Element 4 | Circulation

The Circulation Element seeks to ensure efficient mobility and access for all residents, workers and visitors through a safe, interconnected, multimodal transportation system. Goals, policies and implementing actions will guide management of transportation systems in a progressive, responsible and well-balanced way.

Artwork: "Richmond's Vision" (detail) by Lauren Ari, Richmond Resident

The new intermodal transit center in Downtown Richmond is a major community asset.

Community Vision

Richmond, California in 2030

Richmond ensures mobility and access for all residents, workers and visitors through a safe, interconnected, multimodal transportation system. The City builds on its role as a regional transportation hub, connecting people to destinations throughout the Bay Area and maintaining efficient movement of goods through port and rail operations. Richmond's circulation system links key regional destinations via convenient freeway access, a trail system, public transportation services including bus, Bay Area Rapid Transit (BART) and train (Amtrak), and a bustling ferry terminal provides means for all Richmond residents to travel to and from San Francisco and other Bay Area destinations.

Richmond's grid-based network of streets balances modes of travel, supports pedestrian and bicycle connectivity, transit accessibility and a smooth flow of vehicular traffic. The City is easily navigable with clear directional signage and barrier-free links connecting all neighborhoods. Many residents rely on walking, bicycling and transit. These modes of travel are well supported by attractive streetscapes, pedestrian amenities, connected hubs and reliable bus service that provides connections to local destinations. Crosswalks, sidewalks, traffic calming features, multimodal trails and designated bike routes further provide safe and comfortable conditions for pedestrians and cyclists.

4 Circulation

THE CITY OF RICHMOND IS SERVED by a variety of transportation modes including: two freeways (Interstate 80 and 580), the Richmond Parkway, a BART station located in the heart of the City, a second BART station located at Richmond's border with El Cerrito, numerous AC Transit bus routes, a growing network of trails, a bicycle network, Amtrak passenger rail service, freight rail, an active port and a future ferry terminal in the Marina Bay area on the south shoreline.

Walkable streets with pedestrians and bicycles are encouraged throughout Richmond.

The following sections of the Circulation Element will:

- Describe circulation patterns and modes of moving people and goods in Richmond today (page 4.5);
- Present a balanced, place-based approach to circulation planning (page 4.21);
- Highlight key findings and recommendations based on an analysis of existing conditions (page 4.34);
- Define goals for improving the circulation system and expanding mobility options (page 4.38);
- Identify policies and implementing actions to address transportation needs in Richmond (page 4.40);
- Provide a summary table identifying lead responsibilities and timeframes for each implementing action (page 4.63); and
- Review the existing regulatory framework of governing bodies and other mechanisms that currently guide planning efforts (page 4.66).

Purpose of the Element

The Circulation Element addresses both the physical network of accessways and the various modes of transportation prevalent in the community. The Element seeks to ensure efficient mobility and access for all residents, workers and visitors through a safe, interconnected, multimodal transportation system. Goals, policies and implementing actions will guide management of transportation systems in a progressive, responsible and well-balanced way. In addition, this Circulation Element presents a strategic approach and decision-making tool tailored to Richmond's particular transportation environment and needs.

Authority for the Element

The Richmond General Plan complies with the State of California mandate that general plans include a circulation element regulating the location and extent of transportation modes, accessways and thoroughfares in the City (Code Section 65302b). For General Plan discussion purposes Richmond's accessways are defined as streets, sidewalks, multi-use trails, railways and waterways. Prevalent transportation modes in the City include pedestrian, bicycle, vehicle, train and boat. As required by state law, the Circulation Element correlates with the Land Use Element.[1]

Relationship to Other General Plan Elements

In seeking to set a progressive and well-balanced course for Richmond's transportation systems, the Circulation Element relates to a number of other elements in the General Plan. As per state law, policies and actions in the Circulation Element are tied to those in the Land Use Element. The Circulation Element also relates to the following elements: Urban Design, Education, Parks and Recreation, Growth Management, Community Facilities and Infrastructure and Economic Development. Where appropriate, cross-references are provided to direct the reader to relevant information in other elements.

The San Francisco Bay Trail provides pedestrian and bicycle access to shoreline areas in the City.

Vehicular traffic is the predominant mode of travel at the Macdonald Avenue and 23rd Street intersection.

Richmond Today

Richmond is served by a variety of transportation systems including: a freeway and roadway network serving vehicular traffic for passenger and goods movement; BART; AC Transit; Amtrak, the Union Pacific, BNSF and Richmond Pacific Railroads; a water port; a growing network of trails and greenways; a network of bicycle lanes and routes; and planned ferry service for the south shoreline. The following discussion reviews existing circulation patterns in Richmond—where people go and how they get there. Importantly, this section also frames a progressive approach to circulation planning and describes the intended function and character of Richmond's various street and trail types, collectively referred to as *accessways*.

"Better transit, pedestrian and bicycle amenities can help revitalize Richmond."

– General Plan Workshop Participant

Patterns and Modes of Moving People and Goods

"Circulation" refers to the movement of people and goods. In most cities people travel by foot, bicycle, private vehicle and public transit. Goods are transported by truck, rail and ship. An effective circulation system also includes the infrastructure (streets, paths and rights-of-way) that supports these various modes of travel and connects people to key destinations in an efficient and safe manner. The following discussion is organized into these categories:

- Travel to Work Patterns;
- Walking Patterns and Facilities;
- Bicycling Patterns and Facilities;
- Public Transit;
- Water Transportation;
- Vehicular Travel; and
- Goods Movement.

Travel to Work Patterns

United States Census data reveal where Richmond residents go to work and how they get there, compared to Bay Area residents in general. According to the Census, 59% of Richmond residents drive alone to work as compared to the Bay Area average of 68%[2] (see Table 4.1: Journey to Work by Mode of Travel). Richmond residents' overall carpooling and transit trips are higher than the Bay Area average. In contrast, commuters to jobs in Richmond tend to drive alone at a higher-than-average rate of 79%. This difference in mode choice may reflect the range of transit access and connectivity available to Richmond residents as compared to those available to employees coming from other parts of the Bay Area. More Richmond residents are likely able to access the many bus routes and the Downtown BART station.

The largest proportion of Richmond residents, 22%, commute to San Francisco, followed by commute trips to Oakland, Berkeley, west Contra Costa County and Alameda County [3] (see Appendix X: Commute Patterns). All of these destinations are well connected to Richmond via BART and AC Transit. Employees commuting into Richmond come primarily from west Contra Costa County, central Contra Costa County and Solano County. The latter two areas are not as well connected to Richmond by public transit, which may be related to the higher drive-alone rates for non-resident employees in Richmond.

Table 4.1 **Journey to Work by Mode of Travel**

Mode of Travel	Richmond Residents	Richmond Nonresident Employees	Bay Area Average
Drive Alone	59%	79%	68%
Carpool	19%	15%	13%
Transit	14%	4%	10%
Walk	2%	0%	3%
Bicycle	1%	0%	1%
Other	4%	0%	1%

Source: 2000 United States Census
Note: Due to rounding, values may not total 100% and values less than 0.5% are shown as zero.

Walking and Bicycling Patterns and Facilities

Richmond has an extensive network of streets, sidewalks and trails that link various neighborhoods to commercial districts and corridors, and to neighboring jurisdictions. The grid-based network of streets in the central core areas of the City provide an excellent opportunity to promote walking and bicycling as alternatives to driving. The historic parts of the City, such as Point Richmond, enjoy a high-quality pedestrian environment that can serve as a model for other parts of Richmond. Still, there are many areas that face significant challenges for pedestrians and bicyclists.

In addition, only 25% of Richmond's 22 schools are directly served by a designated bike path. Richmond experiences a higher rate of pedestrian and bicycle injuries than other cities of comparable size.[4] Historically, Richmond's Iron Triangle neighborhood in particular has been subject to high rates of accidents involving pedestrians. There have been disproportionate numbers of collisions involving bicyclists and pedestrians at the intersection of Harbour Way and Pennsylvania as compared to other intersections in the area.[5] In the North and East neighborhood, speeding on local streets remains a critical concern with the following intersections identified as dangerous *hotspots* for pedestrians: 23rd Street and Pine Avenue, 23rd Street and California Avenue, 23rd Street and Clinton Avenue, and 23rd Street and Maricopa Avenue. Especially problematic intersections for bicycle safety include: Lowell Avenue and San Pablo Avenue, 36th Street and Clinton Avenue, 26th Street and Downer Avenue, and Macdonald Avenue and San Pablo Avenue.[6]

plannerspeak

Hotspots. Hotspots are problematic intersections or areas that tend to experience high rates of vehicular, bicycle or pedestrian accidents. Hotspots warrant concentrated efforts to pinpoint issues and improve safety.

Above: The Richmond Greenway is a multi-use trail that provides multiple opportunities for recreation while linking neighborhoods and amenities.

Left: Safe pedestrian connections provide access to key community facilities in existing neighborhoods.

Community Initiatives for Pedestrian and Bicycle Improvements

Community initiatives can help improve safety for pedestrians and bicyclists.

Safe Communities Project

Motivated by a disproportionate number of pedestrian collisions in Richmond's Iron Triangle, West Contra Costa County (WCCC) initiated the Safe Communities Project in 2001. The Project has been instrumental in using the State Wide Integrated Traffic Reporting System (SWITRS) to develop collision maps and identify the most dangerous intersections.

Contra Costa Health Services Injury Prevention Project

Since 2003 the Injury Prevention Project has made strides towards locating and prioritizing hotspots and improving pedestrian and bicycle safety through prevention. The Project has resulted in key traffic safety profiles, identification of hotspot intersections and improvement recommendations for areas such as the North and East neighborhood, where prevalent speeding on local streets is a critical concern.

Richmond Pedestrian Project

In collaboration with Contra Costa Health Services, Richmond initiated the Pedestrian Project (PEDS) in 2005. The Project seeks to reduce pedestrian injuries through enforcement, education and engineering strategies. PEDS also helps prioritize Richmond's hotspots, coordinate with neighborhoods applying for grant funding for improvements and promoting pedestrian-focused safety messages.

Streets in the Point Richmond neighborhood offer many pedestrian-friendly characteristics such as wide sidewalks, street furniture and street trees.

Following is a review of the components that make up the circulatory environment for pedestrians and bicycles in Richmond—sidewalks, multi-use trails and bike paths, lanes and routes.

Sidewalks

Sidewalks are a primary component of the pedestrian circulation network. Most of Richmond's arterial and collector roadways include sidewalks. However, there are segments that are discontinuous or deteriorating, and areas where walkways are too narrow, creating connectivity problems.

Following World War II street and sidewalk standards were changed to reflect increased use of automobiles—streets were widened and sidewalks were narrowed. The El Sobrante area along San Pablo Dam Road in particular could benefit from sidewalk or hard-surface trail installation and upgrades. Some sidewalks need upgrades to meet compliance with the Americans with Disabilities Act (ADA).

Multi-Use Trails

Richmond's trails and greenways provide important bicycle and pedestrian connections between some neighborhoods, commercial centers, parks and the renowned Richmond shoreline. When completed, the **San Francisco Bay Trail** will provide a 400-mile separate right-of-way for bicycles and pedestrians around San Francisco and San Pablo bays, connecting through Richmond. Ultimately, the Richmond segment of the Bay Trail will provide for recreational as well as utilitarian trips. In 2008, approximately 25 miles of the trail within Richmond had been completed, with 16 additional miles planned (see Map 4.1: Bicycle and Pedestrian Improvements). Segments of the Bay Trail are currently located on portions of the Richmond Parkway, Cutting Boulevard, Marina Way, Regatta Boulevard, and in southern Richmond near the Miller-Knox Regional Shoreline and Central Avenue.

The Bay Trail links many of the City and regional parks in Richmond as well as the Richmond Greenway and the Wildcat Creek Regional Trail.

The San Francisco Bay Trail

The City of Richmond enjoys many miles of the San Francisco Bay Trail.

The San Francisco Bay Trail is a multi-use recreational corridor planned to encircle the San Francisco and San Pablo Bays, ultimately providing 500 miles of bicycling and walking trails. The regional trail will connect nine Bay Area counties and 47 cities that are situated along the shoreline. To-date, 290 miles of the Trail have been completed–25 miles located in Richmond and an additional 16 miles planned.

The route passes through a spectrum of environments, from highly urbanized areas like Downtown San Francisco, to inland trails such as the Ridge Trail, and remote natural areas like the San Francisco Bay National Wildlife Refuge. Depending on location, the path itself is composed of paved multi-use paths, compact gravel trails, sidewalks, bike lanes and designated routes on city streets.

The Bay Trail provides an attractive route for bicyclists and pedestrians, and supports a range of recreational opportunities. The extensive network provides access to: numerous public transportation facilities; residential neighborhoods; commercial and industrial areas; historic, natural and cultural landmarks; recreational areas such as beaches, marinas, fishing piers and boat launches; and over 130 parks and wildlife preserves totaling 57,000 acres of open space.

The San Francisco Bay Trail Plan was initiated in 1987 when Senate Bill 100 was passed into law, directing the Association of Bay Area Governments to develop a plan for the Bay Trail. The Bay Trail Project, a nonprofit organization established in 1990, and the citizen-based Trails for Richmond Action Committee (TRAC) remain vital in making the San Francisco Bay Trail a reality.

The Richmond Greenway is being developed in phases on an old railroad right-of-way that passes through core neighborhoods of the City. When completed, it will connect the Bay Trail at Richmond Parkway and Ohio Avenue to the Ohlone Greenway Trail along the BART tracks in El Cerrito.

The Wildcat Creek Trail will extend east from the Wildcat Creek Viewpoint through San Pablo, connecting to Wildcat Canyon Regional Park.

For planning purposes, bicycle facilities are categorized into three different classes based on their degree of separation from traffic. In general, *bike paths* provide exclusive use by bicycles and pedestrians, *bike lanes* provide shared use of vehicular roadways via a striped lane solely for bicycles, and *bike routes* provide a signed, designated route along a shared right-of-way with motor vehicles and pedestrians. Although Richmond's planned trails

Improved bicycle facilities encourage convenient use while making streets safe for all modes of travel.

Table 4.2 **Bicycle Facilities in Richmond**

Facility Categories	Examples
Class I Bikeway (Bike Path or Trail) Provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle cross-flow minimized.	• Point Pinole Regional Park Trails • Atlas Road between Richmond Parkway and Giant Road • Wildcat Creek Trail between Rumrill Boulevard and Richmond Parkway • Sections of the San Francisco Bay Trail
Class II Bikeway (Bike Lane) Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally at least four feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.	• Rumrill Boulevard between San Pablo Avenue and Brookside Drive • San Pablo Avenue between Road 20 and San Pablo Dam Road • 22nd Street and 23rd Street between Ohio Avenue and Macdonald Avenue • Cutting Boulevard between Hoffman Boulevard and Canal Boulevard • Canal Boulevard between Cutting Boulevard and Seacliff Drive
Class III Bikeway (Bike Route) Provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.	• Marina Way South between Wright Avenue and Hall Avenue • Marina Bay Parkway south of Interstate 580

An extensive paratransit service allows seniors and people with disabilities to access medical services and other amenities.

and greenways will provide valuable connections, the bikeway system remains incomplete, with gaps that make it difficult to travel across the City or between key destinations within the City.

Although gaps remain, the Bay Trail is largely completed on Richmond's southern shoreline between Point Isabel Regional Shoreline and Point Richmond. The next phase of improvements will link Point Richmond with Point Molate, complete the Bay Trail on the San Pablo Peninsula and link Wildcat Creek Regional Trail with Point Pinole Regional Shoreline.

Public Transit

About 13% of Richmond households do not have access to a car and are entirely dependent on public transit for medical and other needs. Most Richmond residents and businesses are well served by local and regional public transit including Bay Area Rapid Transit (BART), Amtrak, Alameda County Transit (AC Transit) and West Contra Costa Transit Authority (WCCTA). Richmond also has an extensive paratransit system with service provided by AC Transit, BART and the City of Richmond.

While more than 95% of Richmond residents live within a quarter mile of a local public transit stop, the El Sobrante Valley is not adequately served. Night and weekend bus service may not adequately serve the needs of residents, especially low-income households. Only one of Richmond's four middle and high schools are directly served by public transit.

Following is a more detailed description of Richmond's public transit system including bus transit, Bay Area Rapid Transit (BART) and Amtrak train services (Appendix X: Bus and Transit Routes).

Bus Transit

AC Transit operates nine local routes in Richmond. These include the following lines: 7, 70, 71, 72, 72M, 72R, 74, 76, and 376-night. The buses typically operate with 30 to 60-minute headways and connect to key destinations within and near Richmond including the Richmond Parkway Transit Center at Richmond Parkway and Blume Drive, the Richmond BART Station, the El Cerrito Del Norte BART Station, Downtown Richmond, Marina Bay, Contra Costa College and Hilltop Mall. In addition to local routes, three AC Transit Transbay routes operate from Richmond to the San Francisco Bay Terminal in the a.m. peak hours and from the San Francisco Bay Terminal to Richmond in the p.m. peak hours.[7]

Other transit providers serving Richmond include Golden Gate Transit, which operates two routes (40/42) to the San Rafael Transit Center from Richmond, and WestCAT, which provides a commute express bus route from the Richmond Parkway Transit Center to the El Cerrito Del Norte

BART Station. WestCAT also provides express bus service between the El Cerrito Del Norte BART Station and Hercules Transit Center with stops alternating between Richmond Parkway Transit Center and Hilltop Shopping Center. The recently completed Richmond Intermodal Transit Station, located near the Richmond BART station, provides links between BART, Amtrak, AC Transit and WestCAT.

Paratransit Service

The Richmond Paratransit Program provides low-cost transportation services to elderly persons and persons with disabilities. It serves residents from Richmond, North Richmond, Kensington and El Sobrante. Among the programs offered by the Paratransit Division are: demand-response and fixed-route transportation services, individual trips, group trips, special purpose group tours, shuttle services, nutrition site transportation and a subsidized taxi program.

Bay Area Rapid Transit

Richmond's Bay Area Rapid Transit (BART) station is the northwestern terminus of this regional rail system. BART also operates a servicing facility near the Downtown station.

Amtrak

Amtrak's Capitol Corridor and San Joaquin trains stop at the intermodal Richmond Station. The westbound route connects with Berkeley, Emeryville, San Francisco and Oakland. Eastbound, the Capitol Corridor extends to Davis, Sacramento and Auburn in California, and Reno and Sparks via bus in Nevada. In each direction, 16 trains stop at the Richmond Amtrak Station on the Capitol Corridor route. In total, 40 passenger trains per weekday make stops at the Richmond Station.

Water Transportation

Richmond's location on the San Francisco and San Pablo Bays makes the water a valuable resource for recreation and public transportation. There are several marinas for recreational boats including Richmond Marina, Richmond Yacht Club located in the Richmond Inner Harbor and Point San Pablo Yacht Harbor located on San Pablo Bay.

Richmond is a candidate for a new East Bay ferry terminal. The San Francisco Bay Area Water Emergency Transportation Authority (WETA) included Richmond as a potential terminal location site in its 2005 Terminal Site Analysis. WETA prepared the Richmond Waterfront Transit-Oriented Development (TOD) Plan to present a preferred alternative and a Development Concept Plan for the potential terminal.[8] The recommended site for the ferry terminal is in Marina Bay Yacht Harbor at the existing G Dock.

Above: BART commuter rail, with a station in Downtown Richmond, provides connections to the East Bay and San Francisco.

Below: The Richmond City Council has gone on record supporting the potential new ferry terminal to be located in the Marina Bay area of Richmond.

Routes of Regional Significance

Routes of Regional Significance are defined by the West Contra Costa Transportation Action Committee (WCCTAC) as roadways that connect two or more regions of Contra Costa County, cross Contra Costa County boundaries, carry a significant amount of traffic, or provide access to a regional highway or transit facility. These routes connect Richmond residents and businesses to regional destinations and resources. Designated Routes of Regional Significance in Richmond include the following.

- Interstate 80
- Interstate 580
- Richmond Parkway
- 23rd Street
- Carlson Boulevard
- Central Avenue
- Cutting Boulevard
- El Portal Drive
- Road 20
- San Pablo Avenue
- San Pablo Dam Road

Proposed land uses within the Waterfront TOD Plan area include: high-density mixed-use development close to the terminal; new roads in a grid pattern to reduce block lengths and provide for greater walkability; and a transitional area from the new development to existing office and industrial developments (without residential units). Overall, the TOD Plan aims to achieve a pedestrian, transit and waterfront-oriented neighborhood, good intermodal access to the ferry terminal, the continued coexistence of diverse uses on the Ford Peninsula and Marina Bay, the right amount of parking in strategic locations and a strong sense of place.

Potential funding sources for the ferry portion of the TOD Plan include the federal SAFETEA-LU Act (2007), the State of California's Proposition 1B Bond (November 2006), Regional Measure 2 (March 2004) and Contra Costa County's Measure J (November 2004).

Vehicular Travel

Routes of Regional Significance such as Interstate 80, Interstate 580 and the Richmond Parkway, provide regional connections while local streets provide access to residential, commercial and industrial areas of the City.

Vehicular analyses based on traffic volumes and service levels (using daily 24-hour traffic counts) indicate where particular streets, street segments and intersections are operating beyond their intended vehicular capacity.[9] (Appendix X: Existing Traffic Counts and Level of Service). These findings point to specific areas where mitigation measures are needed and highlight where to focus improvement efforts. Vehicular-based assessments of 38 key roadway segments throughout the City indicate that most roadways are operating well under their maximum capacities. However, several segments of Interstate 80, and 22nd and 23rd streets in the Downtown are currently operating beyond their designed capacity.

Following is a review of intersections or roadway segments that are particularly problematic and could benefit from improvement. While some initial mitigation measures are proposed in relation to each area, more detailed study will be needed to determine how to best resolve specific issues. Proposed improvements range from traffic calming solutions and pedestrian and/or bicycle improvements, to lane reconfigurations, signalization and grade-separated rail crossings. At this General Plan writing, a number of critical circulation improvements are priority capital improvement projects for the community. These are highlighted as part of Richmond's Capital Improvement Program in both the Key Findings and Recommendations and the Implementing Actions portions of this Plan (pages 4.34 and 4.40 respectively). Overall, the City will seek alternative strategies to address traffic congestion. Streets will be evaluated based on impacts to their immediate surroundings.

Meeker Avenue/Marina Bay Parkway Intersection
The intersection of Meeker Avenue and Marina Bay Parkway is designed to facilitate moderate traffic flow. As a result, drivers tend to speed, making the pedestrian environment less than ideal. Many pedestrians use the intersection to cross between workplaces and the shopping center. Improvements may include traffic calming measures.

22nd and 23rd Streets
The one-way sections of 22nd and 23rd Streets between Roosevelt and Macdonald were intended to facilitate traffic flow, but have resulted in traffic-dominated streets that are not pedestrian friendly. Traffic speeds are higher than desired. Improvements may include converting these streets back to two-way operation, with associated traffic calming elements to improve safety for pedestrians and bicyclists.

South 37th Street and Roosevelt Avenue
On the north-south portion of South 37th Street and on an east-west portion of Roosevelt Avenue, traffic speeds and cut-through traffic have impacted the residential quality of life and raised safety concerns. Traffic calming improvements may be needed such as four-way-stop intersections, traffic circles, narrowed travel lanes, curb extensions at intersections and other measures.

Castro Ranch Road
Castro Ranch Road has experienced slides and temporary closures in the past due to the varied topography, drainage and the underground San Pablo Creek crossing. Local residents have expressed concern about the future stability and maintenance of this road, particularly with the potential for traffic growth from new development. Additional meetings should be held with area residents to determine appropriate road design.

Barrett Avenue
Barrett Avenue has traditionally been a residential street intended for slow-moving local traffic. However, because it connects 23rd Street to San Pablo Avenue and Interstate 80, it was become a busy thoroughfare. The City will work with area residents to develop tools for minimizing and slowing traffic and ensuring safe and convenient pedestrian access.

Marina Bay Parkway Rail Crossing
Train crossings at Marina Bay Parkway cause traffic delays and concerns about residents being temporarily cut off from regional routes and the rest of the City. An overcrossing has been discussed, but this would have adverse impacts on nearby existing and planned development. Another solution either as an alternative or in combination with the overcrossing would be provision of a new route to Interstate 80 via an extension of

Major circulation infrastructure such as this railroad grade separation on Macdonald Avenue, forms a barrier between the Civic Center and the historic Downtown.

Regatta Boulevard through the University of California at Berkeley and Simeon Properties to the east.

Marina Way South Rail Crossing
Train crossings at Marina Way South create a barrier between the proposed waterfront transit-oriented development area from the regional routes and the rest of the City. The possible new route to Interstate 80 via an extension of Regatta Boulevard could improve access to this area.

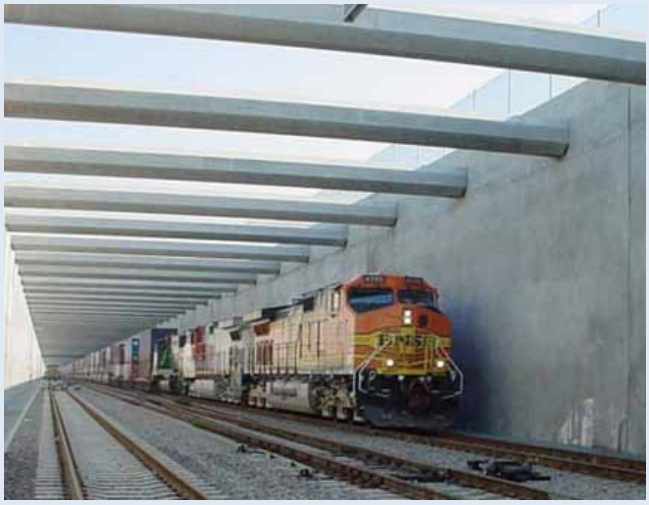
Harbour Way/Wright Avenue Rail Crossing
At Harbour Way and Wright Avenue, the Burlington Northern Santa Fe (BNSF) rail line crosses diagonally through the unsignalized intersection without warning lights or gates. There is a need for coordinated traffic signals and gates at this intersection.

At-grade railroad crossings cause delays at some intersections in the City.

Carlson Boulevard/Cutting Boulevard Rail Crossing
The Union Pacific Rail Road (UPRR) tracks cross Carlson Boulevard at Cutting Boulevard, creating one of the most dangerous intersections in the State, according to the California Public Utilities Commission. The intersection is located near schools and is regularly used by pedestrians. A grade separation at this location is the most effective long-term solution.

Garrard Boulevard/Cutting Boulevard Rail Crossing
The BNSF tracks cross both Garrard Boulevard and Cutting Boulevard, and periodically longer trains cause extensive backups on these important arterials. A potential solution is to switch longer trains to the UPRR tracks at the Stockton rail interchange.

Undergrounding Railroad Tracks



Undergrounding railroad tracks can reduce impacts on the community while improving freight movement.

There are a number of at-grade railroad crossings in Richmond where trains pass through established neighborhoods and the Downtown, creating traffic and noise conflicts and separating residential areas from community amenities such as Richmond's shoreline, parks and schools. Overhead-grade crossings also create visual barriers and can negatively impact adjacent land uses, street connections and character. The planned expansion of the Port of Oakland will likely exacerbate these conditions and increase air pollution in Richmond.

A potential strategy to reduce these community impacts involves relocating the railroad tracks underground as they pass through the City. This alternative should be explored as a condition of approval for increasing railroad traffic through Richmond. The Alameda Corridor provides a recent successful example of such a project. The 20-mile mid-corridor trench connects the ports of Los Angeles and Long Beach to railyards east of Downtown Los Angeles, and was completed at a design-build cost of $712 million. The project separates the railroad tracks from adjacent streets and eliminates 30 at-grade crossings with bridges.[10]

Giant Road Access
A new grade-separated rail crossing may be needed in North Richmond to supplement the existing Giant Road access serving the existing and potential new uses west of the UPRR tracks.

Central Avenue
Central Avenue at Interstate 80 and Interstate 580 experiences traffic congestion particularly during the commute peak hours.

San Pablo Avenue/23rd Street
The intersection of San Pablo Avenue and 23rd Street serves high traffic volumes with a nonstandard alignment and close proximity to adjacent intersections. Commute hour congestion is severe.

San Pablo Avenue/Richmond Parkway
The intersection of San Pablo Avenue and Richmond Parkway is congested during commute hours. This intersection was originally envisioned to be a grade-separated interchange, but existing development patterns make this option unlikely. An at-grade intersection design is needed for this area.

San Pablo Avenue/Barrett and Interstate 80
San Pablo Avenue at Barrett and Interstate 80 is a congested area due to the closely spaced intersections and the resulting minimal capacity for vehicles to queue.

San Pablo Dam Road
San Pablo Dam Road experiences heavy congestion during the commute peak hours. Factors affecting congestion include the high traffic generated by regional, local and school-related trips, and the roadway narrowing down from four to two lanes east of Castro Ranch Road. San Pablo Dam Road at Interstate 80 and Amador Street are closely spaced intersections that experience significant congestion during the commute peak hours.

Goods Movement

The Port and industrial areas of the City provide a significant source of employment and revenue to Richmond and serve a major role in the regional economy. An efficient, safe and reliable system for goods movement via trucks and railroads is an important part of Richmond's circulation network. Preventing conflicts between Richmond's goods movement operations and surrounding uses is a priority.

Truck Routes

There are 28 designated truck routes in the City of Richmond. Many of these truck routes are located south of Interstate 580 where they access port terminals on the Richmond Harbor. Truck routes also extend to northern Richmond near Hilltop Mall and on Interstate 580, Interstate 80 and the Richmond Parkway.

Railroads

Goods movement is also accomplished by rail in Richmond. Burlington Northern Santa Fe (BNSF), Union Pacific (UP) and Richmond Pacific (RP) operate the various tracks in the City. Burlington Northern Santa Fe operates an average of 20 trains per day with train lengths varying from 10 to 100 cars. On the tracks north of Garrard Boulevard, trains travel up to 55 miles per hour (mph); on tracks west and south of Garrard Boulevard, trains travel 10 mph.

Union Pacific owns the tracks that passenger (Capitol Corridor) and freight trains use on a daily basis. There are about 24 passenger trains and 43 freight trains using these tracks on a typical weekday. Amtrak passenger trains travel up to 70 mph and the UP freight trains travel up to 55 mph.

Richmond Pacific operates on tracks south of Interstate 580, between South 4th Street and Regatta Boulevard in the Richmond Harbor area and a section of track between the Richmond Parkway and Rumrill Boulevard. Richmond Pacific runs two trains with 10 to 20 cars on the northern tracks, and as many as 32 trains with two to 20 cars per day on the southern tracks.

There are many locations in Richmond with at-grade railroad crossings of local streets. The RP line intersection with Marina Bay Parkway south of Interstate 580 has been studied for a possible grade separation. Several other locations in Richmond present train/vehicle conflict issues due to inherent difficulties with vehicle traffic flow, train movements and sensitive nearby land uses.

Port

Three port terminals are located on the Richmond Inner Harbor; Chevron operates its own pier north of Point Richmond. These are all located south of Interstate 580 where there is interaction between the port terminals, freight trains and truck traffic. Port Terminal 1 is located on the west side of Harbor Channel. On the east side of Harbor Channel, Terminals 2 and 3 are primarily used for the import and export of containers. Terminal 4 is north of Interstate 580 on the San Pablo Peninsula, and is not operational.

The Port handles a total of 19 million tons annually. The majority of the cargo is oil and other petroleum products. The Port also receives imported cars and delivers them to dealers throughout the San Francisco Bay Area.

The Port of Richmond is a major facility in the City and is supported by a truck and railroad system to move goods to regional destinations.

The place-based approach balances the various modes of travel on City streets.

A Place-Based Circulation Planning Approach

The Level of Service Methodology

Past planning methods have relied heavily on a classification system that defines street types solely by their intended levels of automobile volume and speed. This traditional system utilizes Level of Service (LOS) standard data—automobile speed, volume and delay time—to evaluate street performance and indicate where improvements are needed. Where traffic flows exceed a street's intended carrying capacity, the predominant response has been to expand automobile capacity via infrastructure-based solutions.

The conventional street classification system in combination with LOS performance analysis still provides useful information about where mitigation measures are needed and where streets are operating beyond their intended vehicular capacity. However, this approach does not consider overall mobility, land use, context, desired character and conditions for non-auto street users. Since the street classification system and LOS performance measures are relevant only to vehicular travel, transportation improvements have historically also been automobile-focused.

While automobile mobility is important for a range of travel needs, access should be balanced with improved conditions for pedestrians, bicyclists and public transit. In general, potential enhancements to the street system must consider all modes of travel and should be based on a particular street's intended function and design character.

Level of Service Standards: An Evolving Decision-Making Tool

There are varying levels of traffic in Richmond and throughout the region.

Level of Service (LOS) standards are auto-based performance measures that evaluate streets and intersections based on driver favorability and vehicular traffic conditions, ranging from free-flow (most favorable) to congested with delays (least favorable). Thresholds for LOS are based on a number of roadway operational factors such as number of lanes, signal spacing, percentage of trucks in the traffic stream, speed limit and others. In the past, unfavorable LOS findings have typically pointed to a need for additional vehicular capacity through infrastructure and engineering solutions. Over time, this response has led to a decentralized pattern of land use and an automobile-dominated circulation network.

LOS findings continue to be useful in confirming where mitigation measures are needed and where streets are operating beyond their intended vehicular capacity. However, the manner in which planners use LOS data as a decision-making tool is evolving. Rather than primarily signaling a need for increased carrying capacity through infrastructure solutions (such as street widening and lane additions), LOS findings should point to a need to consider a range of possible mitigations in resolving unfavorable conditions. Potential mitigations might include: development of infill sites served by transit, pedestrian and/or bicycle improvements, traffic calming, public transit service enhancements and transportation demand management, among others.

Pedestrians, public transit and vehicular traffic can all be accommodated in a multimodal street design.

The Place-Based Methodology

As a means of planning overall circulation improvements, a broad-based approach is needed—one that considers the street as a complete environment for people who are walking, enjoying public parks and plazas, riding bikes, taking public transit and those who are driving cars. Underlying Richmond's approach to circulation is a larger vision to create places for people. Woven throughout the discussion and policies that follow is an emphasis on improving conditions to support all modes of transportation and travel by foot and by bicycle, while also maintaining smooth vehicular connections. Rather than simply linking people from point to point, the City strives to improve the experience of moving from place to place at the pedestrian level. It is this personal level of interaction between people that activates places, creating vibrancy, sense of place and a better quality of community life.

Accordingly, this place-based approach to roadway and circulation planning seeks to: rebalance the circulation system, ensuring that multiple modes of travel are accommodated; respect street context including land use and desired character; encourage environmental responsibility; plan for pedestrian and bicycle use; create places for people; and improve overall

Table 4.3 **Comparison of Approaches to Circulation Planning**

Traditional Approach to Circulation Planning	Place-Based Approach to Circulation Planning
• Prioritizes movement of vehicles on all street types.	• Considers the movement of all modes of mobility (walking, bicycling, public transit and automobiles) and prioritizes a range of modes of mobility depending on street function and character.
• Seeks to improve driver satisfaction but does not address conditions for non-auto users.	• Seeks to make conditions safer and more attractive for all modes of mobility, including travel by foot and by bicycle.
• Evaluates streets based on driver favorability and traffic conditions, ranging from free-flow to congested.	• Evaluates streets based on their ability to serve targeted modes of mobility and to support surrounding land use.
• Mitigates unfavorable street conditions by expanding street capacity.	• Mitigates unfavorable street conditions based on a range of place-based community design-oriented solutions.
• Creates a network of circulation for automobiles.	• Creates places for people.

Pedestrians and bicycles are given high priority on residential streets.

quality of life. The place-based methodology serves as both an organizational framework and as a means of performance evaluation for the City of Richmond street grid.

Place-Based Performance Evaluation

The place-based classification system serves as a tool to guide decisions about improvements that will best meet the community's vision of the public right-of-way. Using this classification system, accessway performance and proposed improvements can be more effectively evaluated based on their ability to: meet the needs of the priority and allowable modes of travel, complement surrounding land use and reflect appropriate character. Potential improvements should point to a range of mitigations in resolving unfavorable conditions, such as integrated land uses, pedestrian and/or bicycle improvements, traffic calming, public transit service enhancements and transportation demand management. These measures draw from both physical design treatment of the street environment and social and programmatic responses appropriate to the particular street context.

Place-Based Classification System

Rather than employing the standard vehicular capacity-based hierarchy for streets (freeways, arterials, collectors, local roadways), the place-based classification system for accessways (streets and multi-use trails) is tailored to surrounding land use, street function and desired character.

Integral to this classification system is the identification of priority, allowable and prohibited modes of travel for each particular accessway type. Where a certain mode of travel is designated as *a priority*, streets should accommodate this mode. Where a mode of travel is designated as *allowable*, that mode should be considered if it can be accommodated. Incorporating an allowable mode is not required, but should be evaluated based on the character and function of a particular street. Where a mode of travel is designated as *prohibited*, it is not allowed on that particular street type. In addition to specifying a range of priority travel modes,

Richmond's classification system also describes accessways in relation to their predominant land use and desired character.

As an example, Macdonald Avenue is classified as a community activity street, with commercial and high-intensity mixed-uses and a vibrant "main street" character. Accordingly, future improvements along this street should support all modes of travel (except heavy trucking), emphasize pedestrian

Table 4.4 **Place-Based Circulation Classification System**

Accessway Category	Public Transit	Bicycle	Pedestrian	Automobile	Truck
Multi-Use Trail Bicycles and pedestrians are the only accommodated modes.	✕	●	●	✕	✕
Residential Street Pedestrian is the priority mode, with public transit, bicycles and automobiles as allowable users.	○	○	●	○	✕
Neighborhood Street Walking and bicycling are the priority modes, with public transit and automobiles as allowable modes.	○	●	●	○	✕
Community Activity Street Public transit and pedestrians are the primary modes, with bicycles and automobiles as allowable modes.	●	○	●	○	✕
Community Connector Street Public transit is the primary mode, with all other modes allowed.	●	○	○	○	○
Regional Connector Street All modes are allowed, including large trucks.	○	○	○	○	○
Highways Transit, automobiles and trucks are priority modes; all others are prohibited.	●	✕	✕	●	●

Legend: ● Priority Mode ○ Allowable Mode ✕ Prohibited Mode

Note: Public transit does not include heavy rail.
Trucks refer to vehicles weighing 9,000 or more and with dual tires on the rear axle.

activity and include features such as wide tree-lined sidewalks, plazas, transit amenities and slow moving traffic. Where pedestrians and bicycles are designated as priority modes, streets might warrant safe intersection crossings, traffic calming, sidewalks and bike lanes. Where public transit is a priority, both physical and programmatic responses may be appropriate such as improving transit connections, expanding transit service, providing transit hubs, addressing affordability and transit incentives. The place-based classification system will result in a more balanced and vibrant street environment.

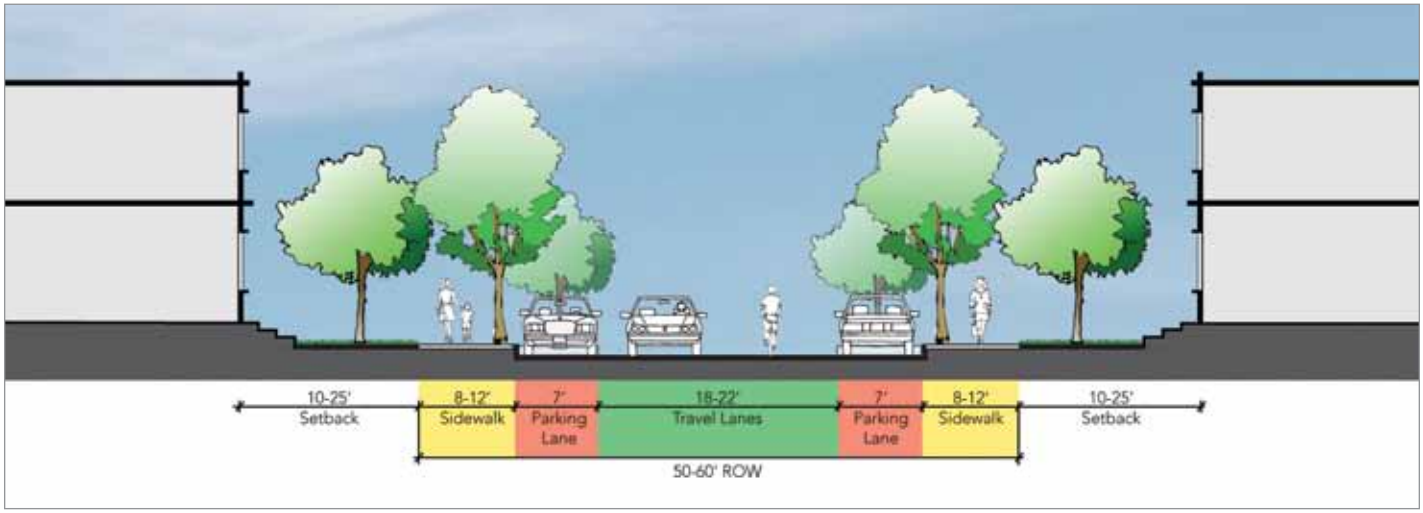
Following are definitions of Richmond's accessways (multi-use trails and streets) that make up the place-based classification system (see Table 4.4: Place-Based Circulation Classification System).

Multi-Use Trail

Multi-use trails refer to bicycle and pedestrian trails, paths and routes that are separated from other modes of travel. Multi-use trails such as the Richmond Greenway and San Francisco Bay Trail are located primarily in open space areas and along the shoreline. Multi-use trails promote recreation, interpretation and health, while providing citywide connections to employment centers, community amenities, parks, schools, transit stops and public facilities.

Multi-use trails provide access for pedestrians and bicycles.

Figure 4.1 **Residential Street**

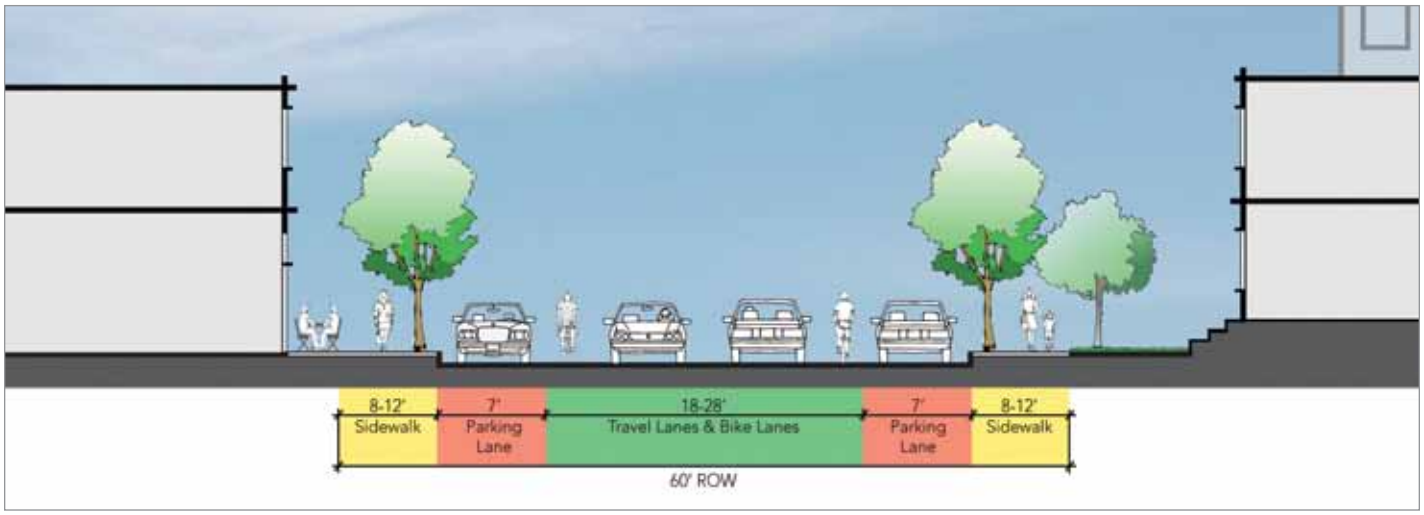


Residential Street

Residential streets are internal streets within neighborhoods. They provide a safe environment for families and children, allowing pedestrian activities to spill onto the street. The presence of automobiles is minimized through traffic calming, the active use of streets, landscaping and signs. These streets are dominated by residential land use.

Residential streets give priority to pedestrians.

Figure 4.2 **Neighborhood Street**



Neighborhood Street

Neighborhood streets connect major activity areas within a neighborhood, and are designed to emphasize walking and bicycling as well as automobiles. As connectors between different parts of a neighborhood, these streets tend to have more traffic and wider rights-of-way than residential streets, but have less auto-traffic than major roadways. These streets are typically lined with trees, bike lanes and sidewalks. Development along neighborhood streets may include residences, mixed-use development, schools, parks, public facilities and other community amenities. Examples of neighborhood streets include: McBryde Avenue, Ohio Avenue, Marina Way and Nevin Avenue.

Neighborhood streets give pedestrians and bicyclists high priority.

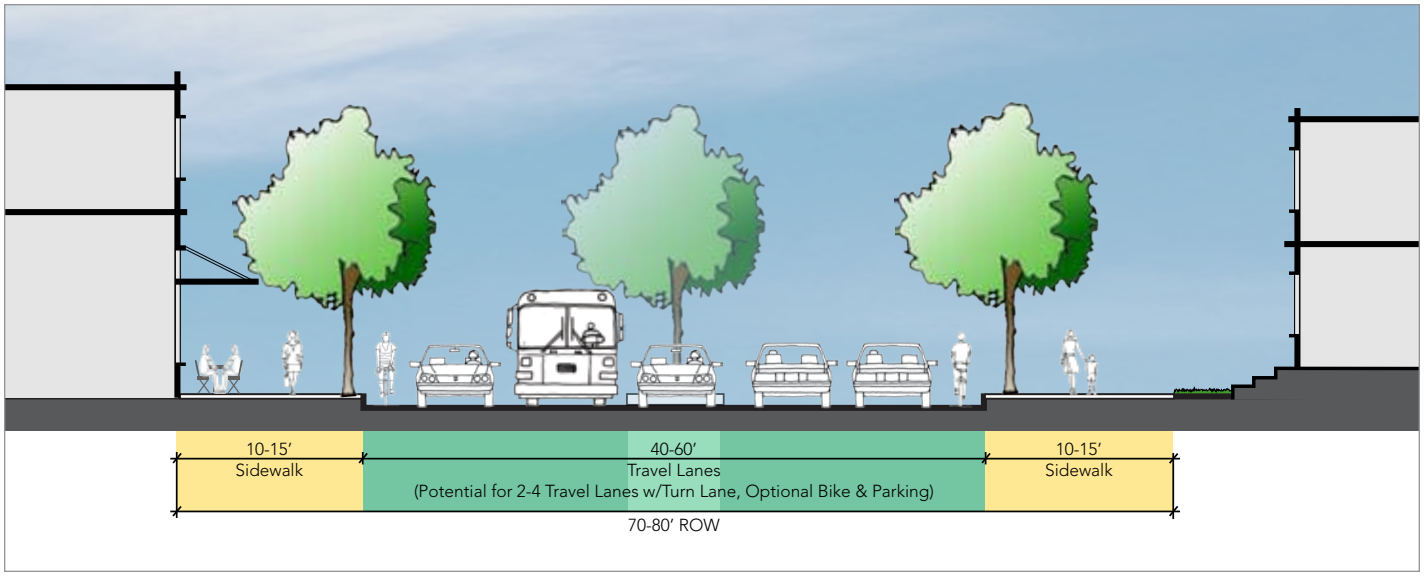
Figure 4.3 **Community Activity Street**

Community Activity Street

Community activity streets link various neighborhoods to one another, link neighborhoods to other parts of the City, have a greater commercial emphasis as compared to neighborhood streets and accommodate all modes of travel including public transit, bicycling and walking. They serve as destinations and are the "main streets" of the City. A higher-intensity of development is appropriate along these corridors including housing and mixed-use. Common street characteristics may include wide, tree-lined sidewalks, plazas hosting an abundance of pedestrian activity, wider rights-of-way and medians and more travel lanes to enhance traffic flows for autos and transit vehicles. In addition, parking lanes, wide sidewalks, large street trees and traffic signals may buffer pedestrians and bicyclists from automobiles and transit vehicles. Although private automobiles are allowed on these streets, they typically move slowly because of high volumes. Examples of community activity streets include: Macdonald Avenue, Marina Way South, 23rd Street and Barrett Avenue.

Community activity streets support all modes of transportation.

Figure 4.4 **Community Connector Street**

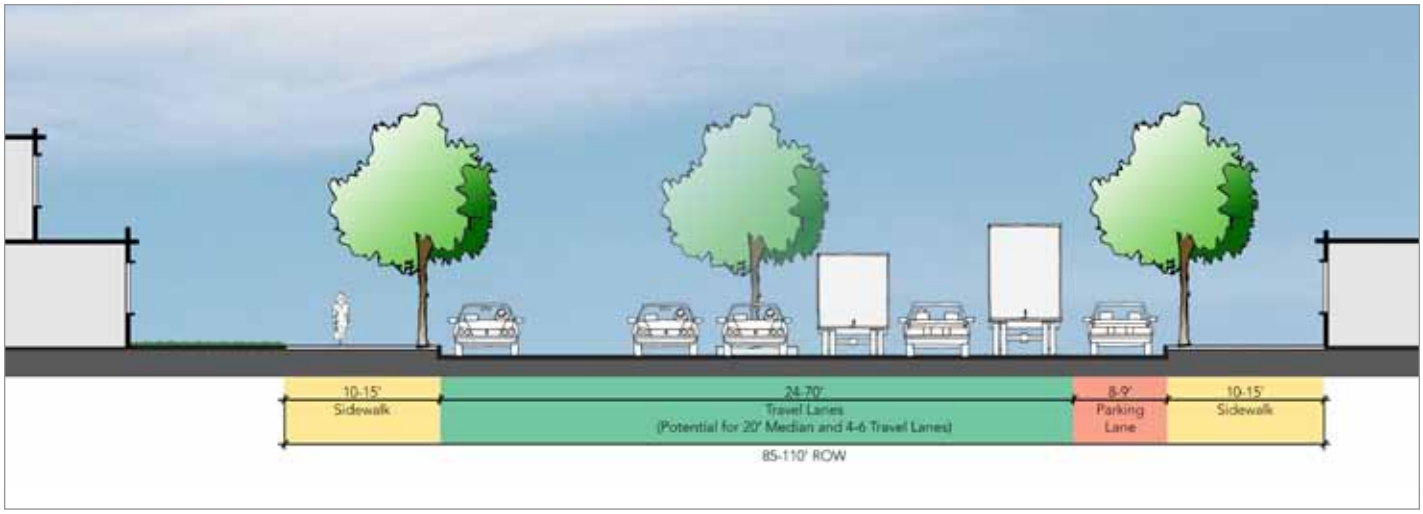


Community Connector Street

Community connector streets connect neighborhoods to other parts of the City, with a particular emphasis on accommodating public transit. On these streets there is a balance of all modes of travel and in some cases trucks are allowed. Common characteristics may include wider rights-of-way, medians and more travel lanes to enhance traffic flows for autos and transit vehicles. Parking lanes, wide sidewalks, large street trees and traffic signals may buffer pedestrians and bicyclists from auto and transit traffic. Higher-intensity development is appropriate along these corridors including higher-density housing and mixed-use development. Examples of community connector streets include: Harbour Way and San Pablo Avenue.

Community connector streets emphasize transit, but accommodate all modes of transportation.

Figure 4.5 **Regional Connector Street**



Regional Connector Street

Regional connector streets provide access to highways and accommodate trucks in addition to pedestrians, bicycles, autos and public transit. Development along these streets includes industrial or office uses, which are typically close to highways and require convenient truck access. Examples of regional connector streets include: Cutting Boulevard West, Harbour Way South and Richmond Parkway.

Highways

Automobiles, motorcycles, buses and trucks are the only transportation modes that are permitted to use highways, where the primary intent is an efficient movement of vehicles. Interstate 580 and Interstate 80 are Richmond's highways.

Above: Regional connector streets support all modes of travel.

Below: Highways move vehicular traffic only.

Supporting Place-Based Improvements

Hubs of pedestrian activity and convenient transit connections go hand-in-hand with the proposed network of place-based accessways. Integral to Richmond's approach to circulation is an emphasis on creating places for people. This relies on improving conditions at the pedestrian level, especially for people who are walking, enjoying the public realm, riding bikes and taking public transit.

To further implement Richmond's place-based approach to street design, a series of pedestrian districts and transit priority streets are identified.

Pedestrian Districts

Pedestrian districts experience a concentration of foot traffic at many times of the day, evenings and weekends. A successful public street environment in these districts may be characterized by wide sidewalks, landscaping, pedestrian-scaled lighting, special paving and public gathering places such as plazas. Transit provides easy access to these pedestrian districts and cars use slower traffic speeds with fewer travel lanes. Uses that support pedestrian districts may include mixed-use, commercial, recreation, entertainment, office and residential. Pedestrian districts may vary in size—some pedestrian districts are large, such as the proposed ferry terminal transit -oriented development, the Downtown, and the Hilltop Mall area, while others are smaller intersections or gateways along major mixed-use corridors. (Map 4.1: Pedestrian and Bicycle Improvements).

Bicycle Routes and Linkages

Bicycle trails that are separated from vehicular traffic or designated street bicycle routes that are well marked provide convenient and safe means of transportation for those who rely on bicycles to reach key destinations within the City or in the region. Trails and routes are most effective when they connect neighborhoods to jobs, community facilities and amenities, parks and open space and commercial areas. Bicycle trails and routes are proposed to close gaps in the San Francisco Bay Trail and along Nevin Avenue, Cutting Boulevard and several other streets where bicycles are a priority mode of travel (see Map 4.1: Pedestrian and Bicycle Improvements).

Transit Priority Streets

Transit priority streets provide a high level of transit service and amenities and are designated along major commercial and mixed-use corridors in the City. Improvements to existing streets may include enhanced signage, signal prioritization, bus shelters, wheelchair ramps at bus stops, dedicated bus lanes and/or more frequent bus services. Proposed transit priority streets are located at: Macdonald Avenue, 23rd Street, San Pablo Avenue, Cutting Boulevard, Harbour Way, Marina Way and Hilltop Drive (see Map 4.2: Planned Transit Improvements).

Pedestrian-friendly streetscape improvements on 3rd Street/Filbert Street have transformed the character of the street.

Key Findings and Recommendations

Key historical events have shaped the transportation infrastructure in Richmond. At the turn of the 20th century, arrival of the transcontinental railroad and ferry service between Richmond and San Francisco catalyzed industrial and urban development and established the area as a significant port and trading post.

As the City populated, neighborhood streets were laid out in a grid pattern that provided convenient connections between neighborhoods and local services. Most residents relied on walking or streetcars to travel throughout the City or to neighboring areas. The affordability and popularity of the automobile in the mid-20th century altered the urban landscape and character of city streets. As travel times decreased, acceptable travel distances to destinations typically increased, giving rise to a diffused development pattern across the Bay Area including the outlying areas of Richmond such as the El Sobrante Valley and Hilltop Mall.

Streetcars were eventually abandoned and streets were widened to make room for the automobile. Major infrastructure projects of the second half of the century, such as highways and bridges, accommodated greater volumes of traffic and created significant impacts by: drawing vehicular traffic away from neighborhood streets; reducing the need for wide roadways throughout the City; further decreasing reliance on non-vehicular modes of travel; and in some instances, creating physical barriers between neighborhoods.

Richmond's future plans will improve the experience of the street as a complete environment for people who are walking, enjoying public areas, riding bicycles and taking public transit. Priorities include enhancing safe connections between different parts of the City, elevating environmentally-friendly modes of travel and expanding transportation choices so that walking, bicycling, public transit and off-street modes of travel become more attractive options. The City already enjoys many significant

transportation-related assets and provides exceptional regional connectivity with: two major intermodal transit centers (Hilltop Mall and Downtown); the Bay Area's only intermodal station that connects BART to the Capitol Corridor train; an extensive bus service connecting people to key destinations; two major highways; two major regional rail services; and a proposed ferry terminal in the Marina Bay area. The City is also one of only three Bay Area communities that operate a functioning commercial sea port. Truck and railroad operations serve Port uses and play an important role in economic development. The City is working to maintain efficient goods movement while still increasing mobility options for all segments of the community and addressing potential quality-of-life impacts.

As Richmond looks to the future to serve diverse needs, respond to greater demand for service and reduce impacts on the environment and community, residents, businesses and visitors will increasingly rely on a broader range of mobility options. The following key findings and recommendations will help guide the City's efforts to develop a system that meets community needs and maintains Richmond's competitive advantage in a regional and global economy.

Finding 1: Richmond has an extensive circulation system that provides local and regional connectivity, but investment is needed to enhance mobility and access for all residents, workers and visitors.

A safe, efficient, accessible and reliable circulation system is essential to a vibrant economy and thriving community. The circulation system supports the land use and economic development objectives of the General Plan by connecting businesses to markets, and neighborhoods to job centers and community services. Although Richmond has an intricate system of local and regional buses, BART and commuter rail services, the majority of residents still drive alone to work. Improving transit connectivity and enhancing accessibility may increase transit-ridership, as well as bicycling and walking as regular travel modes. Moreover, these improvements can improve quality of life for Richmond's many residents who do not have access to automobiles, or who live and work in areas of the City that are underserved by the public transit network. Means of improving and enhancing the circulation system include:

- Balancing travel modes by supporting a variety of public transit, pedestrian and bicycling options, as well as efficient goods movement and automobile circulation;
- Improving internal linkages and accessibility to enhance connections between different parts of the City, overcoming barriers and increasing mobility for all segments of the community;

Improvements and enhancements to the pedestrian and bicycle infrastructure and facilities are needed to improve air quality, safety and access for all.

- Enhancing regional connectivity to link Richmond's residents, businesses and destinations to the entire region and beyond; and
- Promoting a place-based approach to circulation planning to guide improvements that enhance community character, active use of streets and improved quality of life.

Finding 2: Although a network of existing streets, sidewalks and trails provide linkages and connectivity between neighborhoods, improvements are needed to enhance safety and comfort for pedestrians and bicyclists.

High-quality pedestrian environments such as the historic Point Richmond neighborhood can encourage walking and bicycling as an alternative to driving. However, many streets in the City were originally designed or reconfigured in order to accommodate high volumes of traffic with wide, multi-lane configurations that discourage non-vehicular modes of travel. Richmond seeks to expand transportation choices so that walking, bicycling, public transit and off-street modes of travel become more attractive options. Strategies for improving safety and connectivity for pedestrian and bicycles include:

- Designing streets as public spaces to increase active use of streets, promote community character, reduce traffic conflicts and improve the public realm;
- Promoting mixed-use streets that balance transit, walking and bicycling opportunities to provide high-quality street environments;
- Providing safe access and connectivity within neighborhoods and to City destinations throughout the City for pedestrians and bicyclists; and
- Coordinating land use and transportation planning to support public transit, walking and bicycling and collaborate with neighboring jurisdictions and regional agencies to reduce automobile dependence.

Finding 3: The City provides a wide range of circulation options to serve diverse needs, but ongoing maintenance, efficient use and safety improvements must be addressed as new development puts additional pressure on existing infrastructure.

Ongoing street maintenance and safety improvements for pedestrians, bicyclists, transit and automobiles will create a safe, accessible and efficient circulation system that provides a range of transportation options. In order to enhance mobility and connectivity for all users, the City should continue:

- Enhancing safety for all transportation modes through high-quality design and maintenance of transportation facilities;

- Requiring concurrent infrastructure development to accommodate new development and redevelopment that significantly impacts non-auto travel in the City; and
- Upgrading infrastructure to address safety, efficiency and accessibility for all residents, workers and visitors.

Finding 4: Richmond relies on efficient and effective goods movement to support economic development opportunities in industrial areas, but noise, air quality and traffic safety remain concerns.

Maintaining efficient goods movement throughout Richmond is essential to the City's economic vitality. However, potential impacts due to traffic congestion and diesel emissions are concerns, especially in relation to quality of life in residential areas and sensitive uses such as hospitals and schools. Goods movement can be improved by:

- Promoting a coordinated planning approach that emphasizes the efficient movement of goods without compromising safety; and
- Supporting effective and efficient Port operations.

Finding 5: While Richmond enjoys an extensive public transit network, the City can further encourage sustainable circulation options that reduce impacts on the environment and build healthy communities.

Sustainable and efficient use of circulation infrastructure and resources will allow the City to serve the needs of residents, businesses and visitors while minimizing the impacts on sensitive population groups such as seniors and children and the environment as a whole. A sustainable circulation system complements the land use and urban design concepts outlined in this General Plan. Strategies to improve the sustainability of the circulation system include:

- Supporting transportation strategies that reduce resident and business dependence on automobiles;
- Promoting the use of renewable energy and clean technology for transportation and goods movement in the City; and
- Promoting the development of green street design standards for new and existing streets.

Priority Capital Improvement Projects

Within the City's Capital Improvement Program Richmond will focus on the most strategic capital improvements to the circulation system—improvements that will expand mobility and connectivity and enhance safety. At this General Plan writing, high-priority capital projects include the following;

- Railroad grade separations at Carlson and Cutting boulevards
- Richmond Greenway phases II and III
- Marina Bay ferry terminal
- Regatta Boulevard extension into Campus Bay
- Downtown area and Macdonald Avenue improvements
- 23rd Street streetscape improvements
- San Pablo Avenue streetscape improvements
- North Richmond streetscape improvements
- Harbour Way streetscape improvements
- Freeway interchange improvements

A photo-simulation of improvements along Cutting Boulevard at Harbour Way highlight the look-and-feel of the Community's vision for the circulation system.

Goals

GOAL CR1 Expand the Multimodal Circulation System

Richmond seeks to make conditions safer and more attractive for all modes of mobility including travel by foot and bicycle, public transit and automobiles. By relying on a place-based approach to circulation planning, the City can evaluate streets and potential enhancements based on surrounding land use, street function and desired character. Potential improvement measures should range from physical design treatment of the street environment to social and programmatic responses appropriate to the particular street context.

GOAL CR2 Promote Walkable Neighborhoods and Livable Streets

Richmond strives to activate the public right-of-way and improve the experience of moving people between key destinations at the pedestrian level. In order to make walking and bicycling a more attractive option, the City should enhance connectivity between neighborhoods, schools, the workplace, and daily goods and services so that reaching key destinations is safer and more convenient. Promoting mixed-use streets, high-quality pedestrian environments, context-based street design and efficient public transit will also contribute to walkability and livability.

GOAL CR3 Create a Safe and Well-Maintained Circulation System

An emphasis on ongoing street maintenance and safety improvements that consider all modes of transportation including walking, bicycling and public transit are needed to create a safe and efficient circulation system. As new development occurs in Richmond, new facilities and infrastructure must meet the needs of all users while enhancing mobility and connectivity.

GOAL CR4 Ensure an Efficient Movement of Goods

Movement of goods between businesses, the Port and the railroad must be efficient and safe and should provide adequate truck and rail access while avoiding neighborhoods and sensitive areas.

GOAL CR5 Promote Sustainable and Green Practices

In order to create sustainable and clean circulation options, the City should encourage the use of low-impact alternative fuels and green technologies and implement transportation demand management programs. The City should also incorporate provisions to treat and retain stormwater in street design standards.

Streetscape improvements along Macdonald Avenue enhance the pedestrian environment.

Policies and Implementing Actions

A range of policies and implementing actions are outlined below in relation to each of the goals. These policies mandate, encourage or allow certain actions to be pursued throughout the duration of the General Plan. Together they serve as strategic directions for City staff and partners, highlighting where time and resources should be focused.

Each policy may either be correlated with a number of actions or simply a single key implementing action. Many implementing actions may support multiple goals and policies. The policies and implementing actions are organized in two parts. First, all goal-related policies are described and each policy description is followed by a list of its associated implementing actions. Then, implementing actions are described in greater detail in the following section.

Because many General Plan elements are interrelated, there is some overlap in policies and actions from element to element. Where this overlap occurs, language and titles are standardized among elements and a cross-reference is provided. When there is a need to customize one of these shared policies or actions to a particular element topic, the defining policy or action statement remains the same and the supporting text is adjusted as appropriate.

GOAL CR1
Expand the Multimodal Circulation System

POLICIES

Policy CR1.1 ***Balanced Modes of Travel***

Encourage multiple modes of travel in the City to enhance mobility for all. Streets and corridors should support a variety of travel modes including transit, pedestrians, bicycles and goods movement as well as automobiles.

Implementing Actions – Action CR1.A: Regional Circulation Improvements; Action CR1.G: Capital Improvement Program; Action CR1.H: Street Capacity and Infrastructure Improvements; Action CR1.I: Traffic Impact Analysis Guidelines; Action CR1.M: Parking Requirements; Action CR1.N: Place-Based Street Classification Process (pages 4.45 – 4.50)

Policy CR1.2 ***Access for All***

Provide circulation options that are accessible to all members of the community. Providing an affordable circulation system that meets the needs of low-income populations, seniors, youth and persons with disabilities will ensure access for all.

Implementing Actions – Action CR1.F: Americans with Disabilities Act Guidelines; Action CR1.G: Capital Improvement Program; Action CR1.H: Street Capacity and Infrastructure Improvements (pages 4.47 – 4.50)

Policy CR1.3 ***An Interconnected Street System***

Provide an interconnected system of streets that adequately serves current and future travel needs. By promoting a grid system for streets along with pedestrian, bicycle and transit facilities, the City can support streets that are compatible with surrounding land uses, street function and community character.

Implementing Actions – Action CR1.A: Regional Circulation Improvements; Action CR1.C: Bicycle and Pedestrian Plans; Action CR1.D: Bicycle and Pedestrian Standards; Action CR1.G: Capital Improvement Program (pages 4.45 – 4.47)

GOAL CR1
Expand the Multimodal Circulation System

POLICIES

Policy CR1.4 *Local and Regional Linkages*

Enhance circulation linkages within the City and region. Providing connections to Richmond's key transportation hubs such as the proposed ferry terminal, the Downtown Intermodal Transit Station, Hilltop Mall, the shoreline and commercial and mixed-use streets will strengthen the circulation system. Collaborating with regional, state and federal transportation agencies and neighboring jurisdictions will support a high level of service.

Implementing Actions – Action CR1.B: Public Transit and Paratransit Service Improvements; Action CR1.G: Capital Improvement Program; Action CR1.J: Streetcar Service Feasibility Study; Action CR1.K: Richmond Shuttle Service Feasibility Study (pages 4.45 – 4.50)

Policy CR1.5 *Expanded and Affordable Public Transit*

Support an enhanced and expanded public transit system to improve mobility options for all residents and visitors. Public transit provides an environmentally-friendly, cost-effective and equitable mode of travel for residents and visitors. Encouraging transit-supportive development patterns can further maximize the efficiency of these systems and help reduce air pollution and greenhouse gas emissions within Richmond.

Public transit service should connect major destinations in Richmond including educational institutions, community facilities, regional open space areas and major commercial corridors to serve a greater number of riders and reduce commuter vehicle miles. All housing units and employment centers in Richmond should have access to local and regional transit. The City should also ensure that all transit stations and routes to and from these stations are safe. As many residents and visitors rely on regional passenger rail and air travel, the City should also support efforts to create efficient public transit connections to train stations and regional airports.

The City should support efforts to expand service at night and on weekends, and to make transit affordable and accessible to people with disabilities, seniors, youth and low-income households (see also elements: Energy and Climate Change, Policy EC2.3; Community Health and Wellness, Policy HW4.1).

Implementing Actions – Action CR1.A: Regional Circulation Improvements; Action CR1.B: Public Transit and Paratransit Service Improvements; Action CR1.G: Capital Improvement Program; Action CR1.J: Streetcar Service Feasibility Study; Action CR1.K: Richmond Shuttle Service Feasibility Study Action CR1.L: Station Area Plans; Action CR1.M: Parking Requirements (pages 4.45 – 4.50)

GOAL CR1
Expand the Multimodal Circulation System

POLICIES

Policy CR1.6 ***Safe and Convenient Walking and Bicycling***

Promote walking and bicycling as a safe and convenient mode of transportation. The City should improve pedestrian and bicycle amenities to serve the recreation and travel needs of residents and visitors in all parts of Richmond. Where feasible, the City should: connect major destinations such as parks, open spaces, civic facilities, employment centers and retail and recreation areas with pedestrian and bicycle infrastructure; promote shared roadways in residential streets; require new development and redevelopment projects to provide pedestrian and bicycle amenities, streetscape improvements and linkages to planned and completed City and regional multi-use trails; and develop safe routes to schools and out-of-school programs that allow access by bicycle and pedestrian paths or reliable and safe transit.

The City should provide enhanced bicycle and pedestrian facilities, explore innovative solutions such as bicycle-sharing programs, and encouraging businesses, schools and residential developments to provide secure bicycle parking to ensure that these ecologically-friendly, low-impact transportation modes are available to all community members, thereby reducing emissions from vehicles within the City, improving environmental quality and enhancing mobility and connectivity (see also elements: Energy and Climate Change, Policy EC2.4; Community Health and Wellness, Policy HW4.3).

Implementing Actions – Action CR1.C: Bicycle and Pedestrian Plans; Action CR1.D: Bicycle and Pedestrian Standards; Action CR1.G: Capital Improvement Program (pages 4.45 – 4.48)

GOAL CR1
Expand the Multimodal Circulation System

POLICIES

Policy CR1.7 ***Comprehensive Network of Multi-Use Trails***

Develop a comprehensive network of multi-use trails including the Richmond Greenway and the San Francisco Bay Trail to enhance bicycle and pedestrian connectivity throughout the City and the region. Completion of the Bay Trail will enhance access to the Richmond shoreline and adjacent open space. The proposed San Francisco Bay Water Trail will also provide enhanced access and recreational opportunities to the Bay. Connecting the Richmond Greenway with the Ohlone Greenway and the Bay Trail, and linking Richmond with Marin County with a bicycle trail across the Richmond-San Rafael Bridge will help create a comprehensive network of multi-use trails.

Implementing Actions – Action CR1.C: Bicycle and Pedestrian Plans; Action CR1.D: Bicycle and Pedestrian Standards; Action CR1.E: Trails and Greenway Program; Action CR1.G: Capital Improvement Program (pages 4.45 – 4.49)

Policy CR1.8 ***Regional Ferry Service***

Support and plan for the proposed ferry service to Richmond. Public transit, bicycle and pedestrian linkages between the proposed ferry terminal and other major destinations such as the Downtown, BART stations, key commercial areas and civic uses will support a successful regional ferry service. Also, regional ferry service can be supported by allowing higher-density, mixed-use development around the proposed ferry terminal.

Implementing Actions – Action CR1.G: Capital Improvement Program; CR1.L: Station Area Plans (pages 4.49 – 4.50)

Policy CR1.9 ***Place-Based Circulation Approach***

Promote the place-based planning approach and classification system outlined in this General Plan (pages 4.21 – 4.33). This integrated approach linking functional accessway requirements with surrounding land uses and urban design promotes community character, active use of streets and improved quality of life.

Implementing Actions – Action CR1.G: Capital Improvement Program; Action CR1.N: Place-Based Street Classification Process; Action CR1.O: Place-Based Evaluation Criteria (pages 4.49 – 4.50)

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Action CR1.A ***Regional Circulation Improvements***

Participate in regional circulation planning efforts to identify and advocate for improvements that enhance regional connectivity and mobility in Richmond.

Action CR1.B ***Public Transit and Paratransit Service Improvements***

Collaborate with AC Transit, BART, West Contra Costa Transit Agency, Amtrak and major employers in Richmond that provide shuttle service to explore the potential for expanding transit service in the evenings and late nights, and for people with special needs. Explore the potential to enhance Richmond's paratransit service. Collaborate with major employers to provide employer-based "open-door" shuttles to BART, the planned ferry terminal and other transit hubs. Collaborate with regional and Contra Costa County transportation agencies to maintain and enhance service within the City and region.

Explore strategies to address affordability, access and safety. Expand outreach and information programs to promote transit use (see also elements: Community Health and Wellness, Action HW4.C; Energy and Climate Change, Action EC2.C).

Action CR1.C ***Bicycle and Pedestrian Plans***

Develop citywide bicycle and pedestrian plans to make Richmond a more pedestrian and bicycle-friendly City. Identify gaps in the network, major travel routes and priority safety improvements. Designate a network of multi-use trails and off-street paths. Include connections to open space amenities such as Stege Marsh, Point San Pablo, Point Pinole and the Richmond Greenway.

Update design guidelines and standards for bicycle and pedestrian facilities and amenities that meet local, state and federal standards. Include a uniform citywide signage plan and comply with all Americans with Disabilities Act (ADA) requirements.

Explore the potential to designate pedestrian priority areas or districts. Include strong connections to the Downtown, recreation destinations, commercial and mixed-use streets, transit stations and schools. Address pedestrian and bicycle connections in parking lots.

Collaborate with Contra Costa County and other jurisdictions to ensure links to the regional trail network including the San Francisco Bay Trail and coordination with the County Bicycle and Pedestrian Plan.

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Coordinate efforts with ongoing bicycle and pedestrian community initiatives such as the Safe Communities Project, Contra Costa Health Services Injury Prevention Project and the Richmond Pedestrian Project.

Collaborate with ABAG, Caltrans and bicycle advocacy groups to develop a safe and convenient bicycle trail across the Richmond-San Rafael Bridge (see also elements: Community Health and Wellness, Action HW4.D; Energy and Climate Change, Action EC2.E).

Action CR1.D ***Bicycle and Pedestrian Standards***

Develop standards for bicycle and pedestrian improvements and amenities in new development and redevelopment projects. Include guidelines for adequate, safe and accessible bicycle parking, drinking fountains, public restrooms, benches, landscaping and lighting. Require new development and redevelopment projects to be pedestrian and bicycle-friendly, and to provide adequate connections to the existing and proposed bicycle and pedestrian network.

Require all new commercial, industrial and residential development to provide access for construction and operation of a trail where a local or regional trail is designated or planned. Include provisions that require owners of property along the shoreline to provide maximum feasible public access to the shoreline and to complete the Bay Trail as part of any project approval process (see also Community Health and Wellness Element, Action HW4.E).

Action CR1.E ***Trails and Greenway Program***

Implement plans to expand multi-use trails and greenways in the City. Designate connector trails and identify improvements and linkages to improve access from inner city neighborhoods to the regional open space in the hills and along the shoreline. Address barriers such as freeways, the Richmond Parkway and railroad tracks that limit shoreline access.

Develop design and landscaping standards and guidelines for trails and greenways. Provide interpretive signs, maps, brochures and signage along the trails to enhance the experience of users and to provide information on the City's cultural and historical assets. Coordinate the trails and greenway plan with the bicycle and pedestrian plan.

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Consider creating a Class I multi-use trail loop north of Meeker Tidal Creek and Stege Marsh as a scenic route. Also consider providing trailhead staging areas at the south end of 32nd and 46th streets with bridges across Meeker Tidal Creek.

Action CR1.F ***Community-Based Self-Evaluation and Transition Plan***

Develop a community-based self-evaluation and transition plan to work toward access for all and Americans with Disabilities Act (ADA) compliance. With involvement from the community and specifically people with disabilities, the plan should assess the City's ability to serve the needs of all Richmond residents and visitors. Specifically, the plan should assess policies, programs, services and facilities that are available to the public and provide recommendations for adapting service delivery methods and making physical improvements to ensure access for all. The plan should also include a timeline, priorities, implementation and financing strategies (see also elements: Parks and Recreation, Action PR2.B; Community Health and Wellness, Action HW4.I; Community Facilities and Infrastructure, Action CF1.M).

Action CR1.G ***Capital Improvement Program***

Regularly update the Capital Improvement Program (CIP) for high-priority facility and infrastructure projects. The CIP should be reviewed and updated annually as part of the budget review process so that priorities accurately reflect community needs and available resources (see also elements: Parks and Recreation, Action PR1.J; Growth Management, Action GM2.A; Community Facilities and Infrastructure, Action CF1.G; Economic Development, Action ED1.F).

At this General Plan writing, high-priority capital projects related to circulation include: railroad grade separations at Carlson and Cutting boulevards; Richmond Greenway Phases II and III; Marina Bay ferry terminal; Regatta Boulevard extension into Campus Bay; Downtown area and Macdonald Avenue improvements; 23rd Street streetscape improvements; San Pablo Avenue streetscape improvements; North Richmond streetscape improvements; Harbour Way streetscape improvements; and freeway interchange improvements.

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Action CR1.H ***Street Capacity and Infrastructure Improvements***

Improve street capacity and infrastructure to address mobility in existing areas as well as in new development areas. Address congestion along mixed-use streets such as San Pablo Avenue, 23rd Street and San Pablo Dam Road; at major intersections such as San Pablo Avenue and Macdonald Avenue; at freeway interchanges such as Central Avenue and Castro Street; and at railroad crossings such as Cutting Boulevard and Carlson Avenue.

Include future roadway alignments and connections to the freeway system that will be needed to serve future growth including better east-west connections in the South Shoreline Area and better access between Interstate 580 and the Point San Pablo Peninsula.

Collaborate with regional, state and federal transportation agencies, neighboring jurisdictions and railroad operators to plan improvements for facilities owned and operated by the City (see also Community Facilities and Infrastructure Element, Action CF1.J).

Action CR1.I ***Traffic Impact Analysis Guidelines***

Develop standards and guidelines for traffic impact analysis to quantify the real impacts of new development and redevelopment projects on all modes of travel.

Action CR1.J ***Streetcar Service Feasibility Study***

Explore the feasibility of providing a municipally owned streetcar service that connects the proposed ferry terminal with the Downtown and other key destinations in the City. Include provisions for a rubber-tire shuttle service as an alternative to a rail-based streetcar system.

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Action CR1.K ***Richmond Shuttle Service Feasibility Study***

Explore the potential for a City-operated shuttle service to complement transit and paratransit services in Richmond. The shuttle service should link key destinations throughout the City including schools, community facilities, parks, major employment centers, commercial centers, health facilities, transit centers and neighborhoods. Based on feasibility study outcomes, develop follow-up steps such as a plan for service delivery and funding.

In particular, the feasibility study should identify a means of collaborating with educational institutions to ensure efficient and safe access between schools and enrichment programs for school-aged youth. Linking schools to local institutions, parks and other destinations that offer recreational and enrichment programs will help maximize youth participation and enjoyment of these programs. Timing of bus routes should allow students safe and reliable transport between educational institutions, key cultural destinations and after-school programs throughout the City such as the museum, the Police Athletic League, nonprofit arts organizations and others. In addition, the service should provide convenient weekend access between neighborhoods and cultural, recreational and commercial destinations such as regional open space, national park sites, museums, cultural events and the Downtown (see also elements: Land Use and Urban Design, Action LU1.I; Parks and Recreation, Action PR5.F; Arts and Culture, Action AC1.F).

Action CR1.L ***Station Area Plans***

Develop station area plans for major transit stations including the BART Station, proposed ferry terminal and Hilltop Mall. Revise and update plans already underway to encourage higher-density development within a half-mile of stations; improve pedestrian, bicycle and transit connectivity; and address parking, safety and congestion (see also Land Use and Urban Design Element, Action LU1.F).

GOAL CR1
Expand the Multimodal Circulation System

IMPLEMENTING ACTIONS

Action CR1.M ***Parking Requirements***

Revise parking requirements to support mixed-use urban environments and transit-oriented development along major commercial corridors, the Downtown and major transit stations such as BART and the proposed ferry terminal. Consider creating designated parking districts in the City.

Action CR1.N ***Place-Based Street Classification Process***

Classify the remaining streets in the City to conform to the place-based classification system. At this General Plan writing, only the streets within the General Plan Change Areas are classified using the place-based system. Other streets in the City should be classified using the place-based system over time. Reclassification of streets should occur before any significant improvements or realignments are approved. Improvements to streets should reflect the character described in the place-based classification system.

Action CR1.O ***Place-Based Evaluation Criteria***

Develop criteria to evaluate street and multi-use trail performance, and identify appropriate improvements that reflect place-based street classifications (such as priority modes of travel and street character). While traffic volumes, service levels and other circulation data may help indicate where particular streets, street segments and intersections are operating beyond their intended vehicular capacity, this information should be considered in combination with the place-based classification approach to determine a range of appropriate mitigations.

GOAL CR2
Promote Walkable Neighborhoods and Livable Streets

POLICIES

Policy CR2.1 ***Neighborhood Connectivity***

Improve access and connectivity within neighborhoods and to major destinations in the City. Improved connectivity will enhance linkages to local and regional amenities such as neighborhood parks, schools, libraries, community centers, retail, public transit, bicycle paths, historic resources, the shoreline, open space and medical facilities.

Implementing Actions – Action CR2.A: Community Access and Mobility Criteria; Action CR2.B: Safe Routes to School Program; Action CR2.E: Signage and Wayfinding Plan; Action CR2.F: Lower Speed Limit Zone Study (pages 4.52 – 4.54)

Policy CR2.2 ***Complete Streets***

Promote mixed-use urban streets that balance public transit, walking and bicycling with other modes of travel. Developing a grid-based network of streets with landscaping and amenities for transit, bicycles and pedestrians will support pedestrian and bicycle connectivity, as well as transit accessibility. Long block lengths, cul-de-sacs and gated streets should be discouraged. Furthermore, the City should provide mid-block crosswalks where cul-de-sacs or long blocks impede pedestrians (see also elements: Community Health and Wellness, Policy HW4.5; Land Use and Urban Design, Policy LU6.2).

Implementing Actions – Action CR2.C: Streetscape Improvement Plans; Action CR2.D: Street Design Guidelines (page 4.53)

Policy CR2.3 ***Integrated Bicycle and Pedestrian System***

Create and maintain a safe, comprehensive and integrated bicycle and pedestrian system. Walking and bicycling to work, to schools and for recreation can be encouraged by providing amenities and facilities for pedestrians and bicycles, enhancing pedestrian and bicycle connectivity within neighborhoods, promoting multimodal trails and pathways accessible to all and addressing major barriers in the community such as freeways, railroads and steep terrain. Pedestrian improvements at parks, community centers, open space areas, schools, transit stops and commercial nodes will further enhance the bicycle and pedestrian system.

Implementing Actions – Action CR2.A: Community Access and Mobility Criteria; Action CR2.C: Streetscape Improvement Plans; Action CR2.D: Street Design Guidelines; Action CR2.F: Lower Speed Limit Zone Study (pages 4.52 – 4.54)

GOAL CR2
Promote Walkable Neighborhoods and Livable Streets

IMPLEMENTING ACTIONS

Action CR2.A ***Community Access and Mobility Criteria***

Develop access and mobility criteria for capital improvement projects and new development to enhance physical access to community facilities, schools, parks, shoreline open spaces, historical destinations, commercial and employment centers and transit hubs. The criteria should address access by walking, bicycling and public transit as well as vehicular access (see also elements: Education and Human Services, Action EH3.D; Parks and Recreation, Action PR1.A; Community Health and Wellness, Action HW4.A; Conservation, Natural Resources and Open Space, Action CN2.F).

The community access and mobility plan should:

- Ensure safe connections to large and small open spaces as well as community facilities such as schools, community centers, recreational facilities, cultural and enrichment centers, historical destinations, transit hubs, commercial and employment centers;
- Address travel routes, infrastructure improvement needs and barriers such as roads, railroad lines, highways, fences and natural features; and
- Promote bicycle and pedestrian-friendly routes including completion of major trails and pathways like the San Francisco Bay Trail and Richmond Greenway.

Action CR2.B ***Safe Routes to School Program***

Develop a Safe Routes to School Program in collaboration with the National Center for Safe Routes to School, the West Contra Costa Unified School District and other educational institutions and service providers. Improve walking and bicycling access and safety to schools and after-school programs. Align this program with the bicycle and pedestrian plan (see also elements: Education and Human Services, Action EH1.H; Community Health and Wellness, Action HW4.F; Energy and Climate Change, Action EC2.G).

GOAL CR2
Promote Walkable Neighborhoods and Livable Streets

IMPLEMENTING ACTIONS

Action CR2.C ***Streetscape Improvement Plans***

Develop streetscape improvement plans to enhance access, safety and experience for pedestrians, bicyclists and transit riders. Focus improvements in areas with the highest need such as the Downtown, mixed-use corridors, key intersections, designated pedestrian priority districts and multi-use trails that connect high-density areas of the City to parks and open space.

Address accessibility improvements in accordance with ADA, pedestrian-scale lighting and landscaping in streetscape improvements. Explore the potential for establishing assessment districts for improvements in existing neighborhoods. Explore the potential for incorporating green street elements into streetscape design such as bioswales, planter strips and permeable pavements (see also elements: Land Use and Urban Design, Action LU2.B; Community Health and Wellness, Action HW4.L; Community Facilities and Infrastructure, CF1.I).

Action CR2.D ***Street Design Guidelines***

Update the street design guidelines that support public transit, bicycles and walking on all streets. Develop standards that are consistent with and tailored to street or trail function and adjacent land use type.

Pedestrian-friendly designs should address maximum lane widths, maximum curb radii, sidewalk width, curb ramps and Americans with Disabilities Act (ADA) requirements. Bicycle-friendly design should address lane widths, street and intersection crossings and parking areas. Include guidelines for transit access.

Identify priority thoroughfares for developing green streets in the City to implement a natural systems approach for stormwater management and to expand urban greenery.

Evaluate the feasibility of reducing the number or width of travel lanes on key mixed-use streets that have excess capacity such as Cutting Boulevard, and using the capacity and/or regained width for wider sidewalks and bicycle lanes (see also elements: Energy and Climate Change, EC4.E; Community Health and Wellness, Action HW4.N).

GOAL CR2
Promote Walkable Neighborhoods and Livable Streets

IMPLEMENTING ACTIONS

Action CR2.E ***Signage and Wayfinding Plan***

Update and adopt a comprehensive signage and wayfinding plan that addresses all modes of travel including transit, trucks, bicycles, multi-use trails and cars. Include guidelines for potential gateway elements at key locations such as Downtown and at major entry points to the City. Collaborate with the National Park Service and regional agencies to ensure consistency for historic resource, recreation destination and the Bay Trail components of the Plan.

Action CR2.F ***Lower Speed Limit Zone Study***

Explore the potential to designate streets around schools, parks and public gathering places as safety zones where the vehicular speed limit may be lowered to 20 miles per hour. Slower speed limits will make streets safer for bicyclists, children and seniors and help reduce fatalities (see also Community Health and Wellness Element, Action HW4.J).

GOAL CR3
Create a Safe and Well-Maintained Circulation System

POLICIES

Policy CR3.1 ***Safety and Accessibility***

Enhance safety and accessibility for pedestrians, bicyclists and public transit riders. The City can promote walking, bicycling and transit use by improving: key intersections and streets to reduce pedestrian and bicycle collisions; transit stations and stops to reduce crime and vandalism; at-grade railroad crossings to minimize traffic conflicts and increase connectivity; and streetscape design to reduce traffic speeds and pollution (see also Community Health and Wellness Element, Policy HW4.4).

Implementing Actions – Action CR3.A: At-Grade Railroad Crossings Improvements; Action CR3.B: Traffic Calming Program (page 4.56)

Policy CR3.2 ***Adequate Maintenance***

Ensure adequate maintenance of transportation facilities such as streets, trails, sidewalks and bicycle paths. Maintenance priorities should emphasize safety considerations, impacts on non-automobile modes of travel and overall impacts on long-term resource needs.

Implementing Action – Action CR3.C: Circulation Impact Fee Program (page 4.56)

Policy CR3.3 ***Concurrent Infrastructure Development***

Require concurrent infrastructure development for new and redevelopment projects that may have a significant impact on the existing circulation system including streets, trails, sidewalks, bicycle paths and public transit.

Implementing Action – Action CR3.C: Circulation Impact Fee Program (page 4.56)

GOAL CR3
Create a Safe and Well-Maintained Circulation System

IMPLEMENTING ACTIONS

Action CR3.A ***At-Grade Railroad Crossings Improvements***

Improve safety at at-grade railroad crossings. Identify priority crossings where grade separations will enhance safety, community linkages and access for pedestrians, bicyclists and public transit. Include grade separation improvements in the CIP and collaborate with regional, state and federal agencies to fund construction. Explore the feasibility of locating the railroad line below grade to reduce impact on the surrounding retail and residential uses while enhancing pedestrian safety and linkages (see also Community Health and Wellness Element, Action HW4.G).

Action CR3.B ***Traffic Calming Program***

Develop strategies to calm traffic on streets that experience speeding or cut-through traffic. Include a range of solutions including engineering, education and enforcement measures. Engineering measures should consider emergency vehicle access as well as pedestrian and bicycle circulation and may include traffic circles, curb extensions, stop signs, narrow travel lanes, fewer travel lanes, landscaping and plantings. Education measures may include outreach materials, signs and postings, pledge campaigns and speed displays. Enforcement measures may include increased patrolling, ticketing and warnings (see also Community Health and Wellness Element, Action HW4.H).

Action CR3.C ***Circulation Impact Fee Program***

Update the fee program and a nexus study to provide needed improvements associated with new development and redevelopment projects. Include provisions for improvements to pedestrian, bicycle and public transit facilities and amenities. Link the fee program to priorities included in the Capital Improvement Program (see also Community Health and Wellness Element, Action HW4.M).

GOAL CR4
Ensure an Efficient Movement of Goods

POLICIES

Policy CR4.1 ***Goods Movement***

Promote the safe and efficient movement of goods to support Port of Richmond operations and industrial uses. Providing adequate infrastructure improvements and maintenance will support industrial operations while minimizing impacts on neighborhoods and other sensitive land uses.

Implementing Actions – Action CR4.A: Goods Movement Plan; Action CR4.B: Truck Routes Study (pages 4.58 - 4.59)

Policy CR4.2 ***Port of Richmond Operations***

Support efficient and effective operation of the Port and distribution of goods through ships, trucks and railroads.

Implementing Actions – Action CR4.A: Goods Movement Plan; Action CR4.C: Short-Sea Shipping Feasibility Study (page 4.58 – 4.59)

GOAL CR4
Ensure an Efficient Movement of Goods

IMPLEMENTING ACTIONS

Action CR4.A ***Goods Movement Plan***

Update the citywide goods movement plan to integrate Port operations, rail movement and truck routes, and to provide a high level of goods movement capacity. Include strategies that will improve level of service while minimizing health, safety and nuisance impacts. Identify priority improvements such as grade separation and safety improvements for at-grade railroad crossings to reduce conflicts between different modes of travel. Collaborate with truck and railroad operations, the California Public Utilities Commission (CPUC) and Metropolitan Transportation Commission (MTC) to develop the plan.

Consider future expansion plans at ports in Richmond and Oakland. Coordinate with the Metropolitan Transportation Commission (MTC) to plan for potential additional track capacity in Richmond. Through cooperative planning, ensure that track capacity expansion in Richmond is accompanied by safety improvements including grade separation at crossings that carry high traffic, pedestrian and/or bicycle volumes, or have high accident rates. Include enforcement and education measures to ensure compliance with rail crossing traffic control devices and right-of-way rules.

GOAL CR4
Ensure an Efficient Movement of Goods

IMPLEMENTING ACTIONS

Action CR4.B ***Truck Routes Study***

Develop and adopt recommendations for re-routing diesel trucks away from neighborhood streets and sensitive uses such as homes, schools, parks and playgrounds to minimize impacts from emissions and traffic conflicts. Collaborate with the Port, truck operators, local businesses and regional and state transportation agencies to develop the new routes while ensuring efficient movement of goods through port and industrial areas.

Action CR4.C ***Short-Sea Shipping Feasibility Study***

Explore the feasibility of developing short-sea shipping to transport goods from the Port of Oakland and Richmond to regional destinations while reducing emissions, circulation conflicts and need for major infrastructure expansion in the City.

GOAL CR5
Promote Sustainable and Green Practices

POLICIES

Policy CR5.1 ***Transportation Demand Management***

Promote transportation demand management strategies among residents and businesses to reduce reliance on automobiles. Encouraging major employees to develop and implement transportation demand management (TDM) for employees will address peak commute traffic, congestion and air quality.

Implementing Actions – Action CR5.A: Transportation Demand Management Program; Action CR5.B: Intelligent Transportation System Plan (page 4.61)

Policy CR5.2 ***Renewable Energy and Clean Technology***

Promote the use of renewable energy and clean technology for transportation including public transit and goods movement.

Implementing Actions – Action CR5.C: Climate-Friendly Fuel Guidelines; Action CR5.D: City Vehicles Transition Program; Action CR5.E: Diesel Engine Idling Ordinance (pages 4.61 – 62)

Policy CR5.3 ***Green Streets***

Promote the development of street design standards and guidelines that incorporate natural stormwater drainage and landscaping in new and retrofitted streets.

Implementing Action – Action CR5.F: Green Streets Program (page 4.62)

GOAL CR5
Promote Sustainable and Green Practices

IMPLEMENTING ACTIONS

Action CR5.A ***Transportation Demand Management Program***

Develop a transportation demand management (TDM) program that encourages use of public transit, bicycling and walking. TDM programs may include transit subsidies, car-share service, parking cash-out programs, bicycle-share programs, bicycle amenities and facility enhancements, among others.

Include an incentive program to promote TDM in Richmond. Program elements may include reduction in transportation impact fees for new or redevelopment projects that demonstrate commitment to TDM strategies and reductions in parking requirements for mixed-use development and for projects that provide TDM programs and/or shared parking. Explore the feasibility of developing a citywide TDM program that would be funded by annual fees or assessment on new development (see also Growth Management Element, Action GM1.C).

Action CR5.B ***Intelligent Transportation System***

Explore the potential for developing a citywide Intelligent Transportation System (ITS) to maximize the efficiency of the circulation system and enhance user experience. Use available technologies such as synchronized street lights, adaptive signal controls and real-time traffic, transit and parking information, among others. Establish real-time transportation information kiosks at major transit hubs and in pedestrian-oriented districts.

Action CR5.C ***Climate-Friendly Fuel Guidelines***

Develop guidelines for production, transportation and use of climate-friendly fuel in Richmond. Provide infrastructure within the City to support the use of climate-friendly fuels including adequate refueling stations. Collaborate regionally on initiatives and other multijurisdictional efforts to encourage climate-friendly fuels. Support the use of waste for producing fuel where feasible. Consider environmental and community impacts of fuel production, transportation and use in the guidelines (see also elements: Energy and Climate Change, Action EC2.A; Conservation, Natural Resources and Open Space, Action CN4.C).

GOAL PR-5
Promote Sustainable and Green Practices

IMPLEMENTING ACTIONS

Action CR5.D ***City Vehicles Transition Program***

Develop a program to increase the share of climate-friendly vehicles and use of climate-friendly fuels in City-owned and operated vehicles. Evaluate existing City fleet and vehicle needs to determine fleet right-sizing and develop a phased plan to acquire climate-friendly vehicles. Consider including bicycles in the City fleet where feasible (see also elements: Energy and Climate Change, Action EC2.B; Community Health and Wellness, Action HW10.J).

Action CR5.E ***Diesel Engine Idling Ordinance***

Develop and adopt an ordinance that limits idling of diesel engines in the City including trucks, railroads and ships. Collaborate with service providers and port operators to monitor and regulate diesel particulate matter (DPM) emissions.

Action CR5.F ***Green Streets Program***

Expand the green streets program to support a sustainable approach to stormwater drainage, groundwater recharge and landscaping. Incorporate green street standards and guidelines in all streetscape improvement projects in the City (see also elements: Community Facilities and Infrastructure, Action CF3.B; Energy and Climate Change, Action EC4.F; Community Health and Wellness, Action HW4.M).

Summary of Implementing Actions

The table presented on the following pages is a tool for guiding implementation of the City's Circulation Element. Organized by the community's broad goals, the table format provides an overview of policies and implementing actions detailed in the previous section. Each action is linked to a designated lead responsible party and an estimated time frame for completion. Related policies are identified in the final column.

Goal CR1 : **Create a Multimodal Circulation System**

Implementing Actions	Lead Responsibility	Time Frame	Related Policies
Action CR1.A Regional Circulation Improvements	Public Works	2 - 5 years	CR1.1; CR1.3; CR1.5
Action CR1.B Public Transit and Paratransit Service Improvements	Public Works	Ongoing	CR1.4; CR1.5
Action CR1.C Bicycle and Pedestrian Plans	Public Works	0 - 2 years	CR1.3; CR1.6; CR1.7
Action CR1.D Bicycle and Pedestrian Standards	Planning and Building Services	0 - 2 years	CR1.3; CR1.6; CR1.7
Action CR1.E Trails and Greenway Program	Planning and Building Services	0 - 2 years	CR1.7
Action CR1.F Community-Based Self-Evaluation and Transition Plan	Public Works	0 - 2 years	CR1.2
Action CR1.G Capital Improvement Program	Public Works	Ongoing	CR1.1; CR1.2; CR1.3; CR1.4; CR1.5; CR1.6; CR1.7; CR1.8; CR1.9
Action CR1.H Street Capacity and Infrastructure Improvements	Engineering	5 + years	CR1.1; CR1.2
Action CR1.I Traffic Impact Analysis Guidelines	Engineering	0 - 2 years	CR1.1
Action CR1.J Streetcar Service Feasibility Study	Public Works Department	0 - 2 years	CR1.4; CR1.5
Action CR1.K Richmond Shuttle Service Feasibility Study	Public Works	5+ years	CR1.4; CR1.5
Action CR1.L Station Area Plans	Redevelopment Agency	5 + years	CR1.5; CR1.8
Action CR1.M Parking Requirements	Planning and Building Services	0 - 2 years	CR1.1; CR1.5
Action CR1.N Place-Based Street Classification Process	Planning and Building Services	0 - 2 years	CR1.1; CR1.9
Action CR1.O Place-Based Evaluation Criteria	Engineering	2 - 5 years	CR1.9

Goal CR2: **Promote Walkable Neighborhoods and Livable Streets**

Implementing Actions	Lead Responsibility	Time Frame	Related Policies
Action CR2.A Community Access and Mobility Criteria	Planning and Building Services	0 - 2 years	CR2.1; CR2.3
Action CR2.B Safe Routes to School Program	Public Works	Ongoing	CR2.1
Action CR2.C Streetscape Improvement Plans	Planning and Building Services	5 + years	CR2.2; CR2.3
Action CR2.D Street Design Guidelines	Planning and Building Services	0 - 2 years	CR2.2; CR2.3
Action CR2.E Signage and Wayfinding Plan	Public Works	0 - 2 years	CR2.1
Action CR2.F Lower Speed Limit Zone Study	Engineering	0 - 2 years	CR2.1; CR2.3

Goal CR3: **Create a Safe and Well-Maintained Circulation System**

Implementing Actions	Lead Responsibility	Time Frame	Related Policies
Action CR3.A At-Grade Railroad Crossings Improvements	Redevelopment Agency	2 - 5 years	CR3.1
Action CR3.B Traffic Calming Program	Engineering	Ongoing	CR3.1
Action CR3.C Circulation Impact Fee Program	Public Works	Ongoing	CR3.2; CR3.3

Goal CR4: **Ensure an Efficient Movement of Goods**

Implementing Actions	Lead Responsibility	Time Frame	Related Policies
Action CR4.A Goods Movement Plan	Engineering	2 - 5 years	CR4.1; CR4.2
Action CR4.B Truck Routes Study	Engineering	0 - 2 years	CR4.1
Action CR4.C Short-Sea Shipping Feasibility Study	Port Operations	0 - 2 years	CR4.2

Goal CR5: **Promote Sustainable and Green Practices**

Implementing Actions	Lead Responsibility	Time Frame	Related Policies
Action CR5.A Transportation Demand Management Program	Engineering	2 - 5 years	CR5.1
Action CR5.B Intelligent Transportation System	Planning and Building Services	2 - 5 years	CR5.1
Action CR5.C Climate-Friendly Fuel Guidelines	City Manager's Office	0 - 2 years	CR5.2
Action CR5.D City Vehicles Transition Program	Public Works	5 + years	CR5.2
Action CR5.E Diesel Engine Idling Ordinance	Planning and Building Services	2 - 5 years	CR5.2
Action CR5.F Green Streets Program	Planning and Building Services	Ongoing	CR5.3

Regulatory Framework

The following discussion provides an overview of City and public regulatory agencies that contribute to circulation planning in Richmond and the region.

Departments, Agencies and Committees

The following City Departments, regional agencies and committees govern transportation planning in the Richmond area.

City of Richmond Public Works Department

The City of Richmond Public Works Department provides a variety of engineering, operations and maintenance services in the City. The Engineering Division is responsible for: the City Capital Improvement Program; maintenance of Public Works programs including pavement management, traffic congestion management, hazard elimination, clean water program, storm and sanitary improvements and streets and sidewalks. The Operations and Maintenance Division is responsible for street repair, street lights and traffic signals and transportation for seniors and people with disabilities. The Streets Maintenance Division consists of four sections: Pavement Maintenance, Traffic Signs and Lines and Street Sweeping and Abatement.

Contra Costa Transportation Authority

The Contra Costa Transportation Authority (CCTA) was created in 1988 to manage the funds generated by the voter-approved, half-cent transportation sales tax, Measure C, and its extension, Measure J. The CCTA oversees the planning and construction of the capital projects included in the Measure C and Measure J Expenditure Plans, and implements the County's Growth Management Program.[11]

West Contra Costa Transportation Advisory Committee

The West Contra Costa Transportation Advisory Committee (WCCTAC) is one of four sub-regional transportation planning committees created in 1988 to advise the CCTA on Measure C expenditures and transportation concerns specifically related to the Cities of Richmond, El Cerrito, Hercules, Pinole and San Pablo, and the following transit agencies serving these cities: AC Transit, WestCAT and BART. WCCTAC also assists in designing and implementing improvement projects and programs related to local and regional transportation services that are not specifically linked to Measure C or Measure J funding, such as air quality improvement and congestion management.[12]

WCCTAC prepared the West Contra Costa Action Plan in 2000, which assesses transportation issues within West Contra Costa County and outlines recommended goals, objectives and actions for addressing those issues. The Action Plan designates Routes of Regional Significance and sets Traffic Service Objectives (TSOs). The Action Plan relates directly to the Countywide Comprehensive Transportation Plan, which is also known as the Congestion Management Plan (CMP). The latest CMP update was adopted by the CCTA in 2005.

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and is the area's federally designated Metropolitan Planning Organization (MPO). MTC plays an important role in financing transportation improvements from federal and state funds.

MTC is responsible for administering the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The RTP is a 20-year plan and is updated every two years. The Commission also screens requests from local agencies for state and federal grants for transportation projects to determine compatibility with the RTP.

California Department of Transportation

California Department of Transportation (Caltrans) owns and operates California's highway system. In Richmond, Caltrans facilities include Interstate 580, Interstate 80 and San Pablo Avenue. The City plans to turn over control of the Richmond Parkway to Caltrans, but first must identify and remedy certain deficiencies in order for Caltrans to accept control of this facility.

Notes

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