



5

TRANSPORTATION

5 Transportation

5.1 OVERVIEW

The Transportation Element (Element) is intended to provide guidance and specific actions to ensure that people and goods can safely and efficiently move within Concord and connect to the regional transportation system. The Element is based on a fundamental philosophy that efficient transportation that reduces the impacts of transportation on the region's environment and provides a variety of travel options for residents and visitors is best provided through a comprehensive program of transportation planning, land use planning, and growth management strategies. This Element includes provisions for passenger vehicle, transit, freight, aviation, maritime, pedestrian, and bicycle transportation modes.

State law recognizes that transportation and land use are closely related and requires that policies in this Element and the Land Use Element be linked. Careful integration of the City's transportation policies with its land use policies will ensure that the transportation network is designed to accommodate the travel needs of current and future users. At the core of this Element is the City's vision for a transportation system that encourages healthy, active living; provides a range of transportation options; reduces the impacts of transportation on climate change; supports environmentally-friendly transportation options; and provides safe, comfortable transportation options for all residents, persons patronizing local businesses, employees of Concord businesses, and other system users.

The people who will be traveling around Concord include pedestrians, cyclists, motorists, children, persons with disabilities, seniors, public transportation passengers, people moving freight, and emergency service providers. This reality underlies the entire Element and is consistent with the concept of "complete streets," which State law requires be incorporated throughout this Element. Complete streets are designed to meet the needs of multiple users, including motorists, bicyclists, pedestrians, transit users, and persons of different physical capabilities.

In Concord, complete streets will be created over time by retrofitting existing streets so they become more pedestrian-friendly and by designing new streets with continuous sidewalks, pedestrian crossings, bicycle lanes, and other features which make them safer and more comfortable for non-motorized travel. On the Concord Reuse Project (CRP) site, the complete streets philosophy is an integral part of community design and transportation. The Reuse Project has been designed to make walking, bicycling, and transit use the preferred modes of travel, and to make driving an option rather than a necessity.

5.2 BACKGROUND AND CONTEXT

Concord's Transportation Element incorporates three broad strategies. First, transportation programs are based on the integration of transportation system planning and land use planning. Second, the City's transportation planning efforts are integrated with those of the Contra Costa Transportation Authority (CCTA) and Caltrans in a cooperative, regional planning effort. Third, state of the art traffic engineering and transportation systems management programs are used

to manage traffic, reduce per capita vehicle miles traveled, and bring planned improvements to reality. Through the development and implementation of all these strategies the City can achieve its commitment to a balanced, efficient circulation system.

Roadway Network

At the core of Concord's transportation network is the roadway system. Most modes of transportation in the City depend to some degree upon it. Concord's system is based on a traditional grid pattern in the downtown surrounded by a radial pattern of major roadways. Although the major roadways provide strong connections to the downtown, relatively recently-built subdivisions have less local connectivity because of many cul-de-sacs and longer blocks. Regional access is provided by Interstate 680 and SR 242, and SR 4 provides access on the west and north. Concord's roadway system is integrated with the systems of Pittsburg on the northeast, Martinez and Pleasant Hill on the west, Walnut Creek on the south, and Clayton on the east.

Street System

This element defines a complete street network designed to serve multi-modal travel demand and the land uses and desired future character as expressed in the Land Use Element and throughout this plan. The types of streets that together make up the City's street network are described in Table 5-1. Their physical locations are shown in Figure 5-1. Model cross-sections of the street types showing desired characteristics for each type are shown in Figure 5-2. Many streets are not currently consistent with these sections, which represent the City's future vision for the streets. As improvements are made to the streets, they will be guided by these model sections. In some cases, there will not be sufficient room for all of the facilities shown in the model sections. In those cases, the City will apply land use policies and policy guidance in this element to prioritize among the features shown in the model sections that will best accommodate all users. That prioritization will take place when new facilities are created, and when existing facilities are improved. Complete streets modifications to transportation improvement projects can often be accomplished without significant increases to the project cost, as long as they are considered early on in the process.

The following features are common to all complete streets:

- Travel lane width ranging from 10'¹ on low-traffic volume streets to 12' on high-traffic volume streets.
- Continuous sidewalks on both sides of the street, with a minimum clear width of 5'.
- Bicycle lanes with minimum width of 5'.
- Where street trees are provided, 5' diameter minimum tree wells.

These features will be achieved over time, using the policies established in this element to guide their implementation.

¹ In some situations, 9' travel lanes may be appropriate where traffic volumes are very low, right-of-way is limited or other conditions warrant.

Table 5-1: Complete Street Types

Type	Description (Function and Context)	Bicycle Infrastructure	Pedestrian Infrastructure	Auto Infrastructure
Residential	Quiet neighborhood streets serving walkers, cyclists, and drivers with low traffic volumes and slow speeds.	Signed routes or bicycle boulevards where appropriate	Sidewalks, street trees, neighborhood traffic management	2 lanes, on-street parallel parking
Downtown	Streets that provide access to or directly serve the downtown core; includes the surrounding mixed use and residential areas that transition to the downtown; medium to high volume of traffic and slow speeds; high mix of modes with a priority on pedestrian, bike and transit convenience.	On-street striped lanes, bicycle boulevards, off-street separated path, routes or sharrows	Wide sidewalks, pedestrian lighting, special crosswalk treatments; mid-block crosswalks; pedestrian buffer from street traffic	2-4 lanes parallel or (reverse) diagonal and off-street parking
Neighborhood	Streets serving and connecting to residential areas with destinations such as homes, schools, parks, and neighborhood retail; medium volume of traffic with slow to moderate speeds; significant walking and biking uses, in addition to autos.	On-street striped lanes, bicycle boulevards, routes or sharrows	Sidewalks, clearly marked crosswalks or special crosswalk treatments, pedestrian buffer from street traffic	2-4 lanes, on-street parallel parking
Community	Streets serving and connecting to work, regional shopping, downtown, office, and civic destinations that are accessed by people coming from throughout Concord; medium to high volume of traffic with slow to moderate speeds; extensive vehicle and transit use, as well as extensive bicycle and pedestrian uses.	On-street striped lanes or alternative route	Sidewalks; clearly marked crosswalks, pedestrian buffer from street traffic	4-6 lanes, often with medians, on-street parallel parking
Off-Street Connection	Trails and greenways serving regional destinations for recreation and commuting purposes; primarily serving pedestrians and bikes. Some equestrian facilities.	Off-street separated path connecting to on street bike lanes, residential streets, or trailhead parking	Off-street separated path connecting to sidewalks or residential streets	none
Regional	High volume corridors with moderate to higher speeds serving vehicles traveling through Concord and beyond.	Off-street separated path or on-street striped lanes or alternative route	Sidewalks; clearly marked crosswalks; pedestrian buffer from street traffic*	4-6 lanes, often with medians, parallel parking as appropriate

Type	Description (Function and Context)	Bicycle Infrastructure	Pedestrian Infrastructure	Auto Infrastructure
Service	Streets accessing office, service, and industrial uses; low to medium volume streets with slow to moderate speeds carrying truck traffic, in addition to passenger vehicles and low bicycle and pedestrian traffic.	Signed routes or on-street striped lanes	Sidewalks; clearly marked crosswalks; pedestrian buffer from street traffic	2-4 lanes, on-street parallel or diagonal parking

As streets are updated, right-of-way may limit the City’s ability to provide all of the features described in Table 1. In cases where there is not enough space for all features, the following priorities (combined with proper safety review) will guide the City in determining which features to include in new or improved streets. The focus on pedestrian facilities and safety is due, in part, to the City’s ongoing commitment to compliance with the Americans with Disabilities Act.

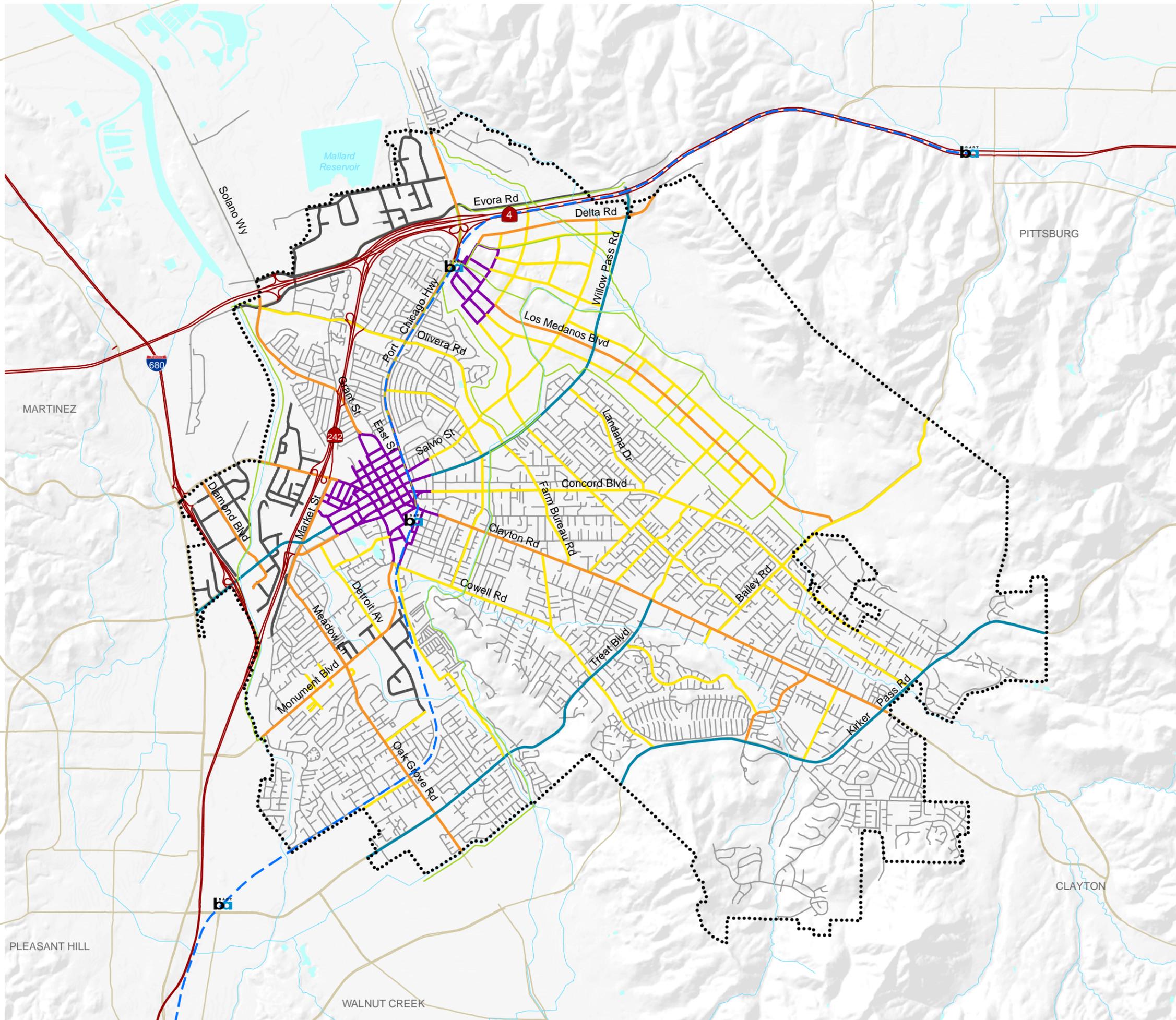
1. Pedestrian facilities prioritized above dedicated bicycle facilities
2. Bicycle and pedestrian facilities prioritized above street trees.
3. Bicycle and pedestrian facilities over street parking except on residential streets.
4. Travel lanes over street parking, except on Downtown streets.
5. Bicycle facilities in conjunction with 10’ travel lanes on low-traffic volume streets and 11’ to 12’ travel lanes on high-traffic volume streets.

Service Objectives

The adopted Central County Action Plan defines Multi-Modal Transportation Service Objectives (MTSOs) for Routes of Regional Significance (RRS). RRS are major roadway and freeway corridors serving regional traffic and are further defined in the Growth Management Element. The routes were identified in Action Plans adopted by the Contra Costa Transportation Authority (CCTA) as part of the countywide Measure J Growth Management Program. The regional routes within Concord include the freeways, the Kirker Pass Road/Ygnacio Valley Road corridor, Treat Boulevard, and Clayton Road between Treat Boulevard and Kirker Pass Road. The MTSO is used to measure the performance of the roadway using multiple variables as specified in the adopted Central County Action Plan.

Service objectives for local roadways are defined in the Growth Management Element. On streets that are not formally designated as Routes of Regional Significance by CCTA, these objectives are to be used as *benchmarks* rather than absolute standards. This means the City will determine on a case-by-case basis how best to use them to determine traffic mitigation measures. In some instances, road improvements (or impact fees) may be required to maintain or achieve a LOS benchmark. In other cases, increases in congestion may be acceptable in order to achieve other General Plan goals.

Figure 5-1
Street Types



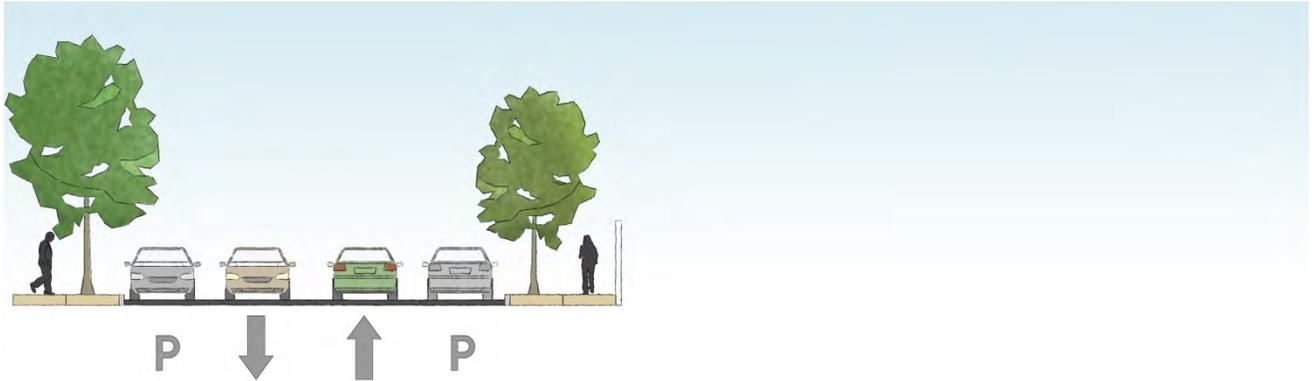
- Residential
- Downtown
- Neighborhood
- Community
- Off-Street Connection
- Regional
- Service
- City Limits

Sources:
City of Concord, Arup, 2012.

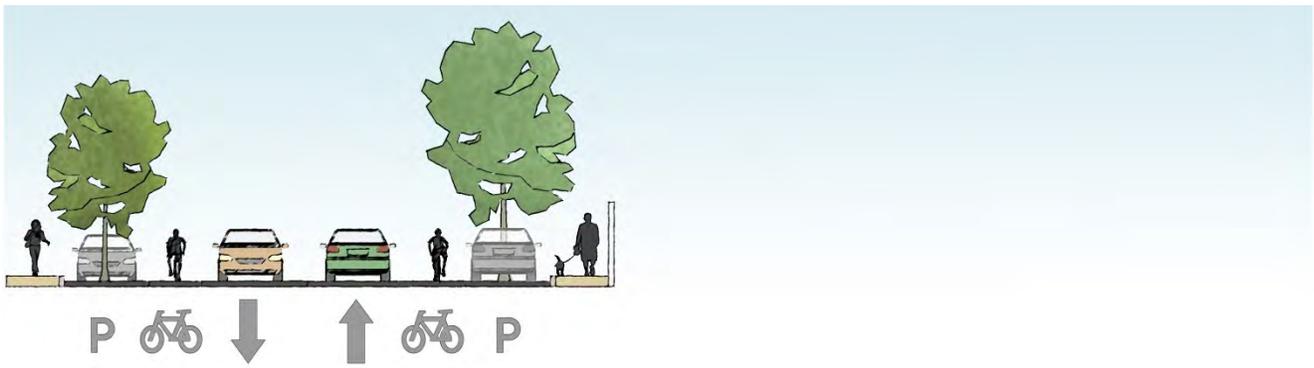


Figure 5-2a

Model Street Sections



Residential Model Section

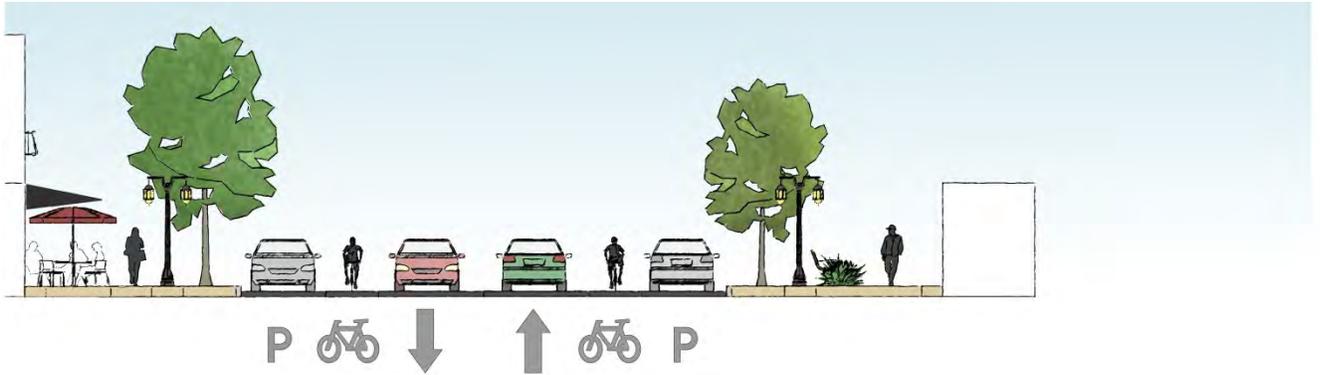


Downtown Model Section A

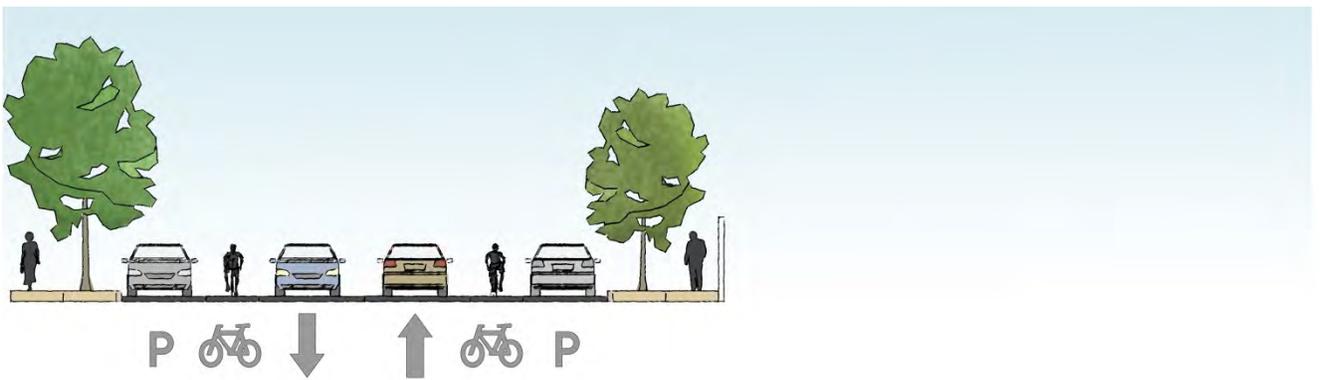
Note: Trees in parking lanes to be separated from parked vehicles in tree wells or bulbouts.

Figure 5-2b

Model Street Sections



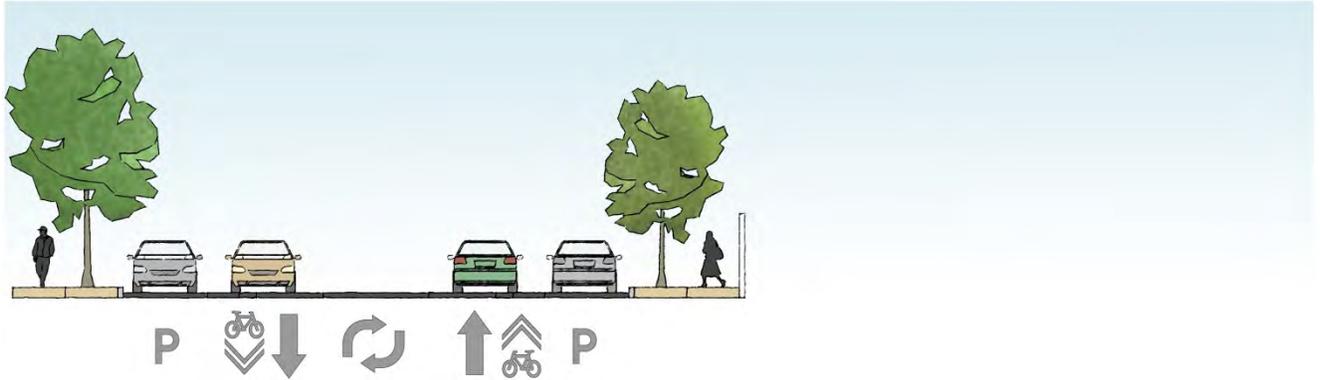
Downtown Model Section B: wide sidewalks



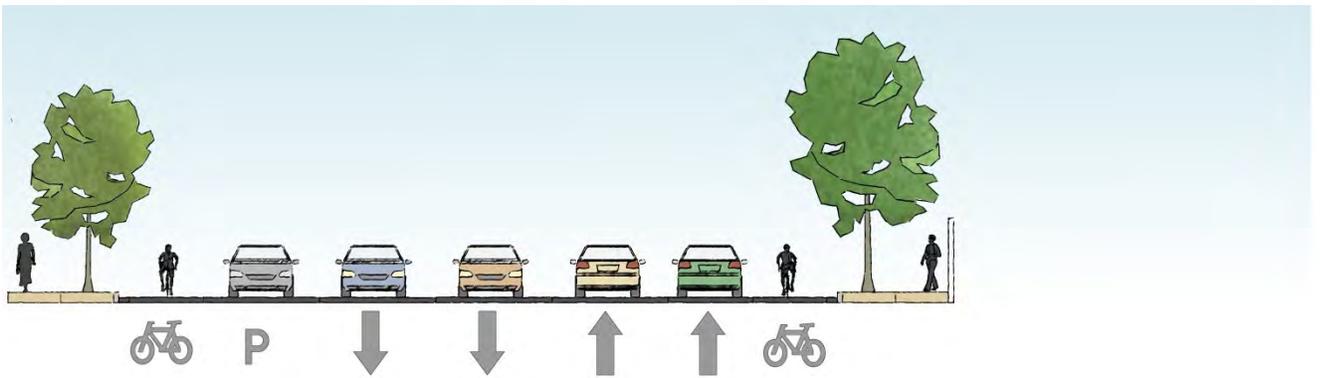
Neighborhood Model Section A: Separate bicycle lanes

Figure 5-2c

Model Street Sections



Neighborhood Model Section B: Shared bicycle lanes and center turn lane

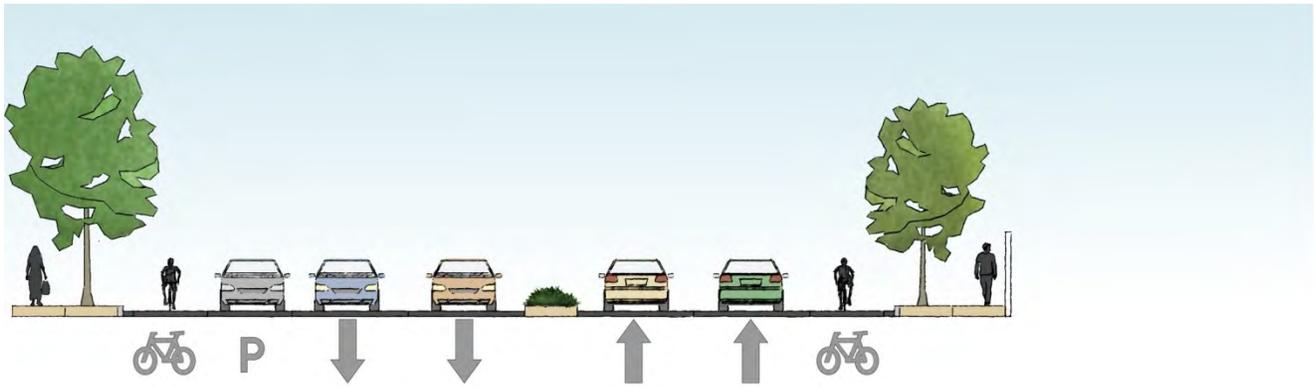


Community Model Section A: No median

Notes: Parking lanes could alternate sides of the street from block to block; where bicycle lanes are between sidewalk and on-street parking a painted or physical buffer separating bicycles from autos should be included.

Figure 5-2d

Model Street Sections



Community Model Section B: Median

Notes: Parking lanes could alternate sides of the street from block to block; where bicycle lanes are between sidewalk and on-street parking a painted or physical buffer separating bicycles from autos should be included.

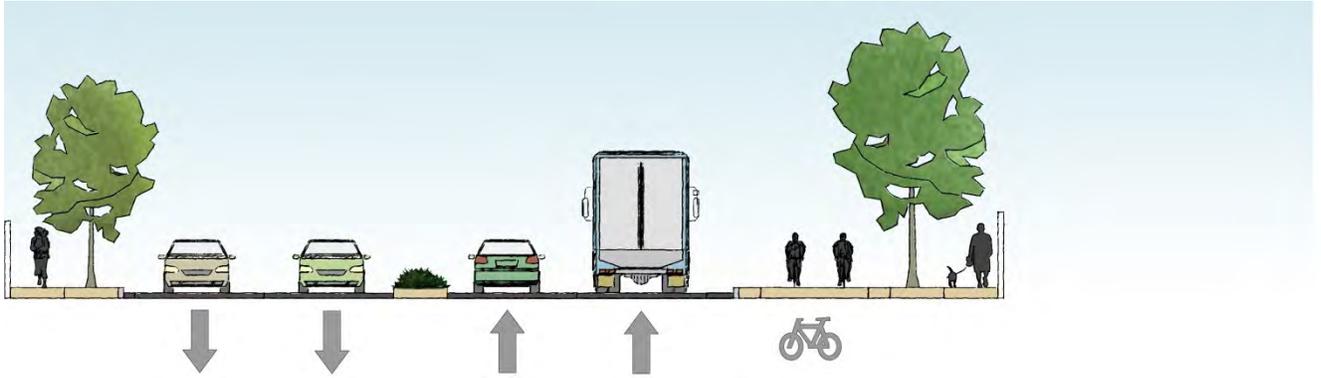


Off-Street Connection

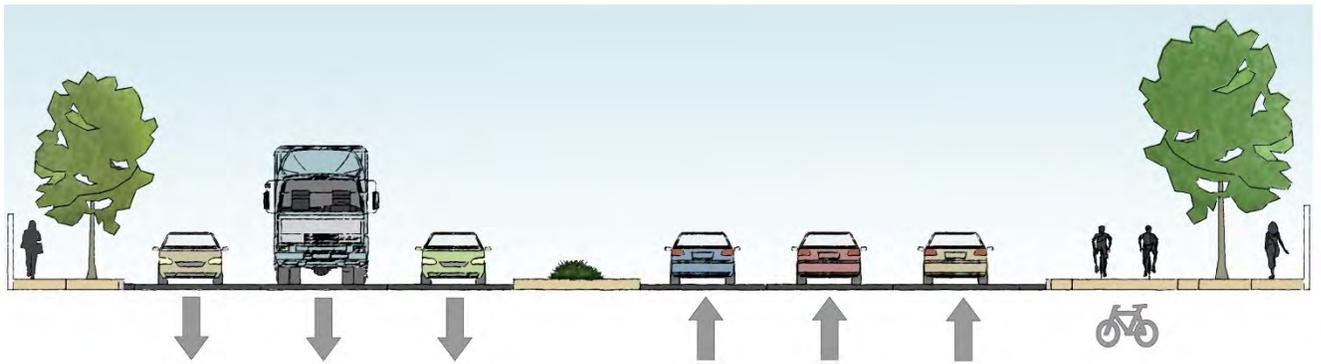
Note: Trail designs will vary based on the anticipated users.

Figure 5-2e

Model Street Sections



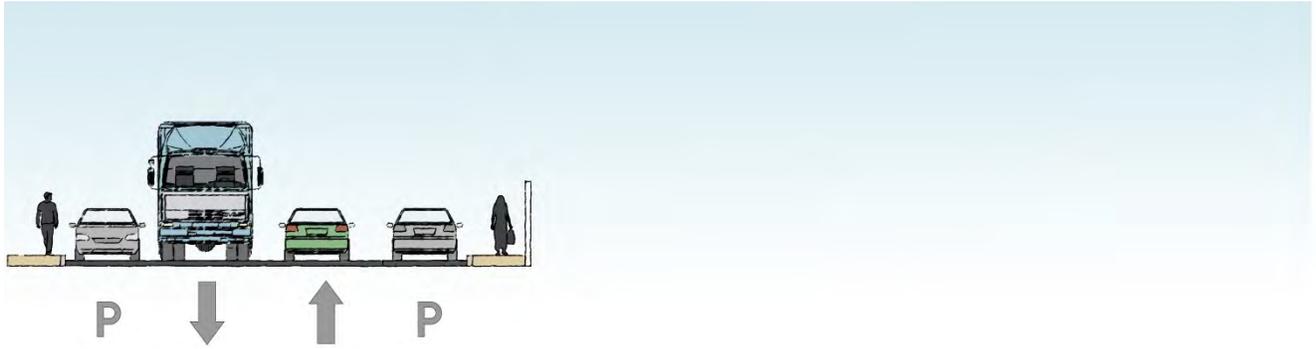
Regional Model Section A



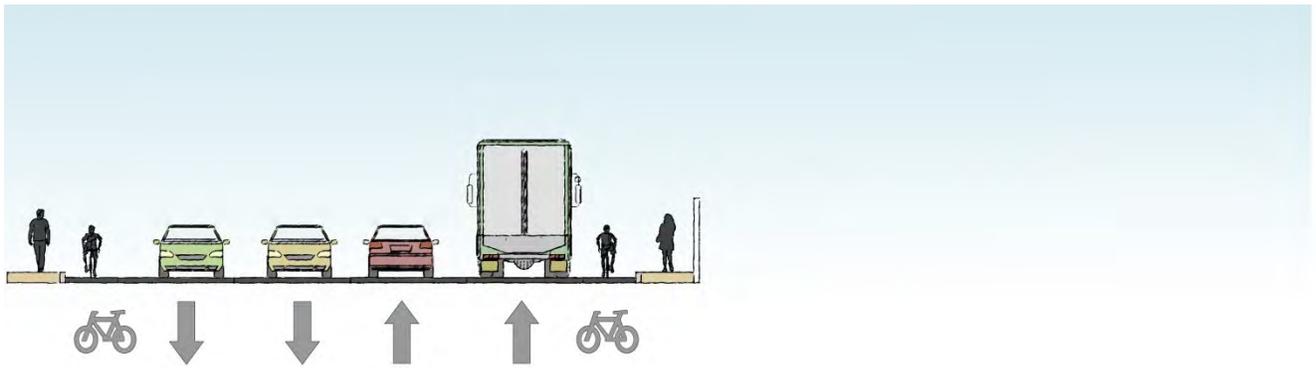
Regional Model Section B

Figure 5-2f

Model Street Sections



Service Model Section A: On-street parking; no bicycle lanes



Service Model Section B: Multimodal

The Level of Service (LOS) concept is generally used to measure the amount of traffic that a roadway or intersection can accommodate, which is based on maneuverability and delay. LOS ranges from LOS A (free-flow conditions) to LOS F (jammed conditions). These conditions are generally described in Table 5-2. The table also lists the maximum ratio of traffic volumes to the capacity for signalized intersections for each level of service. LOS thresholds established in the latest Highway Capacity Manual (HCM) for the automobile and non-automobile modes shall be used at signalized intersections as applicable. For the automobile mode, LOS designations from A to F are based on average delay per vehicle at the intersection. For non-automobile modes, LOS designations from A to F are based on quality of service associated with a trip through the intersection, as perceived by the traveler. LOS measures and thresholds established in the HCM may be refined over time as the HCM is periodically updated.

The concept of LOS was initially developed to maximize automobile speed and convenience. As indicated above, this is not the primary goal in all settings. For example, the goal in Downtown Concord is not only to ensure smooth traffic flow, but also to create a safe and welcoming pedestrian environment. Similarly, the goal around the Downtown and North Concord - Martinez BART Stations is to promote transit ridership and easy multimodal access to the station. On the Concord Reuse Project site, the goal is to create a multi-modal system where residents can walk, bicycle, or take a shuttle bus as easily as they can use their own vehicle. Thus, the LOS benchmarks expressed in the General Plan do not apply equally to all parts of the City.

Unless otherwise specified, the benchmark for the evaluation of roadway segments is LOS D. In the Downtown area, the benchmark is LOS E, recognizing the more urban, pedestrian-oriented character of this area. The Downtown is defined as the area served by streets designated "Downtown" in this element. The LOS E benchmark also applies in the Concord BART Station vicinity, the North Concord - Martinez BART Station vicinity, and along the City's transit routes. Transit routes are generally defined as roads with two or more bus transit lines, such as Concord Avenue, Clayton Road, and Treat Boulevard.

Traffic Conditions (Existing and Forecast Volumes)

In 2007, most roadways in Concord operated within the levels of service benchmarks. This finding reflects existing traffic conditions as of 2007. The following locations are the exceptions compared to current HCM roadway capacities based on generalized daily service volumes for urban street facilities:

- Ygnacio Valley Road operated at LOS F east of Cowell Road, where the traffic demand exceeds the four-lane roadway's capacity of 31,300 vehicles per day.
- Cowell Road between Monument Boulevard and Babel Lane operated at LOS F due to the limited capacity of the two-lane roadway, which is 16,400 vehicles per day.
- Meadow Lane operated at LOS F due to the limited capacity of the two-lane roadway, which is 16,400 vehicles per day.
- Willow Pass Road north of Landana Drive operated at LOS F due to the limited capacity of the two-lane roadway, which is 16,400 vehicles per day.

Table 5-2: Level of Service Definition

Level of Service	Description	Max. Volume/ Capacity Ratio
A	Free Flow or Insignificant Delays: Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersection is minimal.	0.6
B	Stable Operations or Minimal Delays: The ability to maneuver within the traffic stream is only slightly restricted and control delay at signalized intersections is not significant.	0.7
C	Stable Operations or Acceptable Delays: The ability to maneuver and change lanes is somewhat restricted and average travel speeds may be about 50 percent of the free flow speed.	0.8
D	Approaching Unstable or Tolerable Delays: Small increases in flow may cause substantial increases in delay and decreases in travel speed.	0.9
E	Unstable Operations or Significant Delays: Significant delays may occur and average travel speeds may be 33 percent or less of the free flow speed.	1.0
F	Forced Flow or Excessive Delays: Congestion, high delays, and extensive queuing occur at critical signalized intersections with urban street flow at extremely low speeds.	>1.0

Source: *Highway Capacity Manual, Transportation Research Board, Washington DC 2000*

(*) The LOS measures cited here are benchmarks, not absolute standards. They provide a tool for quantifying projected traffic conditions and determining where improvements and mitigation measures may be needed.

Congestion on these roadway segments typically occurs in the peak commute direction during peak travel periods. In the non-peak direction during the peak periods and at other times of the day, there may be little or no congestion along these routes.

All of the roadways that failed to operate within the levels of service benchmarks in 2007 are proposed to have future improvements in roadway capacity.

When the City initially adopted the 2030 General Plan in 2007, no development was assumed on the former Naval Weapons Station (i.e., the CRP site). As part of the CRP Area Plan and its related General Plan Amendment, the City updated its traffic forecasts to test the impacts of adding approximately 12,200 homes and 26,300 jobs on the site. As amended, the General Plan now reflects the higher forecasts associated with this growth. Numerous design strategies and transportation demand management programs are included in the CRP Area Plan to reduce the effect of additional development on traffic.

Planned Improvements to Accommodate Buildout

Buildout of Concord consistent with the Land Use Element will require improvements in the transportation system.

The following major street improvements planned or programmed for Concord or on the adjacent freeway network are shown in Figure 5-3. They were developed to accommodate motor vehicle traffic anticipated with buildout of this Plan. In some cases the right-of-way needed for the improvements would have to be acquired by the City in order to construct them. They should be implemented in conjunction with the Complete Streets concepts included in this Element to ensure they are providing the best possible mobility options for residents and visitors in Concord.

1. Ygnacio Valley Road – widen to six lanes between Cowell Road and Michigan Boulevard
2. Cowell Road - widen to four lanes between Monument Boulevard and Treat Boulevard
3. Denkinger Road - widen to four lanes between Clayton Road and Concord Boulevard
4. Farm Bureau Road - widen to four lanes between Willow Pass Road and Clayton Road
5. Meadow Lane - widen to four lanes between Monument Boulevard and Clayton Road
6. Willow Pass Road - widen to four lanes between Landana Drive and SR 4
7. Commerce Avenue Extension - extend existing two lane arterial
8. Waterworld Parkway bridge over Walnut Creek - construct a two-lane bridge over the Walnut Creek channel connecting Waterworld Parkway with Meridian Park Boulevard
9. Bates Avenue - widen to four lanes from Industrial Way to Mason Circle
10. Port Chicago Highway - widen to four lanes from Bates Avenue north to the UPRR crossing
11. Monument Boulevard - widen to six lanes from Systron Drive to Cowell Road
12. Concord Boulevard - widen to four lanes from 6th Street to Farm Bureau Road
13. Clayton Road/SR 242 Interchange - new northbound on-ramp and new southbound off-ramp

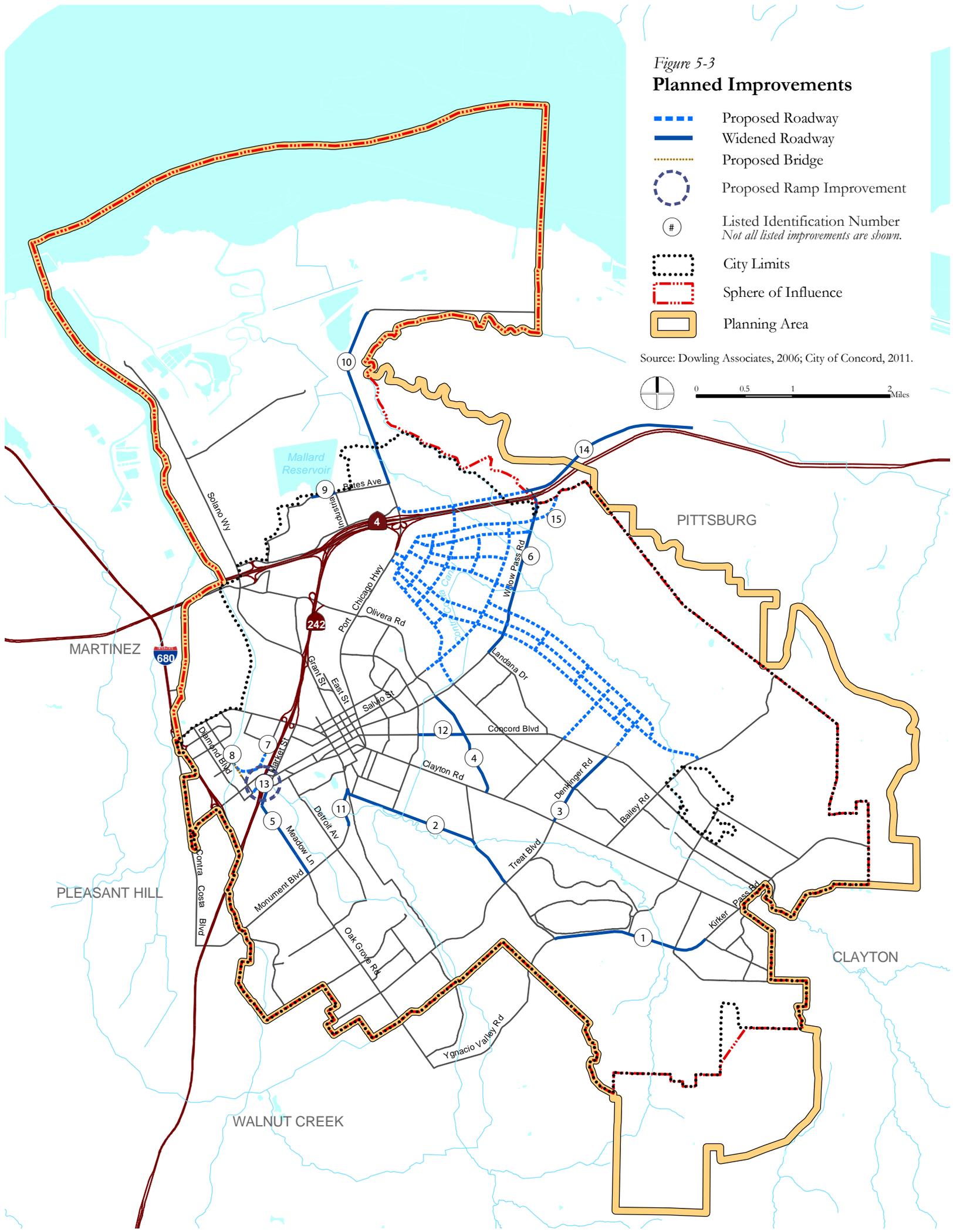
14. Evora Road - Widen from Willow Pass Road to the vicinity of Pomo Street and extend west into CRP Project Area; continue west to connect to Arnold Industrial Way at Port Chicago Highway
15. Avila Road widening and extension to City limit (and onward to Bay Point)
16. State Route 4 additional lane eastbound and westbound between SR 242 and I-680, as part of the I-680/SR 4 Interchange Improvement Project

Figure 5-3

Planned Improvements

-  Proposed Roadway
-  Widened Roadway
-  Proposed Bridge
-  Proposed Ramp Improvement
-  Listed Identification Number
Not all listed improvements are shown.
-  City Limits
-  Sphere of Influence
-  Planning Area

Source: Dowling Associates, 2006; City of Concord, 2011.



In addition to the improvements listed above, a new network of “complete” streets is included in the Community Reuse Project as illustrated and described in the CRP Area Plan. The network includes a new through-street extending from the North Concord - Martinez BART Station vicinity southeastward to Bailey Road, providing access to new “village neighborhoods.” Another major through-street will extend from the BART Station to Willow Pass Road (at Avila Road) along an alignment that roughly parallels Route 242 and Highway 4. A network of community streets will link the villages and employment districts to one another, to BART, and to established Concord neighborhoods. New neighborhood streets will provide access to new homes, businesses, and other land uses. Alleys may be incorporated into neighborhoods to provide rear yard garage access, which can create a more pedestrian-friendly street environment.

Connectivity

The roadway system in Concord has been shaped in part by the presence of creeks running through the City. Walnut Creek and Pine Creek have created barriers to the connectivity of the roadway system between I-680 and SR 242.

Traditional grid street designs allow for through movement and good connections between and within neighborhoods. Short blocks offer a choice of routes and enable more direct connections. Variations from the traditional grid can allow for diagonal and curvilinear streets as well as larger or smaller blocks for maximum flexibility and improved connectivity.

Some neighborhoods in Concord have been built using many cul-de-sacs. This type of design promotes circuitous travel and results in traffic being distributed along fewer streets where heavy traffic concentrates. More desirable is a grid-based development that balances a sense of proximity and ease of access with the quieter environments of neighborhoods. In order to ensure that street layout in all future development incorporates the need for neighborhood connectivity and the comfort and safety of pedestrians and bicyclists, it is essential that:

- All new development be “connected” to the surroundings with an increased number of access points and pedestrian and bicycle connections to the neighborhood network;
- Blocks be short to allow for more direct connections;
- Neighborhood streets be designed at a human-scale, without excessively wide streets; and
- Traffic controls be incorporated including speed limits, signage and truck routes to restrict commercial traffic in neighborhoods.

Careful integration of land use and transportation systems will be especially critical in planning for infill sites within the urban area because of access limitations and expected future congestion on the regional highway system. There is tremendous potential within the City to foster development that supports transit; however, simply requiring higher density development without regard to use mix, dispersion and connections with the transportation system will not be enough. Attention to the design and location of pedestrian and bicycle networks, the design of linkages, the location of parking, and provisions for local transit providing feeder service to BART will be essential.

The CRP exemplifies the practical application of many of these principles. Standards in the CRP Area Plan include maximum block sizes to maintain connectivity and create a more walkable

community. The Area Plan also includes standards for sidewalks and bicycle lanes, transit-only and mixed flow (transit plus auto) lanes, parking lanes, and street trees. As in the rest of Concord, roads will be designed to establish a clear hierarchy of through-streets, community, and neighborhood streets. Extensions of Salvio Street, West Street, and Denkinger Road will maintain continuity with the larger Concord street network.

Truck Routes

In addition to moving people, the roadway system in Concord carries a substantial number of trucks moving goods. Specific truck routes have been designated throughout the City and are shown on Figure 5-4. These routes are designed to allow truck traffic to pass through the City with minimal impact on residential neighborhoods as well as local vehicular and pedestrian traffic. Additional truck routes could be identified on the CRP site as more detailed planning is conducted.

Public Transit

An extensive public transit system is an important component of the Transportation Element. The transit system is well developed in the City. To accommodate future development in North Concord and the Concord Reuse Project area, it will be essential to develop good transit linkages to the North Concord - Martinez BART Station, the Downtown Concord BART Station, and between employment and housing areas.

Services and Facilities

Transit services in Concord include BART trains, County Connection buses, Tri-Delta Transit Buses, and BART shuttles.

BART provides rail service from two locations in Concord. The Concord BART station is located on Oakland Avenue near the historic downtown. The North Concord – Martinez BART station is located on Port Chicago Highway near the SR 4/SR 242 interchange. Both stations are along the line from Pittsburg/Bay Point to Millbrae with direct service to Downtown Oakland, Downtown San Francisco, and the San Francisco International Airport. Service to Richmond, Fremont, and the Oakland International Airport is available by transfer. Park and Ride facilities, bicycle lockers, and County Connection bus feeder services are provided at both stations. The Concord station also offers shuttles to California State University, East Bay (CSUEB) and Sleep Train Pavilion, as well as Tri-Delta.

Most bus service in Concord is provided by the County Connection, which is operated by the Central Contra Costa Transit Authority (CCCTA). In addition to local service and BART feeder service, the County Connection bus lines link Concord with Walnut Creek, Martinez, Lafayette, Orinda, Clayton, Alamo, and San Ramon. The network of transit routes is shown in Figure 5-5.

Tri-Delta Transit primarily serves eastern Contra Costa County including the communities of Antioch, Pittsburg, Brentwood, Oakley, Bay Point, and Discovery Bay. Connections to these communities are provided via a route serving the Concord BART station.

Additional transit services are planned for the Concord Reuse Project site. Buses will provide access from the BART station to neighborhoods and employment centers on the site. These additional planned transit services will connect the site to Downtown Concord and other Concord neighborhoods including a high-frequency bus that will travel in a dedicated bus lane along the new east-west road and will extend across the site. In addition to conventional transit vehicles, shuttle buses may also serve the site.

Bicycles, Trails, and Pedestrian Circulation

Given the topography of Concord, bicycling and walking are viable alternatives to auto use for both recreational and non-recreational trips. Bicycle and pedestrian facilities are an important component of the transportation network in Concord. As illustrated on the Bikeways map (Figure 5-6), opportunities exist to improve the convenience and safety of existing facilities and to increase the extent of bicycle and pedestrian facilities throughout developed areas. Improvements to existing facilities and new development accompanied by attractive, well-connected facilities will be conducive to increased walking and biking.

The Concord Reuse Project site presents a particularly important opportunity for bicycle and pedestrian travel because of the size of the site and the planned internal circulation system comprising on- and off-street facilities for pedestrians and bicyclists. The bicycle network will connect shopping, school, recreational, and visitor trips on a combination of off-road bike trails and routes that are within street rights-of-way. Support facilities such as bike racks will be an integral part of streetscape design. Likewise, the pedestrian system will be designed to ensure safe travel for persons of all ages and physical capabilities by providing sidewalks, cross-walks, and off-road trails with easy access to village centers, schools, workplaces, and the North Concord / Martinez BART Station.

A quality environment for pedestrian travel is essential for mobility overall and for the independence of children and many seniors. Furthermore, walking is a basic part of a healthy lifestyle. Most transit trips and many passenger car trips are linked to walking trips on one end or the other, so adequate pedestrian facilities are in the interest of the whole community. High quality pedestrian environments include attractive and well-maintained facilities that are interconnected and linked to other modes of transportation and to high use destinations.

The City of Concord employs three bicycle facility designations created by the California Department of Transportation, with some modifications. These designations consist of the Class I bike path, Class II bike lane, and Class III bike route.

In Concord, Class 1 bicycle trails, like Caltrans Class I bike paths, are physically separate from streets except at crossings. Concord's Class 3A bicycle facilities, like Caltrans Class III bike routes, consist of signed routes on residential streets where bicycles share the road with motor vehicles. Concord's Class 3B bike routes consist of signed routes with edge lines along community and arterial streets. The edge lines employed on Class 3B routes demark a variable width from 3 to 4 feet for travel by bicycles. This provides more space for bicycle travel than Class 3A but allows less than the Class II designation employed by Caltrans, which requires a minimum bicycle lane width of 5 feet. Because of the typical width of streets in Concord, as well as a historical emphasis on automobile transportation, there are a limited number of Caltrans Class II bike lanes in the City. Additional lanes are planned as part of the bike network to be constructed on the Concord Reuse Project site.

The Concord Trails Master Plan designates the location of existing and proposed trails and bicycle routes as well as existing and proposed grade separated over/undercrossings and trail staging areas.

Existing and proposed bicycle paths are also shown for Concord and the surrounding area in the "Contra Costa Countywide Bicycle and Pedestrian Plan." The Concord Transportation Element accommodates the Countywide Plan within the City limits to the extent feasible and shows how the City's bike system links to the countywide system. Future amendments or updates to the Countywide Plan and the City's Trails Plan may be needed to reflect proposals for the Concord Reuse Project site throughout Concord.

Figure 5-4
Truck Routes

-  Truck Route
-  City Limits
-  Sphere of Influence
-  Planning Area

Trucks greater than three tons prohibited from all other streets, except when necessary to traverse to a destination for the purpose of loading or unloading.

Exemptions:
 1) Passenger buses. 2) Any vehicle owned by a public utility while in use in the construction, installation, or repair of any public utility. 3) Refuse collection vehicles which operate on City streets.

Source:
 City of Concord: 2006.

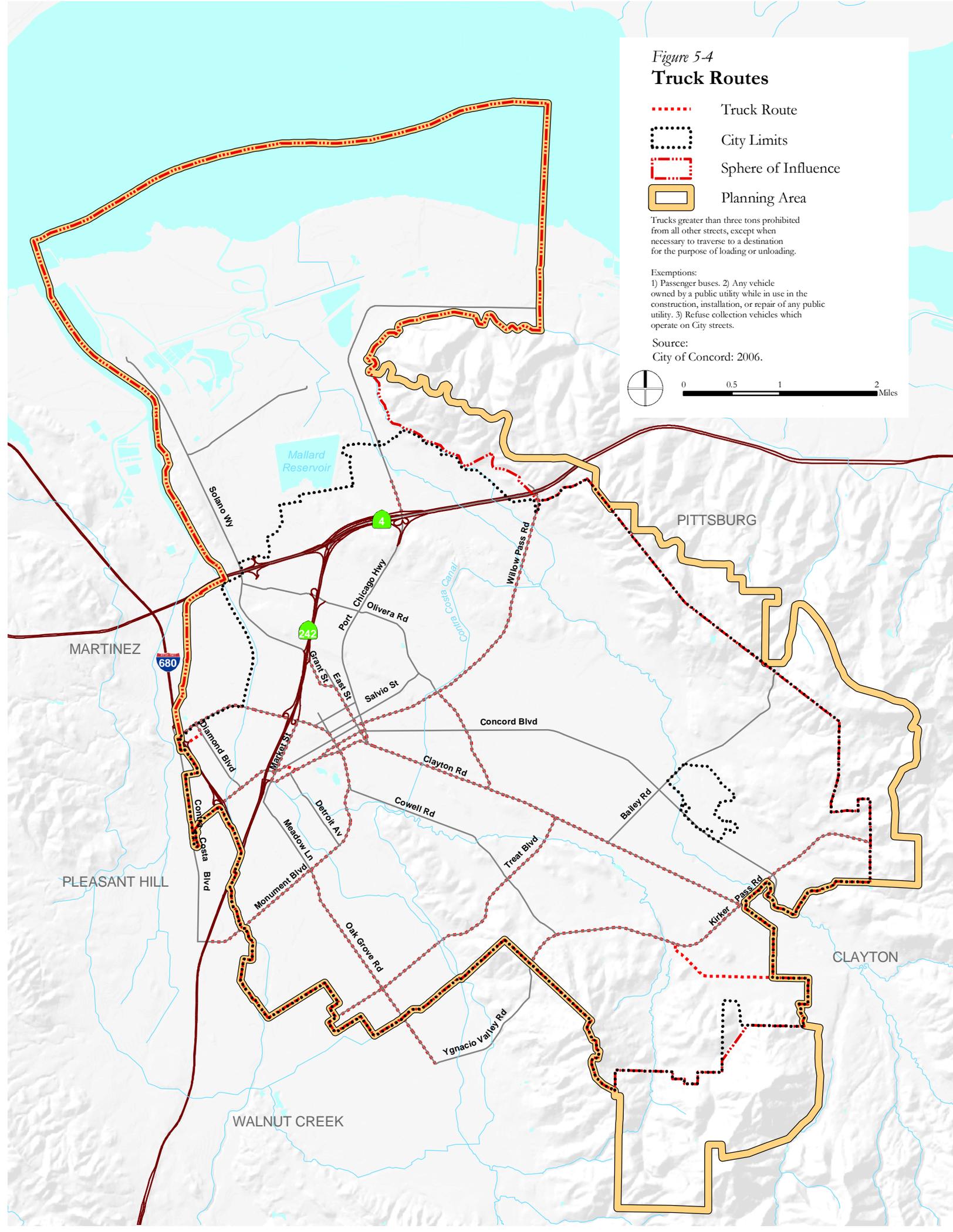
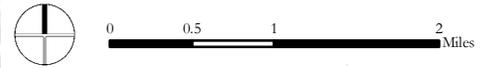


Figure 5-5
Transit Routes

 Proposed Route

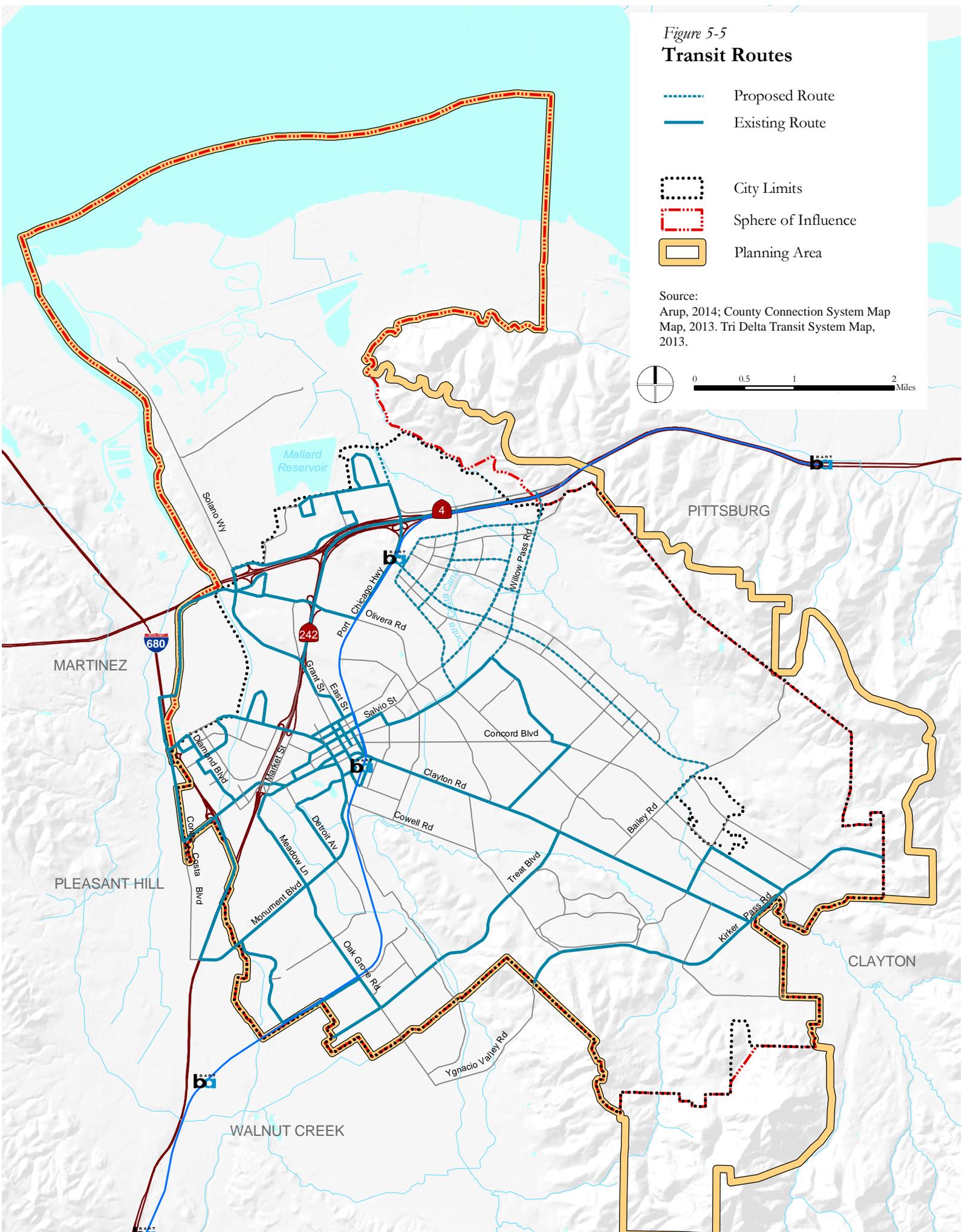
 Existing Route

 City Limits

 Sphere of Influence

 Planning Area

Source:
 Arup, 2014; County Connection System Map
 Map, 2013. Tri Delta Transit System Map,
 2013.



Port and Rail Facilities

The tidal area within Concord north of SR 4 borders Suisun Bay and includes a deep water port. The Army uses the port for weapons shipment operations under an agreement with the Navy.

In April 1996, the San Francisco Bay Conservation and Development Commission and the Metropolitan Transportation Commission adopted the San Francisco Bay Area Seaport Plan. The Seaport Plan identifies which ports will be necessary in the future to meet California's cargo shipping needs. It identifies Concord's tidal area and its deep water port as a "port priority use area" in the event the military facilities become available for private use. If this occurs, the land would continue to be used as a port with supporting industrial uses.

Regional Coordination

Coordination of regional transportation issues involves several agencies, including the Contra Costa Transportation Authority (CCTA), the California Department of Transportation (Caltrans), the Metropolitan Transportation Commission (MTC), and other agencies.

In 1988, Contra Costa County voters passed Measure C, which raised the sales tax by one-half cent to provide funding for regional transportation improvements. Measure C required local jurisdictions to adopt and implement a growth control program in order to receive their share of funds for transportation projects. Measure C established a cooperative, multi-jurisdictional planning process requiring participation of all cities and towns and the County in managing the impacts of growth in Contra Costa County. In 2004, Contra Costa County voters approved Measure J, which replaced Measure C and extended the half cent sales tax until 2034. As noted in the Growth Management Element of this Plan, some of the provisions of Measure C were removed, but the requirements for sub-regional transportation planning remain in effect.

CCTA was established in part to implement Measure C and its overall goals. Local jurisdictions work through their respective Regional Transportation Planning Committees (RTPCs) to fulfill CCTA's mandate. As part of central Contra Costa County, the City of Concord works with other central County jurisdictions through the Transportation Partnership and Cooperation Committee (TRANSPAC), their RTPC, and assists in the development of the Central Contra Costa Action Plans for Routes of Regional Significance.

Caltrans is responsible for the planning, design, construction, and maintenance of all State highways. Three State highways pass through Concord: I-680, SR 4 and SR 242. Caltrans' jurisdictional interest extends to the interchange ramps serving area freeways as well as the freeways themselves. Any Federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

MTC is the regional organization responsible for prioritizing transportation projects. They prepare a Regional Transportation Improvement Program (RTIP) identifying projects for federal and state funding. The process is based on evaluating each project for need, feasibility, and adherence to federal policies and the local Congestion Management Program (CMP). The CMP requires each jurisdiction to identify existing and future transportation facilities that would operate below an acceptable service level based on projected growth and provide mitigation where appropriate.

Figure 5-6
Bikeways

Off-street Facilities:

- Existing Class 1 trails - Regional
- Existing Class 1 trails - Collector
- Planned Class 1 trails - Regional
- Proposed Class 1 trails - Collector
- Proposed Class 1 trails - Feeder
- Proposed Caltrans Class I paths

On-street Facilities:

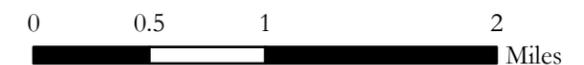
- Proposed Caltrans Class II bike lanes
- Proposed Class 3B bike routes with edge line
- Proposed Class 3A bike routes on residential street

- Existing Over/Undercrossings
- Available Over/Undercrossings
- Proposed Over/Undercrossings
- Existing Staging Area
- Proposed Staging Area

- City Limits
- Planning Area Boundary

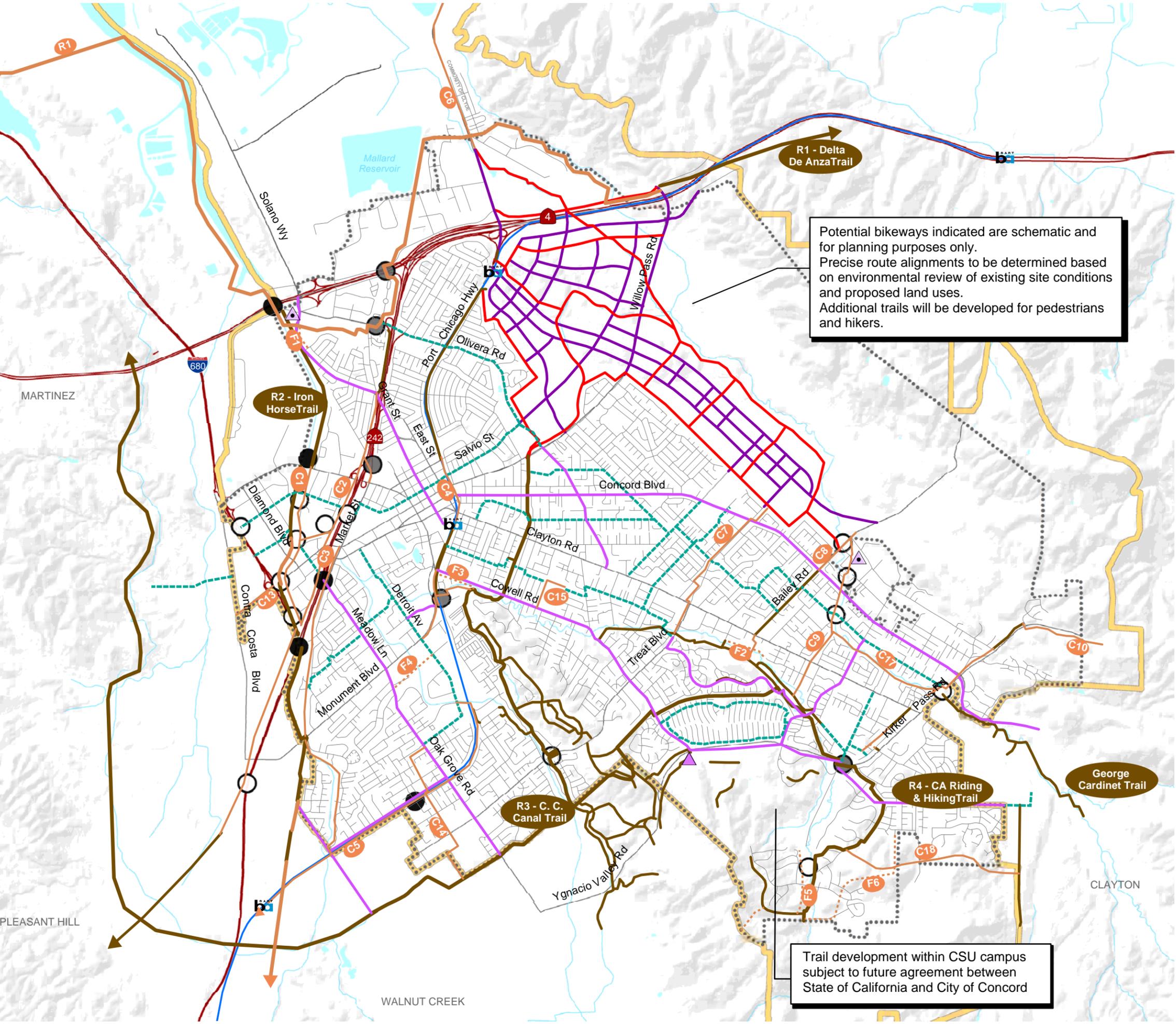
Notes: This plan does not preclude the further installation of Class II bike lanes. Pedestrians are allowed on all Class 1 trails and Caltrans Class I bike paths.

Sources:
 City of Concord, Dyett & Bhatia, Arup; Aug 23, 2011.



Potential bikeways indicated are schematic and for planning purposes only. Precise route alignments to be determined based on environmental review of existing site conditions and proposed land uses. Additional trails will be developed for pedestrians and hikers.

Trail development within CSU campus subject to future agreement between State of California and City of Concord



MARTINEZ

PLEASANT HILL

WALNUT CREEK

CLAYTON

R2 - Iron Horse Trail

R1 - Delta De Anza Trail

R3 - C. C. Canal Trail

R4 - CA Riding & Hiking Trail

George Cardinet Trail

5.3 GOALS, PRINCIPLES, AND POLICIES

GOAL T-1: A SAFE AND EFFICIENT MULTI-MODAL TRANSPORTATION SYSTEM

Vehicular Circulation

Principle T-1.1: Provide an Easily Accessible, Functional, and Attractive Transportation Network.

Policy T-1.1.1: Maintain streets and pavement in optimal physical condition to provide safe and efficient travel.

Policy T-1.1.2: Maintain and upgrade transportation systems to provide smooth flow of traffic, minimize vehicle emissions, and save energy.

Transportation improvements should be consistent with statewide greenhouse gas reduction goals established by Assembly Bill 32, and the land use and transportation policy initiatives established by Senate Bill 375.

Policy T-1.1.3: Unless otherwise specified, the benchmark for the evaluation of intersections and roadway segments is LOS D. In the Downtown area, the benchmark is LOS E, recognizing the more urban, pedestrian-oriented character of this area. The Downtown is defined as the area served by streets designated Downtown in this element. The LOS E benchmark also applies in the Concord BART Station vicinity, the North Concord - Martinez BART Station vicinity, and along the City's transit routes. Transit routes are generally defined as roads with two or more bus transit lines, such as Concord Avenue, Clayton Road, and Treat Boulevard.

Policy T-1.1.4: Require all new development to locate structures to accommodate ultimate street widths and required setbacks.

Policy T-1.1.5: Require all new development to provide adequate right-of-way and to construct ultimate on and off-site improvements.

This policy ensures that land is set aside for needed roadway widening as proposed in this General Plan, for example, for Ygnacio Valley Road, and that traffic signals and other improvements are designed to serve a project at buildout, not just the first phase.

Policy T-1.1.6: Develop and operate a transportation system that directs the flow of vehicle traffic on Residential streets to Community streets and other streets serving a larger geographic area.

Policy T-1.1.7: Provide a high level of multimodal connectivity in the design of the citywide transportation system, particularly in the Concord Reuse Project area.

The roadway, bicycle, pedestrian, and transit network to be developed on the Reuse Project site should provide convenient multimodal access from this area to adjoining neighborhoods, the City, and the region.

Policy T-1.1.8: Designate and periodically review truck routes to provide for movement of goods throughout the City. Review of truck routes should consider current destinations for trucks, system connectivity, miles of travel, emissions, ease of access to adjacent freeways, level of traffic, presence of nearby schools, the relationship of truck routes to residential neighborhoods, and future connectivity to the Concord Reuse Project site.

Policy T-1.1.9: Limit new land uses with significant reliance on trucks to parcels fronting designated truck routes, in industrial areas, or within ¼ mile driving distance of freeways.

Policy T-1.1.10: Discourage new parks, schools, day care centers, and major pedestrian uses from being sited on designated truck routes, or provide additional safety measures.

Policy T-1.1.11: Consider transferring responsibility for the maintenance of private streets to the City in cases where ownership can also be transferred to the City, and streets can be improved so they meet City standards.

Policy T-1.1.12: Establish efficient linkages to the regional transportation system for all modes of travel.

Policy T-1.1.13: Coordinate traffic signal systems with abutting jurisdictions.

Policy T-1.1.14: Develop a plan for the City's gateways that incorporates mutually complementary design, signs, and themes.

Such a plan shall identify an overall design theme that can be applied at each gateway (See Policy LU-10.1.6).

Policy T-1.1.15: Enhance the visual quality of public space through the design and landscaping of streets, and the control of visual and functional aspects of abutting improvements.

The City desires to ensure that streets provide an aesthetic driving, walking, and bicycling experience through the review of abutting improvements such as sidewalks, sound walls, and signs.

Policy T-1.1.16: Continue to provide and enhance landscaped medians and street edges that are visually pleasing and provide shade and buffers for pedestrians and cyclists; landscaping should use native or low-water plants and reduce stormwater runoff to the greatest extent possible.

Concord recognizes that well maintained roads with landscaped medians and edges enhance the City's image as well as adjoining property values. The City will continue its street maintenance and landscaping programs, and complete street upgrades as funding becomes available.

Policy T-1.1.17: Protect views toward hillsides and other regional open spaces along key roadways in Concord.

Treat Boulevard, Ygnacio Valley Road, Kirker Pass Road, and Willow Pass Road are examples of roadways that have views to regional open space areas that the City seeks to preserve.

Policy T-1.1.18: Monitor transportation facility performance as a part of development review and CEQA compliance as development occurs; include bicycle and pedestrian performance, in addition to vehicle performance in this monitoring.

Bicycle and pedestrian performance can be monitored using Multimodal Level of Service calculations or other appropriate methods such as walk or bike audits, surveys, and review of bicycle and pedestrian facility design.

Policy T-1.1.19: Support car sharing programs as a way to reduce the necessity of auto ownership, especially in transit-oriented development areas.

Policy T-1.1.20: Peak hour turn restrictions may be used to prevent cut-through traffic in certain areas.

Principle T-1.2: Ensure that Transportation Improvement Projects are Adequately Funded.

Policy T-1.2.1: Schedule transportation improvement projects in the Capital Improvement Program and Transportation Improvement Program.

The City will continue to fund improvements through a combination of Capital Improvement Program funds, contributions from private land developments, and other funds, as available.

Policy T-1.2.2: Continue to use Off-Site Street Improvement Program (OSIP) monies to fund transportation improvements serving all transportation users and traffic control system upgrades.

Policy T-1.2.3: Use impact fees, development agreements, and other funding mechanisms to construct the transportation system and support Transportation Demand Management programs on the Concord Reuse Project site, including transit services and facilities.

Trip Reduction

Principle T-1.3 Minimize single occupancy vehicle travel in Concord.

- Policy T-1.3.1 Work with employers to develop Transportation Demand Management plans to increase carpooling and encourage the use of public transportation, bicycling, and walking; consider other trip-reduction approaches such as telecommuting, shuttles, and transit passes.
- Policy T-1.3.2: Continue to promote a wide variety of transportation alternatives and modes to serve all residents and businesses to enhance the quality of life.
- Policy T-1.3.3: Ensure that streets are designed to balance the needs of multiple travel modes, including vehicles, pedestrians, bicycles, and transit.
- Policy T-1.3.4: Ensure that development in nearby communities incorporates measures to mitigate traffic impacts on Concord’s transportation system. As appropriate, the level of service benchmarks established in this chapter may be used to determine mitigation measures and/ or fees for such development.
- Policy T-1.3.5 Consider developing one or several Transportation Demand Management programs for downtown and other areas with concentrations of employees in which employers with 50 or more employees can participate by paying a fee; identify ways for employers with fewer employees to participate where appropriate.

Complete Streets

Principle T-1.4: Provide Complete Streets that Serve Residents and Visitors Using All Modes of Transportation.

- Policy T-1.4.1 Create a complete street network that provides facilities for all users to travel throughout Concord.
- Policy T-1.4.2 When prioritizing limited funds among potential complete street improvements, focus on the following types of improvements first:
 1. Safety: Regardless of location, improvements including sidewalk connectivity projects, that enhance the safety of all roadway users, including drivers, cyclists, pedestrians, and transit users.
 2. Sidewalk and Bicycle Access to schools, parks, and transit stops: locations often accessed by children and other non-drivers.
 3. Downtown streets: Visited by the majority of Concord residents; common places for people to walk to access businesses.
 4. Reuse Area Access: Tie the Concord Community Reuse Area into the rest of the City.

Policy T-1.4.3 Develop and apply a streamlined complete streets checklist for review of proposed transportation improvement projects.

The checklist should clearly define what changes are to be considered in project development and what considerations will determine whether they are appropriate. It should also define which types of projects are and are not subject to its use, requiring documentation and approval of the Director of Community and Economic Development, or similar position, for projects exempted from complete streets requirements.

Policy T-1.4.4 Review street reconstruction, development projects, and utility projects to identify opportunities to implement complete streets principles, including the concepts identified in this Element and the priorities of any adopted trails, bicycle, or pedestrian plans.

Policy T-1.4.5 When planning for complete streets, include groups and individuals representing the many populations who use the City's streets when planning for Concord's street network; use their input in collecting data to prioritize and track implementation of complete streets upgrades.

Policy T-1.4.6 Where right-of-way and adjacent land uses limit the space available for complete street infrastructure, consider 'road diets' to reduce the number of vehicle travel lanes or narrow lane widths; such 'road diets' should be subject to study to understand the potential for impacts on all modes of transportation.

A road diet reduces the number of vehicle travel lanes. The chief initial consideration is the number of vehicles using the roadway before such a project is implemented. For example, caution is warranted when considering reducing the number of through lanes on a roadway that does not provide excess capacity based on average daily or peak hour traffic volumes. The analysis should weigh a potential change in traffic operations, safety and diversions to other streets against the potential benefits to pedestrian and bicycle travel.

Policy T-1.4.7 Incorporate neighborhood traffic management techniques, such as traffic circles, narrow lanes, and bulbouts in appropriate residential areas; such techniques should be evaluated to ensure they improve bicycle and pedestrian travel without compromising the overall connectivity of the auto network.

Policy T-1.4.8 Develop street design guidelines; include typical standard sections and design details, consistent with the guidance in this Element. As part of this process, determine the narrowest lane widths and tightest corner radii that can balance the needs of public safety providers with the needs of cyclists and pedestrians and typical vehicle types.

- Policy T-1.4.9: Design and improve streets to facilitate safe crossings, including accessible curb ramps, crosswalks, refuge islands, and pedestrian signals; design and operate this infrastructure to meet the needs of people with different disabilities and of people of different ages.
- Policy T-1.4.10: Coordinate internally and with other agencies to plan for and prioritize the provision of a complete streets network.
- Policy T-1.4.11: Train City staff involved in street design in the application and integration of multi-modal infrastructure and techniques.
- Policy T-1.4.12: Consider expanding the mandate of the Parks, Recreation and Open Space Commission to include bicycle and pedestrian transportation to ensure that cyclists and pedestrians have an advocate and commission focus within the City.

Principle T-1.5: Foster Practical Parking Solutions.

- Policy T-1.5.1: Ensure adequate parking facilities are provided for public convenience and to promote economic development, where consistent with other objectives such as promoting public transit use, walking and bicycling.

As noted in Policy T-1.3.2 below, the definition of “adequate” parking facilities may vary depending on context, and the availability of alternative travel modes.

- Policy T-1.5.2: Allow flexible parking standards for developments within one-half mile of a BART station, one-quarter mile of a public parking facility, affordable housing developments, and in other locations where alternative modes of travel are available or where shared parking is provided.

- Policy T-1.5.3: Promote shared parking solutions.

Where peak parking demands do not overlap, as with an office building and a dinner restaurant, then shared parking allows for more efficient use of space. The total amount of land or building area needed for parking also can be reduced.

- Policy T-1.5.4: Coordinate with Caltrans and transit providers to develop Park and Ride sites.

- Policy T-1.5.5: Locate and design off-street parking lots in a way which makes them less visually prominent.

Parking in higher density and mixed use areas should be located beneath or behind buildings rather than between buildings and the street.

Transit

Principle T-1.6: Promote a Well-Integrated and Coordinated Transit Network.

Policy T-1.6.1: Coordinate with public transportation agencies to facilitate safe, efficient, and convenient pedestrian access to transit stops; work with agencies to relocate stops when necessary.

Policy T-1.6.2: Explore the establishment of a local shuttle service to supplement CCCTA and BART service within Concord.

The City's "Redevelopment Strategy and Implementation Action Plan" adopted in December 2000, identifies shuttle services to enable easy, convenient access to regional shopping areas, such as The Willows and Sun Valley Mall. Although the Redevelopment Agency has been dissolved, the City can continue to work with local transit providers to encourage "small-scale" transportation alternatives, such as a jitney, that can provide connections between BART stations, bus stops, parking structures, and nodes of commerce throughout Concord, including the North Concord business area and the Concord Reuse Project area.

Policy T-1.6.3: Work with public transportation agencies to provide high-quality, efficient, coordinated transit service that encourages the use of multiple modes of travel, such as cycling to transit stops, and reaches destinations important to transportation-dependent populations such as youth, seniors, and persons with disabilities.

The City works with CCCTA, Tri-Delta Transit and BART to ensure equitable transit service is provided to residents and businesses. Bicycle access to transit can be supported through the provision of secure bicycle racks at transit stops, provision for bicycles on transit, and connections to local and regional bicycle trails.

Policy T-1.6.4: Explore innovative approaches to providing bus and shuttle transit on the Concord Reuse Project site which achieve the service goals established by the CRP Area Plan.

Pedestrian Circulation

Principle T-1.7: Provide Safe and Convenient Pedestrian Circulation.

Policy T-1.7.1: Develop off-street pedestrian linkages, including approaches such as connections allowing pedestrians to travel through the ends of cul-de-sacs, pedestrian paths, bridges over creeks and roadways, and pedestrian underpasses, to minimize walking distance and enhance pedestrian circulation throughout the City; consider planned development on the CRP site when establishing such linkages.

Policy T-1.7.2: Use innovative and effective walkway features to enhance the pedestrian experience, including buffers between pedestrians and vehicle traffic, wide sidewalks, illuminated crosswalks, signalized crossings, bulb-outs, pedestrian-scale lighting, benches, and other street furniture; include trees wherever possible, selecting species that do not negatively impact sidewalks as they grow.

Policy T-1.7.3: Facilitate pedestrian circulation near high activity centers.

Policy T-1.7.4: Prioritize pedestrian connections from new development to nearby open spaces and trails.

Plans for the Concord Reuse Project include connections from the sidewalk system to a network of off-road walkways and regional park trails.

Policy T-1.7.5: Continue to prioritize compliance with the ADA in providing sidewalk, crosswalk, and transit stop improvements.

Policy T-1.7.6: Develop a pedestrian transportation plan that focuses on and identifies current deficiencies in the City's pedestrian circulation system for commute, non-commute and school related trips and prioritizes implementation of the resulting strategies by either specific location or by area of the city; the plan should also identify where implementation can be completed in conjunction with routine street projects and funding opportunities for implementation.

Develop the plan in coordination with local community organizations and consider utilizing their support to collect data for the plan. Establish an approach to ongoing data collection in support of the plan.

This will be done in concert with the Safe Routes to Schools program, the Capital Improvement Program and the Transportation Improvement Program, with priority given to pedestrian circulation improvements that will enhance pedestrian safety and promote walkability.

Policy T-1.7.7: Incorporate urban design measures in commercial and mixed use districts which accommodate pedestrians and support walking.

Examples of such measures include ample shade trees, buildings constructed to the front setback line, ground floor storefronts with window displays, frequent building entrances, benches and other street furniture, and parking lots and loading areas located behind buildings rather than along the street.

Bicycle Network

Principle T-1.8: Provide a Safe and Comprehensive Bicycle Network.

Policy T-1.8.1: Implement strategies and actions for enhanced bicycle circulation throughout the City.

Policy T-1.8.2 Provide bicycle parking at libraries, schools, community centers, and other community facilities and work with property owners to provide easily accessible parking at their buildings.

Policy T-1.8.3 Develop a Bicycle Master Plan to fully plan for bicycle transportation throughout the City, using public input to ensure a variety of current and potential cyclists participate. The project should include ongoing data collection during implementation. Consider the following issues:

- *Connectivity between current or expected origins and destinations, including shopping, planned development on the CRP site, schools, parks, medical care, and places of employment.*
- *Locations that may have pent up demand for bicycle transportation but do not currently have high bicycle traffic because they are currently difficult to access by bicycle.*
- *Locations with a history of collisions between cyclists and vehicles.*
- *Needs of bicycle user groups, including children and seniors.*
- *Use of parallel routes, canal trails, and other creative routing techniques that allow cyclists to avoid streets with heavy, higher-speed vehicle traffic.*
- *Connectivity with regional trails as envisioned in the Contra Costa Countywide Bicycle and Pedestrian Plan and trails plans from neighboring jurisdictions.*
- *Funding strategies to construct bicycle facilities identified in the plan and identification of facilities that can be provided in conjunction with street maintenance and improvement projects.*

Policy T-1.8.4: Require provision of bicycle facilities in new developments, where appropriate.

Examples include weather protected bicycle parking and direct and safe access for pedestrians and bicyclists to adjacent routes.

Policy T-1.8.5: Encourage, and where appropriate require, new development to provide bicycle access to parks, schools, and transit stops in the design of new residential neighborhoods.

Safety

Principle T-1.9: Promote Safety for All Modes of Transportation.

Policy T-1.9.1: Develop and implement a bicycle safety program geared to both children and adults, collaborating with Mount Diablo Unified School District, the Police Department, and other departments and organizations to disseminate the training broadly.

Policy T-1.9.2: Develop and implement a public information program to inform drivers of the need to respect the rights of cyclists and pedestrians; collaborate with the Mount Diablo Unified School District, the Police Department, and other departments and organizations to disseminate the training broadly.

Policy T-1.9.3: Incorporate Crime Prevention through Environmental Design (CPTED) principles into review of public and private projects to increase safety for pedestrians, cyclists, and other transportation users, balancing CPTED principles with other design concepts found in this and other elements.

Policy T-1.9.4: Work with the Police Department to prioritize enforcement efforts in strategic locations.

Policy T-1.9.5: Prioritize pedestrian, bicycle, and automobile safety over vehicle speed and level-of-service at intersections and along roadways.

Policy T-1.9.6: Work with the Mount Diablo Unified School District to develop Safe Routes to School programming, including walk and bike to school programs, outreach to students and parents about active transportation, and to expand safe bicycle and pedestrian access to schools.

Aviation System

Principle T-1.10: Support the Preservation and Expansion of Aviation Facilities in the Region-Serving Transportation System.

Policy T-1.10.1: Support Buchanan Field Airport use as a regional and local serving airfield.

Buchanan Field Airport provides convenient facilities for business aircraft and general aviation; it also is an important facility for emergency use. Maintaining it is consistent with the City’s emergency preparedness plans and economic development strategy.

Policy T-1.10.2: Encourage the establishment of commercial passenger service and the expansion of business aviation services at Buchanan Field Airport.

Policy T-1.10.3: Conditionally allow helipads for emergency helicopter use at hospitals.

Port and Rail Service

Principle T-1.11: Promote the Development of Port and Rail Service.

Policy T-1.11.1: Advocate for the maintenance of deep water channels at a depth that keeps ocean vessel use viable from San Francisco to Concord.

The City shall work with the Bay Conservation Development Commission, and other appropriate agencies to ensure deep water access is provided to Concord.

Policy T-1.11.2: Protect the existing railroad rights-of-ways where feasible for future local and region-wide rail service and transit connections.

This policy applies to commercial freight lines and not to the internal rail system and spur lines on the former Concord Naval Weapons Station. Rail facilities associated with former military uses will generally be removed as the Area Plan is implemented.

Policy T-1.11.3: Ensure adequate roadway transportation linkages from the port and rail facilities to the regional transportation network.

Policy T-1.11.4: Plan for only job-producing uses in the port area, and do not allow any residential development.