

## Site Applications

The previous chapter identified tools and strategies that can be used citywide. This chapter looks at applications of these tools and strategies in Central Richmond. It begins with an overview of the nexus between the Pedestrian Plan and the Bicycle Master Plan. The pages that follow show proposed improvements at sample locations based on the community input process from the pedestrian plan workshops (and bicycle plan community workshop) conducted in May, and consultant field observations and analysis. Many of these site-specific examples may serve as models for other locations in the city.

### Walking and Bicycling in Richmond

As noted previously, planning and design for pedestrian and bicycle safety and mobility go hand in hand. Both are mutually reinforcing.

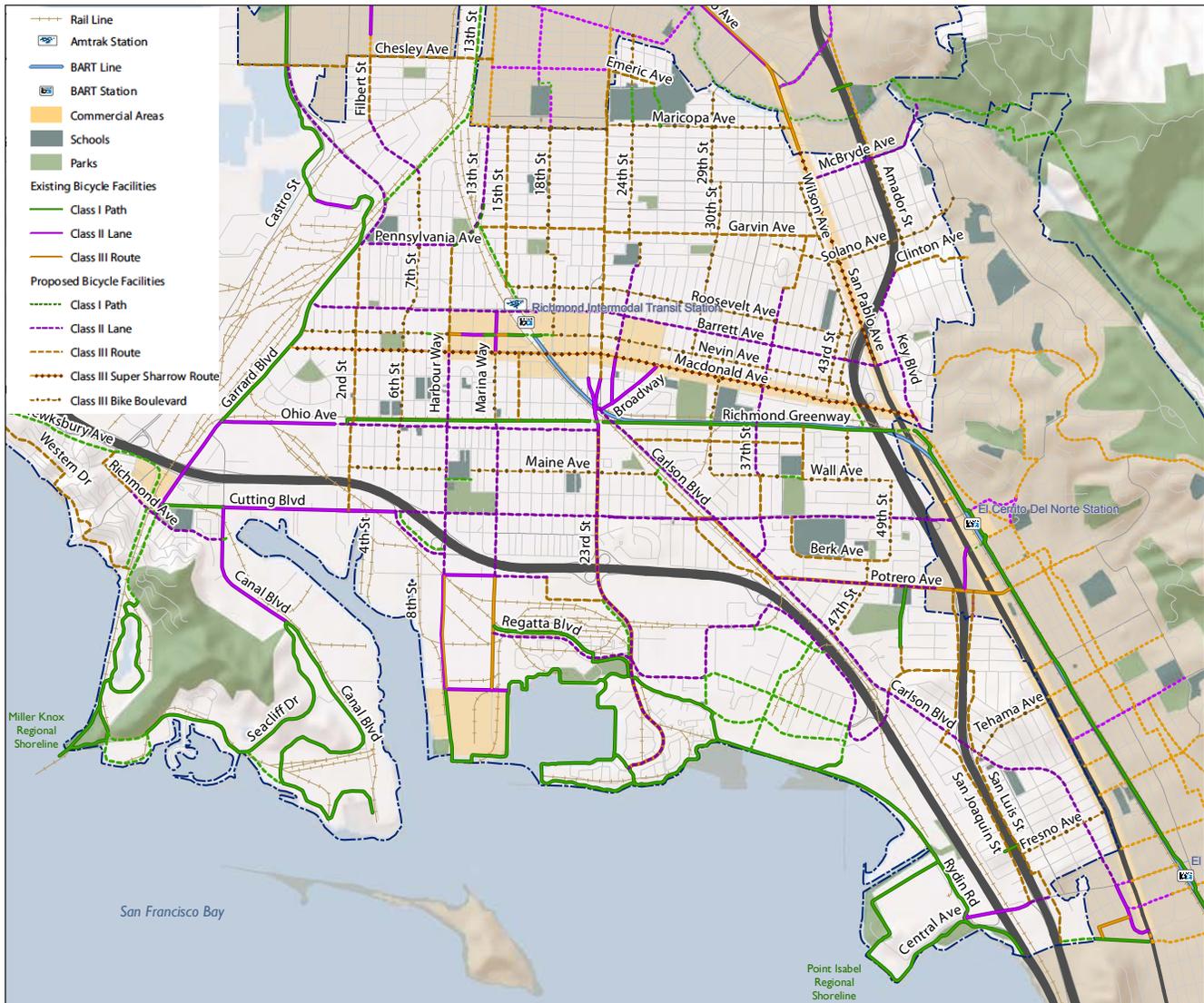
- Separated paths benefit both pedestrians and bicyclists with transportation and recreation alternatives generally free of interaction with motorized traffic.
- On-street bike lanes produce greater pedestrian separation from traffic, especially in the absence of on-street parking or a planter strip, increasing pedestrian comfort and safety.
- Bike lanes support the opportunity to use tighter corner radii, which reduces intersection crossing distance and tends to slow turning vehicles, a benefit to both pedestrians and bicyclists.
- On-street bicycle facilities also support greater effective turning radius at corners and driveways, allowing large vehicles to turn into side streets without off-tracking onto the curb.
- For emergency vehicles, on-street bicycle facilities can add bonus space to maneuver around stopped traffic, decreasing response time.
- Enhanced crossing treatments at intersections, mid-block, freeway on- and off-ramps, and railroad tracks benefit people traveling by foot or bicycle.
- Traffic calming and streetscape improvements benefit all non-motorized users by increasing safety for everyone, including motorists (though some delay and congestion may be a required trade-off in certain settings).

The map on the following page shows the existing and proposed bikeway network for Central Richmond in the Bicycle Master Plan. Criteria used to develop the network that directly benefit pedestrians include:

- “The system should provide equitable access from all areas of the city to both commute and recreation routes, with design for all bicycle ability levels.”
- “On-street facilities should be continuous and direct, and off-street facilities should have a minimal number of arterial crossings and uncontrolled intersections.”
- “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.”
- “Schools and community facilities . . . should be accessible by bike [and foot].”
- “Richmond’s waterfront, parks and open spaces should be accessible so that residents are able to bike [or walk] from home to both local and regional recreation.”

## Site Applications: Walking and Bicycling

### Existing and Proposed Bicycle Facilities: Central Richmond



Improvements to the bicycle network shown above are also seen as opportunities to improve walking conditions. Class I Paths provide trails for pedestrians separated from roadways, while other facilities encourage slower speeds and buffer sidewalks from traffic. Graphic Source: Bicycle Master Plan and Fehr and Peers.

A series of site-specific concepts to make Richmond more walkable were prepared during and following the community-based study process. They include short- to long-term improvements, and should be considered as a resource for best practices in pedestrian and bikeway design for other areas in the city. In addition, these plans can be used to pursue project-specific grant funding. Concepts and recommendations are organized into the following categories:

1. Key Corridors.
2. Local Streets.
3. Trail Connectivity.
4. Freeway and Interchange Safety and Connectivity.

## Key Corridors

The draft Richmond General Plan and draft Bicycle Master Plan both identify key corridors in Central Richmond that are integral to pedestrian and bicycle mobility. The General Plan Land Use and Circulation Element defines key corridors as mixed-use “change areas,” that is, areas that present strong opportunities for future revitalization and infill development. General Plan Key Corridors include:

- San Pablo Avenue
- 23rd Street
- Cutting Boulevard
- Harbour Way
- Marina Way
- Carlson Boulevard
- Ohio Avenue

The General Plan envisions transformation of these corridors into places “characterized by high-quality pedestrian amenities, higher-density and mixed-use development, high levels of transit service, bicycle amenities and public gathering spaces.”

In addition to identifying key corridors in Central Richmond as ready for change, the General Plan also underscores the centrality of Macdonald Avenue as a pedestrian-oriented street and location of some of the City’s most vital assets, including the Civic Center, BART/Amtrak Station, historic downtown buildings and many public and cultural facilities.

The Richmond Bicycle Master Plan refers to Key Bicycle Corridors, noting that many residential and regional collector streets provide the most direct and continuous connections between destinations, but also have heavier and fast-moving vehicle traffic. Bike lanes are recommended wherever possible for the majority of these streets, and other design and traffic calming treatments should be considered to enhance the comfort and safety along specific routes for bicyclists. Examples of key bicycle corridors located in Central Richmond include:

- Barrett Avenue
- San Pablo Avenue\*
- 23rd Street\*/Marina Bay Parkway
- Cutting Boulevard\*
- Harbour Way\*
- Carlson Boulevard\*
- 37th Street

*\*Also designated a change area in the General Plan*

### Improvement Options for Key Corridors

All of the corridors noted above share some common attributes that present both challenges and opportunities for pedestrian improvements, such as:

- Direct links between neighborhoods and community destinations
- Wide roadways
- Fast-moving traffic
- Underutilized right-of-way and adjacent property

Many of these streets are excellent candidates for narrower lane widths, reduced number of lanes, or a combination of both to create enhanced space for pedestrians and bicyclists. Reducing the size of the roadway slows vehicles and reduces pedestrian and bicycle crossing distances. Lane reductions can decrease the number of vehicle conflicts, and conflicts between vehicles and pedestrians. Roadway width reduction generates space that can be converted to other uses, such as a center median that can be used for left turning movements, bicycle and parking lanes, wider sidewalks, landscaping, or conversion of parallel parking to angled or perpendicular parking for additional spaces. Roadways with surplus capacity (typically multi-lane roadways with less than 20,000 vehicles per day) and high pedestrian and bicycle use, and roadways in need of traffic calming measures are most appropriate for lane reductions.

The City has already taken steps to re-size and rebalance several of these roadways in Central Richmond to improve pedestrian conditions. As described below and in the map on the following page, recent and current projects that are in various stages of planning and design include:

#### Macdonald Avenue Pedestrian-Oriented Streetscape Improvements

- Sidewalk & Intersection Improvements
- Lighting & Landscaping
- Public Art
- Lane Reduction
- Angled Parking

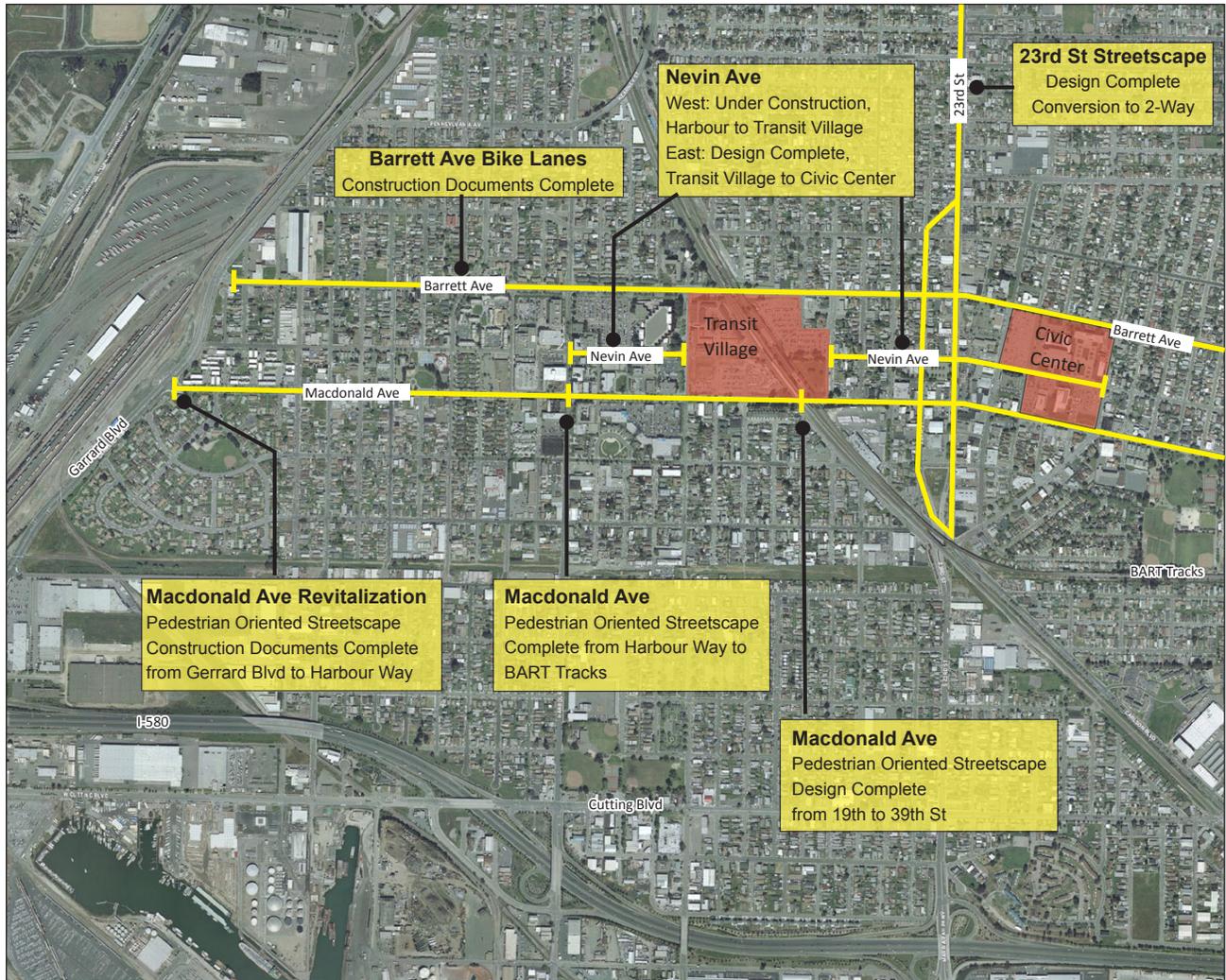
#### Nevin Avenue Streetscape Improvements

- Sidewalk & Intersection Improvements
- Traffic Calming
- Lighting & Landscaping
- Class III Bike Facility

#### 23rd Street Streetscape Improvements

- Two-way Conversion & Lane Reduction
- Sidewalk & Intersection Improvements
- Lighting & Landscaping
- Coordination with 22nd Street Improvements

Recent and Planned Central Richmond Pedestrian and Bicycle Improvements



The map above highlights the progress of recent and planned major improvement projects in Central Richmond, that include transformation of Macdonald Avenue and 23rd Street into highly walkable, active retailing streets, transformation of Nevin Avenue into a shared pedestrian and bicycle corridor linking federal offices, Kaiser facilities, the Transit Village and Civic Center, and conversion of Barrett Avenue to a prominent east-west on-street bicycle route.

Barrett Avenue Bike Lanes and Road Diet

- Lane Reduction
- Bike Lanes

The pages that follow provide illustrative examples of proposed improvement options for other Key Corridors, including Harbour Way, Marina Way, South 23rd Street, Carlson Boulevard, Cutting Boulevard, 37th Street and San Pablo Avenue.



## Harbour Way

The Harbour Way Corridor extends from Interstate 580 to Downtown and provides a connection between Downtown and the Ford Peninsula area. The corridor carries four lanes of fast-moving traffic that presents a barrier to connectivity between the neighborhoods on either side.

Traffic counts taken in 2007 indicate Harbour Way carries an average of 15,000 vehicles per day from Macdonald Avenue to Cutting Boulevard. The four-lane roadway has a carrying capacity of 38,200 vehicles per day. This excess capacity makes the roadway a strong candidate for a road diet to moderate speed and noise, reduce conflict, and facilitate safer crossings. Reducing the number of lanes will provide space for bicycle lanes and more space for parking.

### Summary of Issues

- 4 lanes, excess capacity.
- Difficult crossings for pedestrians and bicyclists.
- Identified as key corridor and change area in the General Plan.
- Harbor Way Streetscape Improvements identified as a High priority Capital Improvement Project in the General Plan.
- Connects Historic Iron Triangle, Coronado and Santa Fe Neighborhoods.
- Connects Downtown and Ford Peninsula.
- Important AC Transit route.

### Proposed Improvements

#### Short Term:

- Re-stripe Harbour Way to 3 lanes, and add bike lanes between Bissell and Macdonald Avenues.
- Re-stripe Harbour Way to 2 lanes, and add bike lanes between Bissell and Ohio Avenues.
- Add pedestrian-scale lighting.

#### Medium Term:

- Build raised median with downtown gateway treatment between Bissell and Macdonald.
- Install mid-block crosswalk and crossing island between Bissell and Chanslor.
- Install curb extensions at Bissell Avenue.
- Reduce lane widths and paint sharrow for Class III bike facility south of Ohio Avenue.
- Develop options for road diet south of Ohio Avenue (coordinate access to residential driveways).
- South of Ohio, plant medium to large trees in planting strips.
- Add pedestrian-scale lighting from Bissell to Cutting.

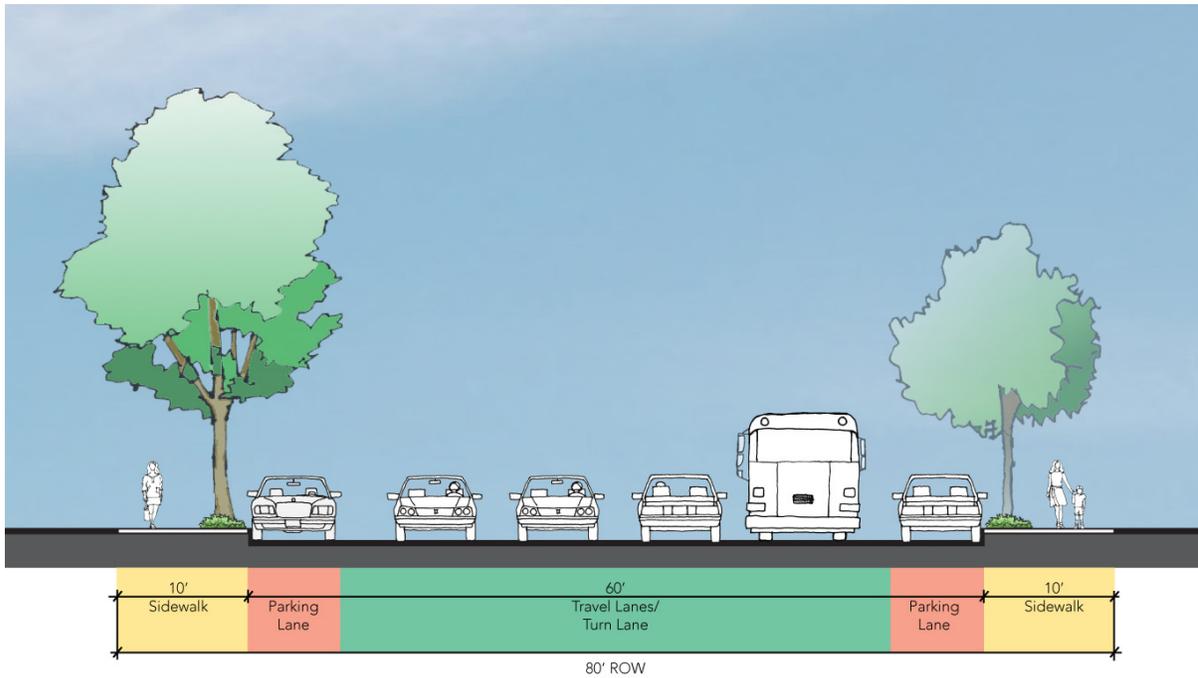
#### Long Term:

- Implement road diet from Ohio Avenue to Hoffman Boulevard.

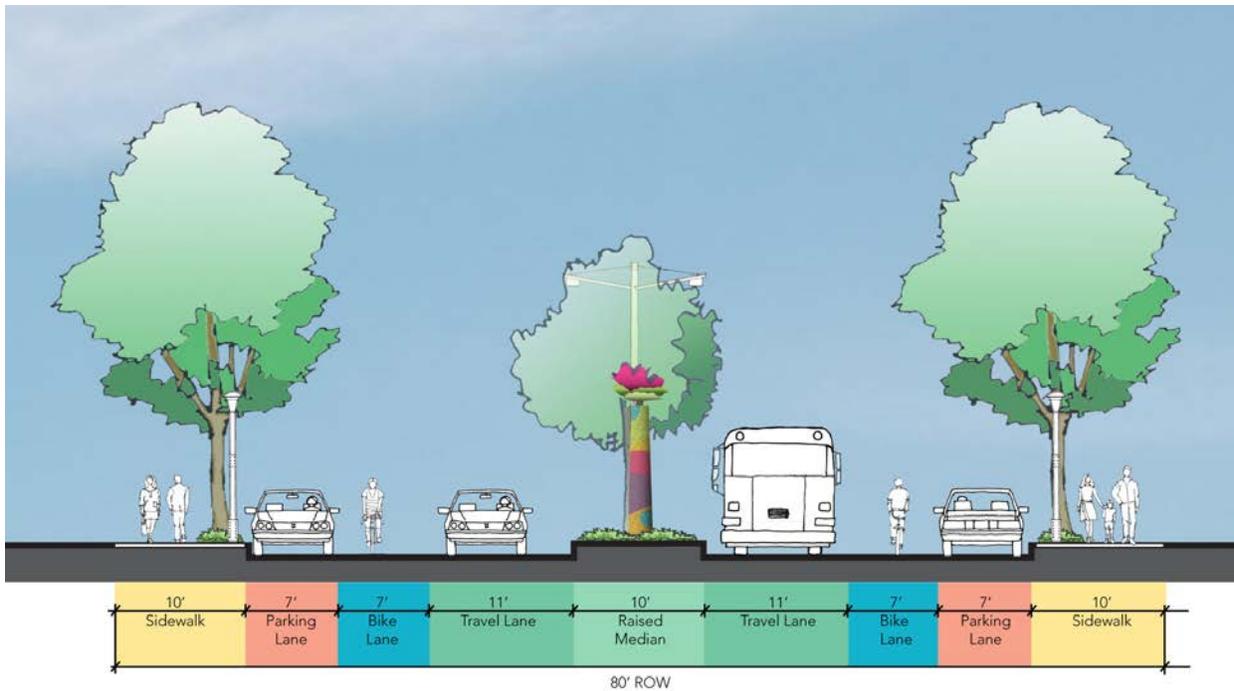
*Diagram illustrates conversion of Harbour Way between Macdonald and Bissell Avenues from 4 lanes to 2 lanes with a center turn lane and bicycle lanes. The center lane can eventually be converted to a raised landscaped median with a turn pocket to provide access to the parking lots on the west side of the street.*



Harbour Way (between Macdonald and Bissell Avenues) — Existing

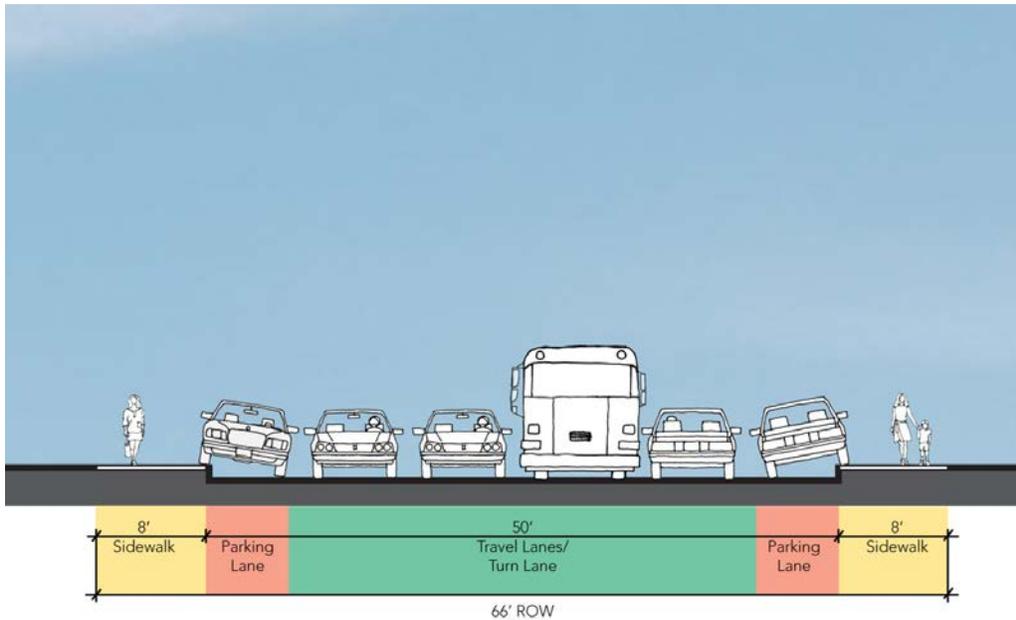


Harbour Way — Proposed

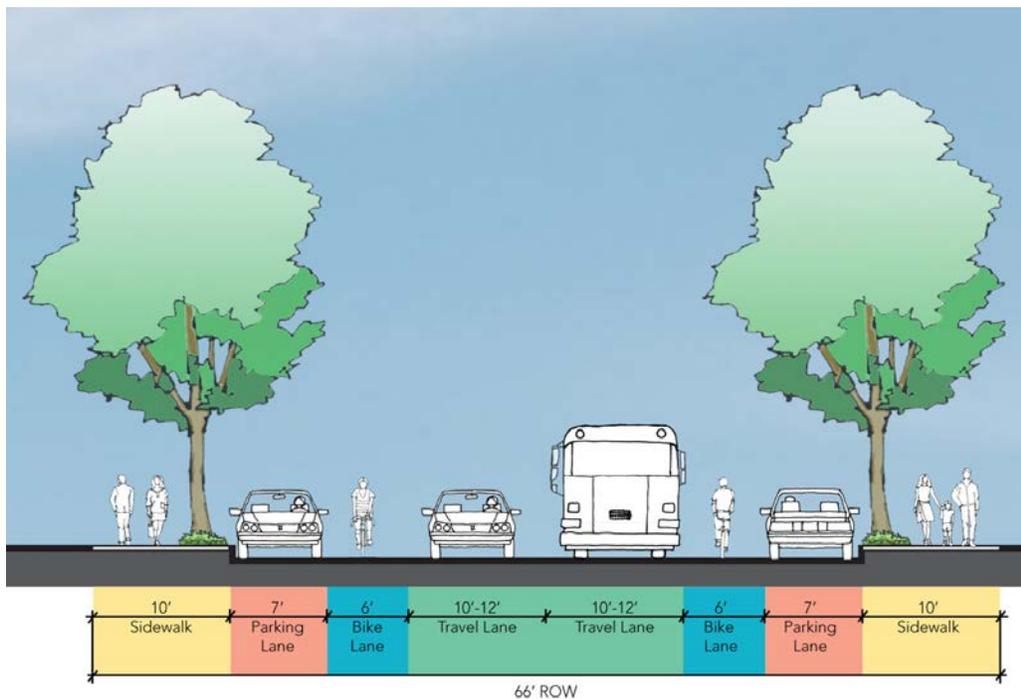


The lower diagram illustrates the proposed concept for Harbour Way between Bissell Avenue and Macdonald Avenue. A compressed roadway, with a median, lighting and landscaping announces arrival into Downtown Richmond and a pedestrian district. 7-foot parking lanes encourage vehicles to park close to the curb. 11-foot travel lanes provide adequate space for buses. 7-foot bicycle lanes provide comfortable space for bicyclists and “bonus” room for emergency vehicle maneuvering.

**Harbour Way (between Bissell Avenue to Chanslor Avenue) — Existing**

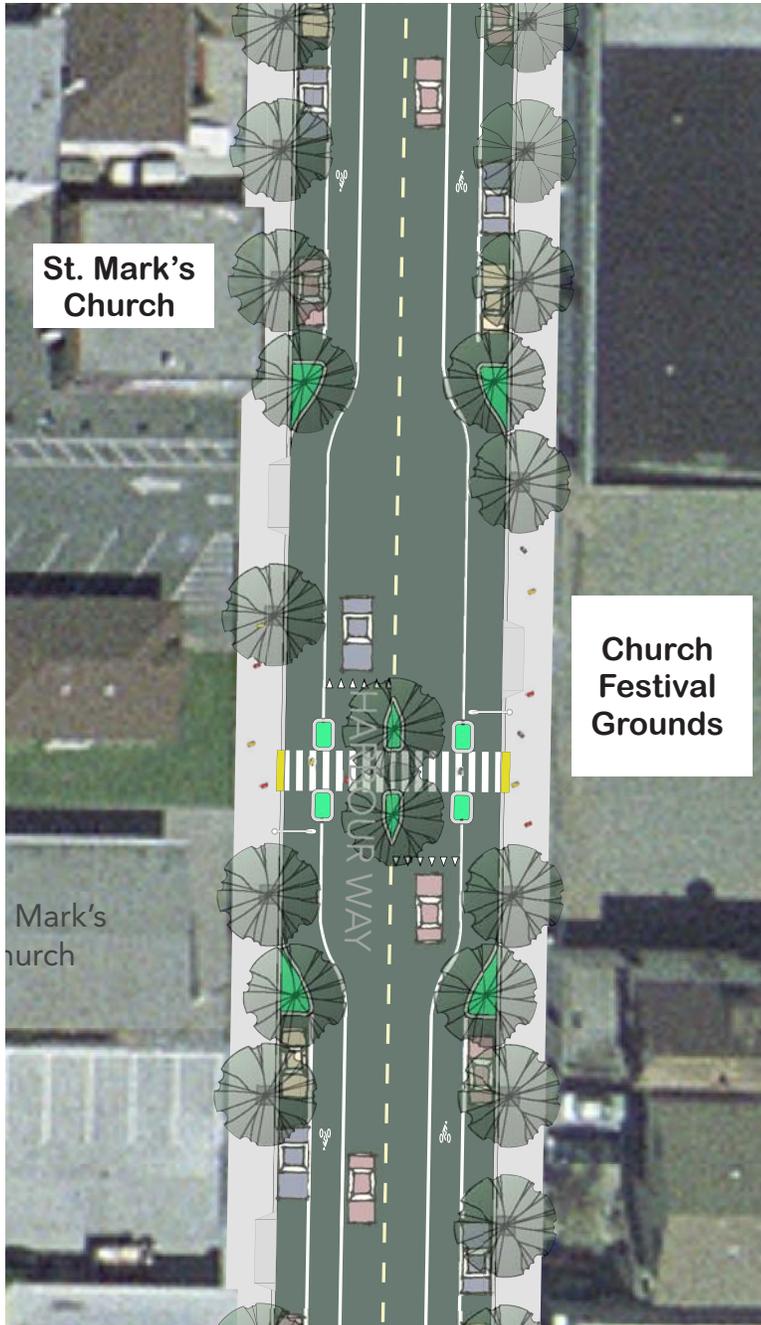


**Harbour Way — Proposed**



The lower diagram illustrates the proposed concept for Harbour Way between Bissell Avenue and Chanslor Avenue. This is the narrowest point of the roadway between Bissell and Cutting Boulevard. Parking would need to be restricted at corners to allow a left turn pocket at intersections. Travel lanes would need to be narrowed to 10 feet for one block, between Bissell and Chanslor, or bike lanes reduced by 1 foot to allow 11-foot travel lanes. South of Ohio Avenue, the curb to curb width increases approximately 2 to 4 feet, enabling wider travel lanes to better accommodate buses.

Harbour Way — Example of Mid-Block Crosswalk between Bissell and Chanslor Avenues



Participants at the May workshops pointed out the need for a safe crossing between St. Mark's Church and a lot across the street that is owned by the Church and used for an annual event and other activities. The diagram above illustrates a high visibility midblock crosswalk with a median refuge island that connects the church and the property on the east side of the street.

Before



Harbour Way looking north as it exists today with St. Mark's Church located on the west side of the street.

After



The two photo simulations above visualize Harbour Way with a crossing island linking the Church to grounds on the east side of the roadway where Church events are held. Note that either design should include advance yield lines (not shown) set back from the crosswalk for waiting motorists and crossing signage in line with California MUTCD standards. Refer to the earlier section of this document on Crossings beginning on Page 27 for further details.

## Marina Way

The Marina Way Corridor extends from Interstate 580 into Downtown and is one of the key north-south streets connecting Downtown and the southern shoreline. Marina Way has lower traffic volume than Harbour Way, but is very wide, ranging from 50 feet to 56 feet from curb to curb between Ohio Avenue and Hoffman Boulevard, which contributes to fast-moving traffic. The road is two lanes from Bissell Avenue to Cutting Boulevard, and becomes four lanes north of Macdonald and South of Cutting.

The extra width of the roadway and low traffic volume provide an opportunity to reallocate space for bike lanes and a continuous tree-planted median, or series of median islands, to slow traffic and beautify the street. A median between Cutting Boulevard and Wright Avenue could link to the series of existing medians that follow the corridor to the Marina and Bay Trail, creating a continuous thematic connection from the Coronado neighborhood to Richmond's south shore. A median north of Cutting, combined with space at Martin Luther King Park would provide an opportunity to compress the street with a dense tree canopy, signaling to motorists the change in context to a residential setting. From Cutting to Ohio, curbside planting strips are 6 feet wide, which could accommodate medium to large trees to further green the street and provide a buffer between traffic and the sidewalk.

### Summary of Issues

- Key corridor and change area in the General Plan from Bissell Avenue to Wright Avenue.
- Connects Historic Iron Triangle, City Center, Coronado, and Marina Bay Neighborhoods, and Ford Peninsula, Marina and Bay Trail.
- Fast-moving, moderate to low volume traffic.
- Potential redevelopment opportunities at the intersections with Cutting Boulevard and Potrero Avenue.

### Proposed Improvements

Short Term:

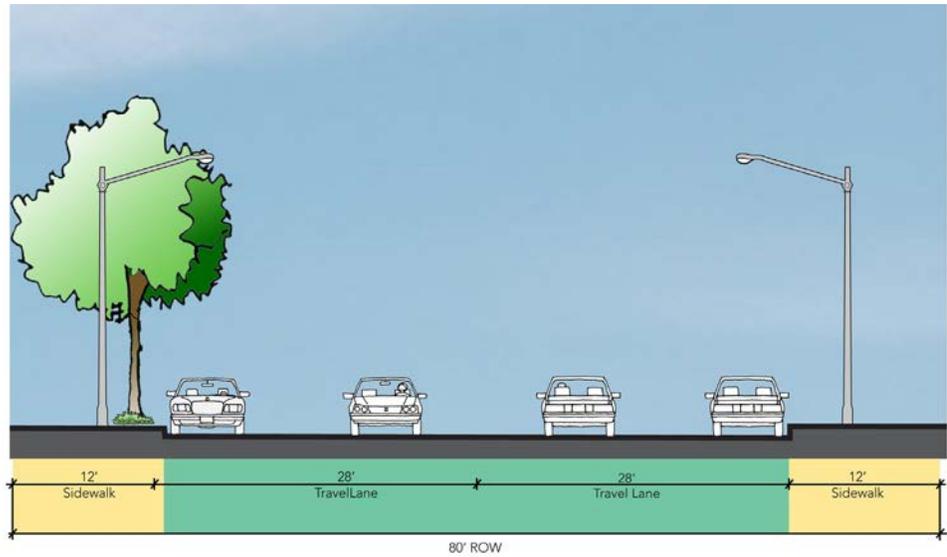
- Stripe 6 foot bike lanes and 7 foot parallel parking lane.
- Stripe 8 to 10 foot center median and 10 to 11 foot travel lanes based on available space in varying segments.
- Plant medium to large canopy trees in planting strips south of Ohio Avenue.

Medium Term:

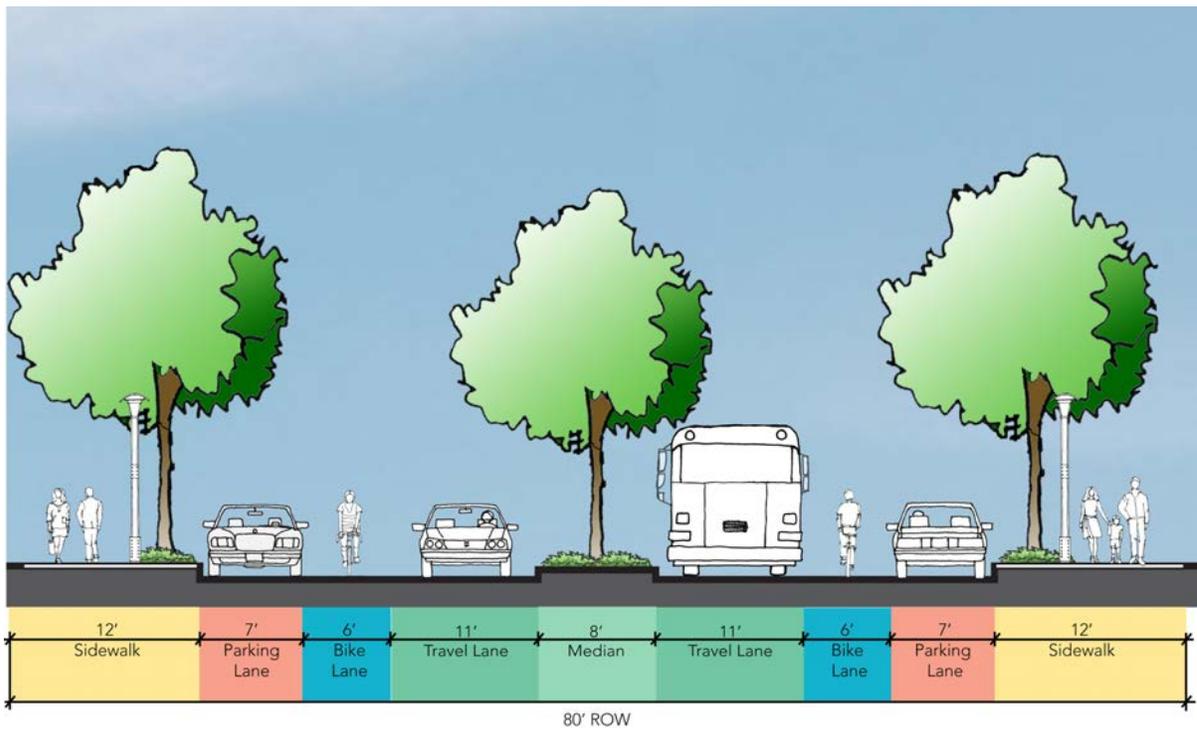
- Build 8 to 10 foot raised tree-planted center median between Virginia and Ohio Avenue, and between Cutting and Wright Avenue.
- Add pedestrian-scale lighting from Ohio Avenue to Macdonald Avenue, and Martin Luther King Park to Hoffman Boulevard.



Marina Way — Existing



Marina Way — Proposed



The diagram above illustrates a proposed concept for Marina Way. The roadway is generally wide enough to accommodate an 8 to 10-foot wide median to improve safety, calm traffic, and provide space for treatments to announce changes in context and for added beauty.

### 23rd Street Corridor

The 23rd Street corridor in Richmond extends from Interstate 580 north to the border with the City of San Pablo. As noted before, a plan has been developed for 23rd Street, from Bissell Avenue through the downtown area to Rheem Avenue. The plan includes conversion of the roadway from one-way to two-way traffic, reduction of the number of travel lanes from three to two, and streetscape enhancements to improve pedestrian safety, access and appeal. The plan also addresses the safety of pedestrian crossings at intersections through curb extensions, and relocation of crosswalks and use of median refuge islands at strategic locations that include “hot spots” identified by participants at the Pedestrian Plan workshops.

#### 23rd Street Streetscape Improvement Project — Proposed



The diagram shows the proposed cross section for 23rd Street looking north from Macdonald Avenue. Streetscape concept by Callander Associates Landscape Architecture, Inc.

A draft form-based development code has also been produced for the same segment of 23rd Street to facilitate its transformation from an auto-oriented corridor to walkable, mixed-use neighborhoods. Standards are designed to facilitate high quality infill projects and regulate building and site design to ensure new development is compatible with existing and future development on neighboring properties and contributes to a pedestrian-oriented environment.

#### 23rd Street Corridor Form-Based Code — Proposed



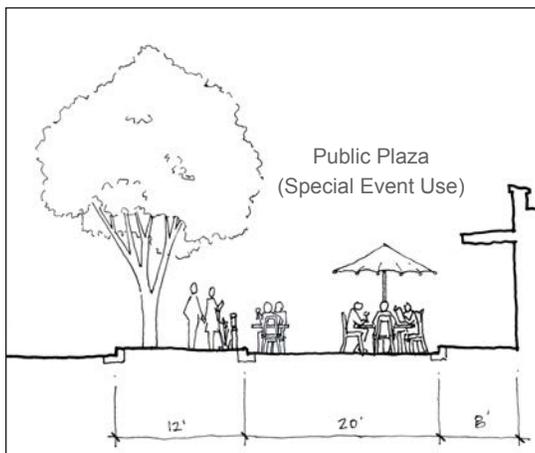
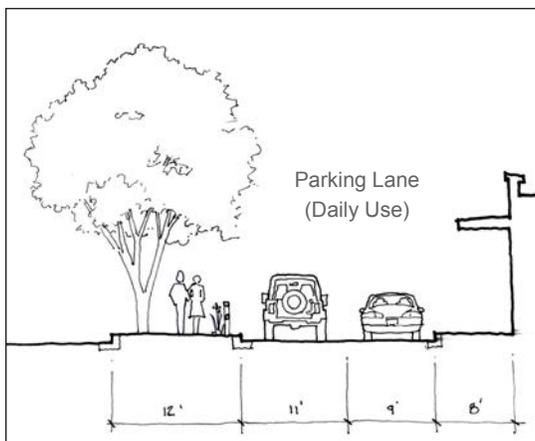
The image on the right is a portion of the Illustrative Plan around the intersection of Macdonald Avenue and 23rd Street from the draft 23rd Street Form-Based Code. Concept by Opticos Design, Inc.

## Site Applications: Key Corridors

### Macdonald Avenue and 23rd Street — Before



The parking lot on the southeast corner of Macdonald Avenue and 23rd Street lacks a clearly defined sidewalk with an adequate cross-slope. The continuous driveway creates further hazards for pedestrians.



The diagrams above show options for a new sidewalk and flexible adjacent space for additional uses. Illustrations prepared by Opticos Design, Inc.

### Macdonald Avenue and 23rd Street — After



In the illustration above, the parking lot is transformed into a space for outdoor dining next to a wide, landscaped sidewalk. The illustration and draft Form-Based Code was prepared by Opticos Design, Inc.

A key theme in the vision for the proposed 23rd Street Form-Based Code is reinforcement of the prominence of the intersection with Macdonald Avenue as a primary crossroad in the heart of downtown. The illustrations on this page show the transformation of a parking lot lacking a clearly separated sidewalk on one corner of the intersection to include an enhanced sidewalk and active flexible space for additional uses. This improves pedestrian safety while adding value to the property.

The sidewalk adjacent space could be built as a permanent corner plaza, or be designed to quickly transform from a parking court into a plaza space. Small steps like this will begin to reinforce this corner as an important location within the City and hint at the potential of both the 23rd Street and Macdonald Avenue corridors to be vibrant retail destinations.

## South 23rd Street

South 23rd Street extends from Interstate 580 north to Ohio Avenue. South of Bissell Avenue, where 22nd Street merges with 23rd Street, the corridor continues with four lanes of fast-moving traffic that separates the neighborhoods on either side, detracts from fronting residences and businesses, and creates difficult crossing conditions for pedestrians and cars. Traffic counts taken in 2007 indicate South 23rd Street carries an average of 17,400 vehicles per day between Bissell Avenue and Cutting Boulevard. The four-lane roadway has a carrying capacity of 38,200 vehicles per day. This excess capacity makes the roadway a strong candidate for strategies to reduce road width to moderate speed and noise, reduce conflict, facilitate safer crossings, and improve the context for pedestrian activity and new investment in fronting properties.

### Summary of Issues

- Key corridor and change area in the General Plan.
- Wide street with excess capacity.
- Fast-moving traffic with moderate volume.
- Difficult crossings.
- Road diet planned from Bissell to Rheem.
- Connects neighborhoods and downtown to Marina Bay Parkway, Marina Bay and Bay Trail.
- AC transit route.

### Proposed Improvements

Short Term:

- Stripe 7 foot parallel parking from Cutting Boulevard to Ohio Avenue.
- Consider installation of pedestrian refuge island at intersection with Virginia Avenue.

Medium Term:

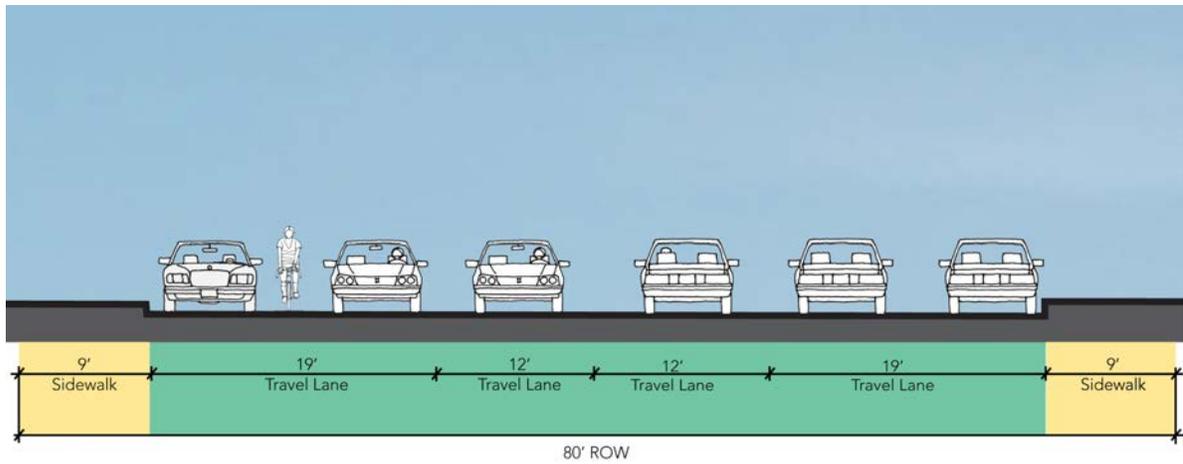
- Re-stripe from Cutting to Ohio with two 11 foot travel lanes and a ten-foot center median/turn lane.
- Replace sharrow with 6 foot bike lanes.
- Add pedestrian-scale lighting.

Long Term:

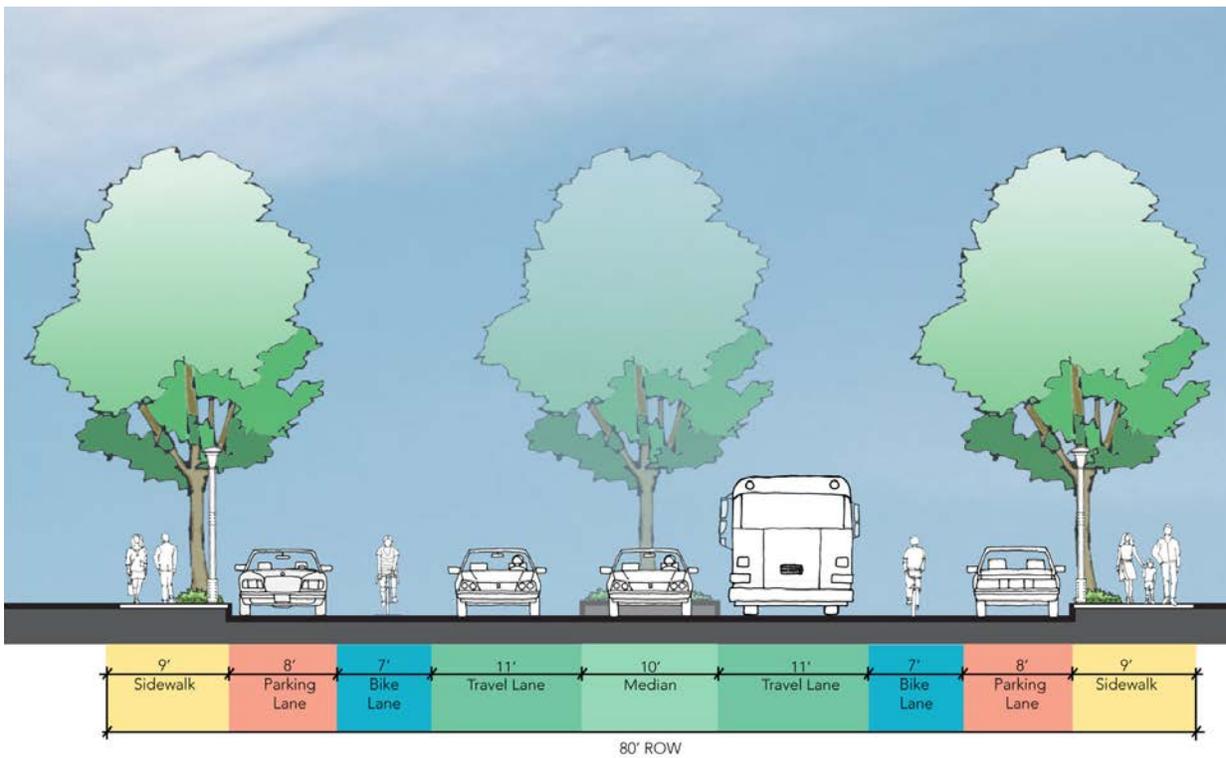
- Consider median islands at selected locations for additional pedestrian crossings.



South 23rd Street — Existing



South 23rd Street — Proposed



The diagram above illustrates a proposed concept for South 23rd Street. The roadway is wide enough to accommodate a 10-foot wide striped median and center turn lane. Segments could include raised, landscaped median islands for added greening, pedestrian crossings, and to manage access to adjacent properties by consolidating turning areas into fewer locations.

## Carlson Boulevard

Carlson Boulevard is a four-lane arterial that carries traffic within the City of Richmond and into the City of El Cerrito, and provides a primary connection between the Richmond Annex Neighborhood and Downtown Richmond. The corridor runs parallel and adjacent to the Union Pacific railroad right of way, which limits development to the west. A raised median that varies in width from approximately ten to fourteen feet runs through the center of much of the corridor.

Traffic counts taken in 2007 indicate Carlson Boulevard carries an average of 9,100 vehicles per day between 23rd Street and Cutting Boulevard, and an average of 7,900 from Cutting to Interstate 80. The four-lane roadway has a carrying capacity of 38,200 vehicles per day. This excess capacity and the absence of development and intersections on the railroad-adjacent side makes the street a strong candidate for road width reduction to moderate speed and reallocate space for landscaping, pedestrian and bicycle improvements. The median could be enlarged and developed with significant landscaping to help produce a context that supports investment in adjacent infill sites.



### Summary of Issues

- Key corridor and change area in the General Plan.
- Multiple lanes with considerable excess capacity.
- Fast moving traffic.
- Wide Greenway gap when combined with adjacent railroad corridor and 23rd Street multilane crossing.
- Constrained on southwest side by railroad tracks.
- Connects numerous southeast neighborhoods to central Richmond.
- Wide, skewed intersection at Cutting Boulevard (dangerous pedestrian crossing en route to Kennedy High School).
- AC Transit Route.

### Proposed Improvements

Short Term:

- Reduce lane widths, stripe bike lanes and paint sharrows.

Medium Term:

- Re-stripe to 2 travel lanes (road diet).
- Widen bike lanes and add buffers.

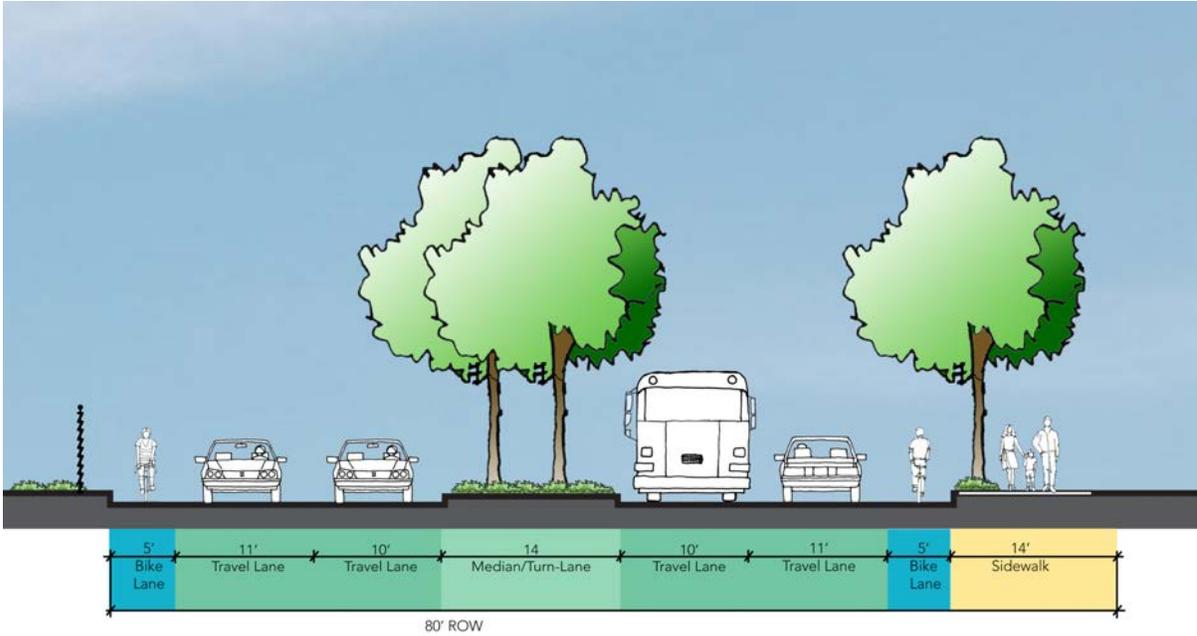
- Study and install roundabout at intersection with Cutting Boulevard if feasible.

Long Term:

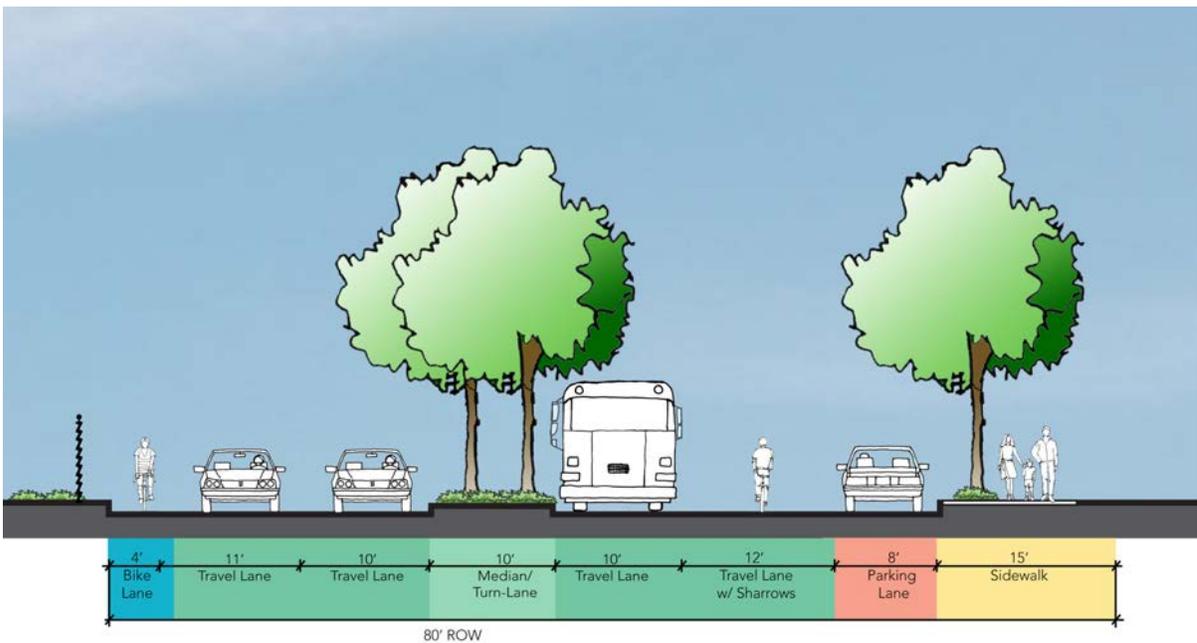
- Widen medians (consider elements to create usable public space) or relocate curb further from railroad tracks for additional space between the bikeway and trains.

**Site Applications: Key Corridors**

**Carlson Boulevard: Ohio Ave — Cutting Blvd  
Option A: Proposed Lane Width Reduction**

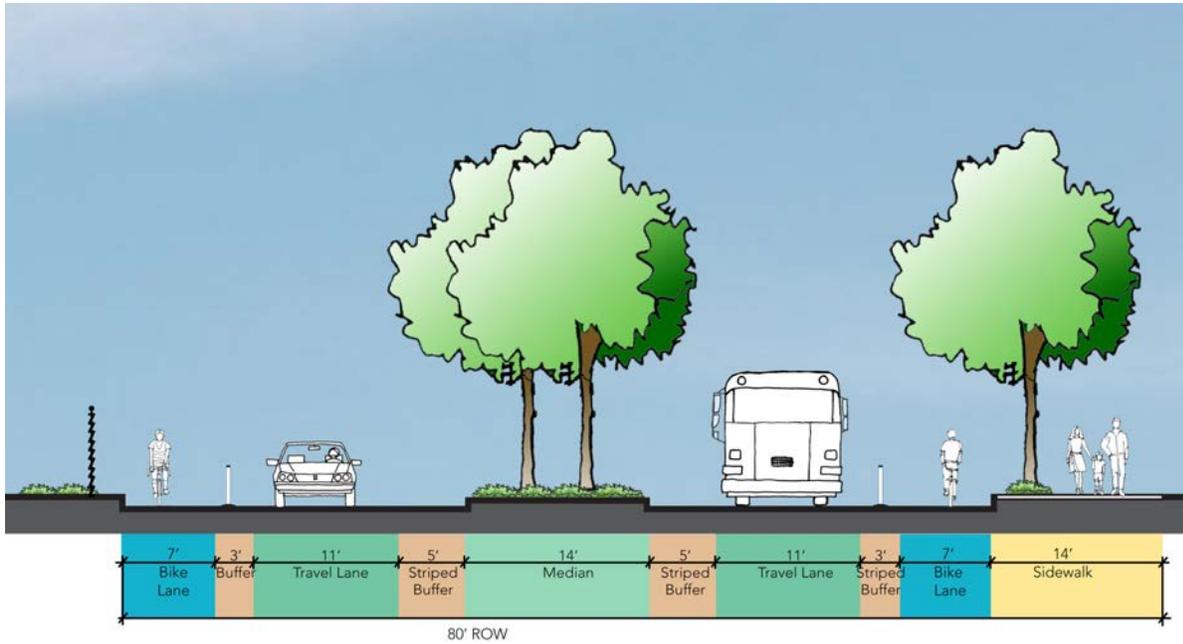


**Carlson Boulevard: Cutting Blvd — 45 St  
Option A: Proposed Lane Width Reduction**

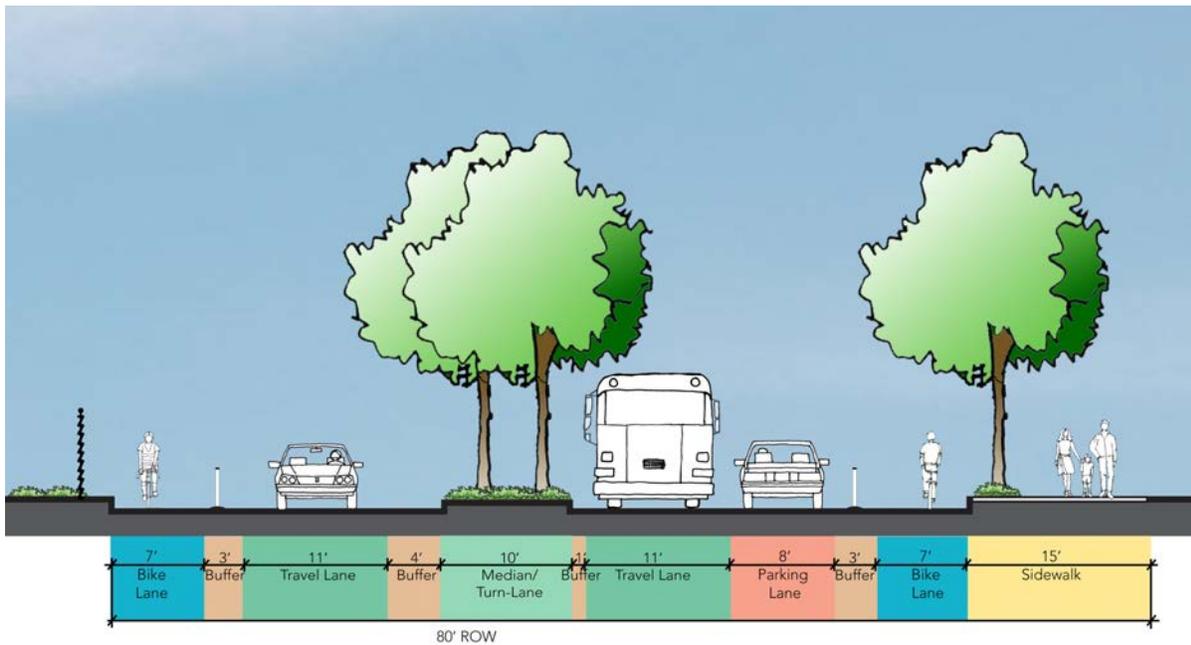


*The illustrations above show short term lane width reductions that would contribute to more cautious speeds and allow replacement of sharrow lanes with bike lanes, except where there is on-street parallel parking.*

**Carlson Boulevard: Ohio Ave — Cutting Blvd**  
**Option B: Proposed Lane Reduction**



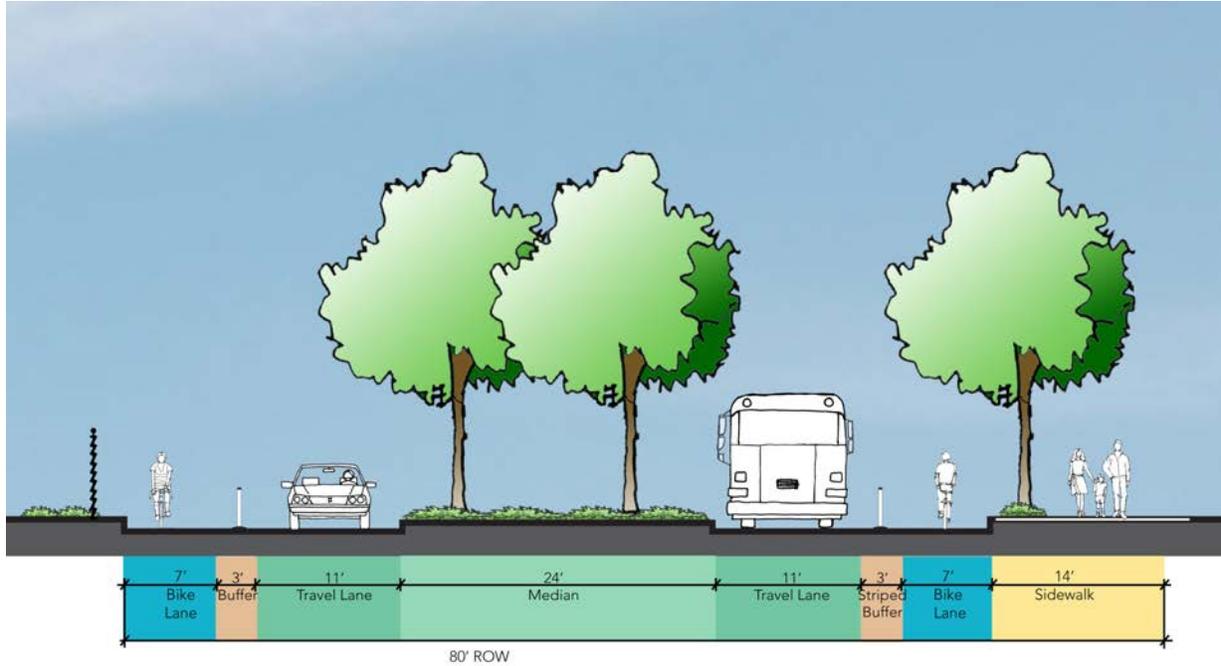
**Carlson Boulevard: Cutting Blvd — 45 St**  
**Option B: Proposed Lane Reduction**



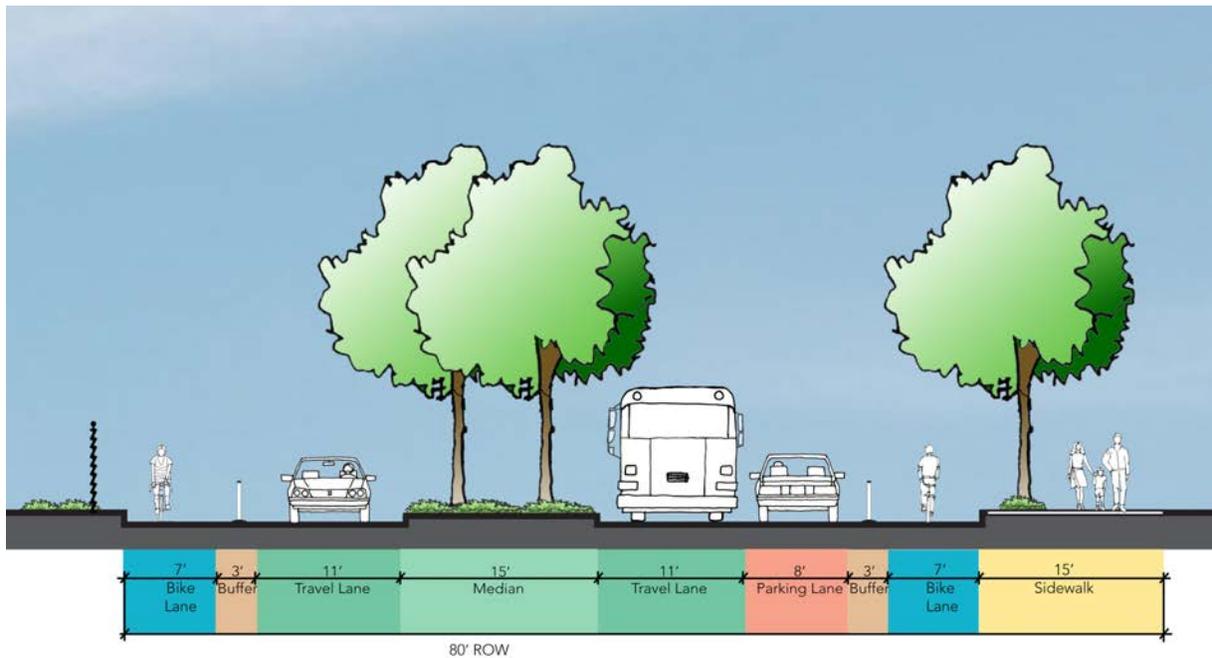
*The drawings above show a reduction in the number of lanes, with additional space allocated to separated bicycle lanes and further separating moving traffic from the sidewalk and adjacent properties. Soft hit posts and/or other high visibility and decorative treatments buffer bicyclists from vehicles.*

**Site Applications: Key Corridors**

**Carlson Boulevard: Ohio Ave — Cutting Blvd  
Option C: Proposed Lane Reduction**



**Carlson Boulevard: Cutting Blvd — 45 St  
Option C: Proposed Lane Reduction**



*In the long term, additional space made available through a road diet could be dedicated to an enhanced, widened median. Segments could be designed to receive stormwater runoff, while wider sections could incorporate linear park elements such as shaded benches, walkways or community garden spaces.*



## Cutting Boulevard

The Cutting Boulevard Corridor spans nearly four miles from San Pablo Avenue to Point Richmond. The wide right-of-way was originally designed for high volumes of fast-moving traffic prior to construction of Interstate 580 immediately to the south, which replaced Cutting Blvd as the primary thoroughfare between I-80 and the San Rafael Bridge. Community facilities along the corridor include Kennedy High School and open spaces such as Martin Luther King Jr. Memorial Park and John F. Kennedy Park. East of Carlson, the corridor is a residential boulevard with separated frontage roads. It transitions to a mix of residential and small businesses west of Carlson, and finally to primarily maritime industry after crossing Harbour Way and I-580.

This corridor is an area of Richmond where substantial change is possible. The roadway capacity far exceeds what is needed. 2007 traffic counts indicate an average daily traffic volume of 15,900 vehicles per day between Carlson and 23rd Street, tapering down to 11,500 vehicles per day between 23rd Street and Harbour Way, and finally dwindling to 5,800 vehicles west of Harbour Way. The City could elect to reduce the number of lanes and still maintain acceptable levels of service. Land uses and building form remain oriented towards its former function and character as a higher speed auto-oriented major arterial. A considerable amount of land is available (both private land that is vacant or under-utilized, and a considerable amount of public ROW), presenting tremendous opportunities to dramatically transform the character, function and performance of the corridor.

Given the excess capacity, the City should consider reducing the number of lanes along Cutting Boulevard to provide safety benefits to pedestrians and vehicles. As there is ample right-of way and several candidate opportunity sites for redevelopment, the City should consider the long-term possibility of transformation of the roadway to establish bus rapid transit, or support installation of light rail transit or a streetcar line.<sup>7</sup> This would link the BART El Cerrito Del Norte station on the eastside to Point Richmond on the west. This could be part of a larger economic development strategy and environmental justice effort to bring affordable, effective and convenient transit within easy access of numerous mixed income and low income neighborhoods.

### Summary of Issues

- Key corridor and change area in the General Plan.
- Provides east-west link from El Cerrito Del Norte BART station to Point Richmond.
- Very wide ROW with excess capacity.
- Fast moving traffic.
- Significant opportunity sites for redevelopment.
- Well established median and boulevard with frontage roads east of Carlson Boulevard.
- Wide intersections with difficult multi-lane crossings.
- At grade railroad crossing.

<sup>7</sup>Macdonald Avenue, which is Downtown Richmond's principal main street, could also be a candidate for a streetcar system, but would require a shared vehicle and transit travel lane west of 19th Street and the railroad tracks underpass where the roadway has been reduced to a single travel lane in each direction.

**Proposed Improvements**

Short Term:

- Intersection with Harbour Way: install curb extensions, directional ramps and high visibility striping, and median crossing islands.
- Consider similar treatments at intersections with Marina Way and 23rd Street.
- Stripe bicycle lanes and parking.
- Repair planting strips west of 23rd Street and plant large canopied trees. Incorporate designs for stormwater infiltration and treatment.
- Study options for roundabout at intersection with Carlson.

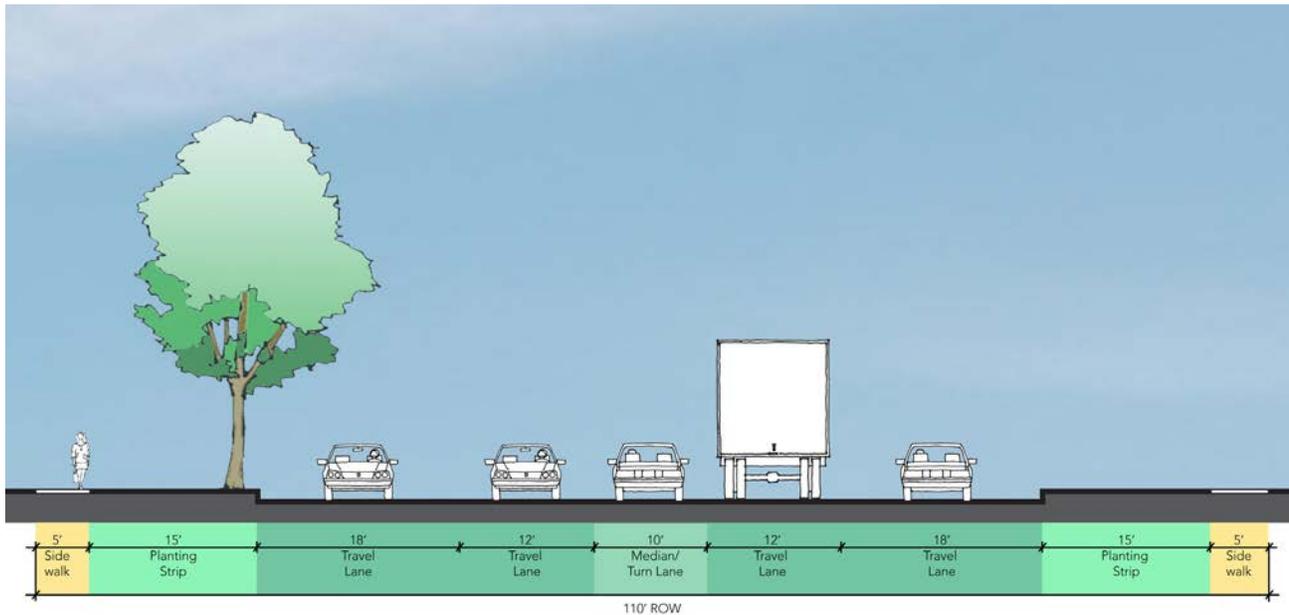
Medium Term:

- Study options for converting excess capacity/space to bus rapid transit or rail transit with dedicated or shared priority transit lanes.
- Install roundabout at intersection with Carlson.

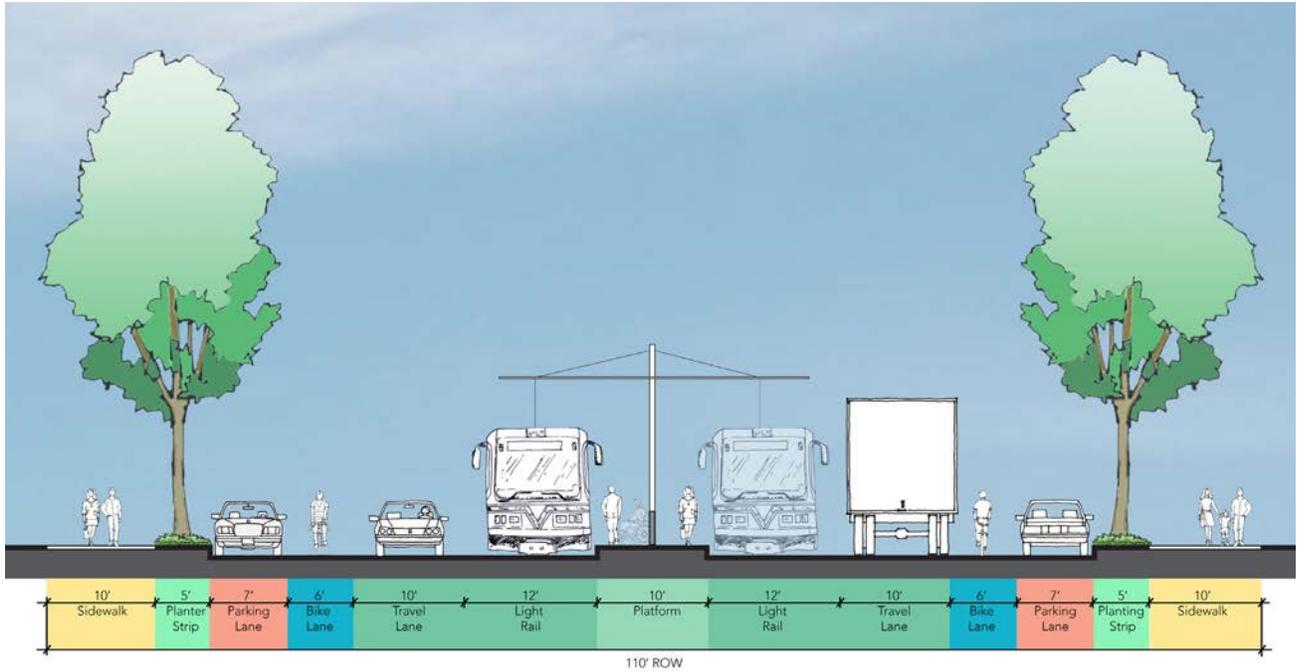
Long Term:

- Implement priority transit option or option without dedicated transit with a road diet and widened median.

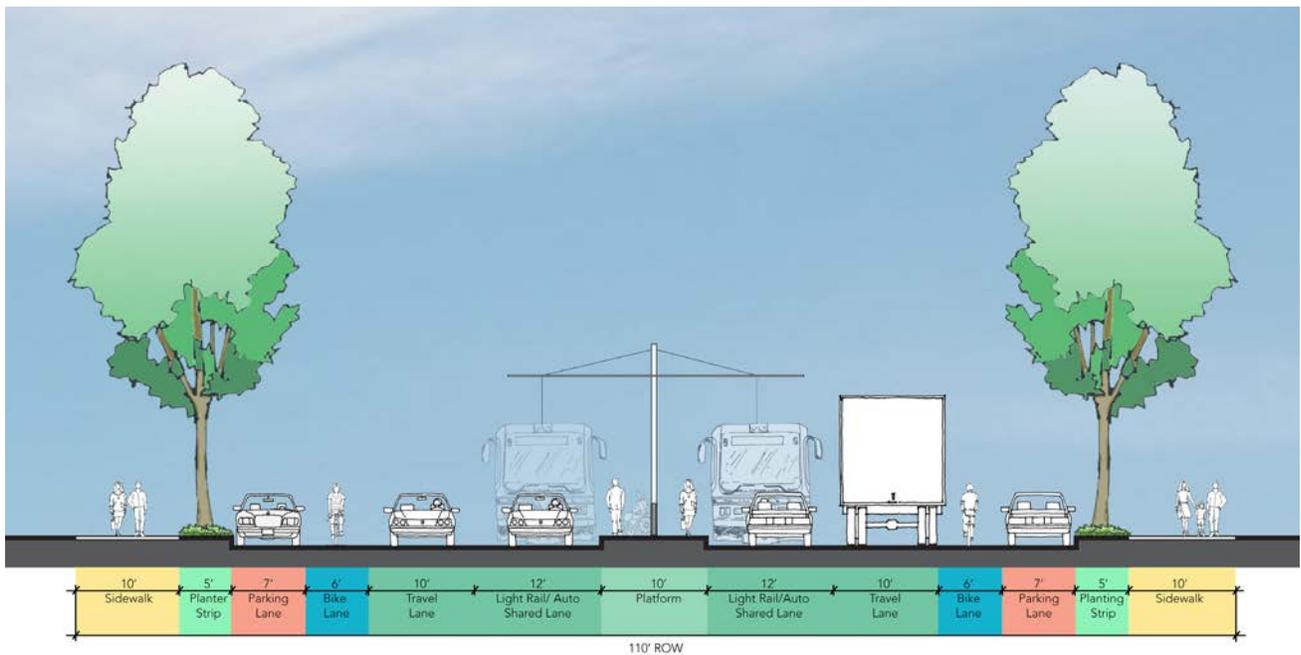
**Cutting Boulevard — Existing**



**Cutting Boulevard — Option A: Road Diet with Dedicated Transit**



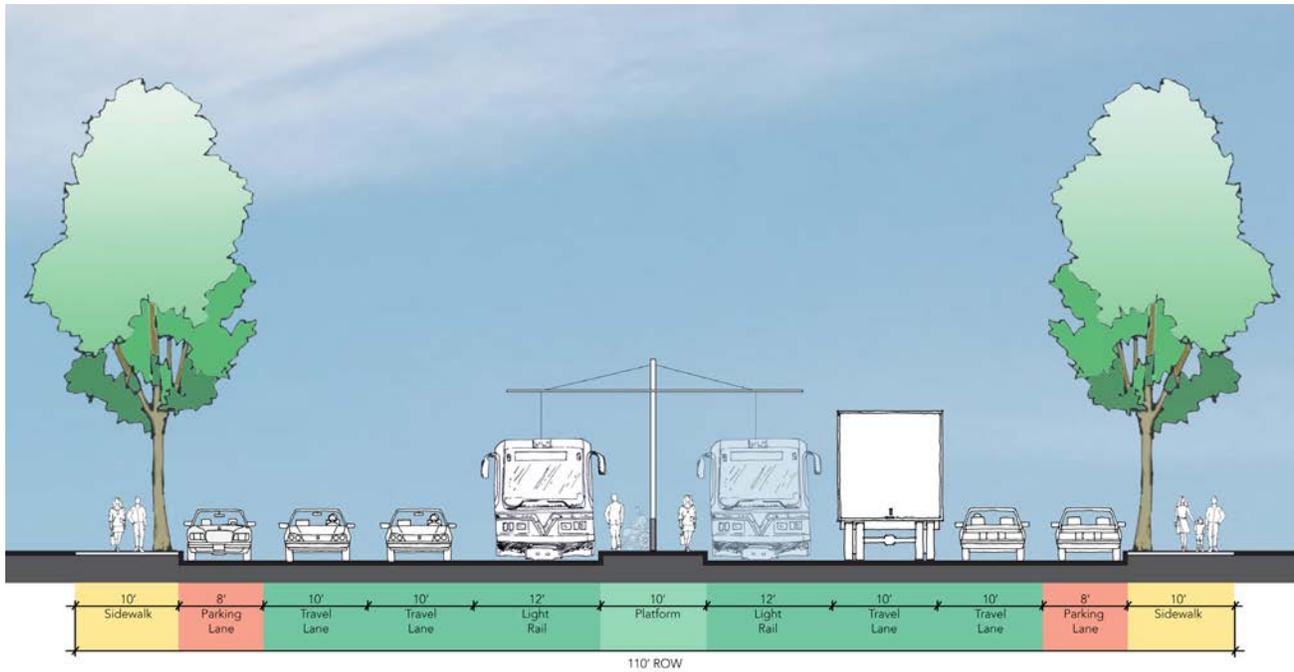
**Cutting Boulevard — Option B: Road Diet with Bicycle Lanes and Shared Auto/Transit**



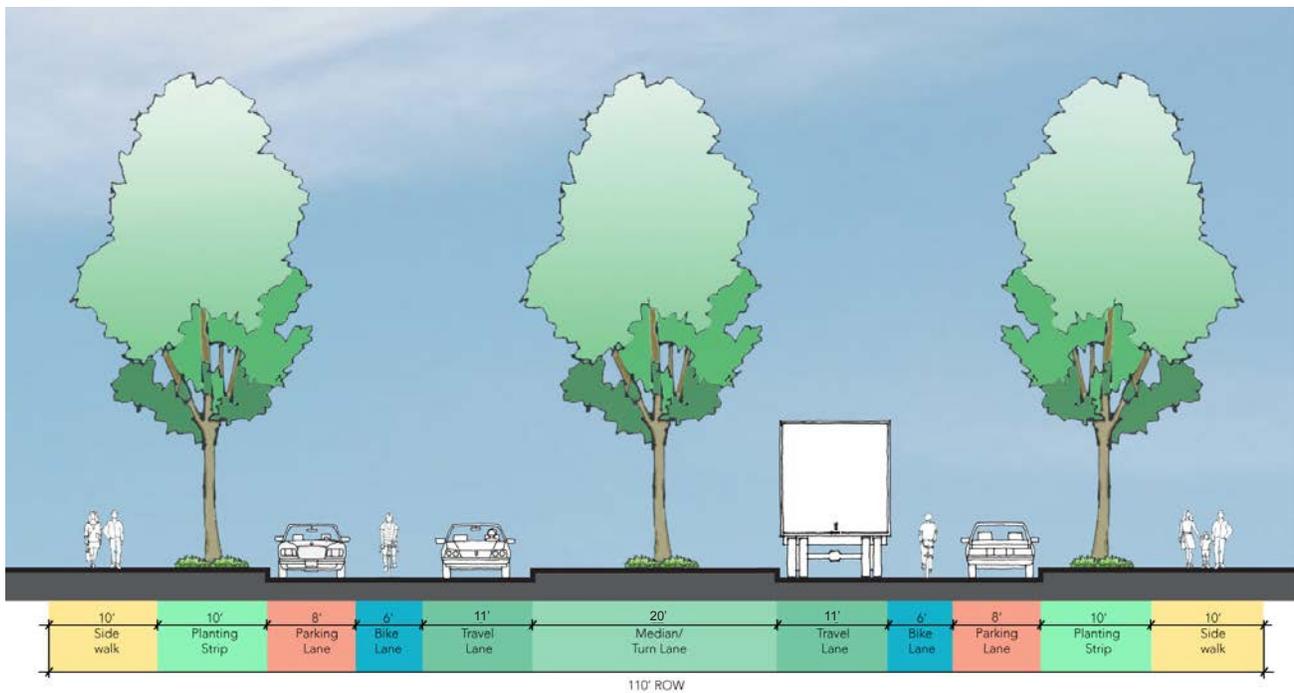
*The drawing at the top of the page shows the roadway redesigned with bicycle lanes and light rail or bus rapid transit with rider loading from a center platform. The drawing below depicts a scenario where cars and buses share the inside lane, increasing roadway capacity for non-transit vehicles.*

**Site Applications: Key Corridors**

**Cutting Boulevard — Option C: No Road Diet, with Dedicated Transit**



**Cutting Boulevard — Option D: Road Diet, Bicycle Lanes and Wide Median**



*The drawing at the top of the page depicts an option where the existing number of lanes is maintained in conjunction with center-loaded transit. The option below shows a simple road diet with space reallocated to bicycle lanes and a widened center median. The median could be designed to receive stormwater runoff and incorporate linear park elements such as shaded benches or community garden spaces.*

Cutting and Carlson Boulevards intersect at a 45 degree angle, creating a skewed intersection adjacent to active rail lines on the west. This creates a formidable obstacle and safety hazard for pedestrians. The diagram below illustrates how construction of a roundabout at this location, combined with road diets on both streets, would vastly reduce chaos and the number of conflicts at the intersection, while simplifying pedestrian crossings and reducing pedestrian exposure to traffic.

A preliminary traffic operations analysis showed that the addition of a second eastbound lane at the roundabout would ensure that the intersection would perform acceptably during afternoon peak hour traffic. Right turn slip lanes are provided at the 45 degree approaches to provide for truck turns. Mountable curbs could be added at locations for larger vehicles.

A crosswalk is not included on the west leg of the intersection because it would place pedestrians too close to the railroad tracks on the south side of the roadway, which could present safety concerns.

Vehicles may queue into the roundabout when a train is present. Based on this, the need for gates on all approaches will need to be studied. Gates to northbound and southbound approaches on Carlson may not be required, which would allow these movements to continue when a train is present. The southbound right hand turns and northbound lefts have volumes under 100 at peak hour, so queuing would be far less than with the westbound movement on Macdonald. More research and queuing analysis will be required to determine the need and placement of gates.

Additional details regarding design considerations and operations for the roundabout are included in the Appendix.

### Cutting and Carlson Boulevard Intersection

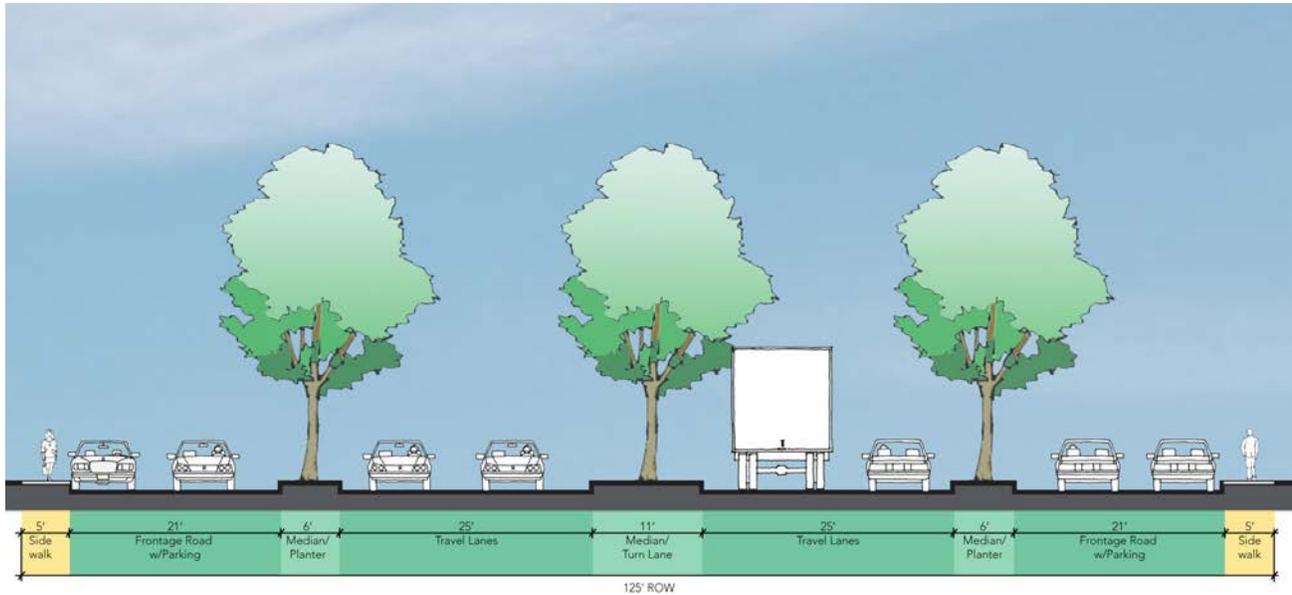


### Cutting and Carlson Boulevard Intersection Improvements

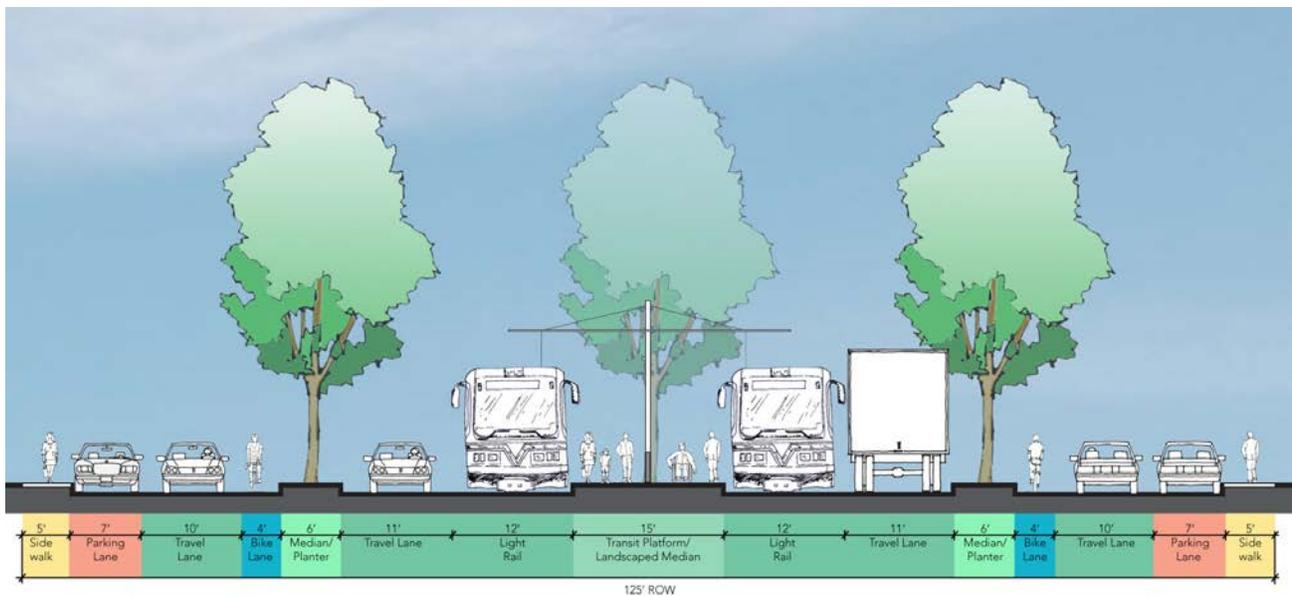


## Site Applications: Key Corridors

### East Cutting Boulevard — Existing



### East Cutting Boulevard — Proposed Road Diet with Dedicated Transit



The drawing above illustrates the incorporation of a dedicated transit lane east of 41st Street where adjacent one-way frontage roads provide access to residences. The frontage roads are wide enough to accommodate striped bicycle lanes that are separated from traffic on Cutting Boulevard.

### 37th Street

Approximately one mile long, 37th Street traverses several residential neighborhoods, providing a north-south connection from Carlson Boulevard to Roosevelt Avenue. It is the only roadway between Carlson Boulevard/23rd Street on the west and Interstate 80 on the east that provides north-south access across the BART tracks (via an underpass). It is 56 feet wide for most of its length, from Wall Avenue to its terminus at Cerrito Avenue, and is four lanes until Barrett Avenue, after which it transitions to two lanes.

37th Street is very wide for a mostly residential connector street with light traffic. Excess space can be reallocated for pedestrian and bicycle safety and improved north-south access across the BART tracks. The City should consider lane reductions and pilot areas to stripe angled parking to maximize on-street parking and create a buffer between traffic and the sidewalk. Back-in angled parking could be considered because it works well with bicycle lanes, as motorists face the lane and can see bicyclists when pulling out. See page 42 for more information on this type of parking.

#### Summary of Issues

- Only vehicular connection through BART tracks between Carlson and I-80.
- Only ADA accessible and bikable connection through BART tracks between Carlson Boulevard/23rd Street and I-80 (pedestrian overpass at 33rd Street is steep and stairs only).
- Wide roadway with excess capacity north of Wall Avenue.
- Frequent speeding south of Macdonald Avenue to Cutting.
- Pedestrian route for King Elementary School, Lavonnya De Jean Middle School, and Kennedy High School.
- Numerous vehicle crashes at 37th and Center Avenue.

#### Proposed Improvements

Short Term:

- Build curb extensions and install high visibility crosswalks at Roosevelt Avenue; consider similar treatments at intersections from Barrett south to Florida Avenue.
- Test stripe pilot back-in parking by church.
- Stripe bike lanes from Cerrito Ave to Wall.

Medium Term:

- Re-stripe the roadway from 4 to 3 lanes, from Barrett to Wall Avenue.
- Consider mini-circle or roundabout at Roosevelt Avenue and at Center Avenue.



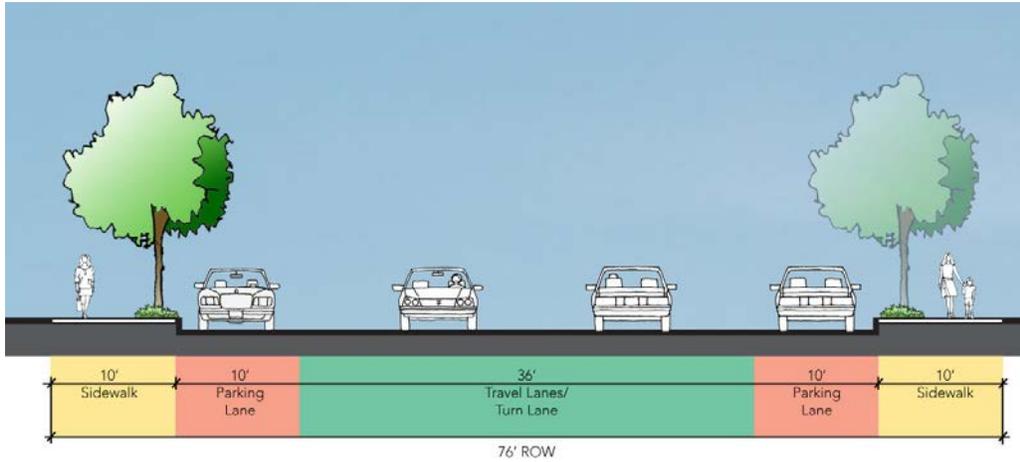
37 Street and Roosevelt — Sample Roadway and Intersection Improvements



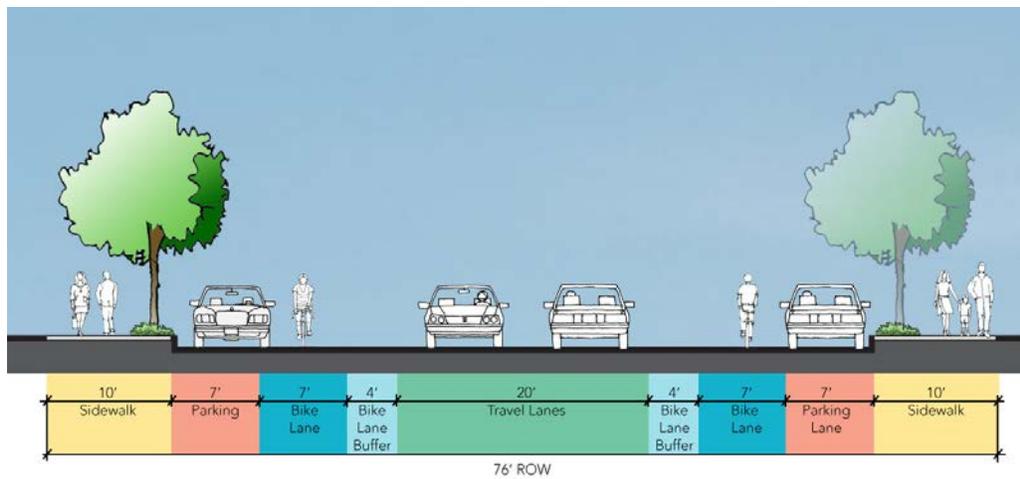
*The intersection of 37th Street and Roosevelt Avenue with a small roundabout.*

*The plan view of 37th Street in the North and East neighborhood shows a road diet and typical intersection improvements. The road diet is shown with two types of treatment options: one with parallel parking and bicycle lanes buffered from traffic, and the other with angled parking. The use of angled parking on wide roadway sections provides the twin benefits of encouraging cautious speeds and maximizing on-street parking for adjacent residences and other uses. Back-in angled parking is ideal when adjacent to a bicycle lane because motorists face the lane when exiting the space. Striped bicycle lanes adjacent to head in diagonal parking are generally not recommended.*

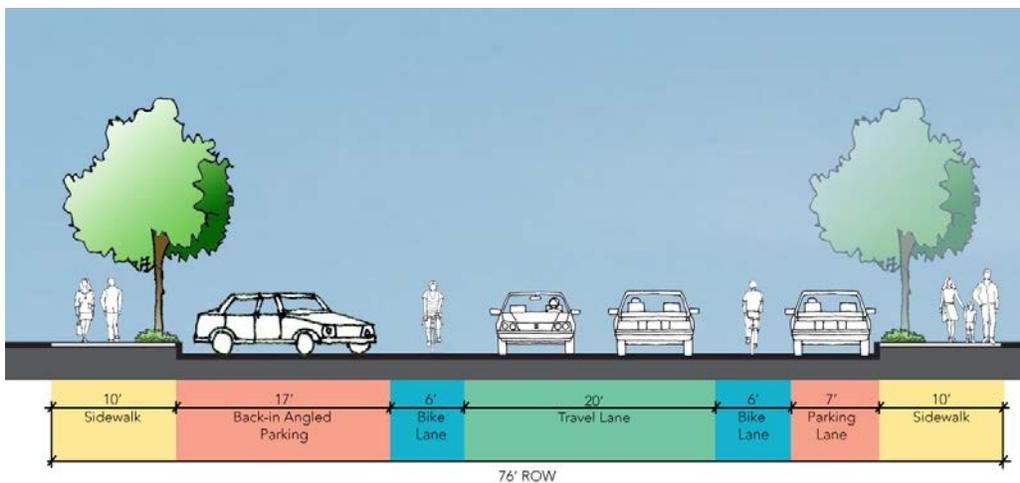
**37 Street — Existing**

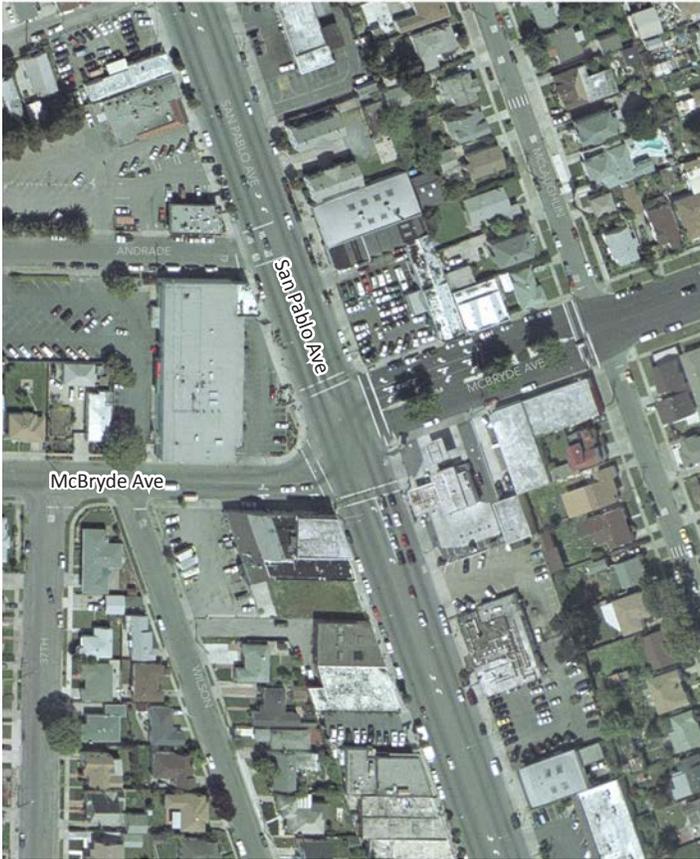


**37 Street — Proposed, Bicycle Lane with Buffer**



**37 Street — Proposed, Bicycle Lane with Back-in Angle Parking**





*San Pablo Avenue at the intersection with McBryde Avenue.*

### San Pablo Avenue

San Pablo Avenue extends approximately 1.25 miles within Richmond city limits. It is a busy five-lane corridor that connects cities across Contra Costa and Alameda counties and provides access to the El Cerrito Del Norte BART station at Cutting Boulevard. It runs along the eastern edge of Richmond and forms large, complex, skewed and offset intersections with cross streets such as MacBryde, Barrett, and Macdonald Avenues (and Cutting Boulevard, where it is just outside Richmond City limits and located in the City of El Cerrito). In the shorter term, improvements can be implemented to moderate speed and better accommodate pedestrians and bicyclists. Over time, intersections can be re-designed to shorten and simplify pedestrian crossings, improve traffic flow and reduce motor vehicle conflicts.

#### Summary of Issues

- Medium to high volumes of fast moving traffic.
- Wide, complex intersections.
- Poor pedestrian and bicycle access to eating establishments, markets, stores and services.

#### Proposed Improvements

##### Short Term:

- Install Class III facility with sharrows.
- Install pilot 5-foot wide colored lane in the center of the shared lane.

##### Medium Term:

- Consider narrowing inside travel lanes to 11 feet.
- Consider installation of median islands or installation of Class II bicycle lanes.
- Install pedestrian scale lighting.
- Install curb extensions and ramps.

##### Long Term:

- Rebuild major intersections with extended curbs and sidewalks so that streets intersect at right angles.

San Pablo Avenue and McBryde Avenue — Intersection Improvements



*The plan view shows the formation of a more compact intersection with more direct routes for crossings at San Pablo Avenue and McBryde Avenue. One lane is removed in each direction on McBryde east of San Pablo, improving the alignment with McBryde west of San Pablo. Curbs and sidewalks are extended, reducing crossing distances and providing additional space that can be used for outdoor seating, landscaping or gateway elements announcing to travelers arrival in Richmond.*

## Local Streets

Participants at the May workshops reported unsafe speed, careless driving, and failure to yield to pedestrians are common occurrences on local residential streets. The pages that follow show proposed improvements at sample locations developed with community input from the pedestrian plan workshops. The recommendations coincide with suggested treatments for “Neighborhood Routes” as defined in the Bicycle Master Plan, which proposes a system of Neighborhood Routes along residential streets with lighter, slower moving traffic and access to local destinations such as schools and parks. These routes are relatively narrow and generally lack the space for continuous bicycle lanes. But they are appropriate for shared use of the travel way given the low volumes of traffic, as long as drivers maintain appropriate speeds.

Treatments to consider on local streets to increase pedestrian comfort and safety include:

- Traffic calming to produce uniform consistent vehicle speeds and reduce the need for stop signs at intersections. Requiring vehicles to stop frequently has the side effect of increasing exhaust emissions and noise. A vehicle traveling at a uniform speed produces less noise and air pollution than one which must brake to a stop and then accelerate to its original speed.
- On residential neighborhood streets where volumes are low, conversion of stop-controlled intersections to yield intersections through installation of traffic calming circles in the middle of the intersection. This technique has been used in other cities and has been shown to lower speeds and reduce crashes on residential streets. Where mini-circles are not possible (e.g., due to traffic volumes or emergency responder access needs), develop a planned pattern of alternating two-way stop signs, so that motorists travel two blocks between stops and each intersection has two stop signs..
- Roundabouts.
- Curb extensions.
- Traffic control at intersections with busy cross streets.
- High-visibility crosswalks.
- Landscaping.
- Signage and Wayfinding.

Many of these treatments are described in the previous chapter on overall recommendations. Refer also to the Design Guidelines chapter of the Bicycle Master Plan for additional bicycle-specific design details.



### **Pennsylvania Avenue - Peres Elementary School**

Located in the northern end of the Historic Triangle neighborhood, Pennsylvania Avenue, from Harbour Way to Richmond Parkway (where it dead ends) is an example of a former arterial street that now functions as a local neighborhood street. It is very wide and has ample space that can be rededicated to create safe pedestrian and bicycle access to Peres Elementary School and the surrounding neighborhood.

#### **Summary of Issues**

- Peres Elementary School.
- Road is 4 lanes, promotes unsafe speed, enables reckless driving, and creates hazardous crossings.
- The road no longer provides through traffic to Garrard Boulevard/Richmond Parkway.
- Provides a connection to trail spurs that link to the Bay Trail system along the Richmond Parkway and North Richmond.

#### **Proposed Improvements**

Short Term:

- Re-stripe to two lanes with bike lanes, parallel parking, and angled parking in front of Peres School. Consider pilot area back-in angled parking for use in conjunction with bike lanes.
- Widen sidewalk and create formal pickup and dropoff area in front of school.

Mid Term:

- East of 5th to 13th Street Bridge, stripe 7 foot parallel parking lanes, 7 foot bike lanes with 6 foot buffers, and 10 foot travel lanes.

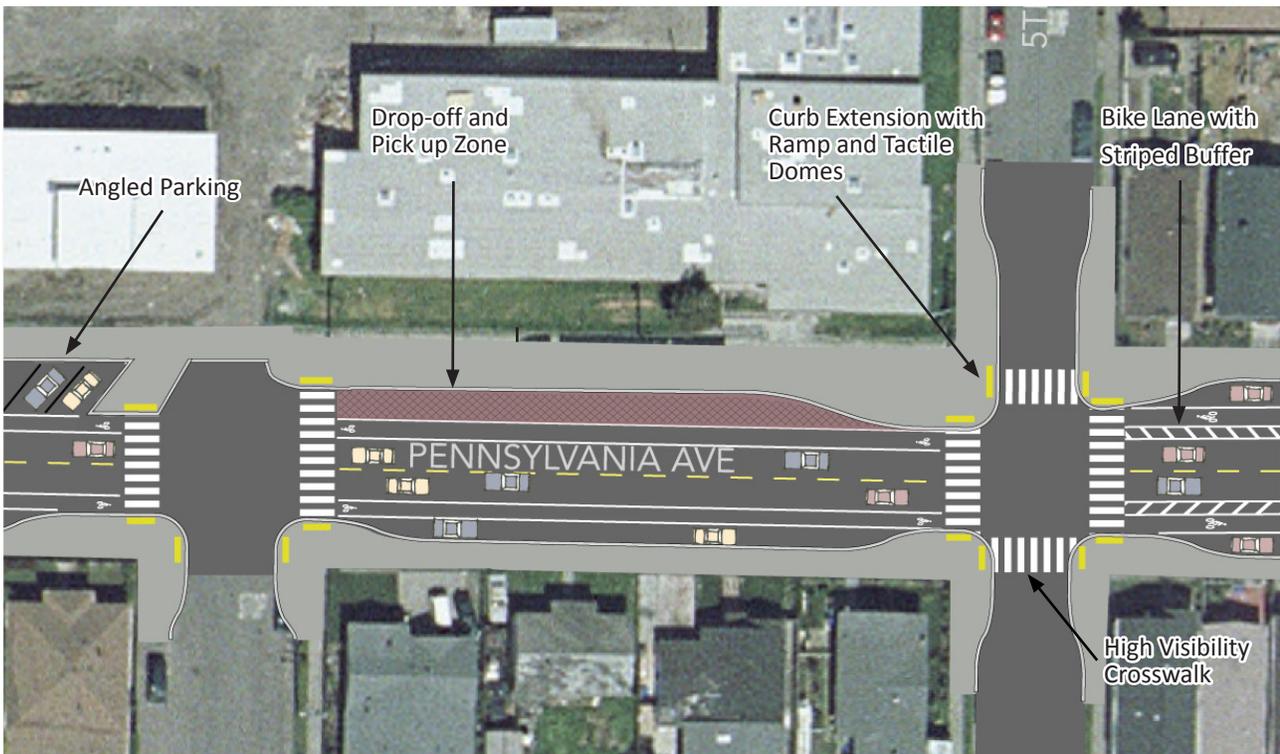
Long Term:

- Consider conversion of portions east of 5th Street to angled parking on one side with a wider sidewalk to support higher intensity mixed-use infill development.



**Pennsylvania Avenue  
Improvements - Peres School**

*Aerial view of Pennsylvania Avenue near Peres School as it exists today. The curb to curb road width is 62 feet.*



*Reducing Pennsylvania Avenue from four lanes to two lanes provides space for a wider sidewalk in front of the school, bicycle lanes that can connect to the Bay Trail system where the street terminates at the Richmond Parkway to the west, a safe drop off and pick up area in front of the school, and curb extensions for traffic calming and safer crossings.*

**Pennsylvania Avenue and Turpin Street — Before**



*The photo simulation shows the addition of curb extensions at the intersection of Pennsylvania Avenue and Turpin Street in front of Peres Elementary School, narrowing the travelway to encourage cautious motor speeds, shortening the crossing for school children, and adding space for street lamps and benches where pedestrians can rest and add surveillance to neighborhood surroundings.*

**Crossing Improvements — After**



**Connecting Assets in the Historic Triangle: The Yellow Brick Road and Elm Park.**

With the assistance of the nonprofit organization, Opportunity West, a youth group from the Iron Triangle neighborhood conceived the idea of a “Yellow Brick Road” that would deploy thematic symbols on roads and sidewalks to designate safe walking routes and connect key community assets. An additional grass roots effort spearheaded by the local nonprofit organization Pogo Park has generated ambitious plans to transform Elm Playlot, located two blocks south of Pennsylvania Avenue, into a safe and vital public space that can serve as a model for other city parks in under-served Richmond neighborhoods. The concept on the following page illustrates improvements that build upon and reinforce these efforts.

7th Street and Elm Park Improvements





*The intersection of Pennsylvania and Harbour Way produces fast-turning traffic and risky crossing conditions for pedestrians. The bridge carries four lanes of traffic that must be distributed onto two-lane roadways in the southbound and northbound direction. Channelized islands can be added to simplify crossings and reduce pedestrian exposure to traffic.*

## Pennsylvania Avenue and Harbour Way/13th Street Overpass

Several blocks east of Peres Elementary School, Pennsylvania Avenue terminates at the junction of Harbour Way, 10th Street and 13th Street overpass over the Union Pacific railroad, forming a wide intersection with numerous barriers for pedestrians and bicyclists. Both the intersection and the bridge can be improved to create a positive gateway into the Historic Triangle neighborhood and link to neighborhoods northeast of the railroad tracks.

### Summary of Issues

- Bridge is a principal connection across railroad tracks and direct link between Belding Woods and Iron Triangle neighborhoods.
- Bridge is 4 lanes and steep with narrow shared sidewalk on only one side.
- Intersection with Harbour Way is wide, with poor site lines, especially at the southeast corner.
- Median on west side blocks the crosswalk.

### Proposed Improvements

Short Term:

- Improved crosswalks, median, channelized islands and advance stop bars at Pennsylvania and Harbour Way.
- Crosswalk and ramps on southbound entry on north end of the bridge.

Mid to Long Term:

- Close right-hand turn lane on 10th Street and extend curb on northwest corner.

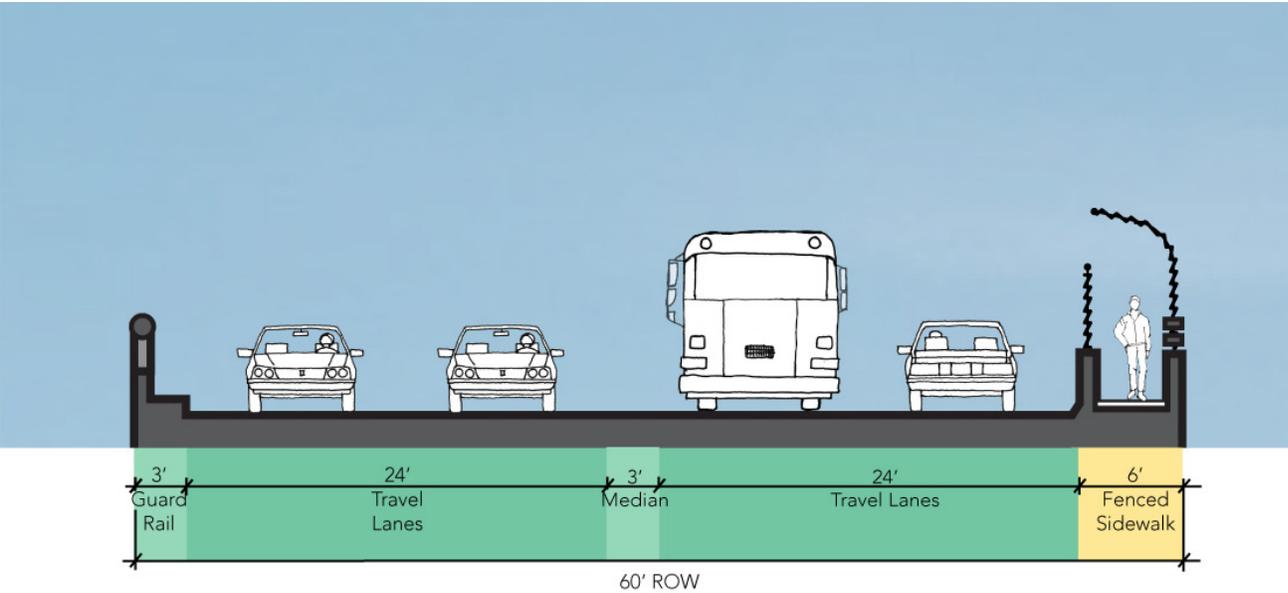
Long Term:

- Reduce number of lanes on bridge from 4 to 2, provide median-separated two-way bike path on northwest side of the bridge, and a median-separated 6' sidewalk on the northwest side of the bridge.
- Consider roundabout at intersection with Harbour Way/Pennsylvania.

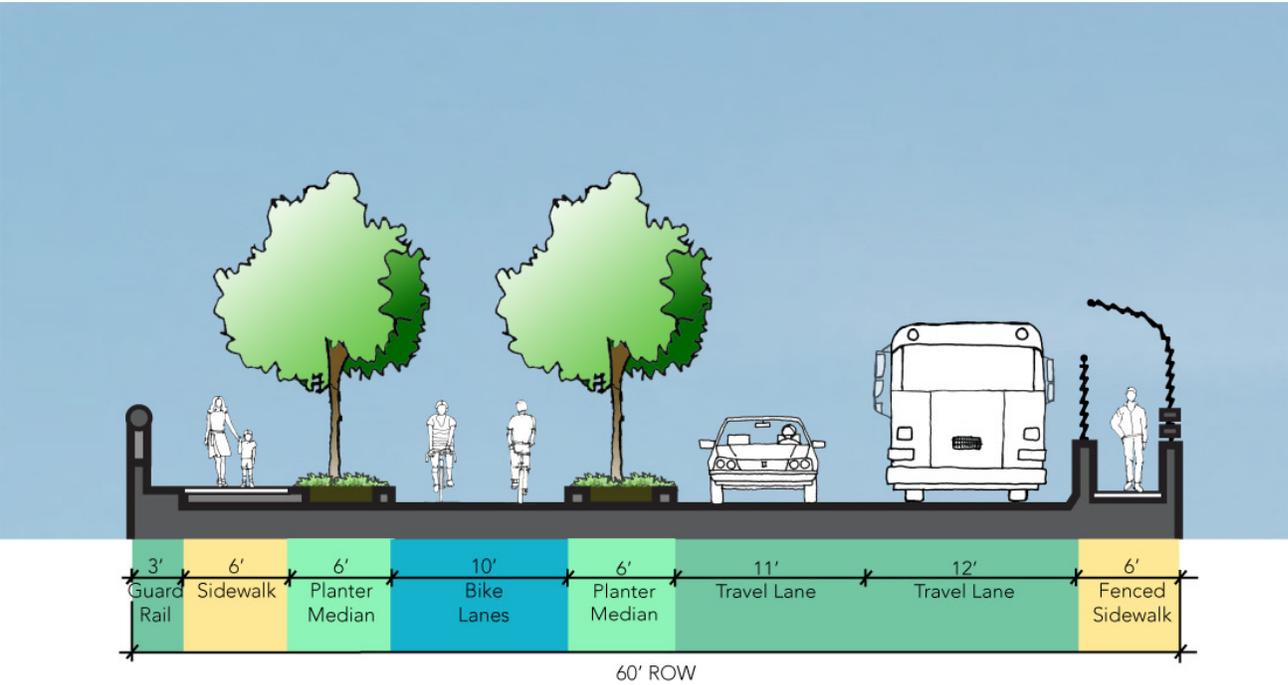
Pennsylvania Avenue and Harbour Way/13th Street Overpass Improvements



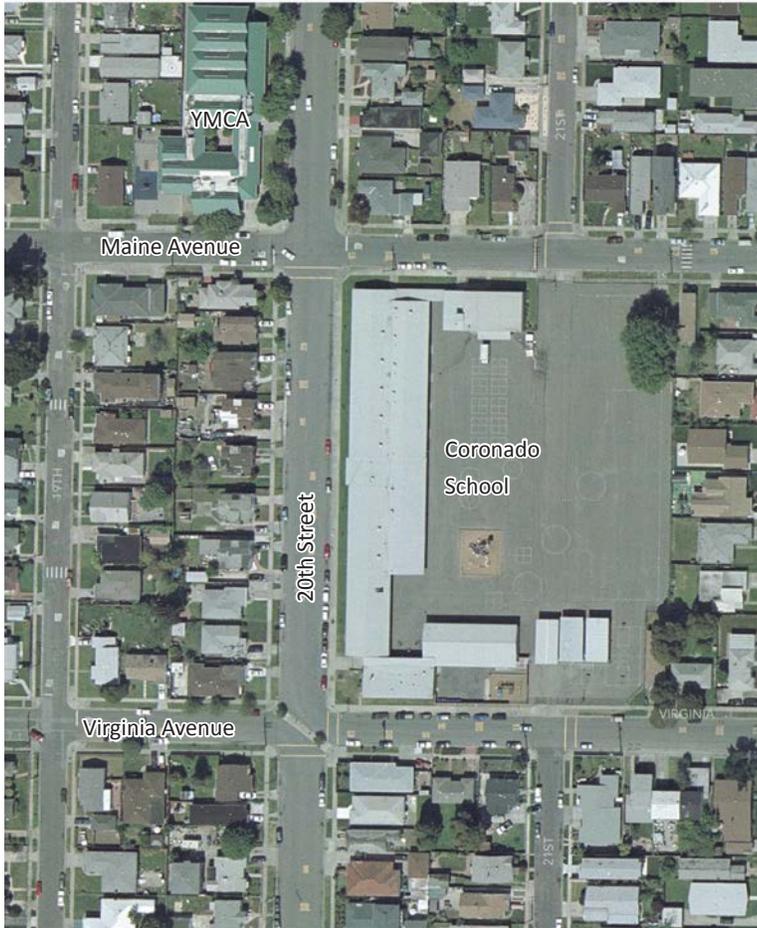
13th Street Overpass — Existing



13th Street Overpass — Proposed



The 13th overpass provides an important route and one of the only alternatives for pedestrians and bicyclists to cross the railroad and BART service tracks. Users currently must share one path that is steep and too narrow for users to easily pass one another. The diagram above shows a concept that reduces the number of vehicle travel lanes and provides separated walkways on both sides of the overpass, and a separated bikeway. Medians can include landscaping, lighting or other decorative elements to beautify the route and strengthen the sense of security and connectivity between the neighborhoods on both sides of the overpass.



### 20th Street — Coronado Elementary School

20th Street in front of Coronado Elementary School is a two lane local residential street with an exceptionally wide curb to curb width of 52 feet. A diagonal diverter is installed at the intersection of 20th Street and Virginia Avenue, but traffic in front of the school remains chaotic during peak hours. The street width can be reduced through the installation of diagonal parking in front of the school, providing additional spaces for faculty and visitors during school hours. Traffic calming treatments at the intersections with Virginia Avenue and Maine Avenue can improve traffic flow and safety for school children.

#### Summary of Issues

- Elementary school and YMCA location.
- Very wide road.
- Opportunity for increased parking for school and residents.
- Partial road closure through angled diverter.

#### Proposed Improvements

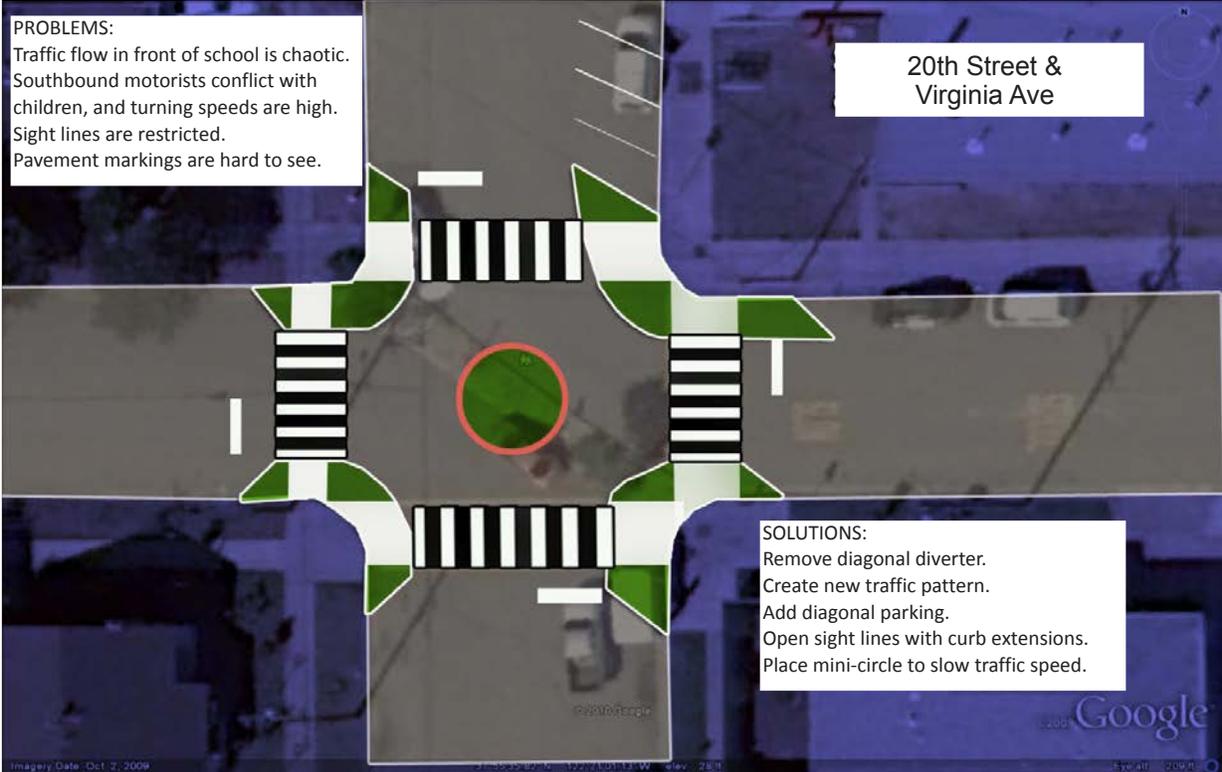
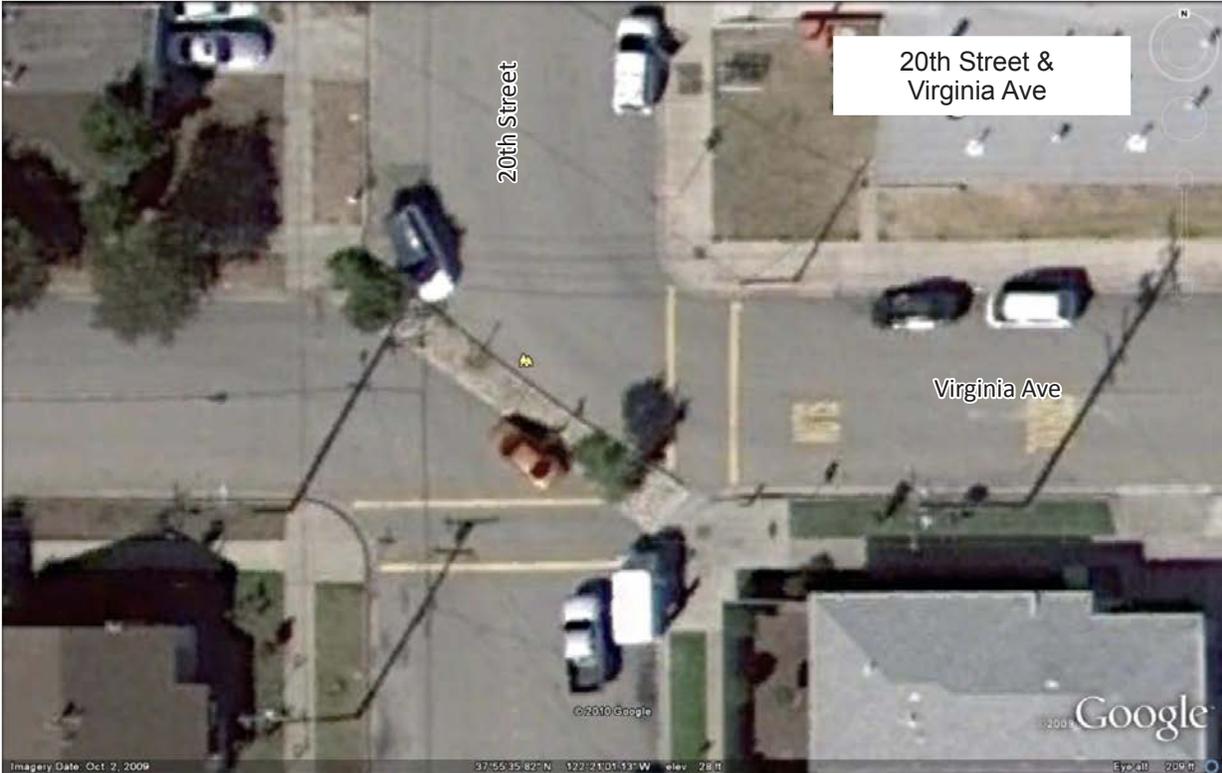
Short Term:

- Stripe diagonal parking in front of school. Consider back-in angled parking.
- Install high visibility crosswalk markings. Consider raised crosswalk and pavement treatments for traffic calming and heightened visibility.

Medium Term:

- Remove diverter and replace with traffic circle.
- Install corner curb extensions.

20th Street and Virginia Avenue Improvements



20th Street Improvements



**20th Street Crossing Treatments**

*In this photo simulation looking south on 20th Street at the intersection with Virginia Avenue, the angled diverter has been removed.*



*In this photo simulation looking south on 20th Street at the intersection with Virginia Avenue, a mini-circle with curb extensions and crosswalk pavement treatment are added.*

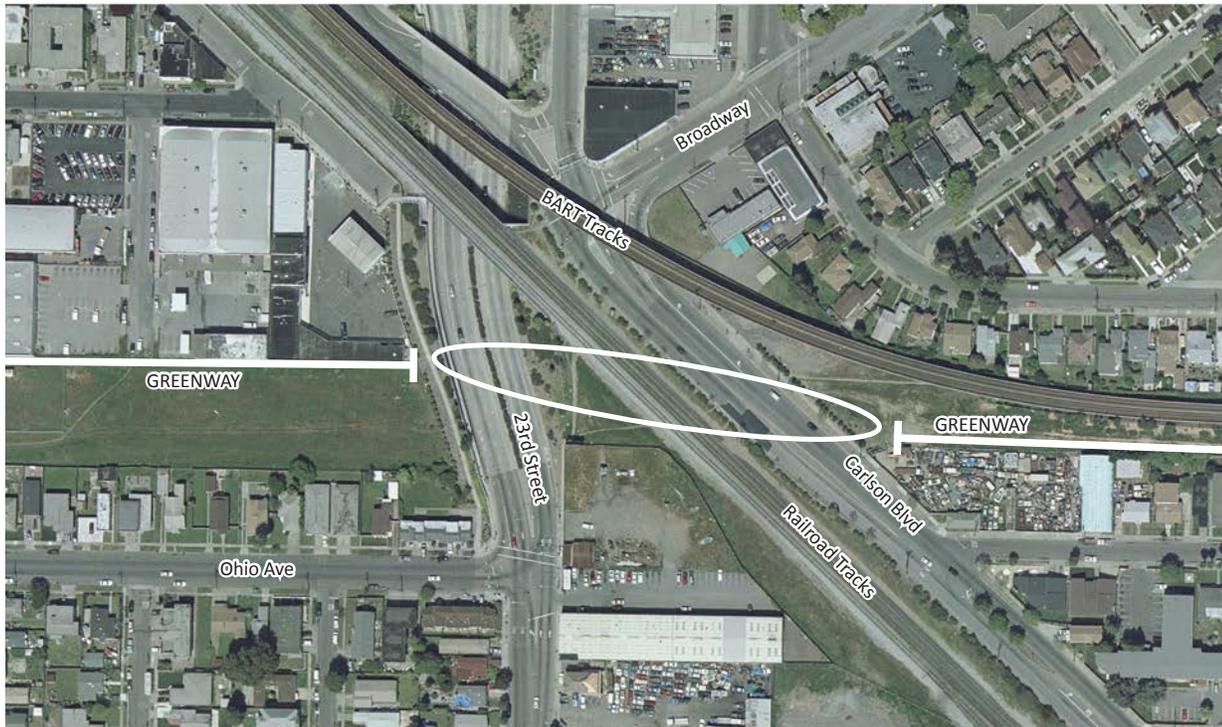


*Example of a raised crosswalk at a school in El Cerrito. The raised crosswalk heightens the prominence of the crossing and provides a speed table that slows motorists. A similar type of treatment could be used near schools and other locations in Richmond with high crossing demand.*



*View of the crosswalk from a pedestrian perspective. Note that the curb extensions were constructed separated from the existing curb to preserve existing drainage.*





### Trail Connectivity

The Richmond Greenway provides a consistent off-street pedestrian and bicycle route that spans the entire east-west length of Central Richmond. Planning and design is in progress for connecting the Greenway across San Pablo Avenue to the Ohlone Greenway, that follows the BART tracks south all the way to Berkeley. There is enormous opportunity for the Richmond Greenway to evolve into a highly used commute and recreational trail for walking, jogging and bicycling, to serve as a focal point for community mixing, and to stimulate new development organized around high quality open space.

The intersections of Carlson Boulevard/Broadway, the railroad tracks, and 23rd Street/Ohio Avenue comprise one of the most significant barriers to east-west pedestrian and bicycle connectivity in Central Richmond. Located 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 pedestrian and bicycle 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, pedestrians and bicyclist 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 pedestrians or bicyclists. To connect 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 often use 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 bicyclists and pedestrians to safely cross.

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 the sidewalk, which may require right-of-way acquisition.

### Proposed Improvements

#### Short Term:

- Improve crosswalks at the Carlson Boulevard/ Broadway intersection.
- Install Class II physically separated bike lanes on Carlson Boulevard as shown in the previous section of Key Corridors.
- Install a bike box on 23rd Street at Bissell Avenue to transition bicyclists east. Consider a two-way side path on the 23rd Street frontage road to provide a direct connection between 23rd Street bike lanes and the eastern span of the Richmond Greenway.
- Potential lane narrowing or lane reduction on Carlson Boulevard as shown in the previous section on Key Corridors.
- Install wayfinding and signage.
- Improve the Ohio Avenue crossing for pedestrians and bicyclists.

#### Medium Term:

- At-grade pedestrian and bicycle 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 likely 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.
- 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.

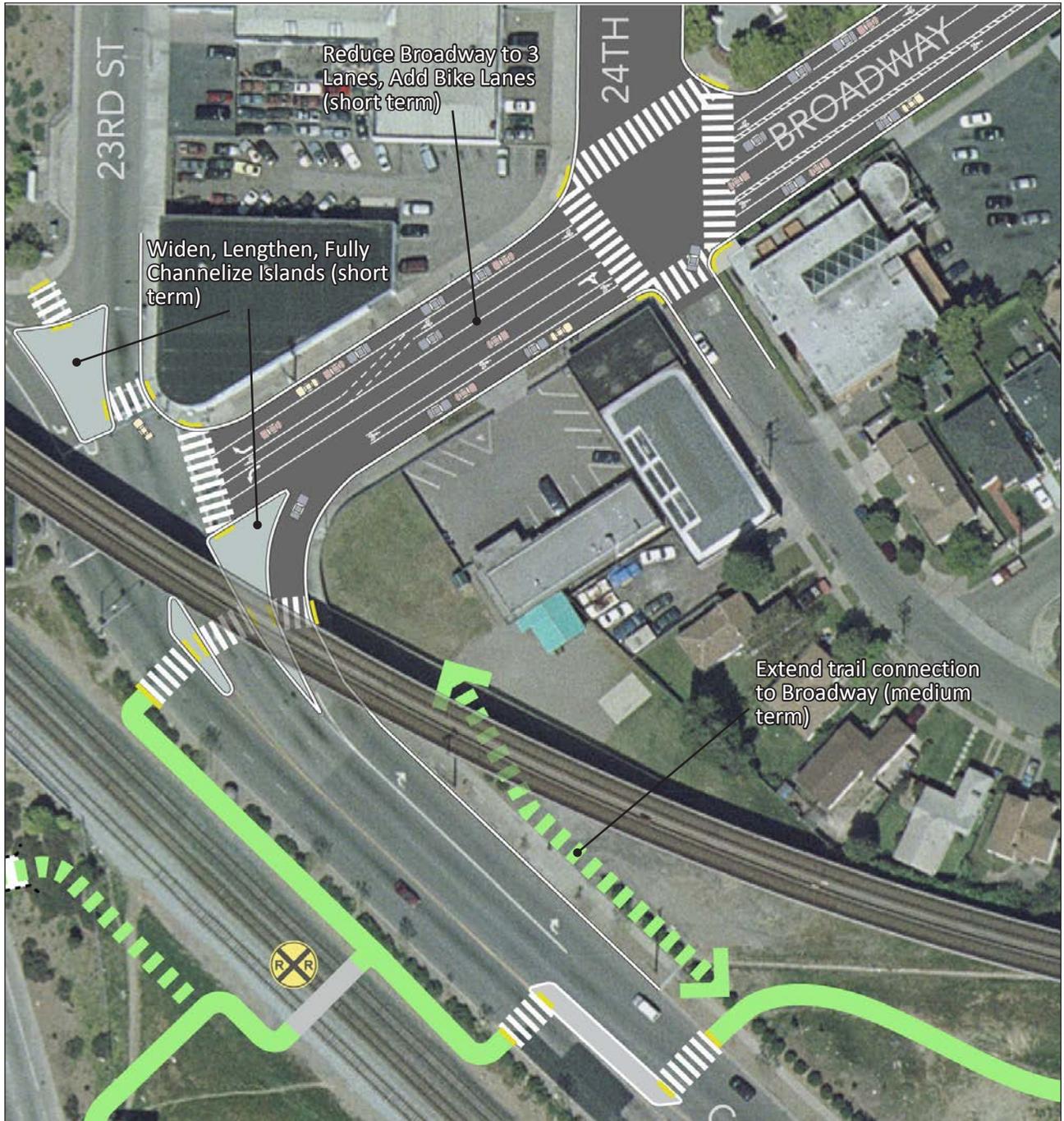
#### Long Term:

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

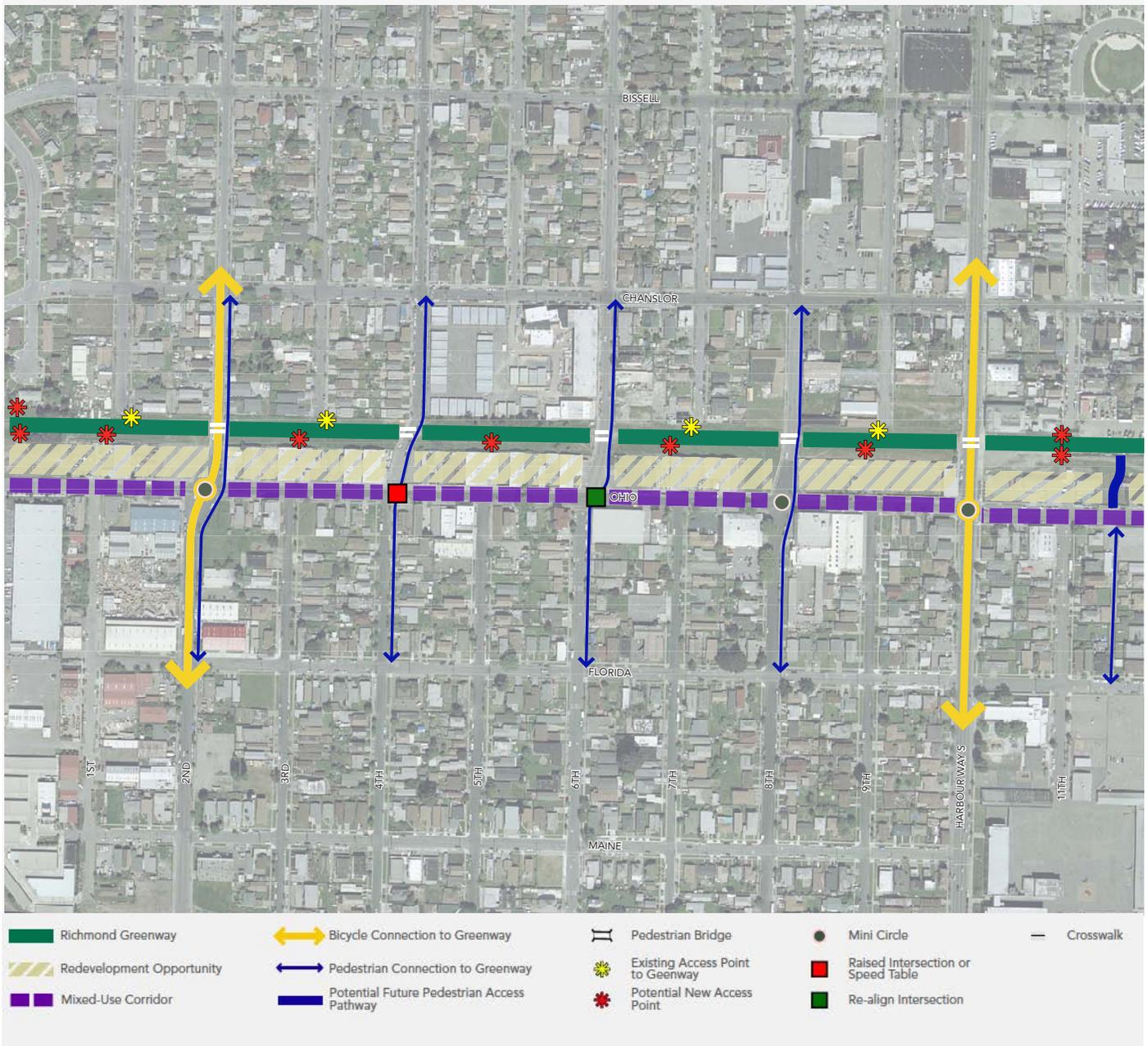
Richmond Greenway Connection Concept



Intersection Improvements



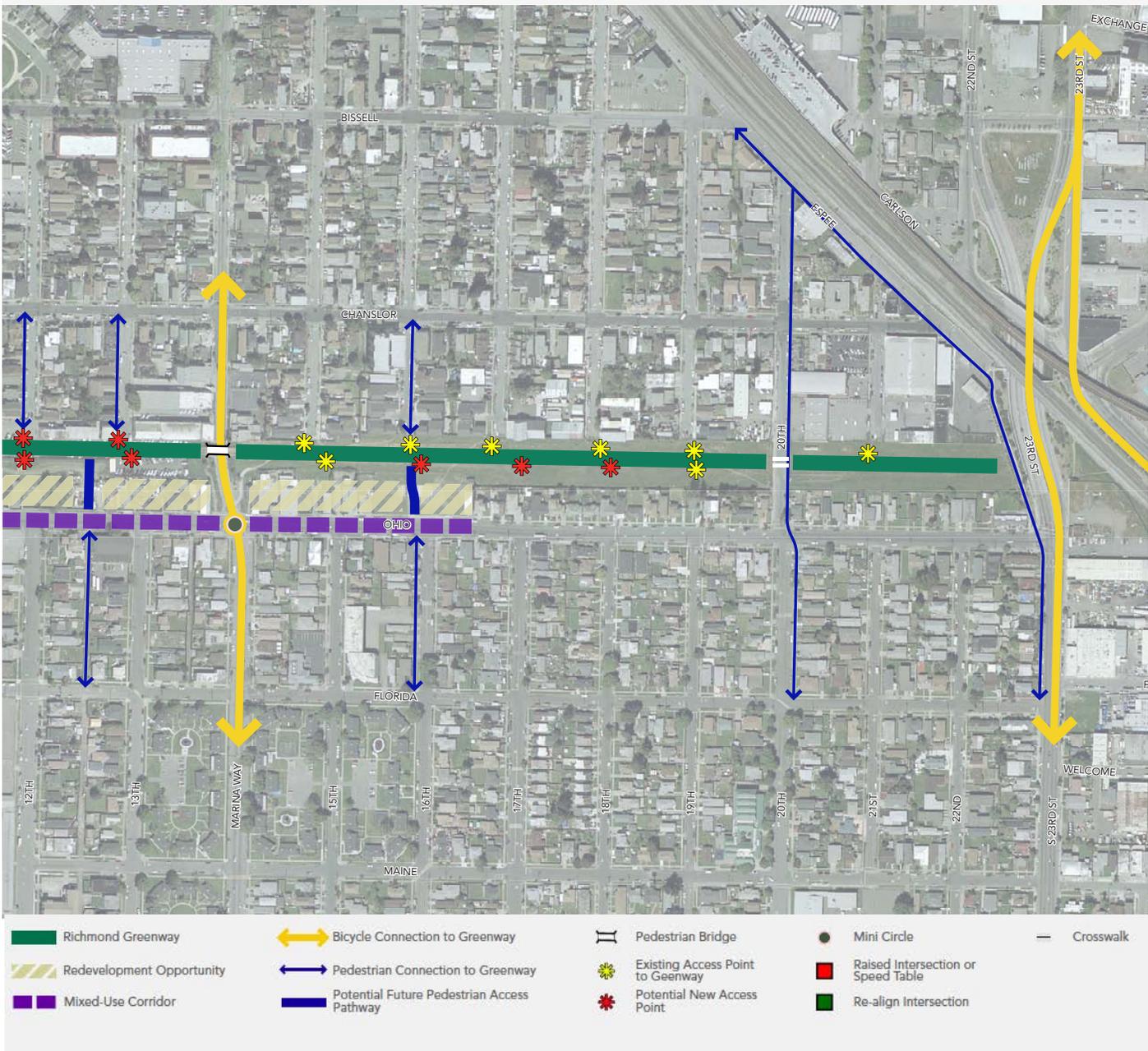
Richmond Greenway Access: First Street to 11th Street



The diagram above and on the pages that follow depict an overall strategy to activate the area around the greenway and create more entry and exit opportunities for access, convenience, ownership, security and integration into the fabric of the surrounding neighborhoods.

Ohio Avenue, west of 23rd Street, is envisioned as a change area in the General Plan, with the potential to evolve into a revitalized corridor with a mix of uses and housing types and densities. A series of public spaces and private areas between the street and trail oriented to the Greenway will strengthen the Corridor’s distinctive

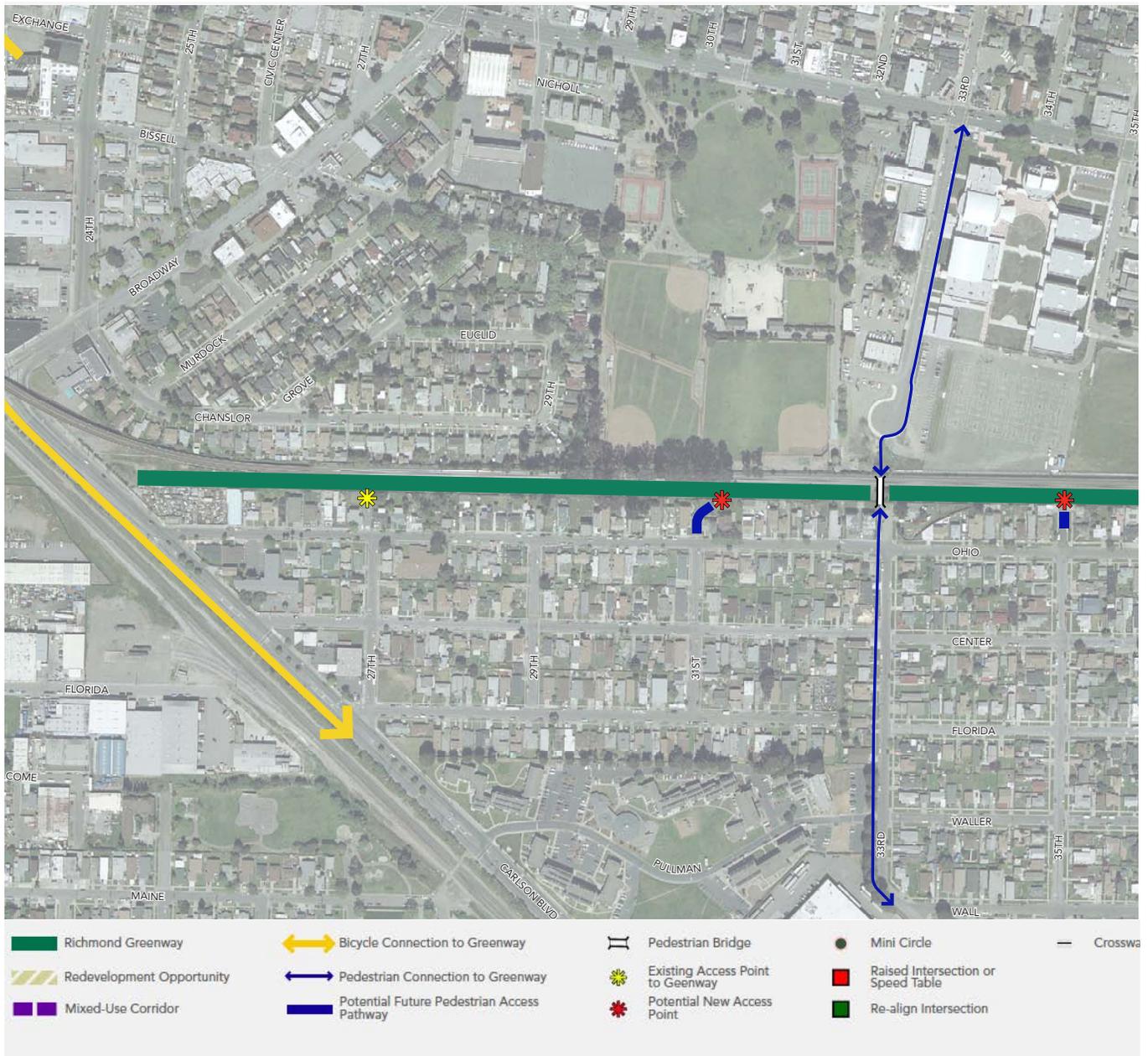
Richmond Greenway Access: 11th Street to 23rd Street



character and provide a desirable context for new development.

Primary bicycle access connections to the Greenway and cross connections from the Greenway are shown, as well as important routes for pedestrian enhancements from the surrounding neighborhoods, potential pathways linking streets or walkways across the Greenway, and current or potential future direct pedestrian access points onto and off the trail.

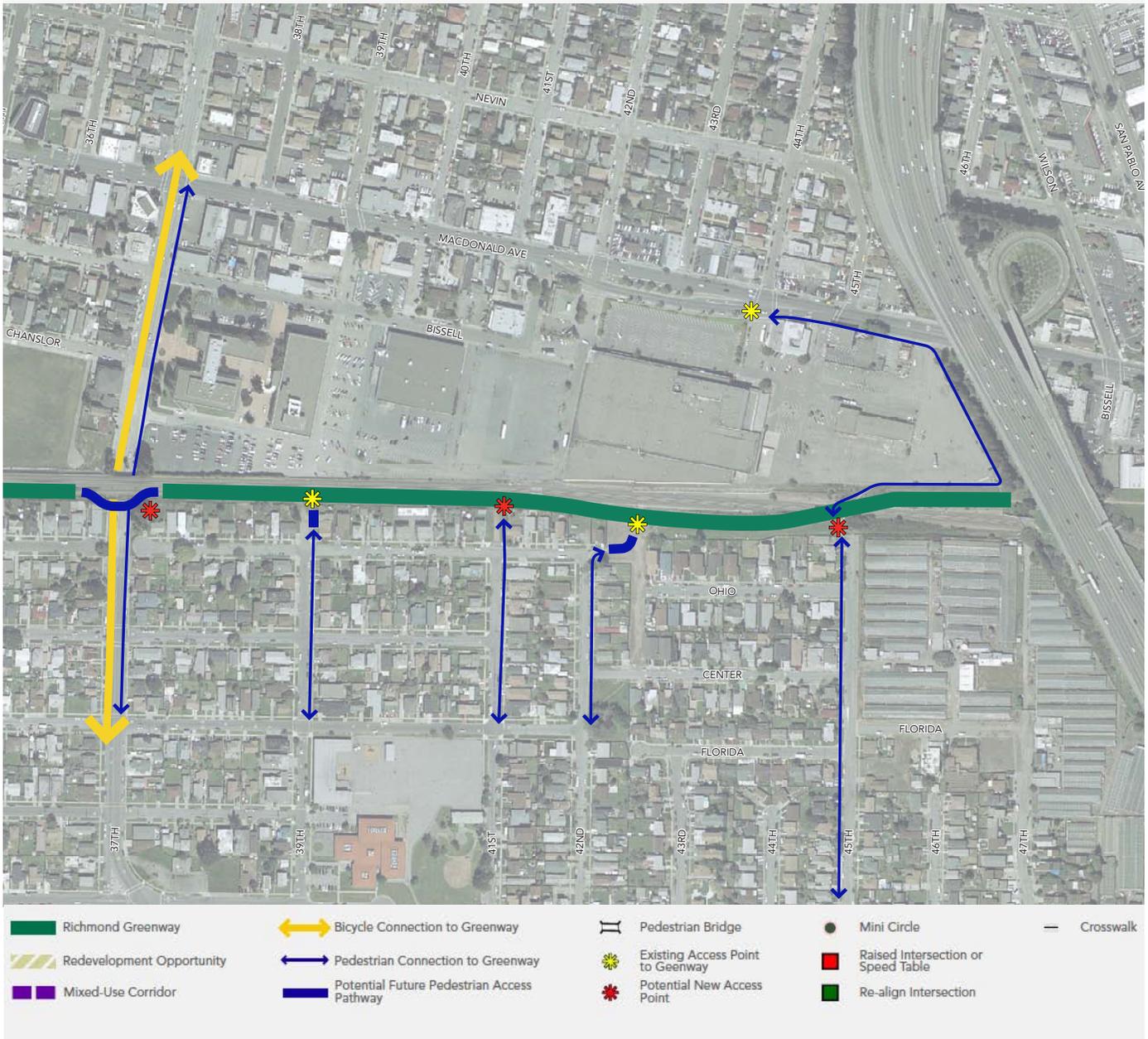
Richmond Greenway Access: 24th to 35th Street



Considerations to Improve Greenway Connectivity in Central Richmond

- Maximize lateral pedestrian connections and access points to the trail.
- Improve intersection crossings.
  - Consider yield to pedestrian and bicycle controls at key crossings.
- Encourage adjacent development that spurs activity and provides oversight of the greenway.
- Establish a series of thematic and functional elements that include planting, art, seating and signs that draw people toward the greenway and extend its visibility and linkage to surrounding neighborhoods.

Richmond Greenway Access: 37th to 47th Street



- Complete connection of the trail from 2nd Street to the Bay Trail on Garrard Boulevard.
- Complete connection of the Greenway under I-80 and across San Pablo Avenue to the Ohlone Greenway.

### Greenway Crossing at Harbour Way



*This trail crossing includes low maintenance curb extensions and crossing island.*



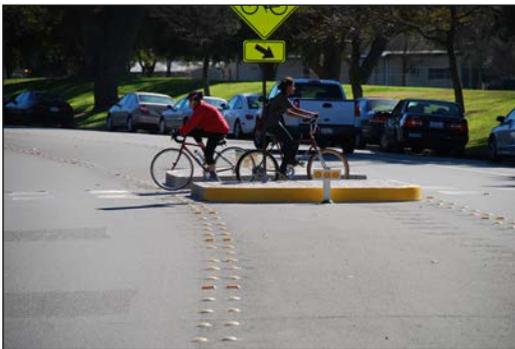
*Wide Greenway Trail crossing at Harbour Way.*



*The crosswalk and island channel are wide enough for bicyclists and pedestrians to share the crossing.*



*The photo simulation shows the impact of the addition of a small median with a wider refuge area and crossing signage. The crossing island includes lean bars for bicyclists.*



*The crossing width is sufficient for two bicyclists to pass one another.*



*The photo simulation shows the crossing with the replacement of a travel lane in each direction with wider sidewalks buffered by green strips, which greatly improves the visibility to motorists of people on foot or bicycle preparing to cross. The narrowed travel way will encourage driver caution and likeliness to yield. The road diet also enables a median wide enough to accommodate landscaping.*

**Greenway: Ohio Avenue and 16th Street**



*The diagrams illustrate how an adjacent property on Ohio Avenue could be developed with space dedicated for a pedestrian path linking both ends of 16th Street across the Greenway.*

*The Richmond Greenway as it appears today.*



*Photo simulation of the Greenway with connection to perpendicular street and multi-story development fronting and overlooking the trail. Physical and visual connections between private property and public spaces will create a sense of ownership, and provide watchfulness and security.*



### Bay Trail Network

The San Francisco Bay Trail network in Richmond provides residents access to nature and recreation, and connects neighborhoods to valuable local and regional historical destinations and other attractions. The map on the following page shows completed and planned alignments of the Bay Trail in Richmond (see also the Existing and Proposed Bicycle Facilities Map on Page 46 of this document). Most of the existing and planned trail is off-street, while some route segments are limited to sidewalks, on-street bikeway facilities, directional and information signage and other elements.

At the time of this writing, the Trails for Richmond Action Committee (TRAC) and Association of Bay Area Governments (ABAG) trail planning staff identified several important issues and opportunities to address to enhance the system. These include:

- Address the gap between the west end of the Greenway and the Bay Trail along the Richmond Parkway. A .5 mile section of BN&SF owned railroad right of way is located between the west terminus of the Greenway at 2nd Street and the Bay Trail on Garrard Boulevard. Bike lanes on Ohio Avenue help link the gap, but the City should continue to work with BN&SF for an easement to complete the off-road Greenway alignment from Garrard to 2nd Street.
- Improve weak links between Sheridan Observation Point and Ferry Point Loop. Industrial port operations force the San Francisco Bay Trail away from the shoreline onto barren city streets between Sheridan Observation Point and the Ferry Point Loop, including Harbour Way South and Hoffman, Cutting and Canal Boulevards. There may be sufficient right-of-way on portions of these corridors to enable segments of the trailway to be constructed as a Class I separated multiuse path.
- Improve the crossings of Railroad Avenue at Richmond Avenue in Point Richmond and crossings at the intersection of Central Avenue with Rydin Road in the Southwest Richmond and Richmond Annex areas. All three crossings are wide, and the Railroad Avenue crossing also has an extraordinarily large curb radius. Railroad Avenue has heavy pedestrian use since it links Point Richmond Historic District businesses and residences with The Plunge, Washington Elementary School, the only local bank, a ball field, and Miller-Knox Regional Shoreline. The Central Avenue and Rydin Road crossings are on the busy spine of the Bay Trail linking Berkeley and Emeryville with Point Isabel Regional Shoreline and Marina Bay, thus having especially heavy commute and recreational bicycle usage in addition to pedestrians.



## Freeway and Interchange Safety and Connectivity

### I-80 On-Ramp: Cutting Boulevard



*The 2 lane on-ramp, broad, sweeping corner and crosswalk placement forces pedestrians to follow indirect route across 2 lanes of accelerating traffic.*

Freeways and interchange areas in Richmond pose substantial obstacles for pedestrian mobility and safety. The best interchange configurations for pedestrians and bicyclists are where ramps intersect with streets at or close to a 90 degree angle and where the intersection is controlled by a stop or signal. This increases motorist awareness of speed and context when making the transition to or from a high speed environment. Tighter, sharper intersections also force drivers to slow down before turning and improve their sightlines for cross traffic of all kinds, motorist and nonmotorist alike, increasing the likelihood that they will see and yield to pedestrians and bicyclists. If an impact occurs, severity is lessened by slower speeds.

### I-80 On-Ramp: Cutting Boulevard – Proposed



*The diagram illustrates changes to Cutting Boulevard and the I-80 northbound on-ramp enabling pedestrians to cross one vehicle lane prior to vehicle acceleration. Space on Cutting is also reallocated for a bike lane with reduced area of conflict between bicyclists and vehicles merging to the on-ramp.*

## **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. There are high volumes of high-speed traffic, which present significant challenges to creating an area that is safe and comfortable for pedestrians. Regardless, many pedestrians and bicyclists use these streets, demonstrating the need for improvements. Enhancements will also create a positive and welcoming gateway into Central Richmond.

### **Proposed Improvements**

Short Term:

- 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.
- Install advanced pedestrian crossing signage at the southbound I-80 off-ramp onto Barrett Avenue.

Medium to Long Term:

- Reduce travel lanes on Barrett Avenue and bike lanes.
- Improve pedestrian and bicycle access at the Barrett Avenue/44th Street intersection.
  - Provide pedestrian and bicycle access southbound on 44th Street across Barrett Avenue.
  - Install a crosswalk and island on the west side of Barrett Avenue.
  - Move the eastbound vehicle queue back to stop at the new crosswalk.
  - Provide a pedestrian/bicycle actuated signal with a dedicated phase.
  - Extend southwest corner of 44th and Barrett to allow right-hand turns only off of 44th Street.
- Improvements at the I-80/San Pablo Avenue/Roosevelt Avenue intersection:
  - Consider bike lanes on both sides of San Pablo Avenue. Ensure designs facilitate safe vehicle merging across bike lanes as they enter and exit I-80 from San Pablo Avenue (SR 123).
  - Consider removing the through lane from NB I-80 off-ramp to NB on-ramp and installing a median to protect pedestrians and 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 pedestrian and bicycle exposure during crossings.
  - 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.

**Barrett Avenue/ Wilson Avenue/ San Pablo Avenue/I-80 Interchange**  
**Proposed short and long term improvements**

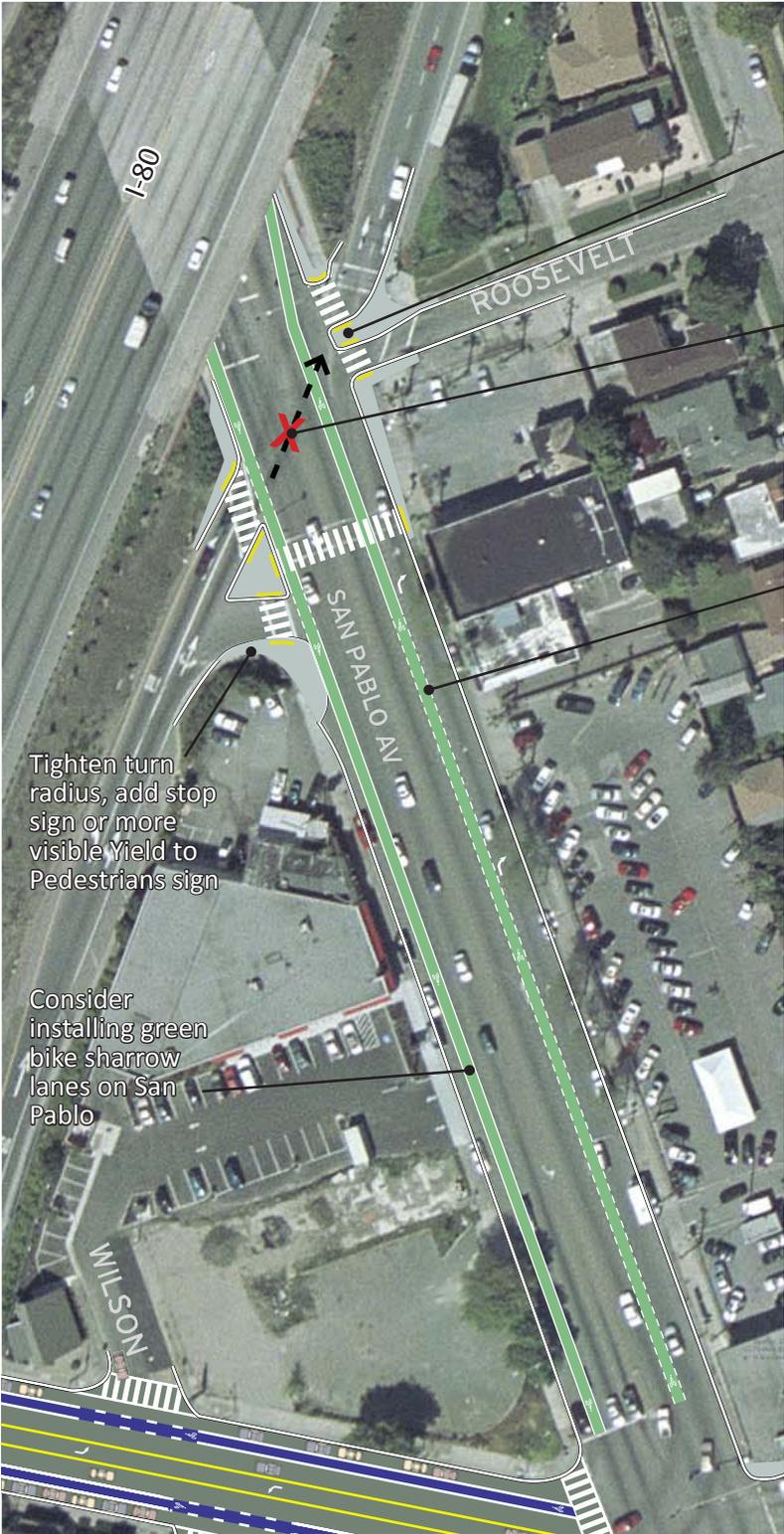


*(note: the color blue is used to denote striped bike lanes for graphic legibility and not intended to stipulate installation of blue colorized lanes)*

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

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

San Pablo Avenue/I-80 Interchange  
Proposed improvements



Tighten turn radius, shorten crossing, relocate crosswalk

Consider removing through movement from northbound off-ramp

Consider removing double right turn lane from San Pablo onto I-80 on-ramp

Tighten turn radius, add stop sign or more visible Yield to Pedestrians sign

Consider installing green bike sharrow lanes on San Pablo



6-foot painted green sharrows centered in the right travel lane on 2nd Street in Long Beach, Ca.

### **Marina Bay Parkway/I-580 Interchange and Harbour Way/I-580 Interchange**

I-580 is a linear barrier that severely limits pedestrian and bicycle access between downtown Richmond and residential neighborhoods and the waterfront. South 23rd Street, which becomes Marina Bay Parkway as it crosses I-580, and Harbour Way provide two of the three connections across the freeway (Marina Way providing the third). The freeway interchanges on both routes present challenges to pedestrian and bicycle safety and comfort that may deter non-motor travel to and from important amenities and destinations to the south, including the new Officer Moody Class I path, the existing Bay Trail system, Ford Peninsula and other commercial and residential areas.

### **Marina Bay Parkway/I-580 Interchange**

#### **Proposed Improvements**

Short Term:

- 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 stronger 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.

#### **Medium to Long Term:**

- Square the freeway off-ramps to slow speeds and improve sightlines between drivers, pedestrians and bicyclists.
- Consider installing a roundabout at Meeker Avenue.

### **Harbour Way/I-580 Interchange**

#### **Proposed Improvements**

Short Term:

- Install high visibility crosswalks and crossing islands at intersection with Cutting Boulevard.
- Add Bicycle lanes on Harbour Way and Hoffman Boulevard.
- Install bicycle detection loops at Harbor/Hoffman intersection.

Medium Term:

- Install curb extensions and directional ramps at intersection with Cutting Boulevard.
- Widen sidewalks on Cutting Boulevard.
- Reduce the number of lanes on Cutting Boulevard.
- Tighten corners and add crosswalks at on-ramps and off-ramps.

Long Term:

- Realign ramps toward 90 degree angle to slow vehicles and improve sightlines.

Marina Parkway - I580 Interchange



(note: the color blue is used to denote striped bike lanes for graphic legibility and not intended to stipulate installation of blue colored lanes)

Harbour Way - I580 Interchange



(note: the color blue is used to denote striped bike lanes for graphic legibility and not intended to stipulate installation of blue colorized lanes)

**Proposed Overpass Improvements**

Richmond residents, community leaders and participants at the Pedestrian Plan workshop have noted many challenges associated with passages under freeways, including narrow sidewalks with inadequate separation from vehicle traffic, poor illumination, and visual blight associated with overpass structures, supports and surroundings. To help address these challenges, the City Planning Division has developed a list of existing overpass conditions with proposed improvements. The list is included below and the pages that follow.

**Draft Overpass Improvement Program**  
City of Richmond, California

Overpass:	Lighting:	Hand Railings:	Sidewalks:	Walls/Abutments:	Plantings:	Bridge Facings:
 <p>San Pablo Avenue North of Barrett</p>	24/7 Illumination should be installed above sidewalks.	Install pedestrian railings on both sides of the street.	Sidewalks should be widened by narrowing width of San Pablo Ave.	East side has mural by J. Wurle. West side must have similar mural.	Abutments are currently planted.	"Richmond" is painted on each facing (should be maintained).
 <p>Barrett Avenue</p>	24/7 Illumination should be installed above sidewalks on both sides of the street.	Install pedestrian railings on both sides of the street.	Sidewalks should be widened by installing pavers in existing area intended for planting.	Overpass rests on dirt embankments that should be covered with decorative pavers.	Areas exposed to sunlight have been planted with 'rock roses' and other plants. Palms or Redwoods should be added to create 'gateways'.	Street name should be painted on facings.
 <p>Macdonald Avenue</p>	Lighting was recently installed on south wall. Must also be installed on the north wall.	Bollards were installed on the south wall. Bollards or railings should be installed along the sidewalk on the south side of the street.	Sidewalk on north side of the street must be widened. Street embedded lights should be installed in the cross walk where northbound traffic exits I-80.	The south wall has an intact mural by John Wurhie. A similar mural should be painted on the north wall.	A Coastal Redwood grove should be planted in the center of the exit circle. Redwoods should be planted on the east side of the overpass.	Street name should be painted on Facings. A second option would be to encourage vines to grow across the face of the overpass.

# Site Applications: Freeways and Interchanges

## Draft Overpass Improvement Program City of Richmond, California

Overpass:	Lighting:	Hand Railings:	Sidewalks:	Walls/Abutments:	Plantings:	Bridge Facings:
 <p>Cutting Boulevard</p>	24/7 Illumination needed above sidewalks.	Install pedestrian railings on both sides of the street. Add safety devices because of commute lane exit.	Sidewalks should be widened. Additional pedestrian safety devices should be installed because of commute lane exit.	The overpass rests on dirt embankments that should be covered with decorative pavers.	Some planting is already in place.	Street name or district should be painted on the bridge facings.
 <p>Potrero Avenue</p>	24/7 Illumination should be installed above sidewalks.	railings should be installed on each sidewalk to separate pedestrian and motor vehicles.	Sidewalks should be widened using decorative pavers.	The overpass rests on dirt embankments that should be covered with decorative pavers.	Some planting is already in place. Redwoods or Palms should be planted to create gateway.	Street name or district should be painted on the bridge facings.
 <p>Carlson Boulevard</p>	24/7 Illumination should be installed above sidewalks.	Install pedestrian railings on both sides of the street.	Widen sidewalks by narrowing street by 18" to 24" on each side.	Install <u>ceramic tile</u> murals on each concrete abutment.	Some planting is already in place. Redwoods or Palms should be planted to create gateway.	"Richmond Annex" has been painted on the facings of the bridge. This should be maintained.
 <p>Central Avenue</p>	24/7 Illumination should be installed above sidewalks.	Pedestrian railing have been installed.	Fill any available area with decorative pavers.	The overpass rests on dirt embankments that should be covered with decorative pavers.	Upgrade current planted areas.	Street name or district should be painted on the bridge facings.
 <p>2<sup>nd</sup> Street @ I-580</p>	24/7 Illumination should be installed above sidewalks	Install pedestrian railings on both sides of the street	Fill any available area with decorative pavers	The overpass rests on dirt embankments that should be covered with decorative pavers	Areas should be planted with Redwoods	Street name or district should be painted on the bridge facings
 <p>I-580@ Canal</p>	24/7 Illumination should be installed above sidewalks.	Install pedestrian railings on both sides of the street.	Fill any available area with decorative pavers.	Install <u>ceramic tile</u> murals on each concrete abutment.	Upgrade current planted areas.	Encourage continued growth of vines that are beginning to cover facings.