedestrian access at the Barrett Avenue/44th Street intersection

- Provide bicycle and pedestrian access between the north side of Barrett Avenue and 44th Street
- Stripe a crosswalk across Barrett Avenue on the west side of 44<sup>th</sup> Street
- Move the eastbound vehicle queue back to stop at the new crosswalk
- Provide a pedestrian/bicycle activated signal with a dedicated phase
- Make 44th Street south of Barrett Avenue two-way, with access from Barrett Avenue open to bicycles and pedestrian only. This recommendation should be considered in close coordination with local residents.
- Improve sightlines and install advanced pedestrian crossing signage at the southbound I-80 off-ramp
- ❑ Improvements at the I-80/San Pablo Avenue/Roosevelt Avenue intersection
  - Install bike lanes on both sides of San Pablo Avenue in coordination with Caltrans. Special care should be taken to design these bike lanes to safely facilitate vehicles merging across bike lanes as they enter and exit I-80 from San Pablo Avenue.
  - Consider removing the through lane from northbound I-80 off-ramp to northbound on-ramp and installing a median to protect cyclists heading north on San Pablo Avenue. Preclude the straight-across movement to the on-ramp for all except possibly emergency vehicles (aided by lights and sirens to make this occasional movement safely).
  - Consider squaring up on-ramp configuration to slow traffic and lower the exposure of the bicyclists and pedestrians crossing there.
  - On the approach to the northbound I-80 on-ramp from San Pablo Avenue, consider eliminating the double right turn, and create room for a through bike lane, to the left of the right-turn lane.

Figure 6-5 | Barrett Avenue/ Wilson Avenue/ San Pablo Avenue/I-80 interchange; proposed short- and long-term improvements



Graphic Source: Richmond Pedestrian Plan

Reduce Barrett to 2 travel lanes, with center median/turn lane and bike lanes

Extend curb, close left lane, and make 44th St 2-way

Improve underpass conditions - widen sidewalks, add illumination, beautify walls and facings

## Focus Area 6: Improving access to the Bay Trail and waterfront

### Marina Bay Parkway/I-580 interchange

Bicycle access between downtown Richmond and the waterfront is severely impeded by I-580, which connects the Richmond-San Rafael Bridge to I-80. While the freeway itself is a linear barrier and cuts off many residential streets to the north, the I-580 freeway interchanges also present challenges to bicycle safety and comfort that may deter people from bicycling to and from destinations along the waterfront, including the Bay Trail. Marina Bay Parkway, itself a wide collector street with fast moving vehicle and truck traffic, currently lacks any bicycle facilities. However, with improved accommodation for both bicyclists and pedestrians, this interchange could provide access to important amenities and destinations to the south, including the new Officer Moody Class I path, the existing Bay Trail system, and several commercial and residential areas. Heading north on 23rd Street, access to the Richmond Greenway, downtown Richmond, Civic Center area and the Richmond Intermodal Transit Station should also be improved.

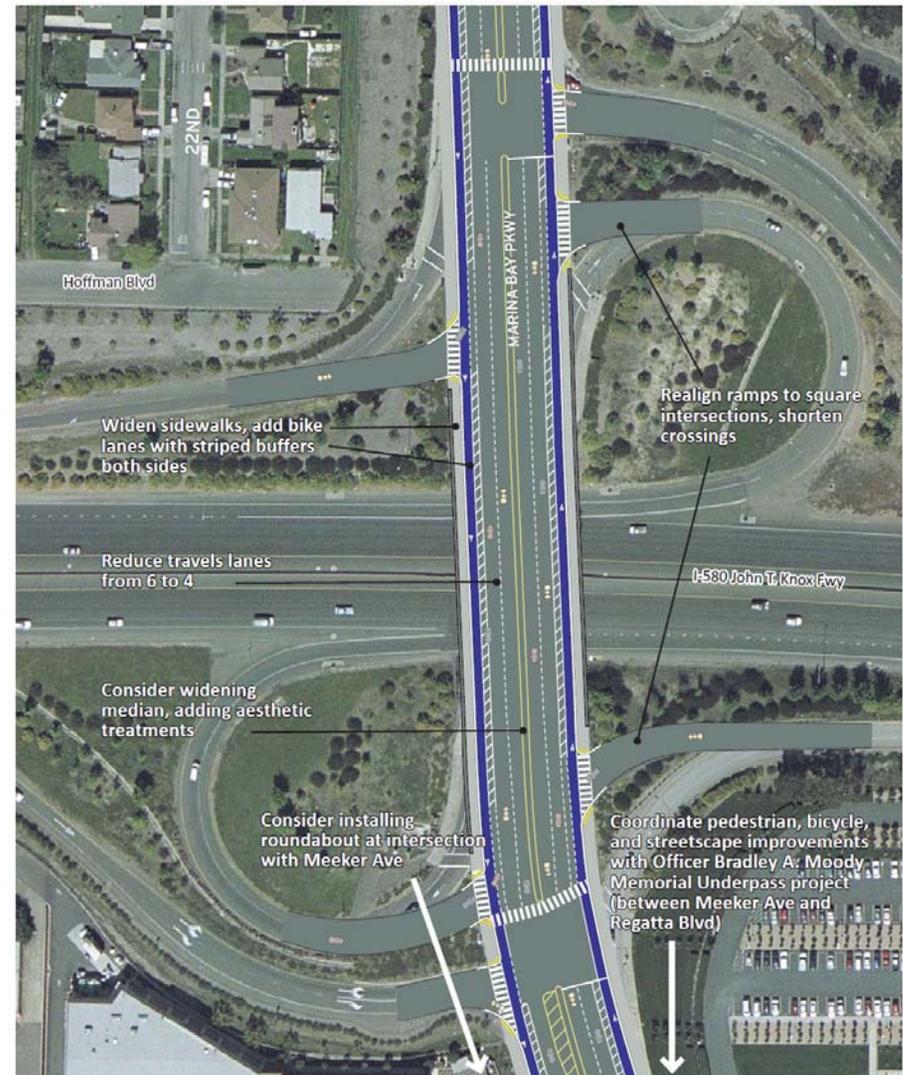
### In the short-term, the following improvements may be considered:

- ❑ Stripe and sign bike lanes along Marina Bay Parkway. Connect bike lanes to the Officer Moody Class I path at Meeker Avenue/Marina Bay Parkway intersection.
- ❑ Consider narrowing or removing travel lanes on South 23rd Street to provide a bicycle and pedestrian connection to downtown Richmond.
- ❑ Stripe crosswalks at freeway ramps for pedestrian and bicycle travel across ramps. Locate crosswalks for optimal sightlines and convenience to pedestrians and bicyclists

In the medium- to long-term, the following improvement may be considered:

- ❑ Square the freeway off-ramps to slow speeds and improve sightlines between drivers and bicyclists/pedestrians

Figure 6-6 | Marina Bay Parkway/I-580 interchange  
Proposed short- and long-term improvements



Graphic Source: Richmond Pedestrian Plan

### Focus Area 7 – Bay Trail Improvements at the Plunge

There are several opportunities to improve connections to the existing and proposed Bay Trail in Point Richmond, particularly around the Plunge and tunnel entrances in Point Richmond.

As a short-term improvement, a curb ramp should be installed close to the tunnel entrance so that bicyclists can access the newly widened multi-use path within the tunnel.

In addition, the recent sidewalk widening adjacent to the Plunge could be further retrofitted to accommodate a Class I pathway. The existing roadway is 44 feet, and the sidewalk is seven feet wide with an additional three feet to the building front where exit stairs are located. By reallocating six feet of right-of-way from the adjacent roadway to the sidewalk area, sufficient room can be provided to meet the minimum requirement for a Class I path and maintain enough width for travel lanes and on-street parking. As shown in the following renderings, the proposed pathway could have a landscaped buffer and signage to warn users of the exit stairs where it impedes the path of travel.

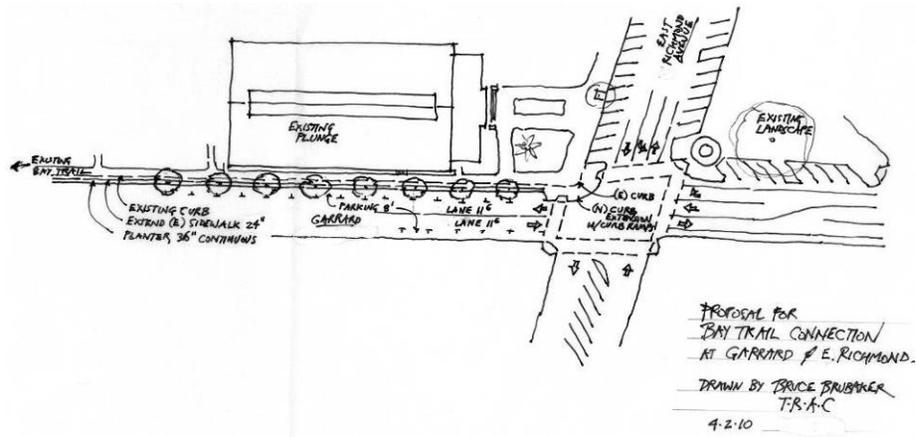
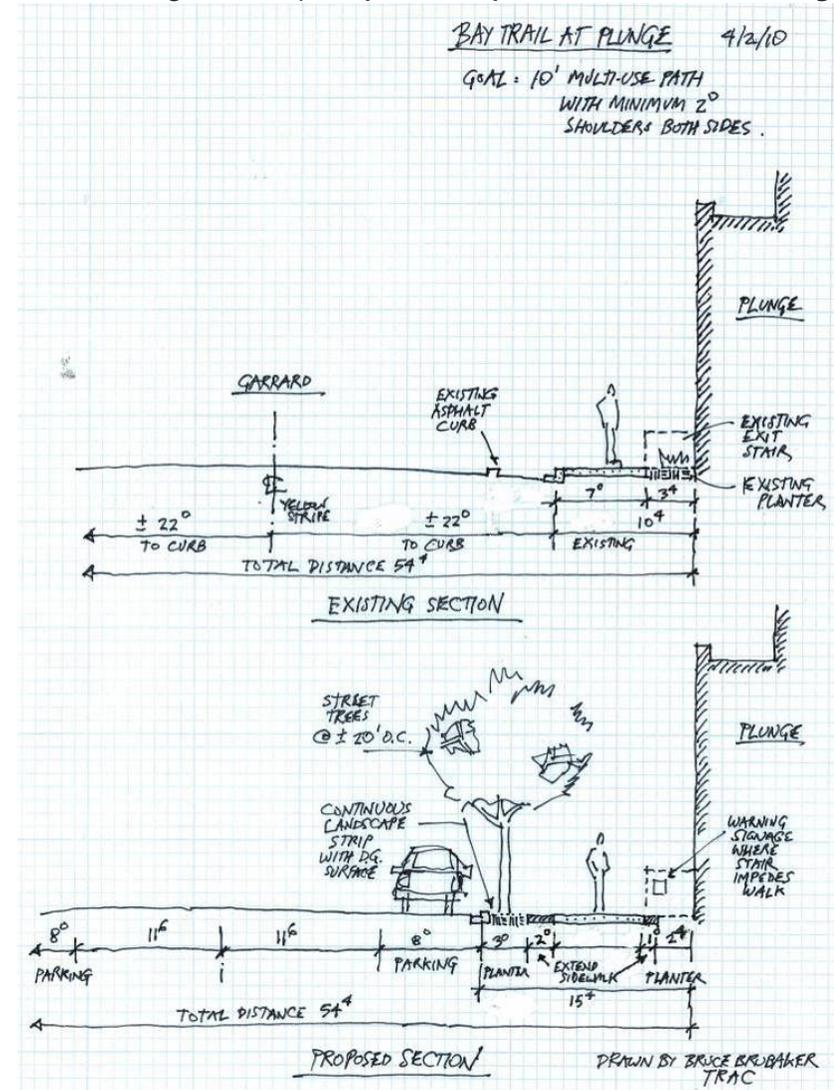


Figure 6-7 | Bay Trail improvements at the Plunge



Graphic Source: Bruce Brubaker, TRAC

## Ongoing Improvements

The proposed bicycle network improvements for Richmond also include several projects that may be implemented immediately, or prioritized as part of ongoing City efforts. These include:

- **Repaving** – Streets designated as bikeways should be prioritized for repaving. Specifically, sections of Cutting Boulevard, Carlson Boulevard, Harbour Way and 7th Street have poor pavement conditions such as cracked asphalt and uneven lip between the roadway and gutter. The City Engineering Services Department maintains a Pavement Rehabilitation List of Streets.
- **Bicycle Detection at Signalized Intersections** – Signalized intersections along bikeways should have functioning loop detection for bicyclists. The City should develop a citywide program for installing and maintaining bicycle loop detectors, as described in the Design Guidelines. The following intersections have been identified as areas that currently have vehicle loop detection that do not detect bicyclists:
  - Ohio Avenue/23rd Street
  - Macdonald Avenue/16th Street BART entrance
  - Ohio Avenue/ Garrard Avenue (in addition, the signal timing at this intersection does not provide even green time for a bicyclist to cross before the light turns.)
  - Cutting Boulevard/ Canal Boulevard
  - Regatta Boulevard/ Marina Bay Parkway
  - Harbour Way South/ Hoffman Boulevard
  - Marina Bay Parkway/ Department of Public Health complex exit
  - Intersections along Barrett Avenue
- **Street Sweeping** – Roadway debris such as glass, dirt and rocks are frequently blown into bikeways and can be a major deterrent to bicycling. Underpasses such as 23rd Street under Carlson Boulevard, Macdonald Avenue and Barrett Avenue under the

Bart/Amtrak tracks, and 37th Street by the Courthouse are particularly problematic areas. The City should develop a bicycle network maintenance plan that includes regular sweeping so that all bikeways continue to operate optimally.

- **Richmond Greenway Maintenance and Operations** – The Richmond Greenway is the backbone of the City's existing bikeway network, and has the potential to help transform surrounding neighborhoods for the better. However, issues related to vandalism and theft must be resolved in order for it to achieve its full potential. The City, in collaboration with Rails to Trails, should seek grant funding for a focused study on construction practices and materials, and maintenance and operations to help the City deter crime and vandalism.
- **Bicycle Parking** – Providing secure short- and long-term parking at key destinations is an integral part of the City's bikeway system. The following chapter outlines a series of recommendations for installing bike parking in Richmond.

## Regional Coordination

Many of Richmond's proposed bikeways provide access to neighboring jurisdictions where facilities are already existing or proposed. The City should work with these jurisdictions to ensure a continuous and connected bicycle network throughout West County. In particular, the San Pablo Dam Road/I-80 interchange in the City of San Pablo, and the Central Avenue/I-580/I-80 interchanges at the Richmond/Albany border are significant barriers to bicycle travel to and from Richmond.