City of Concord

Bicycle, Pedestrian & Safe Routes to Transit Plan

September 2016

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The Monument Boulevard corridor is the most densely populated neighborhood in Concord,
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These unique demographic and transportation characteristics
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Concord

CONCORD CONNECTS

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INTRODUCTION

Chapter 1

INTRODUCTION

The City of Concord has embraced a bold vision of the city as a community where bicycling, walking, and transit serve the transportation needs of residents and visitors.

This Bicycle, Pedestrian, and Safe Routes to Transit Plan carries this vision forward, outlining a strategy to develop a safer, comfortable walking and bicycling network with support facilities, and to foster a thriving active transportation culture through programs and events.

This Plan envisions a network that supports walking and bicycling for both transportation and recreation where residents of all ages and abilities can choose to walk or bike. It focuses on improving access to transit stops and stations in the community, to connect cherished resources like the Iron Horse Trail, Lime Ridge Open Space, and Contra Costa Canal Trail. The Plan also identifies improvements for crossing and navigating busy arterial roadways, improving connections between local neighborhoods, parks, schools, shopping, restaurants, employment, religious institutions and other social activity centers.

In addition to the network, this Plan helps to provide a level of comfort to people walking and biking through wayfinding signs and maps as well as pedestrian amenities and secure places to park bicycles.

The bicycle and pedestrian networks are complemented by programs designed to educate and encourage all residents about walking, bicycling, and sharing the road safely, as well as enforcing good behavior for all road users. Evaluation programs will keep implementation on track by documenting progress towards this Plan's goals.

With this ambitious vision before them, the City will continue to cultivate a network of partners in the community dedicated to advancing bicycling, walking, and transit use. Citizen groups, private developers, funding agencies, and more must come together to transform Concord and create a legacy of active, healthy transportation options for generations to come.

PURPOSE OF THE PLAN

This Bicycle, Pedestrian and Safe Routes to Transit Plan establishes a 20-year vision for improving the walking and bicycling environment. This Plan documents what bicycling and walking is like now in Concord and the need for improvements.

This Plan provides a strategy for the development of a comprehensive bicycling and walking network to provide access to transit stops and stations, schools, jobs and downtown as well as a strategy for support facilities and education, encouragement, enforcement and evaluation programs.

The Plan identifies a strategy to implement the Plan's projects and programs through prioritization and tiering in order to ensure implementation is manageable and fundable.

This Plan also helps the City implement General Plan policies T-1.7.6 and T-1.8.3 and Citywide Climate Action Plan strategies TL1 and TL4 that call for the development and implementation of Pedestrian and Bicycle Master Plans.

SAFETY

The City of Concord envisions a safe and efficient multi-modal transportation system. To achieve that goal and deliver complete streets that meet the needs of all users, the City recognizes new streets will need to be developed and existing streets selectively retrofitted by means of road diets, lane narrowing, traffic calming, or other safety improvements.

This Plan places safety as its highest priority in developing project recommendations and seeks to address known safety challenges based on available crash data. Where there is existing safe space, this Plan recommends immediate bicycle and pedestrian improvements. Where additional space or improvements may be required, this Plan recommends specific locations for further study. These studies should prioritize improvements that help more residents and visitors feel safe and comfortable riding a bicycle or walking to meet their transportation needs.

PUBLIC INVOLVEMENT

Concord encouraged residents, advocates, and agency partners to provide input at all stages of development for this plan, to ensure the plan truly reflects the diverse needs and priorities of the community. The City held multiple public workshops, walking and bicycling tours, community capacity building workshops, and stakeholder group forums to gather input on needs and recommendations. A Project Advisory Committee was also formed to provide guidance and direction during development of the Plan.

ACTIVE TRANSPORTATION PROGRAM

This plan complies with Active Transportation Program (ATP) guidelines, making Concord more competitive for ATP funding upon approval of this Plan by a regional transportation planning agency. See **Appendix H** for a reference compliance table.

While the State no longer requires active transportation plans such as this to be updated every 5 years, the current (2016 Cycle 3) Active Transportation Program guidelines prioritizes grant applications from plans older than 5 years at the lowest priority.

PLAN ORGANIZATION

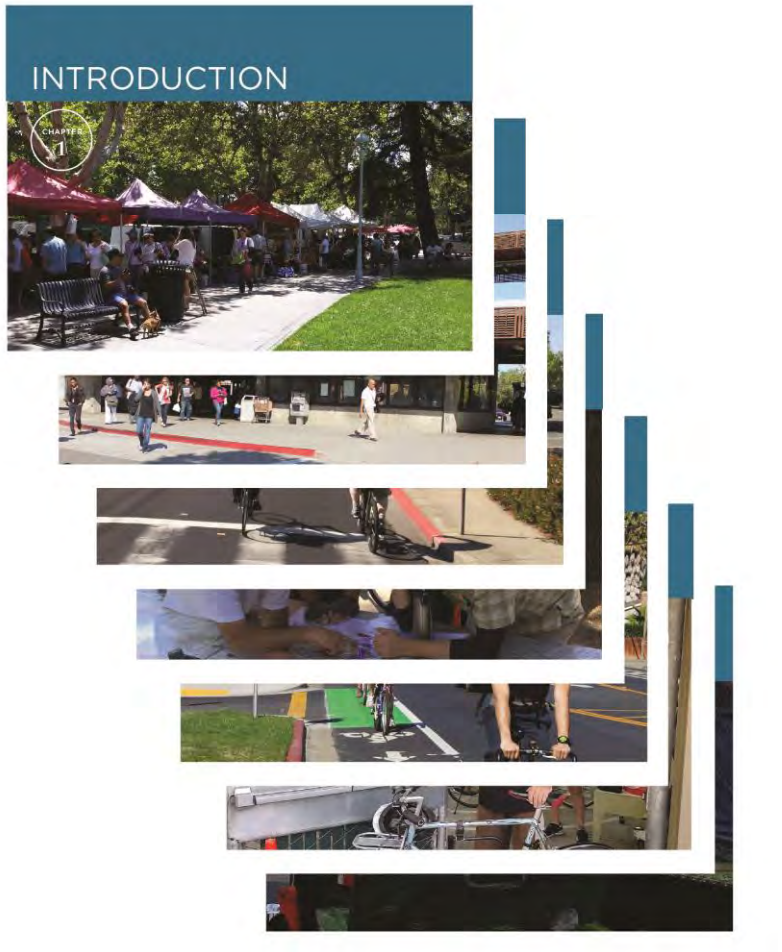
This plan is organized as follows:

- Chapter 1: Introduction
- Chapter 2: Concord Now
- Chapter 3: Why? Need for Improvements
- Chapter 4: Vision, Goals, Policies & Objectives
- Chapter 5: Projects and Studies
- Chapter 6: Program Recommendations
- Chapter 7: Action Plan

In addition, eight appendices provide background information or additional technical detail relevant to this Plan. These include:

- Appendix A: Background Data and Information
- Appendix B: Plan and Policy Review
- Appendix C: Demand Analysis
- Appendix D: Project List
- Appendix E: Conceptual Plans
- Appendix F: Municipal Code Revisions
- Appendix G: Funding Sources
- Appendix H: Active Transportation Program Compliance

A companion volume to this Plan includes detailed Design Guidelines that outline current best practices for implementing bicycle and pedestrian infrastructure improvements.



Concord Now

CHAPTER 2

Chapter 2

Concord Now

ABOUT CONCORD

Concord is the largest city in Contra Costa County, just 29 miles east of San Francisco. The city is well positioned as a community where people live, work, and play in the Bay Area.

The Suisun Bay and rolling hills form natural boundaries to the north and east. Interstate 680, a major link to Solano County and San Jose, and the City of Pleasant Hill bound the City to the west. The City of Walnut Creek and several open space areas lie south of the city.

The City of Concord is a traditional auto-oriented suburb which experienced its primary growth periods during the postwar era. Beyond the downtown area, most of Concord was developed during this period on former agricultural land. The community grew quickly and many formerly rural roads do not have curbs or sidewalks.

Concord's city motto is "Where Families Come First," and implementation of the recommendations in this plan will support families' abilities to choose walking, bicycling, or transit for their transportation needs.

The Concord Naval Weapons Station, on the eastern side of Concord, has been inactive since 1997. It now represents a large opportunity for Concord and the region to develop a world class transit-oriented project. Concord has developed a Reuse Project Area Plan with more information, reviewed in **Appendix B**.

Land Use

The City of Concord's land use patterns reflects its hub and spoke transportation network. Commercial uses are concentrated Downtown and along a spoke network of corridors radiating out from Downtown on Clayton Road, Willow Pass Road and Monument Boulevard. Professional offices, retail, and services also lie along these corridors.

Low density single-family residential uses fill much of the areas between the spokes. Parks and schools are dispersed through the City's neighborhoods.

For a map of land uses, see **Appendix A**.

Concord Hub and Spoke Network

Demographics

All demographic data reflects 2014 5-year estimates from the American Community Survey.

Population

Concord is the largest city in Contra Costa County, home to over 125,000 residents. The number of people who live in Concord is expected to grow about 1.2 percent each year, with increased growth following the development of the Concord Reuse Project Area.

Age

There are a lot of youth in Concord, with nearly 23 percent of residents under 18 years of age. This 23 percent are likely to be unable to drive, which increases the need to walk, bike, or take transit to their destinations.

While not a large portion of the total population, residents over 65 years of age tend to be clustered in neighborhoods in the City, with the highest concentration in downtown.

Access to Cars

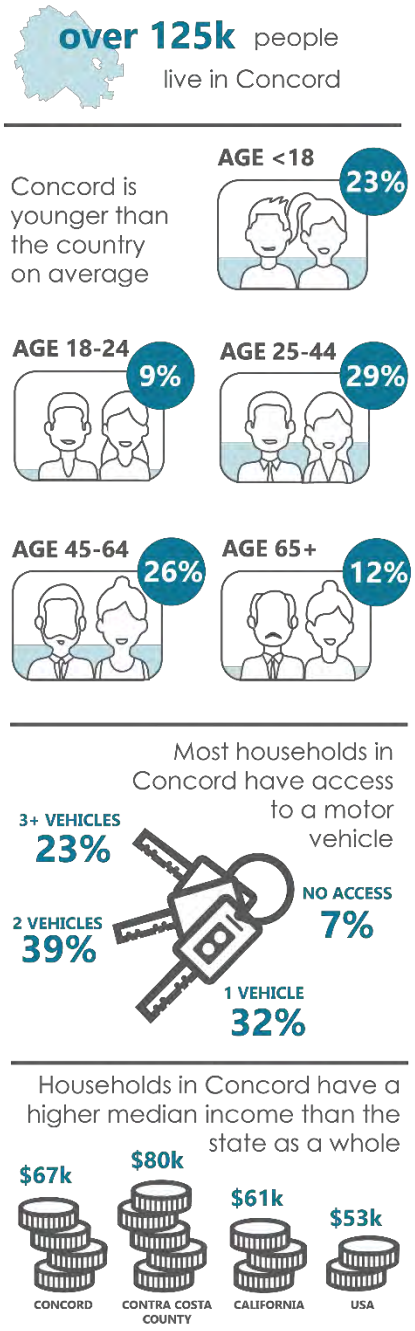
Approximately 7 percent of Concord households do not have access to a car. This means over ten thousand residents may walk, bicycle, or take transit for their daily transportation.

An additional 32 percent of households have access to one vehicle, making them "car-light." If these households have two workers, one or more of them may rely on other modes of transportation for their commute.

The neighborhood along Monument Boulevard in particular is densely populated by residents who are unlikely to have access to a car, and rely on walking, bicycling, or transit.

Income

Median household income in Concord is $67,122 in 2014 dollars, less than the countywide median of $79,799.



TRANSPORTATION FACILITIES AND PROGRAMS

Engineering

Street and Highway Network

Concord's roadway network includes 335 miles of streets laid out in a traditional grid pattern in the downtown area, with major roadways radiating outward from Downtown on "spokes." Between these spokes are neighborhoods with longer blocks and many cul-de-sacs.

Three freeways (I-680, SR 242, and SR4) totaling 19 miles provide regional connections but also present connectivity challenges for the local roadway network, particularly for walking and bicycling. Four creeks create similar connectivity challenges: Galindo Creek, Walnut Creek, Mount Diablo Creek, and Pine Creek.

Transit

Concord is well served by rail and bus transit. Multiple transit providers serve the Concord community, including Bay Area Rapid Transit (BART) trains and shuttles, County Connection buses and LINK paratransit, and Tri-Delta Transit buses. See Figure 2-1 for transit stations and bus stop locations.

Two BART stations are located in Concord: Concord (downtown) and North Concord/Martinez. Nearby stations include the Pittsburg/Bay Point station located northeast of Concord, and the Pleasant Hill/Contra Costa Centre station is located less than a mile from Concord to the southwest. Concord's BART stations are well used: average weekday boardings are approximately 6,000 passengers at the Concord station, and approximately 3,000 passengers at North Concord.

County Connection operates fixed-route service on eleven weekday and five weekend lines, with limited supplemental service convenient to local schools on seven additional routes. The Concord BART station serves as the primary transfer point for all routes. These buses provide local transportation as well as regional connections to Walnut Creek, Pleasant Hill, Pittsburg, Martinez, Antioch, and other nearby communities in Contra Costa County. County Connection also provides LINK paratransit services.

Other transit includes Tri-Delta and private company shuttles. Tri-Delta Transit operates one bus line to the Concord BART station, providing connections to Bay Point, Pittsburg, Antioch, Oakley, and Brentwood. Private companies, such as Google and Genentech, pick up employees from stops around the San Francisco Bay Area including in Concord.

TRANSIT STATIONS AND STOPS

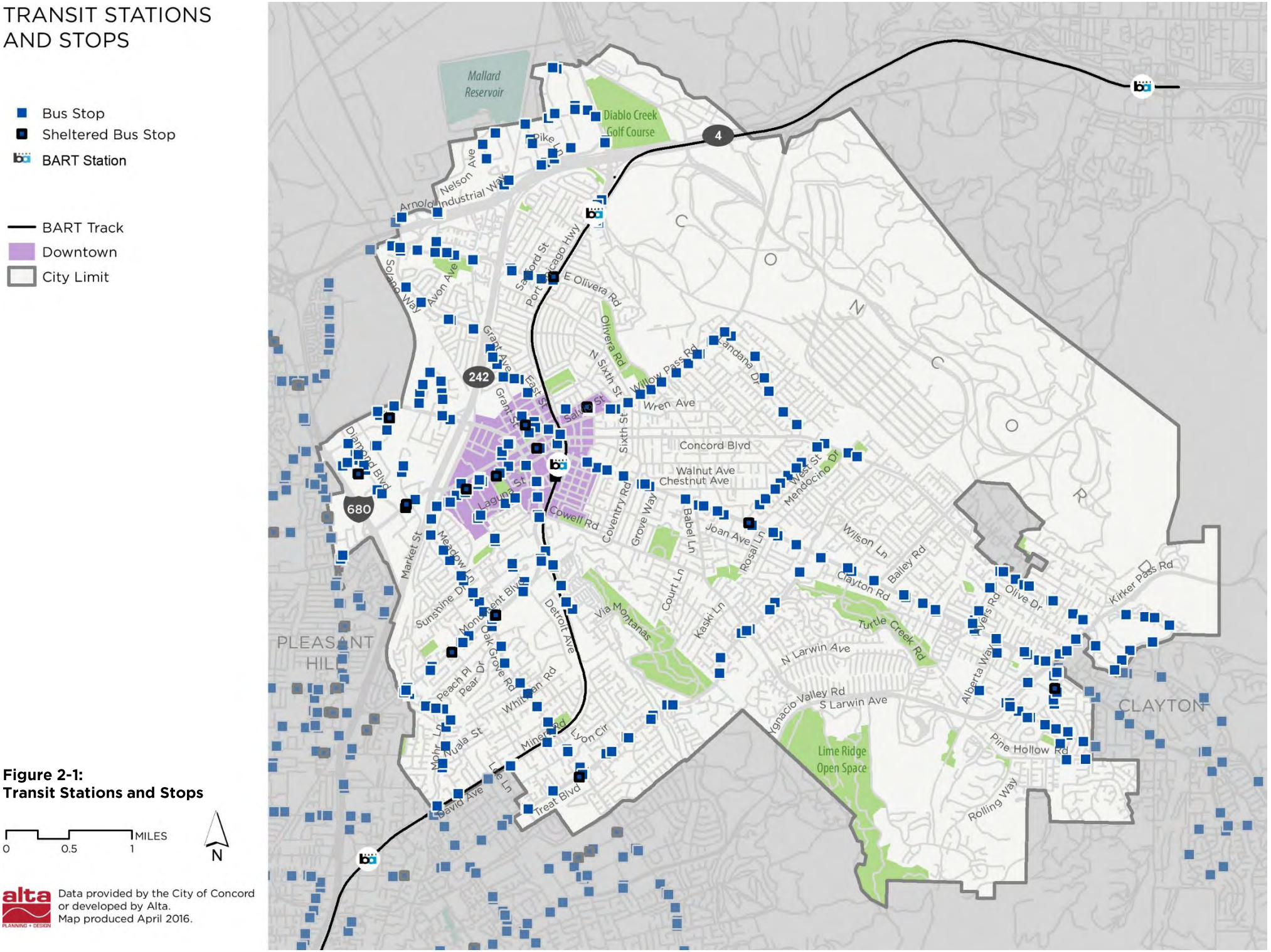


Figure 2-1:
Transit Stations and Stops

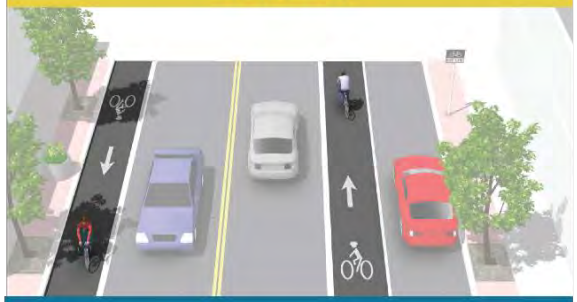
Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

Caltrans designates four 'classes' of bikeways that vary in the level of separation from motor vehicles that they provide.

CLASS I

Class I **pathways** are off street facilities, dedicated exclusively to use by bicyclists, pedestrians, and in some cases, equestrians and other non-motorized travel such as roller skating, and skateboarding.

CLASS II

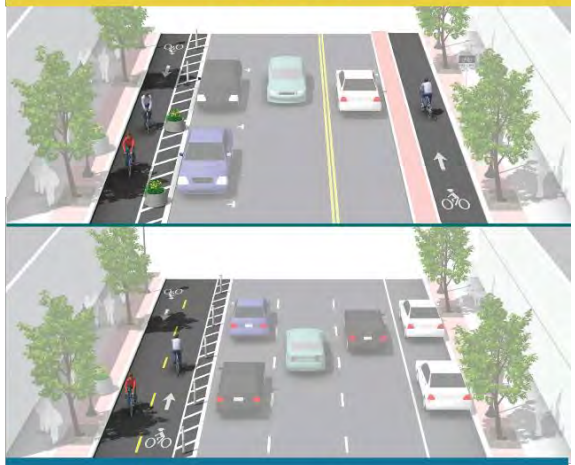


Class II **bike lanes** delineate a portion of the street for bicyclists.

CLASS III

Class III **bike routes** are routes where the travel lane is shared by drivers and bicyclists. Class III routes are generally designated on roadways with low levels of motor vehicle traffic where bicyclists may share the travel lane.

CLASS IV



Class IV **separated bikeways** are a new class of bicycle facility. Generally, Class IV bikeways are on-street bicycle facilities that are separated from vehicle traffic by some kind of physical protection— including a curb, on-street parking, flexible bollards, or concrete planters. They may provide for one-way or two-way travel on each side of the roadway.

Class I

Concord has approximately 17 miles of Class I bikeways, most of which parallel the BART line and creek corridors in the community, offering off-street links between destinations.

Two regional trails pass through Concord. The Contra Costa Canal Trail is a 20-mile multi-use trail that connects Concord with Pleasant Hill and Walnut Creek. The Iron Horse Regional Trail is a 32-mile multi-use path that begins in Concord and runs south through Walnut Creek and continues down to the Dublin/Pleasanton BART Station. Both are managed by the East Bay Regional Park District. The City also recently constructed the Monument Corridor Trail that connects residents to the Iron Horse Trail from the Meadow Lane-Market Street area.

Not all trails in Concord meet Caltrans design standards for a Class I facility and may need modifications to better meet the transportation needs of users.

Class II

Approximately 11 miles of Class II facilities currently exist in Concord. They generally connect Class III segments, or provide for bicyclist travel along select arterial corridors.

Class III

Concord organizes Class III bike routes into two categories. Class 3A routes consist of signed routes on streets where bicyclists and motor vehicles share space. Class 3B routes consist of signed routes with edge lines on community and arterial streets. These lines mark shoulders varying in width from 3 to 4 feet intended for travel by bicycle.

Concord has approximately 41 miles of Class III bike routes, many of which are on arterial roadways with high speeds and traffic volumes.

Class IV

Class IV separated bikeways are a new class of bicycle facility. They are on-street facilities, separated from vehicle traffic by physical protection (curb, vehicle parking, bollards, etc.). They may provide for one-way or two-way travel. There are no Class IV facilities in Concord.

Bicycle Support Facilities

Bicycle parking in Concord is available in the downtown area, at the BART stations, and at some parks and schools throughout the community. Most bicycle parking is bicycle racks intended for short-term parking, and BART stations have bike lockers available for long-term parking. The City has also installed bike lockers at the Civic Center, where City Hall is located.

EXISTING BICYCLE FACILITIES

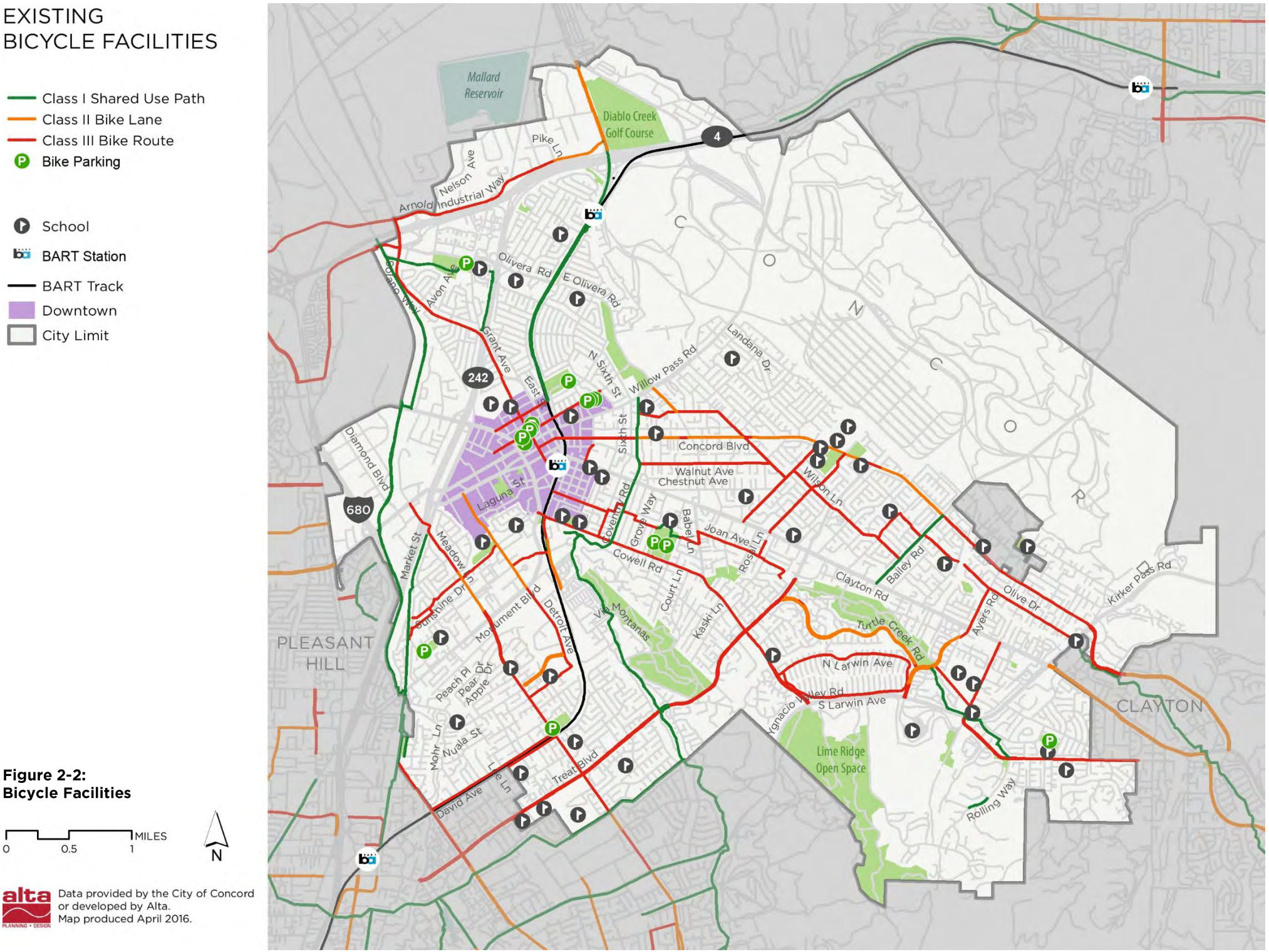


Figure 2-2:
Bicycle Facilities

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

Sidewalks

Sidewalks form the backbone of the pedestrian transportation network. Street and sidewalk design can foster healthier communities by supporting daily physical activity, improving public safety, enhancing mobility, reducing environmental impacts, and building community character.

Most streets in Concord have connected sidewalks on both sides, with a few notable exceptions. Sidewalk gaps currently exist along Treat Boulevard, Concord Boulevard, Willow Pass Road, Cowell Road, and Turtle Creek Road, as well as along many neighborhood streets. For a map of known sidewalk gaps totaling approximately 98 miles, see Figure 2-3.

Curb Ramps

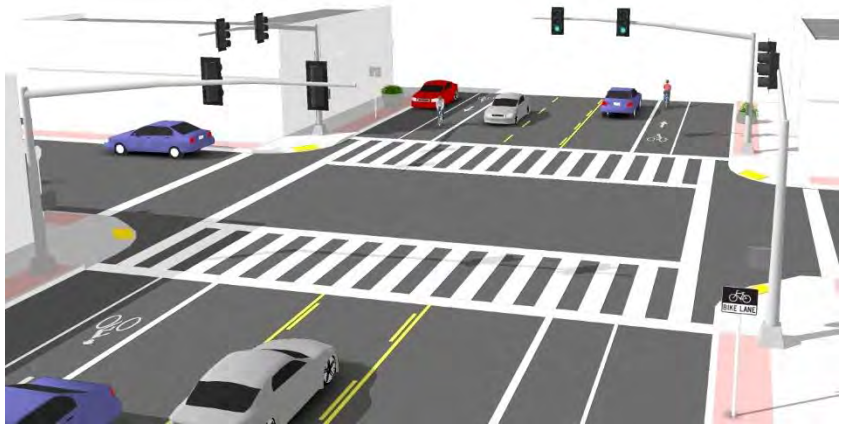
Curb ramps are necessary for people who use wheelchairs to access sidewalks and crosswalks, and are helpful to people pushing strollers or who may have difficulty stepping onto a raised curb. The Americans with Disabilities Act (ADA) requires the installation of curb ramps with all new sidewalk installations and retrofits. Curb ramps may be placed at each end of the crosswalk (perpendicular curb ramps), or between crosswalks (diagonal curb ramps). The ramp may be formed by drawing the sidewalk down to meet the street level, or alternately building up a ramp to meet the sidewalk. Detectable warnings (truncated domes) must be used to assist sight-impaired pedestrians in locating the curb ramp.

Curb ramps are provided at most intersections along arterial roadways, in addition to downtown Concord and commercial areas in the west part of the city. Many residential neighborhoods do not have curb ramps at every intersection, but do provide them at major crossings.

Crosswalks

Crosswalks are a legal extension of the sidewalk and provide guidance for pedestrians who are crossing roadways by defining and delineating their path-of-travel. Crosswalks are not required to be marked. However, marked crosswalks alert drivers of a pedestrian crossing point and increase yielding for pedestrians.

Marked crosswalks exist throughout the City, typically at intersections along arterial streets. Most marked crosswalks are standard (also called transverse) crosswalks consisting of two parallel white lines marked on the pavement (left and right in the intersection graphic below), and some use colored or stylized pavement to enhance the crossing. High visibility or 'continental' crosswalks use bold perpendicular lines that are more conspicuous to drivers. 'Ladder' crosswalks combine transverse lines with bold perpendicular stripes for added visibility (top and bottom of intersection below).



Pedestrian Hybrid Beacons and Rectangular Rapid Flashing Beacons

Pedestrian hybrid beacons and Rectangular Rapid Flashing Beacons (RRFBs) are pedestrian activated warning devices used to facilitate crossings at locations that are not stop controlled or do not have a traffic signal.

The Pedestrian hybrid beacon includes three signal sections, two red circular indications above one yellow circular indication. The signal is dark until activated. When activated, the signal flashes yellow to inform drivers to stop. The signal then becomes solid yellow followed by a duel solid red. It then flashes alternating red flashing as a pedestrian signal head flashes DON'T WALK. These beacons can also be used to facilitate shared-use path crossings at uncontrolled locations.

RRFB's are pedestrian actuated devices mounted adjacent to the roadway. The beacon lights are rectangular LED lights installed below a pedestrian crosswalk sign that flash in an alternating pattern when activated. The beacon is dark when not activated.

Concord recently installed an RRFB at Cowell Road and St Francis Drive, and others have been installed at select trail crossings.

EXISTING SIDEWALK INVENTORY

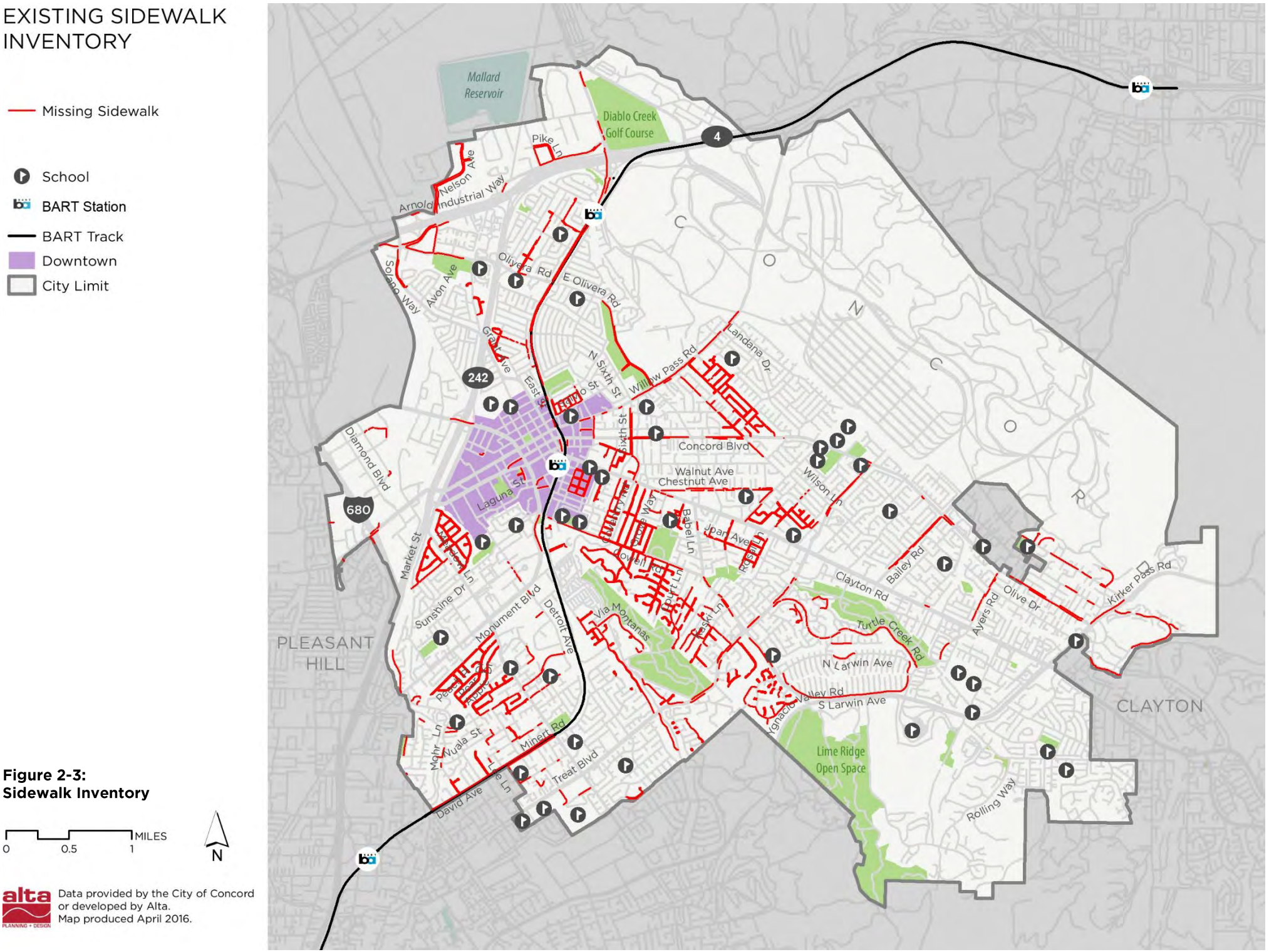


Figure 2-3:
Sidewalk Inventory

0 0.5 1 MILES

N

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

EXISTING PROGRAMS

Programs are a vital part of a strong walking and bicycling community, fostering an educated and engaged public, supporting safety by enforcing good behavior, and providing ongoing guidance by evaluating the bicycling environment regularly. Programs are generally described by four "E"s: education, encouragement, enforcement, and evaluation.

The following section highlights existing programs. These programs are explained in greater detail in **Appendix B**.

Education

- Student bicycle and pedestrian assemblies (lead: Contra Costa Transportation Authority, CCTA)
- Bike light giveaways (lead: Bike Concord)
- Bicycle rodeos/clinics (lead: CCTA, Bike East Bay, Bike Concord, Contra Costa Health Services)
- Bike Tent Bike Repair and Education (lead: Bike Concord)

Encouragement

- Bike to Work Day (lead: City, Bike Concord, Bike East Bay)
- Bike Blenders (lead: CCTA)
- Group Rides (lead: Bike Concord)
- Guaranteed Ride Home (lead: CCTA)
- Kidical Mass Ride (lead: Bike Concord)
- Walking School Buses (lead: Monument Impact, Contra Costa Heath Services)

Enforcement

- Safety Patrols (lead: parents at Ygnacio Valley Elementary)
- Direct Police Traffic Enforcement (lead: Concord Police Department)

Evaluation

- Parent and high school student surveys (lead: CCTA)
- School bike rack counts (lead: CCTA)

ACTIVITY GENERATORS

There are many destinations that may attract walking or bicycling trips, including parks and community centers, schools, commercial centers and health care facilities. A map of all activity generators and transit stops can be seen in Figure 2-4.

Parks and Community Centers

There are 25 parks across Concord, however the Monument neighborhood has parks that are small for the population they serve. Monument is Concord's most densely populated neighborhood with low car ownership and a large population of children, so having active transportation options to get to other parks in Concord is particularly important.

Commercial Centers

Concord is a major job center in Contra Costa County. Commercial uses are concentrated downtown, with smaller centers along the major transportation corridor spokes. The number of jobs in Concord are anticipated to increase 46 percent from 2010 to 2040, with over 11,000 additional jobs by 2020.

The top employers in the City include AssetMark, PG&E, Bank of America, Wells Fargo, and the John Muir Medical Center, each with over 1,000 employees. The Mount Diablo Unified School District also has over 1,000 employees, dispersed through the community at school sites that are already considered activity generators.

Schools

Schools sites are not only places of education, but serve as community centers where families gather on evenings and weekends for events and youth sports.

Over 14,000 students are enrolled in public schools in Concord, representing a large population of potential bicyclists and pedestrians. There are 50 K-12 schools in Concord, including 28 public schools and 21 private schools. Most public schools are in the Mt Diablo Unified School District, although the Floyd I. Marchus School is operated by the Contra Costa County Office of Education.

California State University East Bay, which enrolls about 15,000 students, also has a campus in Concord. Additional CSU East Bay campuses are located in Hayward and Oakland.

Health Care

Concord has a number of health care facilities; key walking and bicycling attractors particularly for those without access to a vehicle or who have reached an age where driving is no longer an option. Hospitals and other medical centers in Concord include:

- East Bay Cardiovascular
- Family Vision Care
- John Muir Health Behavioral Health Center
- John Muir Medical Center
- John Muir Medical Group
- Kaiser Permanente
- La Clinica de la Raza
- Medical Insights Diagnostic Centers
- Mt Diablo-John Muir Home Health
- Muir Diablo Occupational Medicine
- Planned Parenthood
- Premier Surgery Center
- Stonebrook Healthcare Center

ACTIVITY GENERATORS

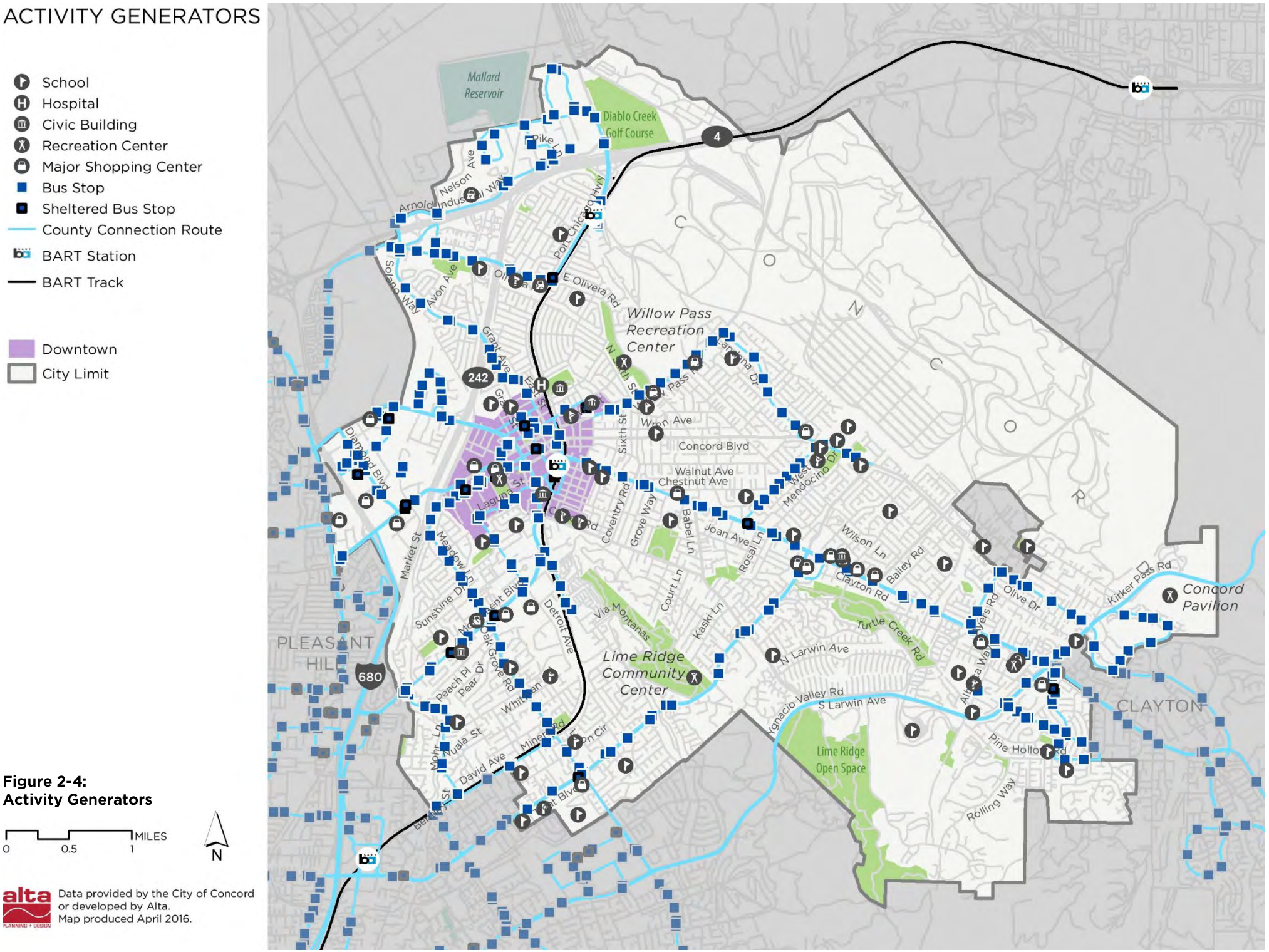


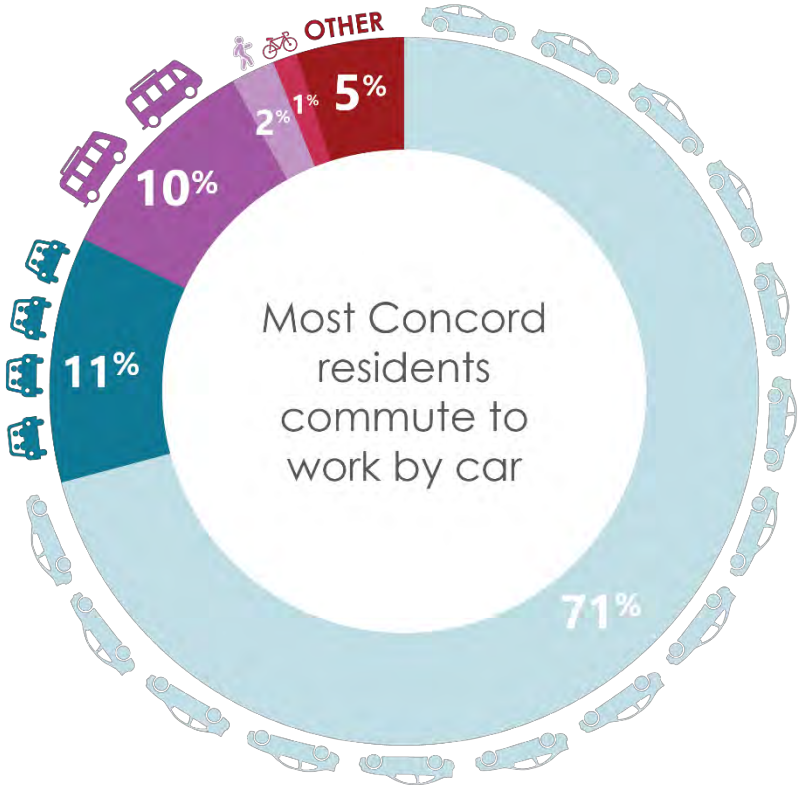
Figure 2-4:
Activity Generators

COMMUTER TRAVEL

Nearly 71 percent of Concord residents drive alone to work. Carpooling and transit are the second and third most common modes of transportation in Concord. Bicycling and walking together make up less than three percent of all commute trips in Concord based on 2014 U.S. American Community Survey data.

Over 35 percent of commuters in Concord travel less than 20 minutes to work. When only these trips are evaluated, a significant opportunity becomes clear. Many of these commuters likely work within Concord or in an adjacent community, given the short commute time, yet 84 percent currently drive alone to work. These trips represent an opportunity to encourage more people to walk, bicycle, or take transit to work.

For those who use BART for commute travel, median distance to station from non-home origin is 1.08 miles from Concord Station which is a bikeable or walkable distance.



3%

COMMUTE BY ACTIVE TRANSPORTATION

Source: American Community Survey 2014 5-year estimate

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Why?
Need for Improvements

CHAPTER
3

Chapter 3

Why? Need for Improvements

The walking and bicycling needs of the Concord community are diverse, and are influenced by network quality, age, trip type, and many other factors. This chapter includes an overview of walking and bicycling needs identified through a demand model, a workshop, bicycling and walking tours, and a community survey.

Downtown Market

WALKING AND BICYCLING DEMAND

Understanding pedestrian and bicyclist related demand will help identify locations for improvements and help prioritize implementation.

To analyze the relationship between demand and locations where improvements are needed, a GIS-based model was used in the development of this Plan. The Bicycle and Pedestrian Suitability Index (BPSI) model provides a general understanding of potential demand (bicycle and pedestrian activity) by quantifying factors that generate bicycle and pedestrian movement such as where people:

- Live
- Work
- Learn and Play
- Shop
- Access Transit

Results of the BPSI composite demand model are used to characterize the geographic distribution of demand within the City of Concord.

The model results, illustrated in Figure 3-1, show high demand areas in purple. Areas that yielded highest demand include the confluence of schools, retail, high employment, and higher density residential areas.

Areas with potential high walking and bicycling demand include:

- Clayton Road
- Diamond Boulevard
- Monument Boulevard
- Treat Boulevard
- Willow Pass Road
- Downtown Concord.

See **Appendix C** for a detailed description of the BPSI model process.

WALKING & BICYCLING COMPOSITE DEMAND

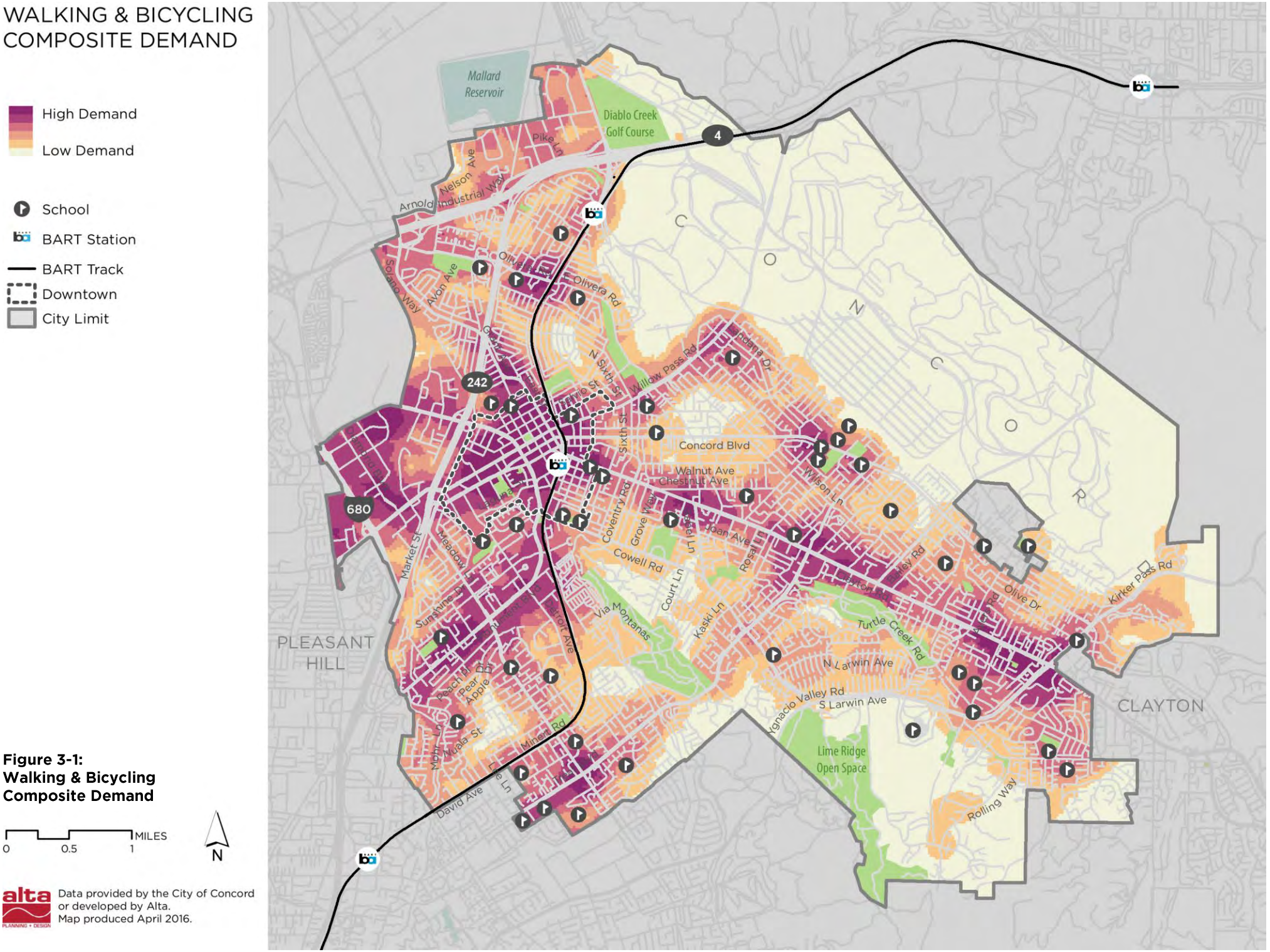


Figure 3-1:
Walking & Bicycling Composite Demand

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

COMMUNITY NEEDS WORKSHOP

The City held multiple workshops, tours, and forums to gather input for this Plan. More than 60 residents, advocates, and elected officials attended a public workshop on April 8, 2015 focused on identifying needs and challenges in Concord

Workshop participants were presented with an overview of the planning process, and then invited to view maps and figures from the Existing Conditions report. During a breakout session, participants provided comments and suggestions for improving the walking, bicycling, and transit access experience in Concord.

Walking Needs

Common improvement themes from this feedback included:

- Provide more marked crossings (crosswalks)
- Improve existing marked crossings
- Improve sidewalk lighting

Key corridors identified by participants in need of walking related improvements include:

- Clayton Road
- Concord Boulevard
- Detroit Avenue
- Farm Bureau Road
- Monument Boulevard
- Willow Pass Road

Walking needs identified at this workshop are mapped on the following page in Figure 3-2. Intersections and corridors identified represent locations where workshop participants feel existing conditions create challenges or barriers for pedestrians.

Missing sidewalk

COMMUNITY INPUT: WALKING NEEDS

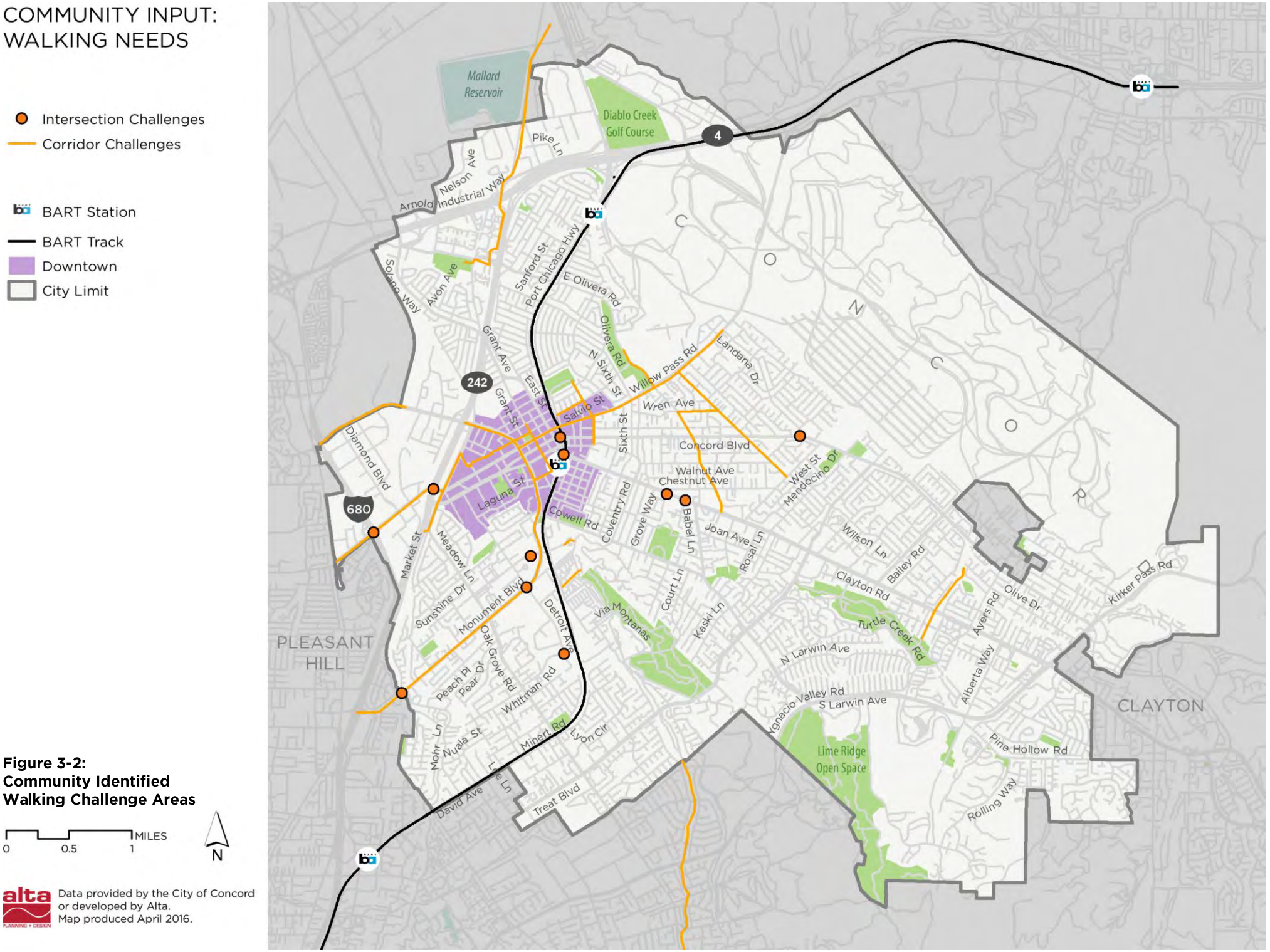


Figure 3-2:
Community Identified Walking Challenge Areas

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

Bicycling Needs

Common improvement themes from this feedback included:

- Provide bike lanes on key arterial 'spokes'
- Provide low-stress, low-volume routes on local roadways
- Provide wayfinding signage
- Improve bikeways at freeway ramps
- Improve bikeways at grade separated crossings

Key corridors identified by participants in need of bicycling related improvements include:

- Arnold Industrial Way
- Babel Lane
- Clayton Road
- Concord Avenue
- Detroit Avenue
- Farm Bureau Road
- Galindo Street
- Monument Boulevard
- Willow Pass Road
- Ygnacio Valley Road

COMMUNITY INPUT: BICYCLING NEEDS

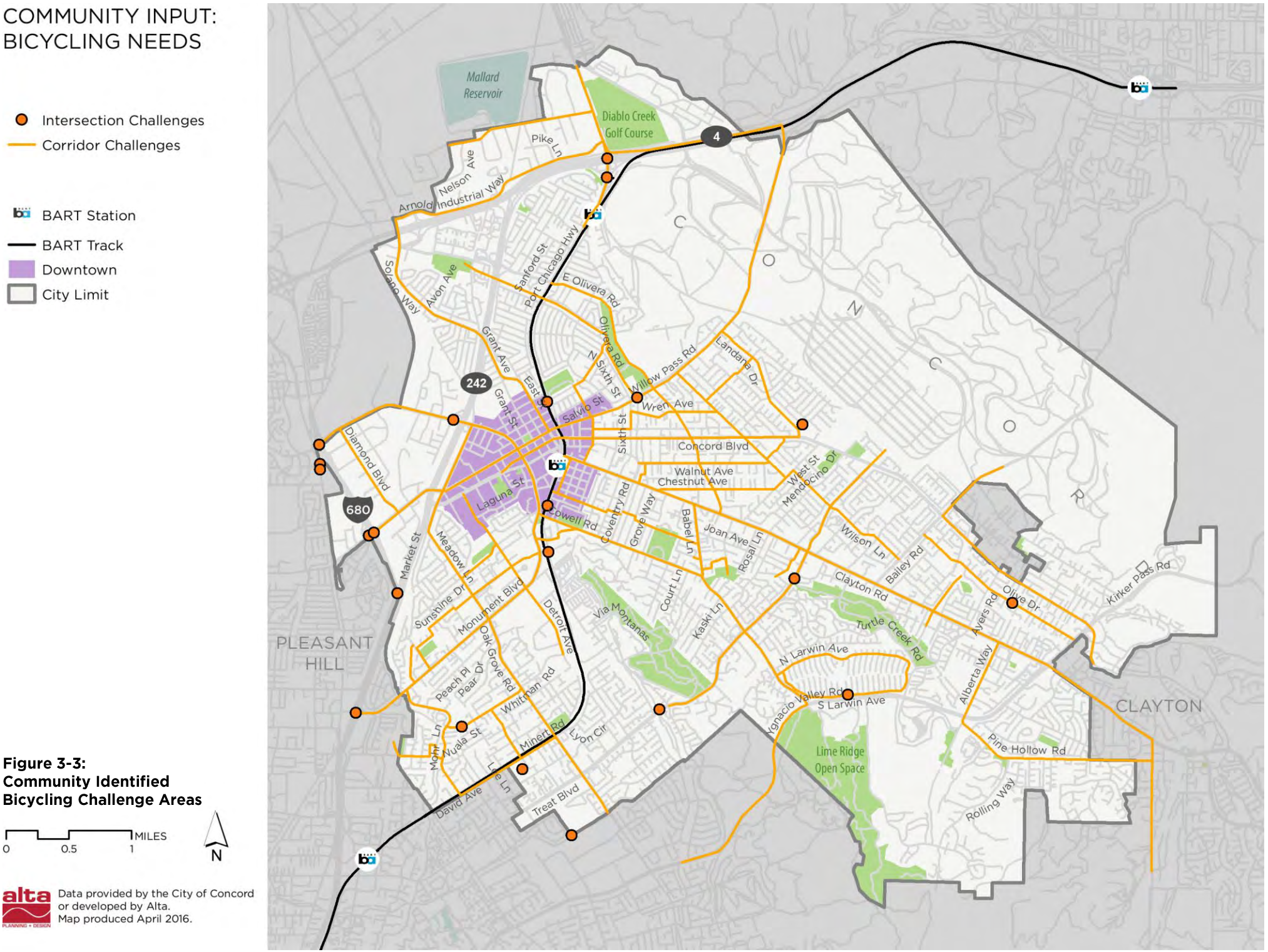


Figure 3-3:
Community Identified Bicycling Challenge Areas

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

PEDESTRIAN AND BICYCLE RELATED CRASHES

Identification of locations and behaviors involved in pedestrian and bicycle related crashes will help inform this Plan's recommendations. A summary of analysis is presented below and **Appendix B** includes a detailed analysis. Common collision factors are shown at right for those collisions where fault and collision factor were determined (totals may not match).

Bicycle-Involved Crashes

There were a total of 246 reported bicycle-involved crashes during the study period (2009-2013), mapped in Figure 3-4.

Nearly half of the bicycle related crashes were on four corridors:

- Clayton Rd. (41)
- Monument Blvd. (36)
- Willow Pass Rd. (34)
- Concord Ave. (22)

Key collision factors included bicyclists riding on the wrong side of the road, and motorists failing to yield to other drivers or bicyclists appropriately.

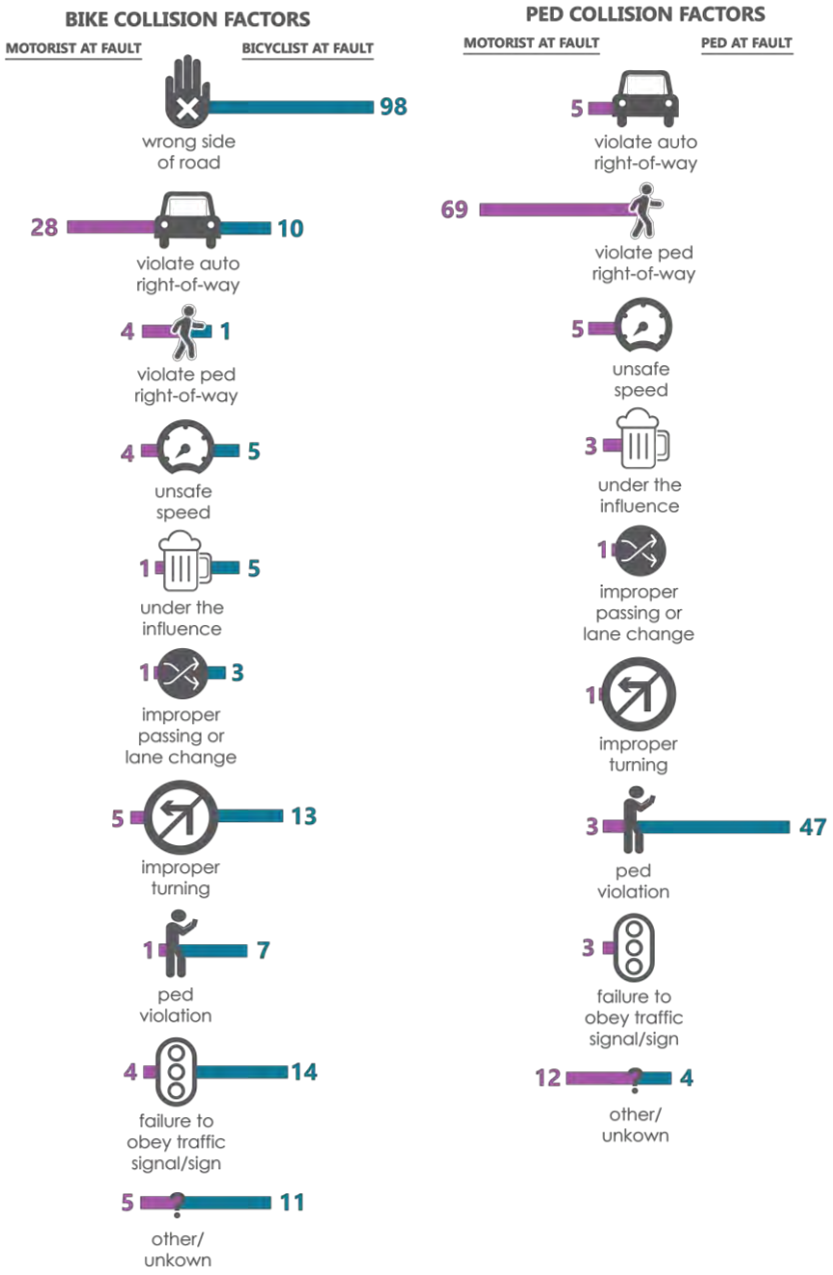
Pedestrian-Involved Crashes

There were 179 reported pedestrian crashes during the study period (2009-2013), involving a total of 184 pedestrians. For a map of all pedestrian-involved crashes, see Figure 3-5.

Over half of the pedestrian related crashes occurred on the following corridors:

- Clayton Rd. (43)
- Concord Blvd. (20)
- Willow Pass Rd. (18)
- Monument Blvd. (17)

Key collision factors included pedestrian violations, and motorists failing to yield to pedestrians.



BICYCLE-INVOLVED CRASHES

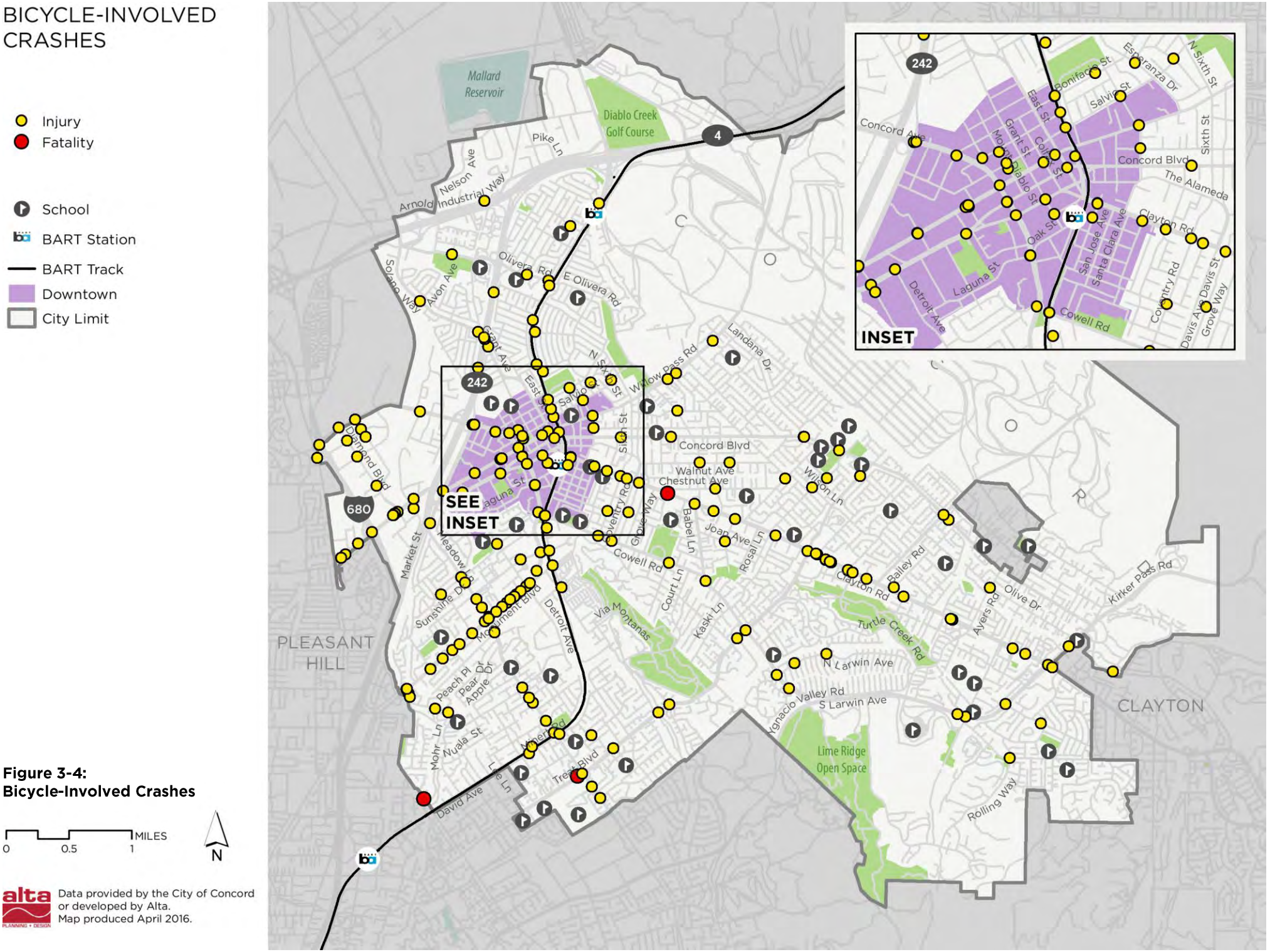


Figure 3-4:
Bicycle-Involved Crashes

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

PEDESTRIAN-INVOLVED CRASHES

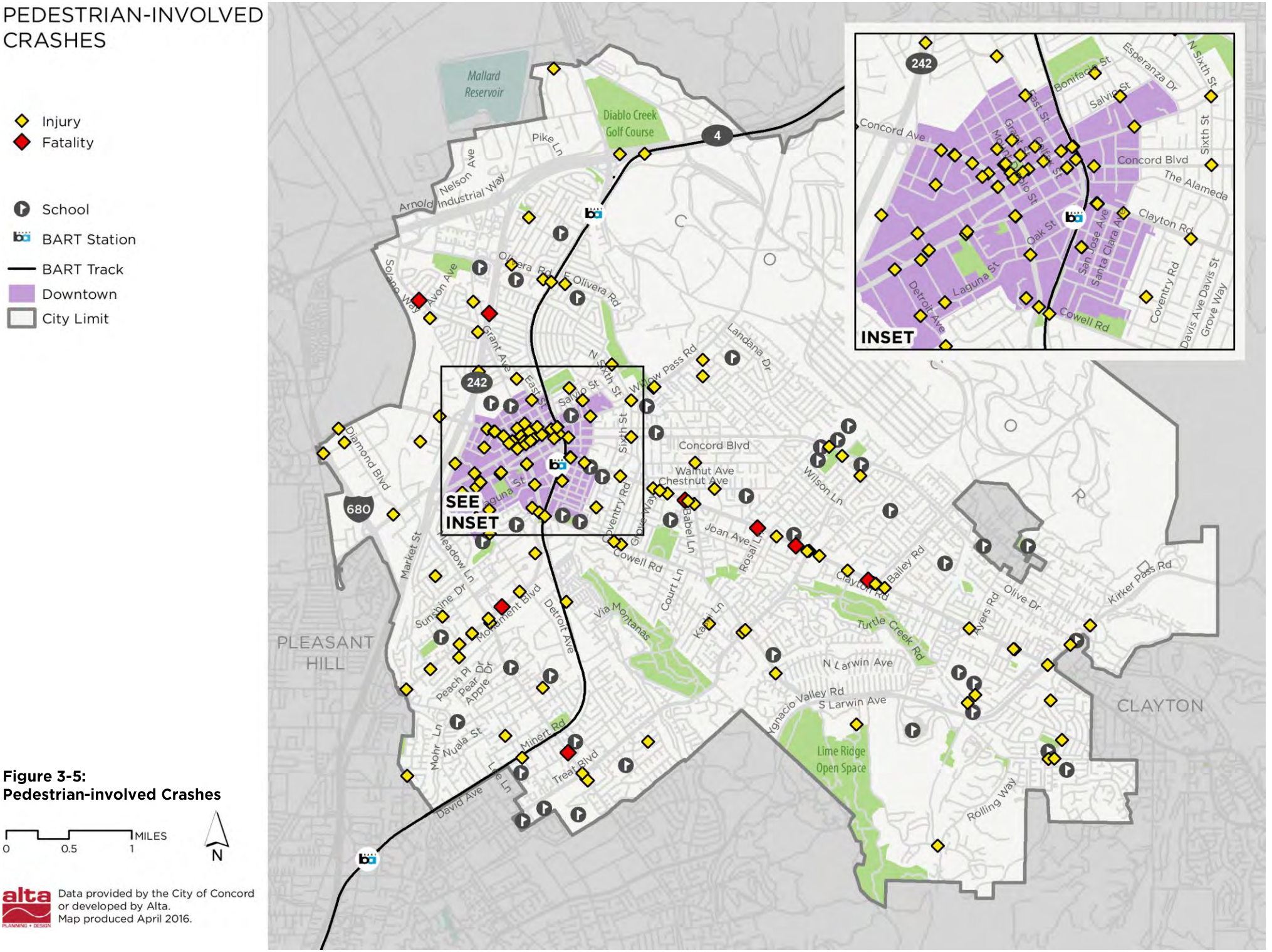


Figure 3-5:
Pedestrian-involved Crashes

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

BICYCLING AND WALKING TOUR

Two tours of Concord were held concurrently on April 18, 2015 to observe typical challenges and opportunities for walking and bicycling. One tour focused on walking, while the other focused on bicycling. Key community-identified challenges identified on these tours are described below.

Walking Tour

- Lack of a buffer between sidewalks and moving vehicles
- Lack of pedestrian-scale lighting
- Lack of pedestrian countdown signal heads at some intersections
- Need for reduced crossing distances at some multi-lane arterials with wide vehicle lanes
- Need for advance stop bars and more visible crosswalk markings to discourage motorists from encroaching on crosswalks
- Need for crosswalk markings that are more visible for motorists in evening and low-light conditions

Challenges specific to transit access included:

- Lack of consistent pedestrian walkways through parking areas
- Lack of curb ramps in many locations
- Need for clear street labeling and wayfinding information for destinations near transit stations to make it easier for arriving pedestrians to orient themselves
- Personal safety concerns after dark
- Lack of bus shelters at stops, but good signage and bus route information

Bicycling Tour

- Lack of bike lanes throughout most of the City
- Lack of bike lanes on key connector streets such as Clayton Road, Monument Boulevard, Willow Pass Road, Concord Avenue and Farm Bureau Road
- Lack of low-stress, family-friendly routes on lower volume and lower speed streets
- Need for traffic calming on some collector and local streets where there are reported high vehicle speeds
- Need for improved connections to the Iron Horse Trail and the Contra Costa Canal Trail
- Maintenance of path and debris in bikeways
- Lack of bicycle parking at key destinations

Challenges specific to transit access included:

- Need for improved connections to BART
- Need for improved secure bicycle parking at transit

COMMUNITY SURVEY

A community survey was conducted to gather additional input on needs and preferences for this Plan. Surveys were made available online and in print, in English and Spanish. Large format printed surveys were also available. Key challenges and opportunities reported by the 610 survey respondents are summarized below and detailed in **Appendix B**.

Transit Access

Respondents reported the inconvenience of walking to destinations after using transit, the time spent waiting or in transit, and personal safety concerns as factors that deter them from using transit more often.

Write-in responses listed a number of desired improvements for transit access, including:

- Better seating, lighting, and shelter at transit stops
- More comfortable bicycling and walking routes to transit locations
- Additional secure bicycle parking at transit stops and stations

Walking

Most walking trips in Concord are for exercise or recreation, according to respondents, and are generally less than one mile.

Personal safety concerns and time constraints prevent respondents from walking more often, as well as gaps in the sidewalk network or sidewalks in poor condition.

Survey respondents would most like to see improved walking access to parks, stores, and transit. Respondents also expressed a preference for separation between pedestrians and fast-moving traffic.

Bicycling

Most bicycling trips in Concord were also reported as exercise or recreation, although many respondents commute to work by bicycle regularly. Trips are generally longer than two miles.

Safety concerns and a lack of bicycle facilities prevent respondents from bicycling more often.

Respondents expressed a desire for improved bicycling access to parks, trails, community centers, and transit, as well as improved facilities for bicycling commuters on key roadways.

Additional Comments

Survey respondents were invited to share additional comments. Recurring themes in these remarks included:

- Need for improved safety throughout Concord
- Lack of connectivity between existing bicycle facilities
- Need for bicycle accessibility on:
  - Clayton Road
  - Concord Boulevard
  - Cowell Road
  - Farm Bureau Road
  - Treat Boulevard
  - Willow Pass Road
- Need for additional trails; improved access to existing trails
- Need for a variety of bicycle facilities to meet needs of all levels of ability and confidence
- Need for additional secure and convenient bicycle parking
- Need for improved crossings for bicyclists and pedestrians, including additional pedestrian crossings along arterials
- Need for additional pedestrian-scaled lighting, including along trails
- Need for maintenance and vegetation trimming to keep sidewalks clear
- Need for education for bicyclists, motorists, and pedestrians
- Need for increased enforcement for all modes
- Need for safer walking and bicycling routes to schools

NEEDS ANALYSIS SUMMARY

There are opportunities in Concord for both infrastructure and programmatic improvements.

Walking Needs

A pedestrian network that provides connectivity between residential areas and community destinations

Additional separation between pedestrians and vehicle traffic on higher-speed or higher-volume arterials

Improved pedestrian crossings

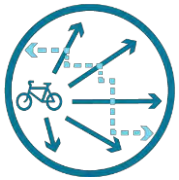
Improved access for pedestrians with mobility impairments

Improved access to and amenities at transit stops

Key corridors improved pedestrian facilities include:

- Clayton Rd.
- Concord Blvd.
- Detroit Ave.
- Farm Bureau Rd.
- Monument Blvd.
- Willow Pass Rd.

Bicycling Needs



A bikeway network that provides continuous dedicated bicyclist space on arterials, or key 'spokes,' with connections on low volume, low stress streets

Improved bikeway crossings at freeway ramps and intersections

Improved access to BART

Traffic calming on some collector and local streets

Maintenance of path and debris in bikeways

Additional separated paths, or trails through green spaces

Bicycle parking at key destinations

Bikeway wayfinding

Improved routes to local schools

Key corridors improved bicycling facilities include:

- Clayton Rd.
- Concord Ave.
- Detroit Ave.
- Farm Bureau Rd.
- Galindo St.
- Monument Blvd.
- Willow Pass Rd.
- Ygnacio Valley Rd.
- Contra Costa Canal Trail

Program Needs

Based on the community survey, public workshop, and stakeholder interviews, the following key needs for programs were identified:

- Educational programming for motorists, pedestrians, and bicyclists, including through schools, parks, and non-English speaking communities.
- Targeted enforcement to address challenging locations.

Vision, Goals, Objectives & Policies

CHAPTER 4

Chapter 4

Vision, Goals, Objectives & Policies

The Vision, Goals, Objectives, and Policies of the City of Concord Bicycle, Pedestrian and Safe Routes to Transit Plan will guide the planning and feasibility of the City's active transportation network and programming for years to come.

VISION

The City of Concord envisions an environment that supports walking, bicycling and active living, and enables people of all ages and abilities to comfortably access jobs, schools, recreation, shopping and transit by foot or on bicycle as a part of daily life.

GOALS, OBJECTIVES AND POLICIES

GOAL 1 Safety

Prioritize travel safety for all modes of transportation.

Objective 1.A: Seek to eliminate all traffic fatalities and reduce the number of bicycle and pedestrian related injuries by 50 percent by 2020, consistent with the City's adopted Climate Action Plan.

Policy 1.A.1: *Annually review most recent available crash data, including causes, to implement ongoing improvements throughout the transportation network.*

Policy 1.A.2: *Identify viable funding for an enforcement campaign targeting violations associated with severe and fatal injuries, high injury areas and corridors, schools and housing for seniors and people with disabilities.*

Policy 1.A.3: *Prioritize suggested roadway improvements at intersections and corridors with significant numbers of injuries and fatalities.*

Policy 1.A.4: *Identify viable funding for an education campaign focusing on road safety for all users and the City's objective to reduce traffic fatalities.*

GOAL 2 DESIGN

Design active transportation projects that are accessible and comfortable for people of all ages and abilities.

Objective 2.A: Utilize designs that emphasize safety and comfort for the most vulnerable road users.

Policy 2.A.1: Apply state of the practice & emerging designs including Design Guidelines supplemented to this plan, the California Manual on Uniform Traffic Control Devices, and national manuals such as NACTO (National Association of City Transportation Officials) guides.

Policy 2.A.2: Incorporate sustainable designs into transportation projects, recognizing limited maintenance resources.

Policy 2.A.3: Prioritize pedestrian and bikeway designs to address the needs and safety for people of all ages and abilities, considering issues such as street design speed, hierarchy of streets, connectivity and level of stress experienced.

Policy 2.A.4: Seek to provide enhanced walking and bicycling facilities that may require separation on higher volume and higher speed roads such as Concord's Downtown, Community, Regional, and Service streets, and in school areas.

Objective 2.B: Preserve and enhance access to bicycle and pedestrian facilities for all new construction.

Policy 2.B.1: Consider developing a policy to ensure new development plans do not block access to existing trails or active transportation facilities.

GOAL 3 Network

Identify and develop a complete and convenient active transportation network.

Objective 3.A: Develop 5-year, 10 year, and 20 year strategies to realize this Plan's recommendations.

Objective 3.B: Improve school and transit access.

Policy 3.B.1: Prioritize transportation projects that improve school and transit access.

Objective 3.C: Seek to implement this Plan's recommended bikeways on Downtown, Neighborhood and Community streets by 2026.

Policy 3.C.1: Develop an implementation strategy for this Plan's recommended bikeway facilities on Downtown, Neighborhood, and Community streets by 2026.

Objective 3.D: Strive to implement this Plan's priority sidewalk projects by 2026.

Policy 3.D.1: Develop an implementation strategy for this Plan's priority sidewalk projects by 2026.

Objective 3.E: Aim to complete this Plan's recommended studies by 2026.

Policy 3.E.1: Develop an implementation strategy for this Plan's recommended studies on arterial and collector streets by 2026.

Objective 3.F: Improve accommodations for pedestrians.

Policy 3.F.1: Seek to provide marked crossings at reasonable intervals in areas with existing or potential high pedestrian activity and establish vehicle speed and volume thresholds for appropriate treatments such as crossing control, curb extensions, and refuge islands.

Objective 3.G: Provide plentiful, high quality support facilities that complement the travel network.

Policy 3.G.1: Identify viable funding to build support facilities such as bicycle parking and community/bikeway wayfinding.

Objective 3.H: Identify viable funding to realize this Plan's recommendations.

Policy 3.H.1: Apply for available regional and state grants to implement this Plan's recommendations.

Policy 3.H.2: Integrate bicycle and pedestrian facilities as part of new street design and resurfacing projects where feasible.

GOAL 4

Programs

Increase awareness and support of walking and bicycling through education, encouragement, and evaluation programs.

Objective 4.A: Support educational opportunities for those who drive, bicycle, and walk about their rights and responsibilities.

Policy 4A.1: Support Contra Costa Transportation Authority and the Mt. Diablo Unified School District to implement Safe Routes to School programs.

Policy 4.A.2: Support the development of adult bicycling education programs.

Policy 4.A.3: Support the development of a Safe Routes to Transit program that will facilitate walking and bicycling to transit.

Objective 4.B: Support encouragement opportunities that promote walking and bicycling as viable travel choices.

Policy 4.B.1: Incorporate messaging in all City of Concord social media that promotes the benefits of active transportation and raises awareness of walking and bicycling opportunities.

Policy 4.B.2: Support encouragement programs sponsored by regional agencies and local employers to encourage walking or bicycling.

Objective 4.C: Evaluate how well the City of Concord is progressing towards meet this Plan's goals.

Policy 4.C.1: Review this Plan's recommendations annually with the Bicycle and Pedestrian Advisory Committee to evaluate progress and update priorities as necessary.

Projects & Studies

CHAPTER 5

Chapter 5

Projects & Studies

The following chapter presents the walking and bicycling improvement recommendations for the City of Concord. The intent of these recommendations is to present a **long-term vision for active transportation and transit access throughout the City reflecting this Plan's and the community's vision:**

The City of Concord envisions an environment that supports walking, bicycling and active living, and enables people of all ages and abilities to safely and comfortably access jobs, schools, recreation, shopping and transit as a part of daily life.

The recommendations directly reflect this vision and needs as identified by the community. This chapter includes:

- Walking Network Improvement Projects
- Bicycling Network Improvement Projects
- Citywide Capital Projects
- Studies

In addition to the recommendations outlined in this Chapter, the companion Design Guidelines volume should be used when considering improvements to the transportation network.

For a complete list of recommended projects and studies, see **Appendix D**.

WALKING NETWORK IMPROVEMENTS

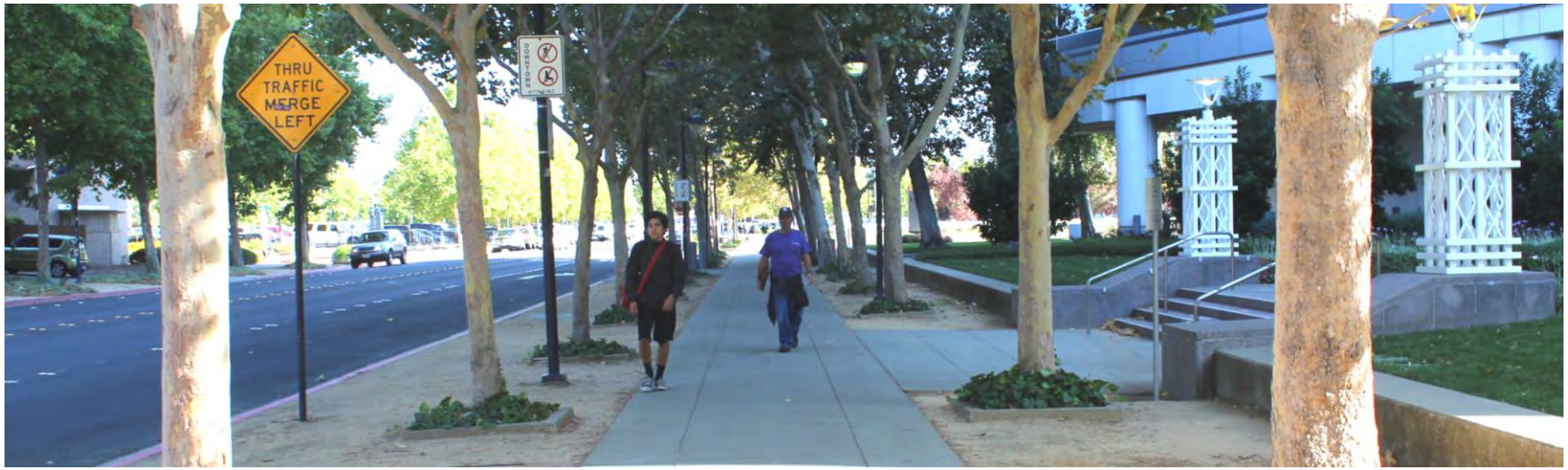
The walking network improvement recommendations are intended to make walking trips more comfortable, enjoyable, and safer for all ages, abilities and trip purposes. Projects included to improve the walking environment include sidewalks and spot improvements (lighting, crosswalks, curb extensions, and rectangular rapid flashing beacons).

Sidewalks

Sidewalks are an essential element of a walking environment. Not only do sidewalks provide a higher level of safety for those who walk, they are a foundational element to ADA (Americans with Disabilities Act) compliance.

There are many streets in Concord with sidewalks, but the network is inconsistent and intermittent. Not every street without a sidewalk is recommended for a sidewalk in this Plan due to limited available public space and the likelihood of implementation within the 20-year lifetime of this Plan.

Figure 5-1 illustrates the recommended locations for sidewalk installation, totaling just over 52 miles of sidewalk recommended over the lifetime of this plan. Figure 5-2 shows sidewalks recommended in the downtown area. A full list of sidewalk projects is included in **Appendix D**. For details on sidewalk design, see the supplemental Design Guidelines.



RECOMMENDED SIDEWALK PROJECTS

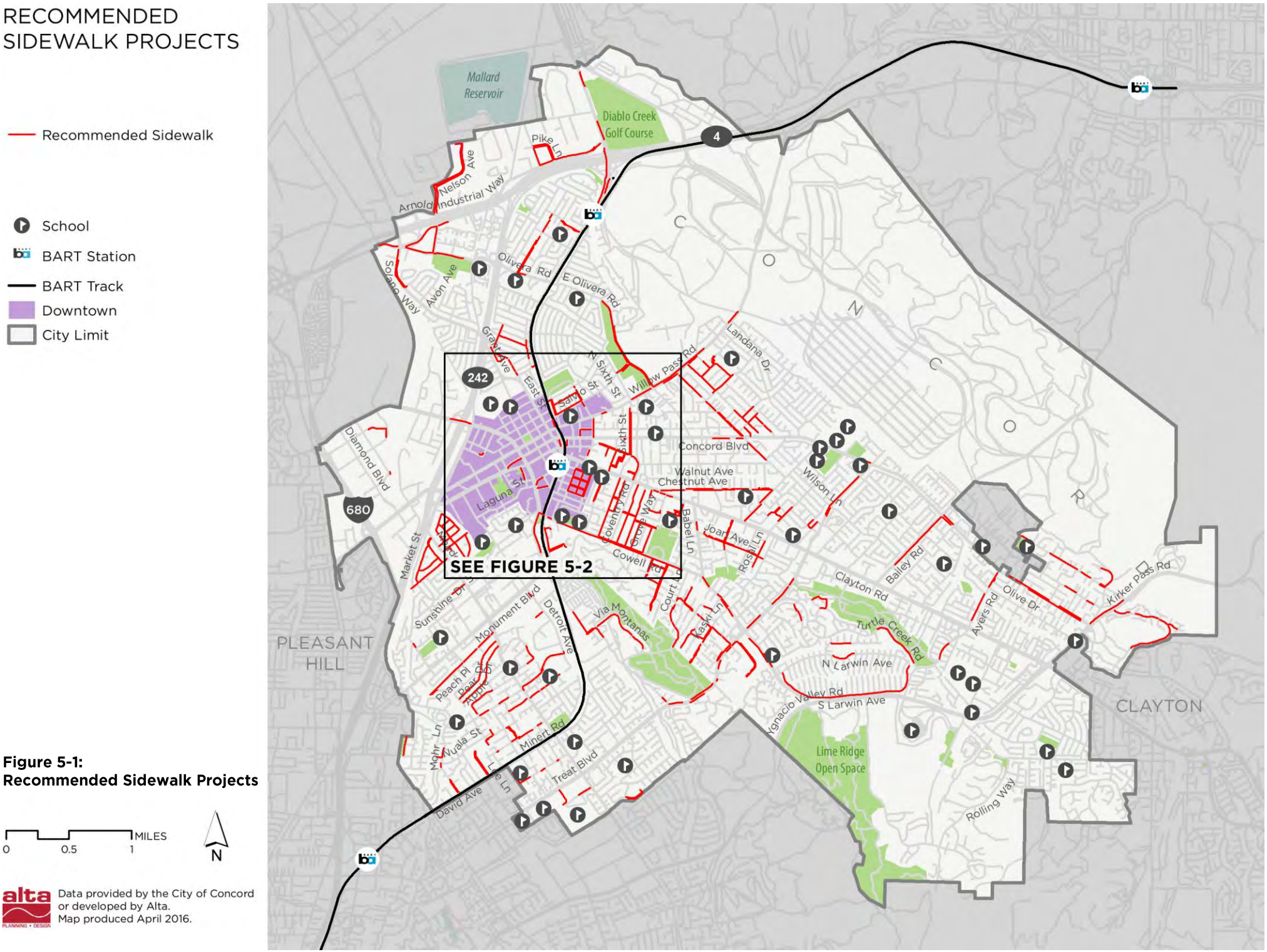


Figure 5-1:
Recommended Sidewalk Projects

RECOMMENDED SIDEWALK PROJECTS

DOWNTOWN AREA

Figure 5-2: Recommended Sidewalk Projects – Downtown

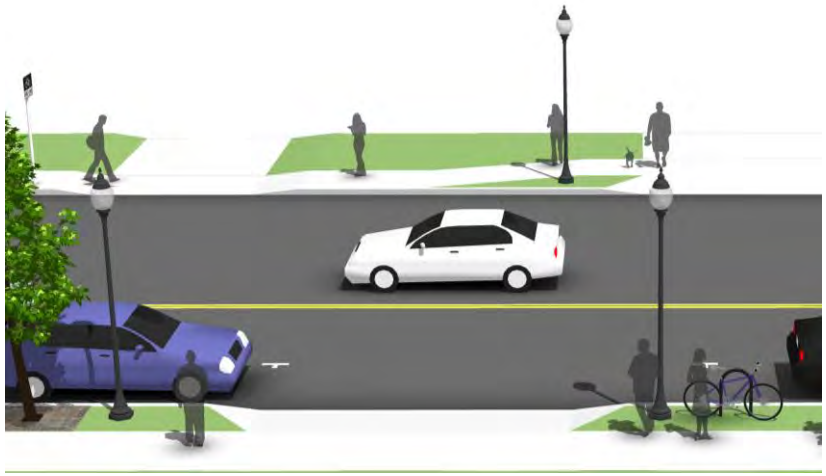
Spot Improvements

Pedestrian Scale Lighting

Pedestrian scale lighting is a type of lighting with frequent lampposts at a low height that illuminate the walking area. It typically includes poles 12-15 feet tall spaced 25-30 feet apart, directly above walking areas. Pedestrian scale lighting not only increases pedestrian visibility to drivers, it helps create a vibrant and inviting streetscape.

Pedestrian scale lighting should be appropriately designed to illuminate only the areas needed and be no brighter than necessary. Street trees should be appropriately maintained so as not to obstruct illumination from lighting along sidewalks and pathways.

This plan recommends the City install pedestrian scale lighting along the corridors illustrated in Figure 5-3. A detailed table of recommendations is in **Appendix D**.



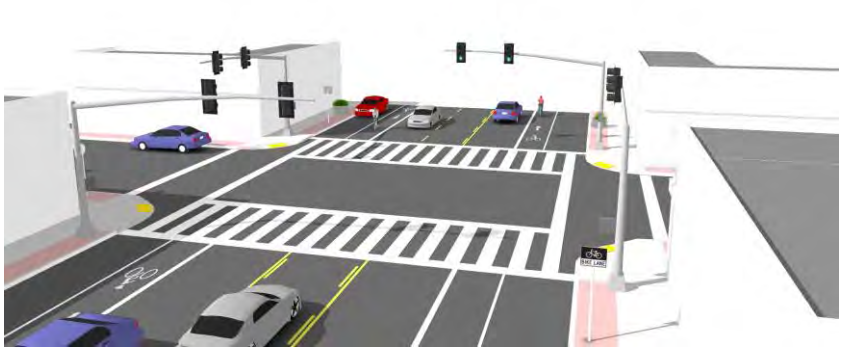
Pedestrian scale lighting

High Visibility Crosswalks

There are a number of marked crosswalk types. Standard transverse crosswalks consist of two parallel lines that mark the edges of the crosswalk.

High visibility markings include ladder-style crosswalks, which include transverse lines in addition to bold bars across the crosswalk. These markings are more noticeable to drivers and are typically used where there is existing or anticipated high walking activity, where slower walkers are expected (near schools and senior centers), at uncontrolled crossings, and where high numbers of pedestrian related crashes have occurred. In school areas, the crosswalks are yellow whereas outside school areas the crosswalks are white.

This plan recommends the City install high visibility crosswalks at the locations illustrated in Figure 5-3. A detailed table of recommendations is in **Appendix D**.



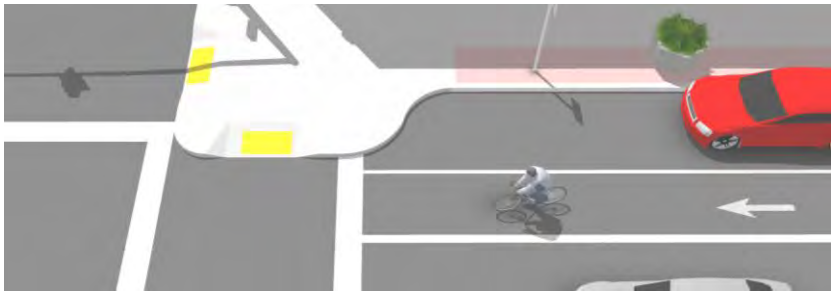
Ladder and transverse crosswalk markings

Advance Stop Bars

Advance stop bars are placed six to ten feet before a marked crosswalk to indicate to motorists where they should stop. At uncontrolled or midblock crossings, advance yield lines are used (see graphic on the next page). Advance stop bars improve visibility of pedestrians by discouraging drivers from encroaching into the crosswalk. This is especially important at uncontrolled crossings on multi-lane streets, where a vehicle stopped too close to the crosswalk may hide a pedestrian from view of an approaching driver in the second lane.

This Plan recommends advance stop bars or yield lines be installed at all new or retrofitted marked crosswalks, especially on multi-lane streets.

Advance Stop Line



Curb extension

Curb Extensions

Curb extensions are an effective method to improve pedestrian visibility and reduce pedestrian crossing time. This may improve safety for pedestrians, as it reduces the length of time that pedestrians are exposed to potential conflicts with motor vehicles. Curb extensions also narrow the perceived roadway width for drivers, which may reduce speeds. At signalized intersections, curb extensions can reduce delays by allowing for shorter pedestrian "walk" phases due to the reduced crossing distance.

Curb extensions extend the sidewalk or curb line out into the parking lane, reducing the effective street width. They can only be used where there is on-street parking, and should not encroach into bicycle lanes.

The location of curb extensions should include a number of considerations. Curb extensions should be designed so they allow buses to complete turning movements and load and unload passengers safely. Curb extension geometry should allow mechanical street sweepers to clean transitions from the parking lane to the extended curb. Curb extensions may also require storm drainage re-engineering.

This Plan recommends the City institute a policy to install curb extensions at uncontrolled marked crosswalks citywide on collector and arterial streets where there is on-street parking. Specific locations for curb extensions are not identified in this Plan.

Pedestrian Refuge Islands

Pedestrian refuge islands can improve pedestrian safety and comfort by providing a safe waiting area in the median on wide or busy streets. This allows pedestrians to cross the roadway in two stages, waiting for a gap in one direction of oncoming traffic at a time.

The waiting area should be protected by a physical barrier on either side, such as raised median islands or planters. The crossing surface should remain level through the waiting area, and may be angled to encourage pedestrians to face oncoming traffic as they approach the second crossing leg. Refuge islands may be combined with beacons or other treatments, as shown below.

This Plan does not identify specific locations for pedestrian refuge islands. The City should consider this as one of several tools available to improve challenging crossings.

Rectangular Rapid-Flashing Beacons (RRFBs)

Rectangular rapid-flashing beacons (RRFBs) are used to increase visibility of pedestrians at marked crosswalks where traffic signals or stop signs are not warranted. They consist of a pedestrian crossing sign supplemented by a pair of bright rectangular lights that flash in a rapid alternating pattern when a pedestrian presses a button. Many assemblies are solar powered stand-alone units that can be installed without costly wiring work.

This Plan recommends the City install RRFBs at the locations illustrated in Figure 5-3, which include Alberta Way, Cowell Road, Floyd Lane, Olivera Road, and West Street. A detailed table of recommendations is in **Appendix D**.

Rectangular Rapid Flashing Beacon with Pedestrian Refuge Island and Advance Yield Lines

RECOMMENDED WALKING SPOT IMPROVEMENTS

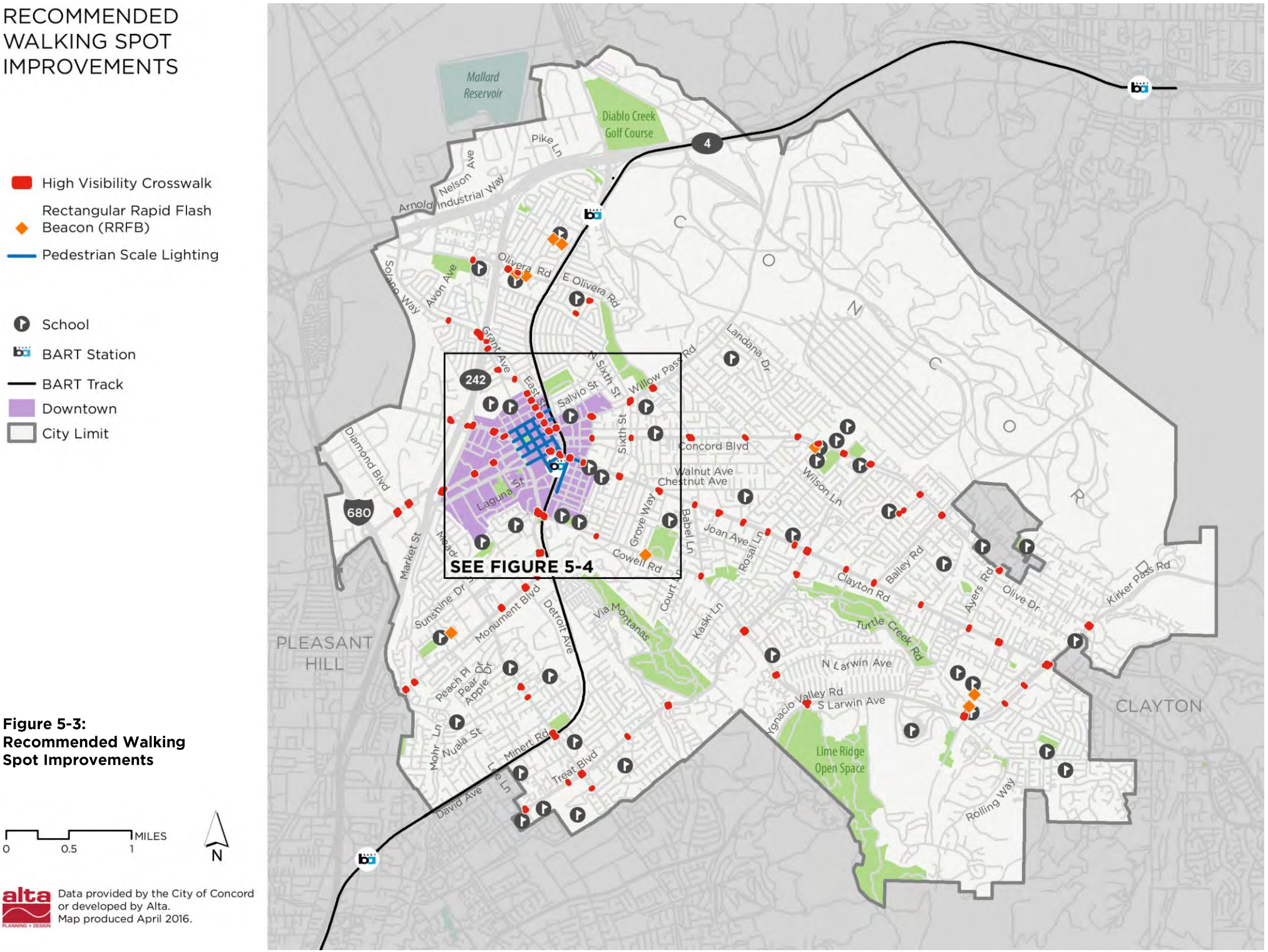


Figure 5-3: Recommended Walking Spot Improvements

RECOMMENDED WALKING SPOT IMPROVEMENTS

DOWNTOWN AREA

Figure 5-4: Recommended Walking Spot Improvements - Downtown

BICYCLING NETWORK IMPROVEMENTS

Overview

The bicycling network improvement recommendations are intended to make trips made by bicycle safer, more comfortable, and more enjoyable for all ages, abilities and trip purposes. The recommendations were developed with consideration for best practices, traffic volumes, traffic speeds, and available right-of-way. Recommendations are considered planning level, meaning they should be used as a guide when implementing projects. In many cases, traffic impact analysis and more detailed design analysis will be required to examine specific site conditions and develop specific designs that reflect conditions and constraints.

The following recommendations reflect the long-term vision and will not happen immediately. However, this Plan also includes an Action Plan (Chapter 7) which provides a roadmap for implementing the recommendations in a logical manner.

The bicycling network improvements are illustrated in Figure 5-5 and Figure 5-6. A detailed table of recommendations is in **Appendix D**. Table 5-1 provides a summary of improvements listed by bikeway type. These bikeway types are described and illustrated on the following pages.

Table 5-1: Summary of Bicycling Network Improvements

Project	Number	Length (mi)
Class I Shared Use Path	6	2.52
Class II Bike Lane	14	3.59
Class II Buffered Bike Lane	3	0.80
Class III Bike Route	13	5.47
Class III Shared Lane Markings	6	2.11
Class III Bike Boulevard	58	20.26
Study: Bike Access	4	--
Study: Complete Street	28	24.87
Study: Shared Use Paths	11	8.44
Corridor Conceptual Plans	3	6.01
Total		**74.07**

The limited mileage of Class II bike lanes is due to limited available right-of-way to fit bike lanes in without removal of travel lanes or on-street parking, both of which would require additional analysis and outreach beyond what is feasible in this Plan. Along these corridors that would be a key part of the overall bikeway network, we have recommended *Complete Street Studies*.

Bike Access Study features are locations where closing a short gap in the network will improve bicycle connectivity, or where access should be provided to an existing bicycle facility. Further study is required to evaluate appropriate treatments.

The *Corridor Conceptual Plans* are three corridors where more detailed recommendations are provided.

Class I Shared Use Path

Class I shared use paths are paved bicycle and pedestrian travelways completely separated from the street. They may run parallel to a roadway within the same right-of-way, or pass through open space.

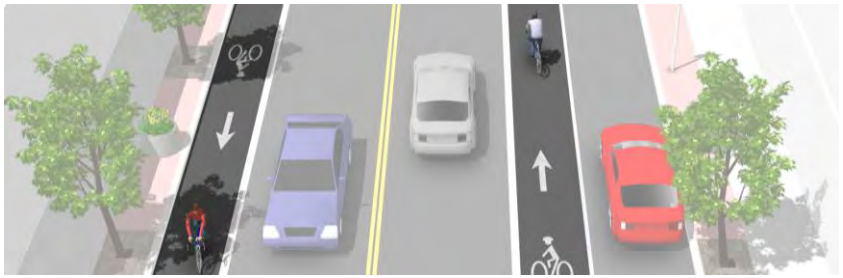
Class I Shared Use Path

Existing Neighborhood Connector features shown on Figure 5-5 are existing bicycle and pedestrian connections, similar to short Class I shared use path segments, between two residential streets or cul-de-sacs.

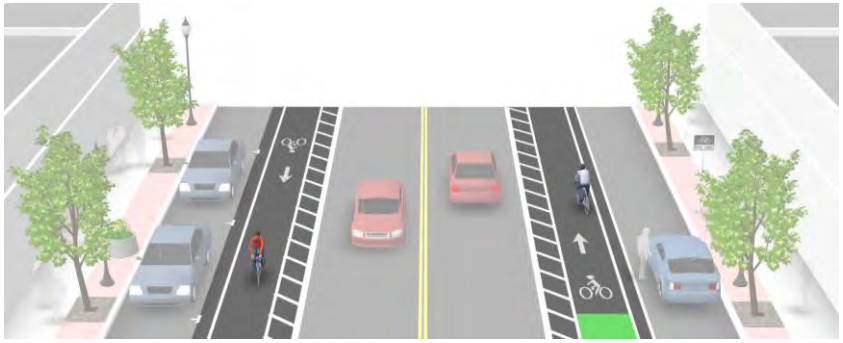
Neighborhood Connectors

Class II Bike Lanes and Buffered Bike Lanes

Class II bike lanes are dedicated on-street space for bicycle travel, marked with a white stripe. Where space allows, a buffer may be provided between the bike lane and travel lanes, or between the bike lane and on-street parking.



Class II Bike Lanes



Class II Buffered Bike Lanes

Class III Bike Routes, Shared Lane Markings, and Bike Boulevards

Three variations of Class III bikeways are recommended in Concord, which vary in the level of signs, markings, and other treatments they include. In all instances, bicyclists share the travel way with vehicles.

Class III Bike Routes are typically only identified with signs:

Class III with Shared Lane Markings refer to bike routes identified with both Bike Route signs and shared-lane markings. Shared lane markings may be used to guide bicyclists to the desired position in the lane, or to indicate upcoming turns by angling the chevron towards the desired route.

Class III with Shared Lane Markings

Class III Bike Boulevards are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through trips by bicyclists while discouraging similar through trips by non-local motorized traffic.

Class III Bike Boulevard

Complete Street Studies

As previously noted, this Plan includes a limited number of Class II bike lanes or buffered bike lanes. In most cases, in order to fit bike lanes in, travel lanes or on street parking would need to be removed. Removing travel lanes or parking requires more analysis and outreach than is possible within development of this Plan. However, this Plan recognizes the need for an overall connected network and the importance of evaluating the feasibility of bikeways on many key corridors. These corridors have been designated as Complete Street Studies and are shown on Figure 5-5 and described further in Complete Streets Studies on page 5-28.

Conceptual Plans

A number of corridors were selected to provide more in-depth recommendations for improving the walking and bicycling environment. These corridors were selected because they provide key connectivity and have high potential for walking and bicycling. Further study will be required for each corridor and additional alternatives may be feasible. The corridors include Clayton Road, Monument Boulevard, and Willow Pass Road.

Clayton Road: Farm Bureau Road to Ygnacio Valley Road

The conceptual plans for Clayton Road include bike lanes through roadway widening. Widening of Clayton Road will be considerably expensive (estimated over $22 million) due to impact to utilities and signal poles as well as costs to widen. Considering the cost-benefit of this project, it may face funding challenges.

Monument Boulevard: City Limit to Cowell Road

Monument Boulevard is an important corridor in Concord. It is an extremely dense neighborhood with many disadvantaged residents who rely on walking and bicycling. It has a history of bicycle and pedestrian collisions, and currently does not meet the needs of the residents.

The Monument Boulevard conceptual plans include a Class I shared use path on the east side of the corridor. An analysis of the feasibility of bike lanes was conducted but cannot fit within existing right-of-way. Existing traffic volumes do not warrant removal of a travel lane. Roadway widening to accommodate bike lanes is not feasible due to active uses immediately adjacent to the corridor. Further study is needed to evaluate intersection and crossing improvements, especially at the 'Four Corners' intersection with Meadow Lane and Oak Grove Road.

Willow Pass Road: Lynwood Drive to North 6th Street

The Willow Pass Road conceptual plans include bike lanes through travel lane width narrowing. Buffered bike lanes may be feasible with parking removal. Right of way may be available to extend the Contra Costa Trail by developing a shared use path on the north side of Willow Pass Road from 6th Street to San Vincente Drive. Pedestrian hybrid beacons are recommended at San Vincente Drive and at a new trail extension crossing near N Sixth Street.

The conceptual projects are illustrated in Figure 5-7 through Figure 5-9 and are described in more detail in **Appendix E**.

RECOMMENDED BIKEWAY NETWORK

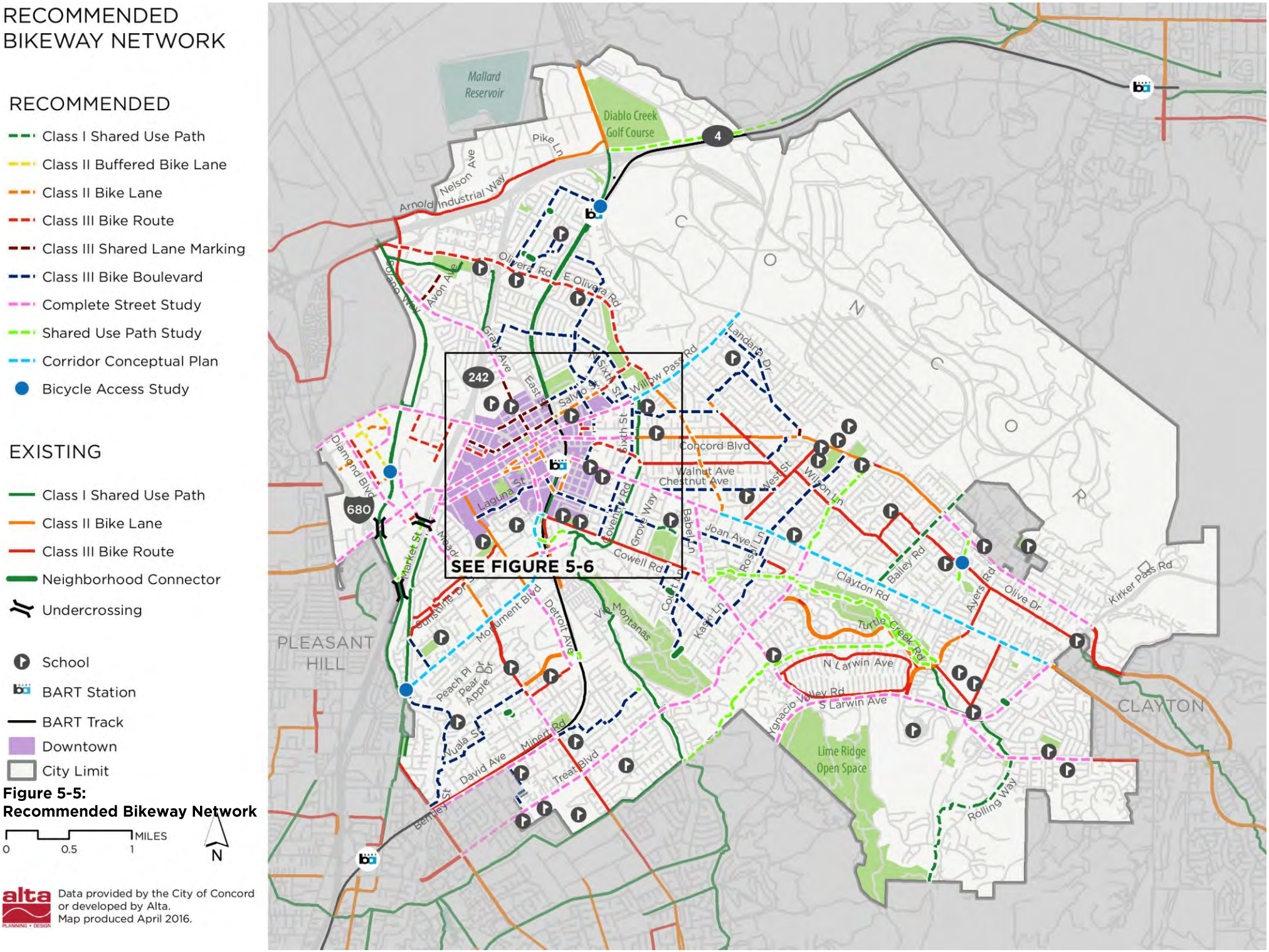


Figure 5-5:
Recommended Bikeway Network

RECOMMENDED BIKEWAY NETWORK

DOWNTOWN AREA

RECOMMENDED

- Class I Shared Use Path
- Class II Buffered Bike Lane
- Class II Bike Lane
- Class III Bike Route
- Class III Shared Lane Marking
- Class III Bike Boulevard
- Complete Street Study
- Shared Use Path Study
- Corridor Conceptual Plan

EXISTING

- Class I Shared Use Path
- Class II Bike Lane
- Class III Bike Route

- School
- BART Station
- BART Track
- Downtown

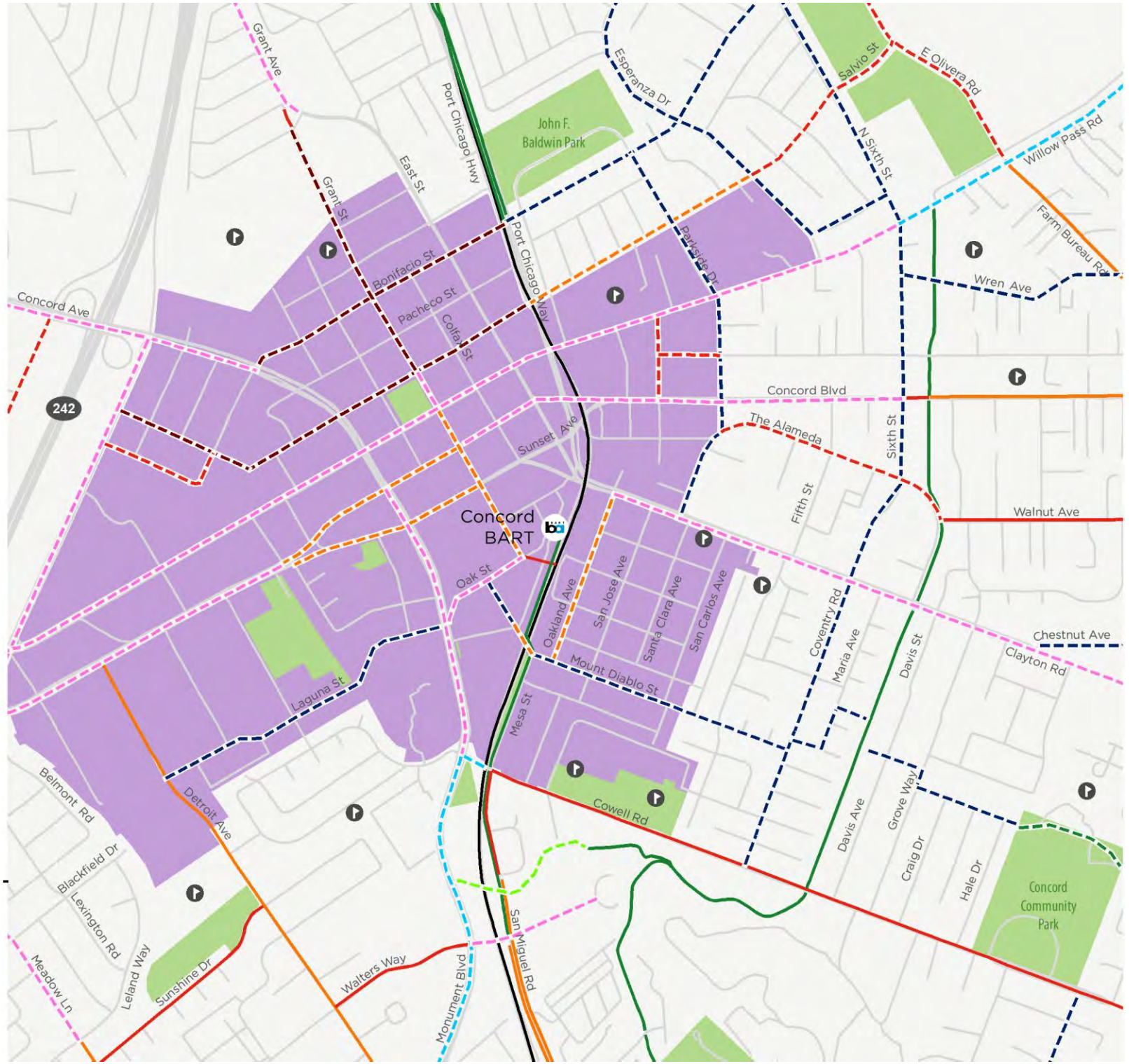


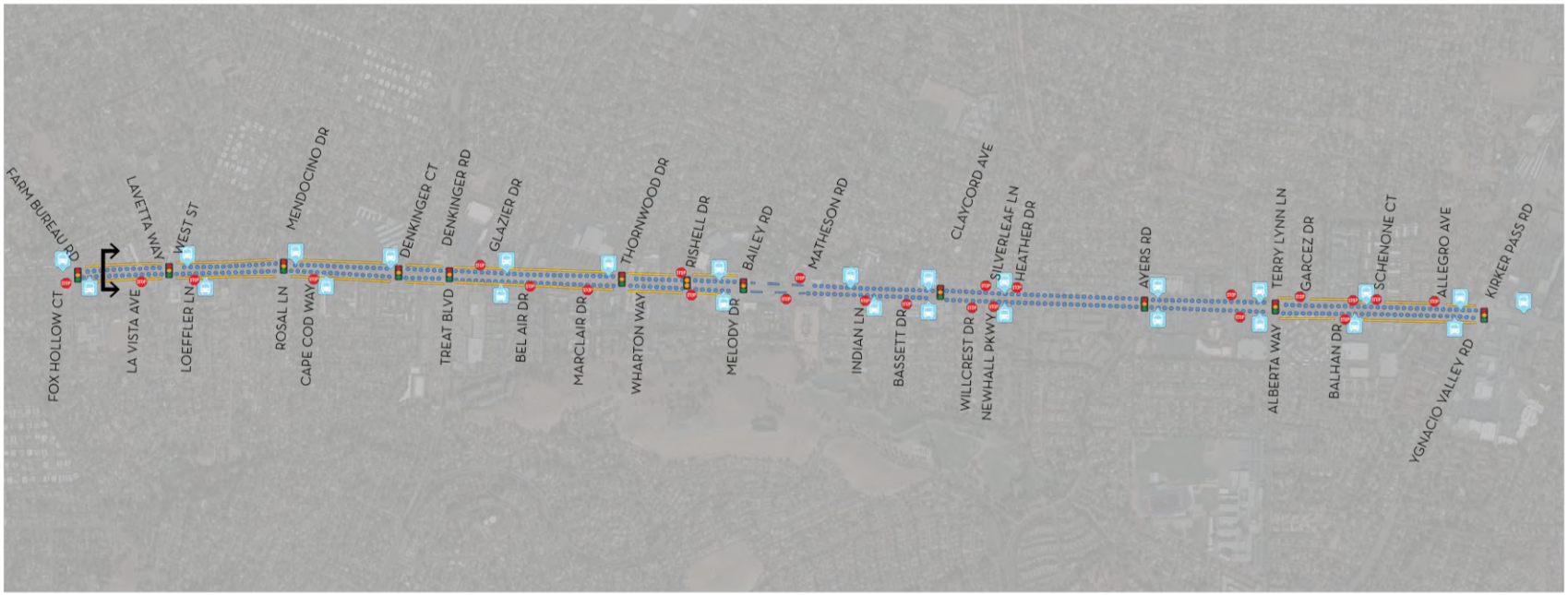
Figure 5-6:
Recommended Bikeway Network - Downtown

0 0.1 0.2 MILES

N

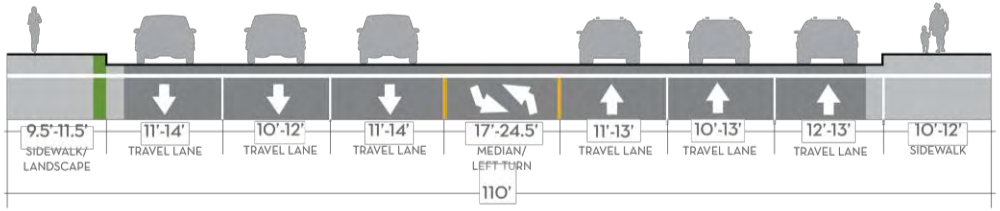
Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

CLAYTON ROAD



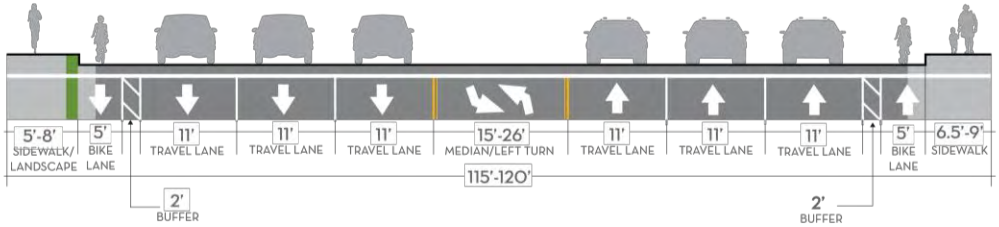
CROSS SECTION - EXISTING

TYPICAL

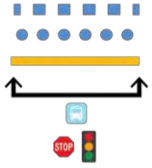


CROSS SECTION - PROPOSED

TYPICAL



LEGEND



PROPOSED ON-STREET BIKE LANE
PROPOSED BUFFERED BIKE LANE
SIDEWALK/LANDSCAPE REDUCTION
CROSS-SECTION LOCATION
TRANSIT STOP
STOP-CONTROLLED OR SIGNALIZED INTERSECTION

Widening of Clayton Road will be incredibly expensive (estimated over $22 million) due to impact to utilities and signal poles as well as costs to widen. Considering the cost-benefit of this project, it may face funding challenges.

Figure 5-7: Clayton Road Conceptual Design

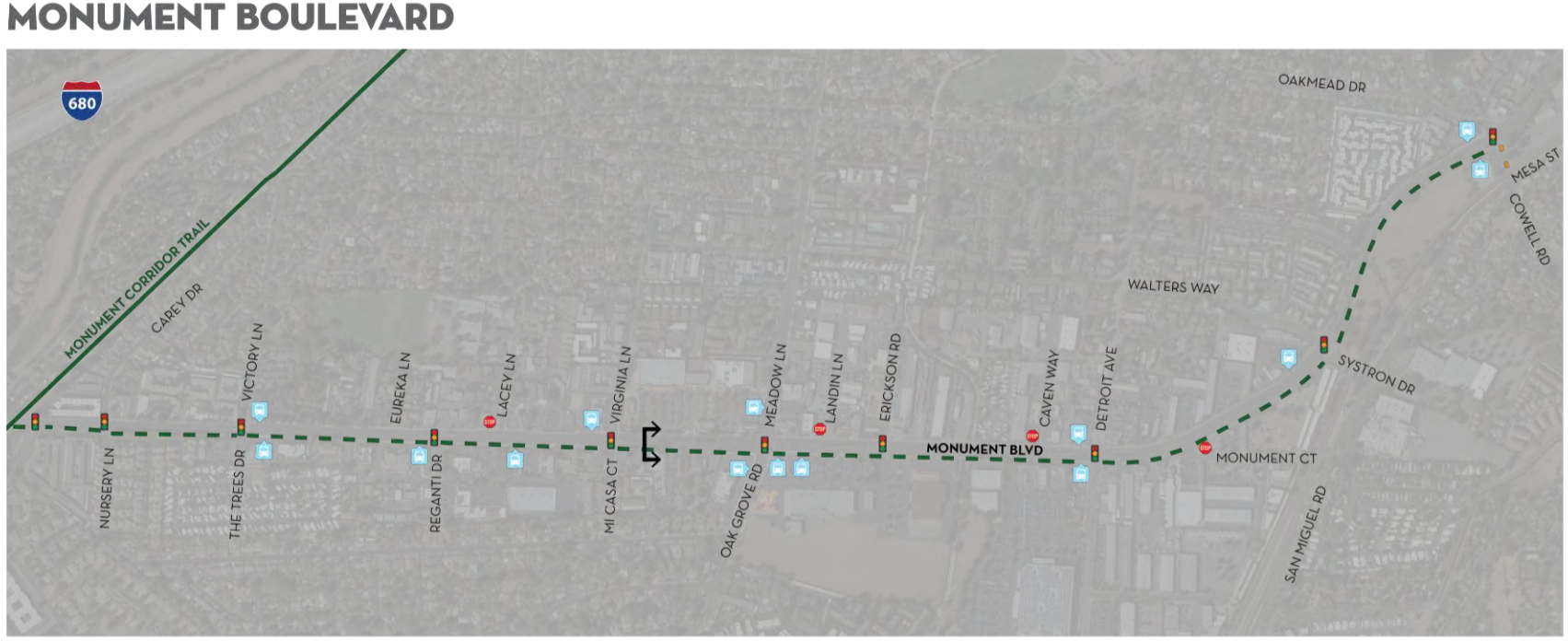


Figure 5-8: Monument Boulevard Conceptual Design

Figure 5-9: Willow Pass Road Conceptual Design

CITYWIDE CAPITAL PROJECTS

The following recommended citywide capital projects include bike parking, bikeway wayfinding, and bicycle detection at traffic signals. Rather than an exhaustive inventory of locations for these improvements, this Plan presents best practices to be implemented citywide.

Bicycle Parking

Bicycle parking can take many forms, from a simple bicycle rack to storage in a locker or secure area. No bicycling network is complete without locations for secure parking of bicycles near desired destinations in designated areas that do not impact walking accessibility. Following the recommendations for specific bicycle parking locations, recommended rates of bicycle parking for new development projects are detailed in Table 5-3.

Locations for New Bicycle Parking

This Plan includes recommendations for installation of bicycle parking at a number of specific locations within the public right-of-way, identified through public input as well as a review of locations likely to have higher demand for end-of-trip facilities. These locations are illustrated in Figure 5-10 and Figure 5-11 and are listed in Table 5-2.

Table 5-2: Recommended Bicycle Parking Locations

Location	Cross Street	Notes
Concord Community Park		6 racks each at 2 locations
Grant St.	180ft South of Willow Pass Rd.	2 racks
Grant St.	175ft North of Willow Pass Rd.	4 racks
Meadow Homes Park		4 racks
Mt Diablo St.	130ft South of Salvio St.	On street bike corral - 6 racks
Pacheco St.	120ft West of Mt Diablo St.	2 racks
Pacheco St.	180ft East of Mt Diablo St.	2 racks
Pacheco St.	180ft East of Mt Diablo St.	2 racks
Parkside Cir.	Between Beach St./Parkside Dr.	4 racks
Parkside Cir.	600ft NE of Beach St.	6 racks
Parkside Cir.	600ft NW of Parkside Dr.	6 racks
Salvio St.	160ft West of Grant St.	On street bike corral - 6 racks
Salvio St.	60ft West of Grant St.	6 racks
Willow Pass Community Park	North of Salvio St.	6 racks
Willow Pass Community Park	South of Salvio St.	6 racks
Willow Pass Rd.	Mt Diablo St.	2 racks
Willow Pass Rd.	200ft East of Grant St.	2 racks
Willow Pass Rd.	Grant St.	2 racks

RECOMMENDED SHORT-TERM BICYCLE PARKING

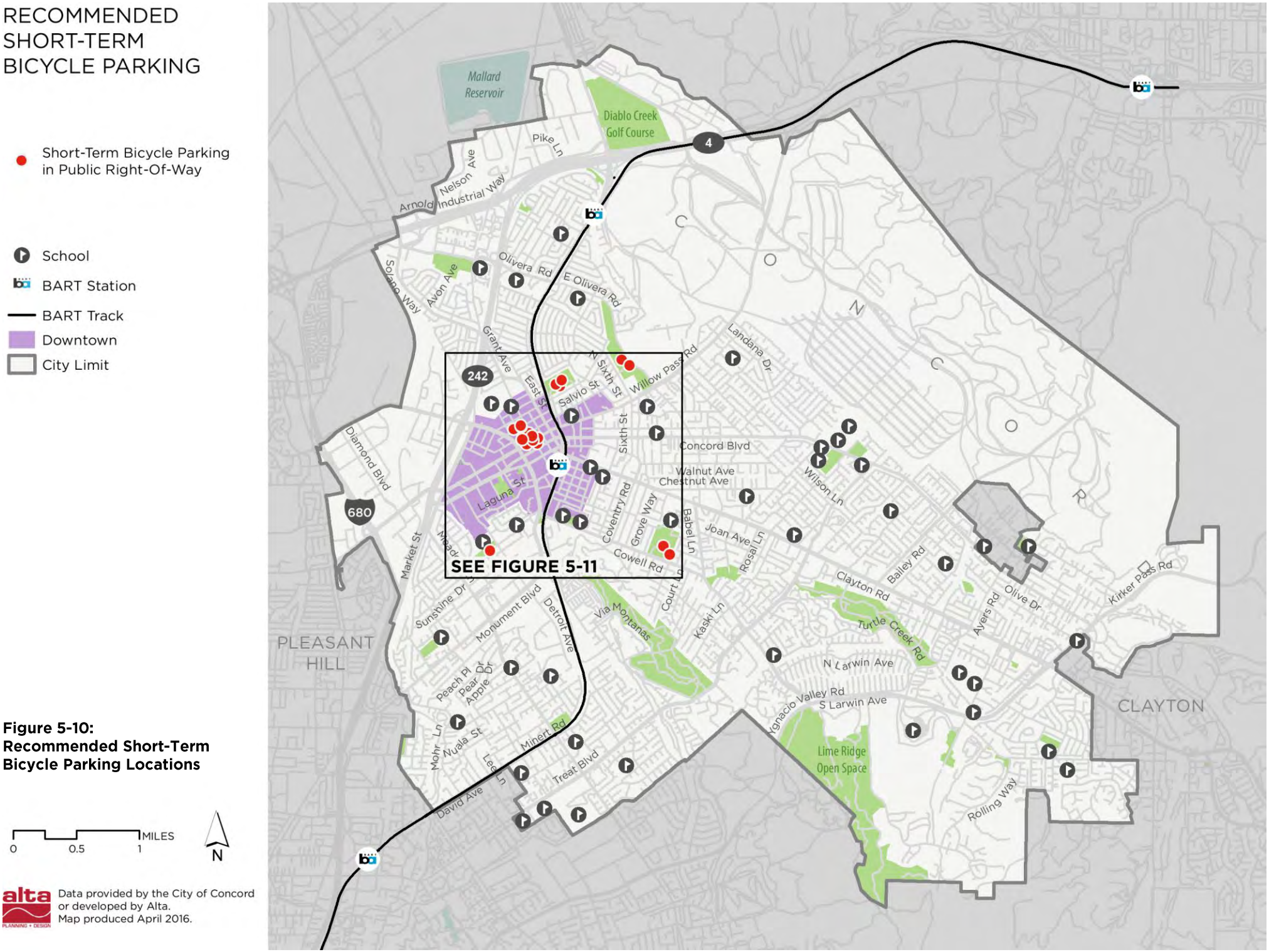


Figure 5-10:
Recommended Short-Term Bicycle Parking Locations

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

RECOMMENDED SHORT-TERM BICYCLE PARKING

DOWNTOWN AREA

Figure 5-11: Recommended Short-Term Bicycle Parking Locations - Downtown

Data provided by the City of Concord or developed by Alta.
Map produced April 2016.

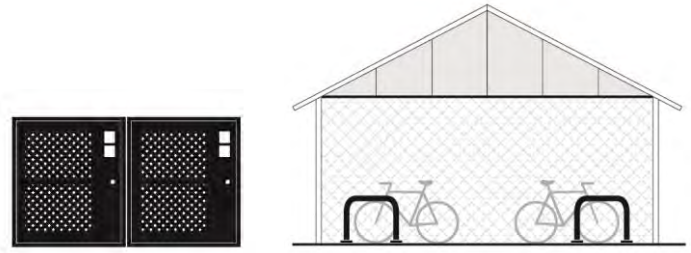
Types of Bicycle Parking

Bicycle parking can be categorized into short-term and long-term parking. Bicycle racks are the preferred device for short-term bike parking. These racks serve people who leave their bicycles for relatively short periods of time, typically for shopping or errands, eating or recreation. Bicycle racks provide a high level of convenience and moderate level of security. The rack types illustrated below and recommended for use in Concord are consistent with those recommended in the Association of Pedestrian and Bicycle Professionals *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015)*. The City may pursue customized racks that serve as bike parking and as a tool to encourage bicycling. On-street bicycle corrals can be used to provide increased bicycle parking where high demand or limited sidewalk space exists.

U-Rack *Post and Loop* *Wheelwell Secure* *Customized U-Rack* *Bike Corral*

Recommended types of bicycle racks (short-term parking)

Long-term bike parking includes bike lockers and secure parking areas (SPAs) and serve people who intend to leave their bicycles for longer periods of time and are typically found at transit stations, multifamily residential buildings and commercial buildings. These facilities provide a higher level of security than racks. The rack types illustrated at right and recommended for use in Concord are consistent with those recommended in the Association of Pedestrian and Bicycle Professionals *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015)*.



Lockers *SPA (Secure Parking Area)*

Recommended types of long-term bicycle parking

Bicycle Parking Requirements for Development Projects

Bicycle parking requirements for development projects ensure those who make trips by bicycle have somewhere secure and convenient to park. Concord's existing bicycle parking requirements for development (Municipal Code Chapter 18.160 Parking, Loading, and Access) are tied to car parking requirements, yet the relationship between the demand for car parking and demand for bicycle parking has not been studied or defined. Requirements for bicycle parking should be tied to existing demand and the City's goals to increase travel by bicycle. This Plan recommends updating bicycle parking requirements for new development projects as provided in Table 5-3. The rates of required parking were developed based on the APBP Bicycle Parking Guidelines 2nd Edition, City of San Mateo requirements, and City of Sacramento requirements.

Table 5-3: Recommended Bicycle Parking Quantities

Land Use Type	Bicycle Parking Spaces Recommended	
	Short Term	Long Term
Residential Uses		
Single Family, Secondary Living Unit, and Duplex	None	None
Multifamily	0.10 spaces per unit	0.75 spaces per unit
Emergency or Homeless Shelter	1 space for every 5 persons of planned capacity	1 space for every 10 employees
Family Day Care Home	None	None
Group Housing	0.10 spaces per bedroom, minimum of 2 spaces	1 space per 20 employees
Mobile Home Park	1 space per 10 sites, minimum of 2 spaces	1 space per 20 employees
Residential Care Facility, including for the Elderly	0.05 spaces per bedroom, minimum of 2 spaces	0.5 spaces per bedroom, minimum of 2 spaces
Live/Work Unit	2 spaces	None
Office Uses		
Administrative/Processing Offices	1 space per 20,000 square feet	1 space per 10,000 square feet
Medical and Dental Offices	1 space per 5,000 square feet	1 space per 12,000 square feet
Professional Offices	1 space per 20,000 square feet	1 space per 10,000 square feet
Restaurants and Retail		
Automobile Dealership	1 space per 20,000 square feet, minimum of 2 spaces	1 space per 20 employees
Building Material Sales and Services	1 space per 5,000 square feet	1 space per 20,000 square feet
General Retail: Shops, Food and Beverage, Personal Services	1 space per 2,000 square feet	1 space per 12,000 square feet
Restaurants and Bars	1 space per 10,000 square feet	1 space per 20,000 square feet
Nurseries and Garden Centers	1 space per 5,000 square feet	1 space per 20,000 square feet
Commercial Services		
Animal Services	1 space per 5,000 square feet	1 space per 12,000 square feet
Automobile Rental or Repair	1 space per 20,000 square feet, minimum of 2 spaces	1 space per 10,000 square feet, minimum of 2 spaces
Banks and Financial Services	1 space per 2,000 square feet	1 space per 12,000 square feet
Bed and Breakfast Inn	1 space per 10 guest rooms, minimum of 2 spaces	1 space per 20 employees
Broadcasting or Recording Studio	1 space per 2,000 square feet	1 space per 12,000 square feet

Land Use Type	Bicycle Parking Spaces Recommended	
	Short Term	Long Term
Business Support Services	1 space per 2,000 square feet	1 space per 12,000 square feet
Car Wash, Attended	None	2 spaces
Catering Service	None	2 spaces
Child Day Care Center, Nursery, or Preschool	1 space per 20 students	1 space per 20 employees
Fitness Facility or Health Club	1 space per 2,000 square feet	1 space per 20,000 square feet
Gas Station	2 spaces	1 space
Hotel and Motel	1 space per 10 guest rooms, minimum of 2 spaces	1 space per 20 employees
Laundromat or Dry Cleaners	1 space per 2,000 square feet	1 space per 12,000 square feet
Funeral Services	2 spaces	1 space per 20 employees
Social Services	1 space per 2,000 square feet, minimum of 2 spaces	1 space per 20 employees
Business Parks and Industrial Uses		
Construction, Manufacturing, Laboratory, Storage, Warehouse, or Wholesale	1 space	1 space
Research and Development	1 space per public building entrance	1 space per 20 employees
Public, Quasi-Public, and Recreational Uses		
Airport or Heliport	Spaces for 1.5% of morning peak daily ridership	Spaces for 5% of morning peak daily ridership
Conference or Convention Center or Meeting Facility	1 space per 5,000 square feet, minimum of 2 spaces	1 space per 12,000 square feet, minimum of 2 spaces
Cultural Institution or Library	1 space per 10,000 square feet	1 space per 20,000 square feet
Government Offices	1 space per 10,000 square feet, minimum of 2 spaces	1 space per 10 employees, minimum of 2 spaces
Medical Services		
Health Clinic, Primary Care, or Urgent Care Center	1 space per 5,000 square feet	1 space per 12,000 square feet
Hospital or Medical Center	1 space per 20,000 square feet	1 space per 20 employees
Public Maintenance and Service Facility	1 space	1 space
Recreation Facilities		
Golf Course or Country Club	1 space per 20 automobile parking spaces provided	1 space per 20 employees
Park or Recreation Facility, or Indoor recreation	1 space per 5,000 square feet	1 space per 20,000 square feet
Sports Fields	1 space per court or field	None
Recycling Facilities		
Collection Facility	2 spaces	1 space
Processing Facility	None	1 space per 20 employees
Theatre, Auditorium, or Religious Facility	1 space per 40 fixed seats	1 space per 80 fixed seats
Schools		
Elementary, Middle, and High Schools	1 space per 20 students	1 space per 20 employees
Colleges and Universities	1 space for every 10 students of planned capacity	1 space per 10 employees
Trade and Vocational Schools	1 space per 20 students	1 space per 10 employees
Open Space and Agricultural Uses		
Community Garden	1 space per 5 plots	None
Cemetery, Columbarium, or Mausoleum	0.05 spaces per acre	0.05 spaces per acre
Crop Production, Orchard, or Vineyard	None	1 per 20 employees
Mining and Quarrying	None	1 per 20 employees

Bike Valet

Providing valet bike parking at large events can increase the number of people who arrive by bicycle because they are confident they will have a secure place to park during the event. Bike valet can also mitigate traffic congestion around events if attendees choose to bike instead of drive.

This Plan recommends City require large events to provide bicycle valet parking, similar to the City of Oakland's policy: www2.oaklandnet.com/oakca1/groups/pwa/documents/procedure/oak033718.pdf

Bike Rack Request Program

Providing a formal process for property owners to request bike racks can increase the overall bike parking supply in the City and allow parking to be installed at key locations where there is demand. The City may choose to develop its own program, or encourage use of the existing Contra Costa Transportation Authority (CCTA) program: 511contracosta.org/employers/make-your-workplace-bike-friendly/locker-project/.

Note that all costs associated with site preparation, installation, insurance, and permits are the responsibility of the property owner or site host.

Adopt a Bike Rack Program

Bike racks can be a tool to encourage bicycling and branding racks with district styles can be a way to create a sense of place and encourage businesses to install bike parking (as shown in Fresno to the right). This Plan recommends the City develop an "Adopt a Bike Rack Program."

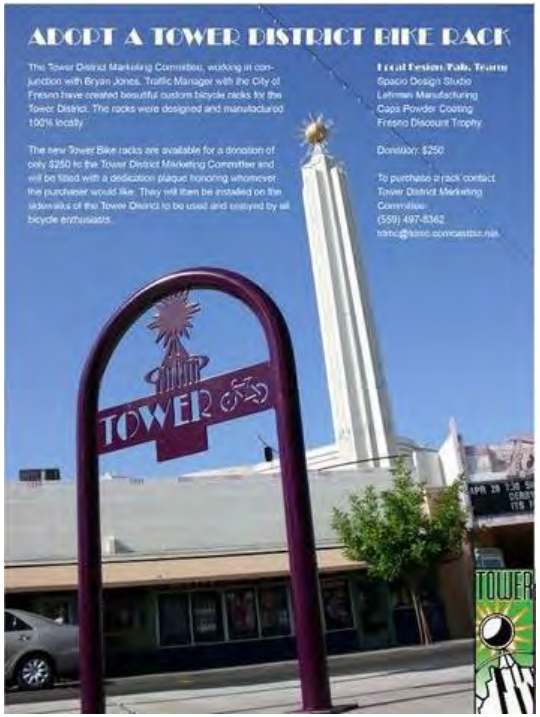
Bicycle Lockers and Showers

Providing employees who bicycle to work with secure lockers, shower facilities, and changing areas can encourage more Concord residents and workers to commute by bike. Some cities have adopted ordinances requiring developers to include these facilities in new or renovated buildings. San Francisco and Oakland both have such ordinances:

http://sf-planning.org/bicycle-parking-requirements

http://www2.oaklandnet.com/government/o/PWA/o/EC/s/BicycleandPedestrianProgram

This Plan recommends the City consider adopting an ordinance requiring the provision of lockers and showers as appropriate.



Bikeway Wayfinding

Bicycle wayfinding directs bicyclists along the city's bicycling network and to community destinations. Wayfinding typically is implemented with signs that include destinations and distance to those destinations. This Plan recommends the City implement a citywide bikeway wayfinding system. The steps towards implementation include: identify sign design, develop plan (destinations, sign locations and costs), and implement.

The California Manual on Uniform Traffic Control Devices (CA MUTCD) includes standard bicycle wayfinding (below on the left); however the base sign is the standard sign for a Class III Bike Route and this can cause confusion for users and drivers.

The middle graphic is a modified version of the CA MUTCD sign to include bikeway rather than bike route. The City may consider this as an alternative to the standard sign.

The graphic on the right is a non-standard enhanced wayfinding sign. Concord may consider signage that reflects the community character, similar to communities such as Berkeley, CA; Monterey County, CA; and San Luis Obispo, CA.

California Standard Bikeway Wayfinding Sign

Modified California Standard Wayfinding Sign

Enhanced Bikeway Wayfinding Sign Example

Bicycle Detection at Traffic Signals

Traffic signals control traffic by either using timers or actuation (detection). Bicycle detection at actuated traffic signals provides a substantial improvement for bicycle access and mobility. California Assembly Bill 1581 requires all new and modified actuated traffic signals to detect bicyclists. Caltrans Policy Directive 09-06 clarifies the requirements. Many of Concord's actuated intersections detect bicyclists but not all do.

This Plan recommends the City prioritize installation of bicycle detection at all actuated intersections along existing and proposed bikeways. Additionally, the City should install bicycle detection at all actuated intersections. For more detailed information about types of bicycle detection and current best practices, see the Design Guidelines companion volume.

MUNICIPAL CODE REVISIONS

The following section summarizes recommended changes to Concord Municipal Code. This Plan recommends the City revise these code sections to support increased walking and bicycling. Detailed revisions are shown in **Appendix F**.

Licensing

Bicycle licensing or bicycle registration requires staff time and administration by the City. Cities across California are removing this requirement from their codes (e.g. Berkeley, Los Angeles, and San Diego). This Plan recommends that the City remove the requirement for bicycle licensing, and instead encourage residents to register their bicycles on BikeIndex.org, which is already used by the Concord Police Department to track and identify stolen bicycles.

Riding Two or More Abreast

Group bicycle rides (such as a Kidical Mass or Holiday Lights Rides) are an important and critical tool that not only encourages bicycling as a form of transportation but also raise awareness of bicycling to drivers. These rides typically include groups riding in one travel lane, more than two abreast. The California Vehicle Code is clear about when local jurisdictions can differ from the statewide code, and riding two or more abreast is not provided for nor prohibited.

This Plan recommends the City remove this section (10.45.120) from its code.

Parking

It is unclear why parking "against windows" is prohibited, and it is recommended this be removed. A prohibition against parking bicycles against trees is recommended to be added. Additionally, reference to parking meters is moot as there are no meters in Concord. This Plan recommends the City ensure there is sufficient bicycle parking, and as a result parking at trees and signs will diminish.

Sidewalk Riding

Rather than a prohibition based on wheel size, as currently exists in City code, this Plan recommends the City prohibit sidewalk riding except for children 12 years and under. A provision should also be included that children riding on the sidewalk must take care and yield to all pedestrians.

STUDIES

Complete Streets Studies

As mentioned previously, a number of corridor improvements require greater outreach and/or analysis than can be conducted as part of this planning process. However, this Plan recognizes the need for an overall connected bikeway network and the importance of evaluating the feasibility of bikeways on many key corridors. Each corridor should evaluate the existing safety conditions and prioritize opportunities to implement improvements that encourage safe travel for bicyclists and pedestrians of all ages and abilities. These corridors have been designated as Complete Street Studies and are shown on Figure 5-12 and described below.

Babel Lane: Cowell Road to Clayton Road

Babel Lane is an important north-south connector in Concord, but it currently lacks continuous walking and bicycling facilities. On-street parking is permitted but not well utilized. Community members have reported higher vehicle speeds on this section of Babel Lane, making it uncomfortable for people riding bicycles. This Plan recommends the City conduct a traffic calming study.

Clayton Road: Farm Bureau Road to Port Chicago Highway

The Conceptual Plans described earlier in this Chapter include bike lanes on Clayton Road to Farm Bureau Road. In order to provide bicycle connectivity to downtown, this Plan recommends the City study the feasibility of continuing the bike lanes on Clayton Road. Challenges for this corridor include high vehicle volumes and limited right of way, which contribute to high estimated costs for improvements.

Clayton Road AND Willow Pass Road: Market Street to Sutter Street

These two corridors serve many commercial and residential destinations in a dense neighborhood west of downtown Concord. The parallel corridors both support two-way traffic, but function as a couplet carrying traffic between freeways and downtown in addition to serving the destinations along the corridors. This Plan recommends the City conduct Complete Streets studies along these two corridors as a pair, and identify one for significant bicycling and walking improvements.

Concord Avenue: City limits (Hwy 680) to Bonifacio Street

This section of Concord Avenue is complex, has limited space and has high vehicle volumes and speeds. Although it currently has no bikeway, it is an important connector for bicycle travel to retail, employment and Pleasant Hill. Potential options to study may include a travel lane width reduction or use of the landscaping strips area to widen the roadway and provide a Class IV separated bikeway or Class I shared-use path. This Plan recommends the City study the feasibility of including a bikeway along Concord Avenue.

Concord Boulevard: Grant Street-6th St and Bailey Road-Ygnacio Valley Road

Concord Boulevard is an important connector to destinations throughout the City. Portions of the corridor have bike lanes, but the ends of the corridor do not. The corridor environment is inconsistent (available space, number of travel lanes, etc.), and a detailed analysis should be conducted to determine the feasibility of bike lanes. This Plan recommends the City study the feasibility of bike lanes on Concord Boulevard.

Cowell Road: Babel Lane to Ygnacio Valley Road

Cowell Road, currently designated as a Class III bicycle route in this section, forms an important corridor through southeast Concord with Ygnacio Valley Road and Babel Lane. The corridor is two lanes with some excess shoulder width between Babel Lane and Treat Boulevard, and then widens to four lanes with raised medians and turn lanes at intersections. This Plan recommends the City study feasibility of accommodating bicycle facilities that provide some separation from traffic.

Detroit Avenue: Monument Boulevard to Chalomar Road

The City recently installed buffered bike lanes on Detroit Avenue from Monument Blvd to Clayton Rd. South of Monument Blvd, Detroit Avenue provides connectivity to employment and residential areas. A narrow bridge across a flood channel presents challenges with limited roadway width. This Plan recommends the City study the feasibility of bike lanes or similar on the southern section of Detroit Avenue.

Diamond Boulevard: Clayton Road to Concord Avenue

A forthcoming development on Diamond Boulevard will include some bicycle and pedestrian facilities on the corridor. This Plan recommends the City conduct a Complete Streets study to evaluate the feasibility of extending these proposed facilities to provide connectivity with the future bikeway network in this area.

Franquette Avenue/Waterworld Parkway: CA 242 to Waterworld California Driveway

A bicycle and pedestrian underpass provides a connection from the Monument Corridor Trail near Market Street underneath CA 242 to Franquette Avenue. This Plan recommends the City conduct a Complete Streets study along Franquette Avenue and Waterworld Parkway to evaluate opportunities to provide bicycle facilities and improve access to the retail and social service destinations along the corridor, as well as providing access to and across Willow Pass Road.

Galaxy Way: Meridian Park Boulevard to Burnett Avenue

Galaxy Way includes bike lanes for most of the corridor except this segment. City staff reviewed traffic volumes and determined a travel lane removal is not feasible. However, this section includes on-street parking, which is directly adjacent to significant off-street parking servicing the activities along the corridor. This Plan recommends the City study the feasibility of bike lanes on this section of Galaxy Way through the removal of on-street parking.

Galindo Street: Concord Boulevard to Cowell Road

Galindo Street provides a connection from the Monument corridor and the southern part of the City to the Concord BART station and downtown, but currently lacks bicycle facilities. The corridor has seven travel lanes and sidewalks on both sides. On the east side of the road, landscaped buffer areas along the sidewalk present an opportunity to widen the walkway and provide a shared-use path. This Plan recommends the City conduct a Complete Streets study on Galindo Street, including evaluating the feasibility of a Class I path on the east side of the street.

Grant Street: Fairfield Avenue to Grant Street

Grant Street is a significant connector to Downtown and BART from the northern part of the City but does not have dedicated bicycle space. The corridor has four travel lanes and on-street parking on the west side. On-street parking appears underutilized, and homes that front on the corridor all also have side street frontages. This Plan recommends the City study the feasibility of removing parking and installing bike lanes on Grant Street.

Grant Street: Salvio Street to Willow Pass Road

This block of Grant Street is one-way to the north, creating a gap in the grid network downtown. It is also a key corridor for bicyclists accessing BART to the south, but the one-way block creates a gap with no parallel bicycle facilities. Removal of on-street parking at Todos Santos Plaza should be studied, however this parking is important for the weekly Farmer's Market. This Plan recommends the City study the feasibility of bicycle access from the north to the bikeways on Grant St south of Willow Pass Road.

Market Street: Concord Avenue to Meadow Lane

This project would study the feasibility of bike lanes to connect users to the existing Hwy 242 undercrossing at Market St and Meadow Ln. On-street parking on Market St is observed to be underused; many of the auto oriented businesses on the corridor have off-street parking lots. This plan recommends the City conduct a Complete Streets study to evaluate the feasibility of bike lanes on Market Street.

Meadow Lane: Market Street to Johnson Drive

This project would study the feasibility of bike lanes to connect the bike lanes on Meadow Lane south of Johnson Dr to the existing Hwy 242 undercrossing at Meadow Ln-Market St. This corridor, which currently has a Class III bikeway with shared lane markings, has high traffic volumes, narrow lanes and on street parking resulting in the need for a more detailed analysis of the feasibility of bike lanes. This Plan recommends the City study the feasibility of bike lanes on Meadow Lane.

Minert Road: Bancroft Road to Oak Grove Road

Minert Road is an east-west connector and part of the proposed low stress bikeway network. It is lined with single family homes, and Oak Grove Middle School is near the center. The corridor has varying character, including two lane and three lane sections, and does not include bikeway facilities. This Plan recommends the City study the feasibility of bike lanes on Minert Road.

Oak Grove Road: Chalomar Road to Minert Road

This corridor is five lanes, with narrow striped shoulders that are used by some as bicycle lanes. Residents have reported speeding concerns making walking, bicycling, and crossing the street challenging or uncomfortable. This section of Oak Grove Road serves two schools and a park, and could be a key corridor for walking and bicycling to these destinations. This Plan recommends the City study walking and bicycling improvements along Oak Grove Road.

Oak Street: Grant Street to Galindo Street

This short street provides a key connection between the Concord BART station and Galindo Street. The corridor is currently two lanes with on-street parking on both sides, and may be wide enough to provide bike lanes or buffered bike lanes while preserving some or all of the parking. This Plan recommends the City conduct a feasibility study for buffered bike lanes.

Pine Hollow Road: Ygnacio Valley Road to eastern city limit

Pine Hollow Road is a six-lane roadway without parking or bicycle facilities. The corridor connects homes to schools and parks. This Plan recommends the City study the feasibility of bike lanes on Pine Hollow Road.

Solano Way: Hilltop Road to Broadmoor Avenue

Solano Way is a two-lane street lined with single family homes and parking on both sides of the street. It is the most direct connection for residents of this neighborhood to other areas of the City and to the employers at the north end of Solano Way. While available space varies, there is generally approximately 40-feet of roadway space used by two travel lanes (22-ft) and on-street parking on both sides (18-ft) leaving no room for dedicated bicycle space. On street parking appears underutilized and there are areas where homes do not

front on Solano Way. This Plan recommends the City conduct a Complete Street Corridor Study for Solano Way to seek community buy-in and analyze on-street parking needs (whether parking on both sides of the street is needed) and the feasibility of bike lanes.

Systron Drive: Trailside Circle to Monument Boulevard

A spur from the Contra Costa Canal Trail connects people walking and bicycling to Trailside Circle, but a gap exists between the trail and the Monument Boulevard corridor. Systron Drive is a two lane street that may have excess width available for an on-street bikeway to close this gap, and passes underneath the BART track. This Plan recommends the City conduct a Complete Streets study to evaluate the feasibility of a bicycling and walking connection along Systron Drive.

Treat Boulevard: City Limits (Argonne Drive) to Clayton Road

Treat Boulevard is a major six-lane/four-lane corridor, and provides the most direct east-west connection in the southern part of the City. Schools, high density housing, single family homes, and open space are all located along the corridor. A high level review reveals there is limited right-of-way, high vehicle volumes and varying conditions, and as a result this Plan cannot identify specific recommendations. This Plan recommends the City conduct a Complete Street Corridor Study for Treat Boulevard to analyze the feasibility for walking and bicycling improvements.

Willow Pass Road: 6th Street to Port Chicago Highway

The Corridor Conceptual Plan on Willow Pass Road presents detailed recommendations for the corridor east of 6th Street, but further study is needed to identify improvements to connect people walking and bicycling to downtown Concord and the BART station. This Plan recommends the City conduct a Complete Streets study for Willow Pass Road to evaluate feasibility for pedestrian and bicycle improvements.

Willow Pass Road: Contra Costa Boulevard to Market Street

Willow Pass Road is one of few streets that provide connectivity across Hwy 242 and I-680, but currently lacks bicycle facilities. This Plan recommends the City conduct a Complete Streets study to identify opportunities for improved bicycle and pedestrian facilities.

Ygnacio Valley Road: Cowell Road to Clayton Road

Ygnacio Valley Road is a busy arterial corridor through southeast Concord. Although it is currently designated as a Class III bicycle route, the four-lane roadway has a 45 mph speed limit and is challenging for all but the most confident bicyclists. With few intersections, this corridor may be an ideal candidate for a Class IV separated bikeway to provide improved comfort and safety for more Concord bicyclists. This Plan recommends the City study the feasibility of Class IV or other bicycle facility along this corridor.

Crossing Improvement Studies

"Four Corners"

The intersection at Monument Boulevard and Meadow Lane/Oak Grove Road is an important nexus for the Monument Corridor community. It provides access to retail and services on all corners of the intersection, but is highly congested and many residents reported this intersection as one of the most challenging locations for walking and bicycling in the city. This Plan recommends the City study improvements to this intersection in conjunction with further analysis of the Monument Boulevard Corridor Conceptual Plan.

Meridian Park Boulevard and Burnett Avenue

Meridian Park Boulevard is a key corridor to access multiple large retail centers in western Concord. This intersection has five lanes on each approach, creating wide and challenging pedestrian crossings. Large corner radii contribute to higher speeds for turning motorists and add further excess width to the crossings. All legs are controlled with stop signs, but no marked crosswalks are provided. This Plan recommends the City study enhanced pedestrian crossings at this intersection, potentially to include high visibility crosswalk markings, curb extensions, or pedestrian refuge islands.

Olivera Road at Terraza Del Sol

Terraza Del Sol is the only access to Olivera Road from the Dalis Gardens Mobilehome Park. Directly across from Terraza Del Sol is Hillcrest Park that includes sport fields and a children's playground designed for children of all abilities as well as access to the De Anza Regional Trail. This Plan recommends the City study the feasibility of an enhanced crossing that includes high visibility crosswalks, beacons and potentially a refuge island.

Salvio Street at Concord Avenue

Although this intersection is controlled with a traffic signal and has marked crosswalks on all legs, many residents noted it as a challenging crossing for people walking or bicycling. It is a key connection between downtown Concord to the northeast and the large retail stores to the southwest, but it currently lacks dedicated bicycle space and does not have high visibility crosswalk markings. This Plan recommends the City study improvements for bicycling and walking at this intersection, including high visibility crosswalk markings, reducing crossing distances, adjusting signal timing, and providing dedicated bicycle space.

San Miguel Road at Contra Costa Canal Trail Crossing

The Contra Costa Canal Trail crosses San Miguel Road with an unmarked, uncontrolled crossing. This Plan recommends the City study adding a marked crossing with rectangular rapid flashing beacons (RRFBs).

Treat Boulevard at Argonne Drive

Argonne Drive ends in a cul-de-sac right before Treat Boulevard. There is a neighborhood connector allowing bicycling and walking access to Treat Boulevard, however there are barriers to prevent users from rushing on to Treat as well as a tree directly at the opening on Treat. The gate can cause congestion and is not ADA compliant. This Plan recommends the City study removal of the gate at the connector opening and instead install a gate or low height landscaping surrounding the tree.

Treat Boulevard at the Contra Costa Canal Crossing

The Contra Costa Canal Trail reaches Treat Boulevard at an uncontrolled, mid-block, at-grade grossing of the busy divided arterial. This creates a barrier for people using the trail as a low-stress alternative to avoid bicycling on busy streets. This Plan recommends the City study feasibility for trail crossing improvements at this location.

Walnut Creek crossing at Bridge Street-Hookston Road

Walnut Creek is a barrier for walking and bicycling travel, limiting east-west access between neighborhoods and the low stress bicycling network. This Plan recommends the City study the feasibility of an active transportation bridge across Walnut Creek at Bridge Street.

Willow Pass Road at Esperanza Drive

Willow Pass Road is a wide, busy arterial corridor with four lanes and on-street parking. At Esperanza Drive, neighborhoods north of Willow Pass Road are unable to access Contra Costa County Health Services on the south side of the street without detouring more than 500 feet to the nearest signalized crossing in either direction. This Plan recommends the City study the feasibility of an enhanced crossing at this location, including high visibility markings, beacons, and refuge islands.

Willow Pass Road at I-680

The Iron Horse Regional Trail passes under Willow Pass Road east of I-680, but access from the trail to the street is only provided on the south side. Bicyclists wishing to cross to the north side of the street and travel west must make a long detour on the sidewalk to the nearest signalized intersection. This Plan recommends the City study creating a bicycle and pedestrian crossing near the northbound on/off ramps, or providing access to the north side of Willow Pass Road from the Iron Horse Trail.

Bicycle Access Studies

Contra Costa Canal Trail at San Miguel Road

The Contra Costa Canal Trail and the Trail Spur cross San Miguel Road near Serpa Drive. Serpa Drive is a recommended Class III Bicycle Boulevard and will provide increased connectivity to the Trail. However, this segment is unpaved. This Plan recommends the City study the feasibility of a bicycle connection from the Contra Costa Canal Trail to the Contra Costa Canal Spur across San Miguel Road.

Iron Horse Trail at Monument Boulevard

The Iron Horse Trail and the Monument Corridor Trail both intersect Monument Boulevard near Mohr Lane. Transitions to and from the trails from the street network are not well supported currently, and bicyclists wishing to continue along the Iron Horse Trail must make an awkward detour to the intersection, cross Walnut Creek twice, and cross Monument Boulevard and a minor side street at-grade. This Plan recommends the City study opportunities to improve bicycle and pedestrian access to and along the trails at Monument Boulevard.

North Concord BART Access - Panoramic Drive at Port Chicago Highway

The Port Chicago Highway Path provides good bicycle access from the south, however bicyclists accessing BART from the west or north must maneuver Panoramic Drive and share travel lanes with vehicles. This Plan recommends the City coordinate with BART to provide improved bicycle access.

Olive Drive at Mt Diablo Creek

There is a gap between the two ends of Olive Drive where they reach Mt Diablo Creek, near Claycord Avenue and Netto Drive. Clear routes exist between houses on both sides, creating an opportunity to provide low-stress bicycle and pedestrian connectivity between two neighborhoods without detouring to busy intersections at Concord Boulevard or Clayton Road, and would improve biking and walking access to nearby Silverwood Elementary School. This Plan recommends the City study the feasibility of a bicycle and pedestrian connection between the two ends of Olive Drive.

Turtle Creek Road near Swallow Tail Road

Walking and bicycling trails in Newhall Park are currently not accessible from the existing bicycle and pedestrian facilities on Turtle Creek Road, and guardrails prevent bicyclists and pedestrians from walking the short distance across the open space to the park. This Plan recommends the City study feasibility of removing some or all of the guardrail along Turtle Creek Road and providing a path from the street to the trails in Newhall Park.

Shared Use Path Studies

California Riding & Hiking Trail – Contra Costa Canal Trail to Turtle Creek Road

An existing unpaved trail offers a potential low-stress, off-street connection for bicyclists and pedestrians across the southern part of the city. This Plan recommends the City study feasibility of paving and improving this trail to provide a Class I shared use path.

De Anza Regional Trail Extension - Willow Pass Road to Port Chicago Highway

The De Anza Regional Trail ends at Willow Pass Road, leaving bicyclists without a direct route and dedicated path to access Concord. This Plan recommends Concord work with Contra Costa County and the East Bay Regional Park District to extend the trail to the Port Chicago Highway.

Denkinger Road from Clayton Road to Concord Boulevard

The west side of Denkinger Road has potential to provide a shared use path connection between Clayton Road and Concord Boulevard, improving access to several schools, parks, and retail centers. There is an easement along the west edge of the road from Concord Boulevard to Dubhe Court. It angles to the west along Denkinger Court to Calaveras Drive, where it rejoins Denkinger Road and then passes behind the Chevron station to connect to Clayton Road. This Plan recommends the City study the feasibility of providing a shared use path in the easement along Denkinger Road.

Franquette Avenue from Iron Horse Trail to CA 242 Underpass

An unused easement between CA 242 and Franquette Avenue presents an opportunity to connect people bicycling and walking from the Iron Horse Trail on the south side of Walnut Creek to the bicycle and pedestrian underpass near Meadow Lane. This Plan recommends the City study the feasibility of providing a shared use path in this easement.

Galindo Creek Channel from Monument Boulevard to Contra Costa Canal spur trail

The Galindo Creek channel presents an opportunity to provide a walking and bicycling trail connecting the Contra Costa Canal Trail in southern Concord to the densely populated Monument Boulevard corridor. This Plan recommends the City conduct a feasibility study to provide a trail along this section of the creek channel.

Galindo Creek Trail

An east-west link through southern Concord could be provided entirely on public land, connecting Newhall Park to Cowell Road. An existing trail of varying quality currently exist along the corridor recommended for study. Portions of this trail are unpaved or will require improvements, while other segments may already meet Class I standards. This Plan recommends the City conduct a feasibility study for a Galindo Creek Trail to identify needed improvements or upgrades to the existing trail.

Mt Diablo Creek from Silverleaf Lane to Concord Boulevard

On the west side of Mt Diablo Creek, an unpaved roadway easement connects the end of Silverleaf Lane with Concord Boulevard. This would provide a low-stress connection for adjacent neighborhoods, and improve access to Silverwood Elementary School if a connection to Olive Drive is provided. This Plan recommends the City study the feasibility of providing a shared use path in this easement.

Pine Creek from Whitman Road to Lane Drive

Residents report there had been a path under the BART Tracks at the channelized creek between Whitman Road and Lane Drive. The BART tracks in this area are at grade and are a barrier for bicycle travel. This Plan recommends the City study the feasibility of a shared use path connection along Pine Creek. A grade separated crossing would be required at the BART tracks.

RECOMMENDED STUDIES

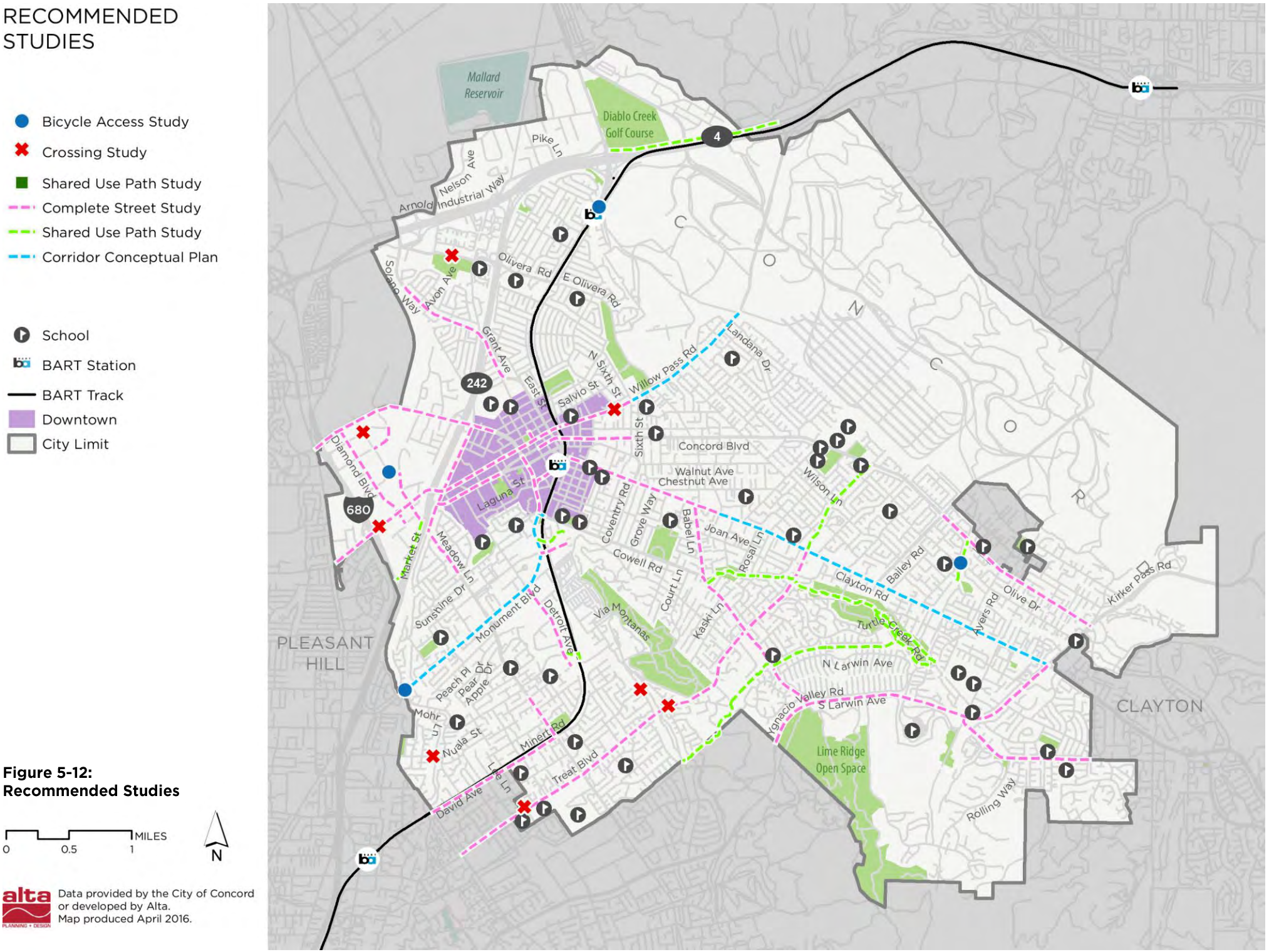


Figure 5-12: Recommended Studies

Program Recommendations

Chapter 6

Program Recommendations

The following chapter presents recommended bicycle and pedestrian related programs. The recommendations are organized in four E's:

- **Education** programs are designed to improve safety and awareness. They can include programs that teach students how to safely cross the street or teach drivers to expect pedestrians. They may also include brochures, posters, or other information that targets bicyclists, pedestrians or drivers.
- **Encouragement** programs provide incentives and support to help people leave their car at home and try walking or bicycling instead.
- **Enforcement** programs enforce legal and respectful walking, bicycling and driving. They include a variety of tactics, ranging from police enforcement to neighborhood signage campaigns.
- **Evaluation** programs are an important component of any investment. They help measure success at meeting the goals of this plan and to identify adjustments that may be necessary.

Programs recommended on the following pages should include outreach and education in both English and Spanish.

EDUCATION

Education programs are important tools for teaching traffic safety rules and laws as well as increasing awareness of walking and bicycling opportunities and existing facilities. Education programs should be designed to reach diverse groups at varying levels of knowledge and skill, as there may be many different audiences: pre-school age children, elementary school students, teens and college students, workers and commuters, families, retirees, the elderly, new immigrants and non-English speakers.

When feasible, education programs should be provided in an online format, supplemental to in-person outreach designed to address individual needs.

Adult Bicycling Skills Classes

Most people do not receive any formal training on safe bicycling practices, the rules of the road and bicycle handling skills. Adult education programs were identified as a need by the community through the survey and public workshop.

Bicycling skills classes can address this education gap, and should also include information about basic bicycle mechanics and repairs. The League of American Bicyclists offers classes taught by certified instructors. Information can be found at: http://www.bikeleague.org/.

Bike East Bay currently operates adult and family bicycling education programs funded by a Healthy Eating Active Living (HEAL) grant.

Recommendation

This Plan recommends the City coordinate with Bike East Bay to support and publicize adult bicyclist skills classes. Of the City's largest employers, those listed below may consider offering classes for employees:

- Adecco Employment Services (multiple locations)
- AssetMark
- Bank of America
- The Conco Companies
- John Muir Medical Center
- Macy's
- PG&E
- Mount Diablo Unified School District
- Safeway (multiple locations)
- Wells Fargo (multiple locations)

Bike Tent

Bike Concord hosts a Bike Tent at the Concord Farmer's Market during the Thursday Music series from April to October. Community members can bring their bicycles for free repairs from a professional mechanic sponsored by John Muir and REI. Volunteers also share information about bicycling, help identify routes to destinations, and encourage participation in Bike Concord group rides.

Bike East Bay supports this effort, and provides bicycle mechanics education in both English and Spanish to train volunteers for future Bike Tents.

Recommendation

This Plan recommends Bike Concord continue the Bike Tent with City support.

Bicycle Related Ticket Diversion Class

Diversion classes are classes offered to bicyclist offenders of certain traffic violations, such as running a stoplight.

California Assembly Bill 209, signed by Governor Brown in September 21, 2015 allows for such programs for violations not committed by a driver of a motor vehicle. This program is a good way to educate bicyclists about rights and responsibilities.

Similar programs existing throughout California. More information: www.marinbike.org/Campaigns/ShareTheRoad/Index.shtml#StreetSkills

http://www.cityoflivermore.net/citygov/police/ops/traffic/bikesafety/diversion.asp

www.bikeeastbay.org/biketrafficschool

Recommendation

This Plan recommends the City consider offering bicyclist diversion classes.

City Website

Providing information about events, projects, and resources related to walking and bicycling can empower residents to choose active transportation for their daily needs. The City should maintain a page on their website for this information, and ensure it is updated regularly.

Recommendation

This Plan recommends the City create and regularly update an active transportation webpage.

Motorist Education Program

When new bicycle or pedestrian facilities are introduced to the community, motorists should be educated on how the new facility works. Education should include how bicyclists or pedestrians are intended to navigate the area, how motorists should behave, and key conflicts to be aware of. Education could be offered through voluntary classes, a ticket diversion program, or through signs and media outreach.

Recommendation

This Plan recommends the City offer motorist education as new bicycle and pedestrian facilities are implemented.

Share the Road Campaign

On a citywide scale, the City could start a share-the-road or "StreetSmarts" media campaign, similar to those in San José, Davis and other California cities. Developed by the City of San José, StreetSmarts uses print media, radio, and television to educate people about safe driving, bicycling, skateboarding, and walking behavior. More information: www.getstreetsmarts.org.

Local resources for conducting a campaign can be maximized by assembling local experts, law enforcement officers, business owners, civic leaders, and community volunteers. These allies could assist with successful safety campaign goals based on the local concerns and issues. It may be necessary to develop creative strategies to achieve campaign goals. Concord TV, a local cable access channel, may be a resource for distributing information through commercials or public service announcements.

Recommendation

This Plan recommends the City coordinate with partners to implement a traffic safety program such as StreetSmarts.

Student Bicycle and Pedestrian Traffic Safety Education

Student education programs are an essential component of bicycle and pedestrian education. Students are taught traffic safety skills that help them understand basic traffic laws and safety rules.

Bicycle and Pedestrian Assemblies

Contra Costa Transportation Authority (CCTA) offers in-school assemblies for Kindergarten through high school that address important bicycle and pedestrian safety skills. Each assembly is tailored to a particular age group, and the program has been annually implemented at every Concord public school in the Mount Diablo School District.

Kindergarten through 2nd grade assemblies focus on basic rules of the road and skills for walking and bicycling safely. They are presented by Mr. Beep, the program's talking car mascot, and cover helmet safety and recognizing basic road signs.

3rd through 5th grade assemblies renew the emphasis on the importance of helmet-wearing, and expand this to cover basic brain anatomy and the importance of protecting your head.

In middle school, assemblies are led in partnership with League Certified Instructors (LCI's) from the League of American Bicyclists (LAB). They incorporate fundamental bicycle mechanic skills like fixing a chain and checking tire pressure, and are often held in conjunction with bicycle rodeos.

High school assemblies are targeted at new drivers and their parents, with evening events presented by the California Highway Patrol (CHP). They use recent, local examples of collisions to illustrate the dangers of unsafe driving, and emphasize the responsibility of drivers to watch for people walking and bicycling.

Bicycle Rodeos

Bicycle rodeos are offered every three years at the middle school level in Concord, and hosted by CCTA with support from LCI's. They provide on-bicycle safety and handling skills training, with opportunities to practice on a series of short courses. In Concord, these are coupled with basic bicycle maintenance information as well as safety assemblies.

Contra Costa Health Services also offers bicycle rodeos at the annual Monument Impact Carnival of Health, and loans their mobile bicycle rodeo trailer out to community groups.

Bike Concord is also preparing to launch bicycle rodeos, beginning with certifying several volunteers as LCI's to lead the program. They also currently provide support at school bike rodeos hosted by Bike East Bay.

Benefits

Student bicycle and pedestrian traffic safety education can benefit the Concord community by:

- Improving safety by teaching children lifelong safety skills
- Create awareness with students and parents
- Encourage families to consider walking or bicycling to school on a more frequent basis

Recommendation

This Plan recommends the City encourage the efforts CCTA, Mount Diablo Unified School District, Bike East Bay and Bike Concord to continue the current programs, and expand student bicycling and walking education to Contra Costa County Office of Education schools as well as private or charter schools.

ENCOURAGEMENT

Everyone from young children to elderly residents can be encouraged to increase their rates of walking and bicycling or to try walking or bicycling instead of driving for short trips.

Bicycle and Pedestrian Advisory Committee

The City does not currently have an advisory committee focused on improving walking and bicycling conditions. Such committees are typically composed of community members that provide ongoing active transportation advice to the local government.

Recommendation

The City should form a Bicycle and Pedestrian Advisory Committee. Members would include local residents representing a range of bicycle and pedestrian interests and experiences, and could meet quarterly at a public facility, or more frequently as needed. Charges of the committee may include some or all of the following:

- Review and provide input on capital project planning and design as it affects walking and bicycling
- Provide a formal liaison between local government, staff, and the public
- Develop and monitor goals and benchmarks related to walking and bicycling
- Promote walking and bicycling, including safety and education

The committee should be advisory to staff. The committee should be composed of five regular members and one alternate, appointed by Council and nominated by an application process. To be eligible for TDA-3 funding through MTC, the members must either live or work in Concord. The committee would be subject to Brown Act regulations.

Safe Routes to School Program

Helping children walk and bicycle to school is good for children's health and can reduce congestion, traffic dangers and air pollution caused by parents driving children to school. Safe Routes to School programs use a "5 Es" approach using Engineering, Education, Enforcement, Encouragement, and Evaluation strategies to improve safety and encourage children walking and bicycling to school. The programs are usually run by a coalition of city government, school and school district officials, and teachers, parents, students, and neighbors.

A Safe Routes to School program could incorporate many existing programs in Concord that are currently being operated by various agencies and organizations. Pedestrian and bicycle assemblies, walking school buses, bicycle rodeos, and other school encouragement programs can be offered at more schools while adding or expanding additional activities. A program could also include bicycle giveaways for students.

Recommendation

This Plan recommends the City coordinate with local partners to pursue grant funding to develop and implement a cohesive Safe Routes to School program in partnership with CCTA, Monument Impact, Contra Costa Health Services and the Mt. Diablo Unified School District.

Bicycle Helmet Giveaways

The California Office of Traffic Safety (OTS) grant program can fund bicycle helmets for giveaways to children at schools or children observed bicycling without wearing helmets. Typically this type of program is a partnership with the Police Department. Past events in Concord have previously been coordinated with Bike East Bay classes or events.

Recommendation

This Plan recommends the City coordinate with local partners to seek an OTS grant and conduct helmet giveaways for children.

Bike Light Giveaways – Operation Luz

Bike Concord raised money from Monument Impact, Bike East Bay, and other sponsors to purchase inexpensive bike lights. They set up a station on Monument Boulevard in October 2015 and handed out lights to passing bicyclists who needed them. A second giveaway date is planned for Spring 2016.

Recommendation

This Plan recommends Bike Concord continue to give away bike lights.

Bike to Work Day

Bike to Work Day is a region wide event promoting bicycling to work and is typically the third Thursday in May. The Bay Area's traffic management organization, CCTA, organizes Bike to Work events throughout the Bay Area, including Concord. Some of the most popular events are energizer stations, where volunteers set up a table with promotional items, coffee and snacks along popular bicycle commuting routes during the morning and afternoon commute hours.

The City and Monument Impact currently sponsor annual Bike to Work Day events hosted by Bike East Bay, and other elected officials have supported similar events. County Supervisor Karen Mitchoff spoke at a Bike Home from Work Day event in 2015.

Recommendation

This Plan recommends the City continue their sponsorship of Bike to Work Day events.

Employer-Based Encouragement Programs

The Concord community identified employer-based bicycle and pedestrian encouragement programs as a priority. Though the City cannot host these programs, it can work with or provide information to employers about commuting on foot and by bicycle.

Popular employer-based encouragement programs include hosting a bicycle user group to share information about how to bicycle to work and to connect experienced bicyclists with novice bicyclists. Employers can host bicycle classes and participate in Bike to Work day, or offer credits or health incentives for commuters who bike or walk to work.

Recommendation

This Plan recommends the City encourage employers to implement bicycle and pedestrian related programs.

Group Rides

Group rides such as those hosted by Bike Concord can encourage more people to bicycle. Bike Concord has hosted many group rides, including:

- Kidical Mass, a family-oriented ride sponsored by Bike Concord and Spokes Oakland that includes education and bike bell giveaways
- Christmas Eve Ride
- Slow Roll Ride
- Tamale ride
- And others!

Recommendation

This Plan recommends Bike Concord continue to host group rides.

Launch Party for New Bikeways

When a new bikeway is built, some residents will become aware of it and use it, while others may not realize that they have improved bikeway options available. A launch party/campaign is a good way to inform residents about a new bikeway and can also be an opportunity to share other bicycling materials (such as maps and brochures) and answer resident questions about bicycling. It can also be a media-friendly event, with elected official appearances, ribbon cuttings, and a press release that includes information about the new facility, other existing and future facilities, and any timely information about bicycling.

Recommendation

This Plan recommends the City coordinate with Bike Concord to host a launch party for all high priority projects recommended in this plan as well inform the public of all new bikeways through its bicycling website.

Open Street Events

Open Streets are periodic street closures that create a temporary park that is open to the public for walking, bicycling, dancing, hula hooping, roller-skating, etc. They promote health by creating a safe and attractive space for physical activity and social contact, and are cost-effective compared to the cost of building new parks for the same purpose. Events can be weekly or one-time occasions.

Recommendation

This Plan recommends the City establish an Open Streets program.

Safe Routes to Transit Program

Similar to a Safe Routes to School program, a Safe Routes to Transit program includes infrastructure improvements and program efforts focused around transit stops and stations.

This Plan evaluated all infrastructure recommendations based on whether they improved access to transit, awarding points to those that support walking and bicycling to transit.

Many of the recommended programs in this Plan can be folded into a Safe Routes to Transit program by developing targeted efforts around transit, such as educational media posted at transit stops or stations, targeted enforcement at locations near transit, or incentive programs for transit users who walk or bicycle to the station instead of driving.

Recommendation

This Plan recommends the City develop a Safe Routes to Transit program to support and encourage walking and bicycling to transit.

Bicycle Friendly Community

The League of American Bicyclists (LAB) recognizes communities that improve bicycling conditions through education, encouragement, enforcement and evaluation programs. Communities can achieve platinum, gold, silver, or bronze status or an honorary mention. Bicycle friendliness can indicate that a community is healthy and vibrant. Like good schools and attractive downtowns, bicycle friendliness can increase property values, spur business growth and increase tourism.

Recommendation

This Plan recommends the City pursue Bicycle Friendly Community status in the future, after some progress has been made towards implementing priority projects and programs in this Plan. This Plan is a valuable resource for completing the LAB application efficiently.

More information and application steps: http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/

ENFORCEMENT

Enforcement programs enforce legal and respectful use of the transportation network. The bicycle and pedestrian safety analysis and community identified needs indicate enforcement programs will help educate motorists, bicyclists and pedestrians about the rules and responsibilities of the road.

Speed Feedback Signs

Higher speed traffic discourages walking and bicycling, and can make pedestrians and bicyclists feel uncomfortable. At higher speeds, motorists are less likely to see and react to a bicyclist or pedestrian, and are not always able to actually stop in time to avoid a crash. Higher speed crashes are also much more lethal to pedestrians and bicyclists. Speed feedback signs display the speed of passing motor vehicles, with the intent that motorists will slow down if they are made aware of their speed.

Recommendation

This Plan recommends the Police Department and Public Works operate mobile speed feedback signs.

Targeted Police Enforcement

Targeted enforcement consists of focused efforts of police officers to enforce traffic laws in specific locations with a history of traffic violations or collisions.

Partnering with the Police Department on targeting drivers that fail to yield to pedestrians or bicyclists appropriately can help to raise awareness of the law, and these campaigns can produce sustained improvements in driver behavior. It can also improve bicyclist and pedestrian compliance with applicable laws by enforcing appropriate behavior.

Targeted enforcement programs can also help raise awareness and increase compliance with new laws, such as California's three-foot passing distance established by SB 1371.

Efforts should emphasize reducing behaviors that create the greatest risk or potential conflict, and care should be taken that programs do not unfairly target specific demographics or modes of transportation. Targeted enforcement should begin with education and positive reinforcement before punitive actions.

Another type of targeted enforcement could include education-enforcement, where officers stop individuals and discuss the unsafe behavior they observed without issuing citations. Many communities have used similar programs to distribute bike lights to bicyclists caught riding without them at night.

Recommendation

This Plan recommends that the City coordinate with the Police Department to conduct targeted enforcement at locations known for noncompliance with traffic laws and at high conflict or high crash areas.

EVALUATION

Evaluation programs help the City measure how well it is meeting the goals of this Plan and the General Plan, and evaluation is a key component of any engineering or programmatic investment. It is also a useful way to communicate success with elected officials as well as local residents.

Annual Crash Data Review

Reviewing bicycle and pedestrian related crashes and near-misses on an annual basis can help the City identify challenging intersections or corridors. The City currently conducts an annual review with law enforcement to identify top collision locations in the community and develop recommendations to address safety issues.

Recommendation

This Plan recommends the City and Police Department continue their annual review of bicycle and pedestrian related crash data to identify needed improvements.

Annual Report Card

Many communities prepare annual report cards to update elected officials and members of the public on progress being made to improve walking and bicycling, and towards implementation of an adopted plan. This report card could be a simple report outlining the projects and programs advanced over the previous year, and sharing any available statistics about safety improvements or increased active transportation trips.

Recommendation

This Plan recommends the City prepare and distribute an annual report card documenting progress towards implementation of this Plan.

Bicycle and Pedestrian Community Survey

Survey evaluation programs measure and evaluate the impact of projects, policies, and programs through questionnaire survey forms. Typical evaluation programs range from a simple year over year comparison of US Census Journey to Work data to bicycle and pedestrian counts and community surveys. Bicycle and pedestrian community surveys act as methods to evaluate not only the impacts of specific improvement projects but can also function as way to measure progress towards City goals such as increased bicycle and pedestrian travel for trips one mile or less.

Recommendation

This Plan recommends a bicycle and pedestrian related community survey regarding the walking and bicycling environment in Concord be conducted in conjunction with updates of this Plan, roughly every five years.

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Action Plan

Chapter 7

Action Plan

This Plan includes projects and programs intended to create a more **active, vibrant and safer City of Concord**; however, implementation will require community support and political leadership in addition to significant funding. This Chapter lays out the City's strategy towards implementation and includes the following sections:

- **Evaluation Strategy** is intended to measure how well a project meets this Plan's goals and objectives.
- **Plan Cost Estimates** presents the unit costs used to determine the overall project cost.
- **Priority Projects and Programs** presents a summary of the projects and programs intended for near-term implementation.
- **Maintenance** covers planning-level annual cost estimates and best practices for operations of the recommended facilities.

The complete list of prioritized projects is available in **Appendix D**.

EVALUATION STRATEGY

All of the proposed infrastructure projects were evaluated against the criteria described in Table 7-1 and organized into short-, mid-, and long-term tiers based on a logical breakdown of scores and complexities of implementation. Projects in each tier generally fall into the following score ranges:

- Tier 1: 100 points to 60 points, intended for implementation within approximately five years of plan adoption
- Tier 2: 59 points to 31 points, intended for implementation within approximately five to ten years of plan adoption
- Tier 3: 30 points or fewer, intended for implementation within approximately ten to twenty years of plan adoption

The intent of evaluating projects is to create a prioritized list of projects for implementation. As projects are implemented, lower ranked projects move up the list. The project list and individual projects to be included in this Plan are flexible concepts that serve as guidelines. The high-priority project list, and perhaps the overall project list, may change over time as a result of changing walking and bicycling patterns, land use patterns, implementation constraints and opportunities, and the development of other transportation improvements. Implementation timelines for each tier serve as guidelines; some projects may be implemented sooner or later than others in the tier.

Programs (Education, Encouragement, Enforcement and Evaluation) received a qualitative evaluation regarding how well they meet this Plan's vision and goals.

Table 7-1: Project Evaluation Criteria

Criterion	Rationale	Description	Max. Points
Safety	This criteria addresses known safety challenges based on crash data.	*The project addresses safety concerns identified through reported crashes, based on the most recent five years of data for bicycle or pedestrian related crashes.* Projects are scored on a scaled ranking from zero to twenty-five with locations with the most crashes receiving the maximum score.	25
Community Identified Challenge Area	This criteria addresses community identified needs.	*The project is at a location identified as challenging through the community workshop, survey, tours, or other comments submitted.* Projects in community identified challenge areas receive 20 points. Projects that are not in community identified challenge areas receive zero points.	20
Project Readiness	This criteria addresses the ability of the City to implement projects.	*This evaluation is based on known factors regarding estimated public right-of-way.* Projects within the public right-of-way receive 20 points. Projects that are not likely to require right-of-way receive 10 points. Projects that will require right-of-way receive zero points.	20
Activity Generator Connection	This criteria addresses connections to likely community destinations.	*The project improves or provides a connection to an attractor identified in the Existing Conditions memo (health care facilities, parks, community centers, top employers, shopping centers, parks, and schools).* Projects that directly connect to activity generators receive 15 points. Projects that directly connect to an existing facility that connects to activity generators receive 7 points. Projects that do not connect to activity generators receive zero points.	15
Transit Connection	This criteria addresses Safe Routes to Transit, a plan purpose.	*The project improves or provides a connection to a transit stop or station.* Projects that directly connect to a transit stop or station receive 15 points. Projects that directly connect to an existing facility that connects to a transit stop or station receive 7 points. Projects that do not connect to a transit stop or station receive zero points.	15
Estimated Demand	This criteria addresses potential for walking and bicycling.	*The project is in a location of estimated high demand based on the BPSI Demand Analysis.* Projects in locations that fall within areas of estimated high demand will be awarded 5 points. Projects in locations without estimated high demand receive zero points	5
		Total Possible Points	**100**

PLAN COST ESTIMATES

Unit Cost Assumptions

Table 7-2 presents the planning level cost assumptions used to determine project cost estimates. Unit costs are typical or average costs informed by Alta Planning + Design's experience working with California communities. Units used include each (EA) for lump-sum improvement costs and linear feet (LF) or linear mile (MI) costs for other improvements.

While they reflect typical costs, unit costs do not consider project-specific factors such as intensive grading, landscaping, or other location-specific factors that may increase actual costs. For some segments, project costs may be significantly greater.

Unit cost assumptions in Table 7-2 include 20 percent contingency and the following soft costs: 5 percent for traffic control, 5 percent for mobilization, 15 percent for design, 10 percent for cost recovery, 15 percent for construction management, and 10 percent for staff administration time during design and construction phases.

Cost estimates for projects recommended in this Plan have been rounded to the nearest $100.

Table 7-2: Unit Cost Assumptions

Item	Unit	Cost Assumption	Notes
High Visibility Crosswalk with Advance Stop Bar	EA	$5,000	
Sidewalk, Curb, Gutter	LF	$310	
Traffic Calming Study	EA	$20,000	
Class I Shared-Use Path	MI	$1,125,000	
Class II Bike Lanes	MI	$80,000	Both sides of road
Class II Buffered Bike Lanes	MI	$180,000	Both sides of road
Class III Bicycle Route	MI	$20,000	Both sides of road
Class III Bicycle Route with Shared Lane Markings	MI	$31,000	Both sides of road
Class III Bicycle Boulevard	MI	$75,000	Custom pavement symbols every 250 feet and wayfinding signs
Pedestrian Scaled Lighting	MI	$2,500,000	Both sides of road
Rectangular Rapid-Flashing Beacon (RRFB)	EA	$50,000	Per crossing
Pedestrian Hybrid Beacon	EA	$185,000	Per crossing
Bicycle Rack – Wheelwell Secure	EA	$650	
Sign	EA	$1,000	Including new post
Striping	LF	$4	
Studies	EA	Varies	

Plan Project Cost Estimates

Table 7-3 presents the total estimated costs for this Plan's projects by project type. The total cost estimate for all projects presented in this Plan is approximately $147 million. A significant amount of the projects costs are sidewalks, pedestrian scaled lighting, and the Corridor Conceptual Plans Implementation.

Table 7-3: Cost Estimate Summary by Project Type

Project	Total Estimated Cost
Bike Parking	$52,000
Bikeways	$45,407,800
Class I Shared Use Paths	$2,832,000
Class II Bike Lanes	$287,700
Class II Buffered Bike Lanes	$144,800
Class III Bike Routes	$109,400
Class III Bike Routes with Shared Lane Markings	$65,200
Class III Bicycle Boulevards	$1,519,700
Corridor Conceptual Plan Implementation	$40,447,000
Signs	$2,000
Sidewalks	$86,937,100
Studies: Bicycle Access	$140,000
Studies: Complete Streets	$2,545,000
Studies: Crossings	$330,000
Studies: Shared Use Paths	$995,000
Walking Spot Improvements	$10,315,000
High Visibility Crosswalks	$940,000
Pedestrian Scale Lighting	$8,924,000
Rectangular Rapid Flashing Beacons (RRFBs)	$450,000
Signs	$1,000
Total	**$146,721,900**

Crossing and Complete Streets studies may include collection and analysis of additional data including traffic volumes, traffic speeds, bicycle and pedestrian volumes, signal delays for various user types, or in-depth analysis of collision data. These studies are intended to evaluate the need for crosswalk markings or feasibility of bikeways, and to identify which improvements are likely to have the greatest benefit given the unique context of each location.

Table 7-4 presents the total estimated costs for this Plan's projects by implementation priority.

Table 7-4: Cost Estimate Summary by Priority

Project	Total Estimated Cost
Tier 1	
Bike Parking	$10,400
Bikeways	$12,942,300
Class II Bike Lane	$156,600
Class II Buffered Bike Lane	$144,800
Class III Bike Route	$7,500
Class III Shared Lane Marking	$33,300
Class III Bike Boulevard	$216,100
Corridor Conceptual Plan Implementation	$12,384,000
Sidewalks	$3,508,700
Studies: Complete Streets	$1,500,000
Studies: Shared Use Paths	$250,000
High Visibility Crosswalk	$230,000
Total for Tier 1	**$18,441,400**
Tier 2	
Bike Parking	$40,300
Bikeways	$31,249,400
Class I Shared Use Path	$1,831,900
Class II Bike Lane	$131,100
Class III Bike Route	$83,500
Class III Shared Lane Marking	$31,900
Class III Bike Boulevard	$1,106,000
Corridor Conceptual Plan Implementation	$28,063,000
Sign	$2,000
Sidewalks	$31,827,300
Studies: Bicycle Access	$120,000
Studies: Complete Streets	$1,045,000
Studies: Crossing	$270,000
Studies: Shared Use Path	$675,000
Walking Spot Improvements	$9,890,000
High Visibility Crosswalk	$665,000
Pedestrian Scale Lighting	$8,924,000
Rectangular Rapid Flashing Beacons	$300,000
Signs	$1,000
Total for Tier 2	**$75,117,000**
Tier 3	
Bike Parking	$1,300
Bikeways	$1,216,100
Class I Shared Use Path	$1,000,100
Class III Bike Route	$18,400
Class III Bike Boulevard	$197,600
Sidewalks	$51,601,100
Studies: Bicycle Access	$20,000
Studies: Crossing	$60,000
Studies: Shared Use Path	$70,000
Walking Spot Improvements	$195,000
High Visibility Crosswalk	$45,000
Rectangular Rapid Flashing Beacons	$150,000
Total for Tier 3	**$53,163,500**
Grand Total	**$146,721,900**

PRIORITY PROGRAMS AND PROJECTS

Priority Programs

Priority programs were identified based on a qualitative evaluation of the current walking and bicycling environment in Concord, and where there are opportunities for the greatest potential impact. Priority programs include:

- StreetSmarts Campaign
- Employer-Based Encouragement Programs
- Bike to Work Day
- Targeted Enforcement

For program details and a full list of recommended programs, see **Chapter 6**.

Priority Projects

The priority projects are summarized in Table 7-5. These projects are the highest scoring projects, as well as those projects that may be feasible to implement within the next five years. For a complete list of all recommended projects by tier, see **Appendix D**. For a list of potential funding sources, see **Appendix G**.

Table 7-5: Priority 1 Projects by Type Summary

Project	Number	Total Length (miles)	Total Estimated Cost
Bike Parking	6	-	$10,400
Bikeways	22	9.09	$12,942,300
Class II Bike Lane	8	1.96	$156,600
Class II Buffered Bike Lane	3	0.80	$144,800
Class III Bike Route	1	0.37	$7,500
Class III Shared Lane Marking	3	1.07	$33,300
Class III Bike Boulevard	6	2.88	$216,100
Corridor Conceptual Plan Implementation	1	2.00	$12,384,000
Sidewalks	8	2.23	$3,508,700
Studies: Complete Streets	16	15.62	$1,500,000
Studies: Shared Use Paths	2	3.61	$250,000
High Visibility Crosswalks	46	-	$230,000
Total	**96**	**32.18**	**$18,441,400**

MAINTENANCE

Maintaining the walking and bicycling environment once it has been implemented preserves the investment and will help support a high quality of life for Concord residents. Maintenance costs are a concern for most Cities, as there are grants available to build projects but not to maintain them.

On-street bikeways should be maintained as part of the normal roadway maintenance program, and emphasis should be placed on keeping bike lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility.

Table 7-6 lists typical maintenance costs and frequencies. All estimated costs are in 2016 dollars.

Table 7-6: Maintenance Cost Assumptions

Activity	Frequency	Unit	Estimated Cost
Crosswalk restriping	Arterials: 5-7 years Minor streets: 10 years	Each	$2,800
Sidewalk and curb ramp repair	As needed		TBD
Class I Path repair and maintenance	Ongoing, annually	Mile	$8,750
Sign repair	As needed	Each	$300
Class II Bike Lane restriping, replacing stencils and signs as needed	Ongoing, annually	Mile	$2,000
Class III Bike Route sign and sharrow stencil replacement	Ongoing, annually	Mile	$1,250