



City of Alameda

Active Transportation Plan

October 3, 2022 | PUBLIC REVIEW DRAFT

ACKNOWLEDGEMENTS

To be added to final draft.

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EXECUTIVE SUMMARY

The Alameda community's need for expanded and improved transportation options, the need to reduce fatalities and serious injuries on the City's roadways, and the need to address climate change all require that the City of Alameda continue its ongoing efforts to build and maintain safe and connected bicycle and pedestrian networks. This Active Transportation Plan (Plan) describes the specific infrastructure improvements and programs to be accomplished by 2030 to make Alameda a city where people of all ages, abilities, income levels and backgrounds can safely, conveniently and comfortably walk, bike and roll (using wheelchairs, mobility scooters and micro-mobility devices) to their destinations and to transit. In so doing, the Plan is designed to improve public health and safety, reduce automobile congestion and greenhouse gas emissions, and enhance the quality of life in Alameda.

The Plan builds upon and updates the City's 2009 Pedestrian Plan and 2010 Bicycle Plan to include the most current best practices for increasing safety and supporting active transportation. The Plan also addresses current local needs as articulated by many diverse voices in the community that participated throughout the preparation of the Plan over the course of several years and many in-person and virtual meetings. The Plan was also shaped by the valuable input of a special Community Advisory Group, several advisory boards and the City's Transportation Commission.

Active transportation refers to all active modes of transportation including walking and bicycling, as well as using wheelchairs and mobility scooters, push and electric scooters, electric bikes, skateboards and new and ever-evolving shared mobility options, like bike share.

Alameda's Active Transportation Plan is organized as follows:

Chapter 1: Introduction provides an overview of the adopted City policies and community engagement that provide the foundation for this plan.

Chapter 2: Vision and Goals introduces a vision for the future of active transportation in Alameda and five planning goals for active transportation.

Chapter 3: Existing Conditions provides an overview of existing facilities, community perceptions and opportunities for improvement.

Chapter 4: Pedestrian Design Strategy describes where, how and what types of pedestrian infrastructure improvements are selected and used.

Chapter 5: Bicycle Network describes a broad Bicycle Vision Network necessary to achieve Plan vision and goals.

Chapter 6: Trails Network and Water Crossings describes improvements necessary to support high-quality bicycle and pedestrian access to and from Oakland and access to and along the waterfront.

Chapter 7: Programs describes 31 programs needed over the next eight years to support and encourage safe and comfortable walking and biking.

Chapter 8: 2030 Infrastructure Plan outlines 30 specific capital improvement projects needed over the next eight years to support meeting the vision and goals of this and other city plans. The chapter also describes the performance metrics necessary to track and measure effectiveness and includes the plan for the future of the Slow Streets program, started during the pandemic.

Seven appendices provide supporting data for the improvements and programs outlined in the Plan.



CHAPTER 1: INTRODUCTION

PURPOSE

Alameda is a thriving, family-friendly community with an excellent physical setting and waterfront environment to support walking, rolling and bicycling as a preferred mode of transportation for many of the daily trips that people take to work, school, the store, local businesses districts and to our recreational and waterfront public amenities. With its human-scale, relatively small size (10 square miles), tree-lined streets, flat topography, conveniently located shopping districts, and mostly 25 mile per hour speed limits, Alameda is the ideal community for bicycling and walking.

In part because of all these physical advantages and benefits, 63% of all trips in Alameda are three miles or less in distance (easy on a bike). Thirty-one percent (31%) of all trips are less than a mile in distance (an easy walk for most).

Despite these advantages and short distance trips, most people are driving. Sixty-seven percent (67%) of all trips are made in a car. Only 2% of all trips are made on a bicycle and only 3% of all trips are made on foot.

Alameda's flat topography and island geography also makes Alameda extremely vulnerable to the impacts of climate change. As documented in the City of Alameda 2019 Climate Action and Resilience Plan, the threat of sea level rise in Alameda is existential, and Alameda must take action to address these threats. Approximately 70% of greenhouse gas emissions generated in Alameda come from a reliance on the automobile for daily trips.¹

Despite Alameda's 25-mile-per-hour speed limits and "small town" character, many Alamedans don't feel safe walking and bicycling. Over half of Alameda residents, according to a 2019 survey², stated that they would drive less and walk or ride a bicycle more if they felt safer doing so. Statistics show that over the last 10 years (2012-2021), on average approximately seven people were killed or severely injured each year while walking or biking in Alameda.

The purpose of this Active Transportation Plan is to change these statistics. This Plan is designed to make those short trips that can easily be done by foot or on a bicycle easier, more convenient, safer and more comfortable so that more people will choose to bicycle or walk when making those trips instead of using a car. In so doing, this Plan will make Alameda and its residents healthier physically and mentally, reduce greenhouse gases to help address the climate crises, and make Alameda's streets safer for everyone. It will make it safer and easier for people to run errands and children to walk or bike to school. Ultimately, the purpose of this plan is to improve the quality of life here in Alameda for everyone, including children, older adults and people with disabilities and future generations of Alamedans.

AN ACTION PLAN

The Active Transportation Plan is essentially an action plan. It does not propose new city policy. The Plan implements existing, adopted city policy to reduce greenhouse gas emissions, reduce traffic congestion and

¹ *Alameda Climate Action and Resiliency Plan*, September 2019.

² 2019 City of Alameda statistically significant survey of adult residents (16+), described in Chapter 3.

reduce fatalities and serious injuries on City streets.³ Examples of the existing policy foundation that this Plan will help implement include:

Climate Change:

"Reduce greenhouse gas (GHG) emissions to 50 percent below 2005 levels by 2030 and achieve net zero GHG emissions as soon as possible. Alameda will achieve these targets by completing current actions and implementing new actions focused on transportation, building management, waste management, and carbon sequestration." (Climate Action and Resiliency Plan (CARP) Goal, Page 5)

"For Alameda to achieve its greenhouse gas emission reduction goals, Alameda must transform its transportation system to give residents convenient and safe, climate-friendly transportation choices and alternatives to the single occupant vehicle." (General Plan, Page 80)

"Reduce greenhouse gas emissions from transportation by improving the local roadway network to support all mobility choices while specifically encouraging walking and bicycling and prioritizing improvements that both reduce greenhouse gas emissions and support General Plan policies that facilitate transit-oriented housing opportunities, pedestrian friendly business districts, and improved transportation choices." (General Plan Policy CC-07, Conservation and Climate Action Element)

Active Transportation Improvements:

"Develop a well-connected, low-stress, and uncluttered network of pedestrian and bicycle facilities that are comfortable and well-designed for people of all ages and abilities. Seamlessly link the network with Alameda's key destinations such as schools, designated commercial corridors, grocery stores, parks and transit stops." (General Plan Policy ME-14, Mobility Element)

"Build additional bike lanes...by adding more dedicated and protected bike lanes and making pedestrian/bicycle improvements that increase safety, make it easier for people to use these modes, and connect residential neighborhoods with commercial centers and workplaces." (CARP Action T-2)

"Prioritize low-stress biking infrastructure such as separated bicycle lanes, bicycle boulevards and bike trails, which is comfortable for the majority of the community...and...Provide separated bicycle lanes instead of unprotected, standard bicycle lanes, unless not feasible..." (General Plan Action ME-14(h), Mobility Element)

"Support the completion of a continuous shoreline Bay Trail along the entire perimeter of the City of Alameda." (General Plan Policy OS-9, Parks and Open Space Element)

Safety

"People of all ages and abilities can travel safely using any mode, and traffic deaths and serious injuries are eliminated by 2035." (Vision Zero Action Plan vision statement)

Alameda's Vision Zero Policy (adopted in 2019) establishes safety as the highest priority in all transportation plans, projects, and decisions with the goal of eliminating fatalities and serious injuries on Alameda streets.

"Prioritize the transportation improvements needed to serve the most vulnerable communities, including youth, seniors, those with limited mobility, those with limited income, and historically underserved communities." (General Plan Policy ME-3, Mobility Element)

³ For more information about all of the plans and policies reviewed in developing this Plan, see Appendix C. Plans and Policies Review.

A COMMUNITY PLAN

The actions and improvements included in this Plan were identified, shaped and prioritized with the help and direction from the Alameda community. This is their plan.

The planning process began in late 2019 with an intensive public engagement period to allow the community to identify needed improvements to the existing biking and walking environment. The COVID-19 pandemic provided the community and City policy makers and staff with new ideas and insights about how and when people make trips and the many different purposes and uses for public spaces and rights of way. Within months, the Alameda community was experimenting with new ways to use these spaces, including the Slow Streets program to expand spaces for safe bicycling and walking and a Commercial Streets program which expanded the use of streets for outdoor dining and closed Alameda Avenue to automobiles to allow more room for pedestrians, outdoor dining and gathering space. By the summer of 2020, draft recommendations for bicycle and pedestrian projects, programs, policies and priorities were presented to the community for community review and direction.

Appendix B. Summaries of Community Survey and Public Engagement provides additional details on the public engagement activities, but the highlights to date include:

- » Over 150 attendees of all ages at the initial community open house;
- » Over 2,100 written public comments and suggestions on existing walking and biking conditions in Alameda, via interactive online maps;
- » Over 680 responses to eight (8) different surveys;
- » Over 550 written public comments on the recommended bicycle network, via an interactive online map
- » Nine (9) workshops with traditionally underrepresented groups, including people of color, high school students, lower-income residents, seniors and un-housed populations;
- » Five (5) workshops with business associations;
- » Seven (7) virtual open houses and listening sessions on draft plan recommendations;
- » Three (3) Transportation Commission public workshops;
- » One (1) workshop with the Commission on Persons with Disabilities;
- » One (1) workshop with the Recreation and Parks Commission;
- » Two (2) workshops with the Social Services and Human Relations Board; and
- » Two (2) Community Advisory Group meetings, which included eleven (11) community members representing renters, older adults, high school students, transit riders, people with disabilities, walking and bicycling advocates and members of the Latinx and Asian-American communities.





CHAPTER 2: VISION AND GOALS

VISION

The bicycle and pedestrian improvements included in this Alameda Active Transportation Plan are intended to help the people of Alameda reach a vision of what Alameda can be:

Alameda will be a city where people of all ages, abilities, income levels and backgrounds can safely, conveniently and comfortably walk, bike and roll (using wheelchairs, mobility scooters and micro-mobility devices) to their destinations and to transit. As a result, Alameda will be a healthier and safer place to live, work and recreate, Alameda will have reduced its automobile congestion and greenhouse gas emissions and the quality of life in Alameda will be enhanced for everyone.

To achieve this ambitious vision, the Alameda community, its elected officials, its appointed advisory boards and commissions and its staff will need to continuously strive to achieve five primary goals in all decision making and actions:

GOALS



Safety

Increase the safety of all people using active transportation.

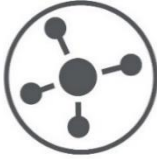
Safety is critical to success. People must be and feel safe walking or riding a bicycle in Alameda. Parents must feel safe allowing their children to walk or ride to schools and parks. Seniors and other vulnerable residents must be and feel safe walking or rolling to bus stops, the store or for their health and recreation. Safety must be a primary objective for all improvements and investments.



Equity

Prioritize active transportation investments in underserved communities and actively engage underrepresented groups in the planning process.

To achieve the vision, everyone must have equal access to safe and convenient bicycle and pedestrian facilities. Every investment and improvement decision must consider and include the needs of those communities that have historically been underserved or underrepresented. Decisions must be made in partnership with those most in need, not just with those who have resources and time to advocate.



Connectivity and Comfort

Develop a well-connected network of active transportation facilities that are comfortable and convenient for people of all ages and abilities.

Today, the public roadway provides great connectivity and relative comfort for people driving their automobiles, but these same roadways are generally less comfortable and connected for people walking and bicycling. Crossing major streets can be uncomfortable for bicyclists and pedestrians. Crossing the Estuary to Oakland by walking or bicycling is extremely uncomfortable. Protected, low-stress bicycle facilities are not continuous and often interrupted by uncomfortable crossings or gaps in the network. Although Alameda has an excellent network of sidewalks, pedestrians are often confronted by difficult and uncomfortable pedestrian crossings of major streets. Success requires that the Alameda community and its decision makers continuously work to increase connectivity and comfort so that the bicycling and walking network is as comfortable and connected as the automobile network.



Community

Promote and inspire safe and fun walking, bicycling and rolling to foster a strong culture of walking and bicycling.

Bicycling, walking and rolling can be the most enjoyable modes of transportation. Bicycling and walking builds community. Neighbors meet neighbors walking and bicycling. Kids make friends on the way to school bicycling and walking. Seniors who feel safe walking are able to support and help their fellow seniors, who may just need companionship. New forms of “micro-mobility” are expanding options. Electric bicycles make longer bike trips easier. Electric scooters are a convenient and fun way to travel for some. To achieve success, the City must promote, inspire and support a culture of walking and bicycling.



Mode Shift

Increase percentage of walking and bicycling trips.

To achieve the vision of a cleaner, safer, less congested, more climate-friendly community, the City’s actions must promote mode shift. Sixty-seven percent (67%) of trips are completed in an automobile. Only 5% are completed by walking or bicycling. Decisions and investments must work to change these numbers: to increase walking and biking, while reducing driving.



CHAPTER 3: EXISTING CONDITIONS

INTRODUCTION

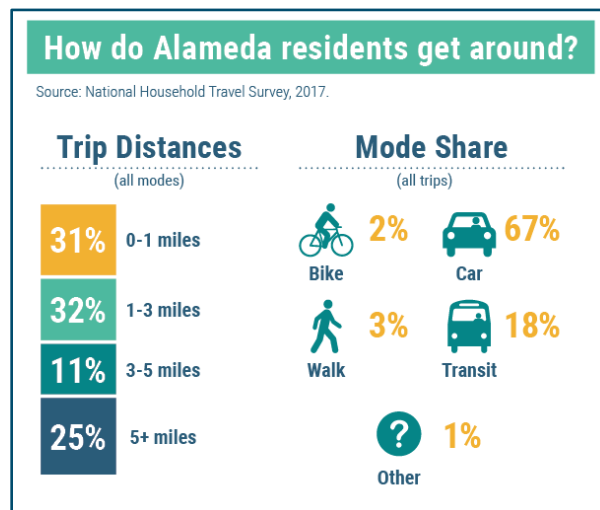
Understanding how well Alameda's active transportation network operates today is an important first step in determining what can be done to improve the active transportation network for the future. This chapter provides an overview of how Alamedans use and perceive the active transportation network and how they would like it to be; the existing pedestrian, bicycle and trail facilities on the ground; and data-driven assessments of the stress levels and safety of our streets.

For a more in-depth review of the existing conditions, see *Appendix D. Existing Conditions Report*.



TRAVEL PATTERNS

The most recent data on travel patterns, from 2017 (pictured below), shows that only 2% and 3% of all trips in Alameda are by bike and foot, respectively, though some of the 18% of trips by transit likely include some walking and biking. However, one third of all trips are less than one mile, an easy walking distance for most, and another third are one to three miles, an easy biking distance for most.



Tallies conducted by the Countywide Safe Routes to Schools program in Alameda in 2017 and 2018 found that, on average, about **one third of students walk to school and 8% bike**, higher than other districts in the county. These percentages vary, with the highest reported biking rate of 25% at Lincoln Middle School.

COMMUNITY PERCEPTIONS AND BEHAVIORS

In late 2019, the City conducted a statistically significant survey to gather data on how people travel around Alameda, their concerns about existing walking and bicycling conditions, their transportation challenges and the types of changes Alamedans want to see in the future, including an assessment of level of comfort crossing the street or riding a bicycle under different conditions. It was a representative survey with responses from over 1,000 randomly selected Alamedans age 16 or older. Key findings from this survey are included below, and the full survey, including methodology, can be found in *Appendix B. Summaries of Community Survey and Public Engagement*.

- » **75%** of Alameda residents use active transportation at least a few times a month when traveling within the city, and **32%** do the same when leaving the island.
 - Within Alameda, nearly **70%** of residents walk, almost **40%** ride a bike, and **three percent** scooter at least a few times a month.
- » While most residents believe Alameda is a great place to walk and bike, over **80%** of City residents think Alameda should do more to make it safer to walk across busy streets, and over **70%** think Alameda should do more to make it safer for people to bicycle.
- » More than half of residents (**55%**) believe they would drive less if biking and walking in Alameda were safer.
- » Two thirds (**66%**) say they have car trips they could replace with walking or biking.
- » Over half (**56%**) of Alameda residents regularly take trips by bike, while nearly all (**92%**) regularly take trips by walking.
- » Seven in ten residents indicate children in their household walk at least a few times a month. Over half of school-aged children ride a bike a few times a month and **8%** ride a scooter, both of which are higher rates than adults.
- » Bike lanes, especially buffered and separated bike lanes, dramatically increase comfort with biking on streets with faster, busier traffic
- » Introducing painted crosswalks greatly improves how safe Alamedans feel crossing streets without stop signs or other controls and reducing crossing distances across larger streets helps further improve comfort levels.

EXISTING FACILITIES

PEDESTRIAN

The City of Alameda has a well-connected pedestrian network, with sidewalks on both sides of most streets, short connector walkways through blocks and marked pedestrian crossings at many locations. Shared use paths and off-street walkways supplement this network, increasing connectivity and providing access along the waterfronts.



High-visibility crosswalks on Central Avenue

In addition to on- and off-street pedestrian infrastructure, crossing treatments at intersections and midblock locations are essential for maintaining the continuity, comfort and safety of the overall pedestrian network, since crossings are often the most stressful movement for people walking, and where most pedestrian collisions occur. The City uses a range of traffic control treatments to facilitate crossings. As of the end of 2022, there are 90 traffic signals in the City and 23 Rectangular Rapid Flashing Beacons (RRFBs). For more details about the many types of pedestrian facilities in Alameda, see *Appendix D. Existing Conditions Report*.

Alameda has over 200 miles of sidewalks and 26 miles of shared use paths (Table 1). The existing pedestrian network is shown in Figure 1.

Table 1. Existing Pedestrian Facility Mileage

Pedestrian Facility Type	Existing Length (miles)
Sidewalks	200*
Shared Use Path	26
Off-street Walkway (paved)	8
Off-street Walkway (unpaved)	4
Total	238

*Existing and planned for construction between 2020-2024

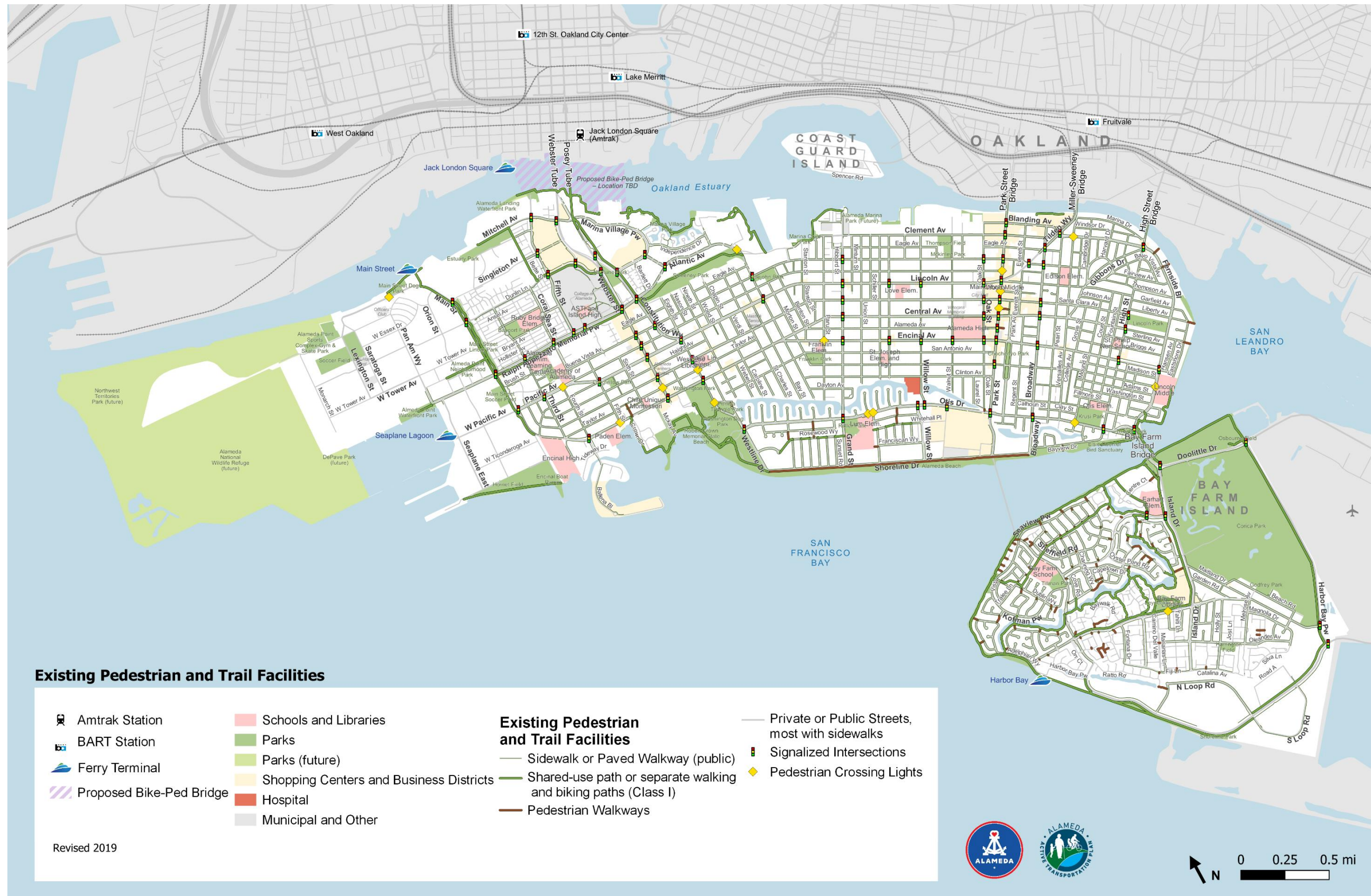


Figure 1. Existing Pedestrian and Trail Facilities

BICYCLE

Alameda has a strong bicycling culture, many people and families who bike and a well-established existing bicycle network upon which to build. Many schools are connected to residential areas by bicycle facilities, and large numbers of students ride their bicycles to school, especially in higher income, lower density neighborhoods.

The City of Alameda's existing bicycle network includes a mix of shared use paths, separated bike lanes, bike lanes (standard and buffered) and bike routes (shared lanes with only signage and painted sharrows). Some facilities, such as the Cross Alameda Trail through Jean Sweeney Open Space Park, are easy and comfortable for most people to use. Other facilities, such as shared lanes and standard bike lanes along major streets, only serve those people willing to ride in and adjacent to high-speed, high-volume vehicular traffic.

The City was an early adopter in the use of "low-stress" bikeway facilities, which are bikeways that are more comfortable for people bicycling because they are either physically separated from traffic or exist on low-speed, low-volume streets. In 2009, the City installed separated bike lanes with concrete curb protection along Fernside Boulevard connecting the Bay Farm Bicycle Bridge to Lincoln Middle School, and, in 2015, separated bike lanes were installed along Shore Line Drive. These were some of the first separated bike lanes in the Bay Area.



Two-way separated bike lane on Shore Line Drive

More recently, best practices nationwide have started to address the challenges and stresses of bicycling through intersections. Alameda installed a new, safer intersection at Otis Drive and Grand Street in 2021: the City's first "protected" intersection.

Reflecting these many investments and the City's strong bicycling culture, in 2021, the City was awarded the silver-level for a Bicycle Friendly Community by the League of American Bicyclists, advancing Alameda to silver from the bronze-level award first given to the City in 2012.



Having ample and easily accessible bike parking and other support facilities can encourage riders to make more trips by bicycle. Alameda has over 650 bicycle racks, most clustered around the city's main commercial districts, and 48 secure, inexpensive bicycle lockers that can park 122 bikes throughout the city, including at all ferry terminals. In 2021, the City's first in-street bicycle parking corrals (six total) were installed along Park Street and Webster Street.

The City of Alameda's existing bicycle network includes approximately 65 miles of bikeways, including new bikeways that are funded and will be built through 2024. Table provides an overview of the existing bikeway mileage in Alameda, and Figure 2 maps these facilities. These facility types are described in Chapter 5.

Table 2. Mileage of Existing Bikeways (Including Bikeways to be Constructed through 2024)

Bikeway Type	Existing Length (miles)	Low-Stress
Shared Use Path	26	✓
Separated Bike Lane	7	✓
Buffered Bike Lane	3	
Bike Lane	18	
Neighborhood Greenway	0	✓
Bike Route	11	
Total	65	

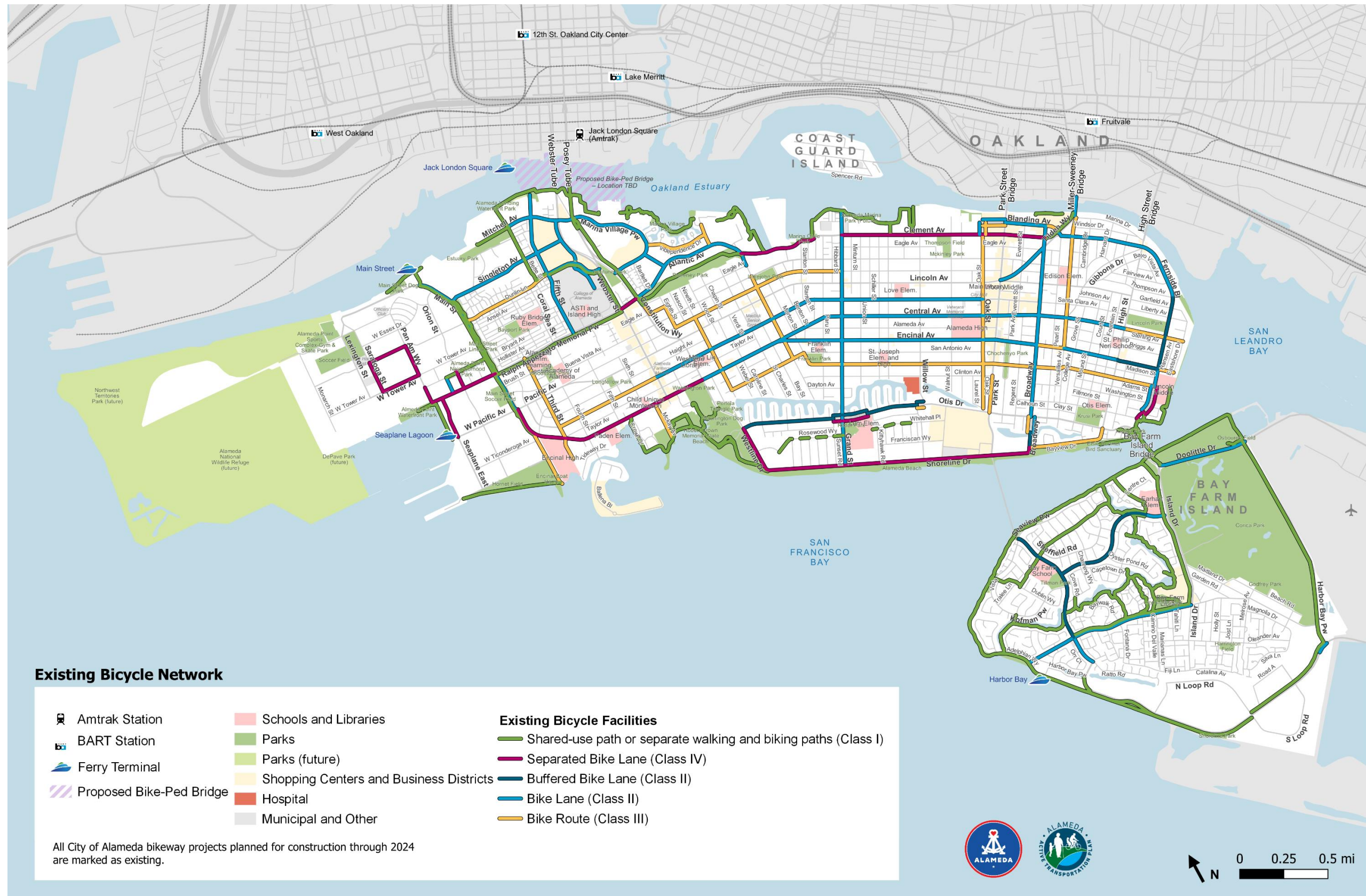


Figure 2. Existing Bicycle Network

SLOW STREETS



In early 2020, Alameda, along with many cities around the nation, implemented a new type of facility, called “Slow Streets,” to facilitate physical distancing during the COVID-19 pandemic. By placing barricades and “no through traffic” signs at select intersections on local streets that were already bicycle routes, automobile traffic was reduced and more space was added for the community to safely walk, run, bike, scooter and roll both for exercise and for transportation. Over a one-and-a-half-year period, 4.7 miles of streets became Slow Streets in Alameda. These Slow Streets have remained in place since then, as places with less and calmer traffic that are still used for bicycling and walking.

What’s next for Slow Streets?

Guided by the recommendations in this Plan and Council direction in December 2021, the existing Slow Streets that are recommended to be Neighborhood Greenways will continue as they are currently, until they transition to Neighborhood Greenways. This effort will be prioritized for the near term using lower-cost infrastructure that can be built quickly. These streets are Pacific Avenue, San Jose Avenue and Versailles Avenue. This transition work will happen in tandem with building out the 2030 Low-Stress Backbone Network that includes other Neighborhood Greenways. The two streets not recommended as Neighborhood Greenways – Santa Clara Avenue and Orion Street – will be removed as Slow Streets shortly after the Plan is adopted.

See Chapter 5 for the proposed Neighborhood Greenways, and a description of this facility type.

See Chapter 8 for the capital project implementation priorities, including transitioning the Slow Streets and the 2030 Low-Stress Backbone Network.

NETWORK STRESS ANALYSES

Community input clearly demonstrates the need for more comfortable biking and walking facilities throughout the city to encourage active travel and increase safety. To better understand existing conditions and where to target improvements, a data-driven analysis of the stress levels of Alameda’s streets was conducted for both active transportation networks. This Level of Traffic Stress (LTS) analysis quantifies the level of traffic discomfort a bicyclist or pedestrian experiences on any given road.⁴

⁴ All network analyses were completed in 2019 and may not reflect the impact of any of the facilities that have been built since completing the analyses.

The Bicycle Level of Traffic Stress (BLTS) helps identify the areas of the city that are not currently served by a low-stress and comfortable bicycle network. It analyzes stressfulness for people riding bicycles based on street characteristics, including the street width, traffic speed and volume and the presence of parking. Roads are rated on a scale of 1 (low stress) to 4 (high stress).

The analysis is based on the perspective of an “Interested but Concerned” person bicycling. Most people in the United States (50-60%) have little tolerance for interacting with motor vehicle traffic while bicycling unless volumes and speeds are low. This has proven to also hold true in Alameda, based on the statistically significant survey conducted in Alameda in 2019 (described earlier in this chapter) which found that 46% of Alamedans fall into the “Interested but Concerned” category (Table 3). While interested in biking, this group of people will generally avoid riding on higher stress streets.

Table 3. Bicycle Comfort Typology of Alamedans

	Not Interested or Able	Interested but Concerned	Somewhat Confident	Highly Confident
Percent of Alamedans	22%	46%	26%	7%

The key takeaways from the BLTS analysis of Alameda streets are listed below.

- » **High-stress major roadways** – Nearly 60% of Alameda’s major roadways (called “arterial streets”) are classified as high-stress (BLTS 3 or 4). Arterials provide important north-south and east-west connections through the city but bicycling on these streets is uncomfortable for the majority of bicyclists. While most local streets are low-stress (BLTS 1 or 2), many people cannot reach destinations using only low-stress bikeways because of the barriers presented by arterials.
- » **Low-stress parallel shared use paths** – Some of Alameda’s high-stress streets, such as Ralph Appezato Memorial Parkway and Island Drive, have parallel shared use paths which provide low-stress alternatives to bicycling on, and walking near, the high-stress arterials. While the shared use paths themselves are low-stress, the connections to the paths from adjacent streets may still be stressful for bicyclists or pedestrians.
- » **Poor low-stress access to commercial areas** – All commercial and shopping areas in Alameda are primarily served by high-stress bikeways. Webster Street and Park Street, the City’s two main commercial areas, have the highest stress rating of BLTS 4.
- » **No low-stress access to Oakland** – All bridges connecting the City of Alameda to the City of Oakland are high stress, and the shared use path in the Posey Tube is extremely narrow and uncomfortable for people walking and bicycling.

The Pedestrian Level of Traffic Stress (PLTS) is a similar analysis to the BLTS, but with a focus on comfort associated with walking adjacent to traffic and when crossing a street. The PLTS for Alameda focused on intersections and mid-block crossings where marked crosswalks are present since Alameda has only a handful of sidewalk gaps. The analysis found that crossings of busy streets with multiple lanes of traffic and travel speeds faster than 25 mph, are higher stress.

For more information on the Level of Traffic Stress analyses for bicyclists and pedestrians, including maps with the LTS ratings, see *Appendix F. Level of Traffic Stress and Trip Potential Analysis*.

SAFETY

Safety is the highest priority for all transportation plans, projects and decisions, per the City's adopted Vision Zero Action Plan. As part of the development of the Action Plan, the City conducted an extensive safety analysis of all crashes over a ten-year period. This Active Transportation Plan relies on the bicycling and walking findings of that crash analysis (included as *Appendix E. Detailed Crash Analysis Report*) to understand the safety needs of people walking and biking.

People walking, rolling and biking are among the most vulnerable road users in Alameda. Between 2009 and 2018, 2,229 people were injured or killed in collisions on streets in Alameda.

- » People walking or biking are involved in 39% of crashes and 62% of life-changing injury crashes, despite comprising only 5% of Alameda's commute-to-work mode share.
- » In 55% of pedestrian crashes, the driver failed to yield to pedestrian (either at a marked or unmarked crosswalk).
- » In 20% of pedestrian crashes, a pedestrian failed to yield right of way to a driver.
- » Bicycle crashes are linked to a wide range of behaviors; however, improper yielding (by both drivers and bicyclists) and improper turning were the most frequently cited traffic violations and were associated with 27% and 14% of bicycle crashes, respectively.
- » The top two behaviors associated with crashes that resulted in a death or life-altering injury were failure to yield to pedestrians and traveling at unsafe speeds.

Pedestrians and bicyclists make up...

5% of Alameda's commute to work mode share

And are involved in...

39% of Alameda's crashes

62% of Alameda's severe crashes

Speed

Vehicle speed was a top factor in crashes and has a large impact on traffic safety in Alameda for all modes. Speed impacts the ability of road users to avoid a crash and higher speeds increase victim injury severity. The impacts are especially significant for crashes between motor vehicles and pedestrians or bicyclists, especially seniors. Dropping vehicle speeds from 30 to 20 miles per hour, for example, reduces the risk of serious injuries and fatalities by more than half.

Street Design

Safely designed streets is a core tenet of Vision Zero. While it is important for all road users to travel safely and follow the law, Alameda's streets must also be designed to minimize the chances of an error causing a life-changing injury or death. Traffic enforcement can change behavior in the very short-term, while street design can provide permanent solutions.

High Injury Corridors

The City's Vision Zero Action Plan used a data-driven analysis to identify street segments that are High Injury Corridors for all travel modes, and also by individual mode, including pedestrian and bicycle. The High Injury Corridor maps show those streets with the highest crash densities and weight crashes by severity. Crashes that resulted in a fatal or life-altering injury receive a higher weight than other injury crashes. Three tiers are mapped, with Tier 1 indicating the streets with the greatest frequency and severity of crashes, as shown in Figures 3 and 4, for pedestrians and bicycles, respectively.

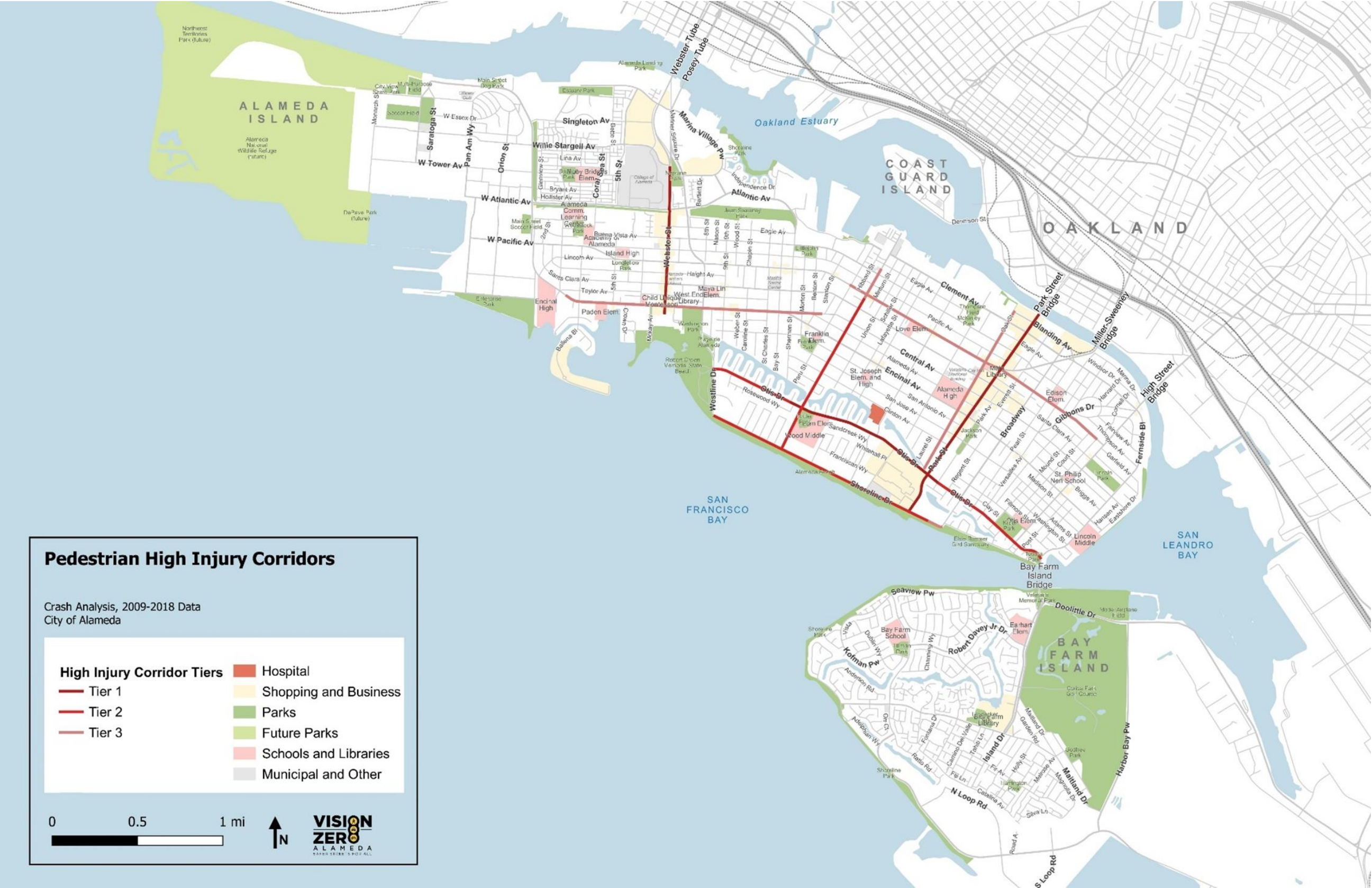


Figure 3. Pedestrian High Injury Corridors

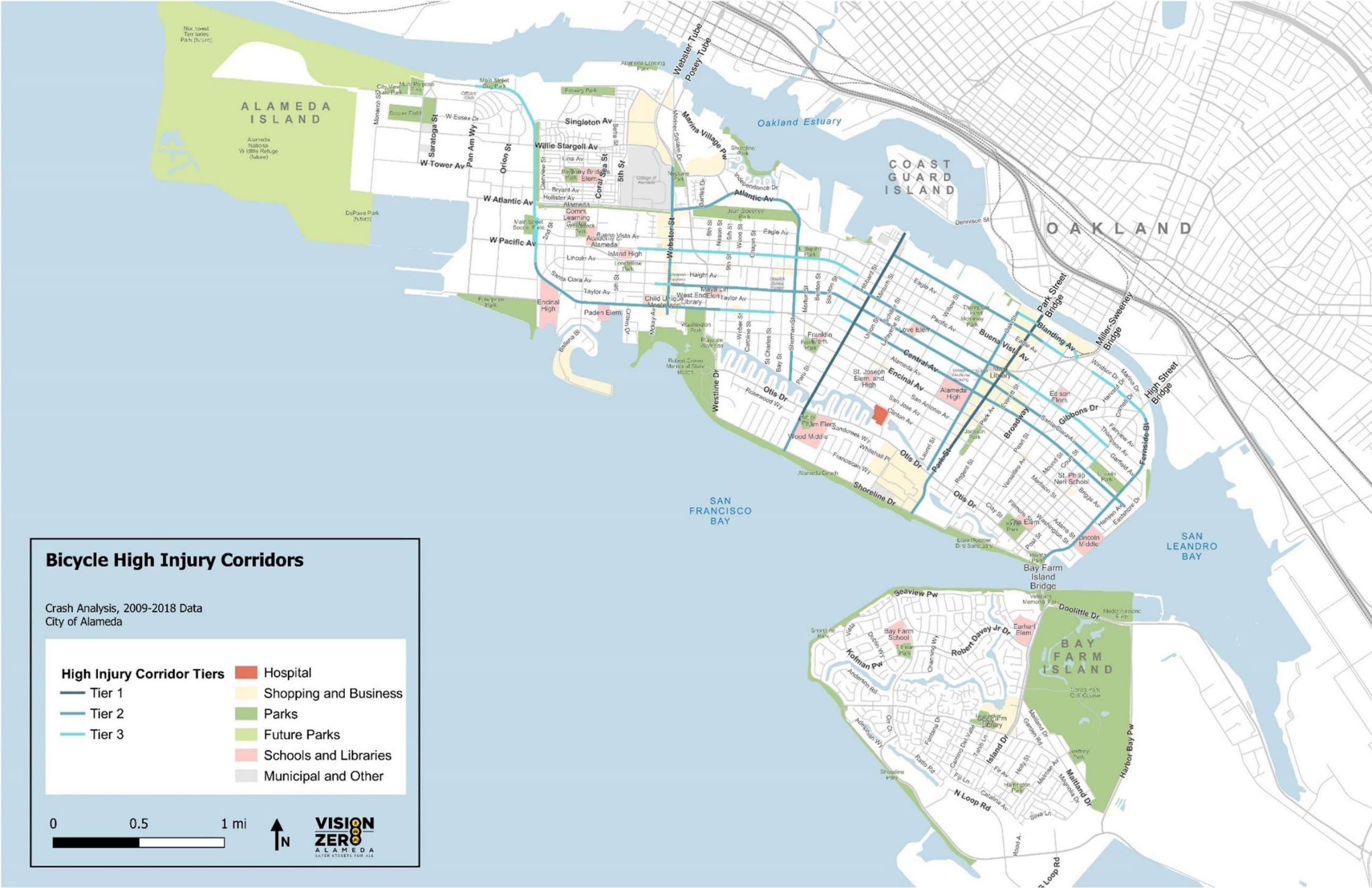


Figure 4. Bicycle High Injury Corridors

OPPORTUNITIES FOR IMPROVEMENT

Alameda's active transportation network, while successful in some ways, can use improvement. The existing pedestrian network is extensive and covers much of Alameda, but there is room to make walking more comfortable, attractive, convenient, and safer for the community. The existing bicycle network covers parts of the city and includes some high-comfort (low-stress) bikeways, but there are significant deficiencies that make traveling by bicycle challenging and discourage its common use by the majority of Alamedans.

Key opportunities for active transportation improvements include:

- Ensuring that busy streets do not create barriers to bicycling or walking, by making them safer to cross, including for people with disabilities;
- Closing gaps in the existing bicycle network and ensuring the network provides direct connections to popular destinations including schools;
- Upgrading existing facilities and adding new facilities to create a low-stress, connected and comfortable bikeway network that serves people of all ages and abilities;
- Improving north-south bikeway connectivity;
- Increasing sidewalk and shared use trail maintenance and making upgrades; and
- Adding and improving pedestrian and bicycle crossings of the estuary.



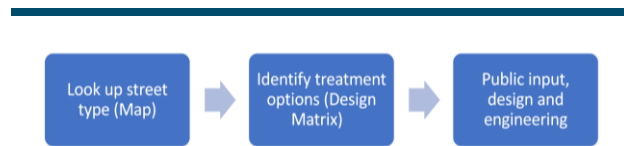
CHAPTER 4: PEDESTRIAN DESIGN STRATEGY

INTRODUCTION

Every street in Alameda needs to be safe and comfortable for pedestrians, but over 80% of Alamedans believe more needs to be done to make it safer to walk in Alameda⁵. This Plan includes a set of specific streets to be improved and maintenance programs to be enhanced (described in Chapters 7 and 8), to make Alameda's streets safer and more comfortable for people, whether they're walking to and from school, a bus stop or their parked car.

DESIGNING FOR PEDESTRIANS

This Plan establishes a three-step process that the City will use when deciding how to improve the design of a street.



Three-Step Process for Designing for Pedestrian Safety and Comfort

1. STREET TYPE

The first step is to determine the street type. Not every street in Alameda serves the same purpose and the improvements that are appropriate may differ based on the street type. This Plan classifies every street in Alameda by its pedestrian characteristics and purpose. The Pedestrian Street Types map (Figure 5) classifies each street in Alameda by one of five pedestrian street types. These types are fully described in Table 4, showing that within each street type, the streets have common physical characteristics and design goals.

Five Pedestrian Street Types

Neighborhood Street: Residential streets with low volumes of motor vehicle traffic

Neighborhood Connector: Cross-town routes with higher motor vehicle volumes

Business Main Street: Retail and services-oriented streets that accommodate high pedestrian volumes

Business Commercial Street: Streets that serve business parks or shopping centers

Gateway Streets: Streets that move people on and off the island using all modes

2. DESIGN MATRIX

For each street type, the Pedestrian Design Matrix (Table 5) presents an array of specific design treatments that are appropriate to implement both along the street and at intersections. These treatments define the possible treatments for the street and reflect national best practices and federal guidelines for improving pedestrian safety⁶. Descriptions and photos of many of these treatments can be found in *Appendix G. Pedestrian and Bicycle Facility Types*. While these treatments are pedestrian-focused, they also benefit people using transit and bicycling.

3. PROJECT DESIGN

The final step is to design the street, using some, but not likely all, of the treatments deemed appropriate for the street type in the Design Matrix. The projects listed in Chapter 8, in addition to the City's regular street maintenance projects, will be designed to reflect the street type of the

⁵ 2019 City of Alameda statistically significant survey of adult residents (16+), described in Chapter 3.

⁶ Treatments reflect guidance presented in the Federal Highway Administration's *Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations* (2018) and the Transportation Research Board's National Cooperative Research Program's *Guidance to Improve Pedestrian and Bicycle Safety at Intersections*.

project location and will include improvements that are appropriate for the applicable street type. The design and treatments selected will consider site specific physical conditions, community input, engineering considerations and available financial resources.

CITYWIDE MAINTAINANCE

Maintaining smooth sidewalk and walkway surfaces, along with safe, visible and functioning street crossings, ensures that the extensive sidewalk network Alameda is comfortable, safe and usable. As described in more detail in Chapter 7, it is imperative to continue to improve upon the City's maintenance programs.

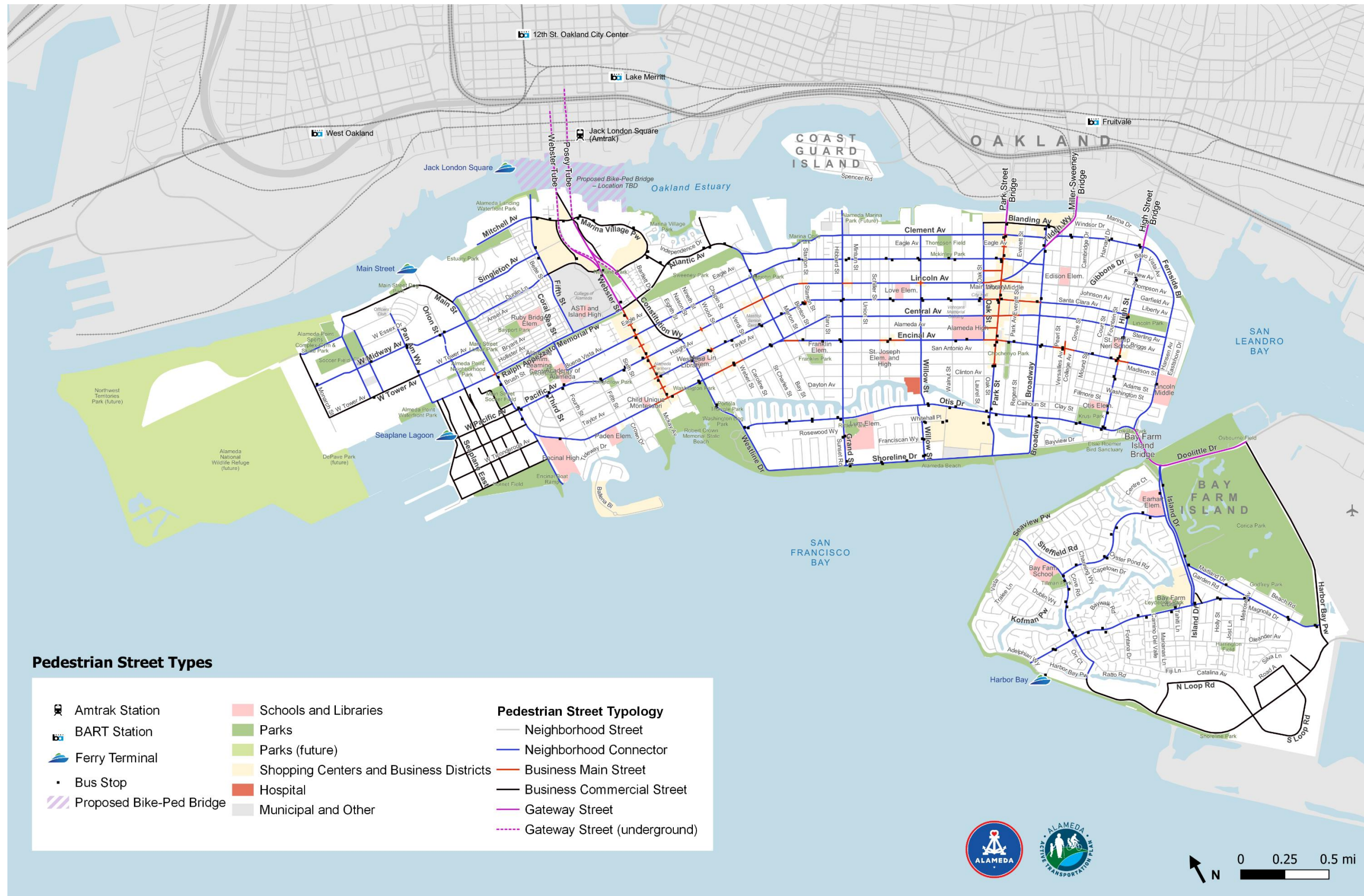







Figure 5. Pedestrian Street Types

Table 4. Pedestrian Street Types

Street Type	Definition	Current Conditions (Typical)	Design Goals	Example Streets	Photo Example
Neighborhood Street	Neighborhood Streets serve residential areas with low volumes of motor vehicle traffic. Walking and socializing are common along these streets. Designs for these streets should focus on encouraging slow speeds, pedestrian safety, a consistent street tree canopy and direct routes to nearby parks, transit and schools.	<ul style="list-style-type: none"> » Two travel lanes without centerline » Residential land use » Relatively low motor vehicle speeds and volumes » Low to medium pedestrian activity » No transit presence » Crossings have a stop bar for vehicles and curb ramps, but are typically not marked 	<ul style="list-style-type: none"> » Continuous sidewalks » Street trees/planter strips » Crossings with ADA-compliant curb ramps » Safety enhancements at major street crossings » Design speeds =< 20 mph 	<ul style="list-style-type: none"> » Peach Street » Pacific Avenue » Verdemar Drive » Bryant Avenue 	 <p>Peach Street</p>
Neighborhood Connector	Neighborhood Connectors serve primarily residential areas, though some neighborhood-serving commercial uses may also be located along them. They are typically cross-town routes with higher motor vehicle volumes, but also have a strong need to safely accommodate and encourage pedestrian activity because of their residential and commercial uses. These streets often have bus stops and are key routes in the transit network. They provide continuous walking routes and connections to other parts of the city. Designs for these streets should emphasize pedestrian safety, safe and frequent crossings clear routes to key destinations and landscaped sidewalk buffers.	<ul style="list-style-type: none"> » At least two travel lanes » May have long block lengths » Medium to high motor vehicle volumes » Motor vehicle speeds may be faster than on Neighborhood Streets » Often has transit service » Marked crosswalks are frequently spaced and ADA-compliant 	<ul style="list-style-type: none"> » Wider sidewalks » Bus shelters and benches » Sidewalk buffer with street trees » Green infrastructure » Crossings have high visibility striping with curb extensions » Traffic signals or flashing beacons are frequently spaced 	<ul style="list-style-type: none"> » Shore Line Drive (Westline Drive to Willow Street) » Encinal Avenue (Willow Street to Oak Street) » Willie Stargell Avenue (Fifth Street to Monarch Street) » Robert Davey Jr. Drive 	 <p>Shore Line Drive</p>
Business Main Street	Business Main Streets serve commercial areas with small and medium-sized businesses. These streets are designed to accommodate significant volumes of pedestrians and foster social interaction. They may include institutional uses. Designs for these streets should create or enhance a safe, inviting and enjoyable pedestrian experience and provide flexible spaces for outdoor dining and support the commercial character of the street.	<ul style="list-style-type: none"> » Shorter block lengths » At least two travel lanes » Signalized crossings throughout » High pedestrian, bicyclist and motor vehicle activity » Often major transit routes » Buildings close to the street » Crossings have curb ramps, are striped, and have crossing signals 	<ul style="list-style-type: none"> » Wider sidewalks » Enhanced streetscape with amenities » Crossings have high visibility markings, curb extensions » ADA-compliant crossing signals that turn green for pedestrians on every signal cycle during high-usage times 	<ul style="list-style-type: none"> » Park Street (San Jose Avenue to Blanding Avenue) » Webster Street (Central Avenue to Ralph Appezzato Memorial Parkway) 	 <p>Webster Street (at Lincoln Avenue)</p>

Street Type	Definition	Current Conditions (Typical)	Design Goals	Example Streets	Photo Example
Business Commercial Street	Business Commercial Streets serve shopping centers, business parks and/or industrial areas. While there may be fewer pedestrians in these locations, these streets may also serve as through-routes to adjacent uses, such as transit or shopping. Design for these streets should focus on safely accommodating pedestrians and providing greater separation from traffic.	<ul style="list-style-type: none"> » At least three travel lanes (in most cases) » Low pedestrian volumes » Buildings generally set back from the curb » Longer block lengths » Dominated by motor vehicle traffic » Sidewalk buffer » May have transit » May have truck traffic » Crossings are marked with ADA-compliant curb ramps 	<ul style="list-style-type: none"> » Continuous sidewalks across driveways » Transit service, if present, has comfortable amenities » Crossings are ADA-compliant with high visibility markings and actuated pedestrian signals 	<ul style="list-style-type: none"> » Harbor Bay Parkway, Main Street (Navy Way to Singleton Avenue) » Atlantic Avenue (Webster Street to Wind River Way) 	 <p>Harbor Bay Parkway</p>
Gateway Street	Alameda's access points are classified as gateways. The primary purpose of Gateway Streets is to move people on and off the island using all modes. These facilities serve high vehicle volumes and provide access to freeways on the mainland. Gateway streets should be considered for transit priority and fully separated bicycle and pedestrian facilities.	<ul style="list-style-type: none"> » Two travel lanes in each direction » Hardened median » May have transit » High visibility crossings » Pedestrian crossing signals » May have sidewalk buffer 	<ul style="list-style-type: none"> » Fully separated pedestrian (and bicycle) facilities » Pedestrian wayfinding » Frequent transit service » Bus benches and shelters » High visibility crosswalks » Curb extensions 	<ul style="list-style-type: none"> » Constitution Way (to Atlantic Street) » Tilden Way (to Blanding Street) » High Street (to Fernside Boulevard) 	 <p>Tilden Way near Miller-Sweeney Bridge</p>
Overlays					
Transit	The Transit Overlay includes all streets with existing transit service, except for bus routes that only serve schools. This layer is meant to reflect AC Transit bus service at the time of project planning. The design of streets in the Transit Overlay should provide easy access to transit for all potential users, including people with disabilities.				
School	The School Overlay includes all streets within 600 feet of a public or private school (K-12). Designs for these streets should prioritize pedestrian safety and comfort considering the specific needs and characteristics of child pedestrians while maintaining the multimodal characteristics of the street.				
Community Destinations	The Community Destinations Overlay includes the perimeter streets of the city plus those streets within one block of public recreation areas and institutions, including parks, libraries, hospitals, senior centers and colleges. Designs for these streets should prioritize pedestrian safety and comfort considering the specific needs and characteristics of pedestrians who are children or older adults, while maintaining the multimodal characteristics of the street.				
Truck	The Tuck Overlay includes truck routes, which are are streets designed to accommodate truck traffic. The routes are defined and mapped in the City's General Plan. These streets may have wider travel lanes and larger turn radii.				

Note: Volume estimates reflect conditions relative to other street types.

Table 5. Pedestrian Design Matrix

Design Treatments ⁿ	Street Types					Overlays				Implementation Feasibility ⁺	FHWA Proven Safety Countermeasure ^s
	Neighborhood Street	Neighborhood Connector	Business Main Street	Business Commercial Street	Gateway	School	Transit	Community Destinations	Truck	III = High; II = Medium; I = Low; ° = Low-cost, rapid implementation option available	
Key: ☑ = Permitted; ☐ = May be appropriate to use, based upon further review, if permitted in overlay or street type, or if other treatments are not effective; - = Not recommended or not appropriate for street type											
<i>Crossing Treatments</i>											
Curb extension	☐	☑	☑	☑	☑	☑	☐	☑	☐	III°	✓
Median refuge island ¹	-	☑	☐	☑	☑	☑	☐	☑	☐	III°	✓
In-street pedestrian crossing sign (paddle sign) ²	☑	☑	☑	☑	-	☑	☑	☑	-	I	✓
Mid-block crossing	-	☑	☑	-	-	☑	☑	☑	☐	III°	✓
Pedestrian Hybrid Beacon (PHB) ³	-	☐	☐	☐	☐	☑	☐	☐	☐	III	✓
Rectangular Rapid Flashing Beacon (RRFB) ³	-	☐	☐	☐	-	☑	☐	☐	☐	II	✓
High-visibility crosswalk marking (i.e., ladder- or continental-style markings)	-	☑	☑	☑	☑	☑	☑	☑	☑	I	✓
Raised crossing ⁴	☑	☐	☐	-	-	☑	☐	☑	-	II	✓
Crosswalk visibility enhancements (advance yield lines, pedestrian yield sign)	-	☑	☑	☑	☑	☑	☑	☑	☑	I	✓
Truck apron	-	☐	☐	☐	☐	☐	☑	-	☑	II°	
Parking prohibition (red curb) near intersection (“Daylighting”)	☑	☑	☑	☑	☑	☑	☑	☑	☑	I°	✓
Daylighting with vertical elements to discourage parking	☐	☑	☑	☑	☑	☑	☐	☑	☐	I°	✓
Pedestrian signal and leading pedestrian interval ⁵	-	☑	☑	☑	☑	☑	☑	☑	☑	II/III°	✓
Pedestrian scramble	-	☐	☑	☐	-	☑	☐	☑	☐	III°	✓
Modern Roundabout	-	☑	☐	☑	☑	☑	☑	☑	☑	III	✓
<i>Corridor Treatments</i>											
Street lighting	☑	☑	☑	☑	☑	☑	☑	☑	☑	III	✓
Sidewalks	☑	☑	☑	☑	☑	☑	☑	☑	☑	III	
Vertical traffic calming (e.g., speed humps and cushions)	☑	☐	-	-	-	☑	-	☑	-	II	
Horizontal traffic calming ²	☑	☑	☐	-	-	☑	-	☑	-	II°	
Neighborhood traffic circle ²	☑	-	-	-	-	☑	-	☑	-	II°	✓

Design Treatments ⁿ	Street Types					Overlays				Implementation Feasibility ⁺	FHWA Proven Safety Countermeasure ^s
	Neighborhood Street	Neighborhood Connector	Business Main Street	Business Commercial Street	Gateway	School	Transit	Community Destinations	Truck	III = High; II = Medium; I = Low; ° = Low-cost, rapid implementation option available	
Key: ☑ = Permitted; ☐ = May be appropriate to use, based upon further review, if permitted in overlay or street type, or if other treatments are not effective; - = Not recommended or not appropriate for street type											
Lower speed limits (20 mph or 15 mph)	☑	☐	-	-	-	☑	-	-	-	II	
Road diet (4 lanes to 3 or 2)	-	☑	☑	☑	☐	☑	☐	☑	☐	III°	✓
Partial traffic diverters (limiting through and left turns) ⁶	☑	☑	-	-	-	☐	-	☐	-	II°	
Streetscape Improvements											
Trees/planter strip	☑	☑	☑	☑	☑	☑	☑	☑	☑	III	
Green infrastructure (e.g., bio-retention areas)	☑	☑	☑	☑	☑	☑	☑	☑	☑	III	
Bus stop amenities (e.g., benches and shelters) ⁷	-	☑	☑	☑	☑	☑	☑	☑	☑	II	
Bus bulb-outs	-	☑	☑	☐	☑	☑	☑	☑	☐	III°	
Street furniture (e.g., benches, art, water fountains and recycling bins)	-	☐	☑	-	☑	☑	☐	☑	☐	I/II	
Pedestrian-scale lighting	☑	☑	☑	-	☐	☑	☑	☑	-	III	✓
Above-ground planters and potted plants	-	-	☑	-	☑	-	☐	☐	-	I	
Sidewalk seating and dining	-	-	☑	-	☑	-	☐	☐	-	I	
Parklets	-	-	☑	-	☑	-	☐	☐	-	II	
Decorative/painted intersections and crosswalks	☐	☐	☑	-	☐	☐	☑	☑	☐	I	
Pedestrian-oriented wayfinding	-	☐	☑	☐	☑	-	☑	☑	-	I	
Pedestrian plazas and closed streets	-	-	☑	-	-	☐	-	-	-	II°	

Notes

ⁿ See *Appendix G. Pedestrian and Bicycle Facility Types* for more information on some of the treatments listed in this table.

⁺ Tiers of implementation feasibility are defined by timeframe, financial cost and impact to right-of-way.

^s Federal Highway Administration (FHWA) Proven Safety Countermeasures are treatments that have been scientifically studied and evaluated to offer safety benefits for road users.

¹ Preferable on streets with operating speeds of at least 30 mph unless in a school or community destination overlay.

² Mostly applicable on streets with posted speeds 25 mph or less. “Horizontal traffic calming” includes treatments such as neckdowns that create a yield condition or chicanes that force automobiles to slow speeds for a winding path of travel.

³ In general, PHBs are reserved for crossings with three or more travel lanes and roadways with 30+ mph posted speeds or higher motor vehicle volumes (9,000+ ADT) and RRFBs are used on one- or two-lane crossings typically with lower motor vehicle volumes and/or 35 mph posted speeds or less. RRFBs should be supplemented with a median crossing island on streets with four or more total travel lanes. Near schools, high-visibility crosswalks can be accompanied by RRFBs and multi-lane (3 or more travel lanes) crossings can be treated with PHBs instead of RRFBs.

⁴ Applicable on streets with posted speeds 30mph or less, ADT 9,000 or less, and less than four lanes.

⁵ Leading pedestrian intervals are recommended at signalized intersections with high pedestrian volumes and high conflicting turning vehicle volumes; pedestrian signals should be applied per CA-MUTCD standards.

⁶ Any possible traffic diversion would be evaluated prior to construction.

⁷ Transit stop improvements are only applicable along transit routes. Prioritize bus shelters at bus stops with the highest ridership.

Sources: Federal Highway Association. *Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations*. 2018. Transportation Research Board. *NCHRP 15-63: Guidance to Improve Pedestrian and Bicycle Safety at Intersections*. 2020.



CHAPTER 5: BICYCLE NETWORK

INTRODUCTION

Who are we planning for?

Everyone! The Plan's Bicycle Vision Network is designed for people of all ages and abilities, particularly people who aren't already biking. While many factors contribute to whether people choose to ride a bicycle for trips like commuting to work or school or running errands, one of the biggest considerations is safety and comfort. Alameda's own statistically significant survey, discussed in Chapter 3, found that nearly half (46%) of city residents would bike more if there were more facilities where they felt safer and more comfortable. This group of people, often called "Interested but Concerned," prefers low-traffic, low-speed streets or separate paths or other facilities that provide protection or physical separation from fast-moving traffic. The other half of Alamedans are either very comfortable with standard bike lanes (33%) or not at all interested in biking (22%). By increasing the miles of low-stress and protected facilities which will serve a largely untapped group of willing riders, Alameda has a much greater chance of increasing the total number of people biking for more of their trips.



The Bicycle Vision Network will create a comprehensive and connected network that is safe, comfortable and enticing for people of all ages and abilities. The network, built upon the assets of the existing network, is designed to provide more direct and comfortable bicycling routes to schools, to improve north-south connectivity, and to create a bikeway network that is comfortable for a greater diversity of people than ride today.

BICYCLE VISION NETWORK

When the Plan's Bicycle Vision Network is complete, Alameda will have more than doubled the cumulative length of its bikeway network. Perhaps more importantly, Alameda will have shifted its network towards one that is comfortable and safe for people of all ages and abilities by increasing the percentage of low-stress bikeways from its current 51% of the network to 72%. The network will be continuous and connected, without major gaps in bikeway facilities, similar to networks for walking and driving.

A total of 67 miles of new or upgraded bikeways and trails are proposed, as shown in Table 6 and Figure 6. Upon completion of the network, the City will exceed the Climate Action and Resiliency Plan (CARP) goal to add 10.4 new miles of previously unplanned bikeways that are of a type expected to shift bicycling behavior.

Table 6. Existing and Proposed Bikeway Mileage°

Bikeway Type from Lowest to Highest Stress	Existing Length (Miles)	Proposed Length (Miles)	Total Length (Miles)*
Shared use paths (and parallel, separated biking and walking paths)	26	14	40
Separated Bike Lane	7	17	24
Neighborhood Greenway	0	19	19
Buffered Bicycle Lane	3	6	8.5
Bicycle Lane	18	7	17
Bicycle Route	11	3	5
Type TBD	0	2	2
Total	65	67	115

°Existing mileage includes all bikeways to be built by 2024.

*Total mileage values do not always reflect the sum of “existing” plus “proposed” because some existing bikeways will be upgraded to different types of bikeways.

The Bicycle Vision Network was developed by reviewing the existing bicycle network and the unbuilt recommendations from the 2010 Bicycle Master Plan, plus a review of community feedback, and network and facility selection best practices, including the Federal Highway Administration’s Bikeway Selection Guide (2019) and the forthcoming American Association of State Highway and Transportation Officials’ Guide for the Development of Bicycle Facilities.

CROSSING IMPROVEMENTS

While the network is focused on determining the appropriate bikeway type for each street, comfortable roadway crossings are key to developing a safe and well-connected bicycle network and are particularly important in creating an all ages and abilities network. Crossing treatments may include protected intersections, neighborhood traffic circles, bicycle signals, rectangular rapid flashing beacons, bike boxes and left-turn boxes. Many of these treatments are described in *Appendix G. Pedestrian and Bicycle Facility Types*. All designs for new and upgraded bikeways will include safe and well-designed crossings, especially of major streets.

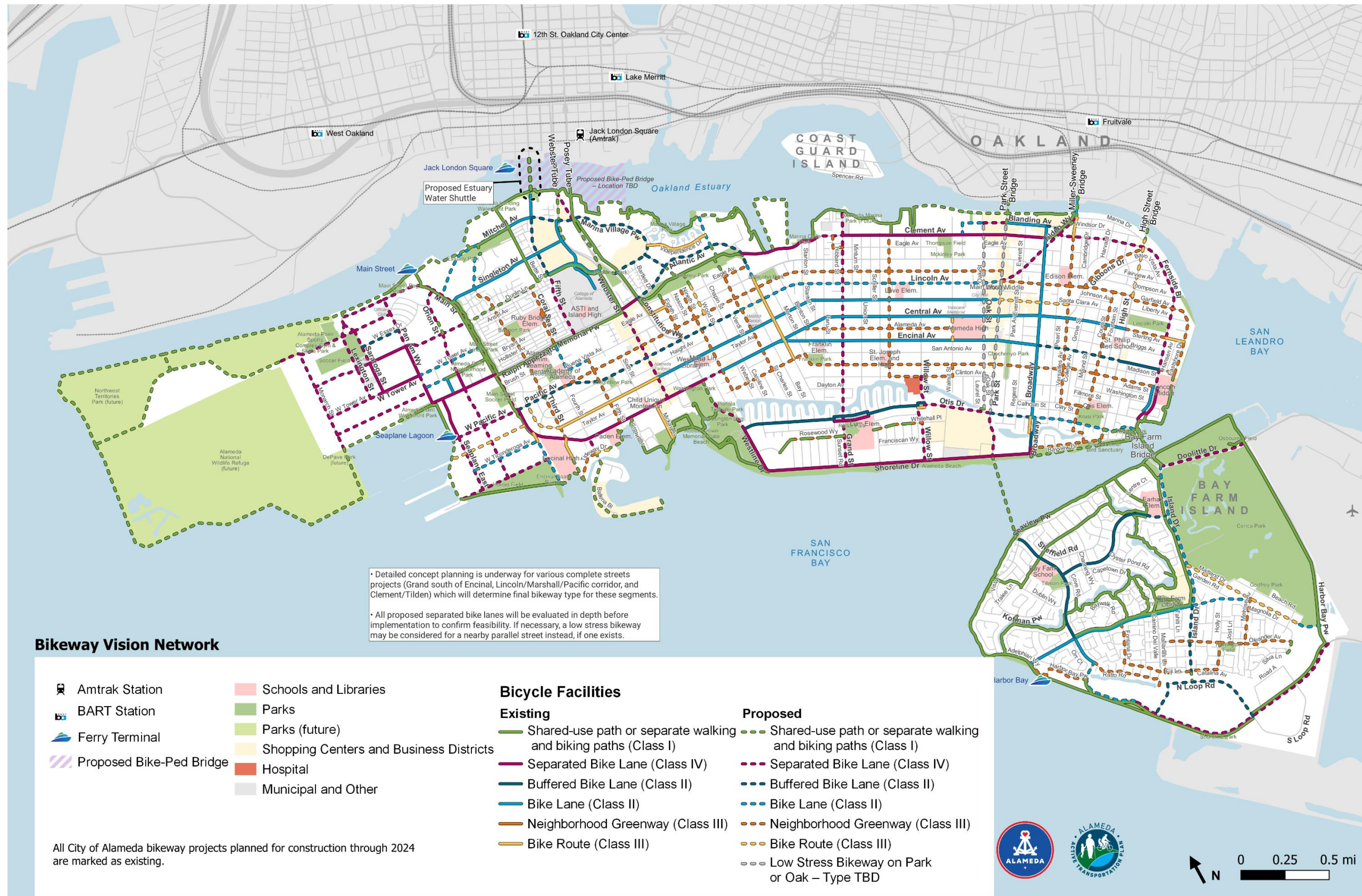


Figure 6. Bikeway Vision Network

DESCRIPTIONS OF BIKEWAY TYPES

The six types of bikeways that make up the recommended Bicycle Vision Network, and their stress level, are described in Table 7 below. While most of these types of bikeways can be found in Alameda today, the recommended network introduces a new-to-Alameda bikeway type: the Neighborhood Greenway. This low-stress facility, which also benefits people walking and living along the street, is described below. In Alameda, the 19 proposed miles of Neighborhood Greenways are a critical component of creating a connected, low-stress network.



Cyclists using a Neighborhood Greenway

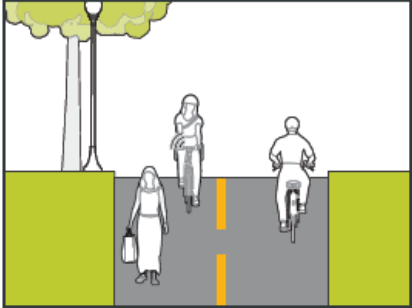
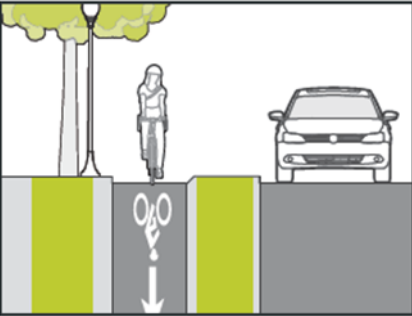

INTRODUCING: NEIGHBORHOOD GREENWAYS

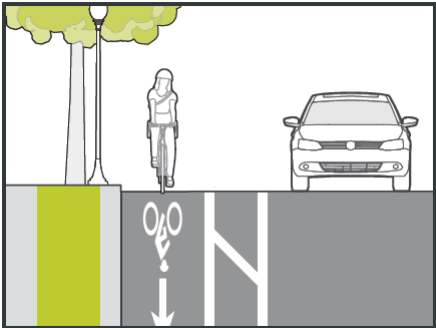
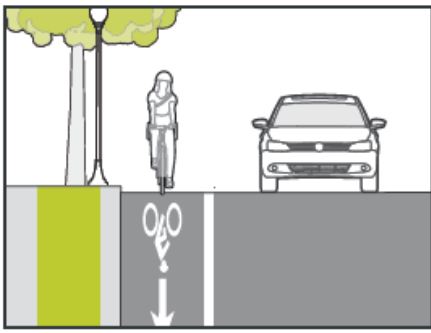
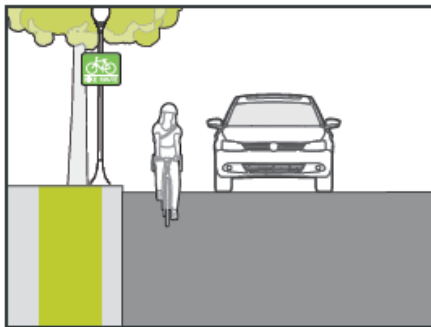
Neighborhood Greenways, sometimes called bicycle boulevards or neighborhood bike routes, are streets designed to give priority to people walking and bicycling, allowing bicyclists and motorists to safely share the road on low-volume, local streets. Used in cities across the country, these comfortable, low stress bikeways additionally improve walking safety and calm traffic.

This Plan sets targets of average daily traffic of 1,500 vehicles or less and a vehicular travel speed of 20 mph for Neighborhood Greenways. Traffic calming measures and crossing improvements at busy streets are used, based on the specific need of each street, to move towards these targets. Using these tools to reduce traffic speeds and volumes, Neighborhood Greenways increase safety for all streets users and improve neighborhood livability.

Neighborhood Greenway treatments may include traffic calming (like speed cushions), traffic reduction treatments (like partial diverters or turn restrictions), pavement markings and wayfinding signs to designate the route. Intersection treatments may include high-visibility crosswalk markings, neighborhood traffic circles, raised crosswalks or Rectangular Rapid Flashing Beacons to make it easier and safer for people bicycling and walking to cross a busy street.

Table 7. Existing and Proposed Bicycle Facility Types in Alameda

Bicycle Facility Type	Description
<p>Shared Use Path</p> 	<ul style="list-style-type: none"> » Off-street pathway designed for use by bicyclists, pedestrians and other active transportation users. » <i>Variation:</i> Parallel but separated biking and walking paths » <i>Stress level:</i> Low. Has the least potential number of interactions between bicyclists and vehicles, compared to other facility types » <i>Caltrans classification:</i> Class I » Examples in Alameda: Bette Street path, Bay Farm Island shoreline trails
<p>Separated Bike Lane</p> 	<ul style="list-style-type: none"> » Designated lane or lanes for bicycles (and other active transportation devices with comparable speeds, such as electric scooters) separated from vehicular traffic and the sidewalk by a vertical element (e.g., flexible posts, planters, parked vehicles, curbs, etc.) <ul style="list-style-type: none"> » The more robust the buffer's vertical and horizontal separation, the more comfortable the separated bike lane is for bicyclists » <i>Variations:</i> Can be one-way, on each side of the street, or two-way, on one side of the street. » <i>Stress level:</i> Low, even on roadways with high vehicle speeds and volumes » <i>Caltrans classification:</i> Class IV » Examples in Alameda: Shore Line Drive, Fernside Drive, Clement Avenue
<p>Neighborhood Greenway</p> 	<ul style="list-style-type: none"> » Bicyclists share travel lanes with vehicular traffic on low-volume, low-speed streets. Treatments may include traffic calming (like speed cushions), traffic reduction treatments (like partial diverters or turn restrictions), pavement markings (like sharrows) and wayfinding signs to designate the route. » <i>Stress level:</i> Low » <i>Caltrans classification:</i> Class IIIB » Examples in Alameda: None yet, but this plan recommends 19 miles of future Neighborhood Greenways

Bicycle Facility Type	Description
<p data-bbox="224 310 561 348">Buffered Bike Lanes</p> 	<ul style="list-style-type: none"> » Bicyclists ride next to vehicular traffic in a lane designated by paint only, with a striped buffer area between the bicyclist and travel lane that neither vehicles nor bicyclists should use. » <i>Stress level:</i> Medium. Can be considered lower stress for most adults, if installed on roadways with vehicle speeds of 30 mph or less and lower traffic volumes. However, stress level can increase with adjacency to on-street parking. » <i>Caltrans classification:</i> Class IIB » Examples in Alameda: portions of Robert Davey Jr. Drive, Fernside Drive, and Willie Stargell Avenue
<p data-bbox="310 795 475 833">Bike Lane</p> 	<ul style="list-style-type: none"> » Bicyclists ride adjacent to vehicular traffic in a lane designated by a painted line only. » <i>Stress level:</i> Medium to High. Stress level can increase with adjacency to on-street parking. » <i>Caltrans classification:</i> Class II » Examples in Alameda: Central Avenue, Broadway, Mecartney Road
<p data-bbox="302 1297 483 1335">Bike Route</p> 	<ul style="list-style-type: none"> » Bicyclists share travel lanes with vehicular traffic. Bicycle route signage and optional pavement markings (e.g., sharrows) are typically included to increase driver awareness of bicyclists and aid bicyclists with navigation » <i>Stress level:</i> Medium to High, depending on amount and speed of vehicle traffic. Stress level can increase with adjacency to on-street parking. » <i>Caltrans classification:</i> Class III » Examples in Alameda: Oak Street, Pacific Avenue, Versailles Avenue



CHAPTER 6: TRAILS NETWORK AND WATER CROSSINGS

INTRODUCTION

As an island community with an extensive waterfront and lagoons, Alameda has a large, invaluable and growing network of trails and walkways for people to get around town and to recreate using active transportation. The Plan's proposed new trails and upgrades to existing trails will provide stronger connections to local and regional destinations, including schools and parks. This Trails Vision Network will:

- » Complete the Cross Alameda Trail and Bay Trail;
- » Install new trails to complete gaps in existing networks;
- » Maintain and upgrade existing trails to be more comfortable and usable; and
- » Improve trail crossings of roadways to make them safer.

Being an island community also requires people walking and biking to cross waterways to leave the island, or traverse between the main island and Bay Farm. This Plan will:

- » Upgrade existing bridges and making them easier to access, safer and more comfortable to use
- » Pursue new crossing options in the west end of the island; and
- » Explore the feasibility of a second bicycle/pedestrian bridge between the main island and Bay Farm.

TRAILS NETWORK

Alameda's extensive trail system includes trails where people walking and bicycling share the trail (called "shared use paths"), parallel but separate walking and bicycling paths, and narrow pedestrian walkways which typically serve as a connector between streets or provide access to the waterfront. These trails can be paved or unpaved, or even made of wood, and sometimes include short bridge connectors.

This Plan proposes 14 miles of new or upgraded trails, almost all of which will improve access to and along the waterfront. The Trails and Water Crossings Vision Network is shown in Figure 7.

Table 8. Existing and Proposed Trail Mileage

Type of Facility	Existing Mileage	Proposed Mileage	Total Mileage
Shared use path (or separate bicycle and walking paths)	26	14	40
Off-street Walkway (paved)	8	0	8
Off-street Walkway (unpaved)	4	0	4
Total	38	14	52

For the list of proposed trail segments and more information about them, see *Appendix A. Active Transportation Project Prioritization*.

MAINTENANCE AND UPGRADES

Alameda's existing trail network is in need of maintenance and upgrades. Many of Alameda's trails are in poor condition due to their age, tree root uplift and a lack of regular maintenance. In addition to this, many of the City's shared use trails are narrow and not built to meet current levels of demand. A safe trail system also requires safe and consistent crossing treatments at roadways. As part of this Plan, the City conducted a limited inventory of existing trail conditions which will serve as the starting point for developing a trail maintenance and upgrade project to improve the safety and comfort of Alameda's existing trails.

BAY TRAIL AND CROSS ALAMEDA TRAIL

Alameda has two major trail systems – the San Francisco Bay Trail and the Cross Alameda Trail – which are made up of a variety of low-stress walking and bicycling facility types, including trails, sidewalks and separated bike lanes.

The Bay Trail is a regional asset that, when complete, will connect cities around the Bay Area. In Alameda, approximately 17 miles of the Bay Trail route are existing, with another 12 miles needed to complete the portion of the Bay Trail planned for Alameda, as shown in Figure 8. This Plan recommends a significant re-routing of the current adopted Bay Trail route in Alameda to match recent waterfront development opportunities and a new regional focus on the trail being as close to the waterfront as possible, even if that means the facility may not be feasible for many years. In situations where shared use paths are not deemed feasible even in the long-term, on-street bikeways are proposed with adjacent sidewalks.

The Cross Alameda Trail, first conceived in 1991, is a continuous, low-stress four-mile corridor between the Seaplane Ferry Terminal to the west and the Miller-Sweeney Bridge to the east. Over 70% of this trail is now complete, with full completion expected within three or four years. The trail significantly improves east-west connectivity throughout the city and provides sustainable connections to transit, schools and commercial areas.



Cross Alameda Trail along West Atlantic Avenue

WATER CROSSINGS

Of Alameda's five bridges and two estuary tubes, only one facility, the Bay Farm Island Bicycle Bridge, includes adequate space for bicycling and walking separated from vehicles. To encourage sustainable travel on and off the island for work, school, transit, entertainment or exercise, more options are needed to cross the estuary safely and comfortably by bike and foot.

CREATE NEW WEST END CROSSINGS

West of Park Street, the only estuary crossing option for walking or biking between Alameda and Oakland is along the two-way, three-foot pathway in the Posey Tube. Few people, understandably, use this option. Several projects are being planned that would bridge this gap in the west end, benefiting not just Alameda, but the region.

- » The **Oakland-Alameda Bicycle/Pedestrian Bridge**, first recommended in a 2009 study, has been estimated to serve 35,000-42,000 trips per week⁷, by creating a comfortable, safe and enjoyable connection between Alameda, Jack London Square, Downtown Oakland, BART and Amtrak. While this regional long-term project will ultimately require leadership and resources from county, regional and state agencies, in 2022 the City is leading a \$1.55 million planning study to move the project forward by further defining bridge alignment and landing options.
- » A **water shuttle** between Alameda and Oakland is the near-term option for a sustainable estuary crossing in the west end. A first step will be a pilot water shuttle service, partially funded with private funds.
- » The **Webster Tube Path**, while not the long-term crossing solution, will be a new four-foot path, similar to the Posey Tube path, in the Webster Tube. The project is led by Caltrans as part of a larger set of improvements connecting the Posey Tube to Interstate 880, called the Oakland Alameda Access Project, and is expected to be completed in 2027.



Rendering of the proposed Oakland-Alameda Bicycle/Pedestrian Bridge

⁷ Estuary Crossing Study: Detailed feasibility and travel demand analysis. January 25, 2021. Found here: www.alamedaca.gov/bridge.

UPGRADE AND EXPAND EAST END CROSSINGS

- » The **Miller-Sweeney Bridge**, one of the three existing bridges to Oakland, is prioritized for high-quality, low-stress bicycling and walking facilities, either through a retrofit or replacement of the bridge, or a re-use of the Fruitvale Railroad bridge corridor. The bridge connects Alameda to the Fruitvale BART station.
- » The **Park Street and High Street Bridges** are both proposed to have low-stress biking and walking facilities, such as shared use paths. Of these two bridges, the Park Street Bridge is a higher priority, given its direct connection to Downtown Oakland.
- » The **Bay Farm Island Bicycle Bridge** is a key link between the main island and Bay Farm Island and is heavily used by middle and high school students. Trail upgrades and safety enhancements are needed on the access routes on either side of the bridge.
- » The **Wooden Bridge**, running underneath the Bay Farm Island auto bridge, connects the Bicycle Bridge to the Bay Farm Island community. While it will ultimately be replaced as part of the Bay Farm Island Flood Protection and Coastal Resilience project, maintenance of the wooden surface is needed in the near term.
- » The **Shoreline to Seaview Bridge**, newly proposed in the 2021 General Plan, will connect the base of Park Street to Bay Farm Island near Seaview Parkway, providing a more direct route between the centers of Bay Farm Island and the main island. A first step will be to study the feasibility of this new concept.



Figure 7. Trails and Water Crossings Vision Network



Figure 8. Bay Trail Route



CHAPTER 7: PROGRAMS

INTRODUCTION

Achieving the Active Transportation Plan vision and implementing the citywide General Plan and Climate Action and Resiliency Plan goals will require both physical improvements to Alameda's infrastructure (described in the next chapter) as well as programs to support and encourage active transportation and create a thriving culture of walking, rolling and biking.

Table 9 lists the priority programs necessary to support active transportation in Alameda for the next eight years. These programs support and supplement the capital projects described in the next chapter, and they support all five plan goals: Safety, Equity, Connectivity and Comfort, Community, and Mode Shift.

Each program listed below includes a relative cost and timeframe for implementation. The programs are listed in order by timeframe, and not by priority. Programs are divided into three timeframes:

- » Near-term: Top priority for implementation between 2023 and 2025
- » Medium-term: Implementation between 2026 and 2030
- » Ongoing: These efforts are underway and expected to continue into the future

Costs are displayed in relative terms as follows:

- » **\$**: Relatively inexpensive actions that can likely be completed using existing staff and resources
- » **\$\$**: Somewhat expensive actions that may require hiring additional staff or contractors and/or purchasing additional equipment or services
- » **\$\$\$**: Relatively expensive actions, such as infrastructure improvements requiring extensive design and construction resources



Children at a bicycle education event in Alameda Point

Table 9. Recommended Programs

Program	Goals	Cost	Timeframe
Near-Term Programs			
P.1. Regularly provide free or discounted bicycle repairs and maintenance via a local non-profit, such as the BikeMobile, and/or through partnerships with local bike shops.	Equity, Safety, Mode Shift	\$\$	Near-term
P.2. Support and promote local, regional and state electric bike rebate programs for low-income individuals.	Equity, Community, Mode Shift	\$	Near-term
P.3. Develop a toolkit to achieve Neighborhood Greenway volume and speed targets using volume management and traffic calming tools.	Connectivity and Comfort, Safety, Mode Shift	\$	Near-term
P.4. Develop and implement a maintenance schedule for bikeway infrastructure, including striping and separated bike lane barriers.	Connectivity and Comfort, Safety, Mode Shift	\$\$	Near-term
P.5. Develop guidance on integrating maintenance considerations during project development, planning, and design phases for bicycle and pedestrian projects.	Connectivity and Comfort, Safety, Mode Shift	\$	Near-term
P.6. Support state legislation that would allow bicyclists to legally use leading pedestrian interval (LPI) traffic signal phases.	Connectivity and Comfort, Safety, Mode Shift	\$	Near-term
P.7. Update existing City design guidelines for bicycling and walking facilities to reflect best practices and the range of new types of infrastructure.	Connectivity and Comfort, Safety, Mode Shift	\$	Near-term
P.8. Develop a data-driven school crossing guard policy that provides guidance on where to locate crossing guards and, in partnership with other public agencies, adequately fund the program.	Connectivity and Comfort, Safety, Mode Shift	\$\$	Near-term
P.9. Develop signage and educational materials about securely locking bikes and using services such as Bike Index to reduce bike theft. Disseminate materials via community partners and public-facing City agencies, social media and web sites.	Community, Mode Shift	\$	Near-term
P.10. Install additional bike parking throughout Alameda, including in-street bike corrals and parking that accommodates longer wheelbase cargo bicycles.	Community, Mode Shift	\$\$	Near-term

Program	Goals	Cost	Timeframe
P.11. Evaluate current bikeshare (standard and electric), scooter share and other micro-mobility options, and establish programs and policies for their operations in Alameda. Include discounts for low-income residents.	Community, Mode Shift, Equity	\$\$	Near-term
P.12. Develop and distribute materials that educate the community on the benefits of electric and cargo bikes and promote programs that provide rebates for electric bikes.	Community, Mode Shift	\$	Near-term
P.13. Revise the Bicycle Chapter in Alameda’s municipal code to reflect current laws and practices, support safe bicycling in Alameda, eliminate bicycle registration requirement and discourage motorists from parking or idling in bike lanes.	Community, Safety	\$	Near-term
Medium-Term Programs			
P.14. Partner with other organizations to provide free or low-cost bike gear for low-income and unhoused residents, including children, to enable safe riding practices; include high-quality locks, lights and helmets.	Equity, Safety, Mode Shift	\$\$	Medium-term
P.15. Develop strategies to assist and incentivize property owners to repair their sidewalks across the City, such as: <ul style="list-style-type: none"> » Develop voluntary “opt-in” neighborhood-scale sidewalk repair efforts, allowing Public Works to help property owners address sidewalk maintenance; batching sidewalk repairs across a neighborhood creates an economy of scale and potential cost savings. » Evaluate requiring sidewalk repair when properties are sold as a condition of sale. » Evaluate establishing a revolving “micro-loan” fund, with options for deferred payment when properties change hands. 	Connectivity and Comfort, Safety, Mode Shift	\$	Medium-term
P.16. Identify priority intersections for bicycle video detection and implement.	Connectivity and Comfort, Safety, Mode Shift	\$\$\$	Medium-term
P.17. Increase training opportunities for Public Works and Transportation Planning staff directly involved in the planning and design of bicycle and pedestrian facilities on best practices for infrastructure design, implementation and maintenance.	Connectivity and Comfort, Safety, Mode Shift	\$	Medium-term
P.18. Where needed, install infrastructure such as benches, shelters, safe pedestrian crossings and lighting along bus transit lines, prioritizing high-frequency bus corridors, equity priority areas and stops near senior centers and schools.	Connectivity and Comfort, Safety, Mode Shift	\$\$	Medium-term

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Program	Goals	Cost	Timeframe
P.19. Encourage and support partner organizations to develop temporary street closure programs, such as Sunday Streets, to provide safe and fun places for people to walk, bike, roll, and gather, such as on Shore Line Drive, Harbor Bay Parkway, or Ferry Point.	Community, Mode Shift	\$\$	Medium-term
P.20. Investigate opportunities to create pedestrian-only spaces for outdoor dining and community gathering for special events or longer term.	Community	\$	Medium-term
P.21. Continue partnering with Bike Walk Alameda on development of the printed walking and biking map of Alameda, and create an online bicycling map.	Community, Mode Shift	\$\$	Medium-term
P.22. Develop program guidelines for street art and placemaking, such as painted bulb-outs, in-street bike corrals and intersections.	Community	\$	Medium-term
P.23. Develop and implement a citywide wayfinding signage program, including trail systems.	Community, Mode Shift	\$\$	Medium-term
P.24. Expand the number of free-standing bike repair stations in Alameda, focusing on equity priority communities.	Community, Mode Shift	\$\$	Medium-term
P.25. Continue to support the community-wide celebration of the annual Bike to Work Day and encourage a wider focus on more than just work trips and develop an annual event to promote walking.	Community, Mode Shift	\$	Ongoing/ Medium-term
Ongoing Programs			
P.26. Regularly engage underrepresented groups and equity priority communities through listening sessions and other engagement efforts, and incorporate their input into project and program selection, design, funding and implementation recommendations.	Equity, Community	\$\$	Ongoing
P.27. Implement a regular sweeping schedule for bicycle/pedestrian facilities, including streets with standard and separated bike lanes, bicycle and pedestrian paths and walkways.	Connectivity and Comfort, Safety, Mode Shift	\$\$	Ongoing
P.28. Continue implementing the <i>Signalized Intersection Access Equity</i> policy and communicate about implementation status.	Connectivity and Comfort, Mode Shift	\$	Ongoing
P.29. Document the impacts of pedestrian and bicycle capital projects and programs on safety and mode shift. Conduct before-and-after studies of projects using a consistent methodology.	All	\$\$	Ongoing

Program	Goals	Cost	Timeframe
P.30. Partner with the Countywide SR2S Program, local schools and community organizations to continue the annual Bike Festival.	Community, Mode Shift	\$\$	Ongoing
P.31. Continue to collaborate with and promote the Alameda County Safe Routes to Schools (SR2S) programs and events that encourage safe walking/biking to school, including International Walk and Roll to School Day, and Bike to School Day.	Safety, Community, Mode Shift	\$	Ongoing



CHAPTER 8: 2030 INFRASTRUCTURE PLAN

INTRODUCTION

To achieve the vision and goals described in Chapter 2, the City and the community of Alameda must commit themselves and their available resources to quickly making changes to the city's transportation infrastructure and facilities to support active transportation. This chapter identifies an ambitious set of capital improvement project priorities for the next eight years (2023-2030) to do that, in tandem with the programs presented in Chapter 7. Recognizing the key link between active transportation and greenhouse gas emission reductions, the 2030 timeline coincides with the city's 2030 targets for greenhouse gas reductions established by the Climate Action and Resiliency Plan.

The 2030 Infrastructure Plan, a set of 30 projects described in Table 10, is designed to:

- » Construct a **Low-Stress Backbone Network** (Figure 9) by 2030. This Backbone Network is a selected subset of the proposed low-stress facilities included in the Bicycle Vision Network (Figure 6 in Chapter 5) that, together with existing and planned shared use paths and separated bike lanes, provides the essential "backbone" of a complete, connected bicycle network that will serve people of all ages comfortably and safely in getting to their destinations, including to schools, parks, transit, bridges, shops and jobs. Alameda's newly added bikeway type, Neighborhood Greenways, are integral to building the network.
- » Reduce bicycle and pedestrian fatalities and severe injuries.
- » Reduce greenhouse gas emissions as a larger number of shorter trips are completed on foot or on bicycle, including when accessing transit, instead of by automobile.
- » Prepare the city for future actions and longer-term improvements past the eight-year horizon that will be necessary to address longer term climate change and transportation goals.
- » Establish a plan to phase out the Slow Streets program, created during the pandemic, by building the Low-Stress Backbone Network.

The project evaluation and rigorous prioritization process that informed the selection of the projects in the 2030 Infrastructure Plan is described in detail in *Appendix A. Active Transportation Project Prioritization*.

AVAILABLE FUNDING AND CITY RESOURCES

The 2030 Infrastructure Plan represents a major commitment of resources by a variety of agencies and partners, including the City of Alameda. Completion of it will require partnerships with federal, state and regional transportation agencies that fund and construct active transportation projects, as well as with local property owners and development partners that construct projects on private property and the adjacent public rights of way. Some projects, such as the Encinal Avenue project (Project #29), will be completely funded and constructed by another public agency (in this case, Caltrans). Other projects, such as the Northern Waterfront Bay Trail Gap Closures (Project #30) or the recently built Clement Avenue separated bike lanes (from Grand Ave to Willow Street), will be funded and constructed by a property owner developing the adjacent private lands. Many projects, such as the Central Avenue Safety Project (Project #2), are funded by federal and state sources with a City of Alameda "local match" contribution, and the project is managed and constructed by the City. Some smaller projects will be funded and constructed entirely by the City. The City currently funds, either fully or partially, many

active transportation projects and programs each year with local transportation sales tax funding from Alameda County's Measure BB.

A significant limiting factor on how many projects can be constructed in Alameda in any one year is the capacity of the existing staff and community to:

- » Develop and come to agreement on a project design;
- » Develop the necessary construction documents, which often require extensive review by funding agencies;
- » Hire and manage the construction contractors; and
- » Address community inquiries during the construction process.

Each of these steps is time intensive, especially for larger projects. This Plan does not recommend that the City hire new full-time staff, but rather that, with the cooperation and support of the Alameda community, the projects in the 2030 Plan can be completed with existing staff resources. However, if over the course of the eight-year period, new projects are prioritized for implementation, it will most likely be necessary to remove a project from the 2030 Infrastructure Plan.

MONITORING AND EVALUATION

In addition to working with regional and local partners to fund and construct the proposed projects, and to implement the programs in Chapter 7, it will be important that the City annually monitor both the progress made on the 2030 Plan and the effectiveness of the actual projects and programs. The objective of the 2030 Plan is to achieve the five goals of: 1) Safety, 2) Equity, 3) Mode Shift, 4) Connectivity and Comfort and 5) Community. The Performance Measures in Table 11 present the measures and data sources recommended to evaluate the effectiveness and benefits of the investments made. This annual process will be critical to enabling the City and community of Alameda to make adjustments to the 2030 Plan during the eight-year period, if necessary. Those adjustments can be made during the City's biannual Capital Improvement budget adoption and at each mid-cycle budget review, which occurs annually.

Table 10. 2030 Infrastructure Plan

	Project	Outcome by 2030	Ped	Bike	Trails	2030 Low-Stress Backbone Network
1	Clement Avenue: Cross Alameda Trail Gap Closures (Ohlone to Tilden Way to Miller-Sweeney Bridge) <i>Pedestrian safety improvements, separated bike lanes and shared use paths</i>	Constructed by City and development partners	X	X	X	X
2	Central Avenue Safety Project (Pacific Ave to Sherman St) <i>Pedestrian improvements on full corridor, separated bike lanes and bike lanes</i>	Constructed	X	X		X

	Project	Outcome by 2030	Ped	Bike	Trails	2030 Low-Stress Backbone Network
3	Grand Street (Shore Line Dr to Clement Ave) <i>Pedestrian safety improvements and separated bike lanes</i>	Complete construction in two phases, north and south of Encinal Ave	X	X		X
4	Alameda Point Bicycle and Pedestrian Improvements [All streets within Site A and West Midway areas, and on Pan Am, Saratoga and West Redline to new Veterans Affairs (VA) facility and Northwest Territories] <i>Sidewalks, pedestrian safety improvements and separated bike lanes</i>	Complete construction by City, development partners, and VA	X	X	X	
5	Lincoln/Marshall/Pacific Corridor Improvements (Main St to Broadway) <i>Pedestrian safety improvements and mix of buffered and standard bike lanes and Neighborhood Greenways</i>	Constructed	X	X		X (partial)
6	Willie Stargell Avenue Safety Improvements (Main St to Fifth St) <i>Shared use path and pedestrian safety improvements</i>	Constructed	X	X	X	X
7	Park Street and/or Oak Street Corridor (Full extents) <i>Initial Phase: Low-cost, quick-build, low-stress facility on selected corridor, and pedestrian safety improvements</i> <i>Final Phase: Low-stress facility on selected corridor, and pedestrian safety improvements</i>	Initial Phase: Complete initial improvements. Final Phase: Complete plan, for future construction post-2030.	X	X		X

	Project	Outcome by 2030	Ped	Bike	Trails	2030 Low-Stress Backbone Network
8	Webster Street (Atlantic Ave to Central Ave) <i>Initial Phase: Bicycle lanes (standard and buffered) and pedestrian safety improvements</i> <i>Final Phase: Separated bike lanes and pedestrian safety improvements</i>	Initial Phase: Complete construction Final Phase: Complete plan, for construction post-2030.	X	X		X
9	Oakland-Alameda Bicycle-Pedestrian Bridge (West Alameda to Oakland)	Complete Project Initiation Document (PID), and identify Lead Agency for all future phases. Construction by others post-2030	X	X	X (Bay Trail)	
10	Miller-Sweeney Bridge <i>Initial Phase: Add bicycle lanes (standard) to bridge</i> <i>Final Phase: Select long-term option for adding shared use path or protected bicycle lanes.</i>	Initial Phase: Build bike lanes (by Alameda County) Final Phase: Select long term option, for construction post-2030.	X	X	X (Bay Trail)	
11	Bay Farm Bike Bridge Access Upgrades <i>Upgrades to path surfaces, street crossings and Wooden Bridge</i>	Constructed	X	X	X (Bay Trail)	X
12	Pacific Avenue (Marshall Way to Park St) <i>Neighborhood Greenway, including transition of the Slow Street portion, in near term</i>	Constructed	X	X		X
13	Fifth Street (Ralph Appezzato Memorial Parkway to Stargell Ave) <i>Separated bike lanes</i>	Constructed		X		X
14	Third Street (Central Ave to Ralph Appezzato Memorial Parkway) <i>Neighborhood Greenway</i>	Constructed	X	X		X

	Project	Outcome by 2030	Ped	Bike	Trails	2030 Low-Stress Backbone Network
15	Eighth Street (Jean Sweeney Park to Pacific Ave) <i>Neighborhood Greenway</i>	Constructed	X	X		X
16	Ninth Street (Pacific Ave to San Antonio) <i>Neighborhood Greenway</i>	Constructed	X	X		X
17	San Antonio Avenue/San Jose Avenue/Morton St (Ninth to Fernside) <i>Neighborhood Greenway, including transition of the Slow Street portion on San Jose/Morton, in near term</i>	Constructed	X	X		X
18	Chestnut Street (Clement Ave to San Jose Ave) <i>Neighborhood Greenway</i>	Constructed	X	X		X
19	Lincoln Avenue/Garfield Avenue (Park to Fernside) <i>Neighborhood Greenway</i>	Constructed	X	X		X
20	Fernside Boulevard (Tilden to San Jose) <i>Separated bike lane and pedestrian safety improvements</i>	Constructed	X	X	X (Bay Trail)	X
21	Versailles (Fernside to Calhoun), Calhoun (Versailles to Mound), Mound (Calhoun to Waterton), Waterton (Mound to Court), Court (Waterton to Bayview) <i>Neighborhood Greenway, including transition of the Slow Street portion on Versailles Ave, in near term</i>	Constructed	X	X		X
22	Bayview Drive (Broadway to Otis Dr) <i>Neighborhood Greenway</i>	Constructed	X	X		X
23	Eighth Street/Westline Drive (Otis Dr to Central Ave) Plan bike and pedestrian improvements and secure funding	Plans complete and funding secured		X	X	
24	Neptune Park Path (Webster St to Constitution Way) <i>Shared Use Path</i>	Constructed	X	X	X	

	Project	Outcome by 2030	Ped	Bike	Trails	2030 Low-Stress Backbone Network
25	Sidewalk gaps completion (Various) <i>Add sidewalks where missing at key gaps, as funding allows</i>	Constructed	X			
26	Trail maintenance and upgrades (Various) <i>Maintain and upgrade shared use trails, based on prioritization criteria</i>	Constructed			X	
27	Safe Routes to School Access Improvements (Various) <i>Complete improvements recommended in School Site Assessments</i>	Constructed	X	X		
27	Oakland Alameda Access Project <i>Upgrades to existing paths to and within Webster and Posey Tubes</i>	Constructed by Caltrans	X	X	X	
28	Otis Drive/Doolittle Drive Resurfacing and Improvements <i>Pedestrian safety improvements, bike lanes (standard) and separated bike lanes</i>	Constructed by Caltrans	X	X	X	
29	Encinal Avenue Resurfacing and Road Diet (Sherman St to Broadway) <i>Pedestrian safety improvements and bike lanes (standard)</i>	Constructed by Caltrans	X	X		
30	Northern Waterfront Bay Trail Gap Closures (At Wind River, Encinal Terminals, Alameda Marina and Boatworks) <i>Shared use trails</i>	Constructed by Property Owners			X (Bay Trail)	

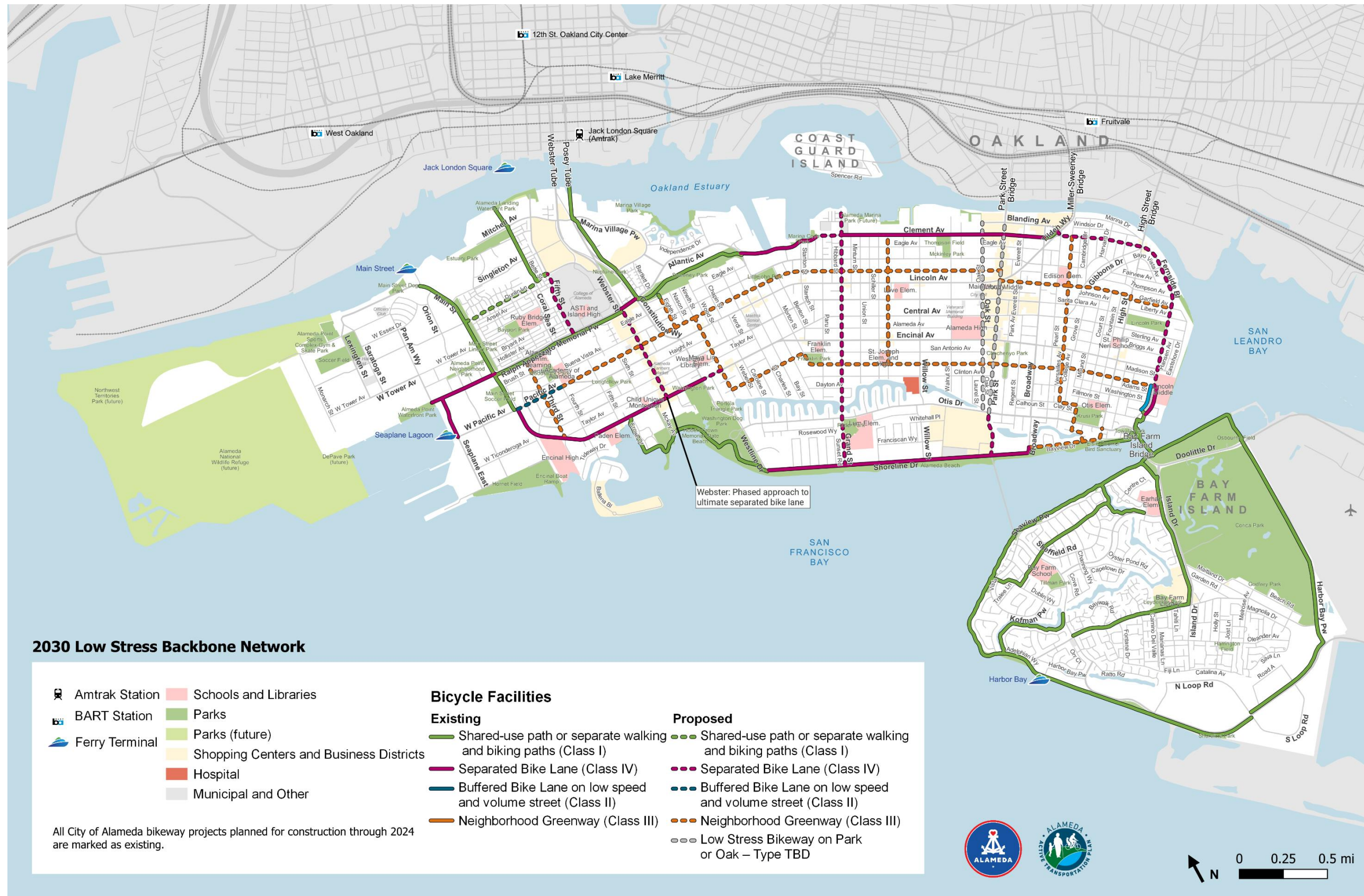


Figure 9. 2030 Low Stress Backbone Network

ONGOING EVALUATION

Performance measures will be used to track the effectiveness of the various projects, programs, and investments presented in this Plan. Quantifiable data is needed to knowledgeably evaluate effectiveness. Based upon these future evaluations, the City and community will be able to make adjustments on an annual basis through the City's budgeting process. Staff will report on the performance measures and progress on relevant actions annually. Further, this Plan will be updated in five years, at which time further adjustments may be made in response to the evaluation findings.

Table 11. Active Transportation Plan Performance Measures

Goal		Performance Measures	Data Source(s)
Safety	Increase the safety of all people using active transportation.	<ul style="list-style-type: none"> » Number of people walking or bicycling involved in crashes that resulted in an injury.° » Percent of people who feel safe walking and biking. 	<ul style="list-style-type: none"> » Police Department Reports » Alameda City Community Survey
Equity	Prioritize active transportation investments in underserved communities and actively engage underrepresented groups in the planning process.	<ul style="list-style-type: none"> » Percent of active transportation improvement projects installed in equity priority communities 	City tracking
Connectivity and Comfort	Develop a well-connected network of active transportation facilities that are comfortable and convenient for people of all ages and abilities.	<ul style="list-style-type: none"> » Number of pedestrian crossing improvements or upgrades. » Miles of completed bikeways and completed low-stress bikeways. 	City tracking
Community	Promote and inspire safe and fun walking, bicycling and rolling to foster a strong culture of walking and bicycling.	<ul style="list-style-type: none"> » Number of encouragement or educational events or campaigns held to support walking and bicycling. » Number of 5th grade classes that receive bicycle safety education. » Number of schools participating in Safe Routes to Schools activities. » Number of new or enhanced bike parking facilities built. 	City and County Agency Tracking

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Goal		Performance Measures	Data Source(s)
Mode Shift	Increase percentage of walking and bicycling trips.	<ul style="list-style-type: none"> » Percent of students who walk or bicycle to school » Number of people walking and biking at established count sites and at recently completed project sites. » Percent of biking and walking trips to work and percent of drive alone trips to work. 	<ul style="list-style-type: none"> » Alameda County SR2S Program surveys » City and county counts » American Community Survey

° Performance measure from *Alameda Vision Zero Action Plan*