Draft 2021 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan

C/CAG
City/County Association of Governments
of San Mateo County

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C/CAG would like to acknowledge the San Mateo County Transportation Authority for contributing funding towards the development of the San Mateo Countywide Bicycle and Pedestrian Plan. The Plan was produced by Toole Design Group.

Chapter 1: Plan Overview

The Countywide Bicycle and Pedestrian Plan (CBPP) provides a framework to help the City/County Association of Governments of San Mateo County (C/CAG) improve walking and bicycling conditions in San Mateo County. By recommending a connected network of biking and walking facilities based on the best practices in the field, this Plan will make biking and walking safer and more comfortable for all, and improve health, accessibility, and livability throughout the county.

C/CAG is the County's Congestion Management Agency and is responsible for transportation planning, programming, and funding. This includes developing and updating the region's Congestion Management Plan and bicycle and pedestrian plans. This Plan builds on previous walking and bicycling planning efforts, including the San Mateo County Comprehensive Bicycle Route Plan (2000) and San Mateo County Comprehensive Bicycle and Pedestrian Plan (2011).

This Plan presents countywide priorities and provides project lists and program and design guidance which C/CAG and local jurisdictions can use to make roadways safer, reduce congestion, and encourage more people to walk and ride a bicycle.

Plan Purpose

As an update to the 2011 Bicycle and Pedestrian Plan, this Plan serves several purposes:

- **Updated goals and objectives** that reflect best practices to promote walking and bicycling, enhance network connectivity and roadway safety, and increase collaboration between local and regional planning agencies.
- **Identifies key programmatic recommendations** that will encourage collaboration between local, county, and regional agencies and improve roadway safety and access to transit.
- **Refines the regional priorities for bicycling and walking networks** and sets the vision for countywide network connectivity and inter-jurisdictional travel and encourages the installation of bikeways and pedestrian facilities that are comfortable for people of all ages and abilities.
- **Provides a set of planning and design resources** to help C/CAG and local agency staff identify, prioritize, and advance projects that meet design best practices and are well-suited for local, regional, and state grants.

The resources and recommendations presented in this Plan encourage and prioritize projects that will improve regional connectivity and support inter-jurisdictional travel by foot, bike, bus, and rail. They will enhance walking and bicycling facilities for all trip purposes, including commuting and recreation.

Vision and Goals

The vision, goals and objectives for the Plan were developed in partnership with the CBPP Technical Advisory Group (TAG) and the C/CAG Bicycle and Pedestrian Advisory Committee (BPAC). The walking and bicycling network and program recommendations in the Plan were formulated specifically to meet these goals and objectives.

Vision

C/CAG and partnering agencies will strive to provide a safe, accessible and comprehensive network of bicycle and pedestrian facilities for a diverse population in San Mateo County. These facilities aim to increase mobility, provide equitable levels of access to affordable and reliable transportation options, reduce air pollution, and promote a healthy lifestyle by connecting people to their destinations.

Goals

Connectivity

Establish a connected network of facilities for bicyclists and pedestrians

Mode Shift

Promote more people bicycling and walking for transportation and recreation

Safety

Improve safety for walking, bicycling, and accessing transit

Complete Streets for All

Advance Complete Streets principles and the accommodation of all roadway users

Equity

Develop, prioritize, and fund projects to advance equity

Regional Collaboration

Promote collaboration and technical support

Planning Process

The planning process included four phases of analysis and public outreach that began at the end of 2019 and was completed in the spring of 2021. C/CAG staff worked closely with the TAG and BPAC to guide the development of the Plan. Public input on key elements, such as goals, development of the countywide networks, identification of key barriers to walking and bicycling, and project prioritization was also solicited throughout the process. Due to COVID-19, the planning process was adjusted in March 2020 and public engagement activities pivoted from in-person outreach to online meetings and workshops.

Plan Phase	Key Activities	Public Engagement
1. Vision and Goals Established Winter 2019	• Review of existing city, county, regional, and state plans and policies • Set vision, goals, and objectives • County and local jurisdiction staff survey	• TAG meeting 1 • BPAC meeting 1
2. Inventory of Facilities and Programs Spring 2020	• Data collection • Assessment of existing conditions and inventory of programs • Technical analyses	• TAG meeting 2 • BPAC meeting 2
3. Development of Recommendations and Resources Summer – Fall 2020	• Developed Countywide Backbone Network and Pedestrian Focus Areas • Identified proposed projects and programs • Design guidelines established	• TAG meetings 3, 4, and 5 • BPAC meetings 3, 4, and 5 • Stakeholder meetings (3) • Public workshops (2)
4. Implementation Strategy and Final Plan Winter 2020 - Spring 2021	• Planning-level cost estimates and funding analysis • Project prioritization and implementation strategy • Draft and final Plan	• TAG meeting 6 and 7 • BPAC meeting 6 and 7 • Commission meetings • Board review and approval

Plan Recommendations

The plan recommendations for San Mateo County include infrastructure projects, policies, and programs to support the CBPP goals. Key recommendations include:

The Bicycle Backbone Network

The countywide bike network, called the Backbone Network, links regionally significant destinations across local jurisdictions with the goal of addressing gaps between city boundaries and providing continuous, low-stress bikeways across the county.

Pedestrian Focus Areas

Pedestrian Focus Areas identified in the CBPP are regionally significant areas within the county that are likely to have the highest walking activity. Candidate projects include transit access and Complete Street corridor improvements.

Visionary Projects

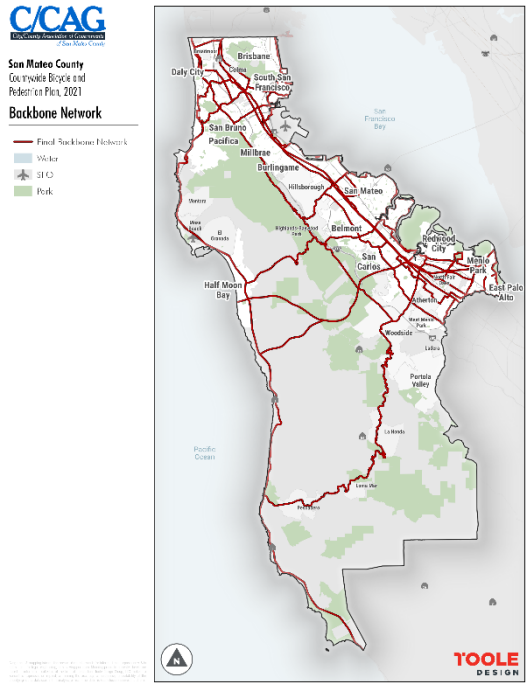
In addition to identifying individual segments to fill in gaps, larger visionary projects on the regional scale are major initiatives that require a longer-term planning effort. These visionary projects include the Bay to Sea Trail, the Grand Boulevard Initiative, the Dumbarton Rail Corridor Trail, the Coastal Trail, and the Crystal Springs Regional Trail.

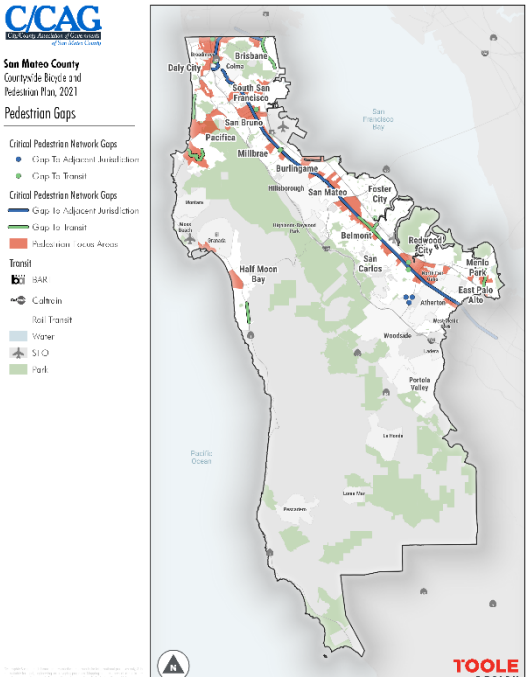
Policies and Programs

In addition to the physical infrastructure recommendations, policies and programs are critical to the implementation and lasting success of a pedestrian and bicycle network. Four recommended programmatic areas for C/CAG to pursue over the next five years include:

- Local Jurisdiction Training and Grant Support
- Micromobility Strategies
- High Injury Network and Systemic Safety Approach
- First- and Last-Mile Transit Connections

The plan recommendations are wide-reaching, physically across the region as well as demographically, and could greatly enhance the network of walking and bicycling routes in San Mateo County now and for years to come.





Refer to Chapter 4 for a closer look at the maps above.

What's in this Plan?

Chapter 2	**Public Engagement** This chapter provides an overview of the methods used and feedback received for the public and stakeholder engagement process that guided the development of this Plan. A more in-depth summary of the approach can be found in **Appendix B**.
Chapter 3	**Existing Conditions - Walking and Bicycling in San Mateo County** This chapter provides an overview of the technical analyses which were used to assess the existing bicycle and pedestrian networks, safety considerations, and level of user comfort. The purpose of these analyses was to build an understanding of what it is like to walk and bike in San Mateo County today so that the recommendations will better serve residents and key destinations. The full Existing Conditions Report can be found in **Appendix C**.
Chapter 4	**Bicycle and Pedestrian Needs Analysis and Recommendations** This chapter presents the network (infrastructure) and policy recommendations for improving walking and biking in San Mateo County. It provides an overview of the analysis conducted to develop the Countywide Backbone Bicycling Network and the Pedestrian Focus Areas, including a gap analysis identifying where new projects are needed, and provides a project list and map, and proposed programs. **Appendix D** includes the full project list and **Appendix E** includes project maps for each jurisdiction in San Mateo County.
Chapter 5	**Implementation Strategy** This chapter includes information for implementing the proposed plan recommendations. It summarizes the project prioritization methodology, and includes the prioritized project list and maps, and planning-level cost estimates. **Appendix C** contains memorandums with details on the project prioritization and cost-estimating approaches.
Appendix A	**Design Toolkit** Appendix A includes a design toolkit that recommends appropriate pedestrian and bicycle facility types for various contexts within San Mateo County. The toolkit is based on national best practices for bicycle and pedestrian facility design.
Appendix B	**Engagement Plan** Appendix B includes the plan for soliciting and incorporating input from the general public and stakeholders, including a Technical Advisory Group and Bicycle and Pedestrian Advisory Committee. It also includes the Fall Outreach Approach Memo which serves as an addendum to the Engagement Plan for conducting socially distanced plan outreach.
Appendix C	**Technical Memoranda** Appendix C includes a set of technical memoranda produced during the plan process on the following topics: plan goals, objectives, and policies; existing conditions in San Mateo; network gap analysis for biking and walking; criteria for project prioritization; and assumptions underlying the financial estimates.
Appendix D	**Bikeway Project List** Appendix D includes a full, prioritized list of recommended plan bikeway projects and their estimated costs.
Appendix E	**Existing and Proposed Bikeway Maps** Appendix E includes maps for each jurisdiction in San Mateo County showing existing and recommended bikeways.

Chapter 2: Public Engagement

Public input was integrated throughout the development of the Plan to ensure the Plan's recommendations would meet the needs and interests of key stakeholders, including staff at regional, county, and local agencies, and members of the public. The project team provided a range of engagement opportunities for San Mateo County community members throughout the planning process to achieve the public input goals.

Engagement activities were designed to reach multiple audiences throughout San Mateo County, and not just those who self-identify as bicyclists and pedestrians. The engagement approach included two advisory committees, several virtual events for stakeholders and members of the public, and online engagement tools. Virtual events were held in place of in-person events due to health concerns related to COVID-19. The advisory committees helped ensure that agency staff from smaller, or more rural jurisdictions had an opportunity to provide input at the same level as larger, more urban jurisdictions. In addition, community workshops were offered in both English and Spanish, and stakeholder meetings provided another opportunity for agencies representing traditionally underserved populations to provide input on the plan in the event that these populations were unable to attend the virtual community workshops.

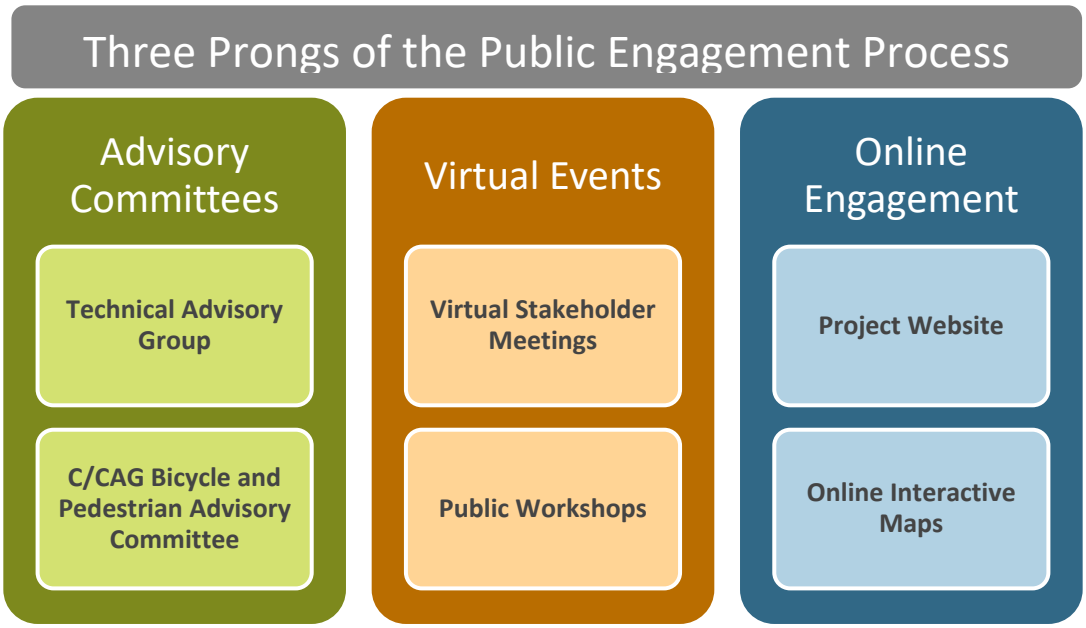
The engagement activities included:

- Seven meetings with the Technical Advisory Group (TAG)
- Seven meetings with the C/CAG Bicycle and Pedestrian Committee (BPAC)
- A survey of local jurisdiction staff
- A project website
- An online, interactive map, which received over 300 comments
- Three stakeholder meetings
- Two community workshops, with a combined total of 90 participants

Public Input Goals:

- **Inform community members about the Plan**
- **Learn about barriers to biking and walking across the county**
- **Solicit diverse perspectives from communities across San Mateo County, particularly those that are traditionally underrepresented in transportation projects**
- **Build momentum and support for implementing bike and pedestrian projects**

These engagement activities and the input received during each phase of the project are described in this chapter. For more details about the engagement approach, refer to **Appendix B**.



Advisory Committees

Technical Advisory Group

In order for this plan to reflect the efforts, needs, and priorities of the local communities throughout the county, C/CAG convened Technical Advisory Group (TAG) that included representatives local jurisdictions, as well as representatives from BART, SamTrans and Caltrain, and major employers like Facebook. The TAG's role was to review and provide input on key processes, analyses, and recommendations. The TAG also encouraged intra-county collaboration, and provided insights related to on-the-ground implementation constraints and opportunities.

TAG meetings switched from in-person to Zoom meetings partway through the project due to COVID-19 and Shelter-in-Place orders.

The members of the TAG played an integral role in shaping the Plan. TAG input ensured that the Plan corresponds with and supports local- and County-led efforts to improve walking, bicycling, and other forms of active transportation. In the beginning of the planning process, C/CAG conducted a survey and a series of interviews with TAG members and staff from local jurisdictions to collect information on local and regional barriers to walking and bicycling, existing/recent walking and bicycling projects, and local plans and policies related to active transportation.

Throughout the planning process, members of the TAG provided input on Plan goals, Countywide Backbone Network routes, the equity focus area methodology, bike projects, pedestrian projects, the project prioritization, and programmatic recommendations. The TAG met six times during the project.

Bicycle and Pedestrian Advisory Committee

The role of the Bicycle and Pedestrian Advisory Committee (BPAC) is to provide advice and recommendations to the C/CAG Board of Directors on matters relating to bicycle and pedestrian programs and improvement projects. The BPAC advises the C/CAG Board on priority projects for funding through the Transportation Development Act Article 3 grant program and the One Bay Area Grant program.

C/CAG presented to the BPAC six times during the planning process to inform them about the Plan, planning process, and opportunities for involvement. BPAC members had the same opportunities to provide feedback as the TAG Members.

Local Jurisdiction Policies and Practices Survey

The project team conducted a survey of engineering or planning staff in charge of transportation-related programs and projects from local jurisdictions in San Mateo County. The survey assessed the utility of the 2011 CBPP components and gauged interest in new concept areas. C/CAG distributed the survey to all local jurisdictions in late 2019 and received 19 responses from the following jurisdictions:

- Atherton
- Belmont
- Brisbane
- Burlingame
- Colma
- Daly City
- East Palo Alto
- Foster City
- Half Moon Bay
- Menlo Park
- Millbrae
- Pacifica
- Portola Valley
- Redwood City
- San Bruno
- San Mateo
- San Mateo County
- South San Francisco
- Woodside

The survey was divided into four topic areas, including plan utility, connected network, state of practice, and staff capacity. Local jurisdiction staff noted that the most useful elements of previous plans were maps, project lists, and bicycle and pedestrian demand areas. The top two most common areas of interest for the new plan were help with project prioritization and tools and technical assistance. Network connectivity was also very important to local jurisdiction staff. For example, staff want to ensure that the bicycle and pedestrian networks are connected and that adjacent jurisdictions can coordinate with each other. Major network gaps identified by staff include railroad crossings, at-grade Caltrain crossings, major road/highway crossings, and network gaps around transit hubs. The responses from this survey informed the strategy and tools developed for the Plan.

For a more detailed summary of survey responses, refer to the Goals and Objectives Report in **Appendix C**.

Responses to a question in the local jurisdiction staff survey

Virtual Events

Virtual Stakeholder Meetings

The project team convened three virtual stakeholder meetings in October 2020. The purpose of these meetings was to generate support for the Plan and its recommendations and ensure that a variety of stakeholders in San Mateo County had an opportunity to ask questions about the Plan and provide focused feedback. At each meeting, C/CAG solicited information on walking and bicycling concerns and priorities among the different stakeholder groups represented. The meetings targeted the following three groups of stakeholders:

> "I would like to see connected bike paths that are safe for all levels of bicycling"
>
> *– Public workshop participant*

1. Active transportation advocacy groups, cycle clubs, and environmental organizations
2. Community-based organizations and equity-focused organizations
3. School districts, public health organizations, transit providers, major employers, and Commute.org

Public Workshops

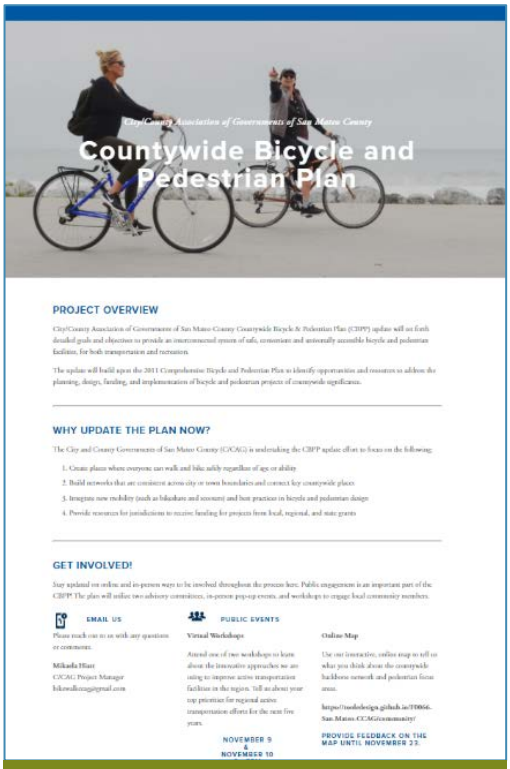
Two public workshops were held in November 2020 to collect input on current walking and bicycling issues in San Mateo County and to solicit feedback on the approaches used to develop the bicycle and pedestrian recommendations. C/CAG received input on community members' top priorities and concerns, locations where improvements were desired, as well as any key regional routes and destinations that should be included in the countywide bicycle and pedestrian networks. Outreach materials promoting the workshops were made available in Spanish and bilingual staff was available to present the materials and facilitate a discussion in Spanish upon request.

Online Engagement Tools

Project Website

The project website was a place for the public to learn about the Plan, stay up to date on the planning process, and learn about outreach events and opportunities to provide feedback on the Plan. The project website provided an overview of the Plan and its purpose, a schedule of events, and project updates. The website content was available in more than 20 languages and was live during the entire duration of the project.

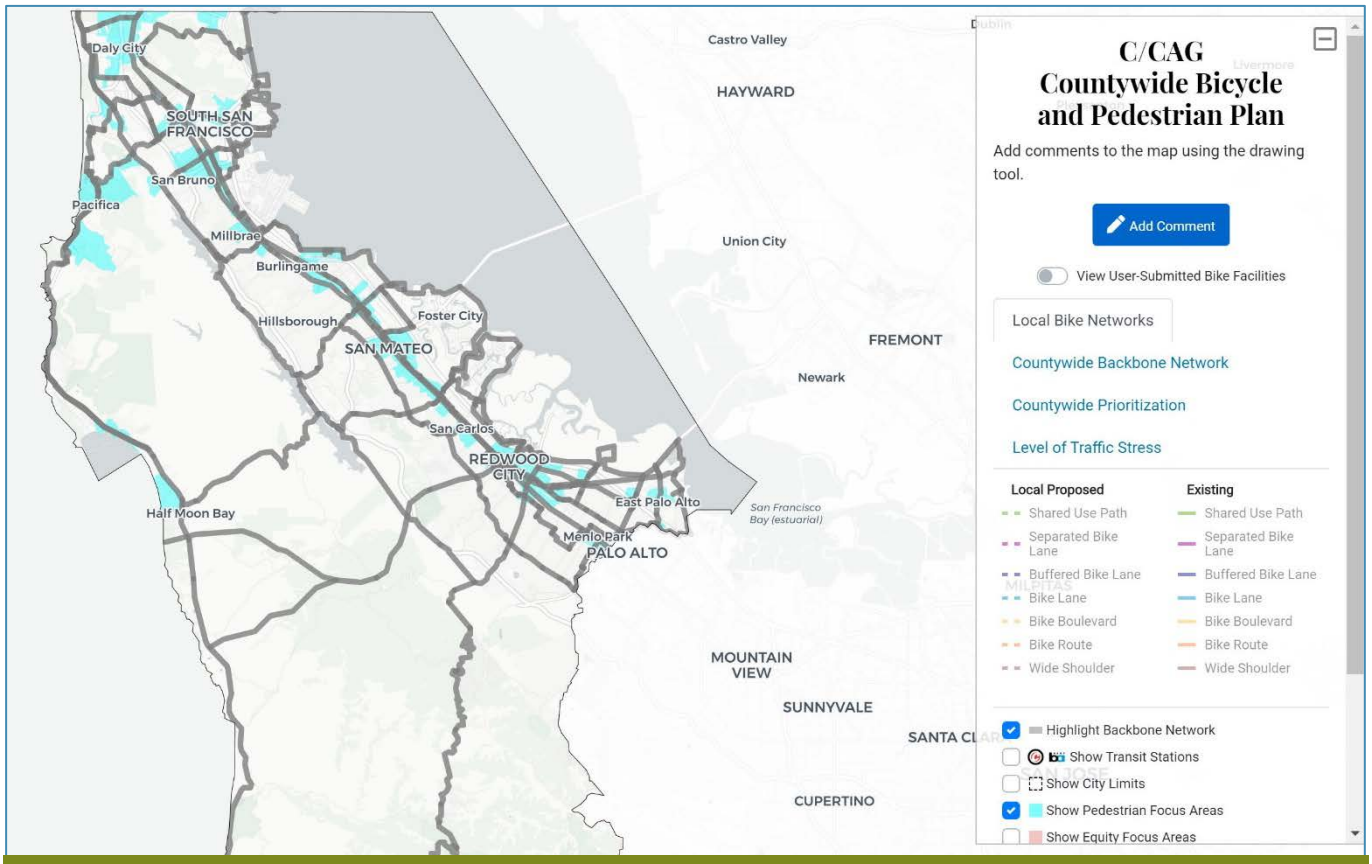
A recording of the public workshops was posted on the website, along with a link to the online, interactive map to provide an opportunity for stakeholders and members of the public who were unable to attend the virtual events to provide feedback.



Plan website

Interactive Web Maps

The project team created a series of interactive web maps to support planning efforts and provide opportunities for the TAG, BPAC, and members of the public to provide feedback. The maps were used to present and solicit feedback on key analyses and recommendations. These maps were updated and shared during key milestones in the planning process.



Online map showing the pedestrian focus areas and Countywide Bicycle Backbone Network

What We Heard

The public and stakeholder input received throughout the planning process demonstrates an interest and support for several strategies to improve walking and bicycling in San Mateo County. This input helped develop and flesh out Plan goals. Below is a summary of all comments received.

Plan Goal	Key Takeaways from Public Input
Connectivity	• More designated, comfortable east-west and north-south connections • A more continuous sidewalk network and safe crossings • A more continuous regional bikeway network • Bikeways that don't end at a city border • Connected network of multi-use paths • Easy and safe access to key places (e.g., schools, parks, beaches, shopping centers)
Mode Shift	• Better access to transit • A countywide micromobility program • Demonstration projects and quick-build opportunities • Amenities for all trip purposes, not just commute trips • More secure bicycle parking • More resources to encourage employees and students to walk and bike • Work with major employers to improve bicycle access to employment centers
Safety	• Improve pedestrian and bicycle safety and comfort along arterials and highway crossings • More separated bike lanes and facilities that create a stronger sense of safety and more protection from motor vehicles • Traffic calming programs to address high motor vehicle speeds
Complete Streets	• Regional trails (Coastal Trail, Dumbarton Rail Corridor, Bay Trail connections and improvements) • Old County Road five-mile bikeway • Bicycle superhighways (El Camino Real, extending the Peninsula Bikeway, etc.) • Preference for facilities that provide space for bicyclists separate from motor vehicle traffic, such as bike lanes and separated bike lanes[1]
Equity	• Safe crosswalks for children, people with disabilities, and seniors • A need for projects in lower income communities • Safe transport for all: all ages, all skill levels, all abilities and disabilities, all races, and all economic levels
Collaboration	• Programmatic and project recommendations that align with existing county and local plans • Funding, programs, and policies to support maintenance and project delivery • More funding opportunities for walking, bicycling, and transit access improvement projects

[1] See Types of Bikeways in Chapter 4 for descriptions of these facility types.

Chapter 3:
Existing Conditions - Walking and Bicycling in San Mateo County

San Mateo County

Located in the center of the Bay Area region along the Peninsula, San Mateo County is a major population and economic center sitting in a stunning natural setting. Uniquely situated between the ocean and bay, its varying landscapes and mild climate make it an ideal place for walking and bicycling. San Mateo County includes lively urban areas, quiet residential neighborhoods, redwood forests, beaches, as well as numerous regional recreation areas including the San Bruno Mountain State & County Park, Crystal Springs Reservoir, and the Santa Cruz Mountains.

There are 20 incorporated cities and towns within San Mateo County, located mostly on the east side of the Santa Cruz Mountains, ranging from small towns of just a few thousand people, to larger cities like Daly City and San Mateo with a population of about 100,000 (see Figure 1). The county's population of three quarters of a million people is growing fast, having grown seven percent from 2010 to 2019. San Mateo's population is racially and ethnically diverse, with 62 percent of its population identifying as a person of color, including a quarter identifying as Hispanic or Latino, and another quarter identifying as Asian. A third of San Mateo County residents are foreign born, and half of residents speak a language other than English at home, with Spanish, Chinese (Mandarin or Cantonese), and Tagalog being the most common.[2]

San Mateo County At A Glance	
20 Incorporated cities	**91** Recreation trails
455 Square miles of land area	**3** Regional transit agencies Caltrain | SamTrans | BART
770,000 Residents	**60** Miles of coastline

San Mateo County has a dynamic economy and is home to many large tech companies such as Facebook, Oracle, and Genentech. As the link between San Francisco and Silicon Valley, San Mateo County serves as a major commuting corridor, increasing the importance of biking and walking linkages across the county, and of first- and last-mile connections to transit. The county has a variety of transit options for local and regional travel, including rail options of BART and Caltrain along with an extensive bus and shuttle system operated largely by SamTrans, plus numerous shuttle services operated by large private employers, and a ferry system operated by the Water Emergency Transportation Authority. If coupled with improved walking and bicycling connections, the regional and local transit network will provide a solid foundation for reducing private vehicle trips.

This section presents a summary of existing conditions for walking and bicycling in San Mateo County. For more detailed information on this topic, refer to the Existing Conditions Report in **Appendix C**.

[2] US Census American Community Survey Five-Year Estimates (2015 – 2019)

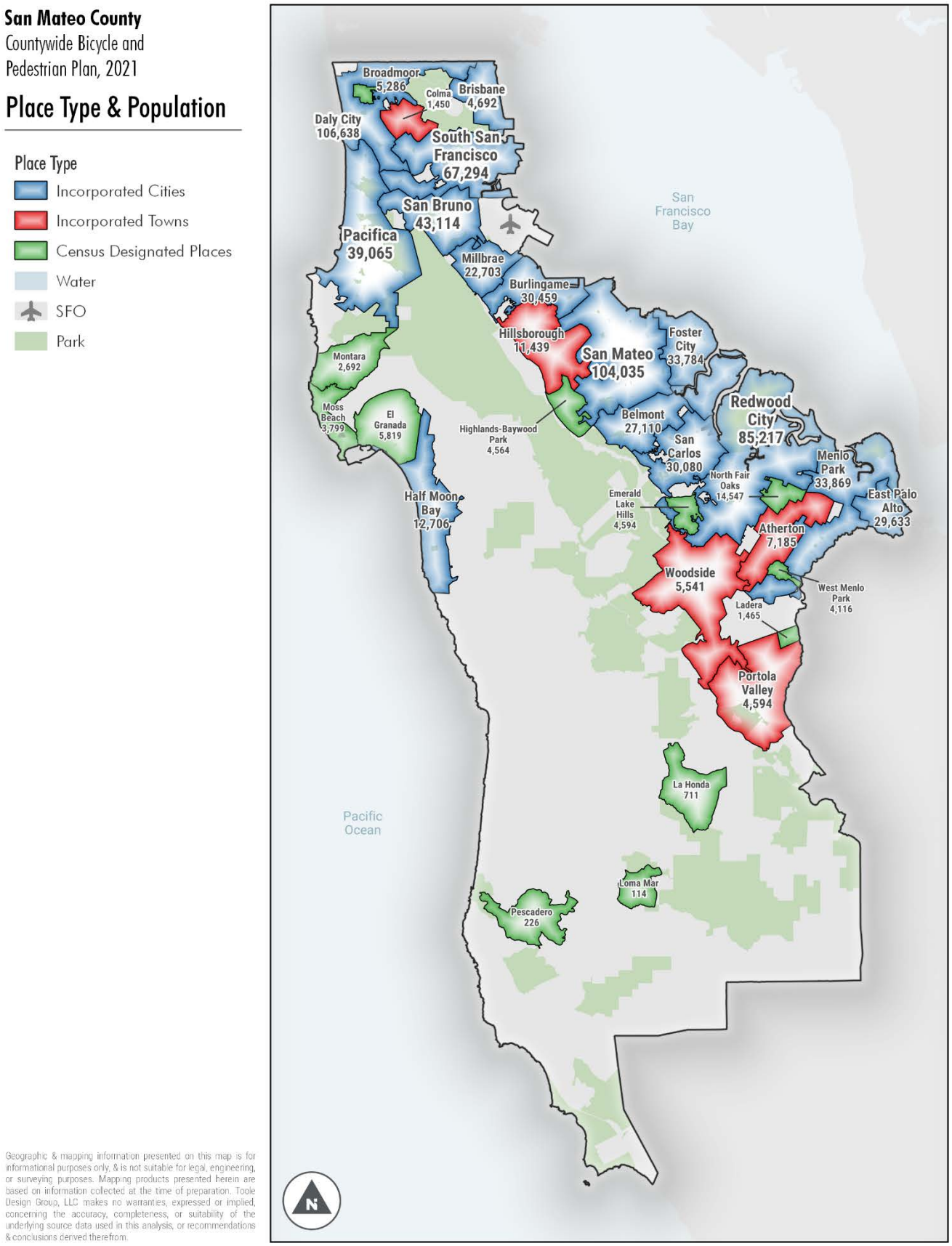


Figure 1. San Mateo County Jurisdictions and Populations

Understanding Equity in San Mateo County

Transportation infrastructure, including walking and bicycling facilities, influences equitable access to basic services such as health care, healthy food, transit, and schools. When transportation projects are developed with an equity framework, they provide an opportunity to help address the impacts of historical inequities, including disparities based on race, such as red-lining's segregation of housing, highway projects that divide and displace communities, and underinvestment in marginalized communities and communities of color.

Focusing bicycle and pedestrian investments and improving access in traditionally underserved, disadvantaged communities is a key goal of the Plan. Equity is one of a number of metrics C/CAG uses to award funding to projects in San Mateo County. C/CAG staff worked with the TAG and BPAC to develop a method for identifying **Equity Focus Areas** that is suitable to the San Mateo context, creates consistency across planning projects, and aligns with state and regional funding sources. The approach is consistent with other recent planning efforts, such as the *Unincorporated San Mateo County Active Transportation Plan* and *San Mateo County Sustainable Streets Master Plan*.

The Equity Focus Areas are based on an analysis of U.S. Census block group data using the following four metrics:

- Share of the population that is non-white population,
- Median household income,
- Housing and transportation cost burden, and
- Share of households who do not own cars.

Each of the four metrics is weighted differently. Weights were determined through conversations with C/CAG staff and feedback received from members of the TAC and BPAC. Based on the feedback received, data related to the share of the population that is non-white is weighted the highest, and data related to the share of households without cars is weighted the lowest. Data for all four metrics was then combined to create a composite score for each Census block group. Block groups that ranked in the top 25th percentile of San Mateo County for these scores were identified as Equity Focus Areas. To ensure that that Equity Focus Areas would be distributed throughout the county, Census block groups on the bay side were ranked separately from block groups on the coast side. **Figure 2** shows the Equity Focus Areas across San Mateo County. There are many areas throughout the county, such as in the south coast and northern parts of the county that did not rank in the top 25th percentile but may still represent areas with high percentages of historically-underserved populations. These areas may have had high scores for individual metrics or ranked close to the 25th percentile threshold. More information on the Equity Focus Areas can be found in **Appendix C**.

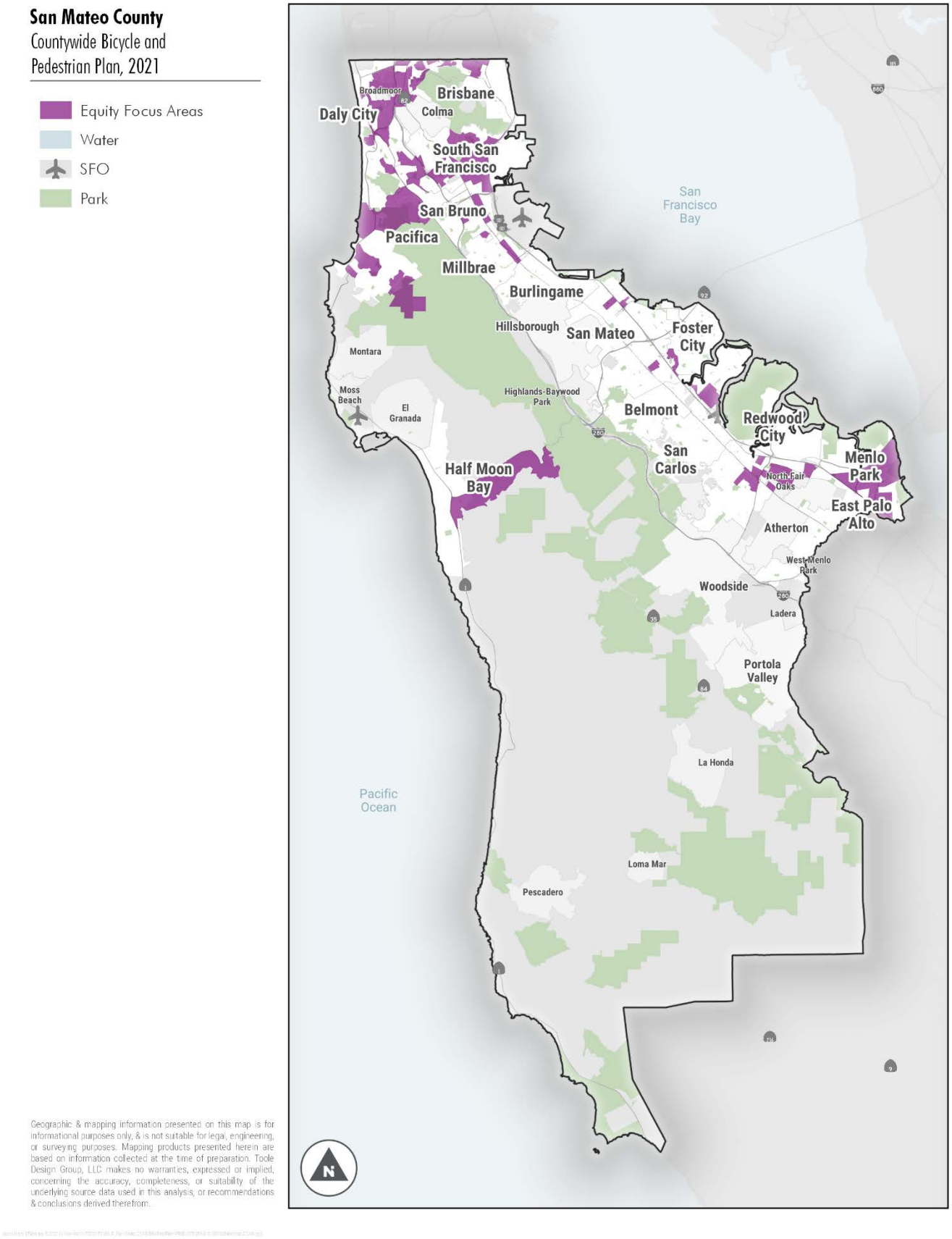
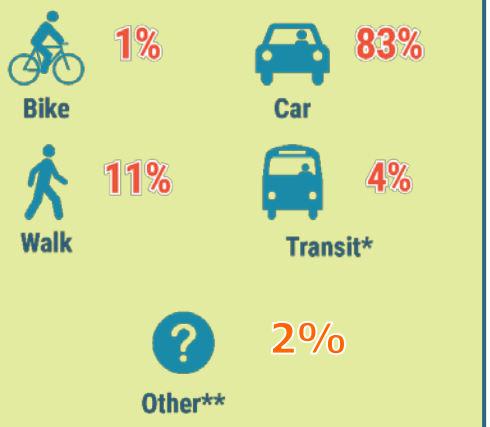


Figure 2. San Mateo County Equity Focus Areas

The State of Walking and Bicycling

One of the primary goals of this plan is to increase bicycling and walking throughout the county. With residents walking for about 11 percent of all trips and bicycling for 1 percent of all trips[3], there is ample opportunity to do so. What's more, many of the people in San Mateo County who may benefit the most from safer and more connected walking and bicycling infrastructure include our most vulnerable community members: children, seniors, and low-income communities. Understanding the mobility needs for these groups is an important first step in identifying strategic investments that also address equity priorities. The following sections of this chapter capture the state of walking and bicycling in San Mateo County – the quality and types of facilities, and the experience of people using them.

Figure 3. Mode Share in San Mateo County



Source: California Household Travel Survey, 2017
Estimates are rounded to the nearest whole number
*Includes public or commuter bus, school bus, light rail, commuter rail, streetcar, and private or shuttle bus
**Includes boat, ferry, airplane, or other
(All Trips, N = 5,868,981 trips)

36% of the population is under 18 or over 65 and may be unable to drive or feel less comfortable driving.

7% of the population lives below the federal poverty level and may not be able to afford or regularly maintain access to a vehicle or transit pass.

29% of households own one car and 5% of households do not own a car at all.

15% of the population ages 16 or older are already walking, bicycling, or riding public transit to work.

Source: U.S. Census' American Community Survey (2014-2018, five-year estimates)

Biking in the City of Belmont

[3] Note that the California Household Travel Survey data on trips includes commuting, going to school, running errands, visiting friends, and other purposes, but does not capture recreational trips which are a major reason people choose to walk and bike. As such, these mode splits may underrepresent bicycling and walking trips.

Bicycling Conditions

This section presents a discussion of different types of bicyclists and their preferences, an overview of the types of bikeways used throughout the San Mateo County region, bicyclist comfort, and analyses of recent bike crashes.

Types of Bicyclists

When planning and designing bikeways, it is important to recognize that not all bicyclists feel comfortable on every type of bikeway. An all-ages-and-abilities bicycle network is comprised of low-stress bikeways that are connected, comfortable, and appealing to both new and experienced riders. The countywide bikeway network should include bikeways suitable for all types of bicyclists.

Four Types of Bicyclists

No two bicyclists are alike. National research indicates that bicyclists are better understood along a spectrum (see **Figure 3**).[4] On one end of the spectrum are people who are comfortable riding with traffic in almost any condition. These types of riders are considered "highly confident" bicyclists (e.g., frequent longer-distance recreational riders) and are willing to ride on roads with little to no dedicated bicycle infrastructure. The largest segment of the population is generally willing to ride a bicycle but does not feel comfortable sharing the lane with motor vehicles or riding adjacent to high-speed and high-volume traffic (e.g., children, the elderly, and non-regular adult bicyclists). These types of riders are known as the "interested but concerned," and they prefer off-street bicycle facilities or bicycling on low-speed, low-volume streets. This group has the largest potential to increase bicycle mode share if facilities are designed to address their comfort, safety, and security but they may not bike at all if bicycle facilities aren't designed for their comfort needs.

Figure 3. Share of Population by Bicyclist Category for Typical U.S. Community[4]

[4] Dill, Jennifer and Nathan McNeil. Revisiting the Four Types of Cyclists: Findings from a National Survey. In Transportation Research Record: Journal of the Transportation Research Board, Issue 2587, Washington, DC, 2016.

Types of Bikeways

California has four primary bikeway classifications as defined by the California Manual of Uniform Traffic Control Devices (CA MUTCD), shown in **Figure 4**. In general, facilities with a greater amount of separation between motor vehicles and bicyclists) are better suited for areas with larger traffic volumes, higher vehicle speeds, and/or where anticipated riders are families or people who may not feel comfortable riding in shared traffic lanes. For more detailed design guidance on bicycle facilities, check out the **Design Toolkit** in **Appendix A**.

Multi-Use Paths (Class I)

Multi-use paths provide robust separation from motor vehicles and are often located within fully separate rights-of-way. They are shared with pedestrians. Interactions between bicyclists and vehicles are limited to roadway crossings. Due to their separation from vehicle traffic, these facilities are typically attractive to most bicyclists and are considered the least stressful type of facility to the average rider.

Bicycle Lanes (Class II)

Bicycle lanes are striped adjacent to vehicle travel lanes, delineated either by a solid white line or by a larger hatched buffer space. The latter case is known as a buffered bike lane (or Class IIb). Buffered bike lanes include only the provision of horizontal space between bicyclists and drivers traveling in adjacent travel lanes. The relative comfort of bicycle lanes depends on adjacent motor vehicle speeds and volumes, given the lanes' lack of vertical separation from traffic.

Bicycle Routes and Bicycle Boulevards (Class III)

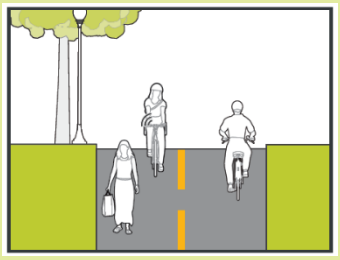
Bike routes designate certain roadways as preferred bicycle roads. They typically include wayfinding signage for bicyclists as well as additional signage to increase driver awareness to the potential presence of bicyclists. Since users often must share travel lanes with motor vehicle traffic, bike routes can vary in comfort depending on traffic volume and vehicle speed.

Rural bike routes are a specific type of bike route, and may feature wide shoulders, striping, and intermittent rumble strips to provide space for cyclists to ride on rural roads or highways. Rural bike routes are not considered comfortable for most riders because cyclists ride alongside vehicle traffic traveling at high speeds with little or no separation.

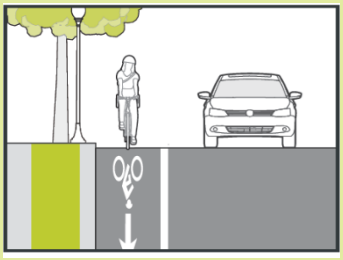
Bicycle boulevards (or Class IIIb) are another type of bike route. They are often found on low-speed, low-volume neighborhood streets with traffic calming enhancements and are often used as parallel options when high-speed and high-volume roadways cannot accommodate a designated space for cyclists. These routes are typically more comfortable for cyclists.

Separated Bicycle Lanes (Class IV)

Separated bike lanes (SBLs) are for the exclusive use of bicyclists and are located on the roadway, adjacent to vehicular traffic. However, SBLs provide more robust physical separation between bicyclists and motor vehicles than Class II facilities. Separation always includes both vertical separation (parked vehicles, raised concrete curbs, planters, bollards, etc.) and horizontal separation (striped buffer, landscaped areas, etc.). SBLs are often considered to be a more comfortable facility than traditional bike lanes or bike routes. In some situations, such as those with limited right of way and few driveways or intersections, two-way SBLs may be appropriate.

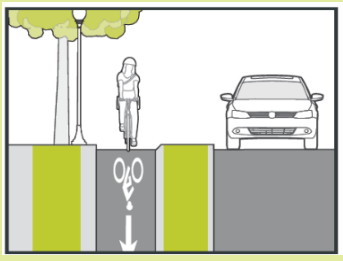


Multi-Use Path



Bicycle Lane

Bicycle Route



Separated Bicycle Lane

MULTI-USE PATH

BICYCLE LANE

BUFFERED BICYCLE LANE

BICYCLE ROUTE

RURAL BICYCLE ROUTE

BICYCLE BOULEVARD

SEPARATED BICYCLE LANE

TWO-WAY SEPARATED BICYCLE LANE

Figure 4. Examples of Different Types of Bikeways in Urban and Rural Areas

Existing Bikeway Facilities

San Mateo County is home to many types of bikeways, ranging from on-street, signed bike routes to off-street, multi-use paths. The variety of bikeway types reflects the many needs present in San Mateo County's diverse communities, which range from smaller, coastal communities like Half Moon Bay to larger, more urban areas like Daly City and San Mateo. In total, there are 455 miles of existing designated bikeways: 116 miles of multi-use paths, 157 miles of bike lanes, eight miles of buffered bike lanes, two miles of separated bike lanes, and 172 miles of signed bike routes (**Table 1**).

The most common type of bikeways are bicycle routes. These routes are often used to create neighborhood or local street bikeways and do not provide separation between road users. San Mateo County also has a notable share of multi-use paths – these are great recreational riding facilities and, if well-maintained and providing well-designed roadway crossings, are comfortable for people of all ages and abilities. The majority of roadways in the county do not have any designated bikeways, but bicyclists are still permitted to ride on them, with the exception of the limited-access freeways such as Highway 101. Many of the streets with bike lanes are found in the larger urban areas where there are dense street networks (**Figure 5**). **Appendix E** includes bikeway facility maps for each jurisdiction in San Mateo County.

In general, the existing bicycle network within each jurisdiction serves some destinations and residential areas, but not all. The City of San Mateo and Redwood City have the most designated bikeways, but the networks are missing several key connections. Bicycle network connectivity is also limited between local jurisdictions in San Mateo County. Where there is connectivity, it is primarily on bike routes and bike lanes on roadways that are unlikely to be comfortable for people of all ages and abilities. There are no complete cross-county bikeways, but many agencies are working together to complete gaps in the San Francisco Bay Trail and Peninsula Bikeway.

Table 1. Existing Bikeway Mileage by Classification

Bikeway Class	Mileage*	Share of Mileage*
Class I Multi-use Path	116	25%
Class II Bicycle Lane	157	34%
Class IIb Buffered Bicycle Lane	8	2%
Class III Bicycle Route	172	38%
Class IV Separated Bicycle Lane	2	<1%
Total	455	100%

*Mileages are rounded to the nearest whole number.

Source: C/CAG San Mateo County and data provided by local jurisdictions during the CBPP planning process.

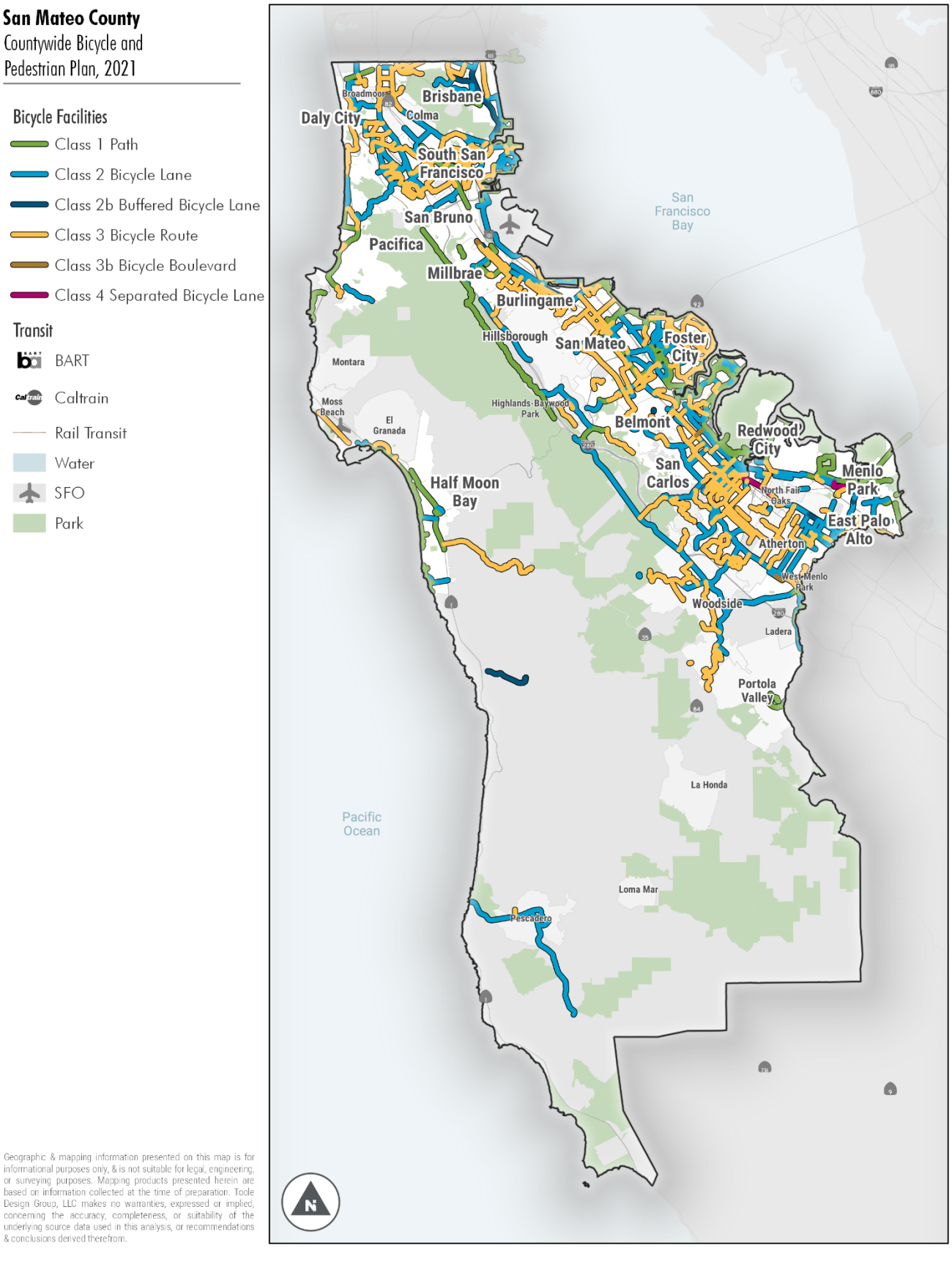


Figure 5. Existing Bikeways by Classification

Level of Traffic Stress Analysis

It is important to analyze the existing bicycle network's level of comfort, as it can indicate how many people may choose to ride a bike for commuting, errands, and recreational trips. Comfort is typically determined by the speed and volume characteristics of vehicular traffic on segments within the network as well as the level of separation provided by a bike facility between the bicyclist and adjacent vehicular traffic. A level of traffic stress (LTS) analysis provides a rating for on- and off-street bikeways and roadways that do not have a designated bicycle facility to indicate the vehicular traffic stress experienced by the "interested but concerned" cyclist.

The analysis uses the Mineta Transportation Institute's (MTI) nationally recognized research on low-stress bicycling and network connectivity. It is based on the premise that a person's level of comfort on a bicycle increases as separation from vehicular traffic increases and as traffic volumes and/or speeds decrease. The MTI methodology was adapted based on data availability and local context. **Figure 6** for definitions of the four levels of traffic stress.

LTS in San Mateo County

Throughout the county, residential local roads scored LTS 1, while collectors and major arterials generally scored LTS 3 or 4. In many communities in San Mateo County, the residential streets do not form a complete, connected network, and arterials and collectors are needed to travel across town and access many destinations, so though a majority of roadway miles are low stress, they would not enable people to comfortably bike to destinations. Each jurisdiction has at least one LTS 4 roadway. **Figure 7** shows the results of the level of traffic stress analysis, but only the higher stress routes.

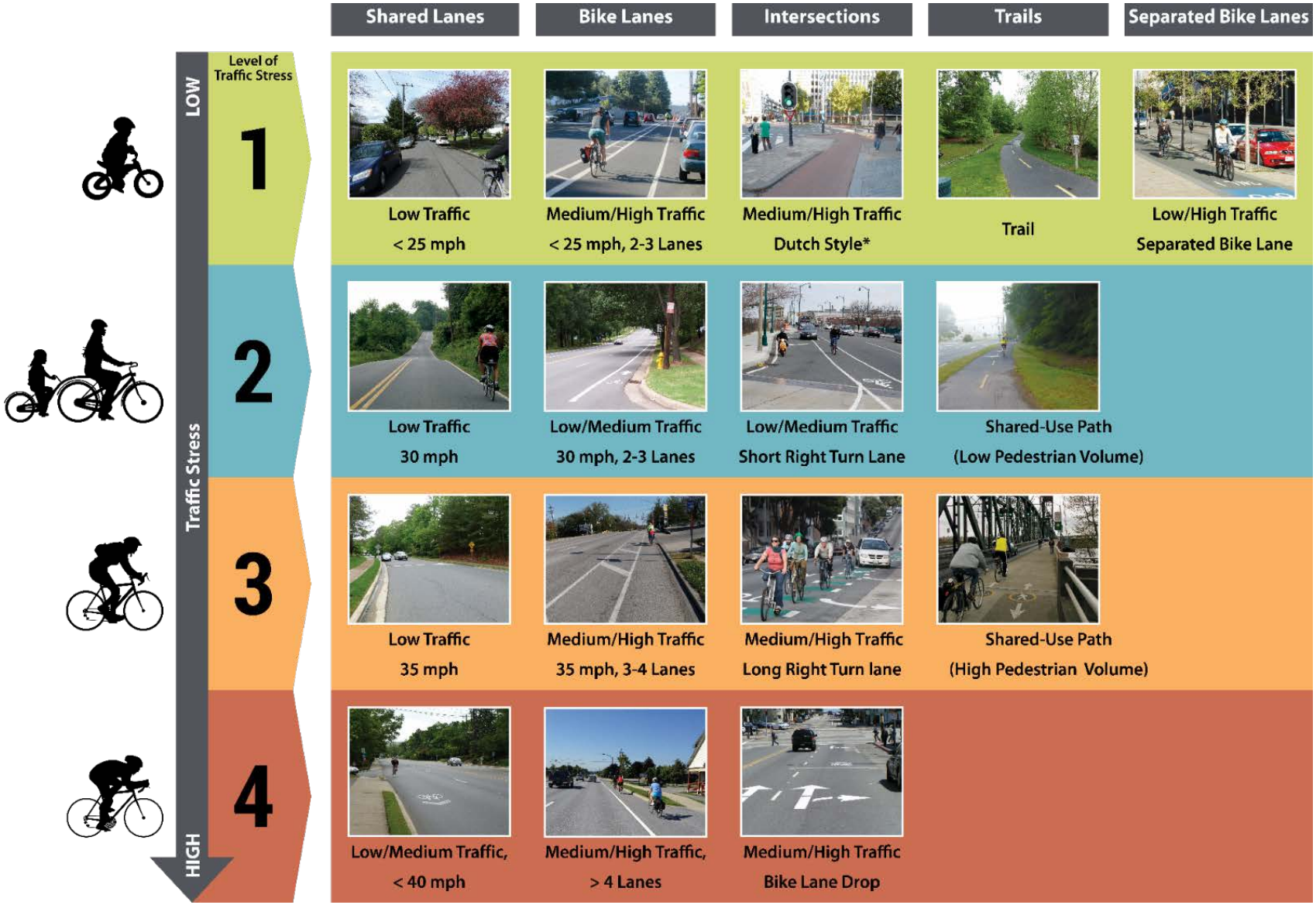
A more detailed examination of traffic volume and speed is needed for arterials, but it is likely that many of the LTS 3 and 4 streets will require the addition of Class I, Class II, or Class IV bikeways to be considered comfortable for the "interested but concerned" rider.

Table 2. Countywide Roadway Mileage by Level of Traffic Stress Score

Level of Traffic Stress (LTS) Score	Mileage*	Share of Mileage*
LTS 1	1,597	54%
LTS 2	631	21%
LTS 3	134	4%
LTS 4**	610	21%
Total	2,972	100%

*Mileages are rounded to the nearest whole number.

**Mileage estimates for LTS 4 are slight over-estimates due to dual carriageways in the spatial data



Source: Toole Design

Figure 6. Level of Traffic Stress of Different Types of Bikeway

*Dutch-style intersections provide physical separation between bicyclists and motor vehicles to protect bicyclists from motor vehicles going straight or turning. The separation is typically provided using concrete islands, with one island placed at each corner of the intersection between the bike lane and the motor vehicle travel lane.

San Mateo County
Countywide Bicycle and
Pedestrian Plan, 2021

Level of Traffic Stress

Stress Level
- LTS 3
- LTS 4
- Water
- SFO
- Park

This map only shows LTS levels 3 and 4, which are considered high stress.

Geographic & mapping information presented on this map is for informational purposes only, & is not suitable for legal, engineering, or surveying purposes. Mapping products presented herein are based on information collected at the time of preparation. Toole Design Group, LLC makes no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations & conclusions derived therefrom.

Figure 7. Existing Bikeway Level of Traffic Stress Analysis

Bicycle-Involved Collisions

Enhancing safety for people bicycling is a key part of improving bicycling conditions and encouraging more people to bike. As part of this planning process, bicycle-involved collision data (2014 to 2018) from the Statewide Integrated Traffic Records System (SWITRS) dataset was analyzed. **Figure 9** shows the geographic distribution of bicycle-involved collisions throughout San Mateo County. Note that this data only includes police-reported collisions and does not include collisions that did not result in an injury and therefore likely underrepresents the total number of bicycle collisions. Therefore, the analysis may not be representative of all bicycle collision trends.

During the analysis period, there were 1,187 bicycle-involved collisions. The collisions resulted in 9 deaths and 1,218 injuries. **Figure 8** shows the distribution of bicycle-involved collisions by injury severity. Approximately 10 percent of injury bicycle-involved collisions resulted in a fatal or life-changing injury. Among the victims involved in the collisions, the majority were male (82 percent), 24 percent of victims were under 20, and 6 percent were 65 years old or older.

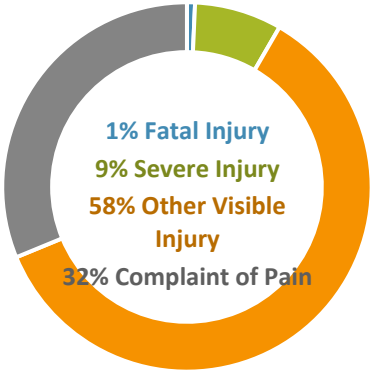


Figure 8. Bicycle Collisions by Injury Severity

The top three categories of violations associated with bicycle-involved collisions were automobile right of way, improper turning (among drivers and bicyclists), and unsafe speed. These three categories were associated with approximately 57 percent of bicycle-involved collisions. Automobile right of way refers to situations where either the driver failed to yield right of way to a bicyclist or vice versa. It is a broad category and is associated with several different violations, including failure to yield right of way while entering a roadway or turning.

A notable share of bicycle-involved collisions with motor vehicles were broadside (20 percent) or sideswipe (9 percent) crashes. Broadside refers to collisions where one party crashes into the other while the two parties are traveling perpendicular to each other. Sideswipe refers to collisions where the parties are traveling in the same direction, parallel to each other. These two collision types suggest there may not be sufficient separation or visibility between road users.

The majority of bicycle-involved collisions occurred in daylight, but 13 percent of crashes occurred under dark conditions with streetlights and four percent of collisions occurred either during dawn, dusk, or dark conditions without streetlights.

Approximately 55 percent of bicycle-involved collisions did not occur at an intersection, 27 percent of collisions occurred at a controlled intersection and 17 percent occurred at an uncontrolled intersection (one percent of collisions did not include intersection location information). Approximately 17 percent of bicycle-involved collisions occurred on state highways.

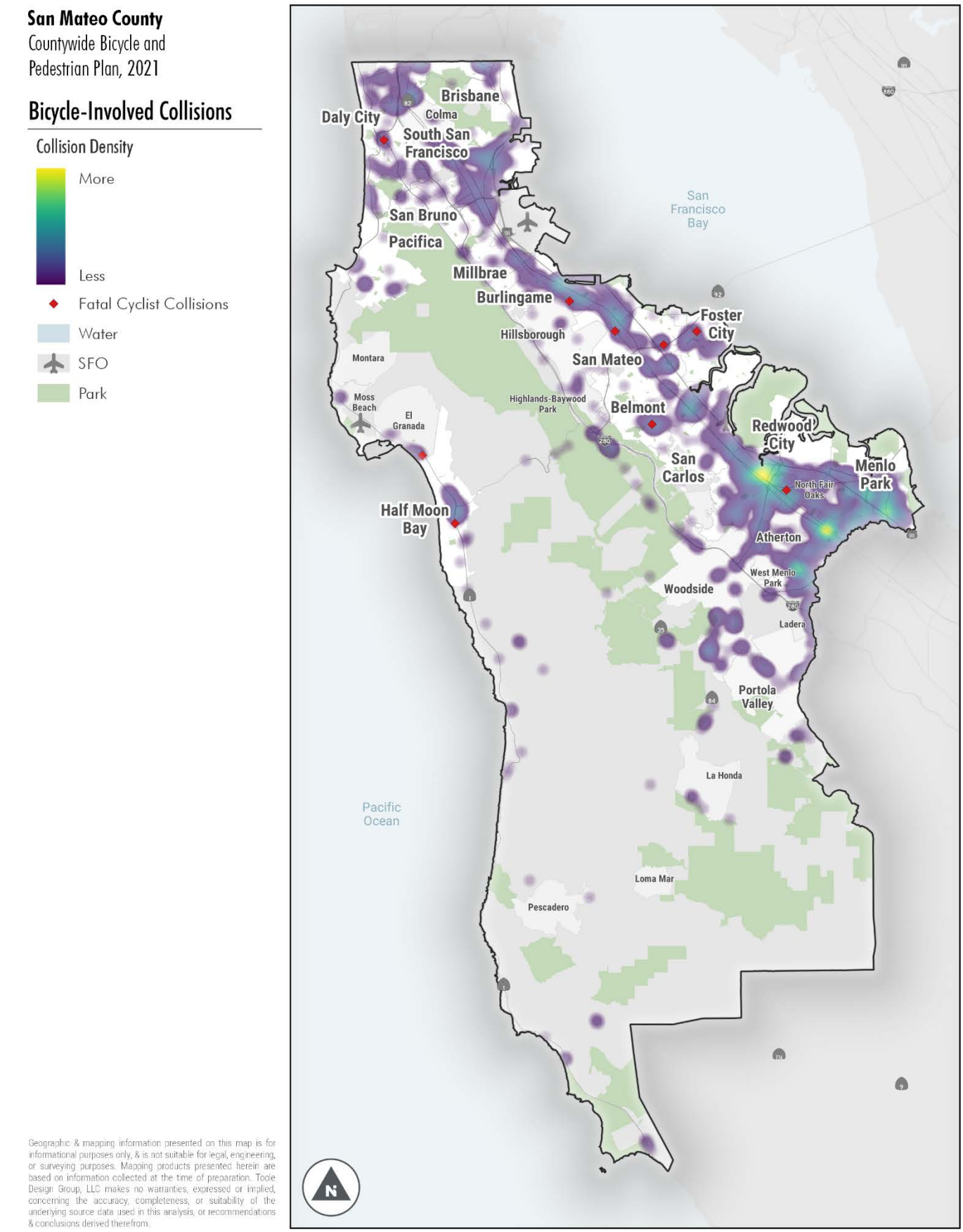


Figure 9. Bicycle-involved Collisions in San Mateo County, 2014 - 2018

Walking Conditions

This section presents an overview of the needs of pedestrians, types of pedestrian facilities, recent pedestrian projects in the San Mateo region, and analyses of existing pedestrian crashes.

Pedestrian Needs

Nearly everyone is a pedestrian at some point in their journey. Considering the needs of people walking is a central principle of sound transportation network design. A high-quality pedestrian network must plan for the needs of all, particularly the most vulnerable walkers and those using mobility devices, including children, the elderly, and people with disabilities. People in these groups may move more slowly and may be less visible to passing vehicles.

Pedestrians are the most vulnerable users of the transportation network, and a network that is safe, comfortable, and convenient for pedestrians will improve comfort for all modes. High quality pedestrian facilities are particularly important near key destinations such as schools, parks, grocery stores, homes and transit stops. Some important principles to support walking trips include:

- Provide direct routes:
    - Provide pedestrian walkways on both sides of the roadway;
    - Provide frequent crossings, particularly at logical locations connecting key destinations;
    - Provide crossings to major barriers such as freeways and rail lines;
- Design for safety:
    - Provide enhanced crossings and reduce conflict points between pedestrian and vehicles at crossings where: traffic volumes or speeds are high, at locations where many pedestrians are expected, and near key destinations such as schools, parks, and elder care homes.
    - Employ strategies to lower vehicle speeds, especially at intersections
    - Ensure adequate visibility to drivers, particularly at intersections and driveways; this includes clear sight lines and adequate lighting at night.

Types of Pedestrian Facilities

A functional and safe pedestrian network generally consists of well-connected sidewalks, trails, and crossing treatments. Sidewalks, crossings, and trails in the public right of way must follow the Americans with Disabilities Act (ADA) guidelines. There are a multitude of crossing treatments which can be used to improve pedestrian safety and comfort depending on the conditions. In general, pedestrian-specific crossing treatments are important in areas where high volumes of pedestrians are expected, such as in downtown districts or near parks, schools, and transit stops. Sidewalks are not always suitable in rural areas; advisory or paved shoulders and side paths may be preferred. While there is currently no comprehensive countywide sidewalk inventory, C/CAG could develop in the future in collaboration with local jurisdictions.

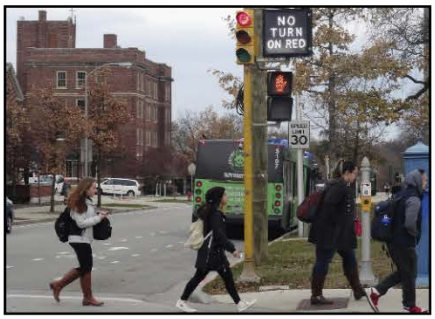
Within San Mateo County, the pedestrian network consists largely of sidewalks supported by crossing treatments, multi-use paths, and unpaved recreational trails. A brief summary of pedestrian facilities that C/CAG supports is listed below and shown in **Figure 10.** For more information on pedestrian design guidelines, please reference the **Design Toolkit** in **Appendix A**.

Pedestrian Facilities Applicable in Urban and Rural Areas	
Median Crossing Islands	• Allows pedestrians to cross a street in two stages • Visually and physically narrows the roadway which helps reduce vehicle speeds • Used on multi-lane roadways or roadways with high traffic volume
Rectangular Rapid Flashing Beacons	• Combines a crossing warning sign with a bright flashing beacon that is activated on demand when a pedestrian or bicyclist is present • Increases drivers' yielding compliance and pedestrian visibility • Often used at midblock crossings or unsignalized intersections of lower speed, two-lane roadways
Pedestrian Hybrid Beacon	• Traffic signal for major street activated on demand when a pedestrian or bicyclist is present • Requires drivers to stop and increases pedestrian visibility • Often used at midblock crossings on higher speed, multi-lane roadways
Signals	• Pedestrian Signal Timing – Signal head displays "Walk", countdown, and "Don't Walk"; crossing time accommodates a normal walking pace • Automatic pedestrian signals – Automatically change between "Walk", countdown, and 'Don't Walk" phases without pedestrians needing to push a button to call for a signal change • Accessible Pedestrian Signals – Communicates information aurally to serve the visually impaired • Leading Pedestrian Interval – Walk phase begins three to seven seconds before drivers are given the green light which increases pedestrian visibility and reduces conflicts with turning vehicles
ADA-compliant Sidewalk	• Provides a continuous clear path designated for pedestrians of all ages and abilities • A firm, stable, and slip-resistant surface, typically concrete
Alternative Walkway	• Includes paved roadways shoulders with and without designated spaces for pedestrians • Can provide designated, separated space for pedestrians through use of pavement markings, curbs, bollards, or other barrier materials such as wood
ADA-accessible Curb Ramps	• ADA-accessible curb ramps provide access and detectable warning for the physically and visually impaired (respectively), and are useful to people pushing strollers or baskets
High-visibility Crosswalk Markings	• Improves visibility of crossing with bold, reflective striping which can increase yielding rates at intersections and midblock
Curb Extensions	• Reduces pedestrian crossing distances at intersections or midblock crossings • Visually and physically narrows the roadway which helps to reduce vehicle speeds and turning speeds
Raised Crosswalk	• Reduces vehicle speeds at intersection or midblock crossings • Increases visibility of pedestrians

HIGH-VISIBILITY CROSSWALK/CURB RAMPS

MEDIAN CROSSING ISLAND

PEDESTRIAN PUSH BUTTONS

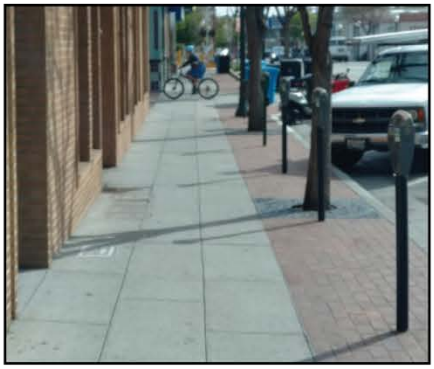


PEDESTRIAN DON'T-WALK SIGNAL

PEDESTRIAN PATH

ADVISORY SHOULDER

CURB EXTENSION



ADA-COMPLIANT SIDEWALK

PEDESTRIAN HYBRID BEACON

RAISED CROSSWALK

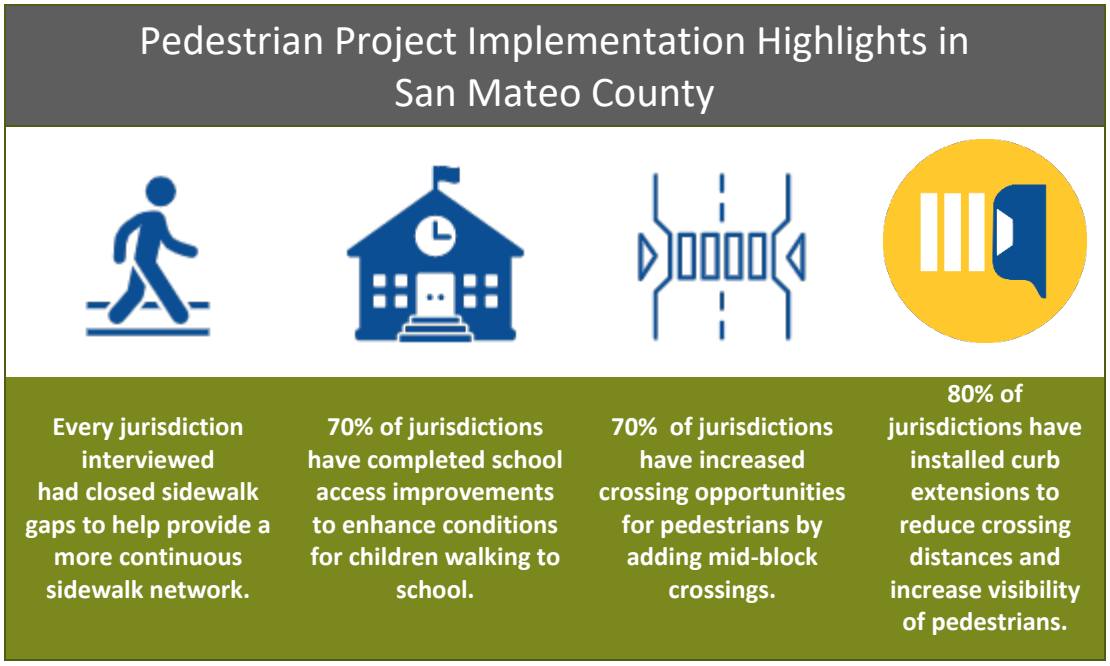
RECTANGULAR RAPID FLASHING BEACON (RRFB)

PAVED SHOULDER

Figure 10. Examples of Different Types of Pedestrian Facilities

Pedestrian Project Implementation

In recent years, local jurisdictions throughout San Mateo County have implemented a number of pedestrian projects, either as standalone projects or as part of Complete Streets projects.[5] Since the 2011 C/CAG San Mateo County Comprehensive Bicycle and Pedestrian Plan, almost every jurisdiction has addressed sidewalk gaps, installed curb ramps (or other ADA retrofits), and installed pedestrian-activated beacons (e.g., rectangular rapid flashing beacons) based on information reported during the in person local jurisdiction interviews and surveys. Most jurisdictions have also installed marked crosswalks, curb extensions, and mid-block crossings. Several communities have completed major crossing improvements by constructing curb extensions, pedestrian crossing islands, and raised crossings. Refer to the Existing Conditions Report in **Appendix C** for more information on the types of pedestrian projects implemented throughout San Mateo County.



[5] Complete Streets are streets that are designed to promote safe access for all roadway users, including pedestrians, bicyclists, and motor vehicle drivers of all ages and abilities.

Pedestrian-Involved Collisions

Enhancing safety for people walking is a key part of improving conditions for pedestrians and encouraging more people to walk. As part of this planning process, pedestrian-involved collision data from the Statewide Integrated Traffic Records System (SWITRS) dataset for a five-year period (2014 to 2018) was analyzed. **Figure 12** shows the geographic distribution of pedestrian-involved collisions throughout San Mateo County. Note that this data does not include collisions that did not result in an injury nor does it include collisions that were not reported to the police and therefore likely underrepresents the total number of pedestrian-involved collisions and the analysis may not be representative of all pedestrian collision trends.

During the analysis period, there were 1,242 pedestrian-involved collisions. The collisions resulted in 52 deaths and 1,297 injured victims. **Figure 11** shows the distribution of pedestrian-involved collisions by injury severity. Nearly 20 percent of pedestrian-involved collisions resulted in a fatal or life-changing injury; this distribution is very similar to that of bicycle-involved collisions.

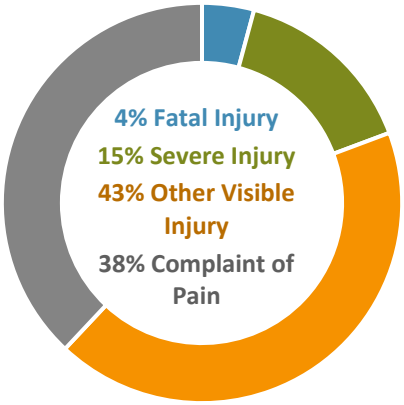


Figure 11. Pedestrian Collisions by Injury Severity

Among the victims involved in the collisions, a slight majority were male (54 percent), approximately 21 percent of victims were under 20 years old, and 17 percent were age 65 or older.

The top three categories of violations associated with pedestrian-involved collisions were 1) the driver failed to yield to a pedestrian who has the right of way, 2) the pedestrian violated a driver's right of way, and 3) unsafe speed. These three categories were associated with 78 percent of pedestrian-involved collisions; however, pedestrian right of way and pedestrian violations were much more common than unsafe speed violations.

The majority of pedestrian-involved occurred in daylight, but one third of crashes occurred under dark conditions with streetlights and nearly 8 percent of collisions occurred either at dawn, dusk, or under dark conditions without streetlights.

Approximately half of all pedestrian-involved collisions occurred while a pedestrian was crossing in a crosswalk at an intersection, 21 percent occurred while the pedestrian was crossing outside of a designated crosswalk, 14 percent occurred while the pedestrian was walking along the road (including shoulders), and the remaining 12 percent involved a combination of other scenarios. Approximately 20 percent of pedestrian-involved collisions occurred on state highways.

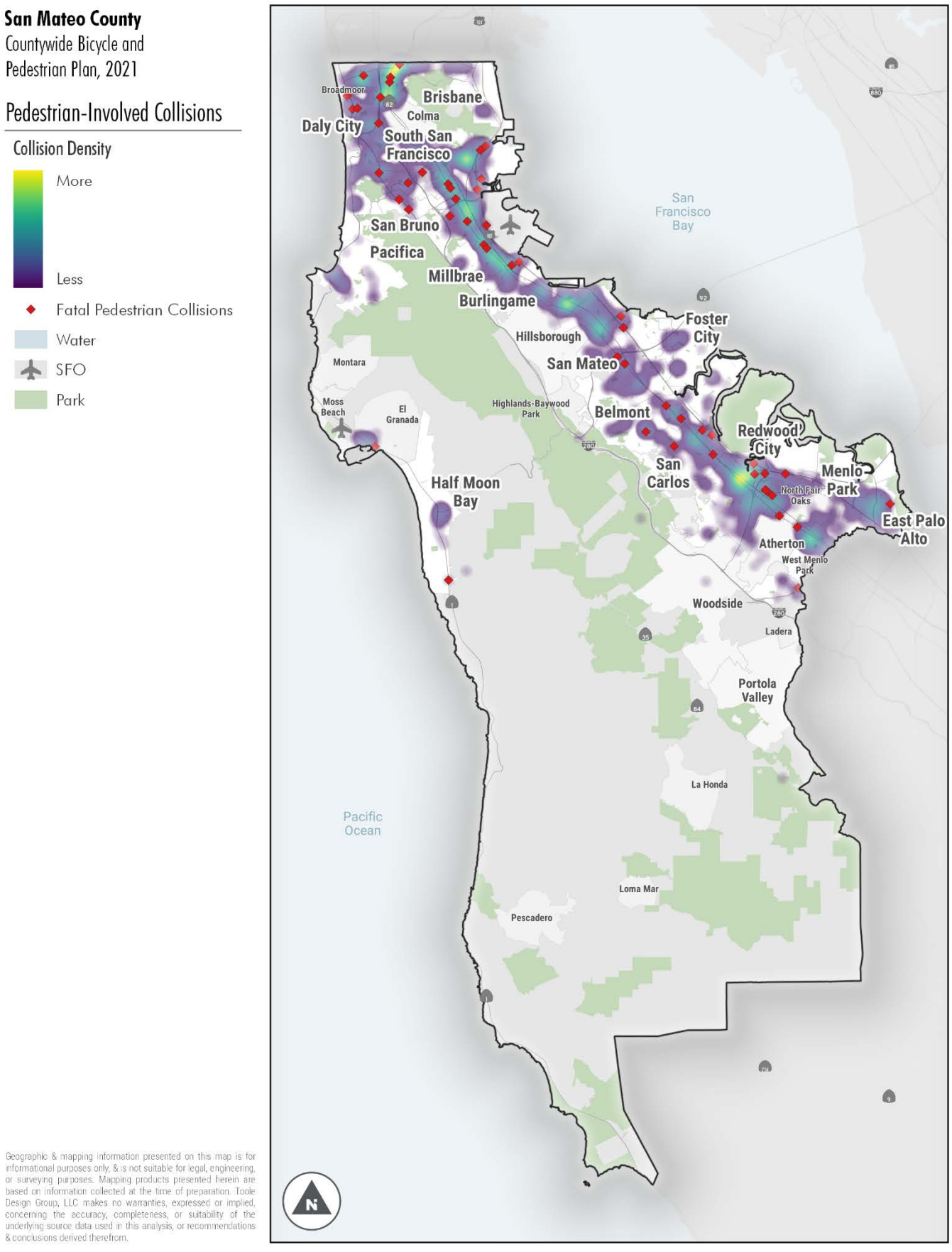


Figure 12. Pedestrian Collisions in San Mateo County, 2014 - 2018

Chapter 4: Bicycle and Pedestrian Needs Analysis and Recommendations

This chapter provides an overview of the countywide bicycle and pedestrian networks, and the projects, policies, and programs that will advance the goals of this plan to improve access, safety, and comfort for trips to and within destinations of regional significance.

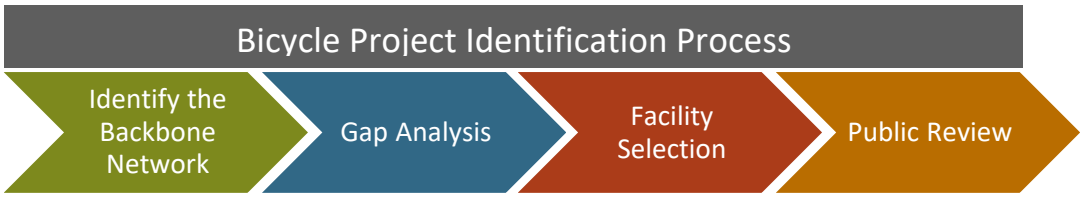
Bicycle Project Recommendations

Within San Mateo County, C/CAG is uniquely positioned to lead the vision, strategy, and funding priorities for the countywide bike network. This network, called the Backbone Network, links regionally significant destinations across local jurisdictions with the goal of addressing gaps between city boundaries and providing continuous, low-stress bikeways across the county.

The alignment of the countywide Backbone Network (shown in **Figure 13**) was developed collaboratively with the TAG, BPAC, and general public. It includes routes along specific roadways and regional trails that create a logical and convenient network to meet several connectivity needs:

- Increase north-south and east-west connections across the County
- Increase connections within and between local jurisdictions
- Improve access within disadvantaged communities and from these communities to other parts of San Mateo County

Many segments of the Backbone Network already have existing bikeways or identified improvements through local planning efforts. The project recommendations in this Plan are designed to complete and strengthen those bikeways by identifying locations that lack bike facilities, or where existing facilities are not considered low-stress, and by identifying appropriate facility recommendations. These project recommendations have been coordinated with local jurisdiction planning efforts, and in several circumstances may advance local recommendations. Though this list does not include all locally recommended bicycle facilities, C/CAG recognizes the significance of local bike networks and supports their implementation throughout the County.



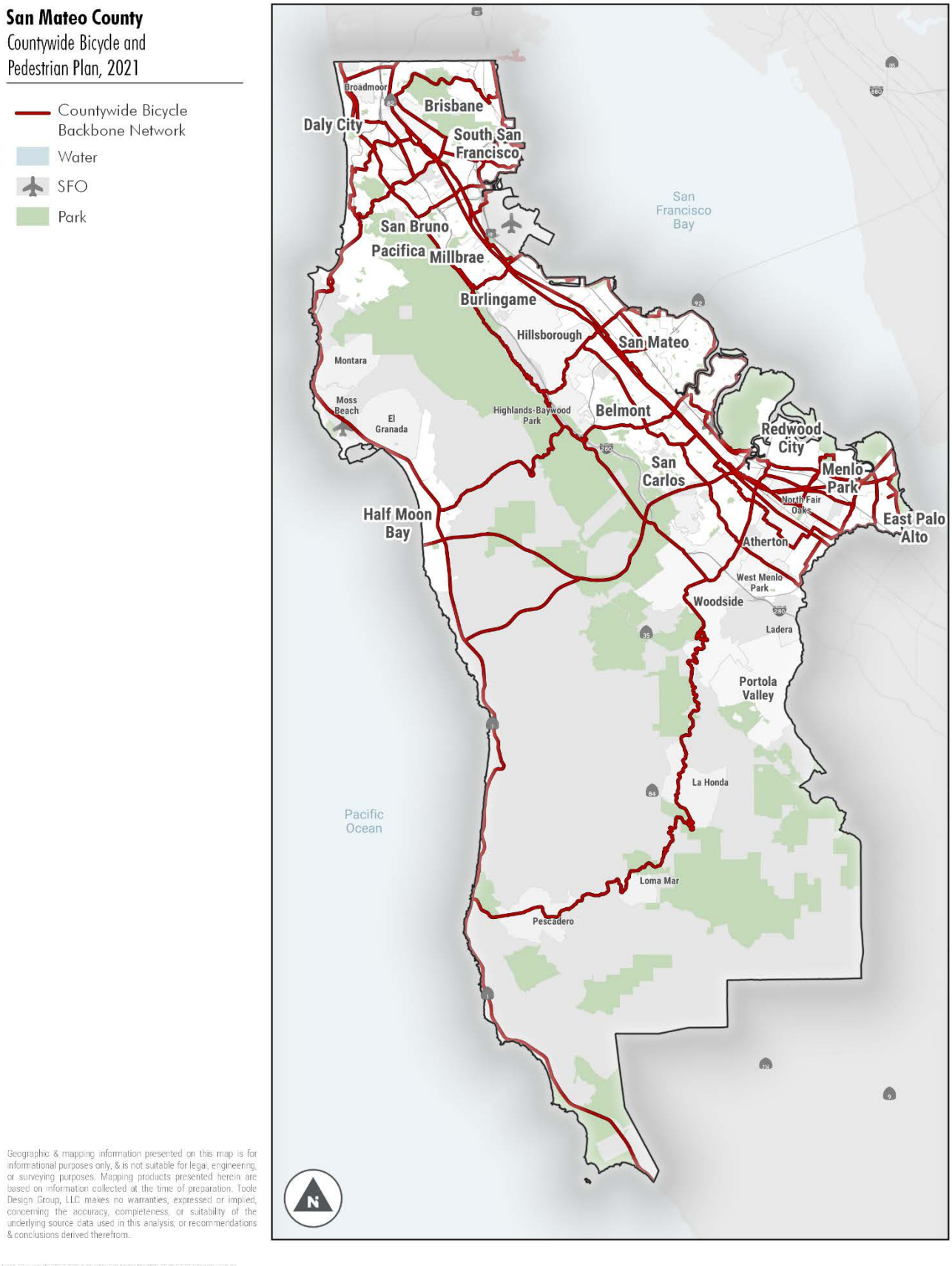


Figure 13. Countywide Bicycle Backbone Network

Identifying Project Needs

As a starting point to identify facility recommendations, a gap analysis of the Backbone Network was conducted. Information on gaps was collected via interviews with local agency staff, public input provided through an online map, and through a level of traffic stress analysis to identify where the existing network facilities are low-stress, and where higher stress conditions show a need for improvements. The bicycle gap and barrier analysis identified the following issues:

- Approximately one-fifth (21 percent) of the Backbone Network is already considered low-stress; therefore no additional recommendations are proposed on these corridors.
- Close to half of bicycle network gaps along the Backbone Network are segments that do not have existing facilities, but they do have recommended bikeways which have been identified in previous local and county-wide planning efforts. As part of this project development, those project recommendations were revisited to ensure that they provide low-stress bicycle facilities. Recommendations that were not considered low stress were upgraded (e.g., a standard bike lane to a separated bike lane) to ensure the facility will be comfortable for people of all ages and abilities.
- Segments of the Backbone Network that did not have an existing facility or a facility recommended in existing local and county planning efforts (10 percent) or have an existing high-stress facility (23 percent) were evaluated for low-stress facilities.

See **Appendix C** for detailed information on the gap analysis.

Facility Selection

Each roadway segment along the Backbone Network that is not currently a low-stress facility was evaluated using the Federal Highway Administration (FHWA) Bikeway Selection Guide to identify appropriate low-stress bicycle facility recommendations. The FHWA Guide identifies appropriate facilities based on traffic volumes and prevailing vehicle speeds. This guidance considers rural roadways differently than other roadways; this guidance was applied to the rural areas of the county and is shown in **Figure 14**.

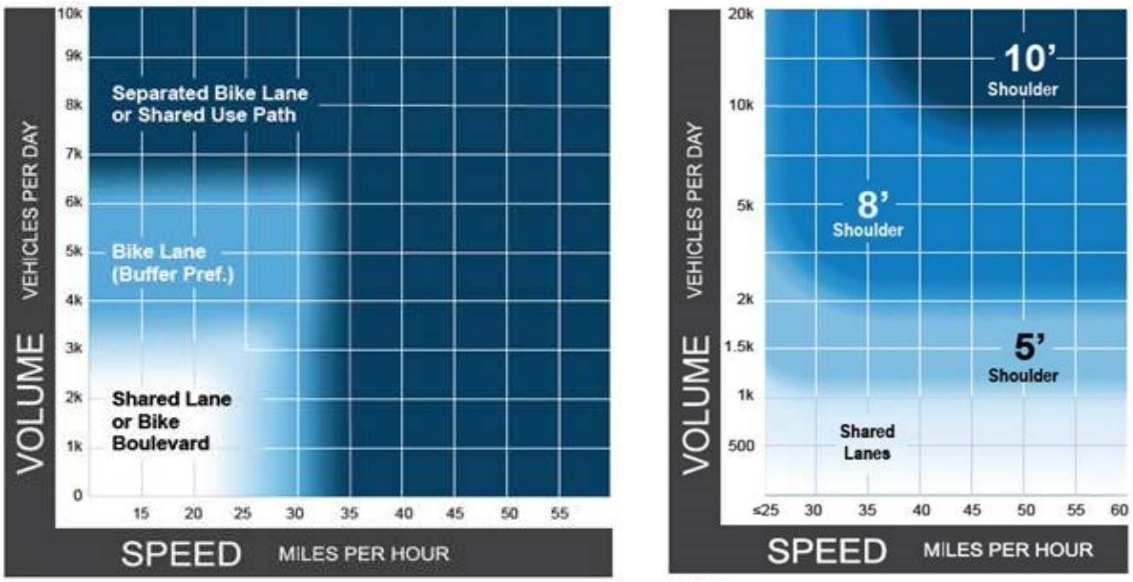


Figure 14. FHWA bikeway selection criteria for urban/suburban/rural town centers (left) and rural areas (right)

Based on the speed and volume assumptions for roadways included along the Backbone Network and the preferred facility tables from the FHWA Guide, bike facility types were assigned based on roadway classifications, as listed in Table 3.

Based on the speed and volume assumptions for roadways included along the Backbone Network and the preferred facility tables from the FHWA Guide, bike facility types were assigned based on roadway classifications, as listed in Table 3.

Table 3. Default Bike Facility Recommendations by Roadway Classification

Roadway Type	Urban/suburban/rural town center context	Rural context
Highway	Multi-use path or separated bike lane	10’ shoulder
Arterial	Multi-use path or separated bike lane	8’ shoulder
Collector*	Bike lanes (coast-side), multi-use path or separated bike lane (bay-side)	5’ shoulder (coast-side), 8’ shoulder (bay-side)
Residential	Bike route or boulevard	bike route or boulevard

*Different bike facilities are recommended for the coast-side and bay-side due to the differences in roadway geometry (e.g., amount of right-of-way, curvature), topography, population density, and anticipated bicyclist volumes associated with Collectors in the two different sides of the county.

Once these facilities were assigned, each segment of the Backbone Network was reviewed to confirm that they would be feasible (e.g. sufficient right-of-way, traffic operations, and on-street parking considerations) and contextually appropriate. The proposed facilities were then refined and then reviewed against local plan recommendations to ensure alignment. Guidance for the design of specific facilities is included in **Appendix A**, the Design Toolkit for San Mateo County.

Proposed Projects

This section presents the projects to complete the countywide Backbone Network. The proposed projects include 250 miles of bikeways, with mileage by bikeway classification listed in **Table 4. Figure 15** shows a map of the existing and proposed bikeways along the Backbone Network. Where recommendations upgrade an existing facility, only the recommended facility is shown. **Table 5** lists each project by jurisdiction and includes implementation details. The specific alignment of projects along the coastline may need to be adjusted to accommodate the anticipated impacts of climate change and sea level rise.

Table 4. Countywide Bicycle Backbone Network by Bikeway Classification

Bikeway Type	Miles along Countywide Backbone Network*
Class 1 Multi-use Path	95
Class 2 Bicycle Lane	18
Class 2 Buffered Bicycle Lane	28
Class 3 Bicycle Route	22
Class 3 Bicycle Route with Wide Shoulders	13
Class 3 Bicycle Boulevard	16
Class 4 Separated Bike Lane	51
To Be Determined**	7
Total	**250**

*Values rounded to the nearest whole number
**Indicates roadways that require additional study to determine the appropriate facility type.

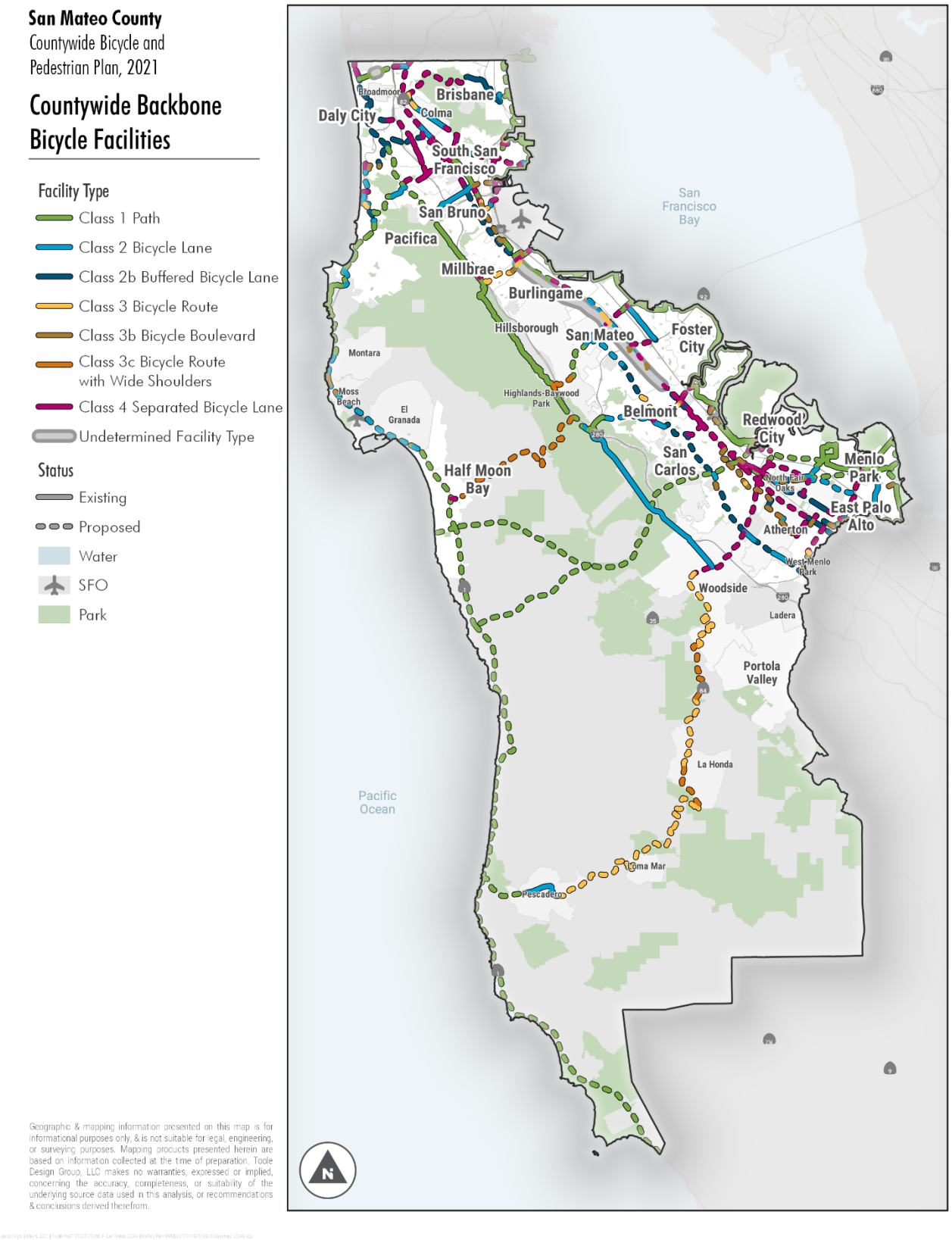


Figure 15. Proposed bikeways along the Countywide Backbone Network

Table 5. Countywide Bicycle Backbone Network Project List
Note: This table is organized by project ID.

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
1.01	Skyline Blvd	N Mayfair Ave	San Francisco County Line	0.51	Class 4 Separated Bicycle Lane	New	Daly City, Unincorporated San Mateo County
1.02	Skyline Blvd	Hickey Blvd	Olympic Way	3.18	Class 2b Buffered Bicycle Lane	New	Daly City
2.01	Westridge Ave, Southgate Ave	Skyline Blvd	Cerro Dr	1.82	Class 2b Buffered Bicycle Lane	Upgrade	Daly City
2.02	Southgate Ave	Cerro Dr	Junipero Serra Blvd	0.41	Class 4 Separated Bicycle Lane	Upgrade	Daly City
3.01	Hillside Blvd	Sylvan St	Hoffman St	0.27	Class 2b Buffered Bicycle Lane	Upgrade	Unincorporated San Mateo County
3.02	Hillside Blvd	Chestnut Ave	Lawndale Blvd	0.59	Class 4 Separated Bicycle Lane	Upgrade	Colma, Unincorporated San Mateo County
4.01	John Daly Blvd	N Mayfair Ave	Skyline Blvd	0.14	Class 1 Path	New	Daly City
4.02	John Daly Blvd	Park Plaza Dr	Lake Merced Blvd	0.16	Undetermined Facility Type	New	Daly City
4.03	John Daly Blvd	Woodrow St	Sheffield Dr	0.43	Class 4 Separated Bicycle Lane	New	Daly City
5.01	Junipero Serra Blvd	Southgate Ave	Westborough Blvd	2.35	Class 4 Separated Bicycle Lane	Upgrade	Colma, South San Francisco, Unincorporated San Mateo County
6.01	Palmetto Ave, Manor Dr	Monterey Rd	Edgemar Ave	0.28	Class 4 Separated Bicycle Lane	New	Pacifica
6.02	Manor Dr	Edgemar Ave	Johnson Ave	0.04	Class 2 Bicycle Lane	New	Pacifica
6.03	Norfolk Pl, Nelson Ave, Johnson Ave	Manor Dr	Monterey Rd	0.56	Class 3b Bicycle Boulevard	New	Pacifica

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
6.04	Hickey Blvd, Shannon Dr	Monterey Rd	El Camino Real Sidepath	3.18	Class 2b Buffered Bicycle Lane	Upgrade	Daly City, Pacifica, South San Francisco
7.01	El Camino Real, Mission St, San Jose Ave	Goethe St	Noor Ave	5.67	Class 4 Separated Bicycle Lane	New	Colma, Daly City, South San Francisco
7.02	El Camino Real	Murchison Dr	Noor Ave	3.69	Class 2b Buffered Bicycle Lane	Upgrade	Millbrae, San Bruno
7.03	El Camino Real	North Rd	Murchison Dr	7.22	Undetermined Facility Type	Upgrade	Burlingame, San Mateo
7.04	El Camino Real	North Rd	F St	1.52	Class 2b Buffered Bicycle Lane	Upgrade	Belmont
7.05	El Camino Real	F St	Valparaiso Ave	5.98	Class 4 Separated Bicycle Lane	Upgrade	Atherton, Menlo Park, Redwood City, San Carlos, Unincorporated San Mateo County
7.06	El Camino Real	Creek Dr	Valparaiso Ave	1.05	Class 2b Buffered Bicycle Lane	New	Menlo Park
8.01	Mclellan Dr	Centennial Way Trail	Mission Rd	0.07	Class 4 Separated Bicycle Lane	New	South San Francisco
8.02	Centennial Way Trail	Bart	Mclellan Dr	0.20	Class 1 Path	New	South San Francisco
8.03	Bart	El Camino Real	Centennial Way Trail	0.09	Class 4 Separated Bicycle Lane	New	South San Francisco
9.01	Oceana Blvd	Manor Dr	Paloma Ave	0.90	Class 2 Bicycle Lane	New	Pacifica
9.02	Paloma Ave	Palmetto Ave	Oceana Blvd	0.16	Class 4 Separated Bicycle Lane	New	Pacifica
10.01	Sharp Park Rd	Gypsy Hill Rd	Bradford Way	0.91	Class 1 Path	Upgrade	Pacifica
10.02	Sharp Park Rd	College Dr	Gypsy Hill Rd	0.54	Class 1 Path	Upgrade	Pacifica

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
11.02	Lagoon Rd	Sierra Point Pkwy	Tunnel Ave	0.41	Class 1 Path	Upgrade	Brisbane
12.01	Grand Ave	Spruce Ave	Chestnut Ave	0.80	Class 2b Buffered Bicycle Lane	Upgrade	South San Francisco
12.02	Grand Ave, E Grand Ave	Spruce Ave	Genentech Drive	1.92	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco
12.03	E Grand Ave	Genentech Drive	Bay Trail	0.24	Class 2 Bicycle Lane	New	South San Francisco
13.01	Westport Dr	Bradford Way	State Highway 1	0.05	Class 2 Bicycle Lane	New	Pacifica
13.03	CA-1 Bike Path, State Highway 1	San Pedro Terrace Rd	Devil's Slide Trail	0.79	Class 2 Bicycle Lane	New	Pacifica, Unincorporated San Mateo County
14.01	Sneath Ln	Interstate Highway 280	Rollingwood Dr	0.18	Class 2 Bicycle Lane	New	San Bruno
14.02	Sneath Ln	El Camino Real	1st St W	0.05	Class 2 Bicycle Lane	New	San Bruno
15.01	San Mateo Ave	El Camino Real	E San Bruno Ave	0.66	Class 3 Bicycle Route	New	San Bruno
17.02	E Millbrae Ave, Old Bayshore Blvd	Us Highway 101	Bay Trail	0.17	Class 4 Separated Bicycle Lane	New	Millbrae
17.03	E Millbrae Ave	Us Highway 101	US Highway 101	0.15	Class 1 Path	New	Millbrae
17.04	E Millbrae Ave, Millbrae Ave	El Camino Real	US Highway 101	0.41	Class 4 Separated Bicycle Lane	New	Millbrae
18.01	Crystal Springs Rd	Interstate Highway 280	Skyline Blvd	0.17	Class 3c Bicycle Route with Wide Shoulders	Upgrade	Unincorporated San Mateo County
18.02	Crystal Springs Rd	Polhemus Rd	Interstate Highway 280	0.76	Class 3c Bicycle Route with Wide Shoulders	Upgrade	Hillsborough, Unincorporated San Mateo County

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
18.03	Crystal Springs Rd, Crystal Springs Trail	El Cerrito Ave	Polhemus Rd	1.66	Class 1 Path	New	Hillsborough, Unincorporated San Mateo County
19.02	State Highway 1	1st St	Mirada Rd	5.42	Class 2 Bicycle Lane	New	Unincorporated San Mateo County
20.01	Clarendon Rd	Palmetto Ave	Lakeview Ave	0.07	Class 3b Bicycle Boulevard	Upgrade	Pacifica
20.02	Clarendon Rd, Francisco Blvd	Oceana Blvd	Bradford Way	0.35	Class 2 Bicycle Lane	Upgrade	Pacifica
20.03	Bradford Way	Sharp Park Rd	Westport Dr	0.40	Class 2b Buffered Bicycle Lane	Upgrade	Pacifica
21.01	Pescadero Creek Rd	State Highway 1	Stage Rd	2.02	Class 1 Path	Upgrade	Unincorporated San Mateo County
22.01	Ralston Ave	Christian Dr	Canada Road Trail	0.12	Class 2b Buffered Bicycle Lane	Upgrade	Unincorporated San Mateo County
22.02	Ralston Ave	Cipriani Blvd	Christian Dr	1.26	Class 2 Bicycle Lane	New	Belmont
22.03	Ralston Ave	Villa Ave	Alley	0.36	Class 2 Bicycle Lane	New	Belmont
24.01	Alameda De Las Pulgas	Crystal Springs Rd	26th Ave	1.57	Class 2 Bicycle Lane	Upgrade	San Mateo
24.02	Alameda De Las Pulgas	26th Ave	Forest Ave	1.46	Class 2b Buffered Bicycle Lane	Upgrade	San Mateo
24.03	Alameda De Las Pulgas	Forest Ave	Ralston Ave	0.91	Class 3 Bicycle Route	New	Belmont
24.04	Alameda De Las Pulgas	Ralston Ave	Carlmont Dr	0.15	Class 4 Separated Bicycle Lane	New	Belmont
24.05	San Carlos Ave, Alameda De Las Pulgas	Cranfield Ave	Whipple Ave	2.95	Class 2b Buffered Bicycle Lane	Upgrade	Redwood City, San Carlos

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
24.06	Alameda De Las Pulgas, Brewster Ave	Whipple Ave	Stanley St	0.41	Class 2 Bicycle Lane	New	Redwood City
24.07	Alameda De Las Pulgas	Brewster Ave	Jefferson Ave	0.45	Class 3b Bicycle Boulevard	Upgrade	Redwood City, Unincorporated San Mateo County
24.08	Alameda De Las Pulgas, Fernside St	Jefferson Ave	State Highway 84	1.80	Class 2b Buffered Bicycle Lane	Upgrade	Redwood City
24.09	Alameda De Las Pulgas, Santa Cruz Ave	Sand Hill Rd	Stockbridge Ave	1.52	Class 2b Buffered Bicycle Lane	Upgrade	Atherton, Menlo Park, Unincorporated San Mateo County
26.01	W 20th Ave, 19th Ave, Ivy St	El Camino Real	State Highway 92	0.29	Class 3b Bicycle Boulevard	New	San Mateo
26.02	19th Ave, Fashion Island Blvd	Pacific Blvd	S Norfolk St	0.96	Class 4 Separated Bicycle Lane	Upgrade	San Mateo
26.03	S Norfolk St	380 ft NW of Fashion Island Blvd/S Norfolk St/State Highway 92	Fashion Island Blvd	0.07	Class 2b Buffered Bicycle Lane	New	San Mateo
27.01	Eaton Ave, Arlington Rd, Oakdale St, Warwick St, Stanford Ln, Duane St	El Camino Real	Hopkins Ave	0.88	Class 3b Bicycle Boulevard	Upgrade	Redwood City, San Carlos
27.02	Hopkins Ave	Duane St	Elmwood St	0.06	Class 2b Buffered Bicycle Lane	Upgrade	Redwood City
27.03	Harrison Ave, Cleveland St, Vera Ave, James Ave, Elmwood St, Fulton St, Duane St	Broadway	Roosevelt Ave	1.15	Class 3b Bicycle Boulevard	Upgrade	Redwood City
27.04	Hess Rd, Poplar Ave, Ebener St	Roosevelt Ave	State Highway 84	0.55	Class 3b Bicycle Boulevard	New	Redwood City
29.02	Blomquist St, Maple St	Bay Trail	Seaport Blvd	0.51	Class 4 Separated Bicycle Lane	Upgrade	Redwood City

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
32.01	Jefferson Ave	Middlefield Rd	El Camino Real	0.19	Class 4 Separated Bicycle Lane	New	Redwood City
33.01	Sand Hill Rd	Vine St	Santa Cruz Ave	0.23	Class 4 Separated Bicycle Lane	Upgrade	Unincorporated San Mateo County
33.02	Oak Ave, Oak Knoll Ln	Olive St	Sand Hill Rd	0.63	Class 3b Bicycle Boulevard	Upgrade	Menlo Park
33.03	Middle Ave	El Camino Real	Olive St	1.08	Class 4 Separated Bicycle Lane	New	Menlo Park
34.01	Bay Rd	Marsh Rd	Willow Rd	1.99	Class 2 Bicycle Lane	New	Menlo Park
35.01	Valparaiso Ave	Crane St	Elena Ave	0.61	Class 4 Separated Bicycle Lane	Upgrade	Atherton
35.02	Crane St, Oak Grove Ave	El Camino Real	Valparaiso Ave	0.41	Class 3b Bicycle Boulevard	Upgrade	Menlo Park
37.01	Woodland Ave Trail	Woodland Ave	Daphne Way	1.42	Class 1 Path	New	East Palo Alto
38.01	Oak Grove Ave	Laurel St	El Camino Real	0.23	Class 4 Separated Bicycle Lane	Upgrade	Menlo Park
38.02	Laurel St	Burgess Dr	Oak Grove Ave	0.53	Class 2b Buffered Bicycle Lane	Upgrade	Menlo Park
38.03	Laurel St	Willow Rd	Burgess Dr	0.24	Class 3b Bicycle Boulevard	Upgrade	Menlo Park
38.04	Willow Rd	Laurel St	Hospital Pl	1.26	Class 2b Buffered Bicycle Lane	Upgrade	Menlo Park
38.05	Willow Rd	Durham St	State Highway 84	1.24	Class 4 Separated Bicycle Lane	Upgrade	East Palo Alto, Menlo Park
39.02	Athlone Way, Bay Rd, 14th Ave	Edison Way	Marsh Rd	0.35	Class 3b Bicycle Boulevard	New	Unincorporated San Mateo County
39.03	Edison Way	Dumbarton Rail Trail	Athlone Way	0.08	Class 1 Path	New	Unincorporated San Mateo County

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
39.04	Edison Way, 2nd Ave, Dumbarton Rail Trail	Northside Ave	12th Ave	0.72	Class 3b Bicycle Boulevard	New	Unincorporated San Mateo County
39.05	5th Ave	Edison Way	Dumbarton Rail Trail	0.07	Class 2b Buffered Bicycle Lane	New	Unincorporated San Mateo County
41.01	State Highway 92	State Highway 1	Hilltop Mobile Home Park Rd	0.46	Class 4 Separated Bicycle Lane	New	Half Moon Bay
41.02	Bay Rd	State Highway 84	Spring St	1.42	Class 4 Separated Bicycle Lane	New	Half Moon Bay, Unincorporated San Mateo County
42.01	Huntington Ave	San Mateo Ave	Sneath Ln	0.84	Class 4 Separated Bicycle Lane	New	Redwood City, Unincorporated San Mateo County
43.01	Huntington Ave, San Anselmo Ave, San Antonio Ave, Santa Helena Ave, S San Anselmo Ave	Center St	San Mateo Ave	1.69	Class 3b Bicycle Boulevard	New	San Bruno
43.02	Center St	San Anselmo Ave	Centennial Way Trail	0.07	Class 2 Bicycle Lane	New	Millbrae, San Bruno
43.03	Center St	Centennial Way Trail	Monterey St Trail	0.02	Class 3b Bicycle Boulevard	New	Millbrae
43.04	Monterey St Trail	Trail	Aviador Ave	0.66	Class 1 Path	New	Millbrae
43.05	Aviador Ave	E Millbrae Ave	Monterey St Trail	0.14	Class 3b Bicycle Boulevard	New	Millbrae
43.06	Emmett Ave	El Camino Real	Twin Pines Ln	0.11	Class 3b Bicycle Boulevard	Upgrade	Millbrae
44.01	Ralston Ave, Marine Pkwy	El Camino Real	US Highway 101	0.33	Class 4 Separated Bicycle Lane	Upgrade	Belmont
44.02	Marine Pkwy	Us Highway 101	US Highway 101	0.30	Class 4 Separated Bicycle Lane	New	Belmont

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
44.03	Marine Pkwy	US Highway 101	US Highway 101	0.17	Class 4 Separated Bicycle Lane	New	Belmont
44.04	Oracle Pkwy	Marine Pkwy	Oracle Bridge	0.09	Class 3b Bicycle Boulevard	Upgrade	Belmont, Redwood City
44.05	Cypress St, E Oakwood Blvd, Oakwood Blvd	State Highway 84	Selby Ln	0.73	Class 3b Bicycle Boulevard	Upgrade	Redwood City
45.01	Selby Ln	Oakwood Blvd	Austin Ave	0.31	Class 2b Buffered Bicycle Lane	New	Atherton, Redwood City
45.02	Austin Ave	Selby Ln	Atherton Ave	0.79	Class 3b Bicycle Boulevard	Upgrade	Atherton
45.03	Atherton Ave	Austin Ave	Elena Ave	0.16	Class 2 Bicycle Lane	Upgrade	Atherton
45.04	Elena Ave	Atherton Ave	Valparaiso Ave	0.86	Class 3b Bicycle Boulevard	Upgrade	Atherton
45.05	W 3rd Ave	E 3rd Ave	Dartmouth Rd	0.13	Class 2 Bicycle Lane	Upgrade	Atherton
48.01	E 3rd Ave	W 3rd Ave	S Humboldt St	0.70	Class 4 Separated Bicycle Lane	New	San Mateo
48.02	Bay Rd	Pulgas Ave	Bay Trail	0.33	Class 3b Bicycle Boulevard	New	San Mateo
49.01	Marsh Rd	Middlefield Rd	Bay Rd	0.63	Class 4 Separated Bicycle Lane	New	East Palo Alto
50.01	State Highway 84, Marsh Rd, Us 101 Marsh Rd Overcrossing	Bay Rd	Bay Trail	0.86	Class 1 Path	Upgrade	Atherton, Unincorporated San Mateo County
50.02	Marsh Rd	US 101 Marsh Rd Overcrossing	Constitution Dr	0.37	Class 2 Bicycle Lane	New	Menlo Park, Redwood City, Unincorporated San Mateo County
50.03	Veterans Blvd	Bay Trail	430 ft S of US Highway 101	0.13	Class 3b Bicycle Boulevard	New	Menlo Park, Redwood City

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
51.01	Veterans Blvd	Bay Trail	Bay Trail	0.12	Class 3 Bicycle Route	New	South San Francisco
51.02	Veterans Blvd	Oyster Point Blvd	Bay Trail	0.16	Class 2 Bicycle Lane	New	South San Francisco
51.03	Oyster Point Blvd	Gateway Blvd	Veterans Blvd	0.17	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco
51.04	Gateway Blvd	E Grand Ave	Oyster Point Blvd	0.68	Class 1 Path	Upgrade	South San Francisco
51.05	S Airport Blvd, E Grand Ave	Gateway Blvd	Bay Trail	1.30	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco
51.06	Tanforan Ave, Shaw Rd	S Maple Ave	Us 101 Overcrossing	0.58	Class 3b Bicycle Boulevard	New	South San Francisco
52.01	Us 101 Overcrossing	Shaw Rd	S Airport Blvd	0.23	Class 1 Path	New	South San Francisco
52.02	Pescadero Creek Rd	Butano Cut Off	Alpine Rd	10.28	Class 3 Bicycle Route	New	South San Francisco
54.01	Pescadero Creek Rd, State Highway 84	Alpine Rd	580 ft SW of Cuesta Real/Redwood Ln/Ventura Ave	1.83	Class 3c Bicycle Route with Wide Shoulders	New	Unincorporated San Mateo County
54.02	State Highway 84	580 ft SW of Cuesta Real/Redwood Ln/Ventura Ave	Old La Honda Rd	3.30	Class 3 Bicycle Route	New	Unincorporated San Mateo County
54.03	State Highway 84	Old La Honda Rd	Skyline Blvd	2.82	Class 3c Bicycle Route with Wide Shoulders	Upgrade	Unincorporated San Mateo County
54.04	State Highway 84, Tripp Rd	Kings Mountain Rd	Skyline Blvd	5.16	Class 3 Bicycle Route	New	Unincorporated San Mateo County
54.05	State Highway 84	Canada Rd	Kings Mountain Rd	0.72	Class 4 Separated Bicycle Lane	Upgrade	Unincorporated San Mateo County, Woodside

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
54.06	University Ave	Woodland Ave Trail	Donohoe St	0.35	Class 1 Path	New	Woodside
55.01	Twin Dolphin Dr Sidepath	Twin Dolphin Dr	Bay Trail	0.18	Class 1 Path	New	East Palo Alto
56.01	E Market St, Guadalupe Canyon Pkwy, Price St	Hillside Blvd	Carter St	3.02	Class 4 Separated Bicycle Lane	Upgrade	Redwood City
57.01	Carlos St, Vermont Ave	State Highway 1	State Highway 1	0.75	Class 3b Bicycle Boulevard	New	Daly City, Unincorporated San Mateo County
58.01	San Carlos Ave	Old County Rd	Alameda De Las Pulgas	0.77	Class 4 Separated Bicycle Lane	Upgrade	Unincorporated San Mateo County
59.01	Bay Rd	State Highway 84	Spring St	1.42	Class 4 Separated Bicycle Lane	New	San Carlos
60.01	Middlefield Rd	Northside Ave	8th Ave	0.68	Class 2 Bicycle Lane/Class 2 Buffered Bicycle Lane*	Upgrade	Unincorporated San Mateo County
60.02	Middlefield Rd	Semicircular Rd	Encinal Ave	1.04	Class 2b Buffered Bicycle Lane	Upgrade	Atherton, Unincorporated San Mateo County
60.03	Middlefield Rd	Oak Grove Ave	Ravenswood Ave	0.20	Class 2b Buffered Bicycle Lane	Upgrade	Atherton
60.04	Middlefield Rd	Baywood Ave	Ravenswood Ave	0.81	Class 4 Separated Bicycle Lane	Upgrade	Atherton, Menlo Park
61.01	Woodland Ave, Baywood Ave	Middlefield Rd	Manhattan Ave	1.34	Class 3b Bicycle Boulevard	Upgrade	East Palo Alto, Menlo Park
61.02	Woodland Ave	Manhattan Ave	Woodland Ave Trail	0.10	Class 1 Path	New	East Palo Alto
62.01	Palm Ave, E 25th Ave	South Blvd	S Delaware St	0.84	Class 2 Bicycle Lane	Upgrade	San Mateo
62.02	S Delaware St	E 25th Ave	E 28th Ave	0.27	Class 4 Separated Bicycle Lane	Upgrade	San Mateo

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
62.03	S Delaware St	Pacific Blvd	E 28th Ave	0.36	Class 3b Bicycle Boulevard	Upgrade	San Mateo
62.04	Pacific Blvd	S Delaware St	Poinsettia Ave	0.13	Class 2b Buffered Bicycle Lane	Upgrade	San Mateo
62.05	Pacific Blvd	Poinsettia Ave	Otay Ave	0.10	Class 2 Bicycle Lane	Upgrade	San Mateo
63.01	Old County Rd	Pacific Blvd	Oneill Ave	1.01	Class 4 Separated Bicycle Lane	Upgrade	Belmont
63.02	Old County Rd	Oneill Ave	300 ft NE of El Camino Real/Harbor Blvd	0.23	Class 2b Buffered Bicycle Lane	Upgrade	Belmont, Unincorporated San Mateo County
63.03	Old County Rd, Stafford St, Whipple Ave	300 ft NE of El Camino Real/Harbor Blvd	Arguello St	2.53	Class 4 Separated Bicycle Lane	Upgrade	Belmont, Redwood City, San Carlos
63.04	Arguello St	Marshall St	Whipple Ave	0.49	Class 3b Bicycle Boulevard	Upgrade	Redwood City
63.05	Broadway, Middlefield Rd, Winslow St, Arguello St	Marshall St	Jefferson Ave	0.30	Class 4 Separated Bicycle Lane	Upgrade	Redwood City
64.01	Centennial Way Trail	Chestnut Ave	Mission Rd	0.19	Class 1 Path	Upgrade	South San Francisco
65.01	Airport Way	Pico Blvd	Redwood Shores Pkwy	0.07	Class 4 Separated Bicycle Lane	Upgrade	Redwood City
65.02	Skyway Rd	Pico Blvd	Blair Island Trail	0.88	Class 3b Bicycle Boulevard	Upgrade	Redwood City, San Carlos
66.01	California Dr	Millbrae Ave	El Camino Real	0.24	Class 1 Path	Upgrade	Millbrae
66.02	California Dr	Millbrae Ave	Murchison Dr	0.15	Class 4 Separated Bicycle Lane	Upgrade	Millbrae
66.03	California Dr	Broadway	Murchison Dr	1.36	Class 1 Path	Upgrade	Burlingame

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
66.04	California Dr	Howard Ave	Broadway	1.26	Class 4 Separated Bicycle Lane	Upgrade	Burlingame
66.05	N San Mateo Dr, California Dr	Catalpa Ave	Howard Ave	1.06	Class 2 Bicycle Lane	Upgrade	Burlingame, San Mateo
67.01	N San Mateo Dr	2nd Ave	E 5th Ave	0.19	Class 3 Bicycle Route	New	San Mateo
67.02	E 5th Ave	N San Mateo Dr	Laurel Ave	0.04	Class 2 Bicycle Lane	Upgrade	San Mateo
67.03	9th Ave	Palm Ave	Baywood Ave	0.06	Class 2 Bicycle Lane	New	San Mateo
68.01	Twin Pines Ln	Ralston Ave	Ralston Ave	0.06	Class 1 Path	Upgrade	Belmont
69.01	S Norfolk St	Alley	Alley	0.02	Class 2b Buffered Bicycle Lane	Upgrade	San Mateo
69.02	S Norfolk St	E 3rd Ave	Alley	0.04	Class 4 Separated Bicycle Lane	Upgrade	San Mateo
69.03	E 3rd Ave	S Norfolk St	Bay Trail Connection	0.28	Class 1 Path	New	San Mateo
70.01	Willow Place Trail, Willow Pl	Willow Rd	Santa Clara County Line	0.13	Class 1 Path	Upgrade	Menlo Park
71.01	Bair Island Rd	Bay Trail	Bay Trail	0.13	Class 3b Bicycle Boulevard	Upgrade	Redwood City
72.01	Angus Ave	Huntington Ave	Bay Trail	0.31	Class 3 Bicycle Route	New	San Bruno
72.02	Bay Trail	E San Bruno Ave	Angus Ave	0.23	Class 2 Bicycle Lane	New	San Bruno, Unincorporated San Mateo County
72.03	Bay Trail, E San Bruno Ave	US Highway 101	Belle Aire Rd	1.65	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco, Unincorporated San Mateo County

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
73.01	Westborough Blvd, Chestnut Ave	Sunset Ave	Sharp Park Rd	2.93	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco, Unincorporated San Mateo County
73.02	Chestnut Ave	Nursery Way	Livingston Pl	0.13	Class 2 Bicycle Lane	Upgrade	South San Francisco
73.03	Chestnut Ave	Livingston Pl	Hillside Blvd	0.12	Class 4 Separated Bicycle Lane	Upgrade	South San Francisco
74.01	Main St	US 101 Overcrossing	Brewster Ave	0.10	Class 4 Separated Bicycle Lane	Upgrade	Redwood City
75.01	Seaport Blvd, State Highway 84	Broadway	E Bayshore Rd	0.47	Class 1 Path	New	Redwood City
75.02	State Highway 84	US Highway 101	Canada Rd	4.82	Class 4 Separated Bicycle Lane	Upgrade	Redwood City, Unincorporated San Mateo County, Woodside
76.01	Skyline Blvd	Crystal Springs Rd	Skyline Blvd Sidepath	0.40	Class 3c Bicycle Route with Wide Shoulders	New	Unincorporated San Mateo County
77.01	Larkspur Dr	Skyline Blvd	Interstate Highway 280 Ramp	0.06	Class 3 Bicycle Route	New	Millbrae, Unincorporated San Mateo County
78.01	Hillcrest Blvd	Skyline Blvd	Interstate Highway 280	0.05	Class 4 Separated Bicycle Lane	New	Millbrae
78.02	Vallejo Dr, Madera Way, Murchison Dr, Skyline Blvd, Millbrae Ave	Sequoia Ave	Hillcrest Blvd	1.49	Class 3 Bicycle Route	New	Millbrae
78.03	Murchison Dr	Ogden Dr	Sequoia Ave	0.11	Class 3b Bicycle Boulevard	New	Millbrae
78.04	Murchison Dr	Magnolia Ave	Ogden Dr	0.16	Class 2 Bicycle Lane	New	Millbrae

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
Regional Trail Projects along the Countywide Backbone Network							
1.03	Skyline Blvd	Hickey Blvd	State Highway 35	3.58	Class 1 Path	New	Daly City, Pacifica, San Bruno, South San Francisco
11.01	Bay Trail	Sierra Point Pkwy	San Francisco County Line	1.60	Class 1 Path	Upgrade	Brisbane
11.03	Sierra Point Pkwy, Shoreline Ct	Lagoon Rd	270 ft SW of Bay Trail/Shoreline Ct	1.34	Class 1 Path	New	Brisbane
13.02	State Highway 1	CA-1 Bike Path	Westport Dr	2.33	Class 1 Path	New	Pacifica
16.01	Bay Trail	330 ft E of Bay Trail	Airport Blvd	0.47	Class 1 Path	New	Burlingame
17.01	Bay Trail	Old Bayshore Blvd	Old Bayshore Blvd	0.22	Class 1 Path	New	Millbrae
19.01	State Highway 1	Devil's Slide Trail	1st St	1.84	Class 1 Path**	New	Unincorporated San Mateo County
23.01	Dumbarton Rail Trail	Marsh Rd	Middlefield Rd	1.39	Class 1 Path	New	Unincorporated San Mateo County, Redwood City
23.02	Bay To Sea Trail	Dumbarton Rail Trail	Bay To Sea Trail (Urban Segment)	1.67	Class 1 Path	New	Unincorporated San Mateo County, Redwood City
25.01	Bay Trail	2450 ft E of Rockport Ave/Tanager Ln	270 ft NE of Canvasback Way/Seabrook Ct	0.84	Class 1 Path	New	Redwood City
28.01	Half Moon Bay Rd Trail, Skyline Rd Trail	Skyline Blvd	Canada Rd	1.16	Class 1 Path	New	Unincorporated San Mateo County
29.01	Bay Trail	True Wind Way	Maple St	0.36	Class 1 Path	New	Redwood City

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
30.01	Bay Trail	410 ft E of Bay Trail/Pico Blvd/Twin Dolphin Dr/Twin Dolphin Dr Sidepath	730 ft N of American St	1.17	Class 1 Path	New	Redwood City, San Carlos
31.01	Bay Trail	Marsh Rd	Seaport Blvd	2.08	Class 1 Path	New	Redwood City
36.01	Bay To Sea Trail (Urban Segment)	Main St	Bay To Sea Trail (Mountain Segment)	3.21	Class 1 Path	New	Redwood City, San Carlos, Unincorporated San Mateo County
36.02	Bay To Sea Trail (Mountain Segment)	Bay To Sea Trail (Urban Segment)	Bay To Sea Trail (Coast Segment)	3.70	Class 1 Path	New	Redwood City, Unincorporated San Mateo County
36.03	Bay To Sea Trail (Coast Segment)	Bay To Sea Trail (Mountain Segment)	State Highway 1	6.36	Class 1 Path	New	Unincorporated San Mateo County
36.04	Bay To Sea Trail (Half Moon Bay Spur)	Purisima Creek Rd	Half Moon Bay Coastal Trail	6.25	Class 1 Path	New	Half Moon Bay, Unincorporated San Mateo County
39.01	Dumbarton Rail Trail	Marsh Rd	University Ave	2.56	Class 1 Path	New	Menlo Park
40.01	Bay Trail	Bay Trail Connector	2860 ft N of Bay Trail	2.30	Class 1 Path	New	East Palo Alto, Menlo Park
46.01	Bay Trail	870 ft N of Old Bayshore Blvd/Us Highway 101	330 ft N of Airport Blvd/Old Bayshore Blvd/Us Highway 101	0.21	Class 1 Path	New	Burlingame
47.01	Devil's Slide Trail	State Highway 1	State Highway 1	0.99	Class 1 Path	New	Pacifica, Unincorporated San Mateo County
53.01	State Highway 1, Hwy 1 Parallel Trail	11th St	Miramontes Point Rd	9.70	Class 1 Path	New	Half Moon Bay, Unincorporated San Mateo County

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Recommendation Type	Lead Agency
53.02	State Highway 1	Santa Cruz County Line	Miramontes Point Rd	26.34	Class 1 Path	New	Half Moon Bay, Unincorporated San Mateo County

*A portion of this segment will include a Class 2 Buffered Bike Lane from Pacific Ave to 5th Ave in North Fair Oaks.

**The recommendation for the southern portion of this segment includes both a Class 2 Bicycle Lane and a Class 1 Path, as presented in the Unincorporated San Mateo County Active Transportation Plan.

Pedestrian Project Recommendations

The goal of the pedestrian project recommendations is to determine priority locations and infrastructure needs around San Mateo County to increase pedestrian safety, walkability, and access.

Pedestrian Focus Areas

As a first step, Pedestrian Focus Areas were identified as regionally significant areas within the county that are likely to have the highest walking activity. While the Pedestrian Focus Areas are identified priorities for this plan, C/CAG also supports and encourages the installation of pedestrian projects in local priority development areas as well as locations outside of these areas.

The Pedestrian Focus Areas were identified by adapting the Pedestrian Index of the Environment (PIE)[6] analysis from C/CAG's 2011 CBPP. The updated Pedestrian Focus Area criteria expanded on the PIE to include a walkability assessment at the Census block group level using the demographic, socio-economic, and built environment criterion presented in the table below. Separate analyses were completed for coast side and bay side communities to ensure an even distribution of Pedestrian Focus Areas throughout the county and to account for the different ranges of demographic and built environment metrics associated with each side of the county. Census block groups that fell within the top 25th percentile were selected as Pedestrian Focus Areas. When allocating funds, C/CAG staff may choose to prioritize projects in areas that fall outside of the top 25th percentile of Pedestrian Focus Areas.

A map of pedestrian focus areas is shown in **Figure 16**.

Pedestrian Focus Area Metrics		
Demographic Metrics	**Built Environment Metrics**	**San Mateo County-Specific Metrics**
Population density	Density of commercial and entertainment destinations	Priority Development Areas[7]
Employment density	Transit accessibility[8]	Equity Focus Areas
	Road network density[9]	
	High crash locations	

[6] The full documentation on the PIE is available for download from Portland State University: https://ppms.trec.pdx.edu/media/project_files/NITC_RR_1028_Transferability_Forecasting_of_PIE_For_Modeling.pdf
[7] Designated by the Metropolitan Transportation Commission
[8] High frequency transit within ½ mile buffer of the stop
[9] Road network density is determined as the total miles of roadway per square miles and serves as a proxy for pedestrian connectivity

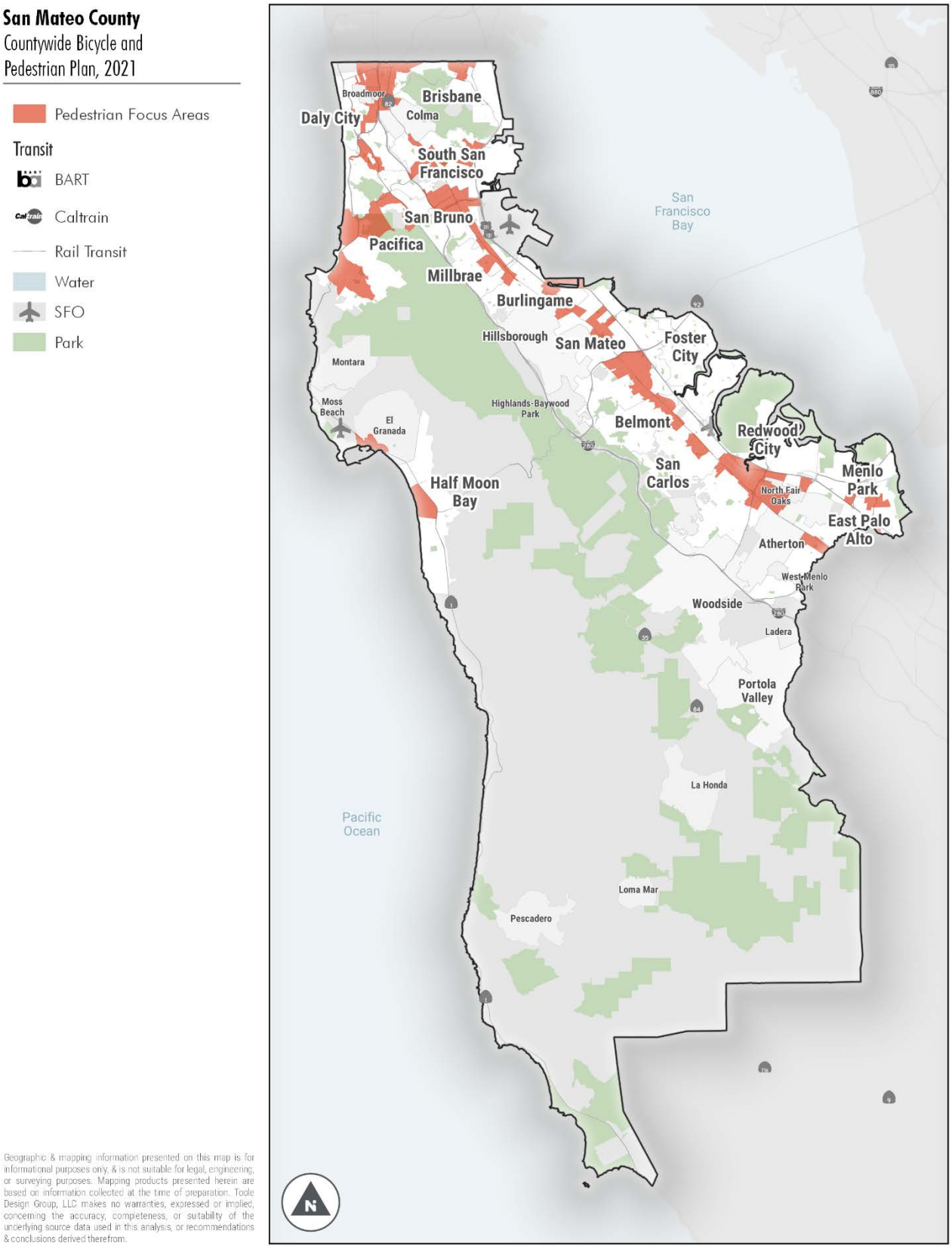


Figure 16. San Mateo County Pedestrian Focus Areas

Identifying Pedestrian Needs

C/CAG then conducted interviews with local agency staff, and used public input provided through an online map to solicit feedback on major gaps and barriers for people walking in San Mateo County. The pedestrian gaps and barriers analysis identified several recurring issues, including:

- Regionally significant barriers to walking (e.g., rail lines, highway interchanges, and major arterials) located throughout San Mateo County
- Regionally significant gaps specifically within the Pedestrian Focus Areas or along the Countywide Backbone Network, such as large arterials and transit access needs

Along with the Pedestrian Focus Areas, these gaps and barriers are shown in **Figure 17**. For more details about the gaps and barriers identified by County and local agency staff, refer to the Existing Conditions Report and Network Gap Analysis in **Appendix C**.

Key Pedestrian Needs

- **Transit access gaps**
- **Gaps to adjacent jurisdictions**
- **Major barriers such as rail lines, highways, and roadways that provide difficult crossings**

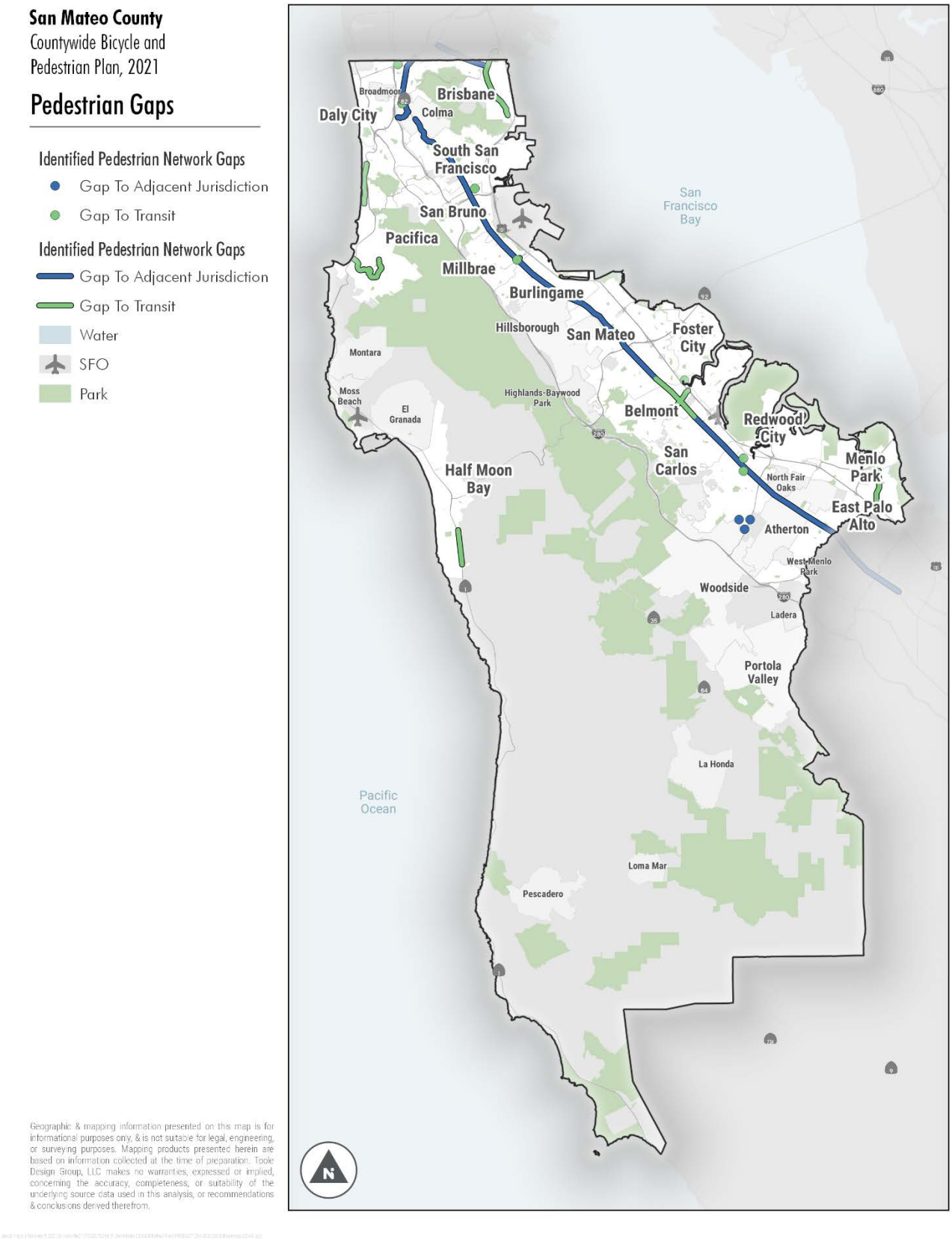


Figure 17. Regional Gaps and Barriers to Walking in San Mateo County

Identifying Candidate Pedestrian Projects

Ongoing and future pedestrian projects should address access, safety, and comfort to support trips to and within destinations of regional significance. Candidate projects, studies or plans for future funding may include the following:

1. Initiatives that address pedestrian access improvements to transit stations or hubs (BART and Caltrain stations, and key SamTrans stops)
2. Any corridors within a Pedestrian Focus Area that are also part of the Countywide Backbone Network, which are candidates for Complete Streets/multimodal improvements
3. Efforts that address major barriers to cross-jurisdictional travel, such as freeway interchanges and large arterial crossings
4. All other locations within Pedestrian Focus Areas that have a demonstrated need for pedestrian improvements that may not be addressed by the three categories above

Any proposed projects, studies or plans that fall within these categories will be eligible for regional funding opportunities, such as TDA Article 3, Measure A, Measure W, and other active transportation program grants. Final grant awards will be determined based on the evaluation criteria identified in specific grant applications. Locations that have not yet been evaluated are candidates for studies such as first/last mile transit access studies, Complete Streets corridor studies, feasibility studies, and pedestrian safety studies.

C/CAG considers all streets and crossings located in Pedestrian Focus Areas as regionally significant and encourages local agency staff to implement best-practice design treatments in these areas to support pedestrian safety and comfort. Locations within Pedestrian Focus Areas that are not specifically identified for proposed improvements may still be improved using the suite of treatments presented in the Design Toolkit in **Appendix A**.

Public Input

Members of the TAG, BPAC, and general public provided feedback on pedestrian projects during the public workshops, advisory committee meetings, and online map. Their feedback helped identify additional transit access projects and major barriers while also providing solutions through projects that could overcome major barriers, like highway crossings.

Pedestrian Project Lists

The following tables present the locations for candidate projects by project type.

- **Table 6**: Complete Street/Multimodal improvement projects, suitable for existing plan recommendations, Complete Streets corridor studies, candidates for safety studies, or trail studies.
- **Table 7**: Regional transit hubs that are candidates for funding to implementing projects identified in existing plans or studies, transit access studies, or first/last-mile gap projects.
- **Table 8:** Major barrier locations, which and good candidates for funding to implement existing plan recommendations; crossing improvements; interchange projects; or feasibility studies.

Table 6. Complete Streets Corridors

Note: This table is organized by jurisdiction/lead agency

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
Middlefield Road	Encinal	Oak Grove Ave	North Fair Oaks Study	Atherton
Marsh Road	Fair Oaks Ave	Middlefield Road		Atherton
Alameda de las Pulgas	Atherton Jurisdiction	Atherton Jurisdiction		Atherton
El Camino Real	Menlo Park Jurisdiction Line	Redwood City Jurisdiction Line	Grand Boulevard Greenway, Caltrans District 4 Bicycle and Pedestrian Plans	Atherton
Ralston Ave	South Rd	Hiller St	Ralston Avenue Corridor Study and Improvement Plan (2014), Belmont Comprehensive Pedestrian and Bicycle Plan (2016)	Belmont
Bay Trail	Broadway	Burlingame Ave		Burlingame
Geneva Ave	Bayshore Blvd	-		Daly City
John Daly Blvd	Windsor Dr	Mission St		Daly City
Hillside Blvd	San Jose Ave	Hoffman St		Daly City
Southgate Ave	Westmoor Ave	Cabrillo Highway	Caltrans District 4 Bicycle and Pedestrian Plans	Daly City
Skyline Blvd	Westmoor Ave	Belhaven Ave		Daly City
Bay Rd	Ralmar Ave	Pulgas Ave		East Palo Alto
Woodland Ave	University Ave	Newell Rd		East Palo Alto
University Ave	Donohoe St	Woodland Ave		East Palo Alto
Cabrillo Highway	Ruisseau Francais Ave	Kelly Ave		Half Moon Bay
Valparaiso Ave	Johnson St	Crane St		Menlo Park
Crane St	Valparaiso Ave	Oak Grove Ave		Menlo Park

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
Oak Grove Ave	Crane St	El Camino Real	Caltrans District 4 Bicycle and Pedestrian Plans	Menlo Park
Middle Ave	University Dr	El Camino Real	Caltrans District 4 Bicycle and Pedestrian Plans	Menlo Park
East Millbrae Ave	California Dr	South Exit Rd		Millbrae
El Camino Real/Mission St/San Jose Ave	Daly City	Menlo Park	El Camino Real Grand Boulevard Initiative, Belmont Comprehensive Pedestrian and Bicycle Plan (2016), South San Francisco Pedestrian Master Plan (2014), San Mateo Pedestrian Master Plan (2012), San Mateo Pedestrian Access Plan (TBD), San Mateo El Camino Real Master Plan (2001), Redwood City El Camino Real Corridor Plan (2017), Redwood City Pedestrian and Bicycle Safety Improvement Study (2019)	Multiple jurisdictions (Daly City, Colma, South San Francisco, San Bruno, Millbrae, Burlingame, San Mateo, Belmont, San Carlos, Redwood City, North Fair Oaks, Menlo Park)
California Dr/North San Mateo Dr	East Millbrae Ave	East 5th Ave	San Mateo Pedestrian Master Plan; Complete Streets project under way in San Mateo	Multiple jurisdictions (includes Millbrae, Burlingame, San Mateo)
Sharp Park Rd	Cabrillo Highway	Skyline Blvd	Caltrans District 4 Bicycle and Pedestrian Plans	Multiple jurisdictions (includes Pacifica, Daly City, San Mateo)
Bay Rd/Florence St	Woodside Rd	Marsh Rd	Stanford in Redwood City Precise Plan (2013)	Multiple jurisdictions (includes Redwood City, North Fair Oaks)
Middlefield Rd	Broadway	Encina Ave	Redwood City Moves (2018)	Multiple jurisdictions (includes Redwood City, North Fair Oaks)
Pacific Blvd/Old County Rd/Stafford St	Franklin Pkwy	Whipple Ave		Multiple jurisdictions (includes San Mateo,

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
				Belmont, San Carlos, Redwood City)
Hickey Blvd	Catalina Ave	Skyline Blvd		Pacifica
Cabrillo Highway	Clarendon Rd	Linda Mar Blvd	Caltrans District 4 Bicycle and Pedestrian Plans	Pacifica
Arguello St	Whipple Ave	Winslow St	Redwood City Moves (2018)	Redwood City
Fuller St	Arch St	Main St		Redwood City
Woodside Rd	Central Ave	Bayshore Freeway	Redwood City Moves (2018)	Redwood City
San Mateo Ave	San Bruno Ave East	El Camino Real		San Bruno
San Bruno Ave East	1st Ave	Bayshore Freeway		San Bruno
Sneath Ln	Junipero Serra Freeway	Huntington Ave		San Bruno
Huntington Ave	Sneath Ln	East Millbrae Ave		San Bruno, Millbrae
San Carlos Ave	Cordilleras Ave	El Camino Real		San Carlos
Warwick St/ Arlington Rd/Oakdale St	Eaton Ave	Whipple Ave		San Carlos, Redwood City
West 3rd Ave	Virginia Ave	Bayshore Freeway	San Mateo Pedestrian Master Plan, Transit Access Plan (TBD), Downtown Area Plan (2009)	San Mateo
East 5th Ave/Laurel Ave/9th Ave/Palm Ave	East 5th Ave	16th Ave	Pedestrian Master Plan, Transit Access Plan (TBD)	San Mateo
19th Ave	Palm Ave	Bayshore Freeway	Pedestrian Master Plan; feasibility study underway	San Mateo
Palm Avenue/East 25th/South Delaware St	J Arthur Younger Freeway	Franklin Pkwy	Pedestrian Master Plan, Transit Access Plan (TBD), Rail Corridor TOD Plan	San Mateo
McLellan Dr/Bart	McLellan Dr	Chestnut Ave	City of South San Francisco Pedestrian Master Plan (2014)	South San Francisco

Corridor	From	To	Existing Studies/Plan	Jurisdiction/Lead Agency
Westborough Blvd/Chestnut Ave	Junipero Serra Blvd	Grand Ave		South San Francisco
Grand Ave	Spruce Ave	Bayshore Highway	Caltrans District 4 Bicycle and Pedestrian Plans	South San Francisco
Cabrillo Highway	Northwestern city limits	Coronado St	Caltrans District 4 Bicycle and Pedestrian Plans	Unincorporated San Mateo County
El Camino Real	McLellan Dr	BART	South San Francisco Pedestrian Master Plan (2014), Caltrans District 4 Bicycle and Pedestrian Plans	South San Francisco
Grand Ave	Airport Blvd	Mission Rd	South San Francisco Pedestrian Master Plan (2014)	South San Francisco

Table 7. Transit Access Improvements
Note: This table is organized by jurisdiction

Location	Transit Agency	Existing Studies/Plan	Jurisdiction
SamTrans Route (El Camino Real in Atherton)	SamTrans		Atherton
Belmont Caltrain Station	Caltrain	Ralston Avenue Corridor Study and Improvement Plan (2014)	Belmont
Brisbane Caltrain Station	Caltrain		Brisbane
Muni Stop (Bayshore Blvd)	Muni		Brisbane
Broadway Caltrain Station (weekend only)	Caltrain	Proposed undercrossing	Burlingame
Burlingame Caltrain Station	Caltrain		Burlingame
Colma BART Station	BART	El Camino Real Bicycle and Pedestrian Improvement Plan	Colma
Daly City BART Station	BART	Daly City Station Access Improvement Plan	Daly City
SamTrans Route (University Ave)	SamTrans		East Palo Alto
Belmont Overcrossing/ access to Caltrain Station	Caltrain		Foster City
SamTrans Route (Highway 1)	SamTrans		Half Moon Bay
Menlo Park Caltrain Station	Caltrain	El Camino Real Corridor Study for the City of Menlo Park	Menlo Park
Millbrae Transit Center	BART, Caltrain	Significant TOD project under construction now - might this negate the need to include this station area in the CBPP?	Millbrae

Location	Transit Agency	Existing Studies/Plan	Jurisdiction
SamTrans Route (Palmetto Ave)	SamTrans		Pacifica
Redwood City Caltrain Station and Transit Center (SamTrans hub)	Caltrain	Downtown Precise Plan (2012), Transit Center Redesign Study (2019), Transit District Plan (ongoing)	Redwood City
San Bruno BART Station, Caltrain Station	BART, Caltrain	BART Walk and Bicycle Network Gap Study	San Bruno
San Carlos Caltrain Station	Caltrain	Holly Interchange Improvements	San Carlos
San Mateo Caltrain Station	Caltrain	San Mateo Bike Plan, Ped access study forthcoming, Downtown Area Plan (2009)	San Mateo
Hayward Park Caltrain Station	Caltrain	San Mateo Bike Plan, Ped access study forthcoming, Rail Corridor TOD Plan	San Mateo
Hillsdale Caltrain Station	Caltrain	San Mateo Bike Plan, Ped access study forthcoming, Rail Corridor TOD Plan, Hillsdale Station Area Plan	San Mateo
South San Francisco BART Station	BART	BART Walk and Bicycle Network Gap Study	South San Francisco
South San Francisco Caltrain Station	Caltrain	Proposed undercrossing	South San Francisco

Table 8. Major Barriers
Note: This table is organized by barrier type

Location	Barrier Type	Existing Studies/Plan	Along Countywide Backbone Network	Within Top 25th Percentile Pedestrian Focus Area	Jurisdiction/Lead Agency
Highway 101 Crossings	Highway crossing	Caltrans District 4 Bike Plan	X		Atherton
University Ave	Highway Crossing		X	X	East Palo Alto
Highway 101 Crossings	Highway Crossing	US 101/SR 84 Interchange Project (DES), Inner Harbor Specific Plan (unadopted)			Redwood City
South Cabrillo Highway (CA-1) crossings	Highway Crossing		X	X	Half Moon Bay
South Cabrillo Highway (CA-1) crossings	Highway Crossing		X	X	Pacifica
La Honda Rd (Highway 84) crossing at Entrada Wy	Highway Crossing				Unincorporated San Mateo County
Downtown La Honda	Highway Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)	X		Unincorporated San Mateo County
Downtown Montara, Cabrillo Highway	Highway Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)	X		Unincorporated San Mateo County
Highway 101 crossings	Highway Crossing	South San Francisco Pedestrian Master Plan (2014)		X	South San Francisco

Location	Barrier Type	Existing Studies/Plan	Along Countywide Backbone Network	Within Top 25th Percentile Pedestrian Focus Area	Jurisdiction/Lead Agency
Highway 92 and Highway 35	Highway Crossing		X		Bay Area Ridge Trail, San Mateo County
Highway 35 near the North Ridge Staging Area for Purisima Creek Redwoods Open Space Preserve	Highway Crossing				Bay Area Ridge Trail, San Mateo County
Highway 84 near La Honda Creek	Highway Crossing				Bay Area Ridge Trail, San Mateo County
Interstate 280 crossings	Highway Crossing	South San Francisco Pedestrian Master Plan (2014)		X	South San Francisco
John Daly Blvd and I-280	Highway Interchange				Daly City
Juniper Serra Blvd overcrossing I-280	Highway Interchange				Daly City
Oyster Point and Highway 101	Highway Interchange			X	South San Francisco
Hillsdale Blvd	Major Arterial Crossing				Multiple jurisdictions (includes Foster City, San Mateo)
Skyline Blvd	Major Arterial Crossing		X		Daly City

Location	Barrier Type	Existing Studies/Plan	Along Countywide Backbone Network	Within Top 25th Percentile Pedestrian Focus Area	Jurisdiction/Lead Agency
Alameda de las Pulgas	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)	X		Multiple jurisdictions (includes San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, West Menlo Park)
John Daly Blvd and Skyline Blvd	Major Arterial Crossing				Daly City, Caltrans
5th Avenue in North Fair Oaks	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)		X	Unincorporated San Mateo County
Downtown Pescadero	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)	X		Unincorporated San Mateo County
Downtown El Granada	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)		X	Unincorporated San Mateo County
Mavericks House Event Center	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)		X	Unincorporated San Mateo County
Benjamin Franklin Intermediate School and Garden Village Elementary School	Major Arterial Crossing	Unincorporated San Mateo County Active Transportation Plan (2021)		X	Unincorporated San Mateo County
Caltrain crossings	Railroad Crossing	Grade Separation Feasibility Study (underway)	X	X	Redwood City
Caltrain crossings	Railroad Crossing	South San Francisco Pedestrian Master Plan (2014)	X	X	South San Francisco

Location	Barrier Type	Existing Studies/Plan	Along Countywide Backbone Network	Within Top 25th Percentile Pedestrian Focus Area	Jurisdiction/Lead Agency
Caltrain crossings	Railroad Crossing	San Mateo County applied for Caltrans STP funds in 2021 to study a grade-separated bike/pedestrian crossing of the Caltrain corridor in North Fair Oaks between 5th Avenue and County/Redwood City boundary. Crossing may be at Pacific Ave or at Berkshire and Westmoreland Ave	X	X	Unincorporated San Mateo County

Visionary Regional Planning Priorities

There are several visionary and transformative countywide/regional active transportation planning efforts that have the potential to improve opportunities for recreation as well as connectivity for pedestrians and bicyclists across San Mateo County. C/CAG supports the continued development of these projects because they can significantly improve countywide connectivity. Most of these projects will require further study and coordination with other agencies prior to implementation and may be considered longer-term projects. There are implementation challenges associated with most of these efforts, which may include, but aren't limited to: constraints associated with right-of-way, environmental impacts, multi-agency coordination, funding and/or political support. Many of these planning corridors were specifically identified by community members and stakeholders during the Plan process as some of the highest priority projects in the county. The following is a list of these efforts:

Peninsula Bikeway

C/CAG is committed to furthering the development of the Peninsula Bikeway in San Mateo County. As a key north-south regional route, C/CAG will partner with the San Mateo County Transportation Authority and other regional partners to further the development and presence of the bikeway through branding, wayfinding signage, and feasibility studies. A potential alignment could be identified using the Countywide Bicycle Backbone Network, in conjunction with other planned local routes, to create a continuous route from Daly City and Brisbane to Redwood City where it would tie into the existing Peninsula Bikeway. The alignment would provide a near-term, low-stress alternative route to the long-term vision for a separated bikeway on El Camino Real. Potential first implementation steps include identifying funding for a coordinated planning study from SMCTA's Measure A/W or the Caltrans Sustainable Communities grant. The initial study could select a preferred alignment through each jurisdiction, conduct public engagement, evaluate where bikeway facilities may need to be upgraded to low-stress facilities, establish a wayfinding program with key destinations, and develop initial design concepts.

Dumbarton Corridor Trail

The Dumbarton Corridor Trail is a proposed multi-use path being considered within the Dumbarton Rail Corridor, which is owned by the San Mateo County Transit District (SamTrans) and offers direct links to potential future transit stations along it. The trail will improve cross-community access and connectivity between Redwood City, East Palo Alto, North Fair Oaks, and several other communities. Portions of the Dumbarton Corridor Trail on the urban bayside of the Peninsula are also envisioned to be part of the larger Bay to Sea Trail alignment, which is discussed below.

In 2020, the Unincorporated San Mateo County's BPAC identified a pedestrian/bicycle path on the Dumbarton Corridor as key high priority project. The consideration of this multi-use path would need to be addressed as part of the environmental review for the Dumbarton Rail Corridor Project, in partnership with SamTrans for use of any land within its right of way. The San Mateo County Transit District should continue to study and work towards implementing the trail throughout the corridor.

Bay to Sea Trail

The Bay to Sea Trail is a planned 40-mile multi-use trail that would be the first east-west connection between the Pacific Ocean in Half Moon Bay and the San Francisco Bay in East Palo Alto and Redwood City. This is a critical project in building out the regional trail network. A segment of this trail envisions utilizing the Dumbarton Rail Corridor for urban bayside access. While portions of this trail may be unpaved and part of the off-street trail system, other portions may follow the on-street bikeway network proposed in this Plan and in the Unincorporated San Mateo County Active Transportation Plan.

Grand Boulevard Initiative

The Grand Boulevard Initiative and associated El Camino Real Corridor Studies consider the provision of pedestrian improvements and a continuous, north-south bicycle facility on the Peninsula. The Grand Boulevard Initiative is a collaborative bringing together all of the agencies responsible for the condition, use and performance of El Camino Real from Daly City in the north to San Jose in the south. Jurisdictions such as Redwood City, Palo Alto, and the Town of Colma have conducted multi-modal corridor studies of El Camino Real and are in various stages of implementing bicycle and pedestrian improvements. Colma, South San Francisco, Redwood City, Menlo Park, and Atherton are exploring the feasibility of installing Class 4 Separated Bicycle Lanes along El Camino Real. El Camino Real is part of the Countywide Bicycle Backbone Network. C/CAG and the San Mateo County Transit District should continue to coordinate and implement improvements in conjunction with local agencies along the corridor to create a connected bikeway.

Midcoast Multimodal Parallel Trail

The Midcoast Multimodal Parallel Trail is a planned multi-use path along the east side of State Route 1 through the Midcoast communities connecting Montara with Half Moon Bay. The Parallel Trail is a high-priority project envisioned by the community in the Highway 1 Safety and Mobility Study and further explored in the Connect the Coastside Plan, Comprehensive Transportation Management Plan for the Midcoast. The Parallel Trail will provide a critical active transportation link for Midcoast residents and visitors, and serve as a viable transportation alternative to the automobile for people of all ages and abilities as they travel to destinations along the Coastside, connecting with the Naomi Patridge Trail in Half Moon Bay to the south. The first segment of the trail from Mirada Road to Coronado Street is planned for construction in 2021. Some of the Parallel Trail segments as identified in the Connect the Coastside Plan are included in the CBPP Bicycle Backbone Network. Portions of the Parallel Trail share the same alignment as the California Coastal Trail.

California Coastal Trail

The California Coastal Trail is a 1,200-mile trail proposed to run along the California coast through all 15 coastal counties in the state. Some portions of the trail may be unpaved and part of the off-street trail system along the beach, while others are proposed as multi-use paths and bikeways on State Route 1 right-of-way. Portions of the Midcoast Multimodal Trail, as well as the Ohlone-Portola Heritage Trail, may share the same alignment of the California Coastal Trail.

Policy and Program Recommendations

In collaboration with local agency partners, C/CAG will supplement the recommended walking and bicycling facilities with policies and programs to meet the vision and goals in this Plan. The policies and programs described in this section will help enhance network connectivity, improve roadway safety, support collaboration across jurisdictions, and encourage walking and bicycling in San Mateo County.

San Mateo County already has several existing programs for walking and biking, including the C/CAG-managed San Mateo County Safe Routes to School program, the County Employees Commute Alternatives program and Bike to Work Day managed by Commute.org, and the Regional Rideshare 511 program (see the Updated Goals and Objectives Report in **Appendix C** for more information on these programs). In addition to these efforts, the following policies and high priority programs have been identified for C/CAG to lead or promote across San Mateo County. These policies and programs were selected based on staff capacity over the next five years and input received during community and stakeholder outreach. The policies indicate actions and roles for C/CAG, unless stated otherwise.

Goal 1. Establish A Connected Network of Facilities for Bicyclists and Pedestrians

Policy 1.1: Encourage local jurisdictions to plan, develop, fund, install, and maintain bicycle, pedestrian, and accessibility improvements in order to create complete networks of facilities for people using active transportation.

Policy 1.2: Program funds for bicycle, pedestrian and accessibility improvements to local jurisdictions for the planning, design, construction and maintenance of facilities of countywide priority.

Policy 1.3: Place special attention on implementing or improving north–south routes (particularly for bicyclists) and reducing gaps and barriers to east–west access to develop a countywide network of facilities.

Policy 1.4: Encourage local jurisdictions to implement network support and end of trip facilities, including short- and long-term bicycle parking; wayfinding; and devices for improving accessibility for people with disabilities.

Policy 1.5: Provide funding for support facilities, including short- and long-term bicycle parking; wayfinding that is consistent with regional standards; and devices for improving accessibility for people with disabilities.

Policy 1.6: Update this plan every five years, particularly to incorporate needed changes to the list of proposed countywide projects.

Policy 1.7: Support the creation of connected bicycle and pedestrian networks through the provision of resources and trainings.

Policy 1.8: Encourage local and regional agencies, including Caltrans, Caltrain, and SamTrans to work together to provide and maintain comfortable walking and bicycling connections to regional transit stations and close first-/last-mile gaps.

Goal 2. Promote More People Riding and Walking for Transportation and Recreation

Policy 2.1: Work with local, county, and regional agencies and organizations—including those with a focus on zoning, public health, etc. — to develop effective encouragement programs that promote bicycling and walking as safe, convenient, and healthy modes of transportation.

Policy 2.2: Support programs and events that encourage inclusive bicycling and walking among all communities.

Policy 2.3: Work to get all local schools to participate in the Safe Routes to School (SRTS) San Mateo County Program and encourage school districts to implement projects and activities that promote bicycling and walking to school among students and staff.

Policy 2.4: Promote integration of bicycle and walking-related services and activities into broader countywide transportation demand management and commute alternatives programs. This could include encouraging local jurisdictions and major employers to provide locker rooms, showers, and other amenities for changing and storing clothes and equipment to support walking and bicycling.

Policy 2.5: Explore feasibility of micromobility programs (e.g., bikeshare) to increase access and convenience of walking, bicycling, and riding transit.

Goal 3. Improve Safety for Walking, Bicycling, and Accessing Transit

Policy 3.1: When allocating funds, place an emphasis on projects that address safety deficiencies, especially conflicts with motor vehicles, for bicyclists, pedestrians, and people with disabilities, and conflicts with buses or trains and bicyclists or pedestrians.

Policy 3.2: When allocating funds, place an emphasis on bicycle and pedestrian projects that improve safety within a quarter mile of public transit stations/stops.

Policy 3.3: Promote collaboration among law enforcement and other county and local agencies to develop and administer effective safety, education and enforcement strategies related to active transportation.

Policy 3.4: Provide support for programs that educate drivers, bicyclists and pedestrians about their rights and responsibilities, as well as traffic education and safety programs for adults and youth.

Policy 3.5: Follow a systemic approach to improving bicycle and pedestrian safety and encourage local jurisdictions to do the same.

Policy 3.6: Support local jurisdictions with Vision Zero and systemic safety resources and guidance. This may include guidance for traffic calming treatments and model policy and/or program recommendations for administering a traffic calming program.

Policy 3.7: Encourage local jurisdictions to develop a consistent set of design recommendations and traffic calming treatments to better manage vehicular volumes and speeds along designated bikeways and streets with high pedestrian activity based on local standards and national best practices.

Policy 3.8: Collaborate with local jurisdictions to identify quick-build projects or temporary pilot projects. Explore feasibility of implementing temporary pilot projects on state-owned roadways.

Policy 3.9: Support multi-jurisdictional efforts and collaborations with state and regional agencies, including Caltrans, to improve safety for people walking and bicycling.

Goal 4: Advance Complete Streets Principles and the Accommodation of All Roadway Users

Policy 4.1: Comply with the Complete Streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.

Policy 4.2: For local transportation projects funded by county or regional agencies, ensure that local implementing agencies incorporate Complete Streets principles as appropriate; that they provide at least equally safe and convenient alternatives if they result in the degradation of bicycle or pedestrian access; and that they provide temporary accommodations for pedestrians and bicyclists during construction.

Policy 4.3: Monitor countywide transportation projects to ensure that the needs of bicyclists and pedestrians are considered in programming, planning, design, construction, operation and maintenance, and encourage local agencies to do the same for their projects.

Policy 4.4: Provide support to local agencies in adopting policies, guidelines and standards for Complete Streets and for routine accommodation of bicyclists and pedestrians in all new transportation projects.

Policy 4.5: Encourage local agencies to adopt policies, guidelines, standards and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area such as through transportation demand management strategies or model policy or ordinance language.

Policy 4.6: Discourage local agencies from removing, degrading or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative, especially in construction zones.

Policy 4.7: Encourage local jurisdictions to install facilities that accommodate bicyclists and pedestrians at crossings by adjusting signal timing, enhancing crossing treatments, and installing bicycle signal detection along major bikeways.

Goal 5: Develop, Prioritize, and Fund Projects to Advance Equity

Policy 5.1: Encourage local agencies to provide safe and convenient bicycle and pedestrian infrastructure for underserved communities and to prioritize installing safe bicycle and pedestrian infrastructure in underserved communities.

Policy 5.2: Involve the public and local agencies meaningfully in making decisions about the planning, design and funding of bicycle and pedestrian projects, and maintain an open and accessible process for providing input and influencing decisions.

Policy 5.3: Encourage all local jurisdictions to designate bicycle and pedestrian coordinators that are responsible for promoting bicycling and walking, and ensure the inclusion of disadvantaged populations in all facets of project planning and development. Establish local bicycle and pedestrian advisory committees or provide other meaningful opportunities for public input on issues related to non-motorized transportation.

Policy 5.4: Encourage local jurisdictions to integrate equity-based best practices into active transportation planning and implementation efforts.

Policy 5.5: Coordinate with regional and local partners to increase distribution of funding to underserved areas of the County to advance equity.

Goal 6: Promote Collaboration and Technical Support

Policy 6.1: Encourage local jurisdictions to develop comprehensive bicycle and pedestrian plans, and provide assistance and support in this area as appropriate.

Policy 6.2: Provide timely information to local jurisdictions on funding programs and sources not administered by C/CAG that may be used to implement bicycle and pedestrian facilities, and encourage them to submit applications for project funding.

Policy 6.3: Encourage and collaborate with local and regional agencies to identify and implement regionally significant facilities within their jurisdiction. In particular, encourage Caltrans to provide safe bicycle and pedestrian crossings of state highways and local agencies to include bicycle and pedestrian projects in their capital improvement programs. Encourage local jurisdictions to use the Caltrans District 4 bicycle and pedestrian plans to support their efforts to improve walking and bicycling conditions in their communities.

Policy 6.4: Encourage local agencies and transit operators, such as SamTrans, Caltrain and BART, to work cooperatively to promote bicycling and walking to transit by improving access to and through stations and stops, installing bicycle parking, maximizing opportunities for on-board bicycle access, and providing safe at-grade rail crossing improvements.

Policy 6.5: Collaborate with San Mateo County Public Health, San Mateo Police Department, and other County departments to implement programs, policies, and projects identified in this plan.

Policy 6.7: Provide tools, technical assistance, and other resources to local jurisdiction staff to plan, prioritize, and implement active transportation programs and projects.

Policy 6.8: Encourage collaboration between local jurisdictions to support seamless bicycle and pedestrian travel between jurisdictions within and adjacent to San Mateo County.

Policy 6.9: Support local jurisdiction efforts to apply for competitive funding sources and help them become more competitive.

High-Priority Programs

While some of the policies listed above can be implemented in the near term and can result in quick improvements to the county's walking and bicycling networks, many of the policies may require long-term efforts and take more resources to implement. To ensure that C/CAG can support walking and

bicycling improvements in the short term, C/CAG staff are prioritizing four key programs to move the needle on some of the Plan's important policies over the next five years.

Local Jurisdiction Training and Grant Support

C/CAG should continue to provide technical assistance and training to local jurisdiction staff to increase their capacity to apply for funding and implement bicycle and pedestrian projects. C/CAG should increase the program visibility to ensure jurisdictions are aware and able to utilize it. C/CAG can provide additional resources to help increase local jurisdiction staff capacity and expertise and provide guidance on which grants communities should focus on to improve the efficiency of their efforts. As part of this effort C/CAG could develop an on-call contract to have consulting firms available to help provide guidance, resources, and technical support to local agencies pursuing grants.

C/CAG could coordinate best practice technical trainings for jurisdiction staff. A few suggested topics include NACTO design guidance, bicycle education from the League of American Bicyclists, and key topics such as Vision Zero and integrating equity into planning processes.

Bay Wheels Bikeshare

Micromobility Strategy

Micromobility refers to programs like bikeshare that provide transportation devices, such as electric scooters, bicycles, or electric-bicycles to users on a per-trip basis. These programs are typically pay-per-use and often have monthly or annual membership options and low-income assistance programs to increase accessibility to devices. C/CAG should provide micromobility policy and implementation guidance, and develop a policy framework that local jurisdictions can easily adopt. This guidance should include actions such as:

- Encouraging local programs to include requirements for vehicle type, distribution, cash payment options, and accessible/adaptive vehicles to ensure that micromobility programs are equitable distributed and inclusive.
- Designating micromobility vehicle parking areas and increasing bicycle parking to reduce occurrences of parked vehicles blocking walkways.
- Encouraging communities to clearly communicate where e-scooters, and other new mobility devices can be operated to reduce conflicts and increase safety.
- Coordinating cross-jurisdictional policies that clearly outline authority, data standards, and small vehicle standards.

C/CAG can facilitate discussions between local jurisdictions and the County to promote interjurisdictional learning opportunities on the topic. C/CAG can also develop a micromobility feasibility study to identify which jurisdictions are best suited to first- and last-mile transportation solutions like micromobility, what form it could take, and provide implementation tools for jurisdictions that are interested in the program. Examples of these tools can be standardized template policies and permit applications. The feasibility study can also identify the different options available to jurisdictions to pursue (e.g., on-demand transit, feeder services, etc.).

High Injury Network and Systemic Safety Approach

Systemic safety's central tenet is that traffic fatalities and serious injuries are preventable and unacceptable. The Safe Systems approach is a holistic, systems-based strategy that accounts for all roadway users, anticipates that humans will makes mistakes, and shares responsibility for safety between individual road users and system designers (i.e. planners and engineers). This approach to traffic safety is fundamentally different from the traditional approach to transportation engineering.

A High Injury Network is a systemic safety tool that communities can use to help prioritize roadway improvements to ensure that treatments are installed where they are likely to be most effective. This approach can result in a more efficient use of limited resources. A high injury network is typically developed by identifying the roadways with the highest crash densities and weighting crashes by severity. Crashes that result in a fatal or life-altering injury typically receive a higher weight than other injury or non-injury crashes. A Countywide High Injury Network and local jurisdiction High Injury Networks could be developed to assess where overlaps may occur.

As part of this programmatic effort, C/CAG should:

- Develop a countywide High Injury Network
- Provide technical assistance, funding, and data to help local jurisdictions develop transportation plans and projects that emphasize safety improvements along the local or county high injury network
- Direct more funding to high-risk corridors and communities
- Develop a Local Roadway Safety Plan so that C/CAG or other agencies within the region can apply for funds from the Highway Safety Improvement Program

What is a High Injury Network?

Several jurisdictions across the United States, including in the Bay Area, have analyzed their crash histories to determine whether there are particular roadways where fatal and serious injury crashes are concentrated. This helps to prioritize corridor improvements as well as highlight the types of roadways and roadway design elements that are contributing to serious traffic safety problems, especially among vulnerable road users like people walking and bicycling. The Vision Zero Network recommends creating a HIN as way to, "focus limited resources on the most problematic areas, while also building greater public and political buy-in for changes."

https://visionzeronetwork.org/hin-for-the-win/

First- and Last-Mile Transit Connections

First- and last-mile connections fill the gap between a person's transit stop and their origin or destination. First- and last-mile solutions include walking, bicycling, micromobility devices, or ride-hailing services. C/CAG should partner with the San Mateo County Transportation Authority to assess access to the regional and local transit stops or stations. Unsafe or uncomfortable conditions for bicycling and walking may deter active transportation or transit use or prevent it altogether. The Federal Transit Administration states that infrastructure improvements around transit stops should be considered within a half-mile for pedestrians and within three miles for bicyclists. Transit stations should provide secure, long-term bike parking for personal bicycles and designated parking areas for micromobility devices such as bikeshare and e-scooters. To assist local communities in planning for first- and last-mile connectivity, C/CAG could set aside funding for safe routes to transit projects and studies, include transit access in project funding prioritization processes, and provide other funding or technical resources to help local jurisdictions to fill first- and last-mile connection gaps.

Safe Routes to Transit programs can help local and regional jurisdictions improve walking and bicycling connections to regional transit stations. As an example, Transform and Bike East Bay developed a partnership to implement a Safe Routes to Transit Program funded from Regional Measure 2 in Alameda County. Transform has since worked with the Sacramento and San Diego regions to establish Safe Routes to Transit programs. C/CAG should consider partnering with

Transform or exploring other opportunities to fund and prioritize active transportation projects that increase connections to transit.

Several examples of Safe Routes to Transit programs are described here in more detail. The Delaware Valley Regional Planning Commission also has a Safe Routes to Transit Program which provides technical assistance to help local jurisdiction staff navigate the complex process of implementing active transportation transit access projects and supports them in finding their own funding sources. In Atlanta, Georgia, a Safe Routes to Transit Taskforce received funding from Kaiser Permanente to develop regional guidelines to help local jurisdictions implement their own bicycle and pedestrian improvements near transit stops. The Solano Transportation Authority also created resources to support local efforts to improve access to transit with their Safe Routes to Transit Plan (2011). Resources for first- and last-mile connections include the Federal Transit Administration's *Manual on Pedestrian and Bicycle Connections to Transit*, the Regional Transportation District's *First and Last Mile Strategic Plan*, and the American Public Transportation Association's *First/Last Mile Solutions*.

Along with the additional of a Safe Routes to Transit program, C/CAG also recognizes the importance of all first and last mile connection projects, such as those to parks and recreation areas in San Mateo County. C/CAG supports efforts that facilitate bicycle and pedestrian connectivity to these destinations.

Chapter 5: Implementation Strategy

To achieve the CBPP goals, a well-coordinated strategy will be necessary to implement the Plan recommendations, leverage limited funding, to facilitate coordination with local jurisdictions, and to ensure that the highest priority projects move forward.

Central to the CBPP strategy is investment in low-stress bikeway infrastructure and pedestrian amenities in areas that have supportive land uses, are proximate to community destinations and transit, and are where people have the greatest need for more affordable transportation options. Equally important and complementary to the bike and pedestrian network implementation strategy are the four high-priority policy and program recommendations described in Chapter 4.

This chapter provides an overview of implementation methods, a strategy for project phasing, planning-level project costs, and detail the methodology for prioritizing projects, followed by a prioritized project list.

Implementation Opportunities

The infrastructure recommendations presented in this Plan will be implemented over time by the various jurisdictions within San Mateo County. Many on-street projects will be implemented as part of resurfacing projects, capital projects, with new development, or as part of grant-funded opportunities. Generally, multi-use paths will be stand-alone projects, sometimes completed in coordination with new development in an area, and sometimes completed over a long period of time in segments as funding is available for these higher-cost facilities. Physical and environmental constraints can also impact the choice of implementation method (and influence project phasing).

Implementing projects that cross jurisdictional boundaries or that require partnerships with other agencies, such as Caltrans or regional transit providers, can introduce additional political and financial considerations that make project implementation challenging. As a regional planning agency, C/CAG is well-positioned to help coordinate and support interjurisdictional projects that are regionally significant.

This section discusses typical methods by which local jurisdictions can build out their bicycle and pedestrian networks. This Plan's bicycle network recommendations are suited to the streets where they are located, but specific recommendations as to how each facility should be implemented will be determined by implementing agencies.

Resurfacing and Restriping

One of the best opportunities for local jurisdictions to implement on-street bikeways is through resurfacing and restriping projects. Resurfacing entails paving some or all of an existing street section. In these cases, the addition of bikeways may be accomplished simply through striping. The installation of basic bikeways do not always require resurfacing; some may be completed by reconfiguring the street geometry by adjusting the existing striping to create space for the bike facility. Some pedestrian facilities can also be created through resurfacing and restriping projects, such as new or upgraded crosswalks, or advisory shoulders.

Both methods allow for the reconfiguration of existing roadway space, which can take the form of narrowing travel lanes, or reallocating travel lanes or parking lanes to accommodate traditional bike lanes or separated bike lanes. Each project location will need to be studied at the time of implementation, and a community discussion about the reallocation of space may be needed. Note that separated bike lanes also require some type of vertical element, but certain types of separation may be added without impacting curb lines or drainage. Commonly used vertical elements of separated bike lanes include plastic flex posts, planters, concrete curbs or barricades, or motor vehicle parking.

Street Reconstruction

Street reconstruction projects provide opportunities to implement bicycle and pedestrian facilities that may require greater changes to the roadway and curb lines. Reconstruction projects address a greater breadth of the roadway, often fixing more significant maintenance and quality issues than can be addressed through resurfacing. An additional benefit to incorporating bike and pedestrian projects into street reconstruction projects is to reduce disturbance to the traveling public and save on mobilization costs when construction activities are combined. For bike and pedestrian facility implementation, the key difference is that some reconstruction projects can involve moving curbs to accommodate bikeways and sidewalks, or to implement traffic calming measures such as chicanes, curb extensions, or tighter curb radii.

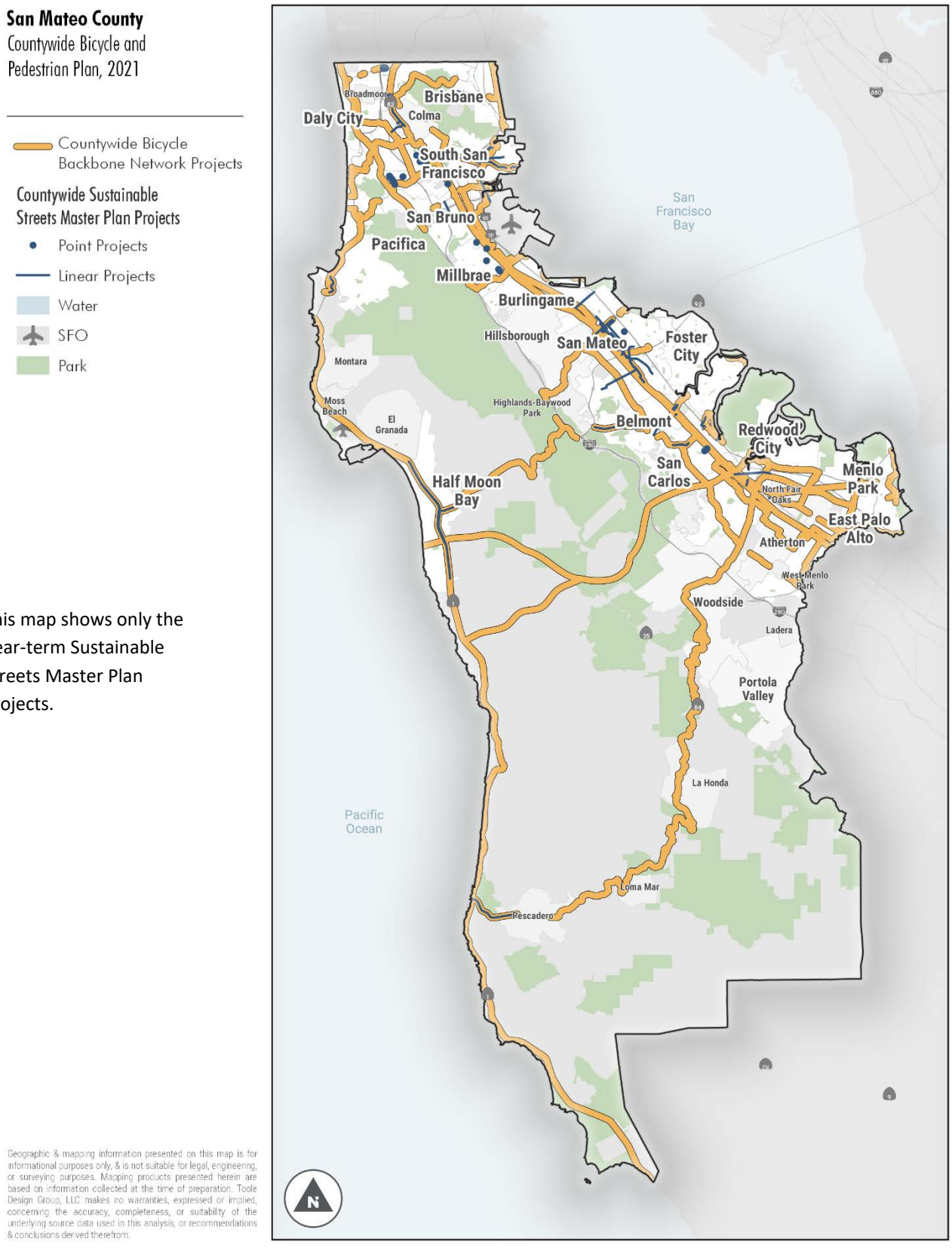
In some cases, reconstruction offers the opportunity to reconfigure intersections so that they function better for bicyclists. For example, the removal of slip lanes can improve bicycling safety by both removing a point of potential conflict with automobiles and slowing vehicle speeds. A slip lane is a roadway at an intersection that allows drivers to turn onto an intersecting road without actually entering the intersection. Slip lanes are typically used to allow drivers to make right turns without stopping at a traffic signal. Separated bike lanes and multi-use paths can also be implemented in reconstruction projects where the roadway edge is being addressed.

Reconstruction and resurfacing projects also represent an opportunity to implement projects highlighted in both this Plan and in C/CAG's San Mateo Countywide Sustainable Streets Master Plan. Implementing projects identified in both plans will require careful planning, but can result in more efficient uses of construction and resurfacing funds. The Sustainable Streets Master Plan presents a framework and set of tools to help public agencies throughout the county plan and implement sustainable streets projects. Sustainable streets projects include right-of-way projects that integrate pedestrian, bicycle, and transit improvements with green infrastructure components like stormwater plants and pervious pavement. **Figure 18** shows the overlap between the near-term projects listed in the Sustainable Streets Master Plan and the bicycle projects recommended in this Plan.

New Construction

These projects include stand-alone projects, such as the construction of multi-use paths outside the public right-of-way, or those that, while in the right-of-way, can be implemented outside the existing street. New construction projects can also include new bridges and underpasses intended for bicyclist and pedestrian travel.

Minor construction may include roadway widening to accommodate bikeways or shoulders along a roadway. This can occur along the entire length of the facility or at select locations where additional space would improve the safety and comfort of the bikeway.



This map shows only the near-term Sustainable Streets Master Plan projects.

Figure 18. Sustainable Streets Master Plan and Countywide Bicycle and Pedestrian Plan Projects

Project Phasing

Jurisdictions within San Mateo County have limited funding for implementing the facilities recommended in this Plan. Local agencies may consider several implementation approaches when phasing projects to increase efficiency.

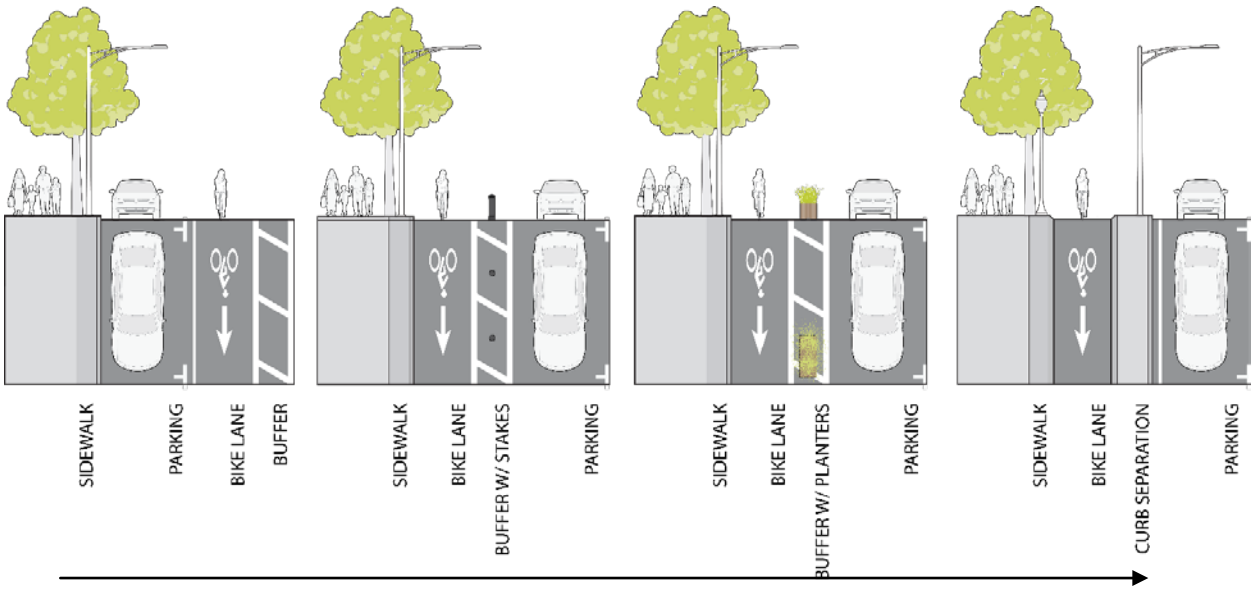
Each project could be implemented one at a time; however, to build a complete network, it is beneficial to combine recommendations with the aim of building connected bikeways or sidewalks, or to fill a gap. For example, implementing a series of enhanced pedestrian crossings along a corridor can create a complete route, whereas implementing spot improvements in a scattershot manner does not provide the same benefit.

The prioritized project list presented in the following section should be used as a resource for staff to decide which projects to implement and when. When looking at high-priority projects that will serve the CBPP goals, another early step in implementation can be to consider the following questions about each project. Responses to these questions can help staff determine which projects could be implemented in the near-term and which may need further engagement or funding to move into design and construction.

- Does a project consist only of striping and signage that can be added at any time?
- Is additional community dialogue needed regarding the reallocation of street space?
- Will significant funding be needed that must be obtained through a competitive process?
- Is additional right-of-way needed?
- Are there any environmental concerns?

Short- and Medium-Term

The recommended bicycle and pedestrian projects presented in this Plan are intended to create a comfortable, connected network for people walking and bicycling. In many cases, short- to medium-term projects may consist of simple restriping of roadways to install or upgrade bike lanes or installing crosswalks and crosswalk enhancements such as advanced yield markings and signage. Separated bike lanes may be installed over time, starting as low-cost interim installations and eventually evolving into higher cost, permanent installations.



A typical design progression from a buffered bike lane to permanent separated bike lane

Local jurisdictions can use quick-build or demonstration projects (also called pop-up projects) to install facilities for people walking and bicycling. Demonstration projects are typically in place for a few hours or days and are often used as part of community engagement or education efforts. Quick-build or rapid implementation projects are installed and left in place for several months or years, much longer than demonstration projects. However, rapid implementation projects can come in the form of a pilot project. Pilot projects are typically in place for months or up to about two years to test performance priori to a formal approval process. Pilot projects may be tested further, removed, or kept and potentially upgraded with more permanent infrastructure.

When selecting quick-build or demonstration projects, local agency staff should focus on projects that show results quickly. By prioritizing projects that are most likely to increase bicycle or pedestrian activity, connectivity, or comfort, quick-build projects can increase the momentum behind and public support for other investments for people walking and bicycling.

These projects use low-cost materials that can be installed quickly to designate space for bicycle and pedestrian facilities. These projects have consolidated and iterative planning and design processes, rely on field engineering, often have dedicated staff or consultant support, require expedited review phases and coordination among agencies, and political priority.

Projects that are well suited for quick-build or demonstration efforts include striping Class II Bike Lanes using paint or adding bollards to buffered bike lanes to designate Class IV Separated Bike Lanes. Additionally, pedestrian enhancements can use bollards or paint to stripe designated walkways and use paint and curb stops to create bulb outs that minimize crossing distances.

Long-Term

Some proposed projects, such as multi-use paths like the Bay to Sea Trail, may require a longer-term effort for the project to come to fruition. While it may take more time to implement these projects, jurisdictions should start considering what steps are needed to construct these projects. This will allow the agencies to be better positioned to include these projects in capital improvement plans or for grant opportunities as they arise.

Project Prioritization

All of the projects identified in this Plan are important in improving local and regional pedestrian and bicycle network connectivity, safety, and equitable access. However, due to the realities of finite financial and staffing resources, it will be necessary to implement projects over time. There are many locally recommended projects that do not fall along the Countywide Bicycle Backbone Network; these projects are not prioritized here, but C/CAG recognizes the importance of these projects and their significance to expanding the San Mate County active transportation network.

Purpose

The project prioritization process serves as a screening tool to identify which projects are most likely to achieve the CBPP goals and align with the criteria in competitive grant funding programs. The prioritization methodology is not intended to solely reflect the public's sentiment on which projects may be the most important; however, public support is an essential criterion in grant applications and will be weighted accordingly. As such, C/CAG will consider public support as one of several criteria when distributing funds for active transportation projects.

Approach

The recommended projects have been prioritized using the process depicted in the following graphic and in **Table 9**. The prioritization categories and associated weights were determined by C/CAG in consultation with key stakeholders, the Bicycle and Pedestrian Advisory Committee (BPAC), and the Plan's Technical Advisory Group (TAG). These prioritization criteria were selected to align with state and regional funding opportunities, and reflect the priorities identified by C/CAG staff, stakeholders, and the public, as identified during the previous stages of the Plan development and advisory committee meetings. The criteria used are safety and comfort, network connectivity, transit access, school access, and equity. The criteria weightings were determined based on input received from members of the BPAC, TAG, and C/CAG staff. This prioritization approach will help local jurisdictions and county and regional planning bodies better determine where to make active transportation investments.

Each bikeway project along the backbone network received a weighted score for the five criteria listed in the figure below. Projects were then grouped by corridor to better reflect the realities of how projects get implemented and funding is distributed. Each project grouping was assigned a score using a weighted average of the individual lengths and scores associated with each segment of the project. Once scored, project groupings were ranked in terms of priority, with the highest scoring projects ranked as highest priority.

After the initial prioritization process was completed, a cost-benefit analysis was completed to provide a C/CAG with a more nuanced understanding of how different projects rank in terms of their relative cost and benefit. To complete this analysis C/CAG ranked the prioritization scores (benefits) into the three categories (e.g., high, medium, and low). Categories were determined by dividing the project list into three equal categories, with a separate set of high, medium, and low projects for the coast-side and bay-side projects. Similarly, costs were also divided into high, medium, and low categories. Cost and benefit ranks were then matched to identify high benefit-high cost projects, high benefit-low cost projects, and so on.

To ensure that the project prioritization approach best reflects the way projects are implemented and funds are distributed, regional trail projects were prioritized separately from the rest of the bicycle projects along the backbone network. For more details about the prioritization process refer to the Prioritization Criteria Memorandum in **Appendix C**.

Step 1: Criteria

Prioritization categories

Step 2: Weighted Score

Each category is weighted based on local, regional, and state priorities

Step 3: Cost-Benefit Analysis

Show which projects have the greatest benefits based on their anticipated costs

		Weighted Score
Safety and Comfort	Projects that address past collisions and/or have the potential to improve safety	**4 points**
Network Connectivity	Projects that build connections along the bicycle backbone network or pedestrian focus areas	**3 points**
Transit Access	Projects near transit stops	**1 point**
School Access	Projects near schools	**1 point**
Equity	Projects within or providing direct access to Countywide Bicycle and Pedestrian Plan equity focus areas	**1 point**

Total Possible Score: **10 points**

Table 9. Bicycle Project Prioritization Scoring Criteria*

Criteria	Measure	Points
Safety and Comfort	**Highest Number of Points Possible**	**4**
Safety	Bicycle/Pedestrian collision history (last 5 years, Statewide Integrated Traffic Records System) Severity weighted[10] count of collisions involving bicycles/pedestrian along[11] project corridor alignment, normalized by project corridor length. Values normalized by percentiles, and score calculated as percentile * maximum possible points[12].	0-2
Comfort	All age and abilities facility (as determined by a combination of facility type and local conditions, typically includes Class 1 Multi-use Path, Class 4 Separated Bike Lane, Class 3 Bike Boulevard)	1-2
	All ages and abilities facility	*2*
	Not an all ages and abilities facility	*1*
Connectivity	**Highest Number of Points Possible**	**3**
Connectivity	Type of gap[13] that the project fills[14]	0-3
	Fills a gap where there is no existing facility, or there is an existing facility, but stress is still high	*3*
	Fills a gap where there is no existing facility, and no recommended facility	*1*
	Does not fill a gap	*0*
Transit Access	**Highest Number of Points Possible**	**1**
Transit Access	Nearby transit stops Mode weighted[15] count of transit stops close[16] to project corridor alignment. Values normalized by percentiles, and score calculated as percentile * maximum possible points.	0-1
School Access	**Highest Number of Points Possible**	**1**
School Access	Nearby schools Count of schools[17] close to[18] the project corridor alignment. Values normalized by percentiles, and score calculated as percentile * maximum possible points	0-1
Equity	**Highest Number of Points Possible**	**1**
Statewide Equity Measure[19]	Project is in[20] one or more statewide eligible disadvantaged community: • CalEnviroScreen 3.0: top 25th percentile • Healthy Places Index: top 25th percentile • Regional Definition: in an MTC Community of Concern	0-1
San Mateo County-Specific Equity Measure	Project is not in a statewide eligible disadvantaged community but is in[20] a countywide equity focus area. The definition of which is a block group that is within the top 25th percentile of each side of the county, as determined by: • Median household income • Percent non-white population • Housing & transportation index • Percent zero car households	0-0.6
	TOTAL POINTS POSSIBLE	**10**

[10] Fatalities and serios injuries weighted x3, other injuries and complaint of pain weighted x1, property damage only not included because it is not available in the Statewide Integrated Traffic Records System.

*The regional trail project prioritization approach followed the same methodology as presented in Table 9 except safety and comfort were excluded from the list of criteria because it is assumed that all trail projects would result in safety improvements due to the level of separation from motor vehicles.

Prioritization Results

Table 10 summarizes the bikeway and regional trail projects by priority level. Refer to the Financial Analysis discussion later in this chapter for more information about the cost estimates. **Figure 19** and **Figure 20** show maps of the recommended bikeway and regional trail projects by level of prioritization, respectively. **Appendix D** lists all bikeway and regional trail projects by level of prioritization and includes a cost estimate for each project. **Table 11** lists the highest scoring, or highest benefit, projects for each cost category, as identified through the cost-benefit analysis.

Table 10. Countywide Backbone Network Projects by Priority

Prioritization Category	Number of Projects	Total Mileage	Cost
Bikeway Projects			
High	72	88	$184,035,000
Medium	79	47	$44,212,000
Low	25	33	$18,758,000
Total	176	168	$247,005,000
Regional Trail Projects			
High	8	14	$30,330,000
Medium	11	61	$134,600,000
Low	6	7	$14,780,000
Total	25	82	$179,710,000
Grant Total		**$426, 715,000**	

[11] Collisions were assigned to their closest street segment, within a 10m cutoff
[12] Ex: a project at the 50% would get a score of 1 (0.5 * 2 = 1)
[13] See Network Gap Analysis Memorandum in Appendix C.
[14] 'Filling' a gap is defined as containing an element of the project with the gap type listed.
[15] Caltrain, BART, and SF Ferry stops weighted x5, all other transit (Samtrans, VTA, and SFMTA) weighted x1.
[16] Search distance for Caltrain, BART, and SF Ferry was 0.5 mile, all other transit was 500 ft
[17] Defined as all public and charter K-12 schools (the same schools that were analyzed as part of the equity analysis).
[18] Search distance for schools was 1 mi.
[19] If a project scores points for the Statewide Equity Measure, it is not awarded points for the County-specific Equity Measure. All statewide metrics use data at the Census tract level except for National School Lunch Program which provides data for each school.
[20] Being within an equity focus area is defined as having either 100m or 25% of project length (either will count) within the equity area. The equity area itself has been buffered by 10m, in order to account of boundary edge issues, where often times the road with the project is boundary line, and the project may or may not be picked up.

Table 11. High-Benefit Projects by Cost[21]

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Prioritization Rank	Cost Rank
2.01	Westridge Ave, Southgate Ave	Skyline Blvd	Cerro Dr	1.82	Class 2b Buffered Bicycle Lane	High	Low cost
7.02	El Camino Real	Murchison Dr	Noor Ave	3.69	Class 2b Buffered Bicycle Lane	High	Low cost
7.04	El Camino Real	North Rd	F St	1.52	Class 2b Buffered Bicycle Lane	High	Low cost
7.06	El Camino Real	Creek Dr	Valparaiso Ave	1.05	Class 2b Buffered Bicycle Lane	High	Low cost
12.01	Grand Ave	Spruce Ave	Chestnut Ave	0.8	Class 2b Buffered Bicycle Lane	High	Low cost
12.03	E Grand Ave	Genentech Drive	Bay Trail	0.24	Class 2 Bicycle Lane	High	Low cost
26.03	S Norfolk St	380 ft NW of Fashion Island Blvd/S Norfolk St/State Highway 92	Fashion Island Blvd	0.07	Class 2b Buffered Bicycle Lane	High	Low cost
27.02	Hopkins Ave	Duane St	Elmwood St	0.06	Class 2b Buffered Bicycle Lane	High	Low cost
38.02	Laurel St	Burgess Dr	Oak Grove Ave	0.53	Class 2b Buffered Bicycle Lane	High	Low cost
38.04	Willow Rd	Laurel St	Hospital Pl	1.26	Class 2b Buffered Bicycle Lane	High	Low cost
43.03	Center St	San Anselmo Ave	Centennial Way Trail	0.07	Class 2 Bicycle Lane	High	Low cost
50.03	Marsh Rd	Us 101 Marsh Rd Overcrossing	Constitution Dr	0.37	Class 2 Bicycle Lane	High	Low cost
60.01	Middlefield Rd	Northside Ave	8th Ave	0.68	Class 2 Bicycle Lane	High	Low cost

[21] The full list of project is available in Appendix D

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Prioritization Rank	Cost Rank
60.02	Middlefield Rd	Semicircular Rd	Encinal Ave	1.04	Class 2b Buffered Bicycle Lane	High	Low cost
60.03	Middlefield Rd	Oak Grove Ave	Ravenswood Ave	0.2	Class 2b Buffered Bicycle Lane	High	Low cost
63.02	Old County Rd	Oneill Ave	300 ft NE of El Camino Real/Harbor Blvd	0.23	Class 2b Buffered Bicycle Lane	High	Low cost
66.05	N San Mateo Dr, California Dr	Catalpa Ave	Howard Ave	1.06	Class 2 Bicycle Lane	High	Low cost
73.02	Chestnut Ave	Nursery Way	Livingston Pl	0.13	Class 2 Bicycle Lane	High	Low cost
15.01	San Mateo Ave	El Camino Real	E San Bruno Ave	0.66	Class 3 Bicycle Route	High	Medium cost
26.01	W 20th Ave, 19th Ave, Ivy St	El Camino Real	State Highway 92	0.29	Class 3b Bicycle Boulevard	High	Medium cost
27.01	Eaton Ave, Arlington Rd, Oakdale St, Warwick St, Stanford Ln, Duane St	El Camino Real	Hopkins Ave	0.88	Class 3b Bicycle Boulevard	High	Medium cost
27.03	Harrison Ave, Cleveland St, Vera Ave, James Ave, Elmwood St, Fulton St, Duane St	Broadway	Roosevelt Ave	1.15	Class 3b Bicycle Boulevard	High	Medium cost
27.04	Hess Rd, Poplar Ave, Ebener St	Roosevelt Ave	State Highway 84	0.55	Class 3b Bicycle Boulevard	High	Medium cost
38.03	Laurel St	Willow Rd	Burgess Dr	0.24	Class 3b Bicycle Boulevard	High	Medium cost
43.02	Huntington Ave, San Anselmo Ave, San Antonio Ave, Santa Helena Ave, S San Anselmo Ave	Center St	San Mateo Ave	1.69	Class 3b Bicycle Boulevard	High	Medium cost
43.04	Center St	Centennial Way Trail	Monterey St Trail	0.02	Class 3b Bicycle Boulevard	High	Medium cost

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Prioritization Rank	Cost Rank
43.05	Monterey St Trail	Trail	Aviador Ave	0.66	Class 1 Path	High	Medium cost
43.06	Aviador Ave	E Millbrae Ave	Monterey St Trail	0.14	Class 3b Bicycle Boulevard	High	Medium cost
50.02	State Highway 84, Marsh Rd, Us 101 Marsh Rd Overcrossing	Bay Rd	Bay Trail	0.86	Class 1 Path	High	Medium cost
55.01	University Ave	Woodland Ave Trail	Donohoe St	0.35	Class 1 Path	High	Medium cost
63.04	Arguello St	Marshall St	Whipple Ave	0.49	Class 3b Bicycle Boulevard	High	Medium cost
66.01	California Dr	Millbrae Ave	El Camino Real	0.24	Class 1 Path	High	Medium cost
66.03	California Dr	Broadway	Murchison Dr	1.36	Class 1 Path	High	Medium cost
75.01	Seaport Blvd, State Highway 84	Broadway	E Bayshore Rd	0.47	Class 1 Path	High	Medium cost
19.02	State Highway 1	1st St	Mirada Rd	5.42	Class 2 Bicycle Lane	High	Medium cost
2.02	Southgate Ave	Cerro Dr	Junipero Serra Blvd	0.41	Class 4 Separated Bicycle Lane	High	High cost
4.01	John Daly Blvd	N Mayfair Ave	Skyline Blvd	0.14	Class 1 Path	High	High cost
4.03	John Daly Blvd	Woodrow St	Sheffield Dr	0.43	Class 4 Separated Bicycle Lane	High	High cost
5.01	Junipero Serra Blvd	Southgate Ave	Westborough Blvd	2.35	Class 4 Separated Bicycle Lane	High	High cost
7.01	El Camino Real, Mission St, San Jose Ave	Goethe St	Noor Ave	5.67	Class 4 Separated Bicycle Lane	High	High cost
7.05	El Camino Real	F St	Valparaiso Ave	5.98	Class 4 Separated Bicycle Lane	High	High cost

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Prioritization Rank	Cost Rank
12.02	Grand Ave, E Grand Ave	Spruce Ave	Genentech Drive	1.92	Class 4 Separated Bicycle Lane	High	High cost
17.02	E Millbrae Ave, Old Bayshore Blvd	Us Highway 101	Bay Trail	0.17	Class 4 Separated Bicycle Lane	High	High cost
17.03	E Millbrae Ave	Us Highway 101	Us Highway 101	0.15	Class 1 Path	High	High cost
17.04	E Millbrae Ave, Millbrae Ave	El Camino Real	Us Highway 101	0.41	Class 4 Separated Bicycle Lane	High	High cost
26.02	19th Ave, Fashion Island Blvd	Pacific Blvd	S Norfolk St	0.96	Class 4 Separated Bicycle Lane	High	High cost
32.01	Jefferson Ave	Middlefield Rd	El Camino Real	0.19	Class 4 Separated Bicycle Lane	High	High cost
38.01	Oak Grove Ave	Laurel St	El Camino Real	0.23	Class 4 Separated Bicycle Lane	High	High cost
38.05	Willow Rd	Durham St	State Highway 84	1.24	Class 4 Separated Bicycle Lane	High	High cost
42.01	Bay Rd	State Highway 84	Spring St	1.42	Class 4 Separated Bicycle Lane	High	High cost
43.01	Huntington Ave	San Mateo Ave	Sneath Ln	0.84	Class 4 Separated Bicycle Lane	High	High cost
50.01	Marsh Rd	Middlefield Rd	Bay Rd	0.63	Class 4 Separated Bicycle Lane	High	High cost
57.01	E Market St, Guadalupe Canyon Pkwy, Price St	Hillside Blvd	Carter St	3.02	Class 4 Separated Bicycle Lane	High	High cost
59.01	San Carlos Ave	Old County Rd	Alameda De Las Pulgas	0.77	Class 4 Separated Bicycle Lane	High	High cost
60.04	Middlefield Rd	Baywood Ave	Ravenswood Ave	0.81	Class 4 Separated Bicycle Lane	High	High cost
63.01	Old County Rd	Pacific Blvd	Oneill Ave	1.01	Class 4 Separated Bicycle Lane	High	High cost

Project ID	Corridor	From	To	Length (miles)	Recommended Bikeway	Prioritization Rank	Cost Rank
63.03	Old County Rd, Stafford St, Whipple Ave	300 ft NE of El Camino Real/Harbor Blvd	Arguello St	2.53	Class 4 Separated Bicycle Lane	High	High cost
63.05	Broadway, Middlefield Rd, Winslow St, Arguello St	Marshall St	Jefferson Ave	0.3	Class 4 Separated Bicycle Lane	High	High cost
66.02	California Dr	Millbrae Ave	Murchison Dr	0.15	Class 4 Separated Bicycle Lane	High	High cost
66.04	California Dr	Howard Ave	Broadway	1.26	Class 4 Separated Bicycle Lane	High	High cost
73.01	Westborough Blvd, Chestnut Ave	Sunset Ave	Sharp Park Rd	2.93	Class 4 Separated Bicycle Lane	High	High cost
73.03	Chestnut Ave	Livingston Pl	Hillside Blvd	0.12	Class 4 Separated Bicycle Lane	High	High cost
74.01	Main St	Us 101 Overcrossing	Brewster Ave	0.1	Class 4 Separated Bicycle Lane	High	High cost
75.02	State Highway 84	Us Highway 101	Canada Rd	4.82	Class 4 Separated Bicycle Lane	High	High cost
10.01	Sharp Park Rd	Gypsy Hill Rd	Bradford Way	0.91	Class 1 Path	High	High cost
10.02	Sharp Park Rd	College Dr	Gypsy Hill Rd	0.54	Class 1 Path	High	High cost
41.01	State Highway 92	State Highway 1	Hilltop Mobile Home Park Rd	0.46	Class 4 Separated Bicycle Lane	High	High cost
41.02	State Highway 92	Skyline Rd Trail	Hilltop Mobile Home Park Rd	6.68	Class 3c Bicycle Route with Wide Shoulders	High	High cost

San Mateo County
Countywide Bicycle and
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Project Prioritization

Prioritization Category
- High
- Medium
- Low
- Water
- SFO
- Park

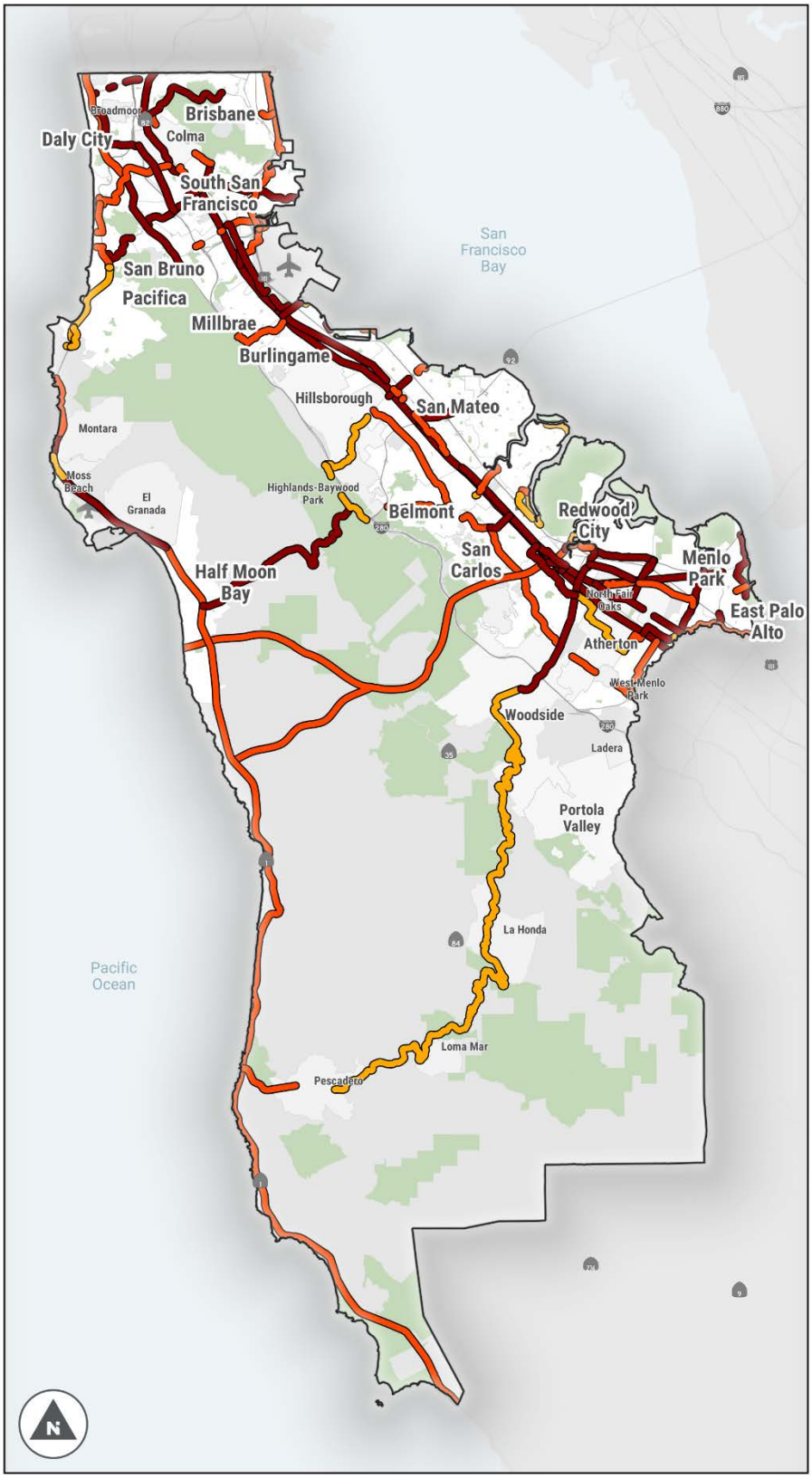

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Figure 19. Map of Bikeway and Regional Trail Projects by Priority Level

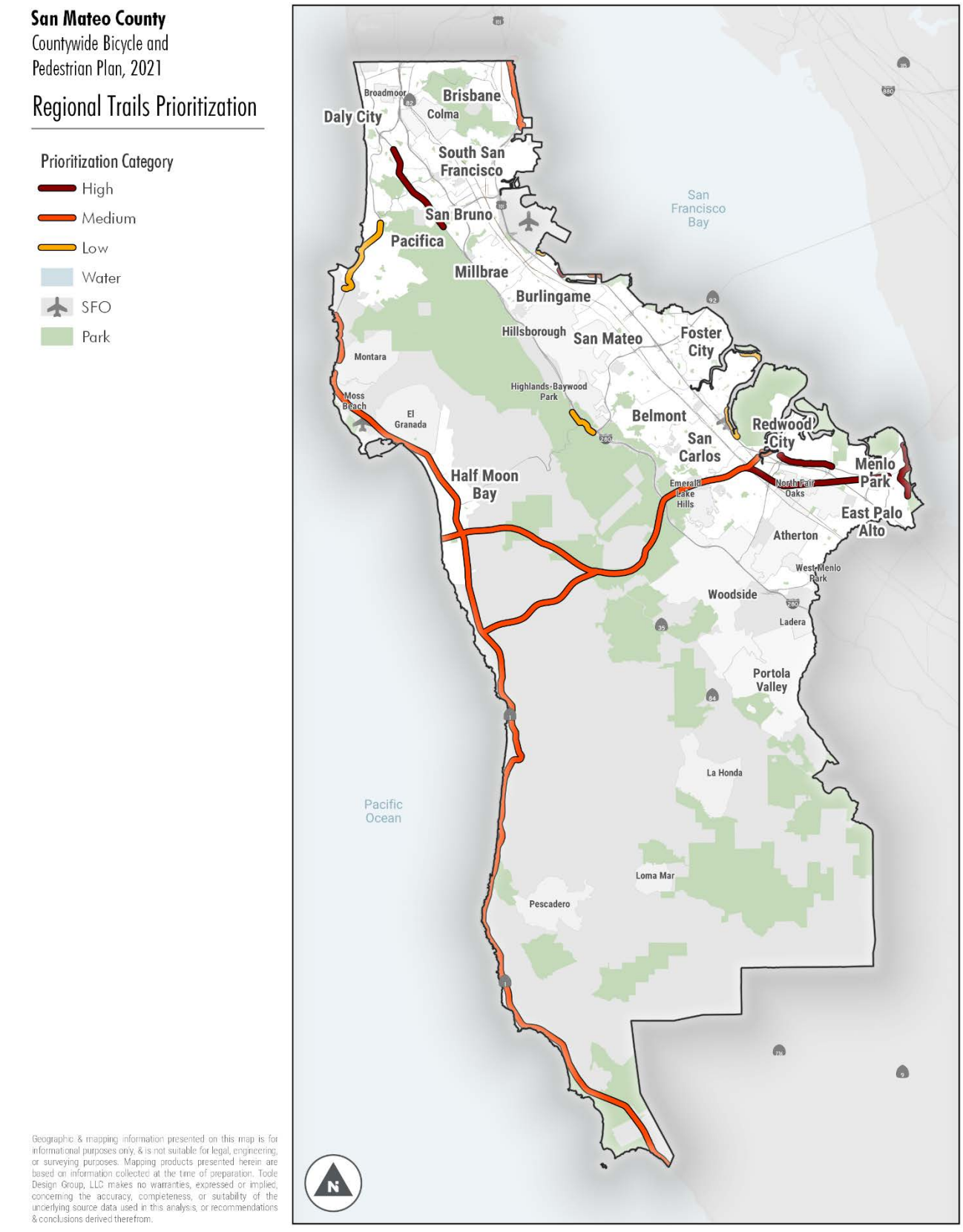

Figure 20. Map of Regional Trail Projects by Priority Level

Roles and Responsibilities

C/CAG plays an important role in supporting and coordinating local jurisdiction efforts to increase walking and bicycling in San Mateo County. C/CAG is well-positioned to seek and distribute funding, provide resources such as tools and trainings to local jurisdictions, and facilitate discussions and coordinate efforts to implement regional projects, improve connections between jurisdictions, and advocate for projects on state-owned roadways.

Funding

C/CAG, San Mateo County, and local jurisdictions can fund bicycle and pedestrian projects and programs in a variety of ways and funding may come from all different levels of government, the private sector, and non-profits. **Table 12** presents a list of state, regional, and county funding opportunities that can be used for bicycle and pedestrian projects. C/CAG distributes funds from state and regional funding programs such as Article 3 of the Transportation Development Act and the Transportation Fund for Clean Air, and also distributes funding from the Measure M program, $10 vehicle registration fee, that can be used for bicycle and pedestrian projects. C/CAG also partners with the San Mateo County Transportation Authority to distribute funding from Measure A and Measure W.

San Mateo County and local jurisdictions can acquire funding for walking and bicycling facilities through grants, motor vehicle registration fees, bond measures, line items in local Capital Improvement Programs (CIP), and leveraging new development projects. General funds and CIP funds can be used to leverage regional, state, and federal funding. As discussed above, repaving also presents an opportunity to implement and update bikeways and intersection improvements in a cost-effective manner. Other opportunities local jurisdictions can pursue to fund bicycle and pedestrian facilities include partnerships with local parks and recreation departments, and parking district benefit programs. For these external opportunities, C/CAG will support local agency applications through coordination and advocacy as well as through the re-administration of the Grant Writing Technical Assistance Program.

Table 12. State, Regional, and County Funding Sources for Active Transportation Projects

Funding Source	Administering Agency	Weblink
State Funding Sources		
California Active Transportation Program	California Transportation Commission	www.dot. ca.gov/hq/ LocalPrograms/atp
California Office of Traffic Safety Grants	California Office of Traffic Safety	www.ots.ca.gov/ Grants/default. asp
Highway Safety Improvement Program	Caltrans	www.dot. ca.gov/hq/ LocalPrograms/hsip.html
Affordable Housing and Sustainable Communities Program	California Strategic Growth Council	www.sgc.ca.gov/Grant-Programs /AHSCProgram.html
Sustainable Transportation Planning Grants	Caltrans	https://dot.ca.gov/programs/transportation-planning/regional-planning/sustainable-transportation-planning-grants
Recreational Trails Program	California Department of	http://ohv.parks.ca.gov/?page_id=24881

Funding Source	Administering Agency	Weblink
	Parks and Recreation	
Urban Greening Grants	California Natural Resources Agency	http://resources.ca.gov/grants/urban-greening/
State Transportation Improvements Program	California Transportation Commission	https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/state-transportation-improvement-program
State Highway Operation and Protection Program	Caltrans	http://www.dot.ca.gov/hq/transprog/SHOPP/2018_shopp/2018-shopp-adopted-by-ctc.pdf
California Gas Tax	California Transportation Commission	https://sco.ca.gov/Files-AUD/gas_tax_guidelines31219.pdf
Regional and County Funding Sources		
Regional Active Transportation Program	Metropolitan Transportation Commission	www.mtc.ca.gov/ funding/ATP
Transportation Fund for Clean Air	Bay Area Air Quality Management District	www.baaqmd. gov/grant- funding/public- agencies/ bikeways-roads- lanes-paths
Bicycle Facilities Grant	Bay Area Air Quality Management District	http://www.baaqmd.gov/?sc_itemid=B056735B-74BD-4CD0-A744-936A1CFD05A3
One Bay Area Grant Program	Metropolitan Transportation Commission	https:// mtc. ca.gov/our-work/ fund-invest/ investment- strategies-commitments/ focused-growth/ one-bay-area- grants
Transportation Development Act Article 3	City/County Association of Governments of San Mateo County	https://ccag.ca.gov/ opportunities/ call-for-projects
Measure A and Measure W Pedestrian and Bicycle Program	San Mateo County Transportation Authority	www.smcta.com/Projects/Call_for_Projects.html
Transportation Fund for Clean Air, County Program Manager Fund	City/County Association of Governments of San Mateo County	www.baaqmd.gov/grant-funding/public-agencies/county-program-manager-fund
San Mateo County Safe Routes to School	San Mateo County Office of Education	https://www.smcoe.org/for-schools/safe-and-supportive-schools/safe-routes-to-school/
San Mateo County Bicycle Parking Reimbursement Program	Commute.org	www.commute.org/employer-services/179-bike-parking-at-half-cost
Measure A Alternative Congestion Relief and Measure W Transportation Demand Management Program	San Mateo County Transportation Authority	www.smcta.com/Projects/Call_for_Projects.html

Performance Metrics

This Plan presents a vision and framework for improving conditions for people walking and bicycling in San Mateo County. It also identifies tools, policies, programs, and specific projects for regional and local agencies to pursue and achieve the vision. Monitoring progress towards the CBPP goals at the regional level is an important step to evaluate whether C/CAG and the local jurisdictions are on track, and will help identify additional resources or needs along the way.

C/CAG will monitor progress toward the Plan's vision and goals through the performance metrics listed in **Table 13**. Each metric relates to at least one goal established in the planning process and supports the Plan's themes and key principles established in the vision. These performance measures should be measured every three to five years. In the future, C/CAG may consider developing specific targets for each metric.

Table 13. Countywide Bicycle and Pedestrian Plan Performance Metrics

Theme	Performance Metric	Notes
Connectivity	Share of funds distributed to plan, design, and construct active transportation projects along the countywide Backbone Network or within Pedestrian Focus Areas. Miles of new or upgraded bicycle and pedestrian facilities. Number of major barriers addressed.	
Safety	Share of projects and programs funded and number of resources distributed to improve safety for people walking and bicycling. Collision rate for bicycle- and pedestrian-related crashes.	Includes projects that provide increased separation between bicyclists or pedestrians and motor vehicles or reduce motor vehicle speeds (e.g., separated bike lanes, traffic calming, sidewalks, and other FHWA Proven Safety Countermeasures); also includes distribution of resources or policies to improve safety for bicyclists and pedestrians, such as the identification of a high injury network.
Mode Shift	Mode share for walking and bicycling trips throughout San Mateo County.	

Theme	Performance Metric	Notes
Equity	Share of funds distributed to plan, design, and construct active transportation projects within Equity Focus Areas.	Includes statewide, regional, and San Mateo County specific equity focus areas identified in the CBPP.
Collaboration and Technical Support	Number of meetings facilitated and technical resources distributed, to support local agency efforts to fund, plan, design, maintain, or install facilities for people walking or bicycling. Resources and funding dedicated to active transportation projects that require intra-agency collaboration.	Includes resources such as toolkits, trainings.

Financial Analysis

Planning-level cost estimates were developed for the bicycle projects along the Countywide Backbone Network in order to understand the overall level of investment needed to construct it. These cost estimates also provide estimates for individual projects, data which can be used in grant applications, and other funding initiatives. Note that these costs encompass only the bicycle infrastructure aspects of the network; pedestrian facilities added to reconstruction projects would increase costs.

The cost of implementing the Backbone Network varies based on the type of bikeway that is planned, and the degree to which existing infrastructure needs to be modified or enhanced. For example, standard, painted bike lanes can be implemented at a substantially lower cost than projects that require curbs, crossing beacons, or street widening. **Table 14** shows a summary of the cost estimates for the bicycle facilities recommended in this Plan, and

Table 15 gives per-unit cost estimates for pedestrian facilities. **Appendix D** includes a prioritized list of all bikeway projects along the Backbone Network, and includes cost estimates for each project.

Cost estimates for Class 4 Separated Bike Lanes do not include costs to upgrade signals, which may be needed in some instances. Soft costs and contingencies, including engineering and design costs, and construction management costs are captured within the per mile costs and are incorporated into the cost estimates presented in the project list. Contingencies for construction, environmental impacts, drainage, utilities, and design are assumed. Contingencies that vary by facility type are based upon our experience with the complexities of implementing them. **Appendix C** provides more details on how the cost estimates were developed.

Table 14. Bikeway Planning-Level Project Cost Estimates[22]

Bikeways	Land Use Context	Cost per Mile*	Countywide Backbone Network Mileage
Class 1 Multi-use Path	Urban	$2,200,000	46
Class 2 Bike Lane	Urban	$90,000	18
Class 2b Buffered Bicycle Lane	Urban	$130,000	28
Class 3 Bicycle Route	Urban	$70,000	11
Class 3b Bicycle Boulevard	Urban	$240,000	16
Class 4 Separated Bike Lane[23]	Urban	$3,270,000	51
Class 1 Multi-use Path	Rural	$2,200,000	49
Class 3 Rural Bicycle Route	Rural	$20,000	11
Class 3c Bicycle Route with Wide Shoulders[24]	Rural	$1,690,000	13

[22] 2018 cost data was used given the wider availability of example costs. Costs were adjusted to match 2020 dollars, using an annual escalation rate of 5% to account for inflation.

[23] In the project list, only a vertical buffer unit cost is applied along roadway segments where a separated bicycle lane is recommended and there is already an existing buffered bicycle lane. The cost per mile of these separated bike lanes is $2,9210,000.

[24] In the project list, a lower cost estimate of $1,520,000 is applied instead of the Bicycle Route with Wide Shoulders cost estimate along roadway segments with an existing shoulder bike lane. The lower cost estimate assumes there is already a 5-foot shoulder that would need to be widened to 10 feet and the roadway already contains the necessary signs and striping. The cost of installing a Class 3c facility includes the cost of adding signs, striping, and widening the roadway shoulder to meet the recommended shoulder width of 10 feet.

Table 15. Planning-Level Cost Estimates for Pedestrian Facilities

Pedestrian Crossing Improvements	Each
Sidewalk (including ramp upgrades)	$1,080,000/mile
Alternative Walkway	$200,000/mile
Curb Ramp (1 ramp)	$5,000
Curb Extensions/Bulb-Outs (paint/post, 4 corners of intersection)	$25,000
Curb Extensions/Bulb-Outs (concrete, 4 corners of intersection)	$66,000
Crossing Islands (paint/post, 1 island)	$4,000
Crossing Islands (concrete, 1 island)	$10,000
Marked Crosswalks (4 legs of intersection)	$8,000
Rectangular Rapid Flashing Beacons (1 set of 2)	$43,000
Pedestrian Hybrid Beacons (1 set of 2)	$210,000
Leading Pedestrian Interval (1 intersection)	$4,000
Pedestrian Lighting (1 lighting standard)	$20,000
Parking Restrictions (daylighting 1 intersection)	$2,000

Design Toolkit

Appendix A includes a design toolkit that recommends appropriate pedestrian and bicycle facility types for the San Mateo County context. The toolkit is based on best practices for bicycle and pedestrian facility design from local and national standards and design resources, adapted to San Mateo County's particular land use and operating characteristics. The design toolkit covers topics in the following categories:

- Elements of the streetscape
- Pedestrian intersections and crossing treatments
- Bicycle user types and facility selection
- Bicycle facility types
- Bicycle intersection design and spot treatments
- Additional considerations including lane narrowing and reconfiguration, maintenance of multi-use paths and separated bike lanes, bike parking, walk audits, and wayfinding

Conclusion

The San Mateo Countywide Bicycle and Pedestrian Plan lays the foundation for bicycle and pedestrian programs and projects to come. C/CAG is enthusiastic about the ability for this Plan to positively contribute to the safety, health, mobility options and environmental goals for communities throughout San Mateo County. This Plan represents a significant amount of work and collaboration by C/CAG staff, local agency partners, and the general public who all shared input throughout this process by way of community meetings, emails, phone calls, and more. The next steps for achieving the countywide vision of providing safe, accessible and comprehensive network of bicycle and pedestrian facilities will require ongoing coordination and collaboration with key stakeholders. There is much to be done, so let's start rolling!

Acknowledgments

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TOOLE DESIGN

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, concept drawings, cost opinions, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein.

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