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.

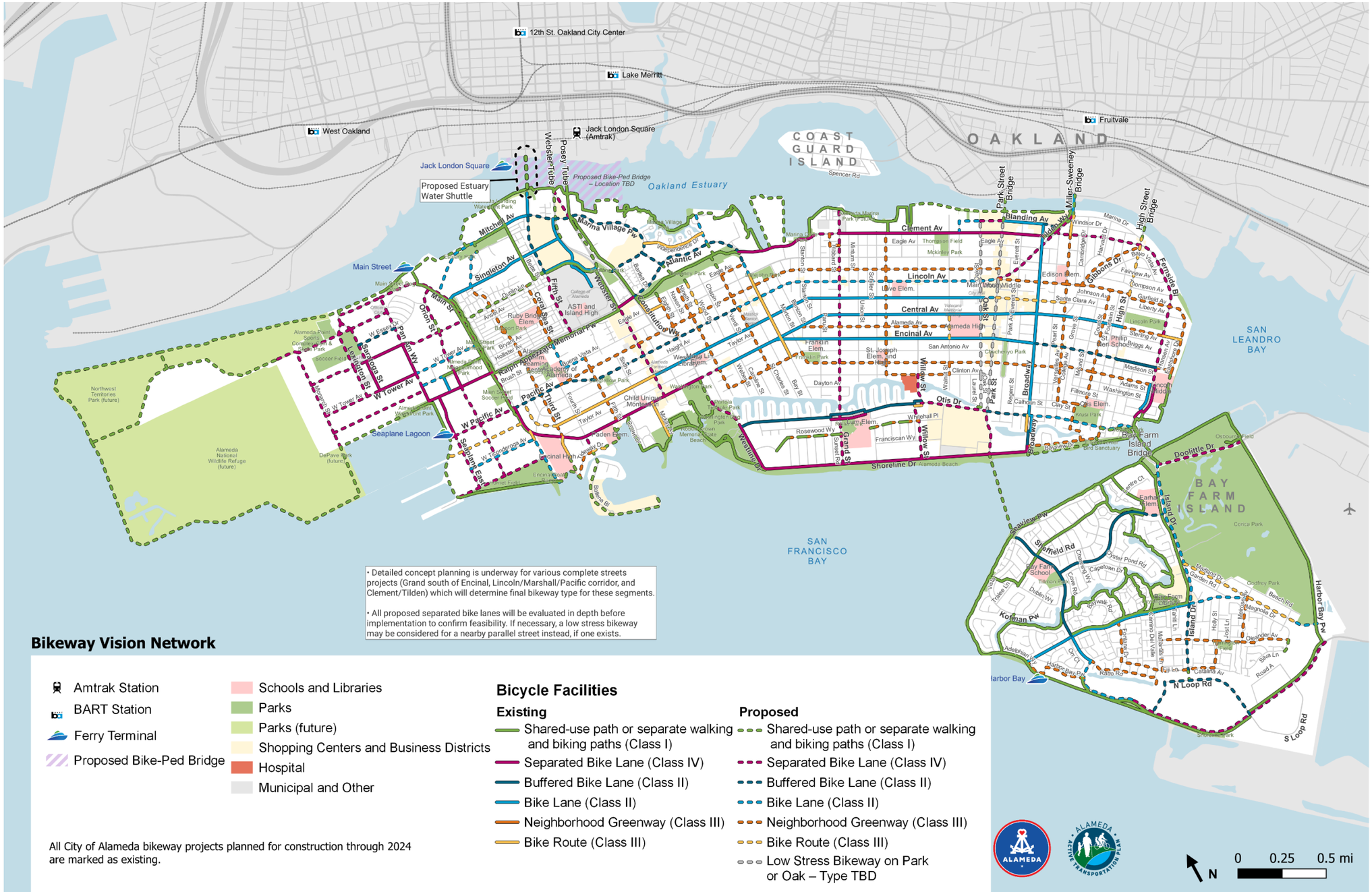


Figure 6. Bikeway Vision Network

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

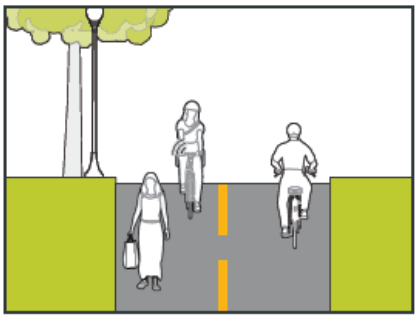
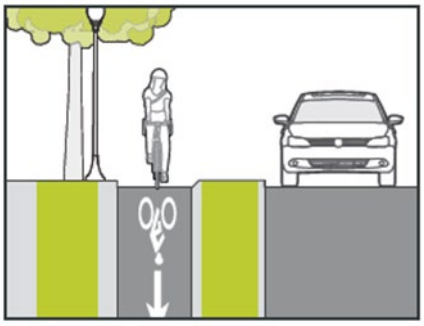
INTRODUCING: NEIGHBORHOOD GREENWAYS

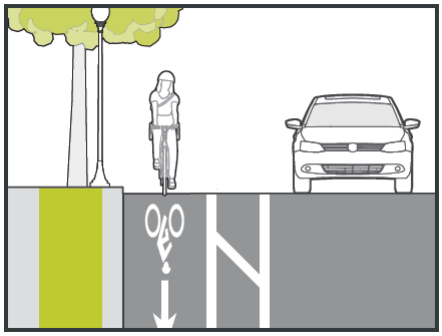
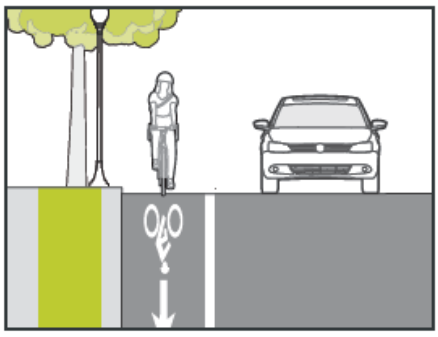
Neighborhood Greenways, sometimes called bicycle boulevards or neighborhood bike routes, are streets designed to give priority to people walking and bicycling, allowing bicyclists and motorists to safely share the road on low-volume, local streets. Used in cities across the country, these comfortable, 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
Shared Use Path 	» Off-street pathway designed for use by bicyclists, pedestrians and other active transportation users. » *Variation:* Parallel but separated biking and walking paths » *Stress level:* Low. Has the least potential number of interactions between bicyclists and vehicles, compared to other facility types » *Caltrans classification:* Class I » ***Examples in Alameda:*** Bette Street path, Bay Farm Island shoreline trails
Separated Bike Lane 	» 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.) » The more robust the buffer's vertical and horizontal separation, the more comfortable the separated bike lane is for bicyclists » *Variations:* Can be one-way, on each side of the street, or two-way, on one side of the street. » *Stress level:* Low, even on roadways with high vehicle speeds and volumes » *Caltrans classification:* Class IV » ***Examples in Alameda*:** Shore Line Drive, Fernside Drive, Clement Avenue
Neighborhood Greenway 	» 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. » *Stress level:* Low » *Caltrans classification:* Class IIIB » ***Examples in Alameda:*** None yet, but this plan recommends 19 miles of future Neighborhood Greenways

Bicycle Facility Type	Description
Buffered Bike Lanes 	» 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. » *Stress level:* 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. » *Caltrans classification:* Class IIB » ***Examples in Alameda:*** portions of Robert Davey Jr. Drive, Fernside Drive, and Willie Stargell Avenue
Bike Lane 	» Bicyclists ride adjacent to vehicular traffic in a lane designated by a painted line only. » *Stress level:* Medium to High. Stress level can increase with adjacency to on-street parking. » *Caltrans classification:* Class II » ***Examples in Alameda:*** Central Avenue, Broadway, Mecartney Road
Bike Route 	» 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 » *Stress level:* Medium to High, depending on amount and speed of vehicle traffic. Stress level can increase with adjacency to on-street parking. » *Caltrans classification:* Class III » ***Examples in Alameda*:** Oak Street, Pacific Avenue, Versailles Avenue