Fremont Trails Strategy Plan Draft

June 2021

TrailPeople

TOOLE DESIGN

CITY OF Fremont

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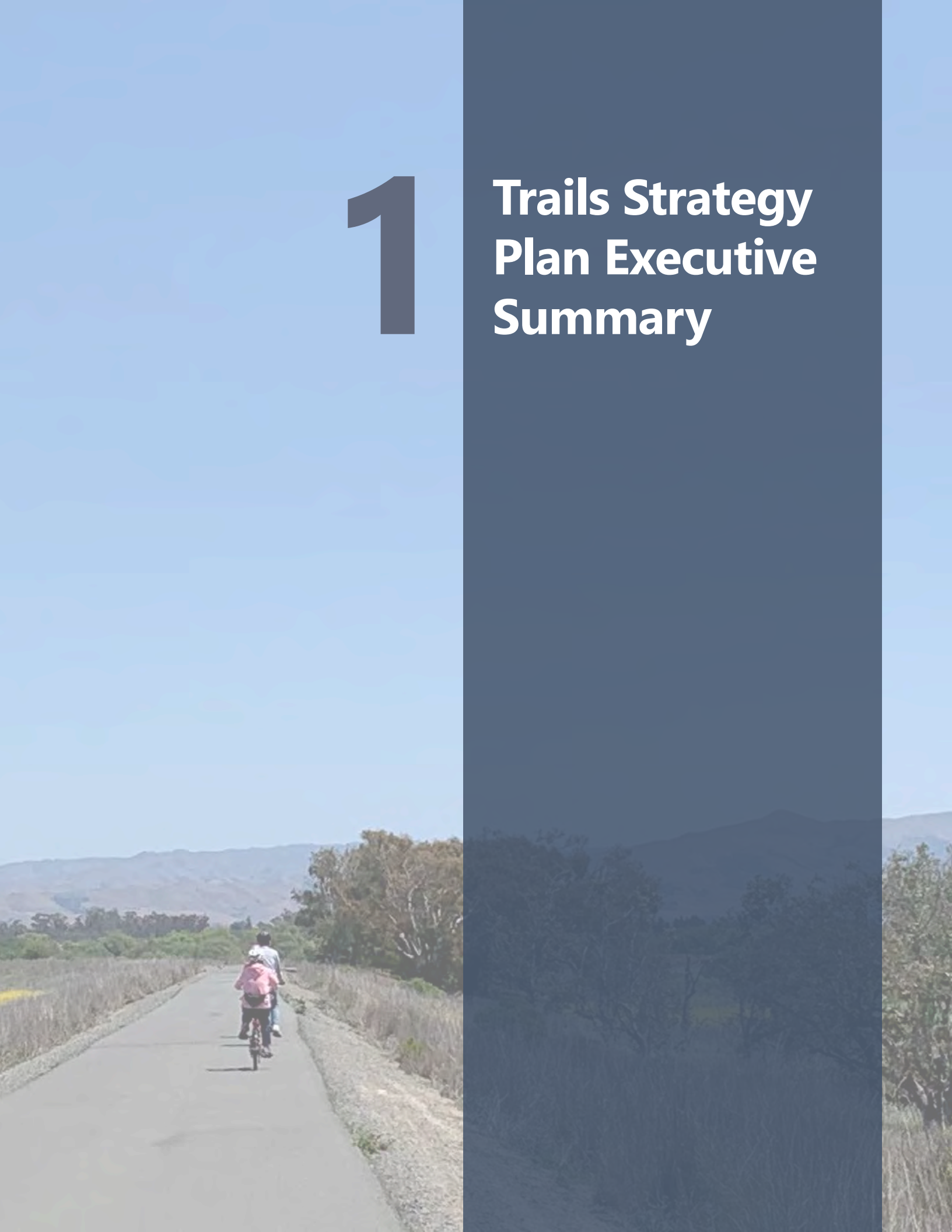


1 Trails Strategy Plan Executive Summary

Fremont Trails Strategy Plan Executive Summary

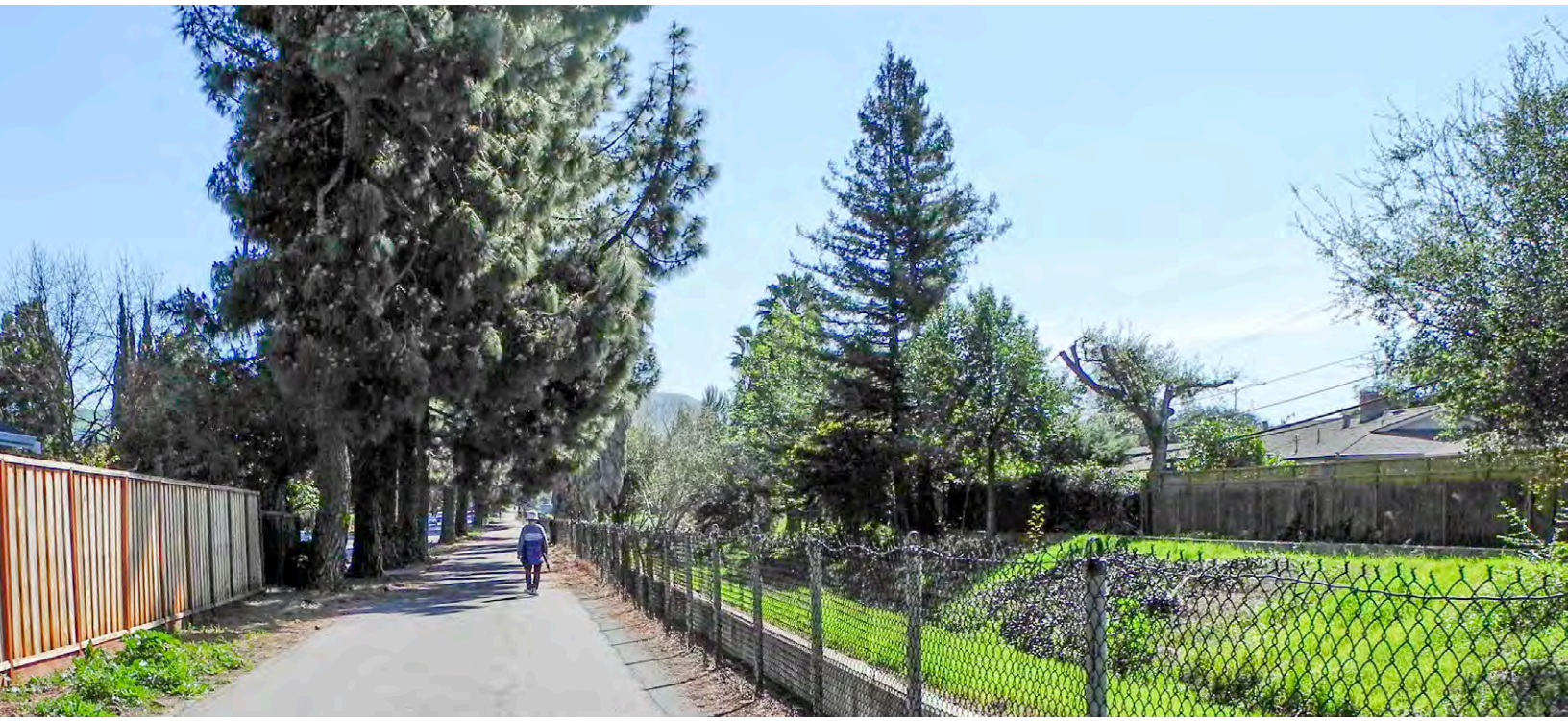
Trails are prized community assets. They provide people with high quality public spaces to safely and comfortably walk, bike, roll, and experience nature. The vision of the Trails Strategy Plan is for trails and pathways to provide safe, accessible, healthy, environmentally-friendly, and congestion-reducing transportation options for Fremont's residents and visitors. This Plan builds upon Fremont's Bicycle Master Plan and Pedestrian Master Plan and is coordinated with Fremont's Parks and Recreation Master Plan update.

Trails Strategy Plan Purpose

The purpose of Fremont's Trails Strategy Plan is to provide an overarching framework for the development and implementation of trail projects in Fremont. The Plan includes a thorough inventory of existing trail facilities and past plans and studies that propose new trail projects in Fremont. The Plan identifies a comprehensive vision network of trail corridors, while also highlighting a subset of corridors and projects that are either currently under development or could realistically be pursued within the next ten years.

The Plan provides a comprehensive resource document for developing and managing trails. It addresses topics such as design, access, trailside features, operations, and maintenance. It is intended to provide insights for the Fremont community about the level of resources needed to support the City's vision trail network, including the funding needs for both capital and operations and maintenance costs.

Prior to development, all trail corridors will go through project-level feasibility assessment, environmental review, and further community input.



Mission Creek Trail

Bike riders at Auto Mall Parkway/Fremont Boulevard

Why Plan for Trails?

Trails provide many different benefits that can help communities achieve a variety of goals and policy objectives.

Trails can provide direct access to recreation, making it easier for people to incorporate exercise and time outdoors into their daily lives. Trails can also provide access to recreation by enhancing connections to park and open space lands. Trails can double as habitat or naturalized corridors. They provide opportunities for people to connect with and experience nature and to learn about the environment. For these reasons, trails can improve a community's overall physical and mental health.

Trails can also serve as community assets and foster community involvement by highlighting the history and identity of a place and providing space for activity programming, public art, interpretive information, informal social gatherings, and more.

Trails can help meet goals related to equity, enhancing access to green space in communities that do not meet the City's adopted goals related to open space proximity. Furthermore, trails can provide options for recreation and transportation accessible to all ages and abilities.

Finally, trails can form a multi-modal transportation network that provides options for all people, regardless of age or ability, to get where they need to go without driving. This is imperative to meeting the City's goals relating to reducing greenhouse gas emissions and other pollutants from transportation.

Intended Plan Audience and Purpose

The Fremont Trails Strategy Plan is intended as a resource for Fremont community members and organizations who share an interest in using and improving trails as well as City staff and other partner agencies who develop and manage trails.

The Plan serves the following purposes:

- Inventory the existing trail network in Fremont.
- Identify a vision trail network that serves transportation and recreation purposes and provides connections to key destinations across the City.
- Document trail corridors and projects that the City is actively working to develop, and evaluate/prioritize additional trail projects for development.
- Establish a classification system and design guidelines for trail facilities.
- Establish approaches and design practices related to crossings and trailside features/ amenities
- Identify costs, funding needs, and other considerations related to implementation, operations, and maintenance of the trail network

Ultimately, the Trails Strategy Plan identifies a set of priorities that:

- Are realistic, given available funding and resources
- Balance longer-term/transformational improvements with short-term gap closures across Fremont
- Have support from the community and key partners
- The Plan ranks trail projects by priority and outlines project feasibility. It then provides cost estimates and a strategy for how to fund and maintain the trail system.

North side paved section of Alameda Creek Trail

Trail Policy Background

The City of Fremont has adopted a number of plans and policies directing the City to implement a connected trail network for transportation and recreation.

Bike, Pedestrian, and General Plans

The Fremont Trails Strategy Plan builds on the City's Bicycle Master Plan (2018) and Pedestrian Master Plan (2016). It also builds upon the Mobility Chapter of the 2011 General Plan — the many goals, policies, and implementation measures regarding trails and bicycle and pedestrian facilities. While these documents include trail facilities as part of their recommendations, they place significant emphasis on facilities along roadways.

In contrast, the Trails Strategy Plan focuses on facilities that are separated from roadway corridors for the exclusive use of bicyclists, pedestrians, and other trail users. These facilities support both active transportation and recreational use. In a few cases, the Trails Strategy Plan considers on-street facilities that provide connections to a trail corridor, but these are not the primary focus.

Parks and Recreation Master Plan

The detailed trail information presented in this Plan is referenced and supported by the City's Parks and Recreation Master Plan, which has been developed concurrently. However, the Trails Strategy Plan does not address trails that are exclusively used for hiking or mountain biking or are outside of urbanized areas. Those trails are addressed in the Parks and Recreation Master Plan or by other agencies, such as the East Bay Regional Park District.

Scoping and Feasibility Studies

The City has completed scoping/feasibility studies for a number of trail segments and corridors. This Plan draws from and expands upon the existing scoping and feasibility studies, providing a more in-depth review of existing trail facilities, and new trail opportunities, particularly as those trails relate to each other.

Policy Recommendations

Appendix D contains a review of policies related to trails and related bicycle and pedestrian facilities. It also contains recommendations for additional or expanded policies, including:

- Railbanking for trails
- Utility corridors for trails
- Private trail development requirements
- Safe and comfortable trail design
- Coordinated Trail Maintenance Plan (CTMP)
- Policy regarding the use of electric powered or assisted bicycles (e-bikes)

Trail at Navajo Way/Havasu Street connecting to Warm Springs Community Park

Trails Strategy Plan Process

This Trails Strategy Plan was jointly managed by the City's Public Works and Community Services Departments. It builds off of the City's Bicycle and Pedestrian Master Plans and was coordinated with an update to the City's Parks and Recreation Master Plan. The Plan focuses on trail facilities that can be used for both transportation and recreation purposes.

Plan Development Process

Fremont's Trail Strategy Plan was developed between November 2019 and July 2021. The Plan blends technical analysis and recommendations with community feedback gained through a variety of surveys and reviews by City Commissions, representing a broad cross-section of community members, and inter-agency coordination.

The inter-agency coordination was primarily conducted via a Technical Advisory Committee, comprised of staff from agencies that own linear right-of-ways or promote or manage trails within Fremont.

Alameda Creek Trail

Online Trails Survey

Fremont conducted an online survey from June-September 2020 through the Open City Hall platform, which asked a series of questions about current and desired trail usage and priorities for trail network improvement. The survey received more than 400 responses. Residents expressed that while they primarily use trails for recreation at present, they desire to use trails more for commuting, for travel to school, and for travel to shopping and errands.

The highest priority improvements, indicated by residents, were developing new connections across major barriers (such as freeways and creeks) and developing new regional trail corridors. Overall, priorities highlighted in survey responses included improving connectivity (by developing new trail corridors and better linking to existing on-street bikeways and sidewalks), improving existing trails, improving safety at crossings, improving maintenance and management, and providing amenities and trailside elements.

The online survey also included a webmap where residents could draw and vote on proposed trail corridors. The most frequently suggested corridors included the Niles Canyon Trail, East Bay Greenway, a trail in the Hetch-Hetchy corridor in the Warm Springs area, completing the Bay Trail, and the Dumbarton Bridge to Quarry Lakes trail.

Parks Master Plan Survey

In addition, the City conducted a statistically valid survey as part of its Parks and Recreation Master Plan, which involved distributing a survey via mail and telephone to a sample of households weighted to reflect overall City demographics. The survey asked about overall priorities for recreation facilities and programming. Trails were highly rated as a priority investment by the Fremont community, with paved trails and unpaved trails rating as the first and third highest scoring investment type overall.

Fremont's Trail Network

Fremont has an existing trail network comprised of 60.7 miles of trails and pathways. The trail network includes popular regional trails, including the Alameda Creek Trail, sections of the San Francisco Bay Trail and East Bay Greenway. The trail network also includes more locally-focused trails, such as the Mission Creek Trail and the Brookvale, Cabrillo, and Patterson Linear Park Trails.

The Fremont Trail Strategy Plan identifies a vision network of 79.1 miles of additional trails and pathways, for a total trail network of 139.8 miles.

The proposed trail network is comprised of 24 major trail corridors. The Plan presents detailed overviews and high-level improvement recommendations for each of these trail corridors that are not already being addressed by current studies or plans.

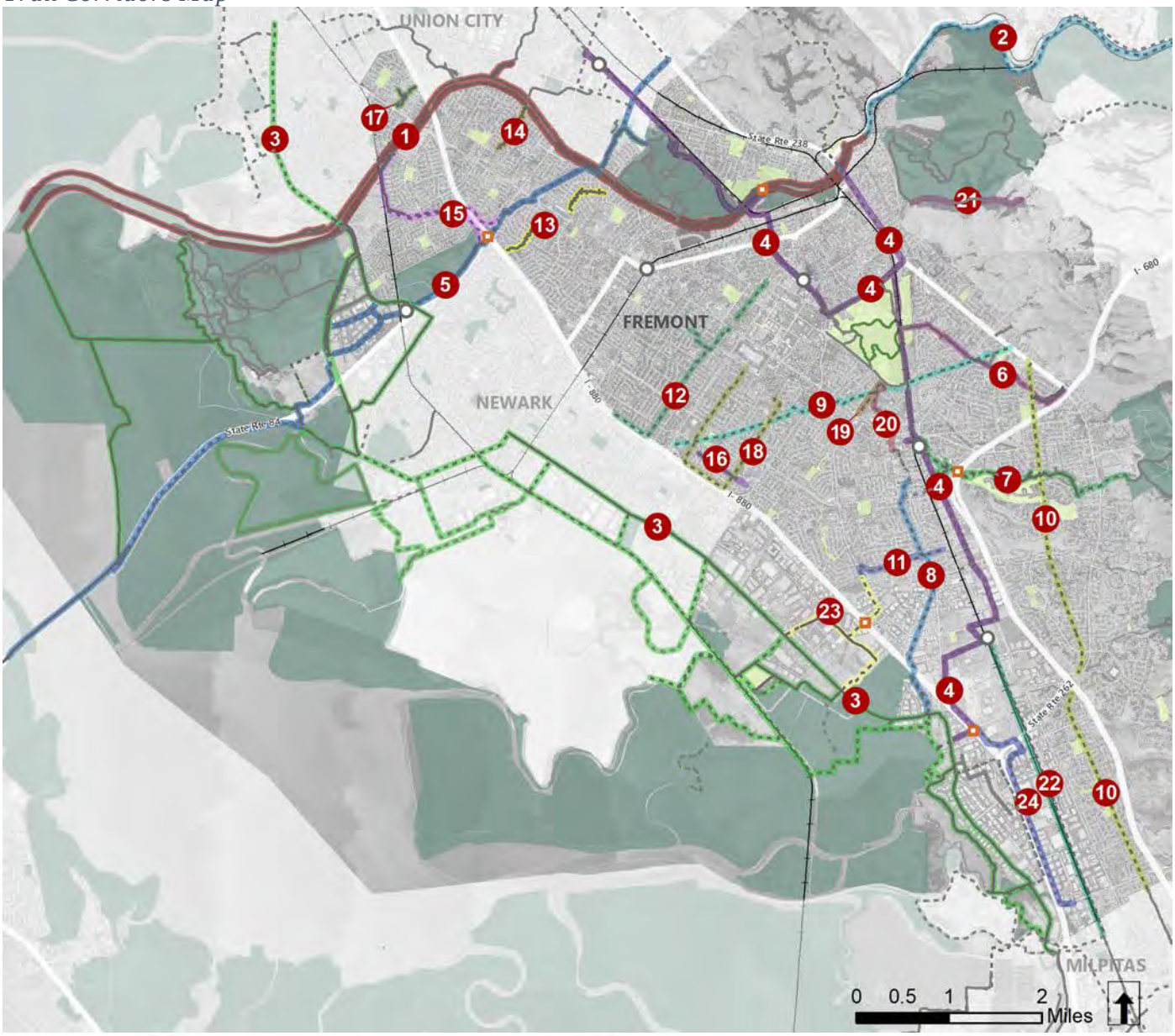
These proposed trail corridors were identified from a review of past planning studies, scoping studies, and feasibility studies, community input (including through the interactive map), and stakeholder review and input, as well as focused studies prepared for the Trails Strategy Plan, contained in **Appendix A, Fremont Trail Corridors**.

The proposed trail network includes trails in a variety of environments, including creeks and waterways, engineered channels, roadways, and utility and rail corridors. Some segments are within City right-of-way and many other segments and corridors lie within linear right-of-ways owned by other agencies, which will require further coordination and the development of agreements.

The proposed trail network connects to a variety of key destinations, including Fremont's various planning areas and town centers, transit centers, parks and open spaces, job centers, and schools, via direct access or via the on-street biking and walking network.

Trail in Warm Springs Community Park

Trail Corridors Map



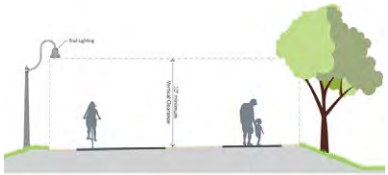
1 Alameda Creek Trail
2 Niles Canyon Trail
3 San Francisco Bay Trail
4 East Bay Greenway
5 Dumbarton Bridge to Quarry Lakes Trail
6 Mission Creek Trail
7 Sabercat Historic Park Trail
8 Fremont Boulevard Channel Trail
9 Hetch Hetchy East-West Trail
10 Hetch Hetchy North-South Trail
11 PG&E Corridor & Channel Trail
12 Richmond Avenue Channel Trail
Existing Trail
Proposed Trail
13 Brookvale, Cabrillo, and Patterson Park Trails
14 Northgate Trail
15 Crandall Creek Trail and Ardenwood Path
16 Farwell Linear Park
17 Lowry Neighborhood Park Trail
18 U-Channel Trail
19 Grimmer Greenway
20 Irvington Neighborhood Trail
21 Morrison Canyon Road
22 Warm Springs BART to Milpitas (via BART corridor)
23 Pacific Commons (Bicycle/Pedestrian) Connection
24 Kato Road Trail
Transit Station (BART, Amtrak, Park & Ride Lot)
Major Proposed Ped/Bicycle Bridge

Typology and Design

The Fremont Trail Strategy Plan introduces a "typology" framework for classifying different trail corridors according to their role in the overall trail network and their anticipated use.

The typologies recognize that different trail corridors will serve different trail user volumes and lengths of trips, different types of travel, and will have different mixes of bicyclists/wheeled users and pedestrians/users on foot. These differences have implications for how the trail should be designed and operated in order to minimize trail user conflicts and maximize user experience.

The Trail Strategy Plan classifies trails into three Typologies:

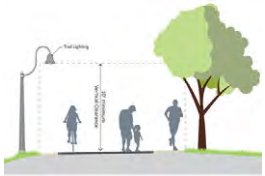


Regional Trails

» Connect across the city and/or connect to multiple major destinations such as transit centers or job centers.

» Serve high volumes of trail users and higher percentages of long-distance trips made by trail users traveling by bicycle and/or at higher speeds.

» A wide cross-section and separation of spaces for bicycles and pedestrians are recommended.



Community Connectors

» Connect between different neighborhoods within the City and may connect to one major destination.

» Serve a moderate volumes and a mix of bicyclists and pedestrians.

» A moderately-wide cross-section and shared use facilities, in which bicycles and pedestrians are not separated, are recommended.

Neighborhood Trails

» Connect within a neighborhood.

» Serve short trips and primarily serve pedestrians or trail users traveling at slower speeds (e.g. school children bicycling).

» A narrower cross-section and shared use facility is recommended.

The Plan presents recommendations for crossing treatments, including appropriate type of treatment for different contexts/crossing types and detailed recommendations for major street crossings of all Fremont trail corridors.

The Plan also presents recommendations for trailside elements and their design and placement. While trailside elements can greatly enhance the user experience and unlock many additional benefits of trails, they also require additional resources to maintain.

Trailside elements include:

- Lighting
- Benches and picnic tables
- Signage and wayfinding
- Bike repair stations
- Fencing and gates
- Waste receptacles
- Shade structures
- Landscaping and trees

Notably, the Plan outlines a series of policies with respect to installing new trailside elements, including:

- Identifying a maintaining party and funding prior to installing amenities.
- Prioritizing trailside elements that require minimal ongoing maintenance.
- Prioritizing amenities within existing parks.

Trail Priorities

The Trails Strategy Plan presents an ambitious network of trail corridors, including improvements to existing trails, completion of trail gaps, and construction of entirely new trails corridors. While there are many opportunities for trail development in Fremont, trail projects can take significant time and resources to develop and maintain.

To provide guidance on where to focus limited resources, this Plan analyzed and prioritized all 24 trail corridors based on a comprehensive set of criteria, including public input, relative benefits, and feasibility. Seven trails that are actively under development were not analyzed in the prioritization process, but are considered Tier 1 priority due to their current status. The remaining trails were prioritized as Emerging Priorities (Tier 2) or Vision Corridors (Tier 3). The prioritization conducted for this plan presents a general framework. Definitive decision-making regarding priorities will happen as part of the City's Capital Improvement Program process.

The Plan's program of existing trails improvements, trail gap closures, and new trail development are outlined in **Chapter 11, Priorities, Costs, and Funding**, with more detail available in **Appendix E, Prioritization Methodology**.

Trail Priority Tier 1 — Trails Actively Under Development

Regional trail corridors actively under development are the top tier trail priorities and not subject to evaluation scoring due to prior commitments. These include:

- #2 Niles Canyon Trail
- #3 San Francisco Bay Trail
- #4 East Bay Greenway
- #5 Dumbarton Bridge to Quarry Lakes Trail

Trail Priority Tier 2 — Emerging Priority Trails

Six trail corridors scored highly on the evaluation criteria and are priorities for implementation within 5-10 years.

New (Proposed) Trail Priorities

- #10A Hetch-Hetchy North-South Trail (I-680 to Milpitas)
- #6B Mission Creek Trail Gap Closure (Palm to Mission)
- #19 Grimmer Greenway
- #9 Hetch-Hetchy East-West Trail
- #23 Pacific Commons Connection
- #24 Kato Road Trail

Existing Trail Improvement Priorities

- #1A Alameda Creek Trail Enhancements (Ardenwood to Isherwood)
- #6A Mission Creek Trail Enhancements (Central Park to Palm)
- #7 Sabercat Historical Park Trail Extension (I-680 Bridge) and Enhancements

Trail Priority Tier 3 — Vision Trail Corridors

The remaining 15 trail corridors are considered long-term, or "vision" corridors, indicating they may be implemented within 10-30 years, as funding permits.

- #8 Fremont Boulevard Channel Trail (ACFC Line Roberts to Cushing)
- #12 Richmond Avenue Channel Trail (ACFC Line Stivers to I-880)
- #14 Northgate Trail Enhancements
- #15A Ardenwood Path Enhancements (Alameda Creek Trail to Crandall Creek Trail)
- #20 Irvington Neighborhood Trail (ACFC channel Paseo Padre Parkway to Lee Street)
- #22 Warm Springs BART to Milpitas (via BART Corridor)
- #1B Alameda Creek Trail Enhancements (Isherwood to Niles Canyon)
- #13 Brookvale, Cabrillo, and Patterson Park Trail Enhancements
- #17 Lowry Neighborhood Park Trail Enhancements
- #15B Crandall Creek Trail (connects to existing Ardenwood Path)
- #18 U-Channel Trail (ACFC Lines Argonaut to Bidwell)
- #16 Farwell Linear Park Trail Enhancements
- #10B Hetch-Hetchy North-South Trail (Mission to I-680)
- #11 PG&E Corridor and Channel Trail

Operations and Maintenance

A high quality trails system requires not only constructing a seamless and connected trail network, but also planning for and funding quality trail operations and maintenance. This is covered in **Chapter 10, Operations and Maintenance**, and more detail is contained in **Appendix G**.

Operations

Operations includes everything from regular monitoring and patrolling, to providing programming for trail activities, to establishing and ensuring compliance with trail user rules and regulations, to assuming responsibility and liability for any incidents or property damage that may happen within a trail corridor.

Maintenance

Maintenance includes a range of activities that span routine maintenance (sweeping, mowing, weed and graffiti abatement) to capital maintenance (resurfacing or rehabilitating trail pavement and replacing trailside elements. Maintenance requirements and costs are tied to trail design. Maintenance costs and needs can be reduced by using materials that last longer and reducing trailside elements that require significant routine maintenance.

The Plan also presents an order of magnitude annual cost estimate of $3.29 million annually, to maintain the City's vision trail network, based on data from other peer agencies in the Bay Area. This figure includes both routine maintenance and an annualized (pro-rated) estimate of capital maintenance (which may occur every 5-10 years). The figure includes some overlap with existing street maintenance, as some corridors run along existing street rights-of-way.

Trail Corridor Ownership

Because of the range of trail corridor owners, some trail corridors may require the City to partner with other agencies to develop maintenance agreements and allocate maintenance responsibilities.

The Plan presents a detailed inventory of maintenance activities and the frequency with which these should activities should be conducted.

Funding and Implementation

Trail projects are significant projects which require substantial effort and resources to implement. Fremont's Trail Strategy Plan establishes an ambitious vision for an ultimate trail network that connects across the City and links a variety of destinations, but this vision will take many years and substantial additional funding to implement.

The estimated cost to implement the regional trail corridors identified as Trails Actively Under Development is $171 million. Regional trail projects qualify for a number of regional transportation funding sources, which are specifically identified for trails. These funding sources will frequently require Fremont to compete alongside other agencies to obtain funding.

The cost to build out the Emerging Priority Trails and the Vision Trail Corridors, in addition to the Trails Actively Under development brings the total cost of the plan to $342 million.

Summary

In summary, trails are strongly supported by Fremont's adopted sustainability, complete streets/ multimodal transportation, active community, open space access, and age-friendly community policies. Trails can provide many benefits and experiences and are among the most popular park and recreation improvements suggested by the Fremont community.

While the community desires an expansive and high quality trail network, the implementation and ongoing operations and maintenance of such a network will require significant advocacy for limited regional, state, and other competitive funds. The implementation and ongoing operations and maintenance of such a network may also require creative new funding strategies, such as local infrastructure bonds or assessment districts.

2 Benefits of Trails

Benefits of Trails

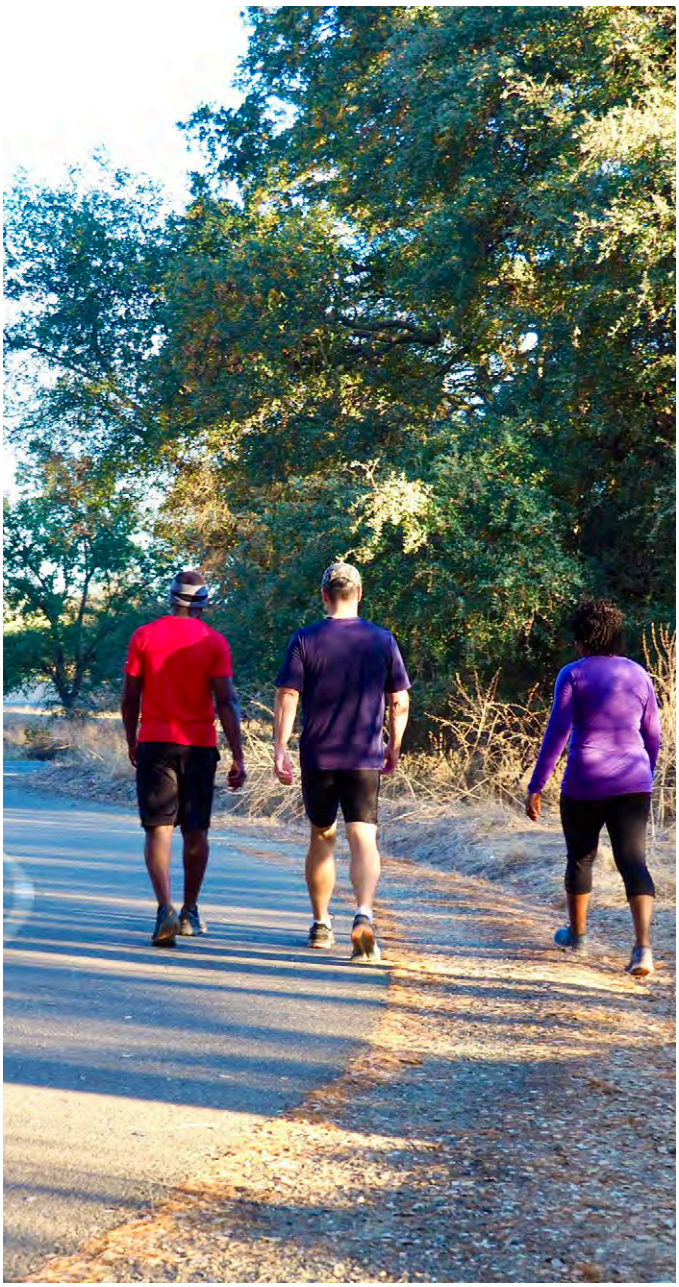
Across the U.S. and around the world the general public and professionals in disciplines from public health to city planning are emphasizing the many benefits of trails. Numerous studies characterize and quantify these benefits, but it only takes a little time on the trail to be convinced that trails are good for everyone!

The City of Fremont recognizes many trail benefits ranging from access to parks and nature to low- or no-cost transportation opportunities to school, work, shopping centers, transit, and more. Guided by this Fremont Trails Strategy Plan, the City plans to grow the existing trail network to give people the option of making local trips without driving. Equitable trail access benefits all of Fremont's residents.

Recreation for Everyone

- Nearly half of the U.S. population did not participate in any outdoor recreation at all and only 17.9 percent participated in any outdoor recreation at least once a week in 2018.[1] But during the 2020 pandemic trails have seen a huge increase in use – some regional trails have seen over a 50% increase in use.[2]
- Easily accessible trails and greenways can encourage people of all ages and abilities to incorporate exercise and time outdoors in their daily lives.
- In a well-planned community, homes, parks, businesses, stores, and schools are connected by safe walking and biking routes. Safe trails allow all members of the community to enjoy the outdoors.[3]
- People who use parks and open spaces are three times more likely to achieve recommended levels of physical activity than people who do not use parks and open spaces.[4]
- The trails in this Strategy Plan are able to accommodate a full range of trail users, whether they walk, roll, ride, run, or hike, and regardless of race, ethnicity, gender, income level, age, or ability.
- Trails can be safe and comfortable for users of all abilities, including people with hearing loss, vision impairment, and/or mobility limitations.

1 https://www.outsideonline.com/2408778/americans-less-time-outside-2019-study
2 Napa Valley Vine Trail Executive Director Philip Sales, March 8, 2021
3 https://www.cdc.gov/healthyplaces/healthtopics/parks.htm
4 https://depts.washington.edu/hhwb/Thm_Risk.html



Walkers enjoy exercise and nature at Lake Natoma, Sacramento County

Nature Learning & Appreciation

- Through interpretive signage and outdoor education programming, trails tell a story and teach trail users about nature, the environment, climate change, history, art, architecture, culture, and more.
- Trails provide an opportunity for users to experience and observe nature at their own pace.
- Parks and trails can help preserve natural and threatened ecosystems.[1]
- Trails can also double as greenway corridors that allow species to move across their natural range without endangering themselves or people.

1 Anderson, D.H. (2008). Targeting Visitor Benefits for Minnesota State Parks. In B.L. Driver (Ed.) Managing to Optimize the Beneficial Outcomes of Recreation (pp. 311-334). State College, PA: Venture Publishing, Inc.

Banana slug at Purisima Creek Redwoods Open Space Preserve, San Mateo County

Physical and Mental Health

- Spending quality time outdoors (including on a trail) reduces stress, anxiety, and can lower one's risk of depression, according to a study done by researchers at Stanford University.[2]
- City residents who live near green space, such as a trail, have lower levels of illness and disease than other people of similar income levels.[3]
- Trails offer a low- to no- cost opportunity to get exercise at every fitness level. In the United States, most people do not get the recommended amount of physical activity. The CDC recommends that children have at least 60 minutes of physical activity per day. More than 80 percent of adolescents in the United States do not exercise for 60 minutes per day, and more than 25 percent of adults report no recreational physical activity.[4]
- Inactivity contributes to an upsurge in obesity rates and associated diseases in the United States and other industrialized nations. Obesity can increase the risk for serious physical and mental health conditions, including congestive heart failure, diabetes, osteoarthritis, and coronary heart disease.[5]

2 https://www.pnas.org/content/early/2015/06/23/1510459112
3 https://depts.washington.edu/hhwb/Thm_Risk.html
4 https://www.cdc.gov/healthyplaces/parks_trails/parks-and-trails-health-impact-toolkit.pdf
5 https://depts.washington.edu/hhwb/Thm_Risk.html

Riding the Sabercat Historic Park Trail

Community Identity and Amenity

- A great trail system is a source of pride and joy for a community. Community members who live near parks and trails take pride in access to nature and believe their community is a special place to live.[1]
- Communities across America have experienced economic revitalization through trails and greenways. Opportunities for outdoor recreation can attract new business and talented workers and help keep established businesses competitive. Small business owners have cited quality of life as a key reason for choosing a location.[2]
- Another economic benefit of parks and trails is increased property values for homes nearby. Local and national studies have shown that the market values of properties near parks, trails, or open spaces frequently exceed those of comparable properties elsewhere.[3] This is yet another reason that social equity and distribution of parks and trails is important.

Community Involvement and Connection

- Trails are a place where the community can come together. Many communities engage volunteers to help plan, implement, manage, and maintain trails. Members of the community want to help shape Fremont's trail network. Many Fremont residents responded to the public engagement survey by offering specific comments and recommendations.
- Trails act as a meeting place for the community. Trails foster community involvement and pride and provide an opportunity to interact with people of varying backgrounds and experiences.[4] Trails are great venues for families, friends, and group meetups and outings.

1 Anderson, D.H., Davenport, M.A., Leahy, J.E. & Stein, T.V. (2008). OFM and Local Community Benefits. In B.L. Driver (Ed.) Managing to Optimize the Beneficial Outcomes of Recreation (pp. 311-334). State College, PA: Venture Publishing, Inc.

2 Crompton, J.; Love, L.; & Moore, T. (1997). Characteristics of companies that considered recreation/open space to be important in (re)location decisions. Journal of Park and Recreation Administration, 15(1): 37–58.

3 Crompton, J., Competitiveness: parks and open space as factors shaping a location's success in attracting companies, labor supplies, and retirees. In T. F. de Brun (Ed.), The Economic Benefits of Land Conservation (pp. 48-54). San Francisco, CA: The Trust for Public Land.

4 The Social, Health and Heritage Benefits of Trails, www.goforgreen.ca

Active Transportation and Climate Change

- Cars, trucks, buses, trains, motorcycles, scooters, e-bikes, bicycles all provide ways for people to move. And how people choose to get around matters. Transportation is the greatest source of greenhouse gas emissions in Fremont, accounting for nearly 60% of community emissions.[5]
- Trails can function as active transportation networks that integrate into existing multi-modal transportation systems. Interconnected pedestrian and bicycle infrastructure makes walking and bicycling a safe and viable transportation choice for everyone, motivating people to opt for active modes of transportation and to do so more frequently. Trails that connect to destinations which correspond with residents' daily trips will especially benefit Fremont residents.
- Trails and greenways can reduce air and water pollution, protect hazard areas (e.g., flood plains and unstable slopes) from inappropriate development, and mitigate urban heat islands.[6]

5 https://www.fremont.gov/1950/Transportation

3 https://www.cdc.gov/healthyplaces/parks_trails/parks-and-trails-health-impact-toolkit.pdf

Mill Valley Bike Path, Marin County

3 Community Outreach

Community Outreach

Outreach for this Trails Strategy Plan provided the community and stakeholders with an overview of the Plan's development process and gathered information on current trail use, desired trail use, corridors of interest, and issues and concerns with trails. Outreach was largely conducted through virtual meetings and online engagement due to the COVID-19 pandemic.

Community feedback was solicited and received throughout the plan development process and included the following venues, which are summarized below:

- Technical Advisory Committee
- Mobility Commission and Focus Group Meetings
- Online Survey and Interactive Map
- Community Emails

During the Plan development period, a separate, but related Parks and Recreation Needs Assessment was undertaken for the preparation of the City of Fremont Parks Master Plan.

Detailed results and conclusions from outreach and more information related to the Needs Assessment are included in **Appendix B, Community Outreach Details**.

Technical Advisory Committee

A project Technical Advisory Committee (TAC) was formed that consisted of representatives from stakeholder agencies. These stakeholders own or manage property where Fremont trails exist or are envisioned, and/or plan and manage trails. The TAC met at every stage of the plan development process and also reviewed technical deliverables.

Mobility Commission Meeting and Focus Group Meetings

The Fremont Mobility Commission and a related Focus Group were consulted during the plan development and public outreach stages of the project. The Focus Group included members of the Mobility Commission and community representatives.

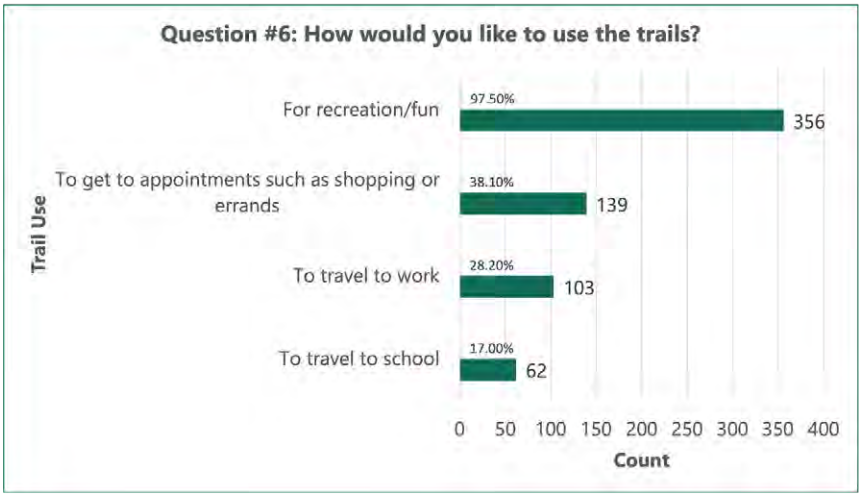
"Yard Signs" were used to solicit feedback directly from trail users

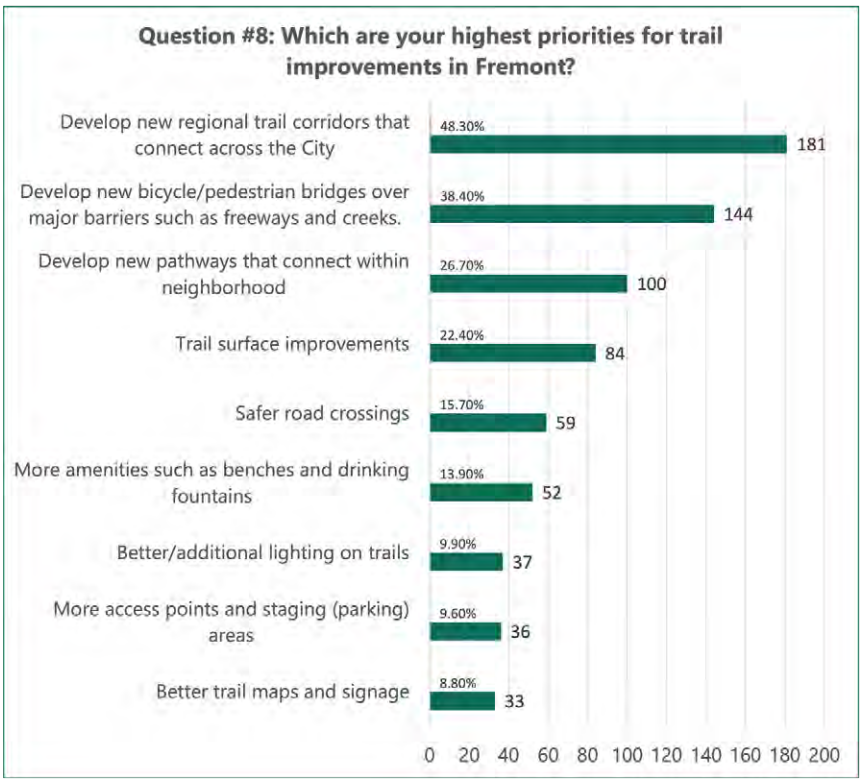
Online Survey and Interactive Map

Community input was solicited using an online survey and interactive map during the summer and early fall of 2020. Detailed responses and conclusions are included in **Appendix B, Community Outreach Details.**

The survey was widely publicized through City information channels. In addition, approximately 118 "yard signs" were placed along popular trails and trailheads in Fremont to attract responses from trail users. While the online survey received a strong response, the demographics of the survey respondents does not exactly match the demographics of the City.

Online Survey Response Graphs





Parks and Recreation Needs Assessment

This statistically valid survey reinforced the understanding that trails are an important part of meeting the parks and recreation needs of Fremont. Notable trails-related takeaways from the assessment included:

Wayfinding, signage, and maps — a systematic improvement of wayfinding and signage, including city-wide maps, would improve awareness of existence and location of trails and encourage trail use.

Paved trails — while all trail types were supported and highly requested, there was a stronger preference for paved trails.

Parking — identification of appropriate trail access and staging areas would help users find the trails and feel comfortable driving to discover new trails.

Trail at Lake Elizabeth

Conclusions

The meetings and surveys helped inform the development of the Trails Strategy Plan and clarify public interest in Fremont Trails. The Plan conforms to what was heard during the outreach, including the desires for new trail development and improvement of existing trails. The priorities outlined in **Chapter 11, Priorities, Costs, and Funding**, including the development of regional trails, cross-town trails, and closing trail gaps and barriers, is in line with the Tier 1 priority projects that the City is currently implementing and with the community feedback outlined below.

Key Issues and Concerns

The key issues and concerns heard throughout the outreach process translate into the key objectives of this Plan. In priority order, these are:

1. **Improve connectivity** to neighborhoods and to the on-street bicycle and pedestrian network; create new regional trail connections across the City and to adjacent cities; address major barriers such as freeways and creeks.
2. **Improve existing trails** by paving base rock sections, upgrading deteriorated pavement, making undercrossings safer, and widening or creating separate bike and pedestrian trails to ease congestion and reduce conflict. [1]
3. **Provide safety** by improving intersections and street crossings and providing off-street trails that separate users from vehicle traffic.
4. **Improve maintenance and management** to address trash, debris, dog waste, and the impact of unhoused individuals.
5. **Provide improved environment and trailside elements** by including lighting, restrooms, benches, signage and maps, drinking fountains, shade trees, and landscaping.

1 Note that the Alameda Creek Trail received many suggestions for improvements as it is the most commonly used trail by survey respondents, and that EBRPD recently completed a paving project on the eastern portion of the trail (Isherwood to Mission).

Trails Strategy Content

Based on comments heard during the committee, commission, and focus group meetings, and from City staff, two key objectives were identified for the Trails Strategy Plan:

1. **Develop a vision for the trail system** – identify a list of short-term, medium-term, and long-term project priorities; clarify how the Trails Strategy relates to other City plans and how they integrate with each other (General Plan, Pedestrian Plan, Bicycle Plan, Parks and Recreation Plan).
2. **Create a realistic implementation strategy** – balance transformational/long-term projects with smaller neighborhood connections or gap closure projects; show the prioritized ranking and feasibility of the projects; provide estimates and strategy for how to fund and maintain the trail system.

Trail Improvement Comments

Based on the online survey and interactive map, the Alameda Creek Trail was by far the public's top choice for improvement. The following were the trails with the most comments requesting or suggesting improvement:

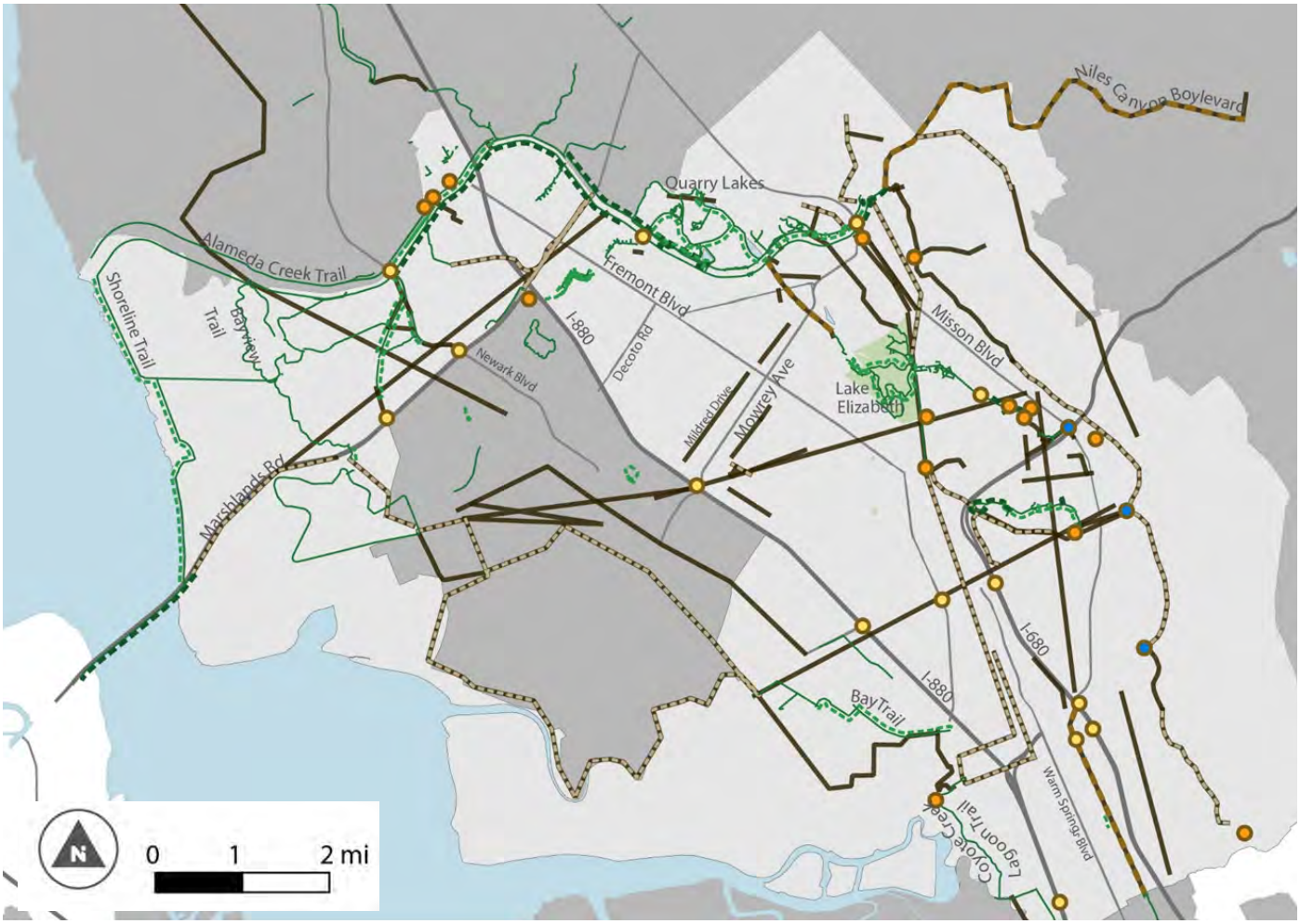
1. Alameda Creek Trail (113 comments)
2. Fremont Central Park/Lake Elizabeth Trails (20 comments)
3. Mission Creek Trail (19 comments)
4. Bay Trail (14 comments)
5. Sabercat Trail (13 comments)
6. The rest of the trails received fewer than 10 comments or votes.

New Trail Comments

The trails below are the top five new trails (or major gap closures) that respondents requested. The trails are listed in order of frequency of comments on the interactive map, the online survey, and from comments in emails.

1. Niles Canyon Trail
2. East Bay Greenway southern section
3. Hetch Hetchy North-South Trail – particularly the southern section
4. Completing the Bay Trail
5. Dumbarton Bridge to Quarry Lakes Trail

Mission Creek Trail (above)
Auto Mall Parkway approaching Osgood Road and East Bay Greenway Reach 5 (below)



Responses to the Online Map, Open June-Sept 2020

TOOLE DESIGN

Comments on Existing Trails
- Trails
- Low Number (2 or fewer)
- High Number (3 or more)

Comments on New, Suggested Trails
- New, Suggested Trails Drawn
- Low Number of Response Comments (3 or fewer)
- High Number of Response Comments (4 or more)

Suggested Improvements, Connections
- Crossing
- Amenities
- Access Point
- Other

Interactive Map Input across the City of Fremont

4 Plans and Studies

Plans and Studies

This plan builds upon many plans and studies that have come before it. Bay Area, County, City, neighborhood, and corridor planning studies are referenced here. Plans of adjacent cities were also reviewed as they pertain to trail connectivity beyond the City of Fremont. Each planning study was reviewed and summarized and, where specific recommendations were made, those recommendations have been added to this plan. Extensive time and effort has gone into each plan and study; however, as best practices, community concerns, and the physical environment change over time, new recommendations are also proposed in this Trails Strategy.

The plans and studies that have been reviewed are listed on the following page and summarized thereafter. Where specific recommendations apply to a particular corridor, the prior study or plan is highlighted with an asterisk and those recommendations are summarized under that corridor in **Appendix A, Trail Corridors**.

Fremont foothills looking down at the Alameda Creek Trail and Quarry Lakes

Plans and Studies Reviewed

Fremont Plans:

- Fremont Parks and Recreation Plan (1995) and Update (2021)
- Fremont Mobility Action Plan (2019)
- Fremont Climate Action Plan (2012) and Update (2021)
- Fremont Bicycle Master Plan (2018)
- Fremont Pedestrian Master Plan (2016)
- Fremont General Plan (2011)
- Fremont Age-Friendly Action Plan (2020/21)

Fremont Neighborhood Plans:

- Fremont Downtown Community Plan + Design Guidelines (2018)
- Fremont BART Station Bicycle and Pedestrian Access (2016)
- Fremont City Center Community Plan (2015)
- Warm Springs/South Fremont Community Plan (2014)
- Centerville Framework Plan (2008)
- Irvington BART Station Area Plan (2019)*

Fremont Trail Scoping and Crossing Studies:

- Mission Creek Trail Gap Closure Scoping Study (2018)*
- I-880/Pacific Commons Bridge Scoping Study (ongoing)*
- Dumbarton Bridge to Quarry Lakes Trail Study (2018)*
- I-680 Interchange Improvement Project Needs Assessment (2018)
- I-680 Sabercat Bridge and Trail (Irvington BART to Ohlone College) Scoping Report (2018)*
- East Bay Greenway: Central Park to Alameda Creek Scoping Study (2016)*
- I-880 Bicycle and Pedestrian Bridge and Trail (2016)*
- Expanding Regional Trail Connectivity Trail Options in Niles Canyon Study (2015)*
- Union Pacific Railroad Corridor Trail Feasibility Study (2009)*
- Newark-Fremont Bay Trail Realignment Feasibility Study (2013)*

Neighboring Community Plans:

- Milpitas Trails Plan and the Bicycle and Pedestrian Master Plan (Updated)
- Newark Bicycle and Pedestrian Master Plan (2017)
- Union City Pedestrian and Bicycle Master Plan (2012)

County-wide Plans:

- Alameda Countywide Active Transportation Plan (2019)
- Alameda Countywide Multimodal Arterial Plan (2016)

Bay Area and Regional Plans:

- Plan Bay Area 2040: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017–2040 (2017)
- East Bay Regional Parks District Master Plan (2013)
- BART Bicycle Plan: Modeling Access to Transit (2012)
- Enhanced San Francisco Bay Area Water Trail Plan (2011)
- Bay Trail Studies:
- San Francisco Bay Trail Design Guidelines & Toolkit (2016)
- Enhanced San Francisco Bay Area Water Trail Plan (2011)
- The San Francisco Bay Trail Project Gap Analysis Study (2005)
- Bay Trail Plan (1989)

* Summaries of these corridor-specific plans are included in **Appendix A, Trail Corridors**.

Fremont Plans

Parks and Recreation Master Plan (1995)

The primary purpose of Fremont's Parks and Recreation Master Plan was to establish policies to guide the development of the City's parks and recreation system to be compatible with the quality of the system existing at that time. It provided guidance and flexibility for decision-making and eliminated any liabilities the City might have incurred under then-current policies. The Master Plan reflected the opinions and concerns of Fremont residents. The Master Plan identified ways to efficiently maintain and enhance existing facilities and to acquire, develop, and effectively maintain additional parks and recreation facilities to meet the community's diverse needs well into the 21st century. It also included financing, operations, and maintenance elements.

https://www.fremont.gov/DocumentCenter/View/38995/Parks-and-Recreation-Master-Plan

Parks and Recreation Master Plan Update (2021)

In 2020 the City of Fremont initiated the creation of a new comprehensive Parks and Recreation Master Plan, which will guide the City's park development and recreation services for the next 15 years. With a team of parks and recreation planning experts, the City completed an inventory of the current park facilities and recreational programs. That inventory will guide other Master Plan topics, such as analyzing the park development and maintenance standards, mapping the inventory to more effectively locate new parks and amenities, informing and prioritizing upcoming capital improvement projects (park development and rehabilitation projects), creating new recreation programs, and recommending new financial strategies. As part of a comprehensive outreach program, residents were asked how they like to interact with their parks and how they want to see parks and recreation evolve in the future. There will be future announcements of how everyone can participate in the process, including community meetings in specific neighborhoods.

https://www.fremont.gov/3421/Parks-Master-Plan

Fremont Mobility Action Plan (2019)

This plan is a community-developed 5-year plan for local action and regional advocacy focused on traffic safety and crashes, traffic congestion, local multimodal circulation, and transportation technologies.

The plan recommends the preparation of a Citywide Trails Strategy Plan in 2019, building a new bicycle/pedestrian bridge over I-680 at the Sabercat Historic Park Trail, and planning and constructing the East Bay Greenway.

www.fremont.gov/DocumentCenter/View/39503/DRAFT-Mobility-Action-Plan

Climate Action Plan (2012) and Update (2021)

The City is currently updating its 2012 Climate Action Plan (CAP) for this decade of climate action. The City's new carbon neutrality goal forms the basis of the CAP update, or "CAP 2.0," setting Fremont on the pathway to a sustainable, vibrant, and healthy community that supports the environment. Within "CAP 2.0," efforts to lower greenhouse gas (GHG) emissions resulting from activity in the energy, water, waste, and transportation sectors will be paired with efforts to sequester—or draw down—carbon dioxide and other GHGs from the atmosphere, so that by the year 2045, no new net greenhouse gases will be emitted. In addition, the City will explore efforts to enhance the community's resiliency to future climatic changes as well as to adapt to changes that are already underway.

https://fremont.gov/DocumentCenter/View/19837/Climate-Action-Plan

https://fremont.gov/1981/Climate-Action-Plan-Update

Fremont Plans (continued)

Fremont Bicycle Master Plan (2018)

This is an update to the 2012 Fremont Bicycle Master Plan with a focus on the implementation of bicycle-friendly complete streets that encourage people of all ages, abilities, and means to bicycle. The plan creates a roadmap for a comprehensive bicycle network that is pleasant, safe, convenient, and comfortable for people who bicycle in Fremont. The plan addresses goals, policies, design guidelines, funding strategies, and supportive education, encouragement, and enforcement programs. It includes a five-year implementation plan for high priority projects.

High priority trail projects include the development of the East Bay Greenway and the Bay Trail, and enhancements to the Alameda Creek Trail. Additional projects to be considered include a bicycle/pedestrian bridge over I-880 and trail connections from Warm Springs BART station to Bay Trail, and trail development along the Hetch Hetchy, Dumbarton Bridge to Quarry Lakes Trail, Alameda County Flood Control, and PG&E corridors. Existing trails and linear parks that could enhance connectivity through upgrades and gap closures include the Mission Creek Trail, Sabercat Historic Park Trail, Paseo Padre Parkway undercrossing trail gap closure, Cabrillo linear park, Brookvale linear park, Farwell linear park, and Northgate linear park. The plan recommends comprehensive studies of these trail projects and opportunities along utility corridors within the next five years.

www.fremont.gov/3151/Bicycle-Master-Plan

Fremont Pedestrian Master Plan (2016)

This plan provides recommendations for enhancing the walking environment in Fremont. It includes a review of existing conditions and recommendations for reducing sidewalk gaps and increasing pedestrian safety at intersections. It includes recommendations for: encouragement, education, enforcement, and evaluation programs, potential funding sources, and a design toolkit.

Trails are recommended as a significant means of enhancing the pedestrian environment. The following trail projects are listed for consideration of new trail development and/or enhancement and expansion of existing trails: Niles Canyon Trail; East Bay Greenway; California Trail; Eagle Trail; Hidden Valley Trail; Isla Los Rancheros Trail; Old Creek Trail; Panorama Trail; Patterson Ranch Road Trail; Peak Trail; Western Pacific Trail; Wood Duck Trail; Alameda Creek Trail; Crandall Creek Path; Nordvik Park Path; and the Cabrillo Trail. Detailed recommendations are provided for the Mission Creek Trail, the Hetch Hetchy Trail North and South; the East Bay Greenway; the Paseo Padre Parkway undercrossing trail gap connection to the East Bay Greenway; the Grimmer Boulevard Greenbelt; the East-West Connector Trail; the Bay Trail; and the Farwell Trail upgrade.

www.fremont.gov/3152/Pedestrian-Master-Plan

Fremont Plans (continued)

City of Fremont General Plan (2011)

The General Plan is the foundation upon which all development decisions are based, and sets priorities and goals for the City of Fremont. It includes fourteen "elements" or subject categories: Land Use, Circulation, Housing, Conservation, Open Space, Noise, Safety, Sustainability, Community Character, Economic Development, Parks and Recreation, Public Facilities, Community Plans, and Implementation.

The Mobility Element notes that the Pedestrian and Bicycle Master Plans have been adopted as part of the General Plan. It emphasizes closing gaps, connecting trails and providing additional facilities near major activity generators such as schools, commercial districts, and transit stations. It highlights that improvements can be scheduled through the City's Capital Improvement Projects and may be incorporated as mitigation measures as development is proposed. The General Plan includes a number of policies that relate to the Trails Strategy Plan.

The General Plan references many trails and linear parks that tie the City together for transportation and recreation purposes. These goals, policies, and implementation measures are reproduced below. Underlined text indicates trail-related language.

Land Use Element – Chapter 2

Policy 2-6.5: Linear Open Space Connections

Utilize open space, including parks, flood control channels, greenbelts, easements, and other open areas <u>to connect the City, provide car-free corridors for pedestrians and bicyclists, and tie together Fremont's neighborhoods, centers, and employment districts.</u>

Implementation 2-6.5.A: Linear Park Network

Utilize the Bicycle Master Plan and Pedestrian Master Plan and work with utility companies and other agencies <u>to complete linear open space connections and trail parks throughout the City.</u>

Mobility Element – Chapter 3

Implementation 3-1.5.B: Bike Route Design

On designated bike routes, develop striped bicycle lanes and off-road bicycle trails rather than shared bike/auto lanes. Design standards for bicycle lanes and trails should be consistent with those used by the State of California.

Implementation 3-2.3.C: Pedestrian Connectivity

Use the development review process to require pedestrian connectivity within proposed development and between development and destinations (public facilities, transit, neighborhood commercial uses, parks, etc.) within a one-half mile radius. <u>Require trail or sidewalk right-of-way dedication for development or improvement projects.</u>

Implementation 3-2.4.B: Connecting the Trail System

Connect recreational trails in City and regional parks, access trails along creeks and flood control channels, and sidewalks and bike lanes on local streets to fill the gaps and improve the continuity of the city's bike and pedestrian trail system. <u>Require right-of-way dedication from development projects to complete the system.</u>

(General Plan, continued)

Policy 3-5.2: Regional Trail Development

Promote and coordinate the planning of pedestrian and bicycle trail systems with Alameda County, Newark, Milpitas, Union City, Santa Clara County, ABAG, BCDC, EBRPD, SFPUC, ACFC, and other jurisdictions and organizations. In addition to the City of Fremont's Bicycle Master Plan, there is also an Alameda Countywide Bicycle Plan. One of the purposes of the Countywide Plan is to coordinate the efforts of the cities and other agencies that do more localized or focused bicycle planning. The Countywide Plan also focuses on links to adjacent counties.

Implementation 3-5.2.A: Bay Trail and Ridge Trail

Support completion of the Bay Trail and the Ridge Trail through Fremont and establish trail connections across the city between these two regional networks.

Implementation 3-5.2.B: Rails to Trails

Support the conversion of abandoned or vacated railroad rights of way to linear parks containing bicycle trails and walking paths. A priority should be placed on the surplus Union Pacific corridor between Niles and Milpitas.

Implementation 3-5.2.C: Trail Dedication

Require new development to dedicate and improve right-of-way for trails indicated on General Plan Diagrams. See the Parks and Recreation Element for additional policies on trails and linear parks.

Goal 3-5: Connecting to the Region: *Fremont becomes a more prominent regional transportation hub and is seamlessly connected to locations throughout the Bay Area and state.*

The interface between the local transportation system and the regional system is particularly important. This applies not only to the relationship between freeways and local thoroughfares, but also to the relationship between rail transit stations and the local bus and bike networks, and even the connections between the Bay Trail and local bike trails and pathways. The City will continue to partner with state and regional agencies, transportation service providers, Alameda County and nearby cities to ensure Fremont's continued regional accessibility.

Diagram 3-5 shows a map of the Bicycle and Pedestrian Networks.

Community Character – Chapter 4

Policy 4-2.2: Connectivity

Improve the ability to travel through Fremont and between Fremont's neighborhoods on foot or by bicycle. Safe, comfortable sidewalks, bike lanes, trails, and paths should be incorporated for pedestrians and cyclists so that neighborhoods are conveniently connected to nearby community facilities, services, and shopping areas.

Policy 4-2.4: Pedestrian and Bicycle Trails

Create and maintain a network of trail corridors that connect Fremont to adjacent cities, link the Hill Area to the Baylands, and provide a convenient means of non-auto travel from neighborhood to neighborhood. Trails should be designed for practical transportation across the city, and not solely for recreational use. See the Pedestrian Master Plan, Bicycle Master Plan, Mobility Element and the Parks and Recreation Element for additional policies on trails.

Fremont Plans (continued)

(General Plan, continued)

Implementation 4-2.4.A Trail Right-of-Way Dedication

Encourage property owners to dedicate right-of-way for trail access where indicated on the General Plan Recreation Trails Diagram. Require right-of-way dedication for development or improvement projects.

Parks and Recreation - Chapter 8

Diagram 8-2 on page 8-19 shows a **Recreational Trails Map.**

Policy 8-1.5: Linear Parks

Acquire and develop linear trail parks that serve many functions including recreational opportunities, alternative transportation routes, aesthetic enhancements and the re-use of abandoned or underutilized transportation, utility, or other corridors.

Implementation 8-1.5.A: Land Corridors for Linear Parks

Pursue acquisition of abandoned or underutilized land corridors for development into linear parks, consistent with the Bicycle and Pedestrian Master Plans and with the goal of providing safe and convenient recreational opportunities and mobility alternatives to cyclists and pedestrians.

Goal 8-3: Interagency Collaboration

Collaborate with other entities including ABAG, Fremont Unified School District, and EBRPD to maintain and expand opportunities for public recreation.

Implementation 8-3.1.A: Existing and Future Regional Parks and Trails

Work with EBRPD and others as needed to ensure recreational opportunities at existing parks (Ardenwood Historic Farm, Mission Peak Regional Preserve, Coyote Hills Regional Park, and Quarry Lakes Regional Recreation Area), as well as future parks (such as Vargas Plateau Regional Park and a planned park at the former Dumbarton Quarry.), and trails (such as the Alameda Creek Trail, Ridge Trail, and Bay Trail).

Implementation 8-3.1.D: Alameda County Flood Control District

Encourage the Alameda County Flood Control District **to open access roads for trails** and other land holdings for recreational use where feasible.

Implementation 8-3.1.E: Trail Right-of-Way Dedication

Encourage property owners **to dedicate right-of-way for trail access** where indicated on the General Plan Recreation Trails Diagram. Require right-of-way dedication and improvement for development projects

Implementation 8-3.1.F: Bay Trail Right-of-Way

Ensure sufficient right-of-way and improvements **for the Bay Trail along** its alignment through Fremont.

Implementation 8-3.1.G: Regional Trail Facilities

Encourage Regional Agencies to provide restrooms, parking, and staging facilities a**t trailheads of regional trails.**

Fremont Plans (continued)

(General Plan, continued)

Public Facilities – Chapter 9

Policy 9-1.4: Facilitate Public Uses Within Public Easements

Implementation 9-1.4.A: Utility Agency Partnerships

Develop partnerships with utility agencies to **allow publicly beneficial uses of public easements, such as trails** and linear parks.

Community Plans – Chapter 11

Policy 11-1.5: Recreation in the Baylands

Provide for recreational activities in the Baylands that are compatible with local ecologic and conservation goals. **This should include continued development of the Bay Trail and associated spur trails,** as well as provisions for recreational activities that are consistent with the National Wildlife Refuge management prescriptions.

Implementation 11-3.11.B: State Route 84

Continue the planning and design process for the extension of Route 84. Decommissioning of Fremont Boulevard as a State Highway should be initiated so that plans for its redesign can move forward. The planning process should include reuse options for the land between Paseo Padre and Fremont Boulevard previously identified for freeway construction. **Any future development in the former right-of-way should incorporate open space and trails connecting the Alameda Creek trail to Fremont/Decoto.**

https://www.fremont.gov/398/General-Plan

Age-Friendly Action Plan (2020/21)

In 2021 the City of Fremont completed an action plan to support senior citizens. Fremont's Senior Citizen's Commission presented this plan, but the contents come from the voices of older residents and from staff in all City departments. The Policy Platform for the plan is outlined below:

- Seek to improve older adults' quality of life by promoting the development of safe, accessible, and vibrant age-friendly environments.
- Promote positive, purposeful roles for older adults in civic engagement, (See older adults not as a problem but as a solution).
- Promote positive images of aging which seek to affirm the aging process as a natural progression of life.
- Support County, State, and Federal legislation that advances livable environments for older adults and adequate benefits through Social Security and Medicare.
- Promote the creation of neighborhoods with a strong sense of place, where neighbors support each other and share their skills and support to navigate the challenges and opportunities of aging.
- Support reliable, affordable, and high-quality telecommunication for all.
- Promote social networks and services which allow older adults to age safely and successfully, enjoying strong community connections, less isolation, increased independence, and enhanced purpose of life. It is a description of our current age-friendly status and a vision of how we want to guide our efforts into the near future

https://issuu.com/hsdept/docs/final_20_21_action_plan_online

Fremont Neighborhood Plans

Fremont Downtown Community Plan + Design Guidelines (2018)

This plan sets forth a vision for a new urban mixed-use 110-acre area within City Center. The vision creates a sense of place within the City Center to attract residents, employers, and visitors. The plan includes an overview of existing conditions; frameworks for streets, blocks, transportation, parking, and utilities; streetscape typologies; recommendations for stormwater systems and a downtown arts program; architectural, signage and landscaping design guidelines and implementation recommendations.

Bike lanes are proposed on all major streets. In addition, the civic center block is intended to be a significant public open space with a variety of plazas, arcades, and landscaped areas. The plan recommends that pedestrian circulation be provided throughout the site to connect entrances and cross streets, including a path generally from Capitol Avenue and State Street to Liberty Street and New Middle Road to provide a pedestrian route to the BART station. It includes private pedestrian pathways which are meant to provide further opportunities for residents to connect — visually and physically — to the community and notes it is a way to activate the side streets and reduce the scale of buildings on long blocks.

www.fremont.gov/DocumentCenter/View/18050/Downtown-Community-Plan--Design-Guidelines?bidId=

Fremont BART Station Bicycle and Pedestrian Access Study (2016)

This scoping study, led by the City of Fremont, addresses walking and biking needs and proposed improvements within the City of Fremont and BART right-of-way near the Fremont BART station. The study was based on the Fremont City Center Community Plan (2015). Projects were developed in three phases and include definitions, locations, and cost estimates.

Trail-oriented recommendations include the need to address the bikeway/walkway gaps on BART Way and through Gateway Plaza by creating a continuous mid-block connection from Paseo Padre Parkway to the Fremont BART station. Station access recommendations (Access Study Figure 1) highlighted the need for direct pedestrian access from four directions without a similar need for bicycle access. Proposed improvements focused on access from three directions.

Note: In 2019 the City finished complete streets improvements on BART Way between the west parking lot and the intersection of BART Way/Civic Center Drive. The complete streets elements included the installation of a protected intersection at the intersection of BART Way/Civic Center Drive, green bike lane and raised bikeway on BART Way, wide sidewalks, pedestrian scale lighting, and more to improve and enhance multi-modal access to the west side of the BART Station.

www.fremont.gov/DocumentCenter/View/37821/Fremont-BART-Final-Scoping-Study?bidId=

Fremont Neighborhood Plans (continued)

Fremont City Center Community Plan (2015)

This plan provides policy guidance, illustrative concepts, and implementation actions for transforming the area near central Fremont, BART, and Downtown into a walkable, urban, transit-oriented City Center. It implements the General Plan while superseding and consolidating previous planning work.

A multi-use path between Central Park/Lake Elizabeth and Walnut Avenue is shown with a recommendation for a connection for pedestrians and bicyclists to the station.

www.fremont.gov/DocumentCenter/View/27358/City-Center-Community-Plan-2015?bidId=

Warm Springs/ South Fremont Community Plan (2014)

This plan serves as a planning and implementation tool for the realization of a living/ working district of innovation. It includes chapters on existing conditions, land use potentials, public and private development strategies, and transportation and infrastructure investments.

The plan's vision is to "Incorporate the use of pedestrian and bicycle paths into all site plans to provide for walkable neighborhoods and ease of non-vehicular travel, including safe and convenient connections to BART, the Pacific Commons retail center, and other key resident and employee destinations (per City Council Principle #6)". The plan notes that buildings and campuses should be linked to the rest of the district by a network of pedestrian and bicycle paths. The plan states that walking and bicycling should be encouraged through the provision of routes that weave through Warm Springs and invite walkers and riders of all ages, capabilities and usage; wide sidewalks and pedestrian safety strategies such as reduced curb dimensions should be implemented to make walking safe and comfortable; priority lanes for bicyclists should be located on key streets as part of the primary circulation system for bikes; separated bike lanes should be evaluated for all major open spaces and destinations; and new BART pedestrian routes and bicycle paths should work together to make getting to and from the Warm Springs/South Fremont BART station convenient and enjoyable for all. It recommends that projects be required to include a public level of connectivity of no less than 140 intersections per square mile.

www.fremont.gov/DocumentCenter/View/24622/Warm-Springs-South-Fremont-Community-Plan?bidId=

Centerville Framework Plan (2008)

This plan focuses on future needs and new development, taking into account development activity in the Centerville District. The plan builds upon previous planning and redevelopment efforts and highlights potential opportunities that will strengthen Centerville to become a more vibrant transit and pedestrian-oriented district. The plan includes sections on development opportunities and guidelines for future development with a focus on Fremont Boulevard.

The plan highlights that pathways between destinations in Centerville will be important connections as they allow residents and patrons of Centerville to easily access businesses and public amenities. It notes that pathways can become a special feature of the district and be activated with outdoor café seating or retail. The plan recommends including pedestrian-accessible mid-block linkages in new developments that pass through public and private parcels as they provide shortcuts to pedestrians and bicycles and encourage walking and biking. It highlights that paths are particularly useful on long blocks by breaking up the distance between destinations.

www.fremont.gov/DocumentCenter/View/3662/ENC-4-Centerville-Framework-Plan?bidId=

Neighboring Community Plans

Milpitas Bicycle/ Pedestrian and Trails Plan (currently in progress)

A plan was completed in 2009, but the City of Milpitas is in the process of updating its Bicycle/Pedestrian and Trails Plan. These plans will provide the City with a vision and action plan to make it safer and more convenient to walk, bike, and roll in Milpitas. Currently the City is seeking comments on proposed recommendations for bicycling and walking in Milpitas. Feedback will inform recommended improvements around the City and help prioritize future investments.

www.ci.milpitas.ca.gov/city-milpitas-bicycle-pedestrian-trails-plan/

Newark Bicycle and Pedestrian Master Plan (2017)

This long-range planning document provides a basis for future pedestrian and bicycle projects and programs. The plan identifies network gaps and presents upgrades and repairs to provide access for walkers and bicyclists of varying experiences and abilities. The plan includes an overview of existing plans, policies, needs, and facilities, and makes recommendations.

The plan includes trail projects along Birch Street (using Bunker School and Birch Grove Park), on Baine Avenue (along the railroad tracks), extending Cedar Boulevard Linear Park, and completing the Bay Trail.

www.newark.org/departments/public-works/engineering-division/pedestrian-bicycle-master-plan

Union City Pedestrian and Bicycle Master Plan (2012)

This plan provides a blueprint for developing a system of trails, bikeways, and other transportation and recreation facilities for non-motorized users. The plan includes an overview of existing conditions, current plans, and policies; analyzes needs; recommends improvements with a focus on safe routes to school; provides an implementation plan; and includes pedestrian, bicycle, and trail design guidelines. The City is currently updating its Bicycle and Pedestrian Master Plan, which should be completed by Spring 2021.

A number of trails are highlighted and planned along or connecting to the Alameda Creek Trail, including a new connection to the Union City BART station.

www.unioncity.org/DocumentCenter/View/1391/Pedestrian-and-Bike-Master-Plan?bidId=

Countywide Plans

Alameda Countywide Active Transportation Plan (2019)

This plan provides a vision, goals, and priorities to improve walking and biking throughout the 15 diverse jurisdictions in Alameda County. The plan was developed to establish countywide priorities that further local agencies' efforts to enhance walking and biking.

In Fremont, streets with a high instance of injury for bicyclists and pedestrians are major arterials such as Paseo Padre Parkway and Fremont Boulevard. Waterways, interstates, and rail corridors are noted as barriers to connectivity.

www.alamedactc.org/planning/countywide-bicycle-and-pedestrian-plans

Alameda Countywide Multimodal Arterial Plan (2016)

The goal of the plan is to increase travel options on arterial (main) roadways in order to increase the number of people that can use those roadways at any given time. It recommends tripling the miles of dedicated transit right-of-way, adding 100 miles of Bus Rapid Transit, enhancing pedestrian facilities near BART stations, at transit hubs, and along major corridors, and adding 150 miles of "high comfort" bikeways.

Separated bicycle lanes (Caltrans Class IV Bikeways) are recommended throughout Fremont on most major arterials.

www.alamedactc.org/planning/countywide-multi-arterial-plan

Bay Area and Regional Plans

Plan Bay Area 2040: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area 2017–2040 (2017)

This is an updated long-range Regional Transportation Plan and Sustainable Communities Strategy for the nine-county San Francisco Bay Area. This document discusses how the Bay Area will grow over the next two decades and identifies transportation and land use strategies to enable a more sustainable, equitable, and economically vibrant future. Starting with the current state of the region, this document describes the plan and its goals, a proposed growth pattern and supporting transportation investment strategy, and key actions needed to address ongoing and long-term regional challenges. It is a limited and focused update of the region's previous integrated transportation and land use plan, Plan Bay Area, which was adopted in 2013.

The plan includes a goal of transportation system effectiveness with a target of increasing non-auto mode-share. The plan reiterates the previous plan's focus on Priority Development Areas (PDAs) — existing neighborhoods served by public transit identified as appropriate for additional compact development. The plan directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, safety programs, and PDA planning to increase the convenience and safety of walking and bicycling.

www.files.mtc.ca.gov/library/pub/30060.pdf

Bay Area and Regional Plans (continued)

East Bay Regional Parks District Master Plan (2013)

This plan provides direction for the East Bay Regional Park District, which encompasses Alameda and Contra Costa Counties. It provides an overview of existing conditions and needs and includes chapters on natural and cultural resources, public access and services, planning and acquisition, and human and financial resources. The plan notes that the District encourages the creation of local trail networks that provide access points and will support other agencies by developing feasibility studies and acquiring properties to complete these networks.

In the Fremont area, existing EBRPD lands include Coyote Hills, Ardenwood Historical Park, and parcels along Quarry Lakes. EBRPD also manages the Alameda Creek Trail system. Potential regional trails are highlighted and include the San Francisco Bay Trail (from Santa Clara County to Coyote Hills and from Union City to Oakland), the East Bay Greenway (from Santa Clara County to Fremont) and the Vargas Plateau to Garin/Dry Creek Pioneer, Niles Canyon Trails, a trail connecting the Niles District to Sunol. The Niles Canyon Design and Environmental Study for the Fremont segment and planning study was completed in 2017 - see the Niles Canyon Trail in **Appendix A, Trail Corridors**.

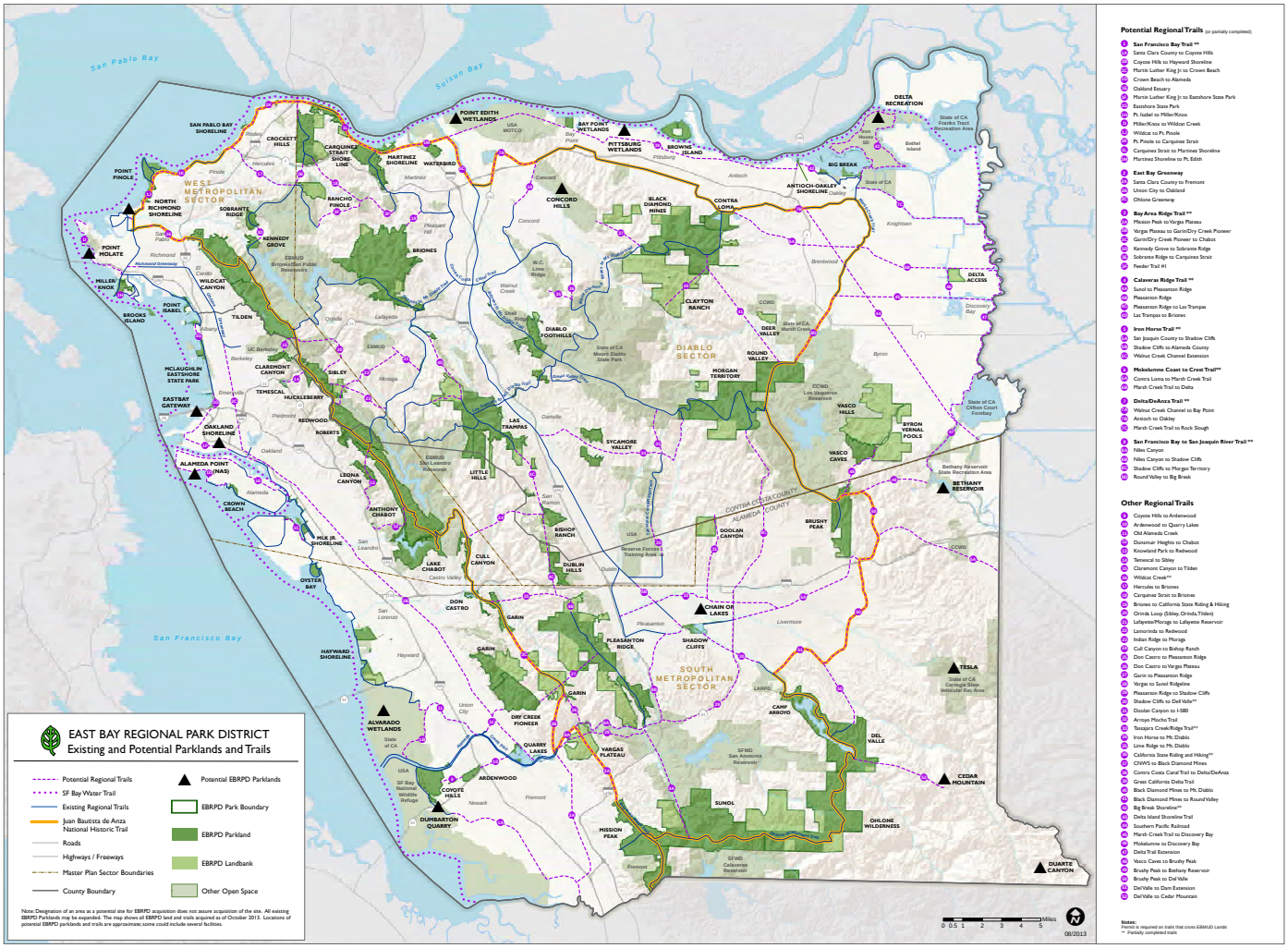
www.ebparks.org/about/planning/mp

BART Bicycle Plan: Modeling Access to Transit (2012)

This plan outlines strategies to encourage bicycling to BART stations. It includes a Bicycle Investment Tool to be used to select the most effective improvements. Recommendations include improved bicycle access to stations, circulation within stations, accommodations on trains, bicycle parking, bicycle-supportive policies and programs. The BART goal is to double riders accessing the station by bicycle by 2022.

Specific trail-related recommendations include optimizing routes for bicyclists between the local bicycle network and far gates at BART stations and supporting local efforts to improve bicycle access to stations.

www.bart.gov/sites/default/files/docs/BART_Bike_Plan_Final_083012.pdf



Potential Regional Trails as proposed in the East Bay Regional Parks District Master Plan (2013)

Fremont Foothills

Bay Trail Studies

San Francisco Bay Trail Design Guidelines & Toolkit (2016)

The Design Guidelines provide direction and define goals for the design and development of the San Francisco Bay Trail, a 500-mile trail alignment under development. The guidelines follow a four-step process. The toolkit includes general trail design standards, special design circumstances, wayfinding standards, local street integration, and more.

www.baytrail.org/pdfs/BayTrailDGTK_082616_Web.pdf

The San Francisco Bay Trail Project Gap Analysis Study (2005)

This Study focuses on completing the 500-mile regional trail system encircling San Francisco Bay. The Study includes an overview of the first 15 years of Bay Trail development and large-scale issues such as local adoption, securing state-level funding and support, building partnerships, and increasing public awareness, and addressing engineering and acquisition challenges. Specific recommendations are provided for the next 15 years and include project phasing, costs, and benefit factors.

www.baytrail.org/pdfs/BayTrailDGTK_082616_Web.pdf

Bay Trail Plan (1989)

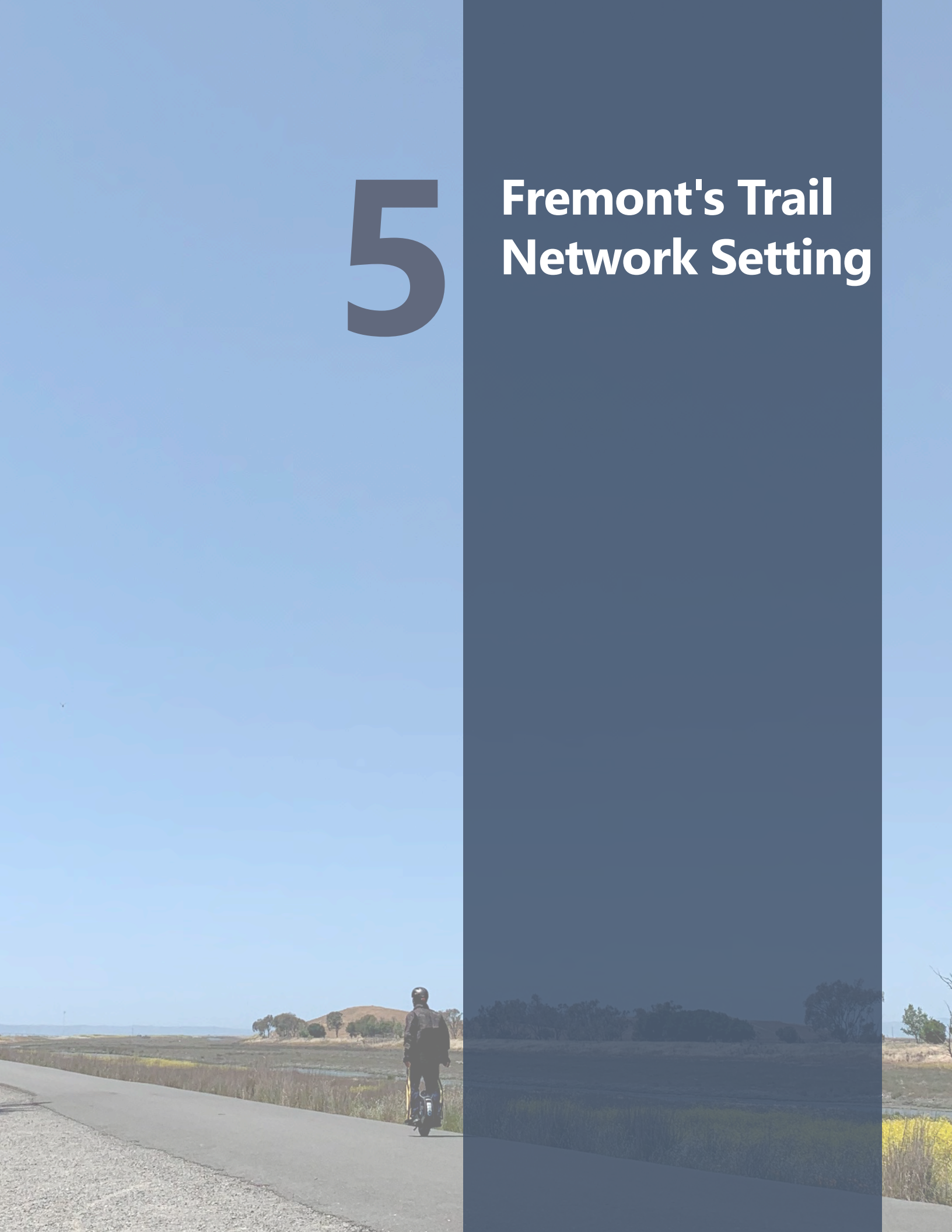
This Plan provides an initial framework for the development of the Bay Trail. It includes information on trail types and detailed information on five policy themes: trail alignment, trail design, environmental protection, transportation access, and implementation.

www.baytrail.org/wp-content/uploads/2015/12/San-Francisco-Bay-Trail_-Bay-Trail-Plan-Summary.pdf

Enhanced San Francisco Bay Area Water Trail Plan (2011)

The San Francisco Bay Area Water Trail Project strives to create a network of launch and landing sites, or "trail heads," to allow people in human-powered boats and beachable sail craft to enjoy the historic, scenic, and environmental richness of San Francisco Bay through continuous, multiple-day, and single-day trips on the Bay. The trail will promote safe and responsible use of the Bay, while protecting and increasing appreciation of its environmental resources through education and coordinated, strategic access to the Bay. The Plan is a guide to trail implementation for the agencies and organizations that will develop and manage water trail access points and programs, as well as trail proponents and other stakeholders also involved in implementation. Recommended policies and procedures in the Plan define how the water trail will take shape over time by guiding trail planning, development, and management on organizational, programmatic, and trail head project-specific levels. The Water Trail Project also has Design Guidelines, an Accessibility Plan, and an Education and Outreach Program. The Plan includes proposed launch sites at the mouth of Alameda Creek in Coyote Hills Regional Park and in Don Edwards National Wildlife Refuge.

5 Fremont's Trail Network Setting



Fremont's Trail Network Setting

This section provides context for Fremont's trail network: its geographic setting, the existing trail network, important destinations, key trail connections, and current patterns of trail use.

Background

The City of Fremont is located on the southern shore of San Francisco Bay. In 1956, five independent townships — Mission San Jose, Centerville, Niles, Irvington, and Warm Springs — came together to form the City of Fremont. Most of the City's developed areas lie on the relatively flat land below the East Bay hills, making biking and walking easy and popular.

Fremont already has a significant and well-used trail system, which is primarily used for recreation. With improved connections to key destinations; however, Fremont's trail system could be a major component of the City's active transportation network.

The existing trail system includes trails along flood control channels, in former and current railroad right-of-ways, and through parks. There are many more opportunities for additional trails along other utility corridors, including those owned or used by PG&E, San Francisco Public Utility Commission (SFPUC), and rail lines.

Because the City of Newark is tucked into the western side of Fremont, close coordination between the two cities will be important for improving cross-town connectivity.

BART, the ACE train tracks, I-880, I-680, Highway 84, and Highway 238 all provide regional connections to Fremont; however, they act as barriers for trails and do not currently provide direct access to any trail corridors. Similarly, many of the wide boulevards that cross Fremont act as barriers for trail connectivity.

Mission Creek Trail, Fremont

Scope of Trail Network

There is no universally accepted definition of what constitutes a "trail." Fremont's Trails Strategy Plan covers bicycle and pedestrian facilities, used for both transportation and recreation, that provide a high level of separation between trail users and motor vehicle traffic. Trails that are for exclusive recreational use, such as hiking or mountain biking trails, are not considered in this document. Instead, they are considered as part of open space planning documents.

The Trails Strategy Plan network is generally concerned with facilities that run along alignments separate from roadways. Bike facilities within roadways are generally not considered, except where they may form segments of overall trail corridors and where there is no other feasible trail connection. Bike facilities that provide no separation from vehicle traffic are not considered part of the trail network; these are considered as part of the Bicycle Master Plan.

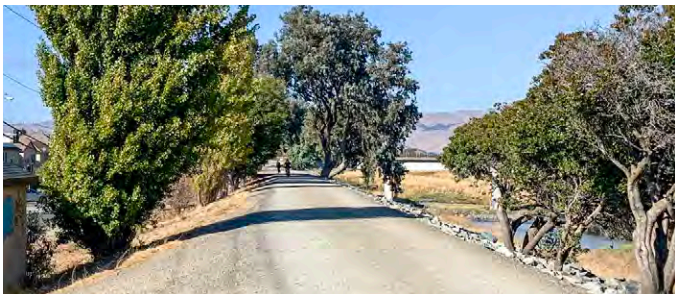
The following discussion outlines types of facilities that are and are not considered part of this Trails Strategy Plan.

Facility Types Included in Trail Network

Off-street (paved), Iron Horse Trail, Danville

Off-Street (paved)

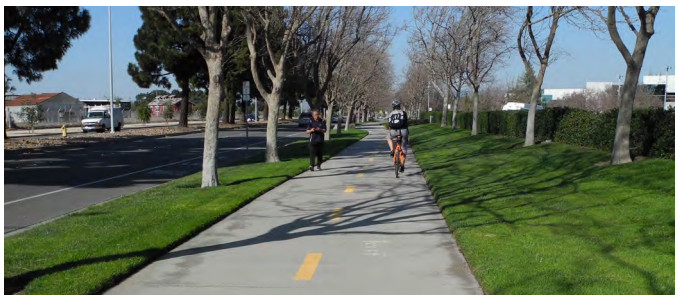
- Meets or exceeds Caltrans Highway Design Manual Class I standards
- Completely separate from roadway
- May be shared use or may include separated facilities for bikes and pedestrians



Off-street (unpaved) Alameda Creek Trail

Off-Street (unpaved)

- Widths and slopes meet Class I standards
- Engineered base rock or gravel surface
- Paving may not be possible on some segments for environmental or utility access reasons



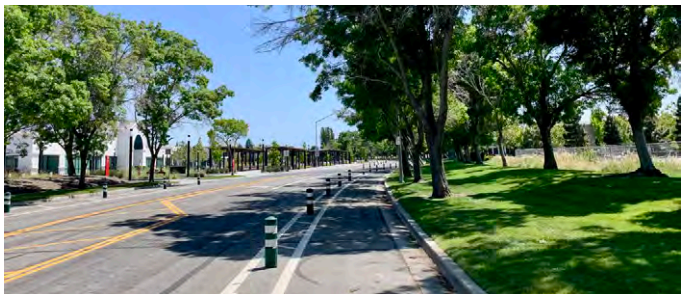
On-street (sidepath) Paseo Padre Parkway

On-Street (sidepath)

- Meets or exceeds Caltrans HDM Class I standards
- Generally shared use
- Adjacent to roadway within road right-of-way
- May consist of a wide sidewalk (10'+) or path

Facility Types Not Included in Trail Network

Separated bike lane, Richmond

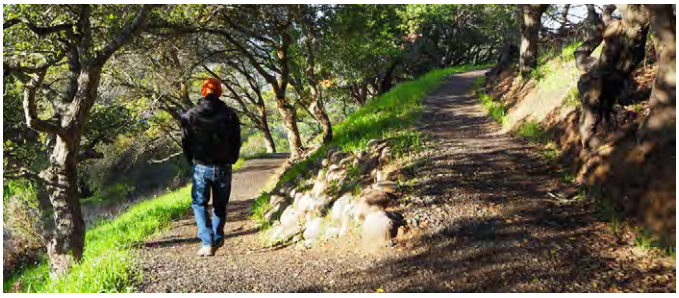


Separated bike lane, Campus Drive

Separated Bike Lane*

- For bikes only — not shared with pedestrians (pedestrians use adjacent sidewalk)
- May be a one-way facility or a two-way facility (with bi-directional bike travel on the same side of the street)
- Classified Caltrans HDM Class IV
- May be within the roadway traveled way or raised and at sidewalk level

**Select segments of separated bike lanes may be included in the trail network to provide connections to an overall trail corridor where there is no other feasible option for a facility that is fully separated from the roadway. In such cases, these connections would be included in the overall mileage of the trail.*



Recreational Trail, Marin County

Unpaved Recreational Trail

- May accommodate hikers, mountain bicyclists, and potentially equestrians
- Widths and slopes typically do not meet Class I standards
- Surface typically native soil — not engineered
- Limited or no ability to use for transportation
- Trails Strategy recognizes these trails, but does not propose them, given transportation focus

On-street bike route, Washington D.C.

On-Street Bike Route (Class III)

- Classified as a Caltrans HDM Class III bike route
- A signed bike route typically on a low traffic volume residential street
- May have parallel sidewalks, but in some rural areas or old neighborhoods there may be no sidewalks

On-street bike lane, Paseo Padre Parkway/ Ardenwood Boulevard

On-Street Bike Lanes with Sidewalk

- Classified Caltrans HDM Class II bike lane
- Within roadway traveled way

Note: Class II bikeways are currently designated segments of the San Francisco Bay Trail and are included in this Trails Strategy Plan. Those segments are identified for improvement to Class I or Class IV.

Existing and Proposed Trail Network

The map below shows the existing and proposed trail network facilities in and around Fremont. Recreational hiking trails and on-street bikeways are not included in the total trail mileage as they are not considered part of the trail network for this Plan's purposes. The proposed trail facilities includes trails that are already in the planning phase, as well as additional trails that were identified through stakeholder and community input.

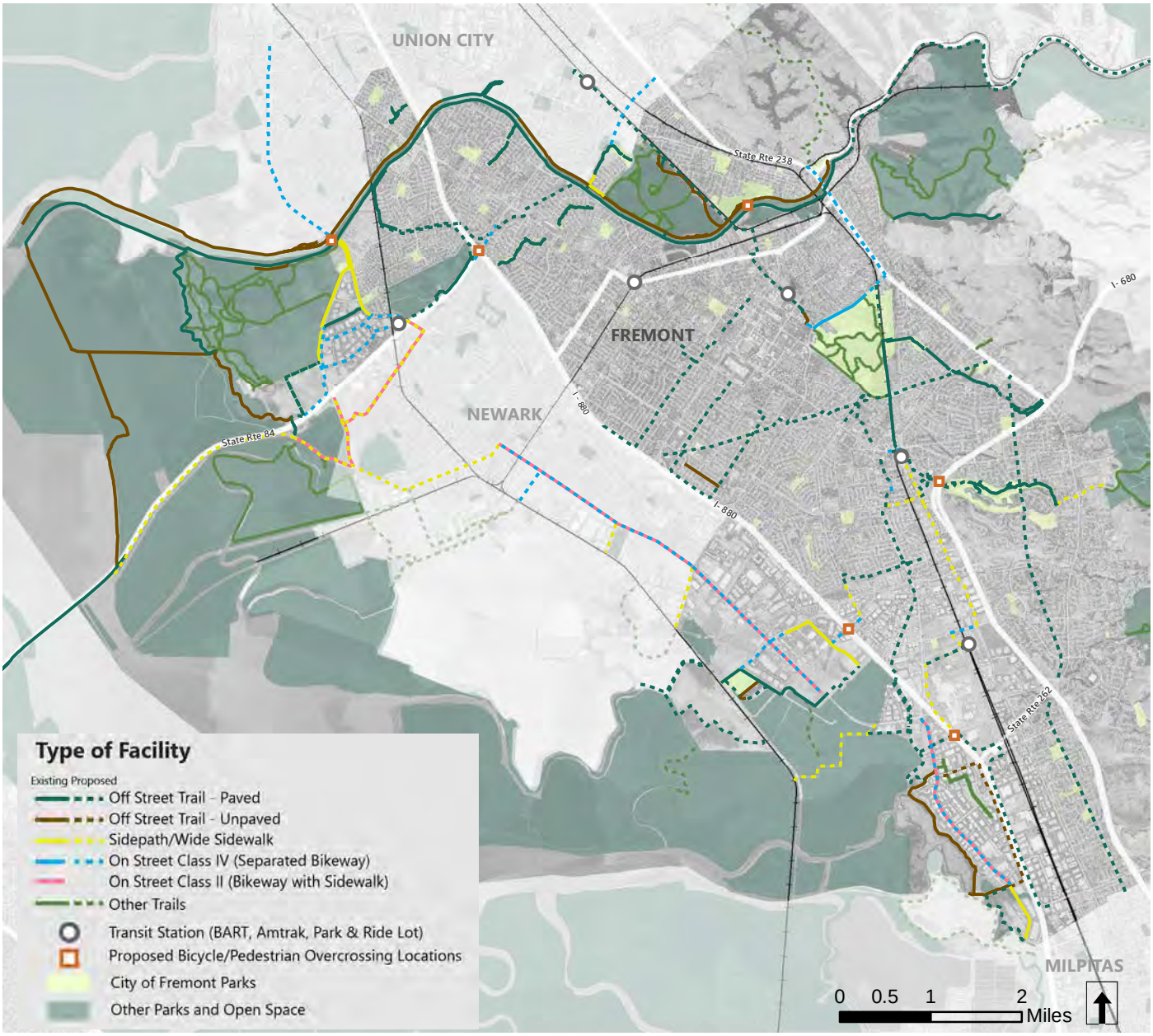
Table 5-1. Existing Trail Facilities

Trail Network Mileage	Existing	Proposed
Off-Street Paved Trail	29.6	55.0
Off-Street Unpaved Trail	17.1	2.0
On-Street Trail Segments**	14.0	22.0
***Total**	**60.7**	**79.1**

** The north and south side of Alameda Creek Trail are counted separately.*

*** On-street facilities (Class I, II or IV bikeways) are only included where they are part of a trail corridor.*

Existing and Proposed Trails by Type of Facility



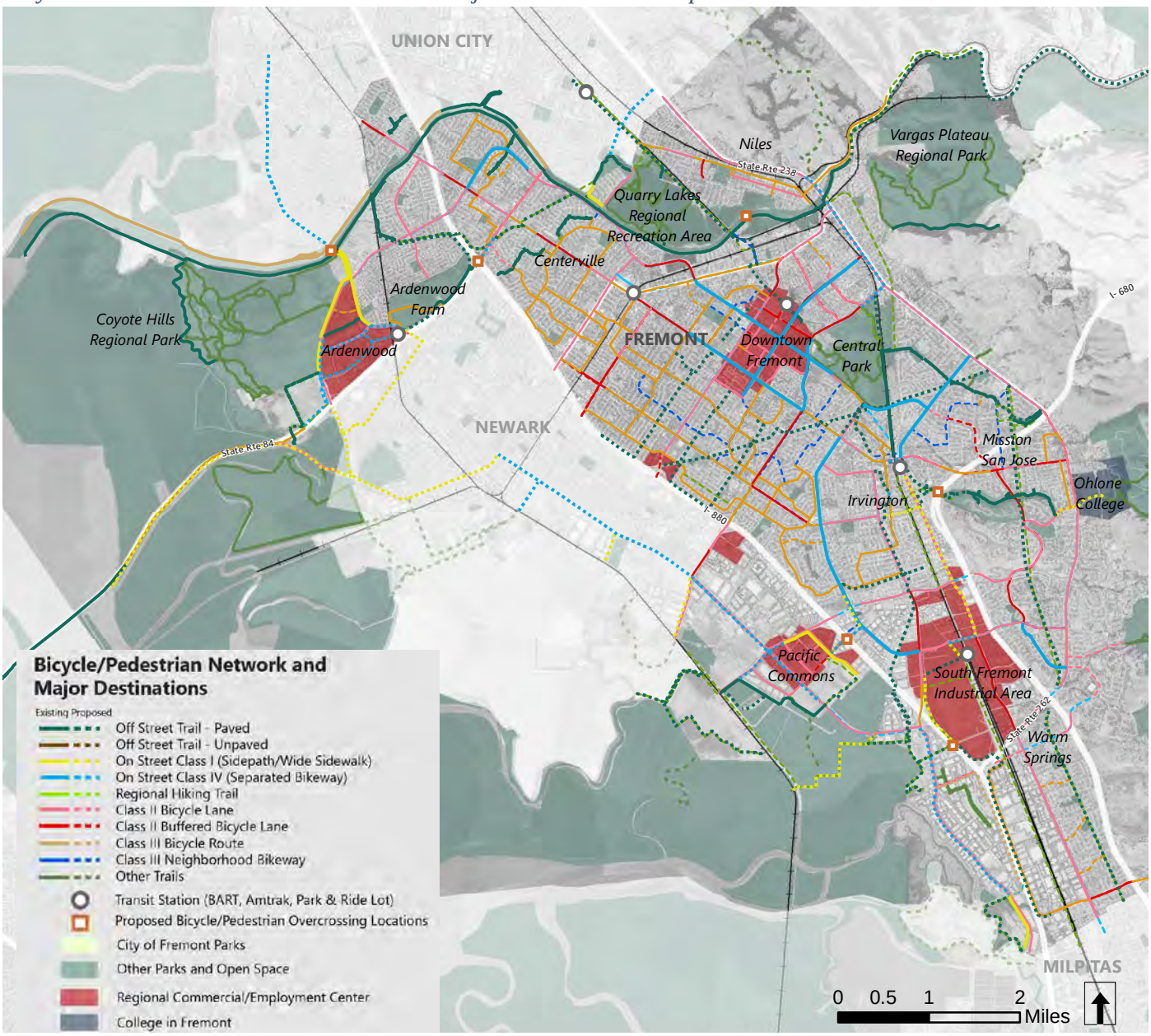
Trail Network Context

The maps on the following pages provide context for Fremont's trail network.

Bicycle & Pedestrian Network

The Fremont Trails Network intersects the Fremont On-Street Bicycle Network and will create a system that enables pedestrians and bicyclists to travel to major employment centers, parks, transit stations, colleges, and other major destinations within the City of Fremont. The map below highlights the connectivity and accessibility of major destinations with the current and future trails and bicycle network.

Bicycle/Pedestrian/Trails Network and Major Destinations Map



Commercial Areas

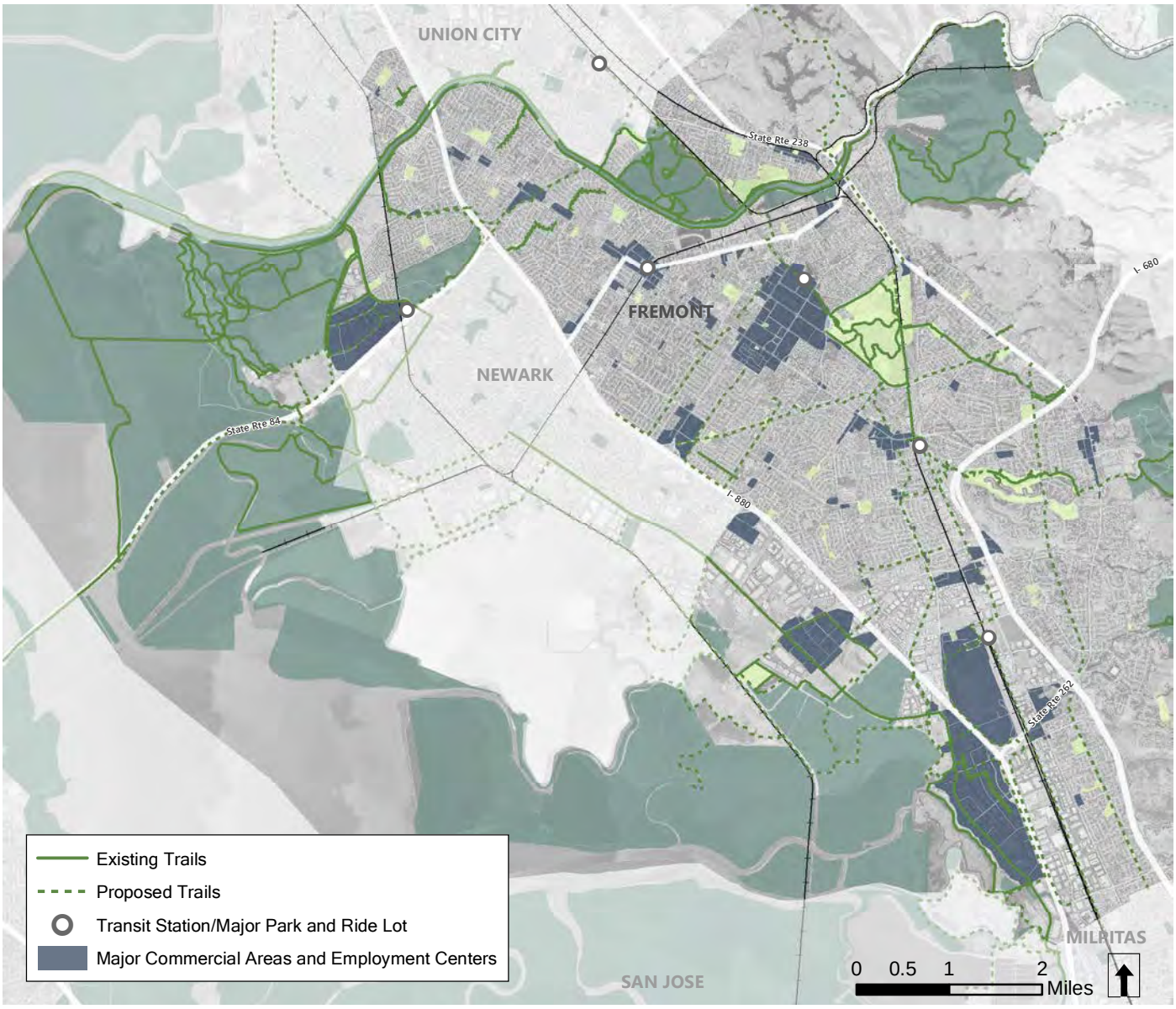
Trails that connect to commercial areas can increase active transportation options for people using trails to commute, shop, or access other services and entertainment. Fremont's history as a consolidation of five independent communities is reflected in it's dispersed commercial districts. In recent years, the Central District and Central Park (Lake Elizabeth) near the Fremont BART station have emerged as the heart of Fremont.

The other, smaller business districts also serve as destinations. These smaller districts are along major roadways (such as Fremont Boulevard, Blacow Road, Thornton Avenue, Mission Boulevard, Niles Boulevard, and Warm Springs Boulevard) and along I-880 (such as the Pacific Commons area).

Existing trails that are near or adjacent to commercial areas include the Alameda Creek Trail, which crosses Fremont Boulevard, and connects to the Niles district, Central Park/Lake Elizabeth Trails, which are in the Central Planning District, and the Bay Trail, which connects to the Ardenwood and Bayside Industrial employment centers.

Walnut Avenue/Paseo Padre Parkway

Fremont Commercial Areas



Planning Areas

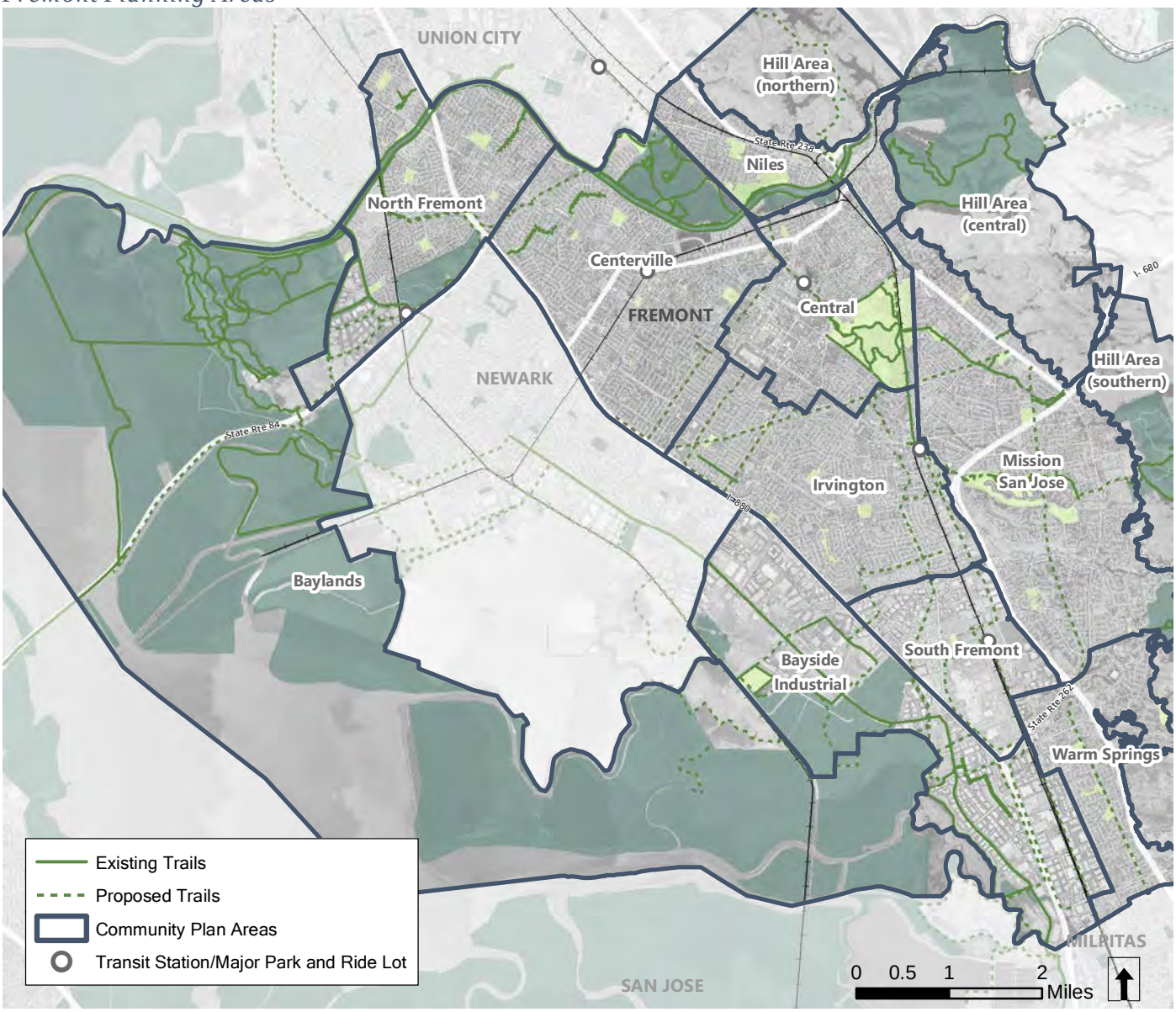
Fremont's 13 planning areas have distinct histories and land-use patterns.

- Central: mainly commercial, high density residential, major civic buildings, and hospitals.
- North Fremont, Centerville, Niles, Irvington, Mission San Jose, and Warm Springs: mainly residential with a local-serving commercial node.
- Centerville, Niles, Irvington, Mission San Jose, and Warm Springs: anchored by historic main streets; Town Center General Plan designation.
- North Fremont: includes the Ardenwood area and features a concentration of office space.
- South Fremont: a growing mixed-used center.
- Innovation District: features the Tesla factory.
- Hill Areas (northern, central, and southern): housing on steep terrain.
- Bayside Industrial and Baylands: a mix of industrial uses, regional commercial centers, and protected lands.

The Alameda Creek Trail serves North Fremont, Centerville, and Niles. Mission San Jose is served by the Mission Creek Trail and the Sabercat Historic Park Trail. Irvington, Warm Springs, and the Innovation District would be served by the planned East Bay Greenway.

Planning areas west of I-880 are generally cut off from the rest of the city, but proposed trail connections across the freeway will help connect these communities. Developing trails on protected lands, along existing access roads, and as part of future development would benefit these planning areas.

Fremont Planning Areas

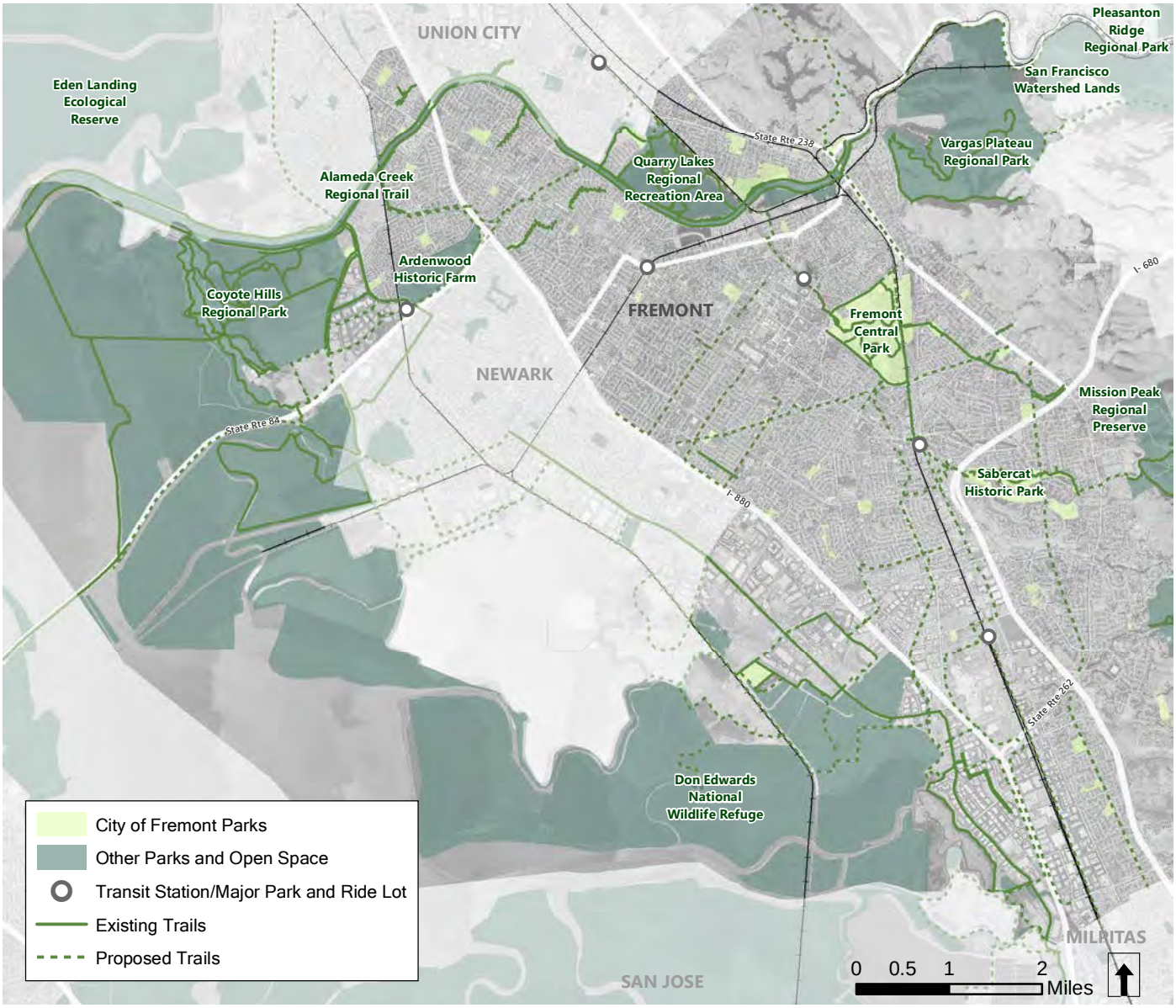


Parks

Parks are destinations that can be reached by trails. Programming, activities, and educational resources can occur along trails to and throughout Fremont's parks. Fremont's many parks are designated in the City's Parks and Recreation element of the General Plan as Citywide Parks, Neighborhood Parks, Mini Parks, Civic Parks, Historic Parks, and Linear Parks. While all parks can include trails for walking and bicycling, linear parks, which include Sabercat Historic Park Trail, Brookvale, Cabrillo, and Northgate, are specifically designed to "provide safe and readily-accessible connections between neighborhoods and to other City parks, and to encourage walking, jogging, bicycling, and other forms of non-motorized recreational travel."

The City is surrounded by many popular regional parks operated by the East Bay Regional Park District (EBRPD), including Mission Peak Regional Preserve, Vargas Plateau Regional Park, Coyote Hills Regional Park, and Quarry Lakes Regional Recreation Area. EBRPD also administers the Alameda Creek Trail. The Don Edwards National Wildlife Refuge is administered by the U.S. Fish and Wildlife Service.

Fremont Parks

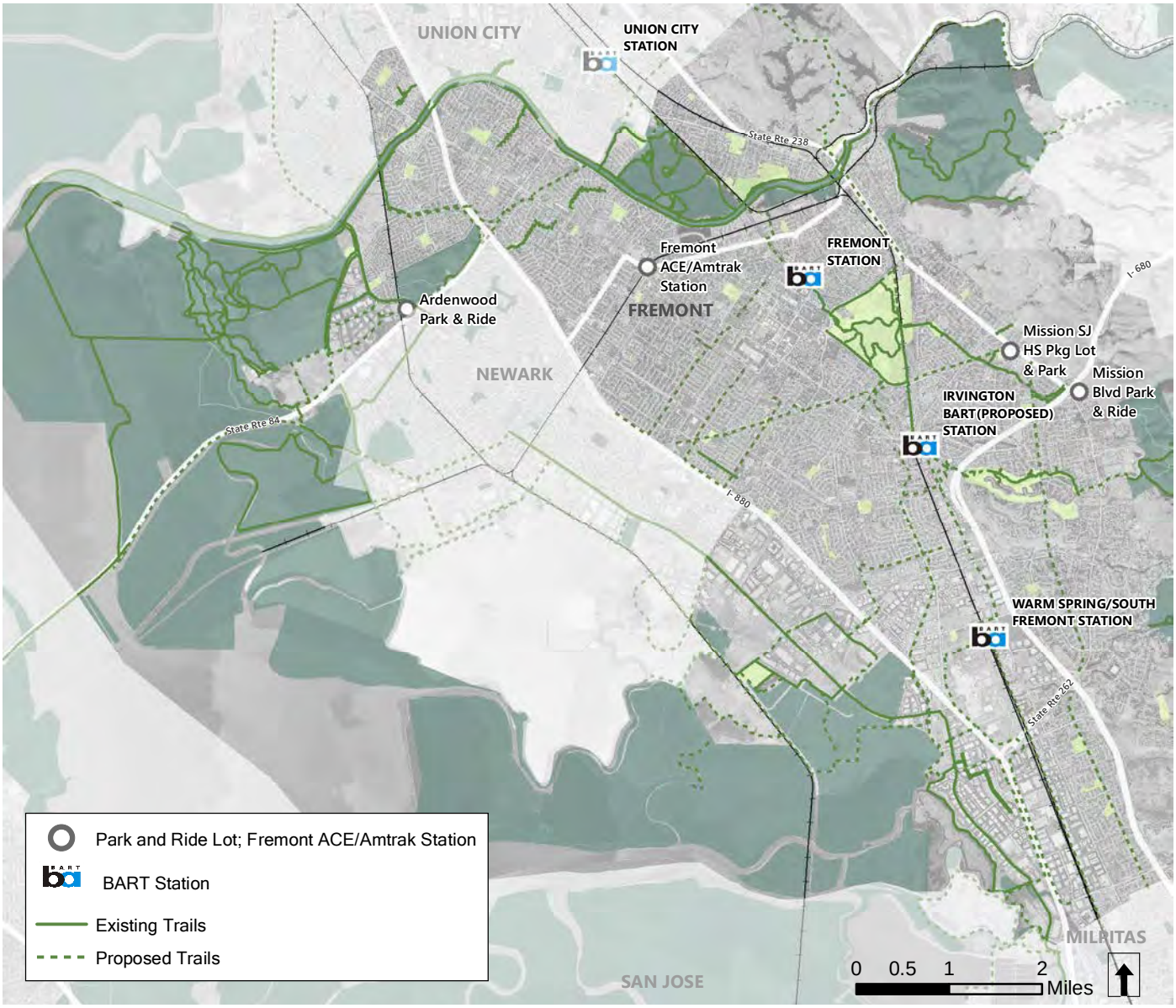


Transit Centers

Transit centers connect Fremont to the greater Bay Area and beyond through regional transportation networks. Trails can be important ways of accessing these centers, whether for visitors to Fremont or for residents traveling out of Fremont.

Fremont has two existing BART stations (Fremont City Center and Warm Springs/South Fremont) and a third station under development (Irvington). A fourth station in nearby Union City is easily accessible to Fremont residents. Fremont also has an Amtrak Capitol Corridor/Altamont Corridor Express (ACE) station located in Centerville. The stations are all centrally located and ideal for trail access. There is also a proposal to create a new Ardenwood Transit Center at the current Ardenwood Park and Ride lot. This center which would serve as an intermodal connection point for a realigned Capitol Corridor service, Dumbarton Express buses, and potential future Dumbarton Rail service.

Fremont Transit Centers

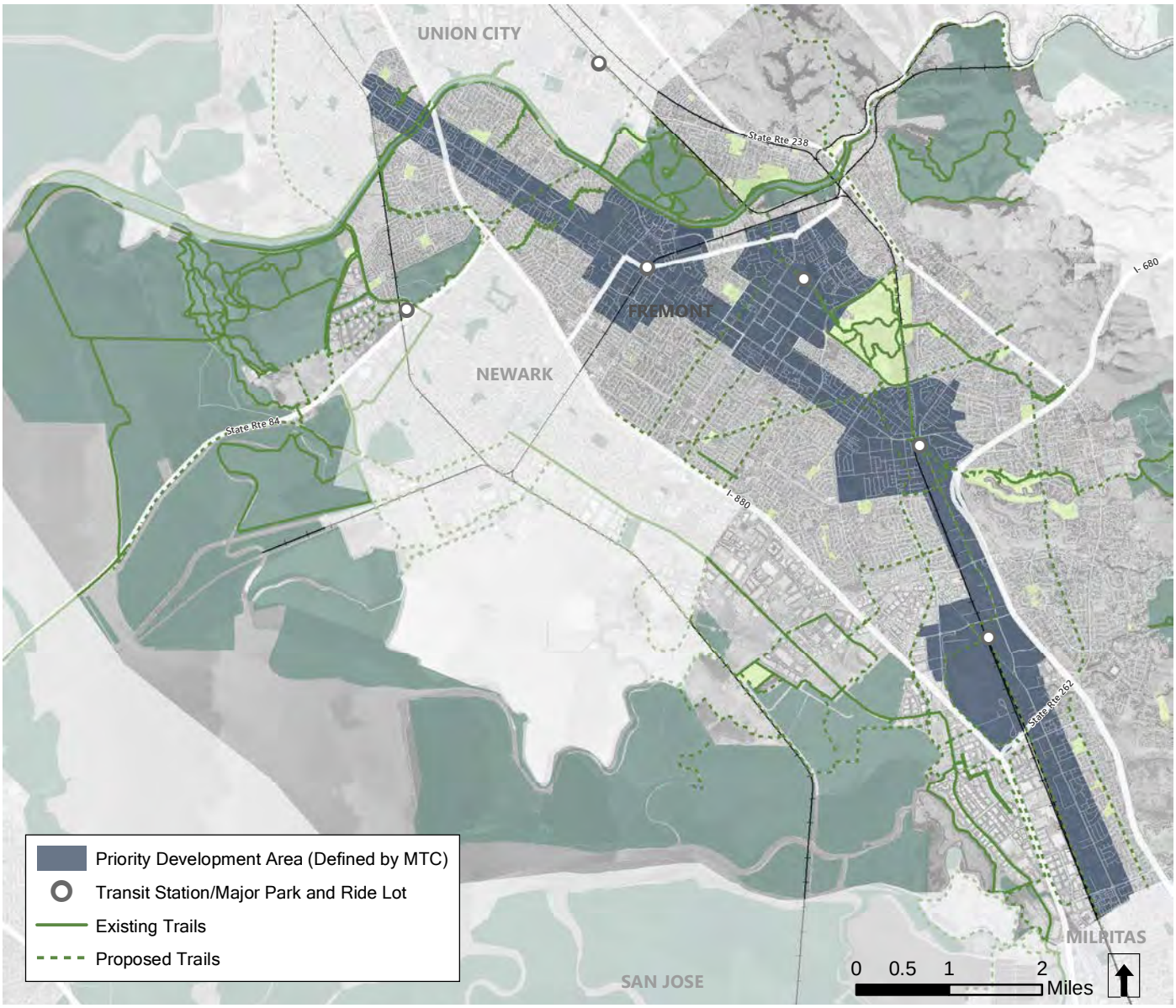


Priority Development Areas

In Fremont a corridor of Priority Development Areas (PDAs) is located near the BART stations, near the ACE/Amtrak station, and along Fremont Boulevard. PDAs are areas that the City of Fremont has identified and approved for future growth. They are accessible by one or more high frequency transit services and are frequently located near established job centers, commercial districts, and other services. The Alameda Creek Trail, Dumbarton Bridge to Quarry Lakes Trail, Central Park/Lake Elizabeth trails, and most importantly, the East Bay Greenway, planned to parallel the BART line, could serve future growth in PDA areas.

East Bay Greenway Reach 5, Osgood Road/Warm Springs Boulevard and S Grimmer Boulevard

Fremont Priority Development Areas

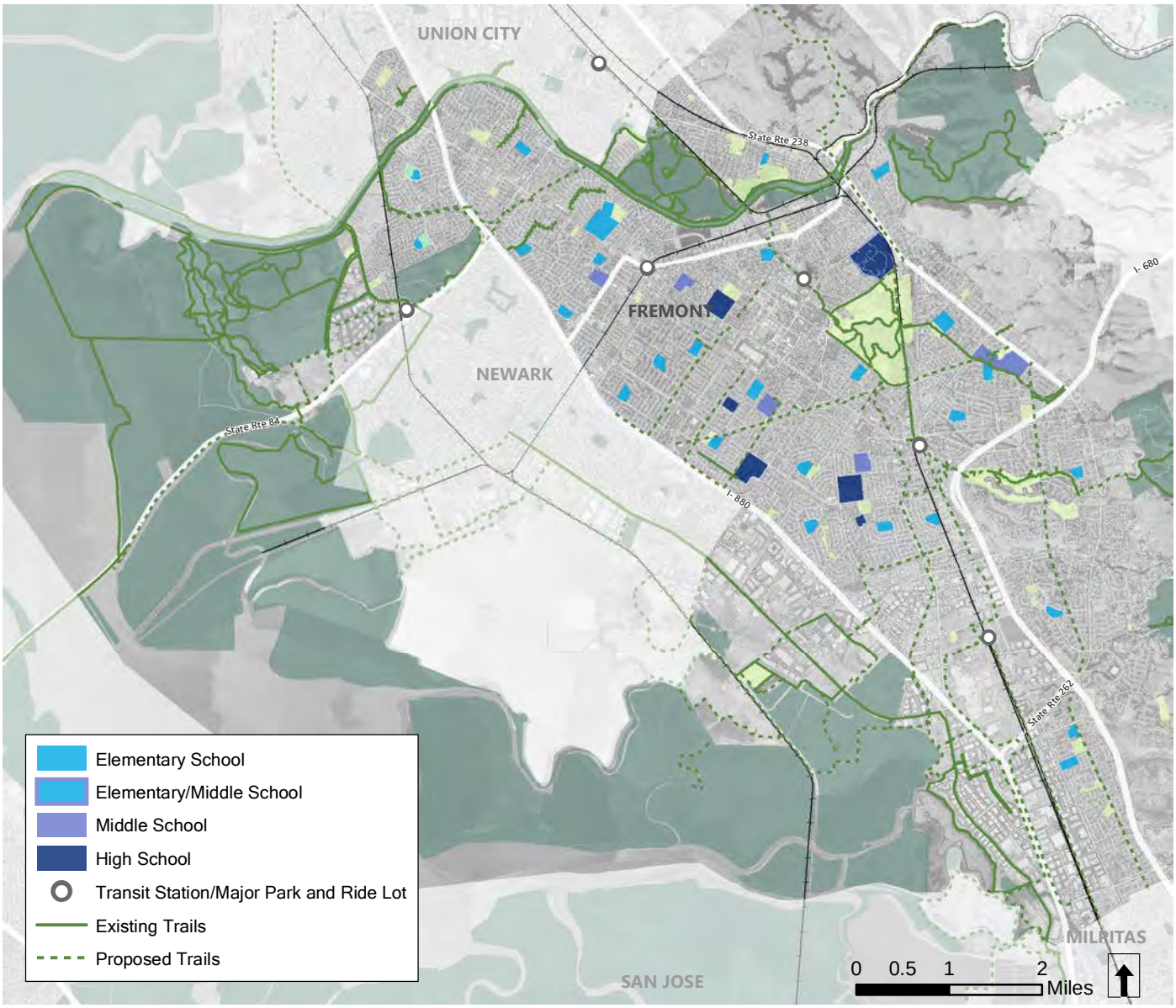


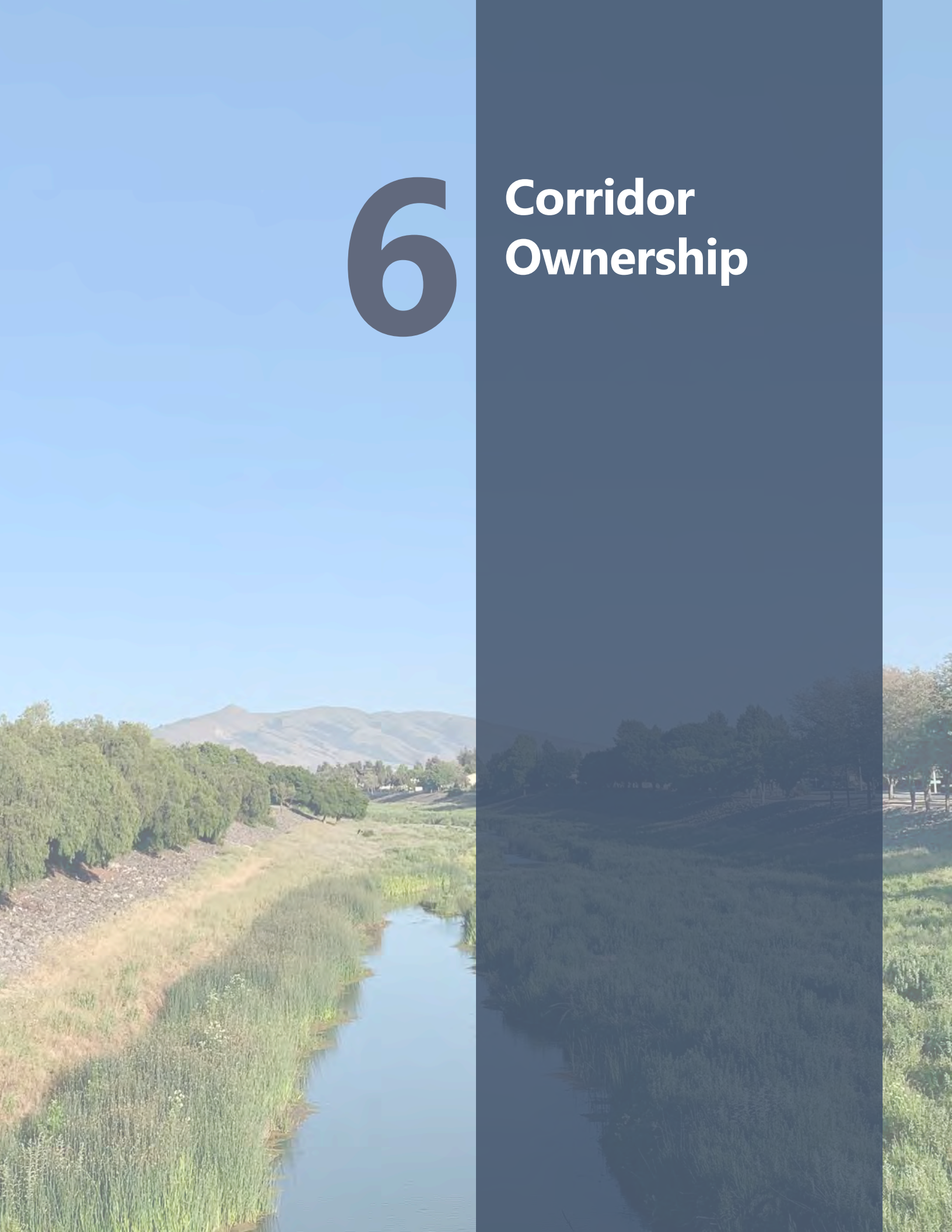
Schools

Schools are located throughout the City of Fremont. School attendance is mostly community-based, which means students often attend schools close to where they live, although enrollment boundaries are subject to change in order to keep student enrollment balanced. Safe and convenient walkways and bikeways, including trails, encourage students to walk and roll to school. Trails that serve these trips include neighborhood trails, block cut-throughs (e.g. a path connecting the end of a cul-de-sac), and small park connections.

Fremont's Junior Middle Schools and High Schools are limited in number and cover larger areas, which may result in longer travel distances. Nevertheless, with high quality infrastructure, many students can still viably walk or bike to middle or high schools in Fremont.

Fremont Schools





6 Corridor Ownership

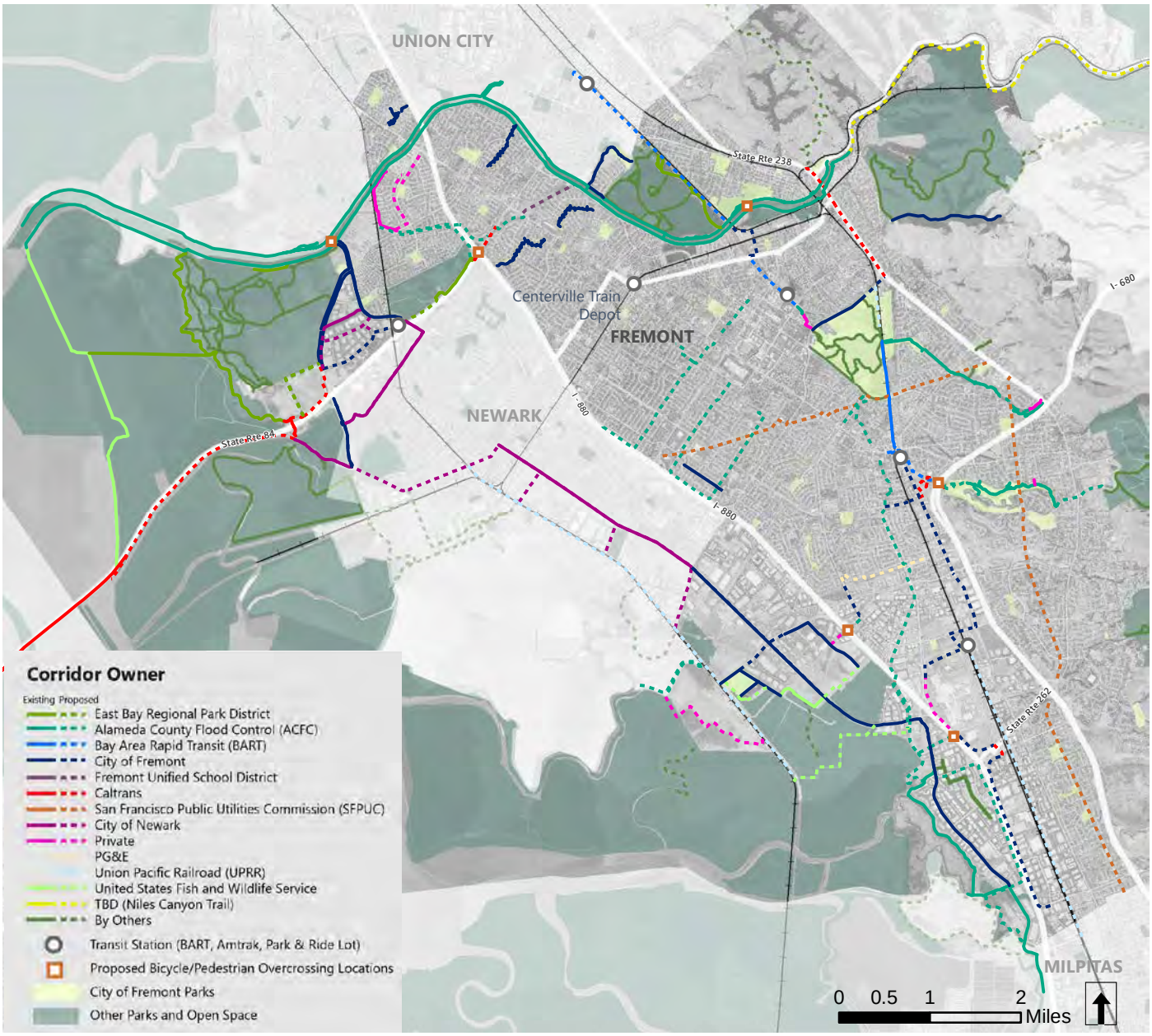
Corridor Ownership

Developing trails often includes coordination with a variety of land owners such as utility companies, transit operators, flood control, and natural resource agencies, as well as developers, residents, and businesses who benefit from the trail system.

Coordination can include the acquisition of land and easements, trail design that respects and enhances the overlapping or adjacent uses of the corridor, and the management and maintenance of the trail and trail use. Each part of this process takes time and requires the development of trust and an understanding of the owners needs and limitations. The implementation of a trail system is most likely to occur if owners and managing agencies are engaged early and often in the process.

This section provides an overview of agencies who own and manage corridors in Fremont that currently feature trails or may be considered for future trail development. It provides guidance on their policies and procedures related to trail development.

Map of Trails by Corridor Ownership



Alameda County Flood Control District (ACFC)

The Alameda County Flood Control District (ACFC) provides flood protection for Alameda County residents and businesses through flood control projects such as natural creeks, channels, levees, pump stations, dams, and reservoirs. These projects are typically planned, designed, constructed, and maintained by the ACFC. The ACFC also preserves the natural environment through public outreach and enforcement of pollution control regulations governing waterways. The ACFC is divided into zones that roughly correspond to major watershed boundaries. Fremont lies within Zones 5 and 6.

When the ACFC was created in 1949, standard engineering practice encouraged the use of concrete-lined channels and culverts to route floodwaters away from neighborhoods. Now, recognizing that creeks restored to their natural condition provide improved flood protection to the area, minimize creek bank erosion, improve water quality, and provide wildlife habitat, the ACFC strives to create more natural creeks in conjunction with other flood control improvements. Projects are prioritized and funded via the ACFC's 7-year capital improvement program, which is updated annually.

Recent Project Examples

Sabercat Creek & Trail Restoration (2008–2012)

One of the last natural riparian areas in Fremont, Sabercat Creek in the Mission San Jose and Cameron Hills neighborhoods, is the site of fossils dating back about 1.8 million years. In 2008, a $1.2 million grant from the Resource Agency California River Parkway Program, supplemented by the Clean Water Protection Fee and ACFC, funded the restoration of the creek and adjacent trail. The project, completed in 2012, stabilized the creek banks, restored the trail, provided a picnic area, installed a fence to keep out cattle, and replaced non-native plants with native vegetation. Creek improvements were installed to slow stormwater, reduce erosion, and improve water quality. Public access was improved by providing several pedestrian trails, including two pedestrian access links under Paseo Padre Parkway, and ADA access.

Line G Creek/Grimmer Greenway

ACFC and the City have initiated preliminary design for a creek restoration and trail project along Line G Creek. This creek parallels Grimmer Boulevard, between Fremont Boulevard and Paseo Padre Parkway.

Alameda Creek Trail

In Fremont, the Alameda Creek Trail is along an ACFC-owned flood control channel. Paved and unpaved trails parallel the channel using maintenance roads. The trail system is operated by the East Bay Regional Park District.

Developing Trails within ACFC Corridors

The ACFC supports the development of trails as part of creek restoration efforts and the use of ACFC maintenance roads as multi-use trails. The ACFC, however, does not manage or maintain trails, trailside elements, or landscaping for public use and has no specific trail design guidelines. The surface material of maintenance roads is typically a compacted aggregate and in some cases an asphaltic cement (AC), but AC is more difficult for the ACFC to maintain.

The ACFC maintenance of levee maintenance roads consists of tree and shrub removal and the spreading and compaction of aggregate on an as-needed basis, typically before, during, and after the rainy season and occasionally during the summer. Trees and shrubbery are not allowed between levee trails and their adjacent waterways (levee embankment/hinge point/channel) due to concerns that they will degrade the integrity of the levee. Plantings are allowed on the non-channel side of levee trails.

San Francisco Public Utilities Commission (SFPUC)

The SFPUC provides water, sewer, and power (including hydroelectric and solar) services to residents and businesses of the Bay Area. Based in San Francisco, SFPUC includes 2,300 employees and provides water services to over 2.7 million customers in San Francisco, Alameda, Santa Clara, and San Mateo Counties. Most of the water is provided by the Hetch Hetchy watershed, an area located in Yosemite National Park. Spring snowmelt runs down the Tuolumne River and fills Hetch Hetchy Reservoir, before traveling through tunnels, pipelines, and treatment systems.

In southern Fremont there are two significant Hetch Hetchy corridors: one running east-west and the other north-south. The combined length of the corridors is almost six miles and they are typically 100 feet in width. Portions of the north-south corridor between East Warren Avenue and Chardonnay Drive are currently under license to the City of Fremont.

Developing Trails within SFPUC Corridors

The SFPUC supports sustainable communities and is open to trails along their corridors where feasible and where trails do not impact tunnels, pipelines, or transmission operations. SFPUC tunnels and pipelines are typically six to nine feet wide and often as little as two feet underground. This means that in many places no trailside elements may be installed that include footings more than four–six inches below ground. Landscaping is restricted within specific setback distances of the tunnels and pipes. The tunnels are pipelines may limit the placement of trails and the installation of trailside elements such as lighting, benches, and signage.

In addition, multi-year trail closures may be required when the maintenance, repair, or replacement of water transmission facilities is required. To address trail closures, it is important that communities understand and respect the temporary trail use of the corridor and that jurisdictions are prepared to create alternate routes while repair/replacement work occurs.

Another issue is that many adjacent residents have extended landscaping and gardens into the SFPUC corridor. Prior to developing a trail, SFPUC typically requests that all such encroachment is addressed, and liability, management, outreach, and maintenance agreements are in place.

The Real Estate Services Division (RES) negotiates agreements for the lease, license, purchase, and sale of SFPUC property and administers real estate agreements. SFPUC has design standards for the interim use of their Right of Way, which are currently being updated.

View of the Hetch Hetchy Corridor

Bay Area Rapid Transit (BART)

The BART system is a regional rail system connecting the San Francisco Peninsula to cities in the East Bay, including Fremont. Construction began in 1964 and the system opened in 1972. It currently includes 48 stations (19 surface, 14 elevated, 15 underground) and spans 121 miles across five counties. There are two existing BART stations in Fremont (Fremont City Center and Warm Springs/South Fremont. A third station (Irvington) is currently under development. The Union City Station is beyond the city limits but is easily accessible to Fremont residents.

BART has an adopted Sustainability Policy which includes sustainable access to transit with a focus on developing and investing in pedestrian and bicycle networks on and off BART property in coordination with federal, state, and regional agencies. Access, prioritized in order of importance, is: walk, bike, transit, and shuttle; drop off/pick up; and, auto parking. In 2012, BART developed a Bicycling Plan which recommends optimizing routes for bicyclists between the local bicycle network and fare gates and supporting local efforts to improve bicycle access to stations.

Current Project Examples

The future Irvington BART Station will be located in the Irvington District at the intersection of Washington Boulevard and Osgood Road. The station was first studied as part of the Warm Springs extension in 1979, approved by the BART Board in 1992, and most recently was planned to be constructed as part of the Warm Springs BART Extension. However, insufficient funding delayed the project. County Measure BB, passed in 2014, specifically included funding for the station and station planning is underway. The City of Fremont and BART have worked collaboratively to prepare two plans: a Station Site Plan and a Station Area Plan. The Station Area Plan includes the continuation of the East Bay Greenway. The Greenway is shown as a two-way raised bicycle lane adjacent to five to six lanes of vehicle traffic along Washington Boulevard and Osgood Road. Conceptual access plans for pedestrians and bicyclists are also provided.

Developing Trails within BART Corridors

BART supports trail access to and through their stations. Specific planning efforts, including Station Area Plans, must be coordinated with BART to ensure that the plans meet BART's access point spacing requirements while ensuring a useful trail alignment. Due to the high number of pedestrians and bicyclists that are expected to access BART stations, separated facilities are preferred near the stations.

Developing trails within BART corridors presents many of the same challenges and opportunities faced with rail-trail development, including drainage, rail setbacks, and safety fencing requirements. Because BART is an electrified system, though, additional safety and security measures must be taken along the entire corridor to protect trail users and the high-powered electric infrastructure.

Bike Lanes outside Warms Springs BART Station

East Bay Regional Park District

EBRPD owns and manages a system of parklands and trails in Alameda and Contra Costa counties. The system comprises nearly 125,000 acres in 73 parks with over 1,250 miles of trails. The first parks were established on surplus land owned by the East Bay Municipal Utility District (EBMUD) after EBMUD shifted its water source to the Sierra Nevada in the 1920s. In 1934, legislation authorized the establishment of the EBRPD to preserve the land for public recreational use.

Existing and Current Project Examples

Existing EBRPD parks in the Fremont area include Coyote Hills Regional Park, Ardenwood Historic Farm, and Quarry Lakes Regional Recreation Area. EBRPD also manages the Alameda Creek Trail. The Park District Master Plan highlights the following future regional trail systems in and near Fremont, several of which are partially complete:

- San Francisco Bay Trail (encircling the Bay along the shoreline)
- East Bay Greenway (from Santa Clara County through Fremont to northern Alameda County)
- Bay Area Ridge Trail (encircling the Bay along the ridges)
- San Francisco Bay to San Joaquin River Trail (from Fremont to Antioch), including the proposed Niles Canyon Trail
- Vargas to Sunol Ridgeline Trail
- Don Castro to Vargas Plateau Trail
- Coyote Hills to Ardenwood Trail
- Ardenwood to Quarry Lakes Trail

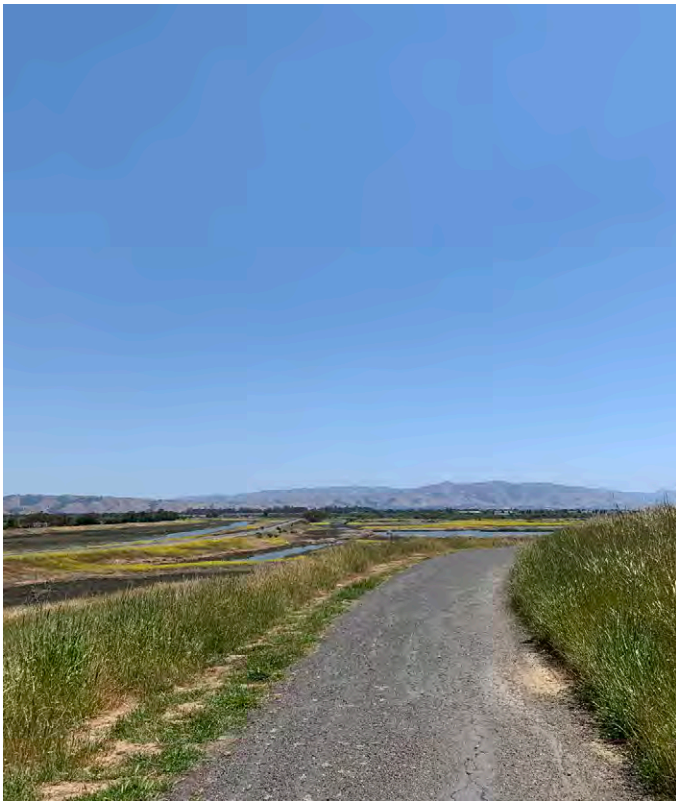
In 2015, EBRPD prepared a feasibility study for trail access in the Niles Canyon, and the Alameda County Public Works Agency is leading the environmental clearance for a potential trail through the canyon.

Developing Trails in Coordination with EBRPD

EBRPD acquires, develops, manages, and maintains a diverse system of interconnected parklands that balance public use and education programs with protection and preservation. A Park District Master Plan (updated in 2013) guides the future expansion of parks, trails, and services. EBRPD prioritizes completion of projects in the Master Plan as well as projects that connect parks to other parks and residents to parks. Because EBRPD manages and maintains projects for other entities, potential EBRPD projects are not only restricted to EBRPD property. Current examples include the Alameda Creek Trail on ACFC property and trails to Mission Peak on Ohlone College property.

EBRPD produces Land Use Plans (LUPs) for each park unit (including regional trails) in their system. These long-range planning documents guide the management and conservation of park resources and future recreational use. For non-EBRPD properties, a transfer of funds is typically required to cover the cost of the management and maintenance. EBRPD provides "District Standard Plans" for some trail-related features such as fences, benches, tables, drinking fountains, and park entry signage, among others.

Typical park hours are 5AM-10PM and trails lack lighting, which limits the use of trails for active transportation. A pilot program is underway to allow off-hours use permits for users on the Iron Horse Trail (along I-680) and in Temescal Regional Recreation Area near Rockridge BART in Oakland.



Bay View Trail at Coyote Hills Regional Park

Pacific Gas & Electric Company (PG&E)

PG&E incorporated in California in 1905 and is one of the largest combined natural gas and electric energy companies in the United States. There are approximately 24,000 employees, and hundreds of thousands of miles of distribution and transmission lines. PG&E serves 16 million people throughout a 70,000-square-mile service area in northern and central California. It is based in San Francisco and regulated by the California Public Utilities Commission.

PG&E is one of California's largest private landowners. It has committed to protecting the water, land, and other natural resources associated with the PG&E hydroelectric system. It works with several non-profits to protect land and provide outdoor recreation programming.

In Fremont, west of the proposed Irvington BART station there is one PG&E corridor with potential for trail development.

Developing Trails within PG&E Corridors

While PG&E has worked with many communities to develop trails along its corridors, they do not offer specific design guidelines. Trail corridor development occurs through its Land Management and Engineering Departments. The Land Management Department oversees trail easements. The Engineering Department, which includes separate departments for gas transmission, gas distribution, electric transmission, and electric distribution, reviews specific projects. Considerations for new projects include the type of PG&E facility along the corridor and the potential for PG&E expansion.

PG&E Corridor & Channel Trail from Doane Street

California Department of Transportation (Caltrans)

Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans oversees six primary programs: Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center.

Key Caltrans goals include providing safe transportation systems, promoting health through active transportation, and making smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.

In Fremont, there is limited availability for trails along Caltrans properties as I-680 and I-880 are constrained in their right-of-way. However, there may be other Caltrans corridors, such as Marshlands Road and Mission Boulevard, which may support regional trail development. Additional opportunities focus on collaboration with Caltrans on projects to traverse highways and freeways to improve connectivity. These could include new pedestrian/bicycle over- and under-crossings or enhancements of existing bicycle and walking facilities at Caltrans interchanges.

Developing Trails in Coordination with Caltrans

Trails should meet Caltrans Class I Bikeway (Bike Path) standards per the Caltrans Highway Design Manual (2020). New pedestrian facilities, which include trails, must meet Caltrans new accessibility guidelines (Caltrans Design Information Bulleting 82-06). Caltrans prefers facilities with good lighting and separation between bicyclists and pedestrians. Landscaping is acceptable where it does not diminish safety or sight lines, but must be maintained by others.

Marshlands Road by entrance to Don Edwards San Francisco Bay National Wildlife Refuge

U.S. Fish and Wildlife Service (USFWS)

The USFWS owns and manages the Don Edwards San Francisco Bay National Wildlife Refuge located on the western edge of Fremont. It is an important connection to the trails of the Coyote Hills Regional Park. Their Comprehensive Conservation Plan supports providing and expanding recreational trails and wildlife viewing areas. Continued conversations, especially as future restoration projects occur, about the development and integration of refuge trails into the Fremont trail system can ensure that visitors are able to experience this natural resource by foot or bicycle while supporting USFWS restoration and adaptive management goals. Coordination would need to occur with Cargill, Inc., which operates many of the ponds (see Cargill, Inc. section).

Salt Ponds from the Shoreline Trail

Cargill, Inc.

Cargill, Inc. owns and operates industrial salt and processing facilities at its Newark Plant Site on the western edge of Fremont. Salt production in the Bay Area began in the 1850s when the State encouraged the modification of marshlands for economic use. For salt production in Fremont, this included the diking, leveeing, and draining of salt marshes and seasonal wetlands to create ponds for salt harvesting.

In 1972, some of the ponds were acquired through condemnation by the USFWS and became a part of the Don Edwards San Francisco Bay National Wildlife Refuge. As part of the acquisition, an agreement was reached that most of the salt pond levees would be owned by the USFWS, but would continue to be operated and maintained by Cargill.

The 1972 agreement designated certain levees for public access around the Refuge headquarters and visitor center area. Both stakeholders must agree if future lands are to become open to public access. Exterior levees are typically 12 to more than 14 feet wide. Future public access could occur if safety and security improvements (fencing, cameras, etc.) were made, the USFWS took on the responsibility of levee maintenance and patrols, impacts on sensitive wildlife species were mitigated, and/or Cargill no longer needed the ponds.

Salt Ponds from Coyote Hills Regional Park

7 Trail Typologies and Design

Trail Typologies and Design

This chapter introduces a trail classification system — referred to as a typology — that provides a framework for the role of many different trail corridors within Fremont's trail network. The chapter then outlines how trail corridors should be designed and operated based on their typology classifications. Finally, the chapter provides design guidance on topics that apply to all trails. This design guidance is supplemented by **Chapter 8, Trail Improvement Recommendations**, and **Chapter 9, Trailside Elements**.

These trail design standards (typologies) inform the trail width and layout as well as decisions regarding features such as lighting, signs, benches, and more. The guidelines presented here are recommendations, not requirements, and site specific constraints, such as available right-of-way or environmental considerations, may control the ultimate design. Trails within City parks will function differently and will have different priorities and expected users.

The Trail Typologies are predominately based on the type of connectivity the trail provides, the expected number of users, and the expected trail user type. Expected use is based on the density of surrounding neighborhoods or employment centers and the proximity to local and regional destinations.

Trail users include people walking, jogging, pushing strollers, walking dogs, riding bicycles, riding scooters, skateboarding, and people in wheelchairs. Potential motorized trail users, such as micromobility vehicles (e-bikes, electric scooters, etc.), were also considered.

Regional Trail

Long (>3 miles)

Serves multiple regional destinations

Separated Regional Trail
8-foot pedestrian trail & 10-foot bicycle trail

Constrained Regional Trail
15-foot preferred paved width

Community Connector Trail

Medium (1-3 miles)

Serves regional destinations within Fremont

11-foot preferred paved width (10-foot minimum)

Neighborhood Trail

Short (<1 mile)

Serves local destinations within neighborhood

10-foot preferred paved width (8-foot minimum)

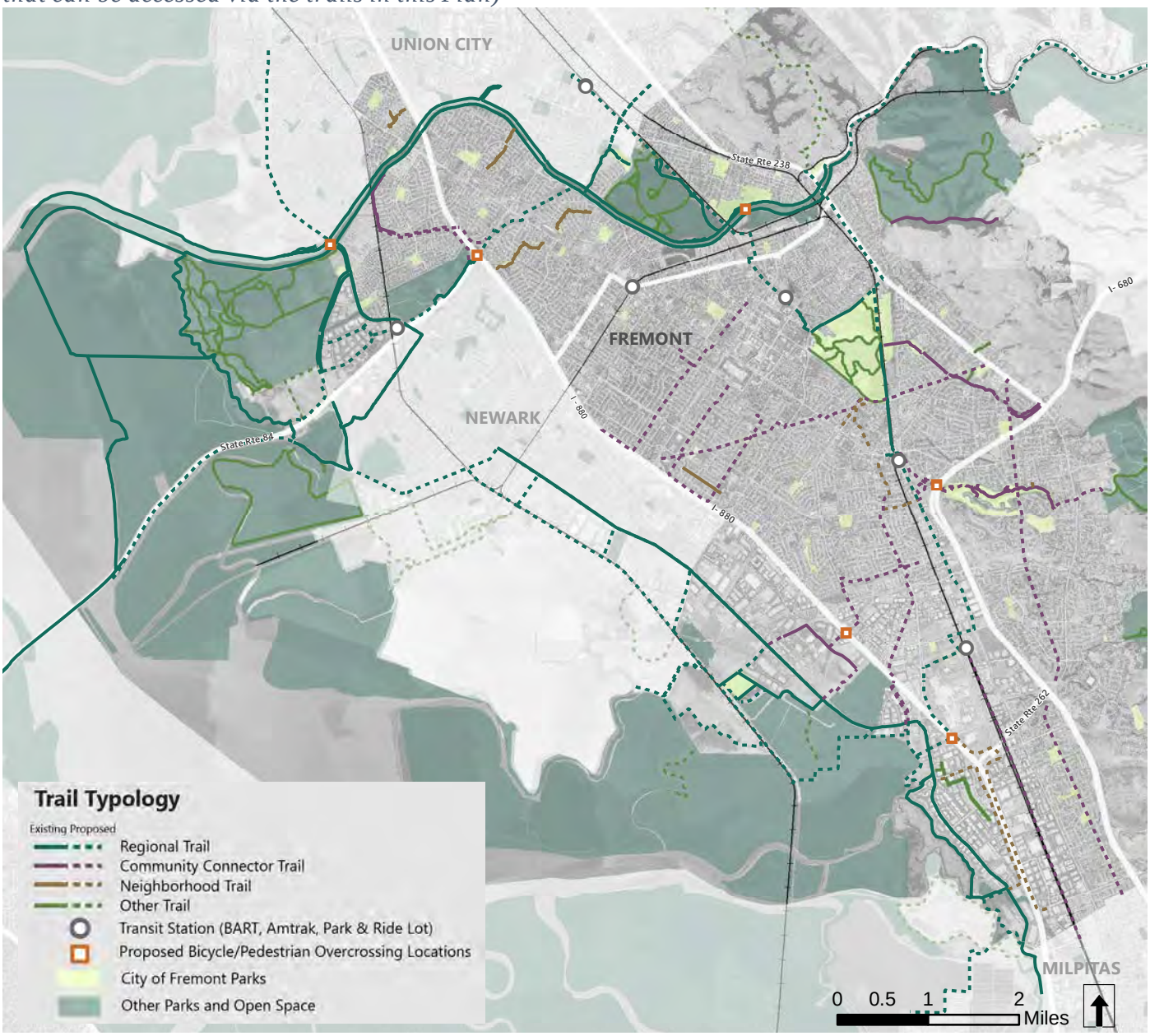
Benicia State Park

Mission Creek Trail

Cabrillo Trail

Crissy Field in San Francisco, Regional Trail

Trail Typologies Map, showing trail corridors by typology ("other" trails are primarily recreational trails that can be accessed via the trails in this Plan)



Regional Trails

Regional Trails connect users across Fremont and/or to destinations outside of Fremont. These are trails with an expected high level of use and mix of people walking and wheeled users (people on bicycles, scooters, and skateboarders).

Trails are designated as Regional when they:

- are located in areas with existing or future high densities of employment or residents,
- serve multiple regional destinations,
- serve high-demand destinations (transit centers, town centers, job centers), or
- are long corridors (over 3 miles) that connect the above destinations.

Trails that serve high-density residential or commercial areas can be expected to attract a high number of users due to the potential number of people living, working, and shopping in the area. Trails that serve regional destinations attract users from a large area, increasing the number of people using the trail.

Trails that serve destinations such as transit stations and high-density employment centers attract high numbers of users with trail use highest during peak commute times. Trails along long corridors often attract high numbers of bicyclists who tend to travel further than people walking.

Regional Trails should ideally be designed to separate users of different speeds, typically people walking and wheeled users. Separated trails create the safest environment for all users where the expected number and variety of users are high. However, some Regional Trail corridors are constrained in available width, such as corridors along levees. In these cases bicyclists and pedestrians will have to mix on the same path, though designated spaces for faster/slower users can be marked.

In other constrained segments, Regional Trails may follow an on-street alignment to provide a connection within an overall trail corridor. In these cases, the design may consist of either a sidepath or a sidewalk with on-street, protected bikeways. Design guidance for on-street bikeways, separated bikeways, sidewalks, and sidepaths is provided by the City's Bicycle Master Plan and Pedestrian Master Plan.

Lighting should be included, as these trails serve commuter routes and peak commute periods are after dark during winter.

Regional trail example, Colorado State University campus, Fort Collins, CO (Toole Design)

Separated Regional Trails

Where sufficient space is available, Regional Trails should include separate pathways for faster moving users (typically wheeled users) and slower moving users (typically pedestrians).

Recommended trail design:

Paved width:

Pedestrian trail standard: 8 feet
Pedestrian trail minimum: 5 feet
Bicycle trail: 10 feet

Pavement markings:

Yellow striping for bikeway centerline
White symbols for bike and pedestrian areas

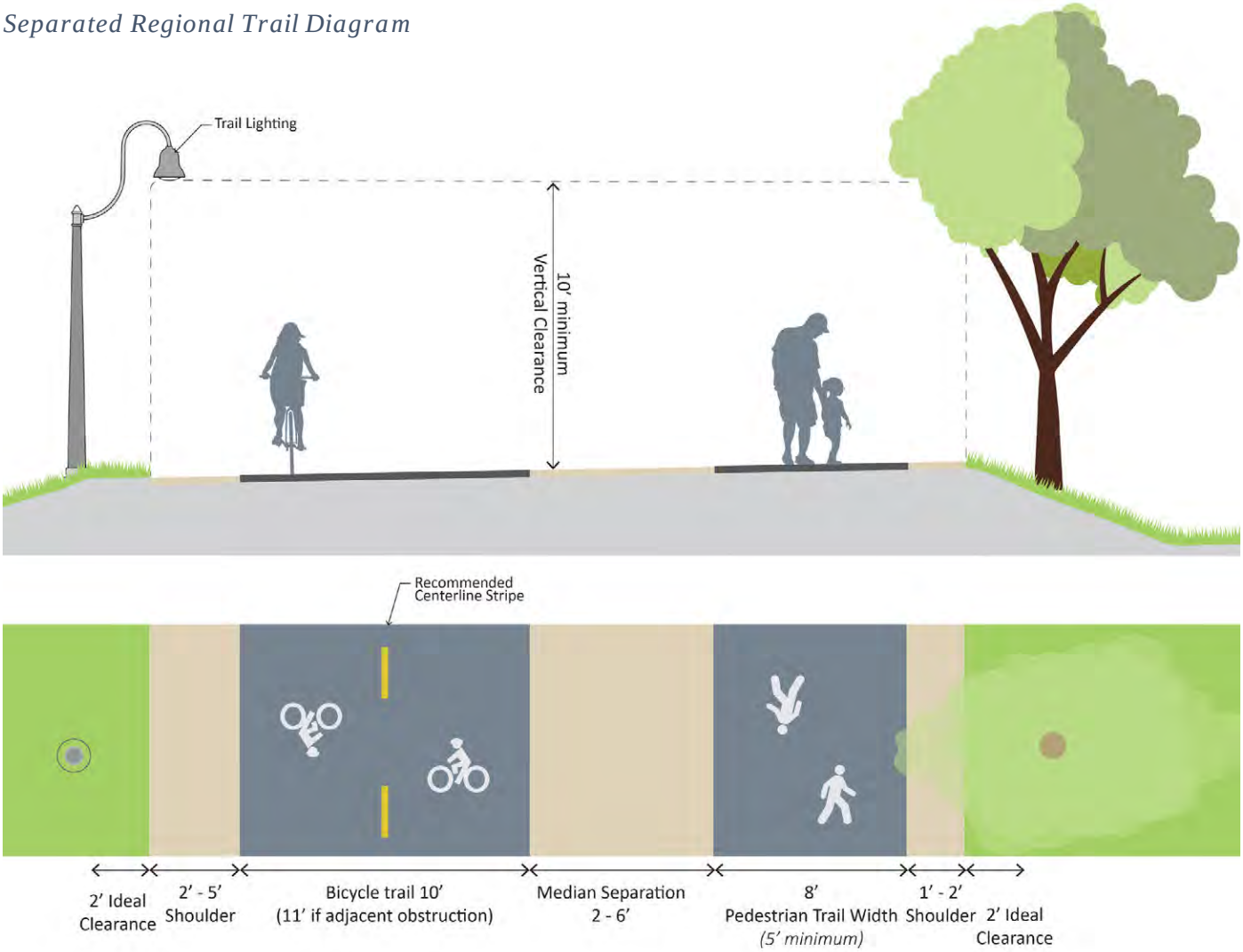
Separation material:

Landscaping or surface material change (i.e. pavers or decomposed granite)

Lighting:

Recommended

Separated Regional Trail Diagram



Constrained Regional Trails

Where there is not sufficient corridor width to fit the separated trail, a narrower, constrained trail layout may be used. If a Separated Regional Trail needs to switch to a Constrained Regional Trail layout, a gradual transition with clear warnings should be used.

Ideally, even in constrained settings, Regional Trails would include markings delineating separate pedestrian and bicycle spaces.

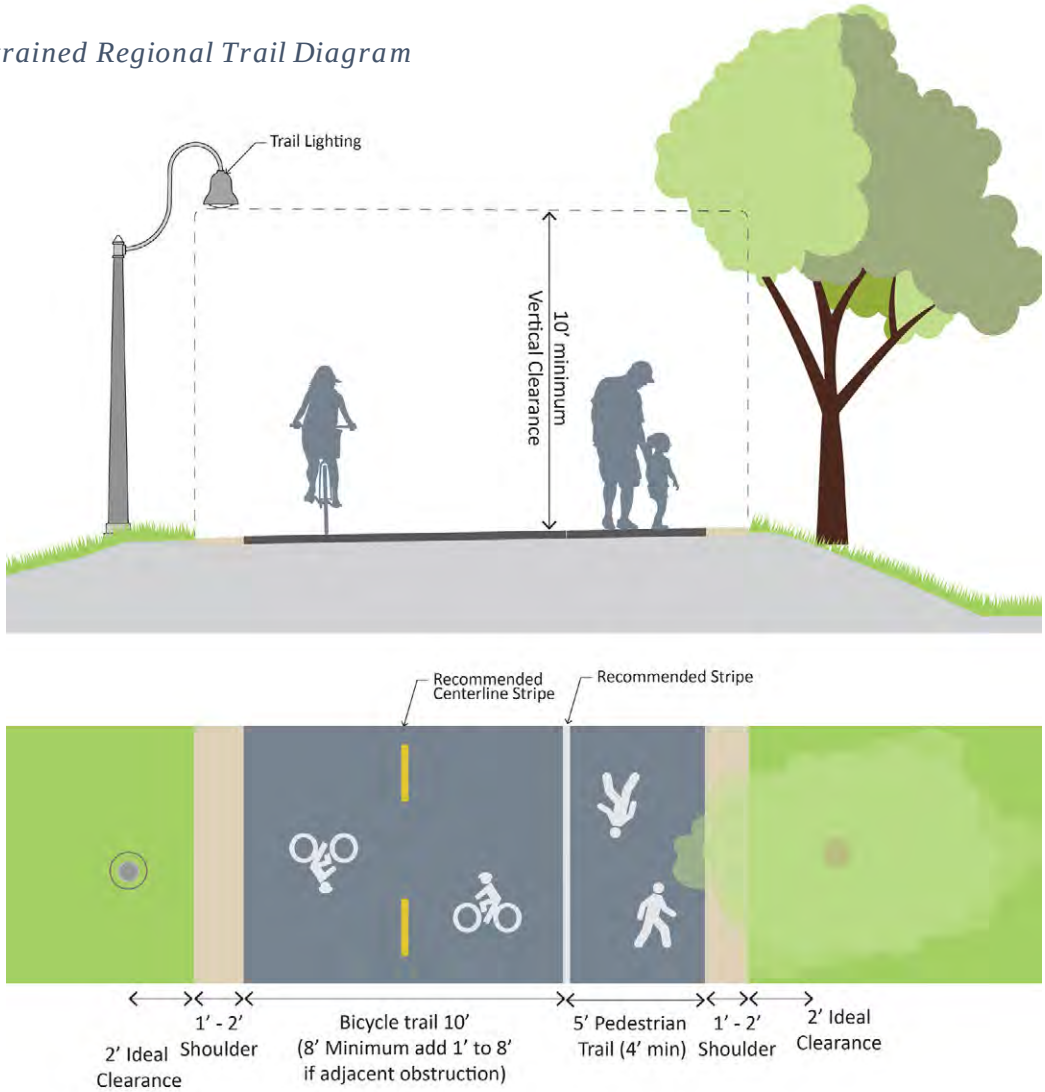
Recommended constrained trail design:

Paved width:
- Standard: 15 feet
- Minimum: 12 feet

Pavement markings:
- Yellow striping for bikeway centerline
- White striping for pedestrian space
- White symbols for bike and pedestrian areas

Lighting:
- Recommended

Constrained Regional Trail Diagram



Community Connector Trails

Community Connector Trails connect users between different neighborhoods within Fremont. These are trails with an expected mid-level number of users and a mix of people walking and rolling (people on bicycles, scooters, and skateboards).

Trails are designated as Community Connectors when they:

- connect between different neighborhoods but are contained within Fremont
- serve regional destinations
- are of medium length (1 to 3 miles)

Community Connector Trails should be designed with a width of 11-feet, which allows frequent passing (as slower trail users, typically pedestrians, are passed by faster trail users, typically bicyclists). Centerline striping can clarify travel direction and is particularly useful on curves.

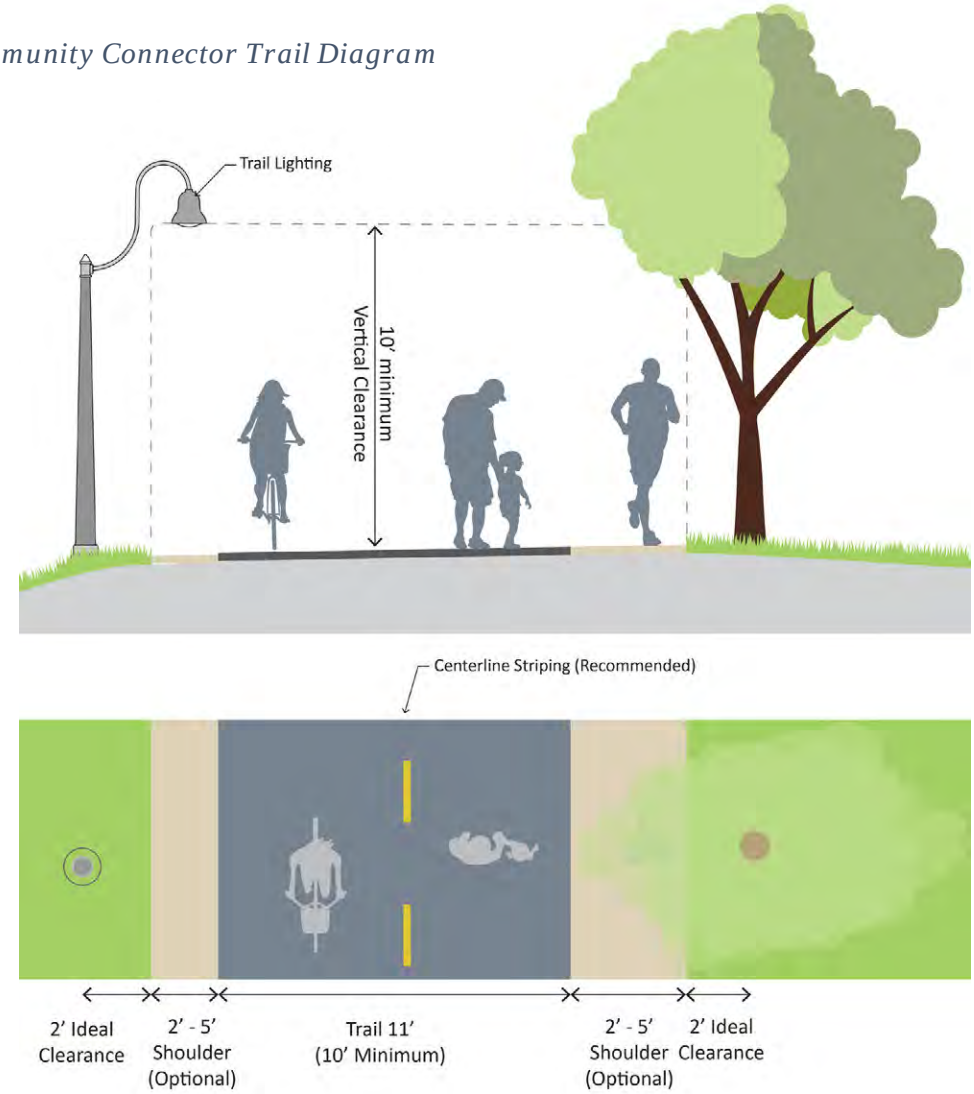
Recommended trail design:

Paved width:
Standard: 11 feet
Minimum: 10 feet

Pavement markings:
Yellow striping for centerline where needed

Lighting:
If warranted

Community Connector Trail Diagram



Neighborhood Trails

Neighborhood Trails connect users within a community or neighborhood. These are trails with an expected low number of trail users and are primarily used by pedestrians.

Trails are designated as Neighborhood when they:

- are entirely within a single neighborhood
- serve local destinations such as neighborhoods, schools, parks, and local retail
- are short in length (less than 1 mile).

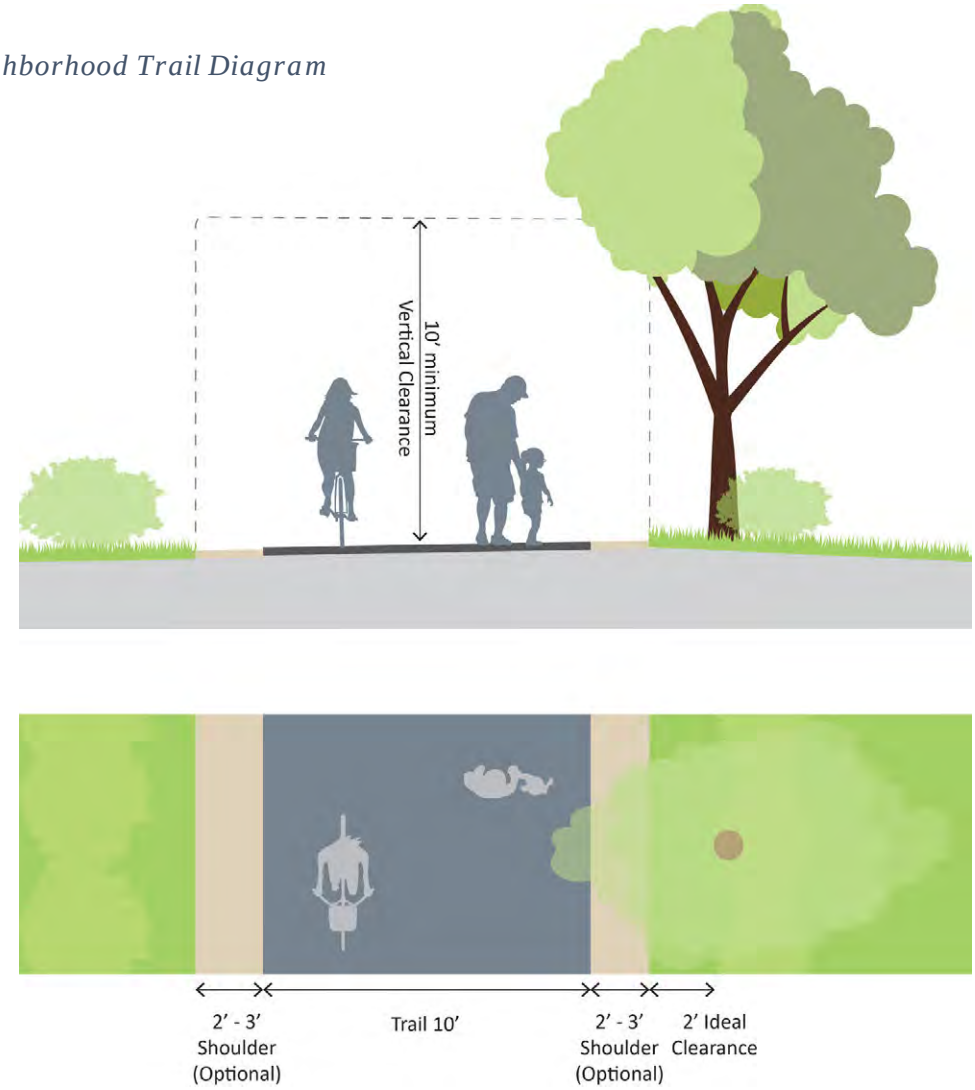
Trails that serve suburban environments and local destinations can be expected to attract lower numbers of trail users. Trails that are shorter in length are more likely to be used primarily, but not exclusively, by pedestrians.

Recommended trail design:

Paved width:
Standard: 10 feet
Minimum: 8 feet

Lighting:
Optional

Neighborhood Trail Diagram



Linear Park Trails

Trails within Linear Parks are a sub-category of Neighborhood Trails. A Linear Park is one of the six categories of parks defined by the 2011 Fremont General Plan and referenced in the 1995 Fremont Park and Recreation Master Plan. A Linear Park is typically small in size and includes a trail.

These parks provide space for neighborhood recreation in a more constrained area than neighborhood parks. The trails in Linear Parks can have significant transportation benefits since these trails may be used as an alternative to parallel on-street pedestrian and bicyclists facilities. The design and standards of trails in Linear Parks are similar to Neighborhood Trails, and will be driven by the current Parks and Recreation Master Plan update. Future trails in Linear Parks must be accompanied by a funding mechanism acceptable to the City for operations and maintenance purposes.

Connection to Warm Springs Community Park along Hetch Hetchy North-South Corridor

Design Guidelines for All Trails

Trail Surface

To provide maximum usability and minimum maintenance, all trail types should be paved with either asphalt or concrete, depending on the trail context. Asphalt is affordable to install, provides a smooth surface for wheeled users, and may work well for long stretches of Regional Trails. Concrete is more expensive to install and the required joints can be bothersome to wheeled users. But concrete requires significantly less maintenance than asphalt and may be more appropriate in highly developed areas, such as local parks. Concrete may also be more appropriate in certain soil conditions.

Where concrete is used, the width of expansion and control joints should be minimized.

Trail Geometry

Shoulders

Trail shoulders are an additional, level surface adjacent to the main paved surface. While shoulders can be paved, they are typically not typically paved as many pedestrians prefer to run or walk on a softer gravel-type surface. When unpaved, shoulders should use compacted crushed rocks such as gravel, decomposed granite, or quarry fines. A binder may be required to reduce tracking of materials onto the pavement surface.

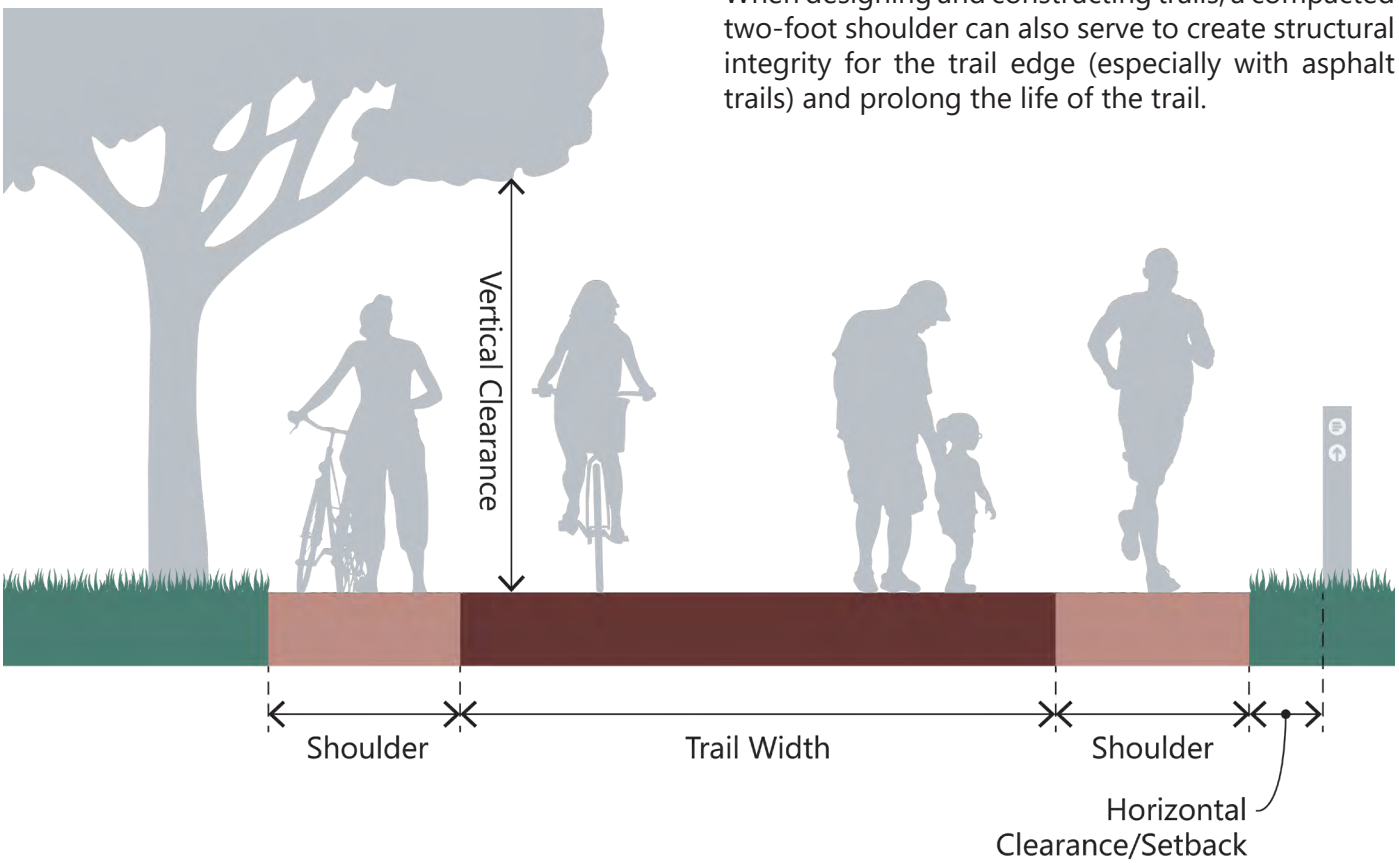
A trail shoulder running along most of or the entire trail can provide a separate path and additional width for pedestrians who prefer to run or walk on the softer surface.

Trail shoulders can also be used intermittently to provide areas for trail users to stop without hindering trail traffic. This is most important at locations where trail users might be expected to stop, such as at benches, scenic vistas, or informational signage.

Shoulders should be a minimum of two feet wide, but three to five feet provides the maximum benefit.

When designing and constructing trails, a compacted two-foot shoulder can also serve to create structural integrity for the trail edge (especially with asphalt trails) and prolong the life of the trail.

Diagram showing trail shoulder, horizontal setback, and vertical clearance



Horizontal Clearance/Setback

The horizontal clearance is the distance between the trail edge and any vertical object such as signage, lighting, fencing, or trees. Horizontal clearance should be measured from the edge of the level trail surface, which may include the shoulder.

In all cases, this setback should be no less than two feet. This is the distance at which users will feel comfortable using the full width of the trail. Clearances of less than two feet tend to make trail users swerve away from the vertical object, reducing the usable width of the trail and potentially causing conflicts with oncoming trail traffic.

Where there is a continuous adjacent obstruction, such as a wall or fence, there should be an additional foot of clearance.

Vertical Clearance

A minimum vertical clearance of 10 feet should always be maintained so as not to endanger trail users. This includes fixed objects such as aesthetic gateways and bridges. Trees should be trimmed to no less than 10 feet above the trail. A greater vertical clearance is more comfortable to trail users and should be incorporated into trail designs and maintenance whenever possible.

Turn Radii

Wheeled vehicles such as bicycles, scooters, and skateboards are unable to make sharp turns and require trails to be designed with wide turn radii. This includes along the trail, where a tight turn radii can create conflict by forcing wheeled users into oncoming trail traffic. This is also true at connections to other trails and at street intersections, where bicyclists are expected to slow down or stop. In these cases, a sharp turn could destabilize or distract a bicycle rider rather than allowing the rider to focus on potential traffic conflicts. Other design elements, such as surface material changes or texture, can be used to slow riders and help focus riders on the upcoming intersection.

The AASHTO Guide for the Development of Bicycle Facilities (2014) recommends a minimum trail radius of 27 feet. Other guides (such as the Larimer County [Colorado] Urban Area Street Standards) recommend a minimum radius of 95 feet on the trail and 20 feet at intersections. While these radii may not be feasible in all locations, even a 5 or 10-foot radius can ease the transition and increase safety and comfort.

Widening the trail at turns is also recommended to provide additional buffer space and reduce potential distractions and hazards.

Sacramento River Trail showing generous turn radii, wide setbacks, and clear pavement markings

Striping/Pavement Markings

Striping and pavement markings can increase safety along a trail. A center-line stripe can reduce trail user conflicts with oncoming trail traffic, particularly at curves. Trail edge striping can also help trail users recognize the trail edge where visibility is poor. In high-volume corridors, or corridors with a mix of wheeled and non-wheeled users, pavement markings and striping may be used to separate modes and minimize trail user conflicts.

Pavement markings can also feature trail and street names, mile markers, and bike slowing warnings or transverse lines.

Trail Connections and Wayfinding

It is important to provide clear connections from trail corridors to important destinations, such as schools, parks, transit stations, and employment or commercial centers. This can be addressed by signage and wayfinding, which is covered in **Chapter 9, Trailside Elements**. General guidance about signage and wayfinding is provided, but ultimately a detailed plan for signs and markings will be required.

Wayfinding signs, Ohlone Trail, Albany

Lighting and Trailside Elements

The different Trail Typology categories influence other design parameters, particularly the need for lighting, landscaping, and other features. Specific recommendations for these features are described in **Chapter 9, Trailside Elements**.

Note that features for trails within parks should be consistent with the overall park setting, use, and level of development. Trails in City of Fremont Linear Parks should be consistent with the 2021 Fremont Park and Recreation Master Plan's design standard.

Trailside elements along Regional Trails should focus on elements that serve trail users making longer trips.

Pacific Commons Trail Lighting, Fremont

Table 7-1. Lighting and Trailside Elements Recommendations

	Lighting	Trailside Elements	Landscaping/ Beautification
	Lighting is particularly important for commuter trails that may be used after dark in the winter.	These include drinking fountains, interpretive signage, benches, trash cans, etc.	Beautification may include landscaping, public art, or decorative paving, or other similar features.
Regional	Recommended	Recommended May include elements that require routine maintenance.	Recommended May include elements that require routine maintenance.
Community Connector	Sometimes recommended	Sometimes recommended Prioritize elements that do not require routine maintenance.	Sometimes recommended Prioritize elements that do not require routine maintenance.
Neighborhood	Optional	Optional	Optional

Federal and State Standards and Guidelines

Both federal and state standards and guidelines inform the design of walkways, bikeways, and trails as highlighted below.

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO)	This is the authoritative national standard for designing on-street bicycle facilities and shared-use paths (trails). It includes chapters on bicycle planning, bicycle operations and safety, the design of on-road and shared use paths, bicycle parking, maintenance, and operations. It provides design specifications for shared used paths including widths, clearances, design speeds, grades, stopping sight distances, bridges and underpasses, drainage, lighting, turn radii, intersection design (path to path and path to street), pavement markings, signs, and signals. (The current Guide is dated 2012. An updated version is under development.)
Manual of Uniform Traffic Control Devices (MUTCD), Federal Highway Administration (FHWA)	The MUTCD defines the standards for the design, installation, and maintenance of traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The MUTCD is published by the FHWA under 23 Code of Federal Regulations (CFR), Part 655, Subpart F. The MUTCD provides standards, guidelines, and recommendations for all traffic control devices, including road markings, highway signs, and traffic signals. It is updated periodically to accommodate the nation's changing transportation needs and address new safety technologies, traffic control tools, and traffic management techniques. Caltrans has adopted the California MUTCD (CA MUTCD), described below.
California Manual of Uniform Traffic Control Devices (CA MUTCD), California Department of Transportation (Caltrans)	The CA MUTCD (2014) establishes uniform standards and specifications for traffic control devices in California. Traffic control devices are defined as all signs, signals, markings, and other devices used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by authority of a public agency or official having jurisdiction, or, in the case of a private road, by authority of the private owner or private official having jurisdiction. The CA MUTCD is not applicable to privately owned and maintained roads or commercial establishments in California, unless the particular city or county enacts an ordinance or resolution to this effect. The CA MUTCD incorporates the FHWA's MUTCD and all policies on traffic control devices issued by Caltrans.
Highway Design Manual (HDM), Chapter 1000 Bikeway Planning and Design, California Department of Transportation (Caltrans)	The California Highway Design Manual (HDM) is used by Caltrans staff and non-Caltrans project managers and planners proposing designs for projects within the Caltrans right-of-way. The design standards cover a wide array of design areas including drainage, pavement, and basic design policies. Chapter 1000 of the Caltrans HDM specifically focuses on bikeway planning and design. Any trail designated to encroach into or travel within Caltrans right-of-way must be designed per Chapter 1000 of the Caltrans Highway Design Manual, or the project must apply for a Design Exemption.
California Vehicle Code	The State of California's Vehicle Code addresses legal obligations of right-of-way and duties for vehicles, pedestrians, and bicyclists. The Rules of the Road can be found in Division 11 with Chapters 4 and 5 describing the laws associated with Right-of-Way and Pedestrians' Rights and Duties, respectively.
Urban Bikeway Design Guide, National Association of City Transportation Officials (NACTO)	The Urban Bikeway Design Guide provides guidelines on designing bike lanes and intersections to align with best practices and achieve safe transport for all modes. These guidelines confirm and expand on the FHWA MUTCD. The most recent edition was published in 2013.

Accessibility

ADA and the Access Board

The Americans with Disabilities Act (ADA) of 1990 governs all publicly-used facilities, including walkways, bikeways, and trails. The Architectural and Transportation Barriers Compliance Board (Access Board) develops guidelines for facilities subject to the ADA. These guidelines are contained in the following documents:

- Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way, July 26, 2011.
- Final Guidelines for Outdoor Developed Areas, November 25, 2013.
- Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way; Shared-Use Path, Supplemental Notice, February 13, 2013.

Trail, Bicycle, and Pedestrian Facility Accessibility

Trails must meet certain accessibility requirements depending on the planned use and the agencies with jurisdiction over the funding, design, or maintenance of the trail. **Table 7-2** summarizes the key federal standard dimensions for the various types of trail, bicycle, and pedestrian facilities. Trails covered in this Plan would generally be required to meet the "Shared-Use Path" or Pedestrian Access Route standards, though some segments may not be feasible to pave for environmental reasons. Outdoor Recreation Access Route and Trail guidance may be applicable for non-transportation facilities in large parks.

Table 7-2. Key Standards for Trail, Bicycle & Pedestrian Facilities, Aggregated from the Access Board ADA Guidelines

	Width	Gradient (Running Slope)	Cross-slope	Surface	Hand-rails
Shared-Use Path	10′ with 2′ shoulders 8′ min in low use areas	< 5% (< 1:20) any length 5–6% (1:20–16.7) up to 800′ 7% (1:14.3) up to 400′ 8% (1:12.5) up to 300′ 9% (1:11.1) up to 200′ 10% (1:10) up to 100′ 11+% (1:9.1) up to 50′	2% max	Smooth, paved	
Pedestrian Access Route	48″ min with 60″ min passing space every 200′ or less	5% (1:20) max – any steeper treated as a ramp (*Note: Sidewalks abutting a roadway may be as steep as the roadway.)*	2% max	Smooth, paved	
Ramp	36″ min	8.33% (1:12) max (30″ rise over 30′ length between landings max) Landings at top, bottom: 60″ x width″ with 2% max gradient all directions Landings at change in direction: 72″ long x 60″ wide	2% max	Smooth, paved	Required on both sides of any ramp with rise greater than 6″
Outdoor Recreation Access Route *	36″ min with 60″ min passing space every 1,000′ or less	5% (1:20) any length 8.33% (1:12) up to 50′ 10% (1:10) up to 30′ with resting intervals 60″ long, as wide as trail and max 2% gradient	2% max or up to 5% (1:20) where required for drainage	Firm and stable (specific standards)	
Trail **	36″ min with 60″ min passing space every 1,000′ or less	5% (1:20) any length 8.33% (1:12) for up to 200′ 10% (1:10) for up to 30′ 12.5% (1:8) for up to 10′ with resting intervals 60″ x trail width, max 5% (1:20) <30% of total trail length may exceed 1:12	5% max	Firm and stable (specific standards)	

* Based on ABA §1019, Outdoor Developed Area facilities may be exempted for several reasons, including: Compliance is not feasible due to terrain or prevailing construction practices; conflict with purpose of facility or setting; conflict with a Federal, State, or local law such as the Endangered Species Act, National Environmental Policy Act, National Historic Preservation Act, or the Wilderness Act.

** Additional exceptions to ABA §1019 apply to an entire trail as identified in §1017.1

Crime Prevention Through Environmental Design (CPTED)

Entrance to the public Lisa & Douglas Golman Tennis Center in Golden Gate Park, San Francisco

Crime Prevention Through Environmental Design or CPTED (pronounced sep-ted) refers to using the design of a physical environment to discourage crime and mitigate the fear of crime. A physical environment could be a building, park, street, trail, transit center, etc. CPTED is a complex process at the intersection of policing, law, planning, and design. To use CPTED, the designer must use data and critical analysis, including post-implementation analysis to fix adverse outcomes.

The original CPTED concepts as developed in the 1970s and 1980s, includes access control, natural surveillance, territoriality, and physical condition (maintenance and management). By the 1990s, many community-minded scholars and individuals became concerned that the original CPTED concepts were having unintended consequences and developed a second generation of CPTED standards focused on the social and community factors of crime and fear of crime. The second generation adds concepts such as connectivity and culture. A third generation is currently beginning to gain attention with a broader, community-wide focus.

CPTED Tactics Related to Trail Design

Key CPTED concepts (of all generations) that apply to trail design include:

Natural Surveillance — Design trails to maximize visibility and increase the sense of security. This includes visibility of trail users from off of the trail, visibility of other trail users (reduce blind corners), and visibility from the trail to off of the trail. This can be accomplished through ensuring landscaping, fences, and walls do not obscure views and/or through night-time lighting.

Maintenance — Keep spaces clean with routine maintenance (mow grass, trim trees, pick up trash, remove graffiti, clean public restrooms, repair broken objects (light fixtures, benches, fencing, etc.) to provide visual indication that the space is cared for.

Territoriality — Provide a clear indication of transitions from public to private space through use of physical or symbolic barriers. Physical barriers include "target hardening" such as walls, fencing, bollards, locks, cameras, and alarms. Symbolic barriers include soft access prevention such as landscaping, change in surface materials, and signage.

Social Cohesion — Develop volunteer programs that provide social, community, and personal connections to the space. Trail ambassador programs are one way to accomplish social cohesion while also providing maintenance and management functions.

Excessive use of bollards reduces access to a trail and increases visual clutter potential hazards.

Connectivity — Provide ample trail entrances and connections to other trails and transportation networks. Long stretches of isolated trails can feel less safe and are also less useful to trail users.

Activity Support — Encourage a variety of trail uses by people of different ages and backgrounds throughout the day. Design for multiple user types and welcome organized events. Multiple layers of activities (such as walking, biking, wildlife viewing, dog walking, reading, eating, interpretive installations, and use of playgrounds) provide multiple opportunities to develop social cohesion and natural surveillance.

The Unintended Consequences and Failures of CPTED

While the implementation of CPTED concepts can be beneficial for a community, some CPTED practices that result in a significant reduction in quality of life for the community include:

- **Exclusionary Design** – Exclusionary design methods privilege some groups while discouraging others from using public spaces. One example of exclusionary design is making neighborhoods difficult to access by foot, bike, or public transport and thus limiting access to those who can afford private transport. An admirable attempt at discouraging crime should not become an excuse for discouraging use of public space by specific groups.
- **Extreme Target Hardening** – These strategies significantly increase the difficulty and risks of committing a crime; however, increasing levels of security restrict access to public space. On a small scale, CPTED interventions can discourage "undesirable" behaviors that are not crimes. For example, benches with dividers or water sprinklers intended to discourage sleeping or lingering also reduce access to these public spaces.
- **Overfortification** – Extreme target hardening can create an overfortified environment that can generate fear and cause residents to avoid these overfortified public spaces. Overfortification sends the message that this place is unsafe and is a magnet for crime.

Training

CPTED training is offered by several organizations, including the National Institute of Crime Prevention (NICP), which focuses on "first generation" CPTED. The International CPTED Association (ICA) offers listing of ICA accredited courses focused on "second generation" CPTED. Either training may be useful for City staff, including project design and maintenance staff, as well as trail ambassadors.

8 Trail Improvement Recommendations

Trail Improvement Recommendations

Fremont's already extensive trail network can be made even better with targeted improvements. This chapter outlines a menu of nine common improvements that can help increase connectivity and access to existing trails. These improvements are grouped into typical sets of recommendations, as illustrated in the second part of this chapter. The improvements focus on access points, intersections, and crossings — areas where changes in trail design can dramatically change the comfort and safety of the trail experience — and how to make the corridor work within the road network.

Over 300 existing and proposed trail access points were reviewed to develop a menu of nine typical improvements, as shown on the **Improvements Types**, below, and described on the next pages.

Most of these improvements are frequently recommended together. Typical groups of improvements are listed in the **Recommendation Types**, below, and illustrated later in this chapter.

For existing trails and trails that are not already in design, **Appendix A** of the Trails Strategy Plan recommends access improvements or widening/ user separation in specific locations.

Improvement Types

1. Add/Relocate Sign
2. Add/Extend Ramp
3. Add Connecting Trail
4. Modify Gate
5. Remove/Relocate Bollard
6. Add Bike Lane Access
7. Add Trail Crossing

Recommendation Types

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barriers

East Bay Greenway Access from High Street and Farallon Common

Trail Improvement Types

1 Add/Relocate Sign

Well-placed signs increase trail safety by increasing the visibility of the trail, particularly at road crossings. Moreover, signs improve trail users' understanding of their location on the trail in the case of an incident, and thus reduce emergency response time. Signs are one of the most cost-effective ways to improve a trail system access and navigation.

This improvement type recommends relocating poorly located signs, adding trail junction signs at every roadway and junction, and adding orientation maps where appropriate. Signs should be clearly visible and placed with at least a 2-foot horizontal clearance from the trail to allow for a safe user experience.

Directional signs, Ohlone Greenway, Albany, CA

2 Add/Expand Curb Ramp

Curb ramps make trails accessible to people with mobility impairments and allow bicyclists to access the trail without getting off their bicycle.

At many locations in Fremont trails meet roadways with sidewalks and curbs, but no ramp. Adding or widening curb ramps is recommended in locations where there is no existing ramp and where the existing ramp does not provide adequate trail access.

Curb ramps must meet all current accessibility guidelines for slope, width, and surfaces.

This improvement is recommended whenever a trail intersects with a roadway without a curb ramp.

Curb ramp, Ohlone Greenway, Berkeley, CA

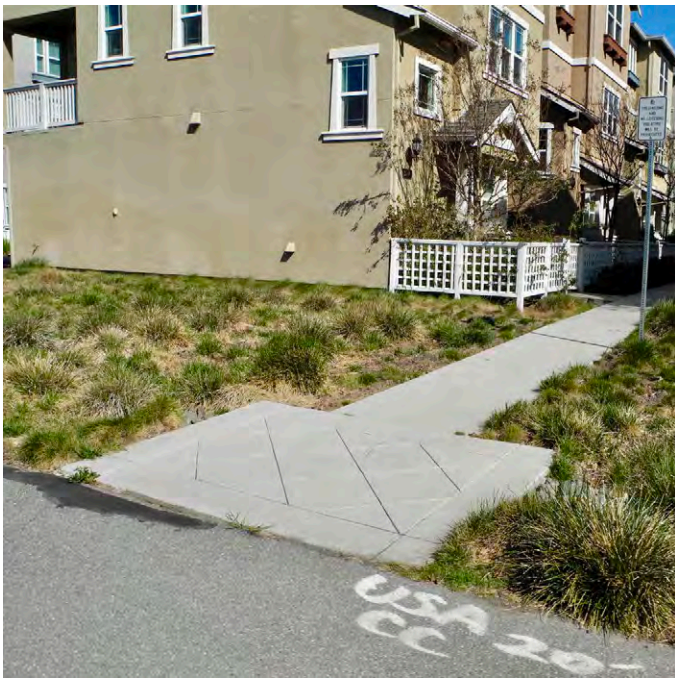
3 Add Connecting Trail

Well-defined trail connections improve accessibility for limited mobility users, increase trail visibility and trail use, and limit erosion where dirt trails have been worn on steep slopes.

Adding a trail connection typically requires building a short trail segment, typically less than 100 feet, that will significantly improve safe access to the trail.

The width and surface of a trail connection should match the connecting trail. Generally, the slope should not exceed 5%. However, in extremely constrained areas, the slope of the trail could reach 8.33%, with 5-foot wide level landing areas at every 30 feet. Depending on the context, these connections may need to meet the requirements of an access ramp, including handrails.

This improvement is recommended whenever adjacent uses suggest a connection would be beneficial. In many cases, informal paths have been worn where such connections should be placed.



Neighborhood access to East Bay Greenway

4 Modify Gate

Gate modifications facilitate bicycle access and reduce barriers for people with disabilities who use trails. Gates with trail maps and gate numbers will improve wayfinding.

Gates should have a 5-foot minimum clearance when open so that bicyclists do not need to dismount their bike out of concern that they could collide with the gate. There should be ample sightlines and visibility when approaching the gate.

Trail entry barriers are discussed further in the **Traffic Controls and Warning Beacons** section.

This improvement is recommended wherever a the gate leaves less than five feet of clearance within the main trail footprint.

Access gate, Alameda Creek Trail, Alvarado Boulevard near Lowry Road

5 Remove/Relocate Bollards

Removing bollards reduces the likelihood and risk of serious crashes and allows for a free flow of bicyclists. Bollards are typically used to keep cars off trails, but often are installed in such a way that increases the risk of serious crashes for bicyclists (and sometimes runners).

Bollards should be removed or relocated when they are placed less than five feet from each other. Bollards may be replaced with divided trail entries or entirely removed where there is no known history of vehicular encroachment.

Trails need to provide access for maintenance vehicles, which could be a separate gate if the divided entry prevents vehicle access.

Trail entry barriers are discussed further in the **Traffic Controls and Warning Beacons** section.

This improvement type is recommended wherever bollards leave less than five feet of clearance.

Divided trail entry access - alternative to bollards (Toole Design)

6 Add Bike Lane Access

Improved bike lane access to and from trails increases the overall trail network and on-street bicycle and pedestrian network connectivity. Sometimes trails cross roadways with existing bike facilities, but there is no convenient way to access the on-street bike facility from the trail.

This improvement is recommended at any location where a trail crosses or comes close to a roadway with a bike lane.

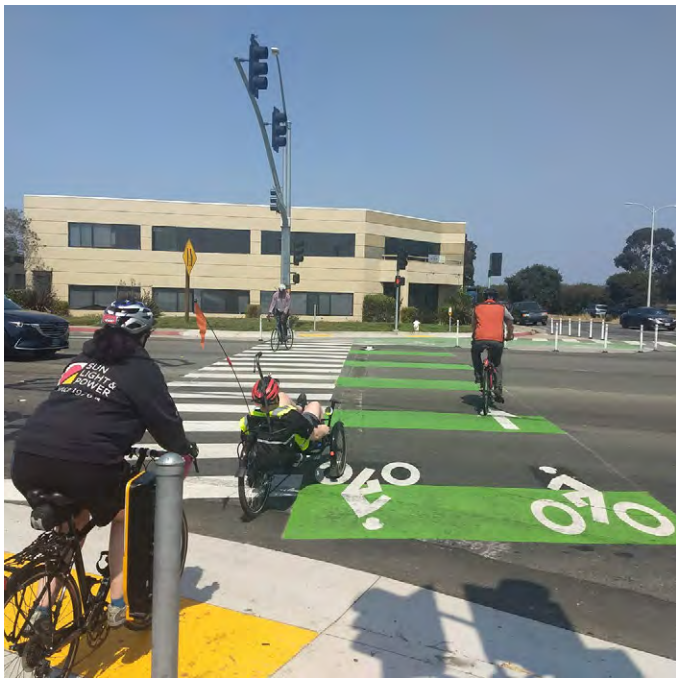
Bike to street access (Toole Design)

7 Add Trail Street Crossing

Safe and comfortable crossings of streets and rail lines are extremely important for a trail network that is well-integrated with streets.

The **Street and Rail Crossings** section provides specific recommendations for different types of crossings.

This improvement is recommended wherever a trail crossing is absent or does not meet current recommendations.



San Francisco Bay Trail crossing, Richmond

Trail and Transit Integration along Crissy Field, San Francisco

Bicycle and Pedestrian Bridge, Marin County

Trail Recommendation Types

The following section illustrates four typical configurations of improvement types that are recommended along trail corridors. The fifth type ("other") is referenced in locations that require very site-specific recommendations or multiple recommendations. These recommendation types (A-E) referenced on the trail corridor maps in **Appendix A, Trail Corridors** along with written call-outs for any site-specific recommendations.

Recommendation Types

- A Other
- B Add Trail Connection
- C Add Ramp
- D Add Road Crossing
- E Remove Trail Entry Barrier

A Other

Recommended improvements at "other" locations may include a combination of Recommendation Types. Or they may include site-specific recommendations not required elsewhere. Where referenced on the trail corridor maps, this Recommendation Type will be accompanied by a call-out with more information.

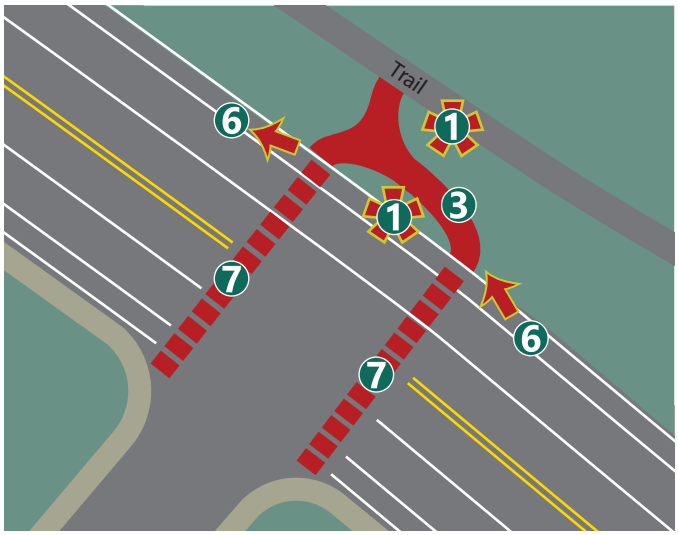
Cal Park Hill Pathway, Bicycle and Pedestrian Bridge, Marin County

B Add Trail Connection

1. Add/Relocate Sign
3. Add Trail Connection
6. Add Bike Lane Access
7. Add Trail Crossing

This collection of improvements may include adding signage, bike lane access, and a safe street crossing, in addition to a short trail connection. It is particularly common where levee trails run parallel to roadways. The trail connection may be a short, direct connection or a longer connection to decrease the grade of a connection with a steep slope.

Sidewalk- or park-to-levee trail connection

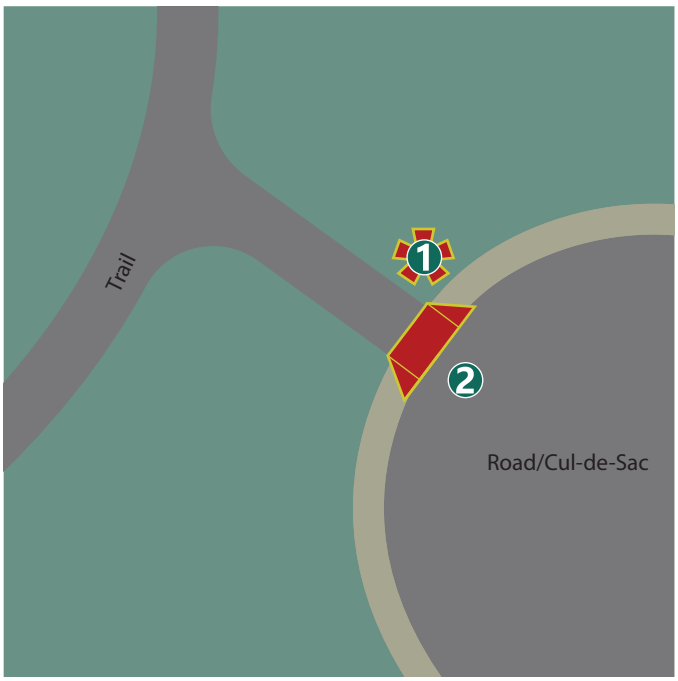


Roadway crossing and trail connection

C Add/Widen Ramp

1. Add/Relocate Sign
2. Add/Extend Ramp

This collection of improvements includes adding a curb ramp (or widening a ramp that is too narrow to easily navigate with a bicycle) and trail signage. It is most commonly used at the end of cul-de-sacs, where a trail already connects to the roadway but curbs and lack of signage make finding and accessing the trail difficult. It is also recommended in some places where the trail runs parallel to the roadway. In those cases, a marked crosswalk should be added as well.



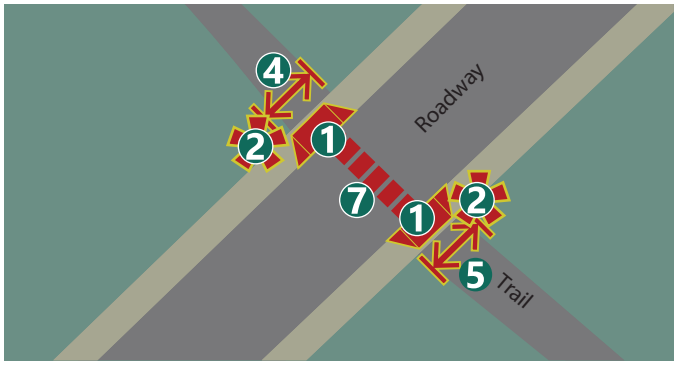
D Add/Improve Crossing

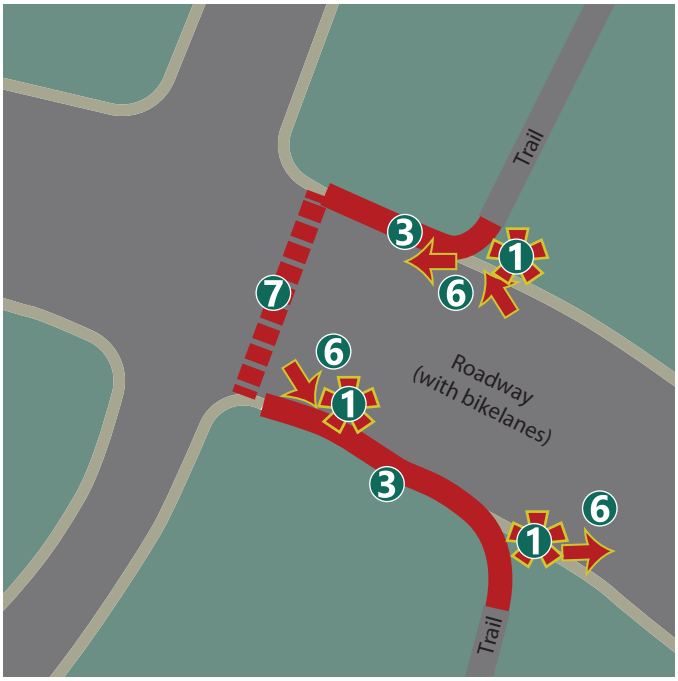
1. Add/Relocate Sign
2. Add/Extend Ramp
4. Modify Gate
5. Remove/Relocate Bollard
7. Add Trail Crossing

This collection of improvements is centered around continuing a trail across a roadway where no formal crossing exists or where the existing crossing is insufficient. Roadway crossings may take advantage of a nearby existing intersection by routing the trail to the intersection. The crossing may also go directly across the roadway in the middle of a block, away from the intersections. Such mid-block crossings are useful when routing the trail to an intersection is not feasible.

Roadway crossings are discussed in the **Street and Rail Crossings** section.

Regardless of the configuration, road crossings must include street name signage visible to trail users and trail name signage visible to roadway users. The crossing should also limit barriers for trail users, such as curb ramps and unnecessary gates and bollards.





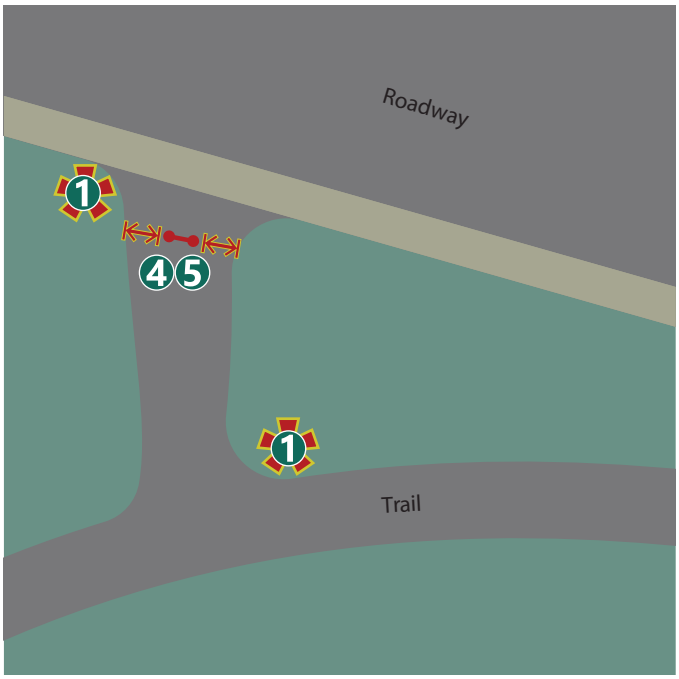
Typical intersection-adjacent crossing

E Remove Trail Entry Barrier

1. Add/Relocate Sign
4. Modify Gate
5. Remove/Relocate Bollard

This collection of improvements includes removing or relocating gates and bollards where they are unnecessary or placed such that they present a hazard or barrier to trail users. Any signs within the trail footprint or not visible to trail users should also be relocated. Signs at trail access junctions should be added.

Trail entry barriers are discussed further in the **Traffic Controls and Warning Beacons** section.



Street and Rail Crossings

A vital and often overlooked aspect of exceptional trail systems are smooth transitions and connections from on-street bike routes and sidewalks to trails, and safe crossings of streets and railroads for all trail users. This section provides design guidance for effective connections, crossings, and transitions between different trail typologies or facilities.

Street Crossings

It is important to provide a safe and direct street crossing for trail users. Indirect crossings encourage trail users to take potentially dangerous shortcuts or avoid the trail altogether.

A carefully designed crossing increases safety and comfort for trail users and vehicle drivers. The design of street crossings should consider the number of lanes crossed, vehicle speeds, vehicle types (heavy truck traffic, light passenger cars, etc.), lane widths, sight lines, curb radii, and crossing distances.

The trail approach to the crossing should communicate that a crossing is forthcoming with visual and physical cues such as surface material changes, curves, trail widening, and more.

Cal Park Pathway street crossing, Marin County

Mission Creek Trail Crossing at Driscoll Road

Existing Street Crossing Challenges

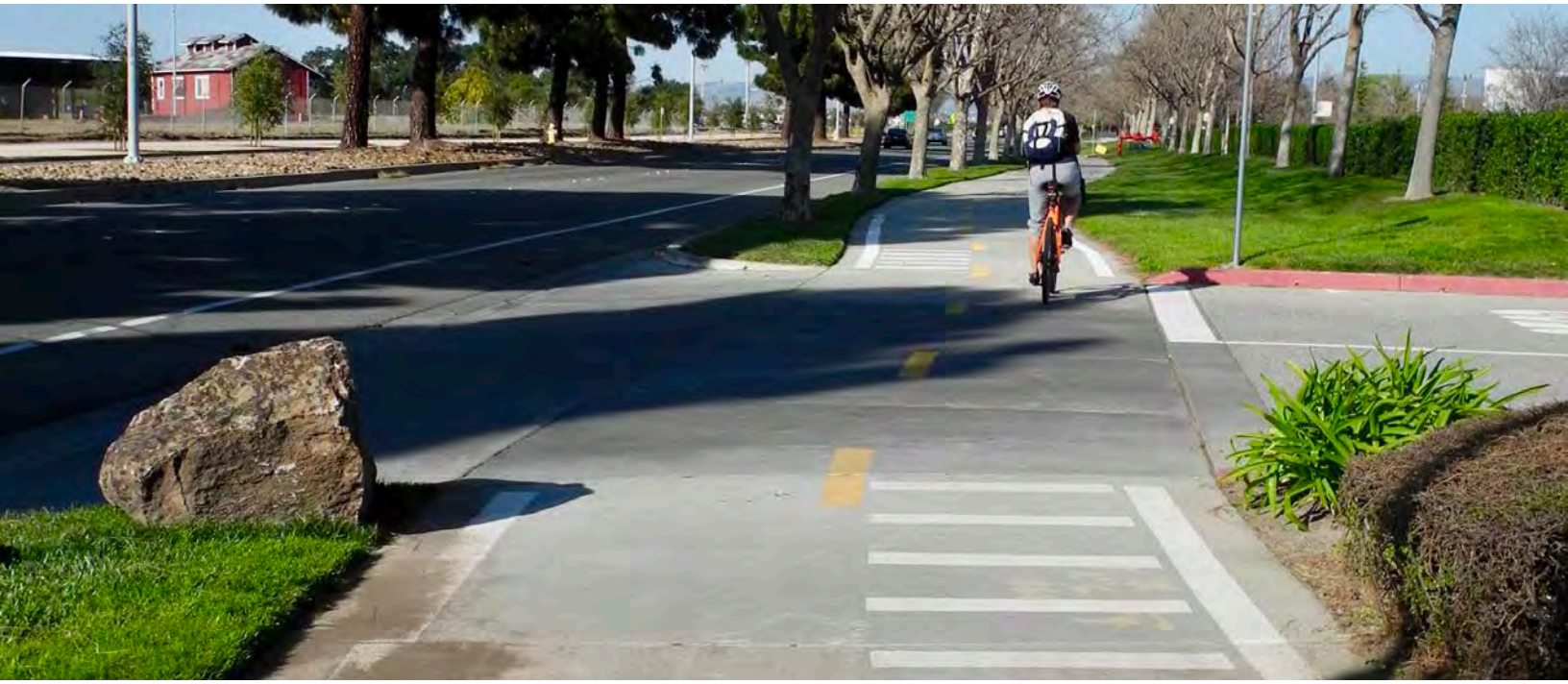
In Fremont, street crossings associated with trails include trails that cross streets as well as streets that need to be crossed to access trails. Many trails in Fremont are along corridors with limited street crossings (levees and rail corridors), reducing the need for at-grade street crossings.

In residential neighborhoods, trails that cross streets mid-block typically end at a sidewalk that does not include curb ramps, marked crosswalks, or other elements to increase safety or make trail access easier. In many cases trails that approach a street mid-block require a detour to an existing crosswalk or a signalized intersection. If the detour is too long or too complicated, trail users may attempt a direct, more challenging connection.

Another challenge is that street connections often do not meet current trail design standards or guidelines, such as width, setback, turn radii, and clearance. This creates confusion and challenges when connecting to the trail.

Driveway Crossings

Driveways are also a point of conflict between trail users and vehicles. Where vehicle volumes are high, such as at shopping center entrances, driveway crossings should be treated as a low-volume street crossings. Warning signs, bright colors, or tactile warning strips are appropriate to warn drivers and trail users. Warning signs or control devices may also be appropriate.



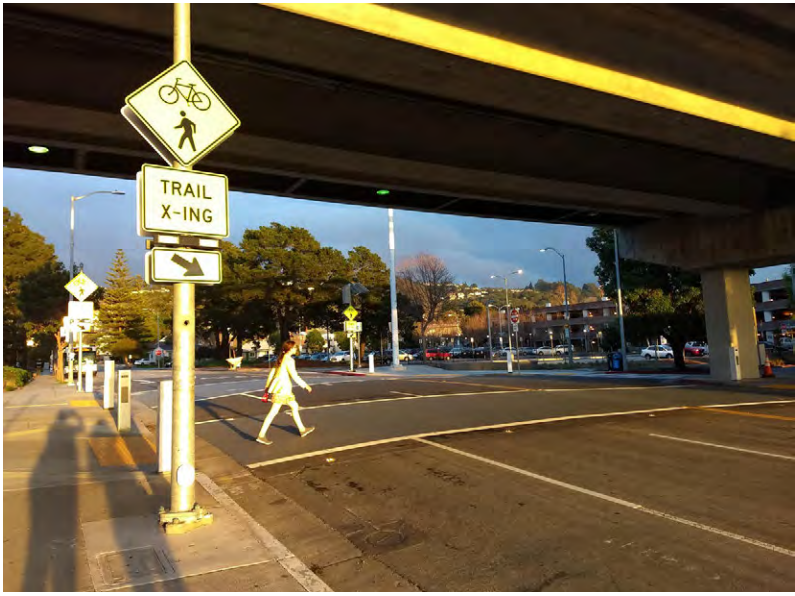
Pathway with driveway crossing, Fremont

Traffic Controls and Warning Beacons

Traffic controls are not always required at intersections, including trail and street intersections, but should be implemented based on engineering judgment, user volumes, approach speeds, sight distances, and crashes.

On-trail traffic controls often stop trail users, even when stopping is unnecessary or inappropriate. The national Manual of Uniform Traffic Devices (MUTCD) (Sec. 2B.06) recommends that the least restrictive control that is effective be used (Sec. 9B.03). In many cases, paint markings or warning signage are sufficient.

At locations where yield or stop signs are appropriate, either motorized vehicles or trail users will be required to yield/stop. The MUTCD provides guidance stating: "Speed should not be the sole factor used to determine priority, as it is sometimes appropriate to give priority to a high-volume shared-use path crossing a low-volume street, or to a regional shared-use path crossing a minor collector street." (Sec. 9b.03)



RRFB on Ohlone Greenway crossing, El Cerrito

Other considerations in the MUTCD include: relative speeds of shared-use path and roadway users, relative volumes of shared-use path and roadway traffic, and relative importance of shared-use path and roadway.

Where trails are used by bicyclists and on-trail traffic control is deemed appropriate, the use of yield signs allows users to maintain momentum and may result in better compliance.

Table 8-1. Traffic Control Types and Features

	Description	When to Use	Benefit/Impacts
Traffic Signal	Visual signal to control the flow of traffic and let pedestrians/bicyclists know when to cross the street	At intersections with high volumes of pedestrians, bicyclists, and vehicles (locations with high speeds, multi-lanes, and satisfies 2014 CA MUTCD Traffic Signal Warrants)	Clearly communicates right-of-way; however, may increase delays on other approaches
Pedestrian Hybrid Beacon	Overhead beacon using red and amber lights to warn vehicles of pedestrians and bicyclists; requires vehicles to stop (not lit when not in use)	At unprotected crossings where safety measures are necessary (locations with high volumes, speeds, multi-lanes and per 2014 CA MUTCD)	Significant safety benefits, less expensive than traffic signal and may not impede movement as heavily as traffic signal
Rectangular Rapid Flashing Beacon (RRFB)	Rapidly flashing beacon that warns drivers of pedestrian and bicycle presence; requires vehicles to yield	At unprotected crossings where safety measures are necessary (generally lower speed, lower volume streets with bike and pedestrian crossing trip demands)	Significant safety benefits, less expensive, and may not impede movement as heavily as signal

Recommended Street Crossing Types

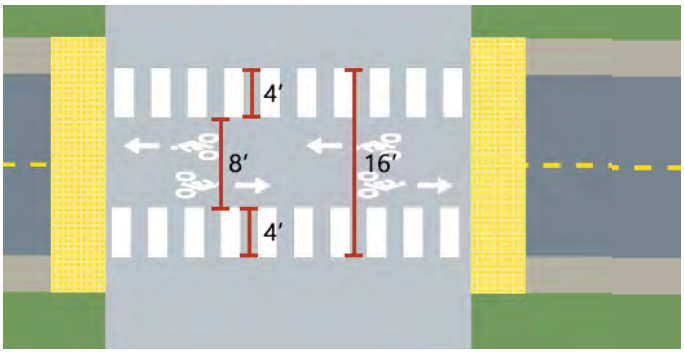
There are four recommended trail crossing types for Fremont. Each of them is recommended to include "crossbike" markings, clarifying that bicycle riders are allowed to use the crossing.

Type A: Basic Signed and Striped Crossings

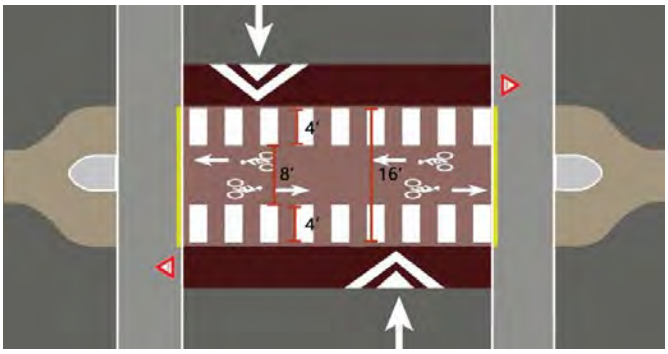
These are the default style crossing and most commonly installed at lower volume, narrower, and/or lower speed streets.

Type B: Raised Crossings

These are crossings located on a raised surface that increases visibility and acts as a speed bump for motor vehicles. They are also called "speed tables." They are normally installed on low volume streets where speeds are posted at 30 MPH or less, but that have higher volume vehicle and trail traffic.



Signed and Striped Bike and Pedestrian Crossing



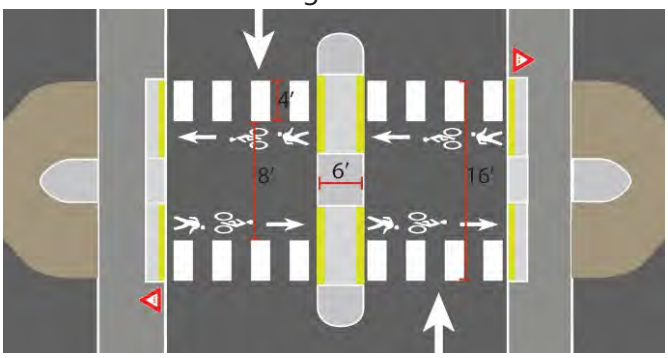
Raised Bike/Pedestrian Crossing

Signed and striped trail crossing, Ohlone Greenway, Berkeley

Raised crosswalk, Seattle, WA (Seattle Neighborhood Greenways)

Type C:
Median Refuge Island

A refuge island in the center of the crossing allows safer and more comfortable crossings. This is particularly helpful for multi-lane roads, but also helpful for a busy street. Ideally there is a level crossing in the median that is angled toward the traffic direction to slow bicyclists and allow them a better view of oncoming traffic.

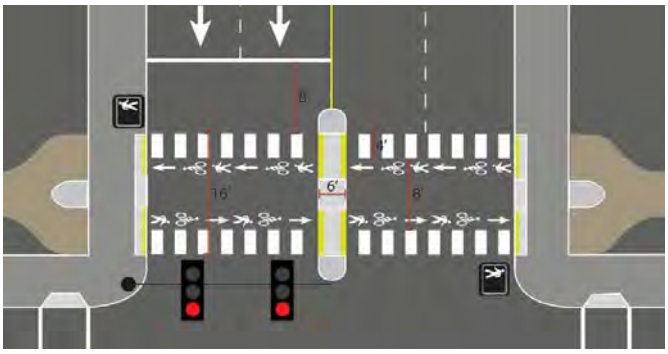


Bike and Pedestrian Crossing with Median island

Median Refuge Island - Bellevue, WA (www.pedbikeimages.org - Dan Burden)

Type D:
Signalized Crossings

Signalized crossings are normally reserved for arterial crossings and often serve the dual purpose of assigning vehicle and trail user access. Some signalized locations may serve just the trail.



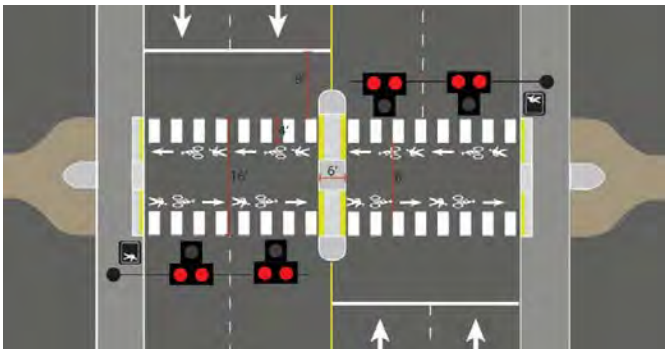
Direct Bike/Pedestrian Crossing at Signalized Intersection with Median island

Stanley Boulevard Bicycle and Pedestrian Crossing, Pleasanton

Type D:
Pedestrian Hybrid Beacon (PHB) Crossings

These are commonly installed at mid-block crossings on roadways with higher Average Daily Traffic (ADT), and/or multiple lanes. PHBs enhance the safety of the trail crossing by stopping traffic, while maintaining vehicular traffic flow when there are no trail users.

City of Fremont has installed two (PHBs) at Mowry/ Waterside Circle/Vancouver Common and Fremont Boulevard/Norris Road intersections near transit and schools.



Bike/Pedestrian Crossing with Pedestrian Hybrid Beacon (PHB) and Median island

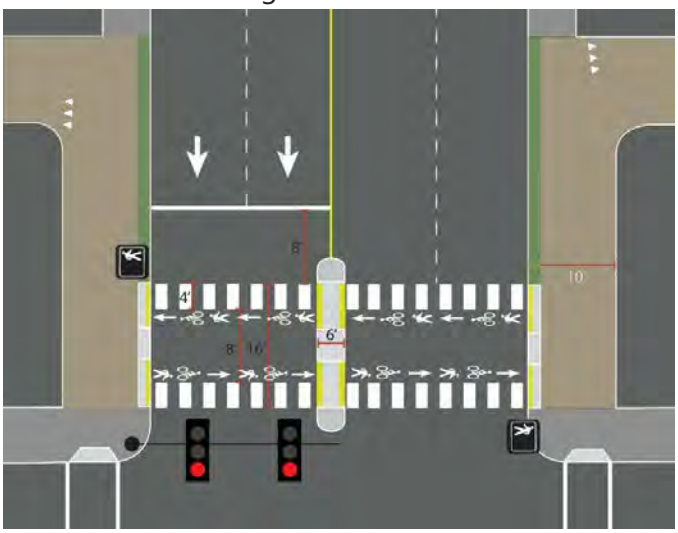
Above: Mowry and Waterside Circle Pedestrian Hybrid Beacon (PHB) (City of Fremont)

Left: Typical PHB Sequence

Type E:
Trail Intersection Connection

Trail crossings located close to a major intersection can consolidate crossing controls with the existing crosswalk and/or bike lane crossings. A path or sidewalk at least 10 feet wide would be appropriate to connect the trail to the intersection. Ideally it should be configured like the trail it connects to; with separate facilities for bicycles and pedestrians if possible.

All other crossings would be considered "mid-block" crossings and would require their own crossing controls and markings



Bike/Pedestrian Crossing with Trail Connection to Signalized Intersection and Median Island

Railroad Crossings

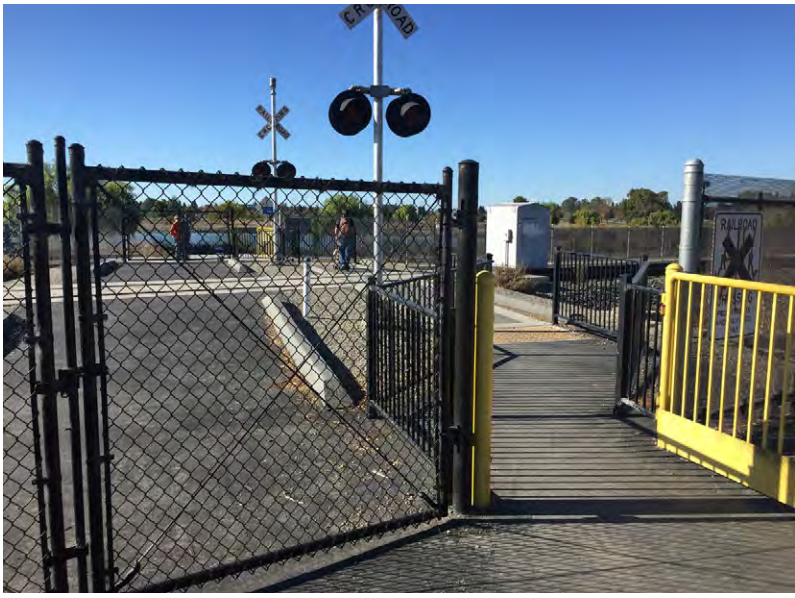
Where a trail must cross rail lines, whether an active or inactive line, attention must be paid to the design of the crossing. Railroad crossings by any transportation facility (road or trail) are overseen by the California Public Utilities Commission (PUC).

To reduce rail-related fatalities, the PUC has strict guidelines on new rail crossings. A bridge or tunnel is preferred. However, where at-grade crossings are allowed, significant safety measures must be included. These may consist of signals (flashing red lights, a crossbuck, and bell attached to a mast) and a gate which is lowered when a train is passing. For a new public crossing of a rail line the requisite studies, permits, coordination, and construction/installation of these safety measures are expensive (typically on the order of $1 million per railroad crossing location).

The primary hazard for trail users on a rail crossing is a bicycle wheel (or scooter, skate, or wheelchair wheel) being caught in the recessed rails, particularly if the rails are at a steep angle to the trail. The preferred design is a 90-degree crossing, which reduces the likelihood of wheels getting caught and increases visibility for both the trail users and train operators. Where the trail is not perpendicular to the tracks, prior to the crossing the trail alignment should be designed with gradual turns allowing the trail to cross the tracks at 90 degrees.

East Bay Greenway crossing near Lake Elizabeth

Angled railroad crossing, Napa Valley Vine Trail



Pedestrian/Bike railroad crossing, Fremont

9 Trailside Elements

Trailside Elements

Many trailside elements contribute to a well-used trail. Some are essential, such as trail signs, and others are helpful, but not required, such as bicycle parking or picnic tables. This section includes a description of various trailside elements, including best practices and recommendations for their application in Fremont.

Trails in Fremont often include trash receptacles, lighting, restrooms, drinking fountains, picnic tables, benches, and bicycle parking. They are installed and maintained by a variety of entities including private property owners, the City, and EBRPD, and utility agencies. They range in style, quality, and level of maintenance. For example, most lighting on trails connected to private development is unique to the neighborhood. On the Alameda Creek Trail, benches near Union City are concrete while benches near Coyote Hills Regional Park are wooden. The most standard design of trailside elements in Fremont can be found in city-owned parks.

Pacific Commons Trail Rest Area, Fremont

Trailside Element Installation Policies

Trailside elements can add significant value to trails and trail users, but vary widely in cost and complexity of installation and maintenance. The City needs to evaluate proposed elements against the following policies before installation of a new element or significant renovation of existing elements:

1. Ensure Ongoing Maintenance — New trailside elements shall only be installed if 1) a party has been identified to accept responsibility for long-term maintenance and 2) funding for long-term maintenance has been identified.

2. Prioritize Context — New trailside elements shall be appropriate for the trail context and typology, with Regional Trails receiving the most trailside elements.

3. Prioritize Park Locations — New trailside elements shall be concentrated within existing parks whenever feasible.

4. Prioritize Low Frequency Maintenance — New trailside elements that require infrequent maintenance, such as bicycle parking and signage, shall be prioritized over elements requiring frequent attention, such as trash receptacles.

Trailside Element Location Best Practices

The design and placement of trailside elements is important to their functionality and for trail safety. Fixed objects adjacent to a trail can be a hazard to trail users. They should be located a minimum of two feet clear of the trail shoulder. Fixed objects can also be reflectorized for enhanced visibility at night. Elements that are intended to encourage trail users to linger, such as an interpretive sign or a bench, should be located further from the trail to allow the users to remain fully off the trail and not interfere with trail traffic.

Elements should also be located where they are most likely to be expected by and useful to trail users. For example, bicycle parking is most useful when placed next to a destination or feature.

The table below shows potential locations and priorities for trailside elements.

Bench placed away from trail, Oyster Bay Regional Shoreline, San Leandro

Table 9-1. Locations and Priorities for Trailside Elements

	Location			
	Trailhead / Staging Area	Trail Access Point	Trailside	Trail-Adjacent Parks
Signage & Wayfinding				
Trailhead Kiosk	●	◌	–	◌
Trailhead Signs	●	●	●	●
Trail Sign Posts	●	●	●	●
Lighting	●	◌	◌	◌
Benches	●	◌	●	●
Picnic Tables	◌	–	◌	●
Bicycle Parking	●	◌	–	●
Bicycle Repair Station	●	–	◌	◌
Fencing	●	●	◌	◌
Gates	●	◌	◌	◌
Waste Receptacles	●	●	◌	●
Drinking Fountains	●	◌	◌	●
Shade Trees	●	◌	●	●
Restrooms	–	–	–	●

● *Element typically recommended at this location*

◌ *Element sometimes recommended at this location*

– *Element not typically recommended at this location*

Trailside Element Types

Signage and Wayfinding

A strong signage and wayfinding system makes the trail network knowable and usable. It also supports emergency response and trail maintenance activities, and can provide information about trail conditions. Signage and wayfinding is one of the most cost-effective upgrades for a trail network, but it must be done thoughtfully and systematically to maximize the benefits and avoid visual clutter and confusion.

All trail signage should be clear, visible, and relevant to all trail users.

A signage system may include:

- City-wide and corridor-specific maps
- Park and staging area identification monument signs
- Trailhead regulatory and information signs
- On-trail junction, confirmation, and mile marker signs or posts
- On-trail roadway name and warning signs
- On-road trail crossing names and warning signs
- On-street directional and guide signs to trailheads

Sabercat Historical Park trailhead sign

Maps

Fremont has a bikeway map that includes trail routes. Development of a city-wide trail-focused map and brochure that emphasizes off-street routes and major connecting on-street routes is recommended. Trail corridor-specific maps and brochures would also be useful for encouraging exploration of the longer corridors. Both city-wide and corridor-specific maps can be included on trailhead information kiosks.

Regulatory and Informational Signs

Regulatory and informational signs should be placed at every trail access point. Designed to be simple and clear, regulatory signs should convey only the most important information: who and what is allowed on the trail and how to get help.

Location Signs

All trails should be consistently identified by name at every junction to help users orient themselves within the community. This can be done with simple trail posts, monument signs, or street-name-style signs. Where trail posts are used at trailheads, the posts can efficiently provide context-appropriate location information: trail name visible upon entry, road name visible upon exit.

Additionally, every street crossing should be clearly identified for trail users. This can be accomplished with trail-side street signs or trail posts. Where trails cross under roadways, street names can be posted on the bridge structure.

Finally, off-trail signs can be used to direct drivers, transit riders, pedestrians, and on-road bicycle riders to nearby trails. These signs increase the visibility of the trail network, encouraging use and increasing safety for trail users.

Lighting

Trail lighting can increase the safety and comfort of the trail at night by increasing the visibility of obstructions (fallen trees, debris, etc.), allowing users to avoid them, and illuminating trail users at roadway crossings to enhance their visibility to motor vehicles. It is recommended that trails that are expected to be used for transportation purposes by people commuting be lit to enhance trail user safety and increase trail use.

Trail lighting can either be connected into the existing city electrical grid, connected to a separate system (such as a solar array), or each fixture can be powered individually (with an individual solar panel for each fixture).

Lighting best practices include:

- Pedestrian scale (typically lower and closer together than roadway lighting)
- Placed at least two feet from the usable edge of the trail
- Focus on critical points, such as trail access points, roadway crossings, tunnels, and bridges, if lighting the entire trail is not feasible
- Maintain horizontal illumination levels of 0.5–2 foot candles (5–22 lux) and not be designed with very bright and very dark areas which make it more difficult for trail users to see
- Place lighting to avoid glare

Benches & Picnic Tables

Benches make trails more usable and comfortable by providing resting places. Picnic facilities may include benches, tables, waste receptacles, and, if necessary, an overhead shelter to protect trail users from weather. Picnic facilities encourage use of the trail by families and provide destination points for trail users looking to rest along the trail.

Benches may be located at trail access points, at regular intervals along the trail, and/or at points of interest along the trail. Picnic facilities may be more appropriate to trail-adjacent parks or larger staging areas.

Trailside lighting and benches along the Bay Trail in Jack London Square, Oakland

Bicycle Parking

Bike parking is an important trail feature that allows bicyclists to disembark and safely store their bicycle at their destination or while using the trail. It is particularly important to include bicycle parking near destinations (schools, shopping, playgrounds, and historic sites), at hiking trails (where bicycling is not allowed), and at meeting points/picnicking areas (where bicycles may be left for extended periods of time).

Generally, one bicycle parking space should be six feet long by two feet wide with at least seven feet of vertical clearance. Adequate clearance around a rack ensures that bicyclists have enough space to maneuver and lock their bikes, without obstructing adjacent activity. Bicycle racks should be long enough to allow the bicycle to rest on the rack and be locked to it in two places. The rack material (such as powder coated steel), thickness, and installation method should be substantial to deter theft.

Lake Elizabeth Bike Parking

Bicycle Repair Stations

Bicycle repair stations are small kiosks designed to offer a complete set of tools necessary for routine bicycle maintenance. Most include a bicycle rack, wrenches, screwdrivers, and a tire pump.

Providing bicyclists with a repair station to maintain and clean their bicycles helps to avoid accidents or breakdowns. Air pumps are particularly useful late at night when a rider is faced with a deflated tire.

Bike Repair Station, Tiburon Peninsula

Fencing & Gates

Fencing can protect trail users from danger, such as steep drop offs, or protect nearby features. Some fencing simply provides guidance to trail users, by creating a visual barrier or marking an entrance. Fencing over six feet can create a towering effect that feels overwhelming. Tall fencing on both sides of a trail can be even more uncomfortable because it creates a "canyon" effect. In all cases, fencing should be placed at least two feet clear of the trail.

Generally, gates (and bollards) should not be used to restrict access by motor vehicles at trail entrances.

This is discussed further in the **Traffic Controls and Warning Beacons** section of **Chapter 8, Trail Improvement Recommendations**.

Sabercat Historic Park Trail Fencing

Waste Receptacles

Easy access to waste receptacles can increase the cleanliness of the trail, reduce the amount of trail maintenance required, and increase the positive experience of trail users. Dog waste facilities should be placed at trailheads to support removal of dog waste and to provide bags for pet owners to use to collect their dogs' waste. All facilities should be located in places that are easily accessible to maintenance staff and/or vehicles.

Waste receptacle, San Francisco

Drinking Fountains

Drinking fountains often accompany full restrooms, but they can be installed at other locations where there is water service to support trail use, particularly on long trail corridors.

Drinking fountain, Pleasanton

Shade Trees

Well-placed shade trees along a trail can provide multiple benefits. The shade trees and plants can provide cooling in the summer. They also can provide visual relief in open landscapes and screening in more developed landscapes. Finally, they can provide habitat for wildlife. Trees can also help create a sense of space and movement when used in a linear manner, such as along a trail.

Restrooms

Restrooms are a highly requested trailside amenity. Since restrooms are only built in Community Parks, they are not addressed in this plan.

Mature trees shade the Alameda Creek Trail

10 Operations and Maintenance

Operations and Maintenance

This section addresses the requirements and costs of operating and maintaining trails. Trail maintenance is the process of keeping a trail and the surrounding environment in good condition to support trail use and to minimize deterioration or damage. Trail operations is managing and supporting trail use, including design and guidance features that support safe and comfortable trail use and help minimize trail conflicts.

Trail Operations and Maintenance Responsibilities

Fremont's existing trail network is maintained by a variety of entities, including the City, other public agencies, and private parties. This range of maintaining entities reflects differences in underlying corridor ownership and corridor environments. One example of this is the Alameda Creek Trail. The Alameda County Flood Control District (ACFC) owns the Alameda Creek Trail and maintains the channel, the levees and banks, the aggregate-surfaced access roads, and the fences and gates that serve the flood control functions. East Bay Regional Park District (EBRPD), however, maintains the trail, has paid for the paving and re-paving of the trail, and has constructed and maintained staging areas along the trail.

Trails within City parks or sidepaths along roadways are typically owned and maintained by the City. Trails in other locations may be funded and constructed by the City, or they may be built and/or maintained by developers as a condition of the development approval. Pacific Commons Linear Park, for example, includes an extension of the Bay Trail that is maintained by the private developer. Some private developers may also be required to maintain adjacent future trail segments

Different City Departments and Divisions may perform different aspects of trail maintenance. Fremont Community Services Department, for example, manages trails within parks and linear trail parks.

There may be an opportunity for volunteer or "friends of" groups, with coordination and oversight from the City, to perform some trail maintenance activities such as trash removal.

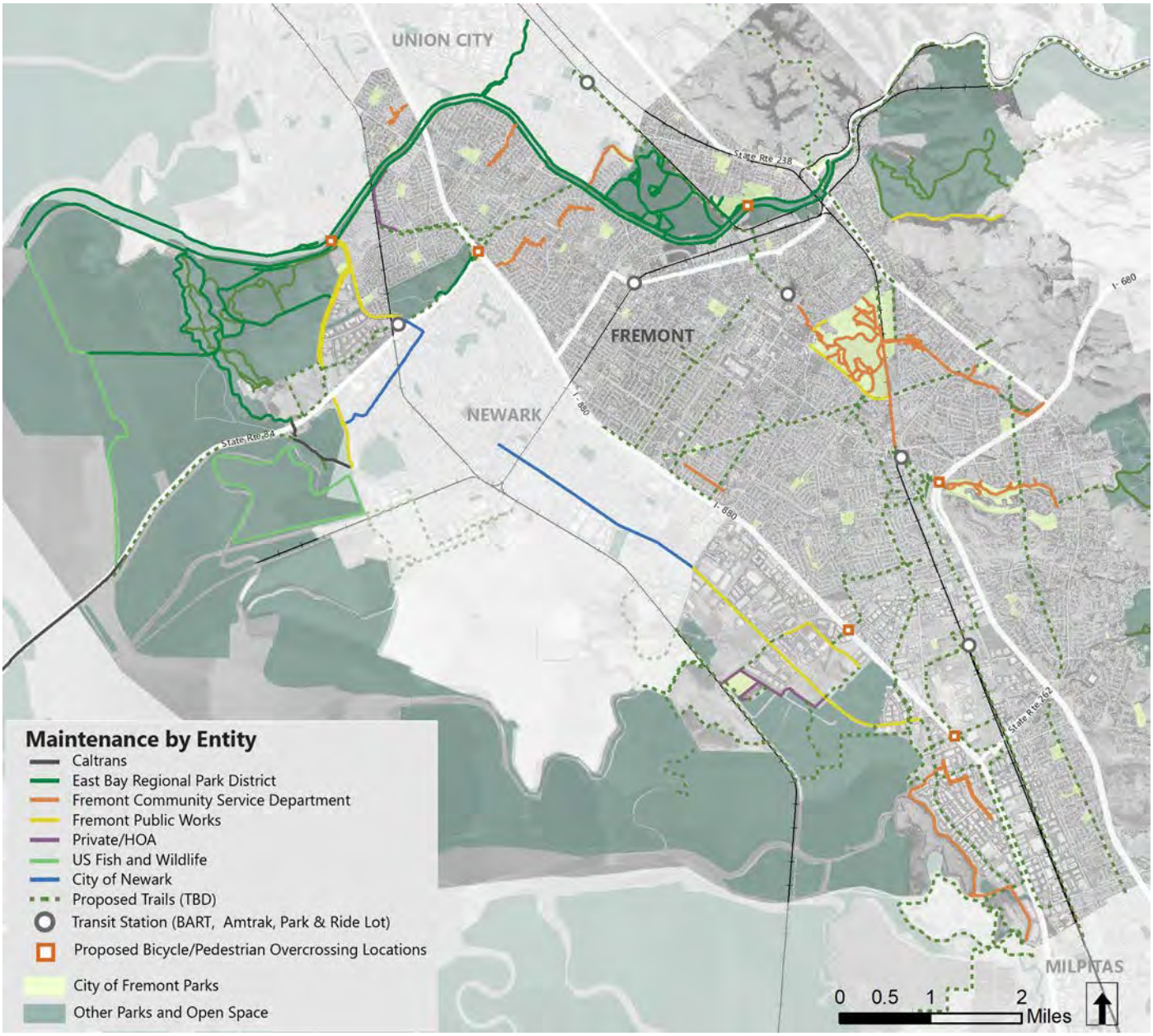
The **Maintenance by Entity map** shows the entities that currently maintain Fremont trails and marks the management and maintenance entities for proposed trails as yet to be determined.

Trail Maintenance Tasks

There is an interrelationship between the design of a trail facility and the level of maintenance required. For instance, trail facilities with many amenities and landscaping require more maintenance tasks than facilities with no amenities or landscaping.

Table 10-1 summarizes the required maintenance tasks, described in detail in **Appendix G, Operation and Maintenance Detail.** A Trail Operation and Maintenance Plan should be prepared to provide a more refined and specific task list and schedule for a comprehensive trail maintenance program.

Deteriorating pavement on the Sabercat Historic Park Trail



Existing Trails Maintenance by Entity

Trail Counts

As the trail network expands, it is recommended that the City develop a standardized count program for off-street trails. This will help communicate the value of trails to local residents and identity which types of trail investments attract more users. The City should also conduct trail counts before and after improvements, such as paving, crossing enhancements, and lighting, to help the City compare trail use before and after.

Volunteer Maintenance: Trail Ambassador Programs

Through a Trail Ambassador Program, local volunteers can help to monitor trail systems, encourage user compliance with rules and guidelines, and provide weekly reports on trail condition and issues. More information on volunteer maintenance opportunities is included in **Appendix G, Operation and Maintenance Detail**.

Trail Operation and Maintenance Cost Estimates per Mile

A planning-level estimated cost to maintain Fremont's entire proposed trail network was developed based on references from other agencies.

The cost per mile is organized into Low, Medium, and High estimates. **Appendix G, Operations and Maintenance Detail** includes estimated trail maintenance costs for all 24 corridors as well as more detail on the reference studies.

Based on the calculations, it is estimated that the annual maintenance costs for the entire existing and proposed trail network would be $3,293,920. This figure includes both routine maintenance and an annualized (pro-rated) estimate of capital maintenance (which may occur every 5-10 years). The figure also includes some overlap with existing street maintenance, as some corridors run along existing street rights-of-way. Because this includes the entire trail network, including trails that would be built and maintained by other agencies and organizations, the estimated cost for the City's portion maybe as little as one-third that cost.

Table 10-1. Trail Maintenance Task Timing

	Weekly	Monthly	Annually/ Seasonally	As-Needed
Routine Maintenance Tasks				
Trash Removal	x			
Blowing or Sweeping	x	x		
Inspection and Maintenance of Active Use Amenities		x		
Seasonal or Annual Maintenance Tasks				
Landscaping and Irrigation Inspection			x	
Clearing, Brushing, and Pruning			x	
Mowing, Trimming and Weed Abatement			x	
Pavement Inspection and Asphalt Crack Patching			x	
Replacing and Refreshing Signage and Striping			x	
Inspection and Maintenance of "Passive" Amenities			x	
As-Needed Maintenance Tasks				
Graffiti Removal				x
Lighting Inspection and Maintenance			x	x
Addressing of Homeless Encampments				x
Capital Maintenance Tasks				
Rehabilitation of Paved Trails				x
Maintenance and Repair of Aggregate Trails and Shoulders				x
Trailside Elements Major Repairs or Replacement				x
Special Maintenance Tasks				
Drainage Maintenance				x
Landscaping and Irrigation Maintenance				x
Bridge Inspection and Repair				x
Retaining Wall, Steps and Ramps Inspection and Repair				x
Invasive Species Removal/Reintroduction of Native Species				x

11 Priorities, Costs, and Funding

Priorities, Costs, and Funding

Trail projects are costly and take considerable time to complete. Therefore, trail projects were ranked in order of priority for the City of Fremont. This chapter establishes priorities for improving existing trail corridors and adding new ones, based on a set of criteria designed to reflect conditions, opportunities, and preferences in Fremont. Costs for the implementation of the trails are summarized in this chapter. **Appendix E, Prioritization Methodology**, and **Appendix F, Cost Estimate Details and Funding Sources**, provide more information about the prioritization and implementation process and funding opportunities.

Trail Project Types

Trail project corridors or segments of corridors are organized into three priority tiers, as described below and illustrated in the diagram on the next page. Where trail projects are divided into segments, to determine which segment is a higher priority, they are labeled by trail corridor number and by segment A or B.

Alameda Creek Trail Corridor

Regional and Other Trails Actively Under Development

Regional trail corridors in Fremont include the Bay Trail, the Dumbarton Bridge to Quarry Lakes Trail, the Niles Canyon Trail, and the East Bay Greenway. These trail corridors are already identified as priorities in county and regional plans, making them eligible for regional transportation funds. In addition, the City is already actively working on project development for a number of projects and segments of these corridors. For these reasons, they are not evaluated and are assumed to be a top tier of priority and are the backbone or core trails of the City Trail Network and Trails Strategy Plan.

Enhancements to Existing Trails

Some trail projects consist of enhancements to existing trails, particularly where online engagement resulted in high numbers of public requests for specific improvements. Enhancements vary by trail corridor but typically include new or improved access points, enhanced crossings, spot widening, surface repairs, adding signage/markings, adding wayfinding, and adding other amenities. Enhancements of existing trails are evaluated using the criteria described below.

New Trail Corridors

Some trail projects involve developing new trail segments or corridors that provide connections within or between different neighborhoods in Fremont. Proposed new local trail corridors are evaluated using the seven criteria described below.

Methodology for Evaluating Trails Strategy Projects

A total of seven criteria were identified to evaluate and prioritize trail projects. The first five criteria are considered trail benefits. The last two criteria are related to feasibility and practicality, including cost.

1. **Safety and Low-Stress**
   Whether or not the trail provides an alternative route to an on-street route with a high incidence of pedestrian and bicycle injuries or fatalities.
2. **Regional Connectivity and Key Destinations**
   Connectivity to regional transit, schools, parks, or commercial areas.
3. **Parallel Bikeways and Trails**
   Whether or not the trail corridor is adjacent and parallel to a major bicycle facility or another trail.
4. **Public Input**
   Number of supporting comments received.
5. **Facilitating Parks Access**
   Whether or not the trail improves park access for a neighborhood identified as park-deficient in the Parks Master Plan.
6. **Constructability/Complexity**
   Presence of potential construction barriers, such as significant slopes or right-of-way acquisition.
7. **Planning-Level Cost Estimates**
   Estimated cost per mile.

The scoring for each criterion was either high, medium, or low, as explained in **Appendix F, Cost Estimate Details and Funding Sources.**

Summary of Trail Priorities

Based on prior commitments and the total score, the corridors and segments are sorted into three tiers of projects:

Tier 1 — Trails Actively Under Development

Regional trail corridors actively under development are the top tier trail priorities and not subject to evaluation scoring due to prior commitments.

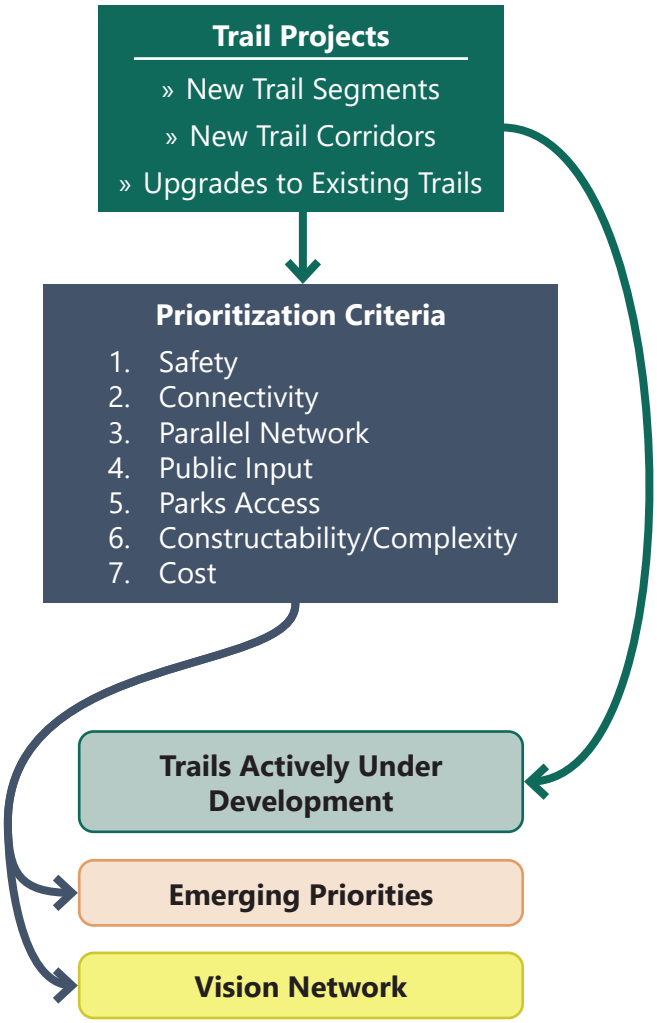
Tier 2 — Emerging Priorities

Priorities for City to implement within 5-10 years based on evaluation scoring.

Tier 3 — Vision Corridors

Corridors with an anticipated timeline for implementation of 10-30 years based on evaluation scoring.

Trail Prioritization Process Diagram



Trail Priority Tiers List

The following prioritized list shows the relative scores for the trail projects, or segments of trail projects (Tier 2 and 3), that are not already City of Fremont commitments (the Tier 1 priorities). The detailed scores are contained in **Appendix E, Prioritization Methodology**.

Tier 1 — Trails Actively Under Development

(existing commitments)

#2	Niles Canyon Trail
#3	San Francisco Bay Trail
#4	East Bay Greenway
#5	Dumbarton Bridge to Quarry Lakes Trail

Tier 2 — Emerging Priorities

(existing and proposed – priorities for implementation in 5 to 10 years)

New (Proposed) Trail Priorities

#10A	Hetch-Hetchy North-South Trail (I-680 to Milpitas)	score 10
#6B	Mission Creek Trail Gap Closure (Palm to Mission)	score 9
#19	Grimmer Greenway	score 8
#9	Hetch-Hetchy East-West Trail	score 8
#23	Pacific Commons Bicycle/Pedestrian Connection	score 8
#24	Kato Road Trail	score 8

Existing Trail Improvement Priorities

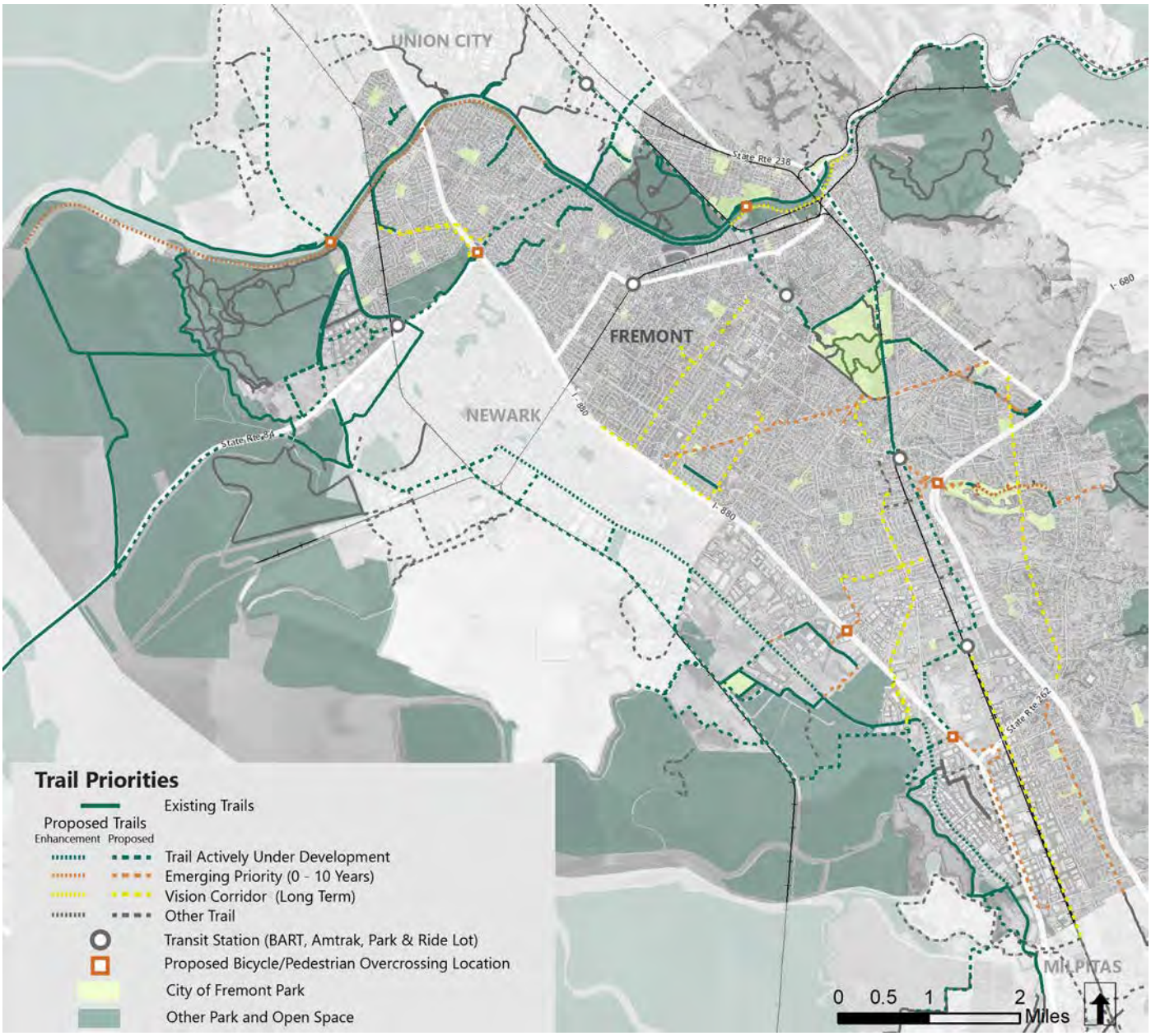
#1A	Alameda Creek Trail Enhancements (Ardenwood to Isherwood)	score 8
#6A	Mission Creek Trail Enhancements (Central Park to Palm)	score 8
#7	Sabercat Historical Park Trail Extension (I-680 Bridge) and Enhancements to Existing Trail and Extension Along Pine St.	score 8

Tier 3 — Vision Corridors

(long-term implementation priorities)

#8	Fremont Boulevard Channel Trail (ACFC Line Roberts to Cushing)	score 7
#12	Richmond Avenue Channel Trail (ACFC Line Stivers to I-880)	score 7
#14	Northgate Trail Enhancements	score 7
#15A	Ardenwood Path Enhancements (Alameda Creek Trail to Crandall Creek Trail)	score 7
#20	Irvington Neighborhood Trail (ACFC channel Paseo Padre Parkway to Lee Street)	score 7
#22	Warm Springs BART to Milpitas (via BART Corridor)	score 7
#1B	Alameda Creek Trail Enhancements (Isherwood to Niles Canyon)	score 6
#13	Brookvale, Cabrillo, and Patterson Park Trail Enhancements	score 6
#17	Lowry Neighborhood Park Trail Enhancements	score 6
#15B	Crandall Creek Trail (connects to existing Ardenwood Path)	score 6
#18	U-Channel Trail (ACFC Lines Argonaut to Bidwell)	score 6
#16	Farwell Linear Park Trail Enhancements	score 6
#10B	Hetch-Hetchy North-South Trail (Mission to I-680)	score 4
#11	PG&E Corridor and Channel Trail	score 2

Trail Priorities Map



The above map shows the relative priorities for improving exiting trails in Fremont, and adding new trails, based on the evaluation against the scoring criteria.

Trail Construction and Implementation Costs

The costs for design, permitting, environmental assessment, mitigation and construction, including administration and coordination of construction, are summarized in **Table 11-1**, and detailed in **Appendix F, Cost Estimate Details and Funding Sources**. Some projects are actively under study or design and have more detailed estimates than the planning-level estimates prepared for the Trails Strategy. These estimates were updated to 2021 rates. In some cases "soft costs" for design, environmental services, and construction administration were added as a percentage of construction cost.

Right of Way (ROW) acquisition costs were not specifically estimated, unless they were estimated in more detailed studies or plans. Most of the corridors are flood control or utility corridors which would not require ROW acquisition, unless the corridor is on an easement over private property, or where a license has been granted for private improvements that would have to be modified to continue the trail in the corridor.

Table 11-1. Planning Level Cost Estimate Summary

#	Corridor Name	Total Cost
	Tier 1 - Trails Actively Under Development	
2	Niles Canyon Trail	$25,000,000
3	San Francisco Bay Trail	$13,901,160
4	East Bay Greenway	$105,651,827
5	Dumbarton Bridge to Quarry Lakes Trail	$26,395,837
Tier 1 Project Total Cost		**$170,948,824**
	Tier 2 - Emerging Priorities	
1A	Alameda Creek Trail Enhancements (Ardenwood to Isherwood)	$10,913,244
6	Mission Creek Trail	$2,565,735
7	Sabercat Historical Park Trail Extension (I-680 Bridge) and Enhancements	$54,040,300
10A	Hetch-Hetchy North-South Trail (680 to Milpitas)	$6,317,997
19	Grimmer Greenway	$3,000,000
23	Pacific Commons Bicycle/Pedestrian Connection	$41,569,790
24	Kato Road Trail	$11,819,496
9	Hetch Hetchy East-West Trail	$7,796,802
Tier 2 Project Total Cost		**$138,023,364**
	Tier 3 - Vision Corridors	
8	Fremont Boulevard Channel Trail	$3,482,708
12	Richmond Avenue Channel Trail	$4,605,163
14	Northgate Trail	$183,157
15	Crandall Creek Trail & Ardenwood Path	$3,298,584
20	Irvington Neighborhood Trail	$666,727
22	Warm Springs BART to Milpitas (via BART Corridor)	$4,972,005
1B	Alameda Creek Trail Enhancements (Isherwood to Niles Canyon)	$5,215,205
13	Brookvale, Cabrillo and Patterson Park Trails	$281,528
17	Lowry Neighborhood Park Trails	$445,065
18	U-Channel Trail	$4,347,648
16	Farwell Linear Park	$550,123
10B	Hetch-Hetchy North-South Trail (Mission to 680)	$3,384,792
11	PG&E Corridor & Channel Trail	$2,090,379
Tier 3 Project Total Cost		**$33,523,084**
	Total Cost - All Projects	**$342,495,272**

Trail Operations and Maintenance Costs

The cost of operation and maintenance of the trails is summarized in **Chapter 10, Operations and Maintenance**, and detailed in **Appendix G, Operations and Maintenance Details**. The total annual cost to maintain the envisioned trail system is $3.29 million annually. As discussed in **Appendix D, Policy Review and Recommendations**, the Fremont voters would need to support a trail operations and maintenance funding measure in order to support the level of maintenance required for the visionary trail system.

Trail System Operation and Management

Implementation and operation of the trails system, including coordination with Trail Ambassadors, neighbors, agencies, organizations and landowners involved with trails will require increased administrative staff. As Fremont's trail network is completed and becomes an important system for transportation and recreation attention will be required to refine the system to accommodate high levels of use.

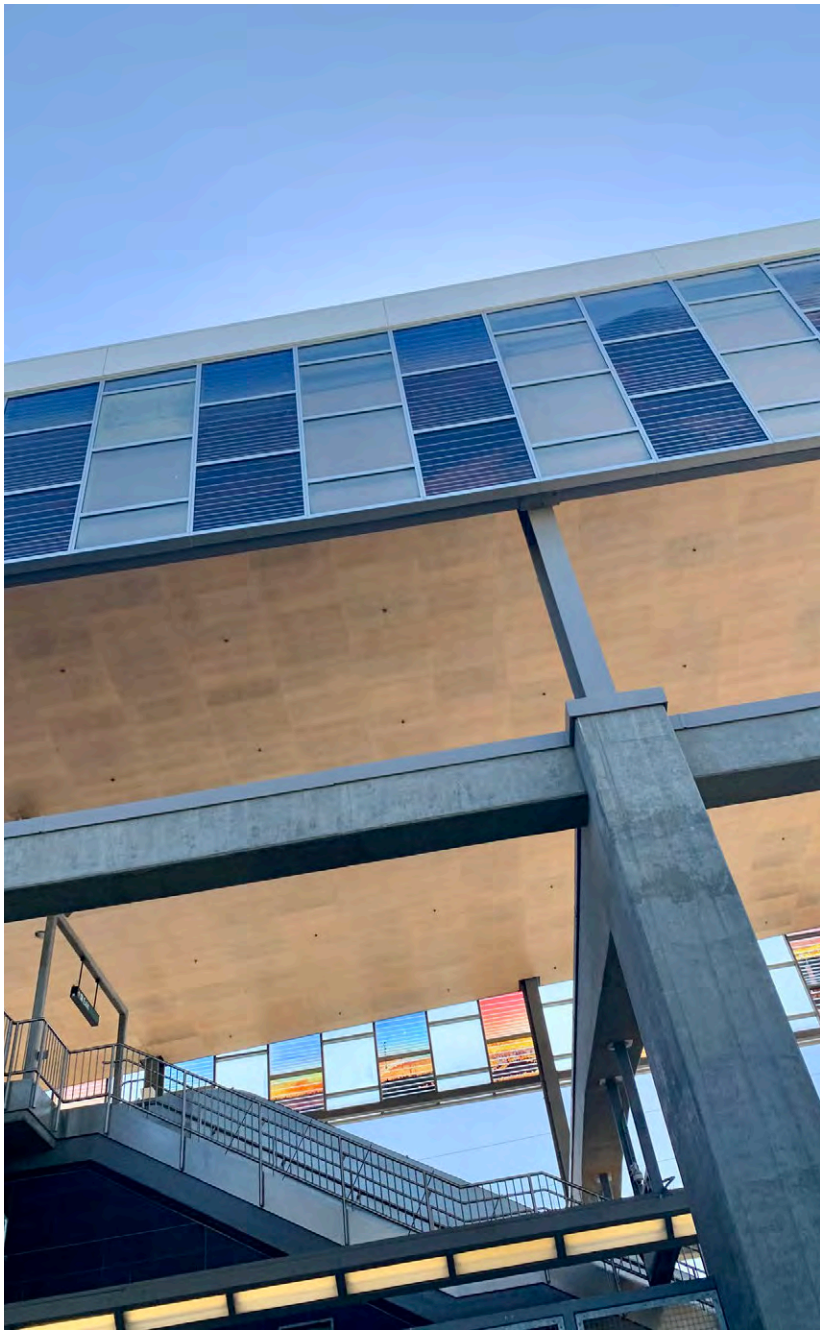
Funding Sources

The implementation of the trail system in Fremont will likely take many years and will require the use of a variety of funding sources. Funding sources are available from local, county, regional, state, and federal agencies, as well as local organizations and non-profits. Current funding sources are described in **Appendix F, Cost Estimate Details and Funding Sources**.

Additionally, the City of Fremont is currently updating its Parks and Recreation Master Plan, and funding opportunities for trails and parks projects should be considered together. Some of the proposed trails in this Trails Strategy are located within City parks and may be eligible for funding sources identified in the Parks and Recreation Master Plan.

Conclusions

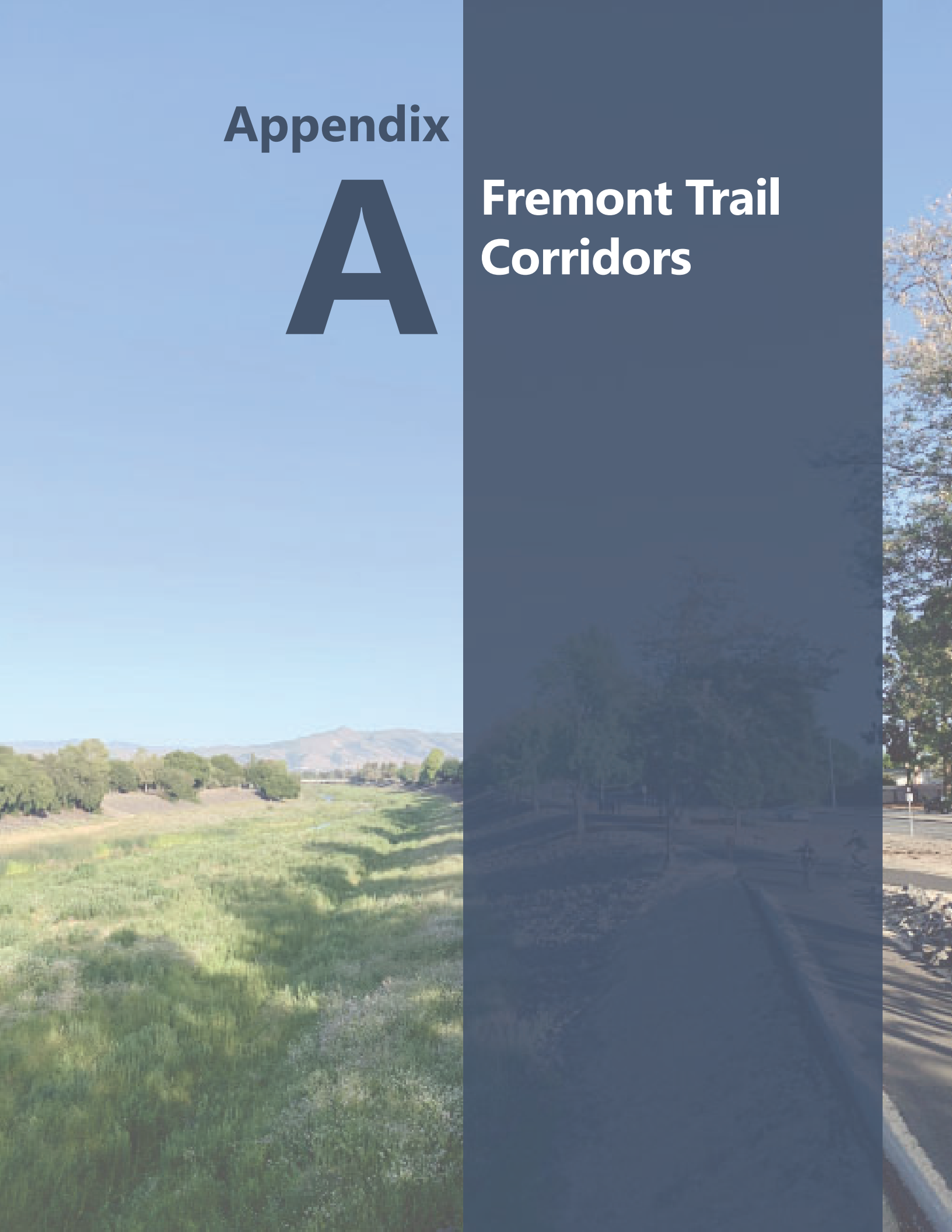
In order to implement, operate, and maintain Fremont's vision trail network, the City will first need to compare costs to annual funding available through the Capital Improvements Program (CIP). The City will then need to actively pursue grants. The City may still need to raise local revenues to meet the need of a comprehensive trail network that serves all Fremont's residents and its diverse range of trail users.



Warm Springs BART Station - Regional Connectivity

Appendix A

Fremont Trail Corridors



Fremont Trail Corridors Overview

These 24 trail corridors are existing and planned trails that connect to different parts of the City, regional destinations, and neighborhood destinations.

Many of these trail corridors are primarily used for recreation. These trail corridors could facilitate active transportation across Fremont if the trail network and the envisioned bicycle and pedestrian network were well-integrated.

This appendix describes 24 trail corridors in Fremont and adds recommendations for trails that are not already being studied in a more detailed design stage.

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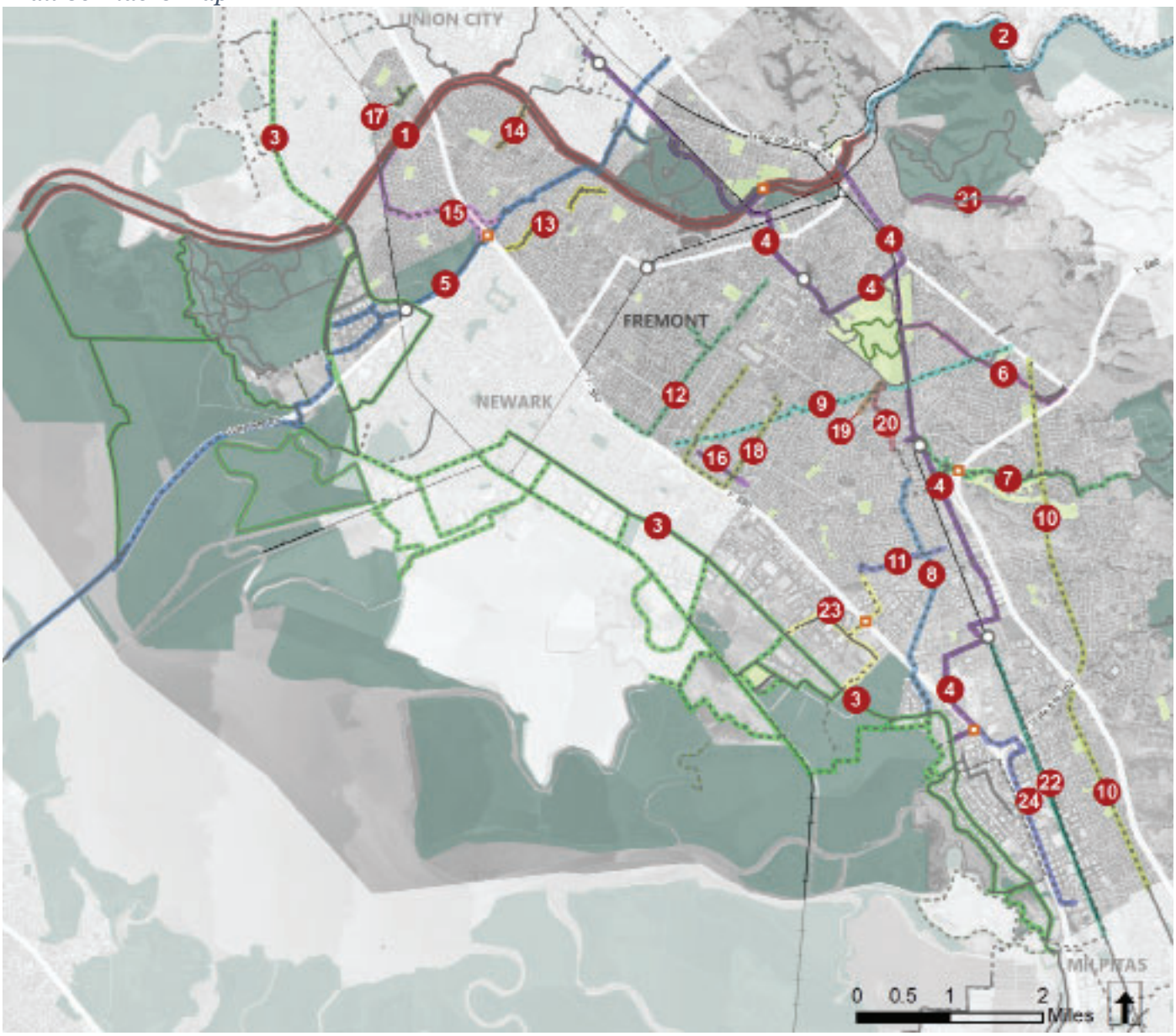
Trail Corridors Map



1 Alameda Creek Trail
2 Niles Canyon Trail
3 San Francisco Bay Trail
4 East Bay Greenway
5 Dumbarton Bridge to Quarry Lakes Trail
6 Mission Creek Trail
7 Sabercat Historic Park Trail
8 Fremont Boulevard Channel Trail
9 Hetch Hetchy East-West Trail
10 Hetch Hetchy North-South Trail
11 PG&E Corridor & Channel Trail
12 Richmond Avenue Channel Trail
Existing Trail
Proposed Trail
13 Brookvale, Cabrillo, and Patterson Park Trails
14 Northgate Trail
15 Crandall Creek Trail and Ardenwood Path
16 Farwell Linear Park
17 Lowry Neighborhood Park Trail
18 U-Channel Trail
19 Grimmer Greenway
20 Irvington Neighborhood Trail
21 Morrison Canyon Road
22 Warm Springs BART to Milpitas (via BART corridor)
23 Pacific Commons (Bicycle/Pedestrian) Connection
24 Kato Road Trail
Transit Station (BART, Amtrak, Park & Ride Lot)
Major Proposed Ped/Bicycle Bridge

1. Alameda Creek Trail

The Alameda Creek Trail is currently Fremont's longest trail, spanning the entire north end of the City. It is also Fremont's most popular trail corridor. The trail acts as both a connection and a barrier. It connects neighborhoods and destinations from the Bay, to the west, to the hills in the east. However, only seven bridges span the corridor over its 11.3-mile length.

The creek sits in a naturalized channel, typically 250 feet in width, between two levees. Maintenance roads on top of the levees on the north and south side of the creek are used as trails. The levees' width can constrain the trail's width.

Alameda County Flood Control (ACFC) owns the corridor and maintains the levees and the maintenance roads. East Bay Regional Park District (EBRPD) manages the trail and trailside elements, and provides programming. Trail improvements require further study, design, coordination with ACFC and EBRPD, and input from neighbors and trail users.

Alameda Creek Trail unpaved section of levee

Alameda Creek Trail paved section of levee

Key Destinations

The Alameda Creek Trail is mainly used for recreation, but it connects to many destinations and presents an opportunity for improved active transportation across Fremont/Union City border.

The trail directly connects to the North Fremont Boulevard Connected Community PDA and is adjacent to Centerville Transit PDA and Downtown/ City Center Transit PDA.

The trail also directly connects to several regional parks, including Coyote Hill Regional Park, Quarry Lake Regional Recreational Area, and local parks, including William Cann Neighborhood Park, Rancho Arroyo Park, and Isherwood Staging Area.

Alameda Creek Trail connects to other major existing and proposed trail corridors, including the Bay Trail, Dumbarton Bridge to Quarry Lakes Trail, Niles Canyon Trail, Crandall Creek Trail & Ardenwood Path, and East Bay Greenway.

The trail does not connect to major schools, shopping centers, or employment centers.

Trailside Elements

- See **Table A-1** Trailside Elements and Surface Materials

Overview

Typology: Regional

Length: 11.3 miles (each side)

Width: Varies (10-14 feet)

Surface Material: Primarily paved on south side and unpaved on north side; compacted aggregate and asphalt (existing)

Ownership/Maintenance: ACFC

Management: EBRPD

Current Condition: Existing trail

Corridor Overview Map

Below is an overview map of Alameda Creek Trail by East Bay Regional Park District. According to the map, equestrians are allowed on the northern side of Alameda Creek Trail. The southern side of Alameda Creek Trail is a paved multi-use trail.

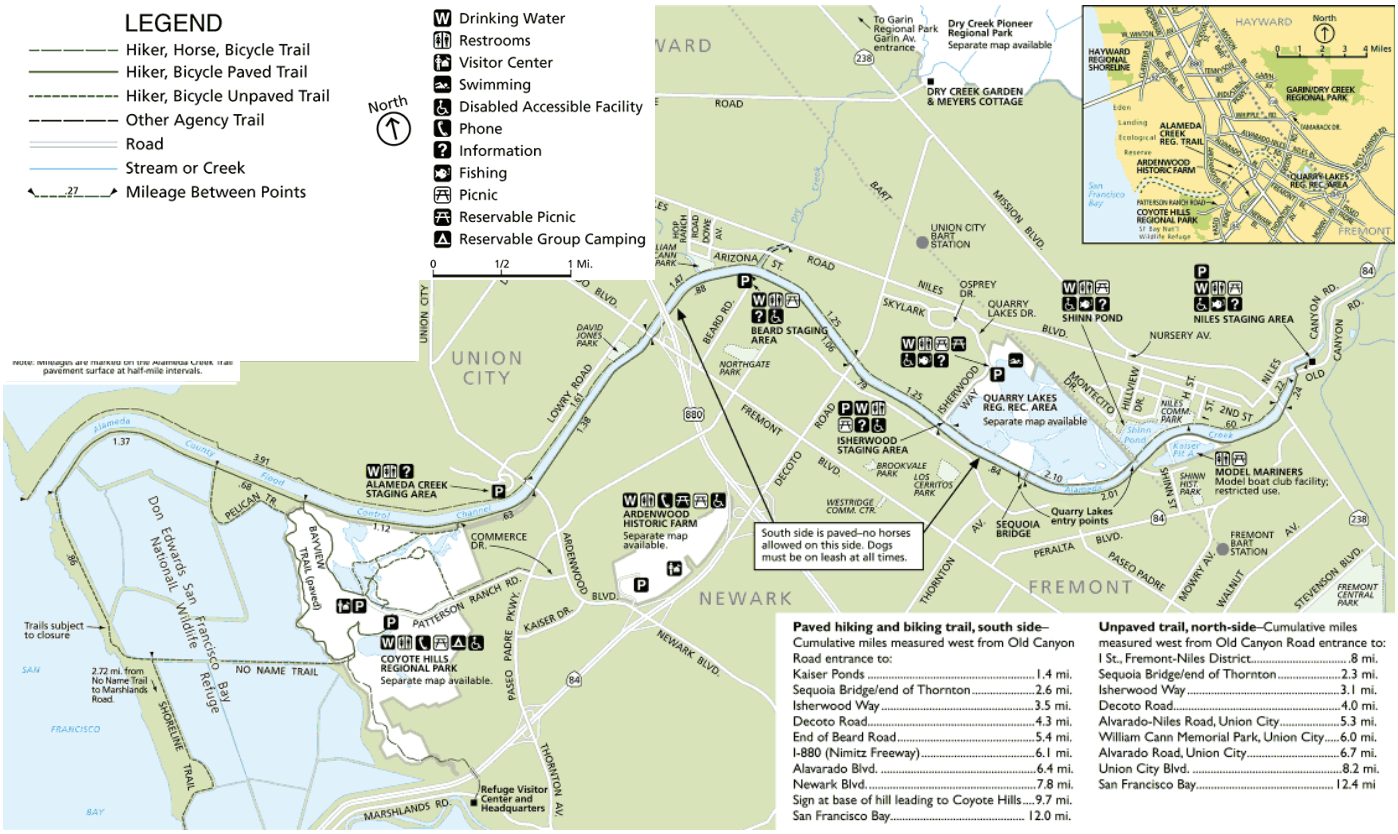


Table A-1. Trailside Elements and Surface Materials

Segment	Existing Elements	Surface Material	Recent Projects
SF Bay to Alvarado Boulevard	• Staging Area • Information • Drinking Water • Restroom • Picnic Site	• North Side = Unpaved • South Side = Paved	• N/A
Alvarado Boulevard to Quarry Lakes	• Staging Area • Disabled Access • Facility • Information • Drinking Water • Restroom • Picnic Site	• North Side = Unpaved • South Side = Paved	• N/A
Quarry Lakes to Niles Canyon	• Staging Area • Disabled Access • Facility • Information • Drinking Water • Restroom • Picnic Site	• North Side = Unpaved • South Side = Paved	• New pavement from Isherwood to Mission Boulevard. • Sequoia bridge has been decommissioned. • New paved tie-in to the Isherwood sidewalk.

Corridor Environment

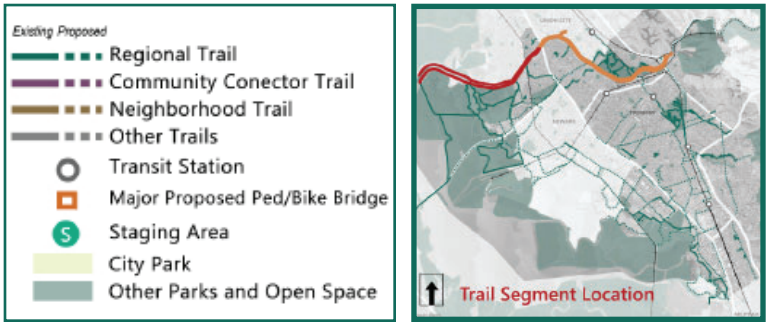
The relative elevation of the Alameda Creek Trail varies from west to east. Towards the Bay, adjacent properties are 10-20 feet below the levee and trail. Towards the foothills, the adjacent land is level with the levee and trail.

Where the trail crosses streets, including I-880, there are undercrossings. Except for I-880, there are always connections to the street. However, these connections are often narrowed by gates and on-street infrastructure is limited.

Throughout the trail, there are many formal connections and informal "desire line" connections to adjacent streets and destinations. These informal connections are most noticeable where the trail parallels a road, such as Paseo Padre Parkway or Lowry Road. They are also noticeable where a bridge or perpendicular street connects to the trail.

Trailside elements include mile markers, trash cans, benches, and wayfinding signage.

Equestrian, North Side of Alameda Creek Trail



Alameda Creek Trail Corridor (1 of 3)

North Side

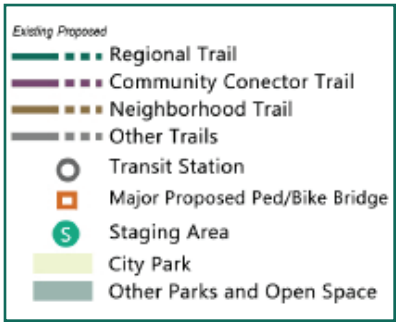
The North Side Alameda Creek Trail is 10–14 feet wide and almost entirely unpaved, except for a section between William Cann Neighborhood Park and Hilton Street.

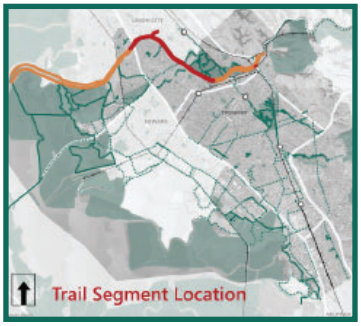
The trail is lined by private properties and public streets. Towards the foothills, private properties often have gates connecting residents to the trail, whereas towards the Bay, private properties do not connect to the trail.

Formal access points from the Bay to the foothills:

- Alameda Creek Staging Area
- Union City Boulevard
- Lowry Road (near Lowry Court)
- Alvarado Boulevard
- William Cann Neighborhood Park
- Arizona Street
- Decoto Road
- Isherwood Staging Area
- Quarry Lakes Regional Recreation Area
- Niles Community Park
- I Street
- Niles Boulevard (wide fence)
- Vallejo Street
- Sycamore Street
- Old Canyon Road
- Niles Canyon Road

Alameda Creek Trail Corridor (2 of 3)





South Side

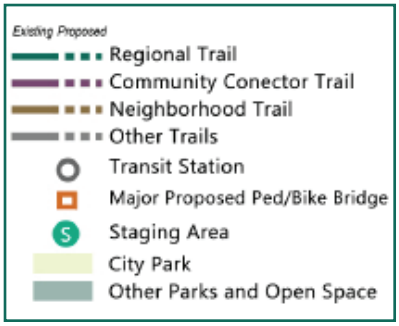
The South Side Alameda Creek Trail is 10-14 feet wide and paved with asphalt.

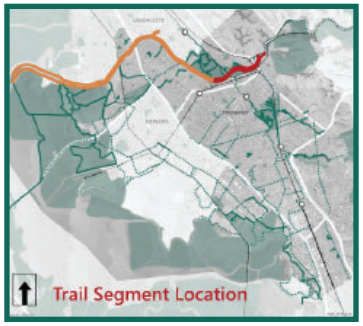
The trail is lined by private properties and public streets, with fences along both. At some locations on public streets, gates allow for public trail access.

Formal access points from the Bay to the foothills:

- Coyote Hills Regional Park
- Crandall Creek Trail/Ardenwood Boulevard
- Bronco Loop
- Caliban Drive
- Mancini Street (parallel to Alvarado Boulevard)
- Sanderling Drive/Turnstone Lane (stairs, steep)
- Beard Staging Area (Beard Road)
- Northgate Trail
- Decoto Road
- Paseo Padre Parkway/Isherwood Way
- Sequoia Terrace
- Mission Boulevard (either direction)
- Niles Canyon Staging Area (Old Canyon Road)

Recent repaving, south side of trail

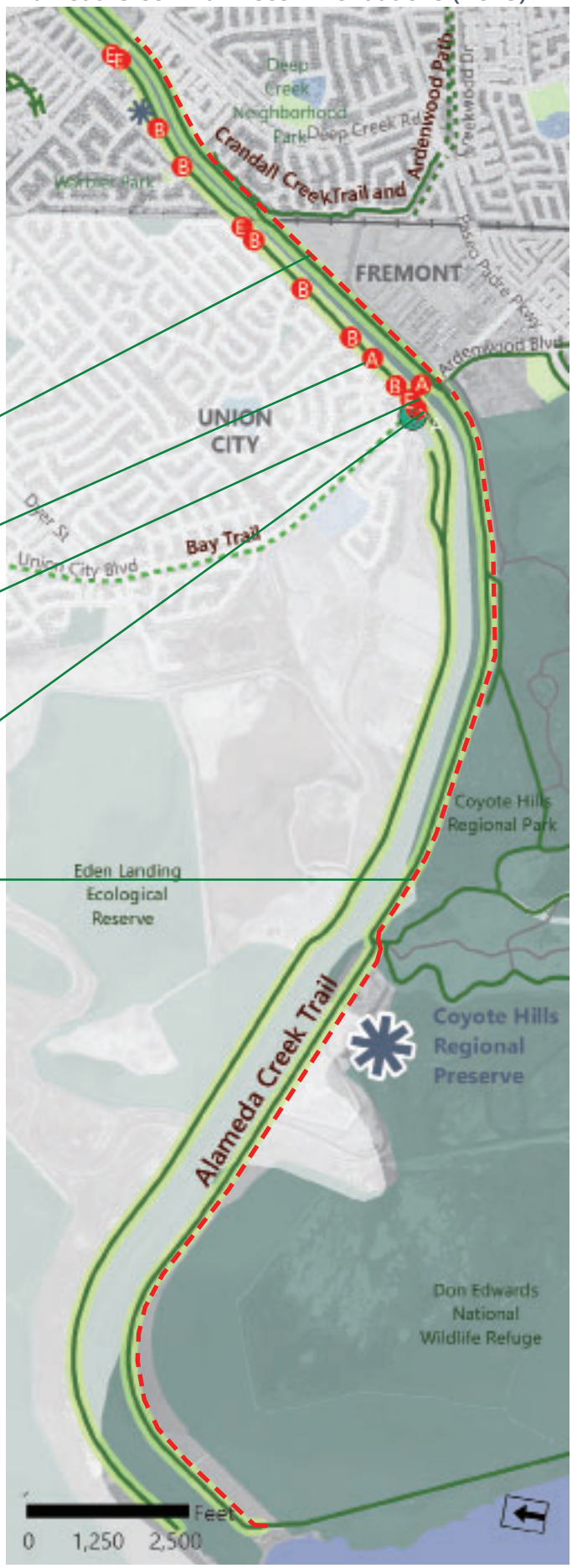




Alameda Creek Trail Corridor (3 of 3)

Recommendations

Alameda Creek Trail Recommendations (1 of 3)



Widen existing 10' paved trail to 14' (North of Ardenwood Boulevard).

C E

Proposed bridge connecting the existing two-way bike path on the west side of Ardenwood Boulevard to planned Bay Trail extension along Union City Boulevard.

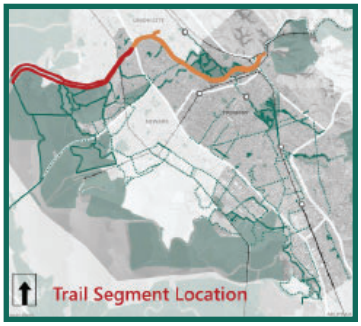
C E

Add bicycle amenities and bike parking at the Ardenwood Boulevard staging area.

Widen existing 10' paved trail to 16'-18' (south of Ardenwood Boulevard).

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Recommendations, continued

Also, add bicycle amenities and bike parking at the Isherwood Way staging area.

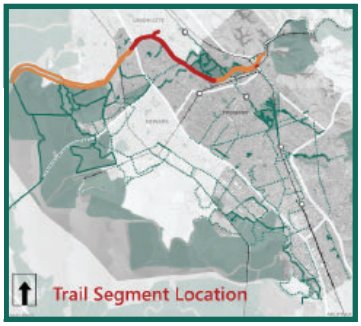
Add ramps and formalize the existing trail through Isherwood Neighborhood Park.

Widen existing 10' paved trail to 12'.

Alameda Creek Trail Recommendations (2 of 3)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Alameda Creek Trail Recommendations (3 of 3)

Recommendations, continued

Future connection to Niles Canyon Trail.

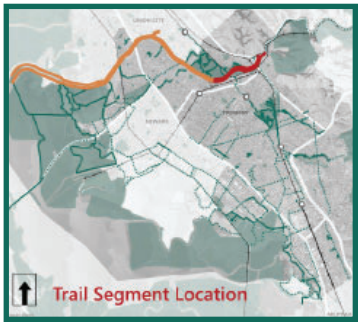
Remove gate at Old Canyon Road.

Widen existing 10' paved trail to 14'-16'.

Proposed pedestrian bridge over Alameda Creek.

Reorganize the two parallel trails, both 10 feet wide and paved, to separate traffic.

E C



Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier

2. Niles Canyon Trail

This proposed trail would connect from Fremont east, through the foothills, to Sunol along Highway 84/Niles Canyon Road. It is an important regional trail being planned by the East Bay Regional Park District.

Key Destinations and Connections

The Niles Canyon Trail offers opportunities for active transportation and recreation as it would connect Fremont to Sunol.

Trailside Elements

- None at present

Overview

Typology: Regional

Length: 10 miles

Width: TBD (10-14 feet)

Surface Material: TBD

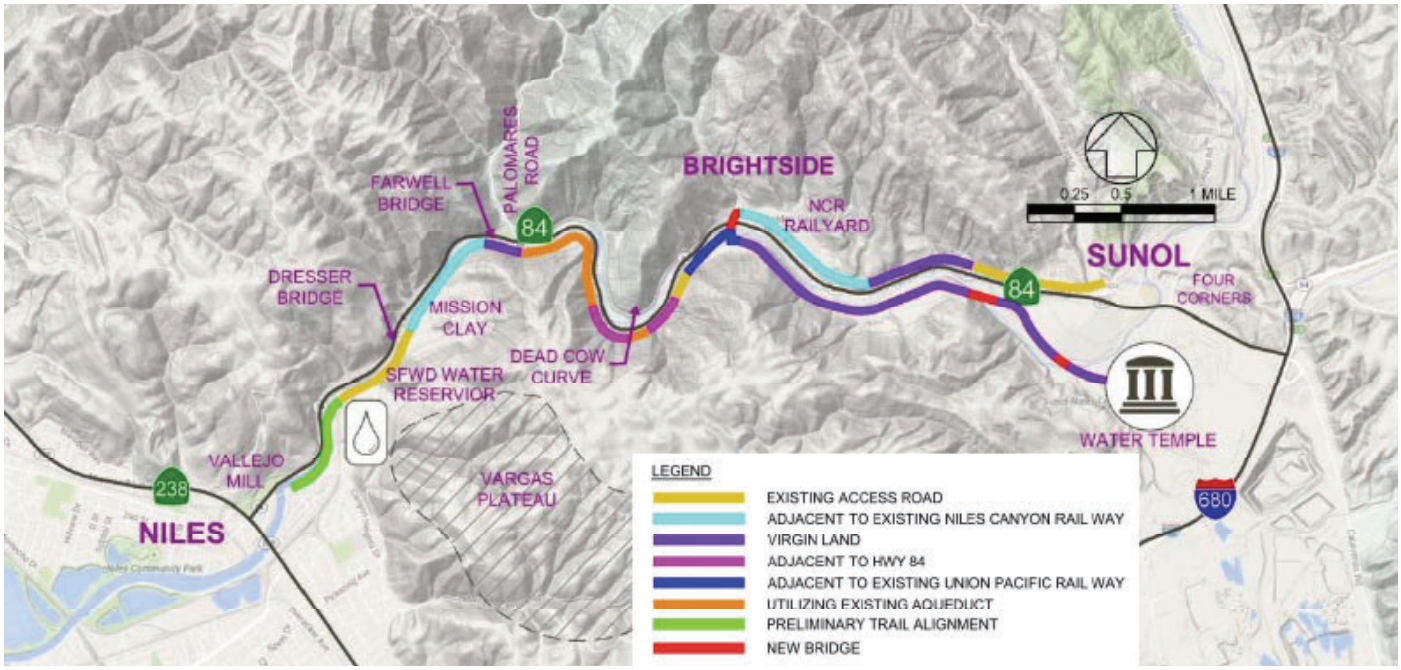
Ownership/Maintenance: TBD

Management: TBD

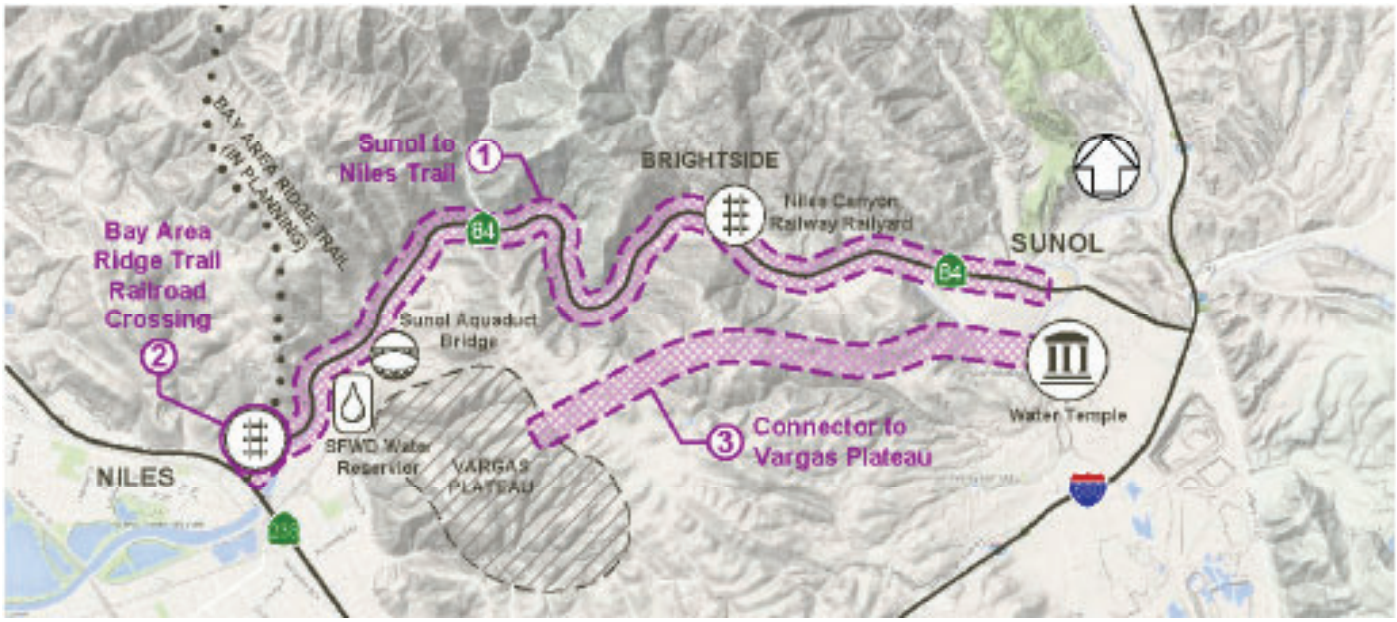
Current Condition: Proposed trail

Highway 84 at railroad bridge (Google Streetview)

Highway 84 near Fremont (Google Streetview)



Trail alignments from the Niles Canyon Study



Trail alignments from the Niles Canyon Study

Plans and Studies

Expanding Regional Trail Connectivity: Trail Options in Niles Canyon Study (2015)

The East Bay Regional Park District's Master Plan recommends establishing a trail through Niles Canyon. Niles Canyon lies in an unincorporated area of Alameda County between Fremont and Sunol. The valley includes Alameda Creek, two rail lines, State Route 84, and a former water supply aqueduct. The study summarizes the opportunities and constraints, defines costs, approvals, and outlines potential next steps to advance development of new trail segments, including a new trail from Niles to Sunol, a new trail crossing of the Nile Canyon Railway at Vallejo Mill Historical Park (a Ridge Trail connection), and a connection from the Sunol Water Temple to a future Vargas Plateau Regional Park.

www.ebparks.org/about/planning/#Niles+Canyon

Note: as of 2020, Alameda County is moving forward on the environmental review and design of segment 1 of the Niles Canyon Trail between the Niles area and Palomares Road.

Highway 84 with wide shoulder (Google Streetview)

Highway 84 west from Sunol overcrossing (Google Streetview)

3. San Francisco Bay Trail

The San Francisco Bay Trail is a planned 500-mile walking and bicycling path around the entire San Francisco Bay running through all nine Bay Area counties.

With over 350 miles in place, the Bay Trail connects communities to parks, open spaces, schools, jobs, transit, and to each other. The ultimate goal of the Bay Trail is to build a beautiful shoreline bicycle and pedestrian Class I trail for all to enjoy.

Senate Bill 100, passed into law in 1987, directed the Association of Bay Area Governments (ABAG) to develop a plan for this regional trail system, including a specific alignment for the Bay Trail.

Key Destinations

The Bay Trail is used for both active transportation and recreation. It connects many key destinations on the western side of Fremont and through Newark.

The Bay Trail crosses Bayside Industrial Priority Production Area and Pacific Commons Priority Production Area. There are many local restaurants and retail businesses along the Bay Trail. Some regional business parks and large-scale retail, including NewPark, Costco, and Walmart, are located within walking distance of the Bay Trail. One school adjacent to a Bay Trail segment is Newark Memorial High School.

The Bay Trail also connects to popular regional parks, including San Francisco Bay National Wildlife Refuge and Coyote Hills Regional Park. It connects to many trail corridors, including Alameda Creek Trail, Dumbarton Bridge to Quarry Lakes Trail, and the East Bay Greenway.

Overview

Typology: Regional

Length: Approximately 43 miles

Width: Varies (9 –12 feet)

Surface Material: Varies (concrete, asphalt, and base rock)

Ownership: Varies

Maintenance: Varies

Current Condition: Existing and proposed trail

Trailside Elements

- Partially landscaped along on-street route with street lighting
- Pacific Commons Trail along Auto Mall Parkway has pedestrian-level lighting

Don Edwards San Francisco Bay National Wildlife Refuge, Marshlands Road, on-street Bay Trail

Paseo Padre Parkway to Ardenwood Boulevard, Bay Trail sidepath

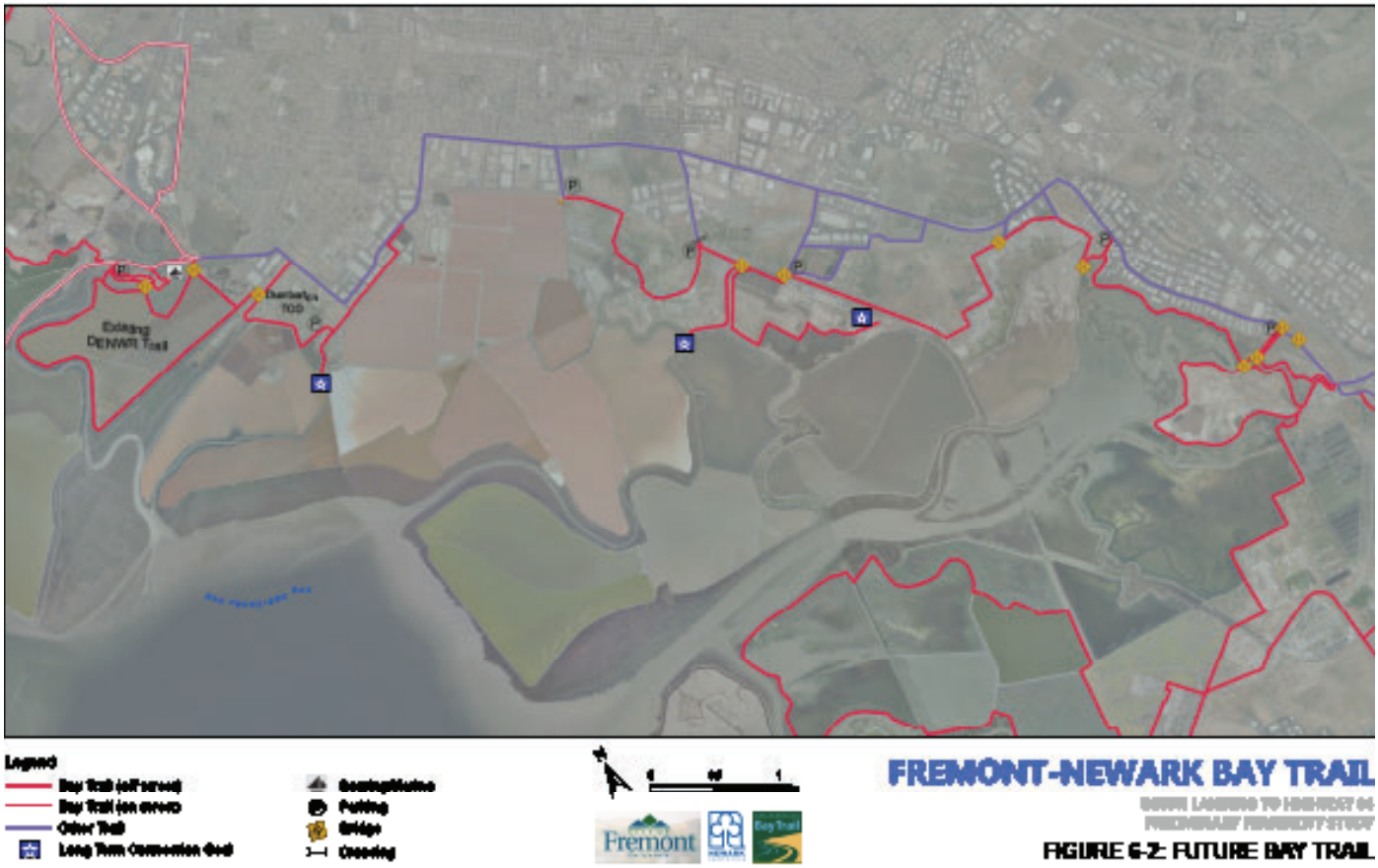
Plans and Studies

Newark-Fremont Bay Trail Realignment Feasibility Study (2013)

This planning-level study established a preferred alignment for a 15-mile Bay Trail section within the Cities of Fremont and Newark. Previous alignments did not closely follow the shoreline and did not designate an off-street trail. This study focused on a shoreline-oriented Bay Trail. The alignment includes use of the existing rail right-of-way and maintenance roads near the Bay.

The project included public participation and coordination with landowners, agencies, and staff from Fremont and Newark; documentation of existing conditions; identification of potential routes; review of project opportunities, constraints, and design criteria; and options for phasing, funding, and implementation.

www.fremont.gov/DocumentCenter/View/37822/Bay-Trail-Realignment-Study?bidId=

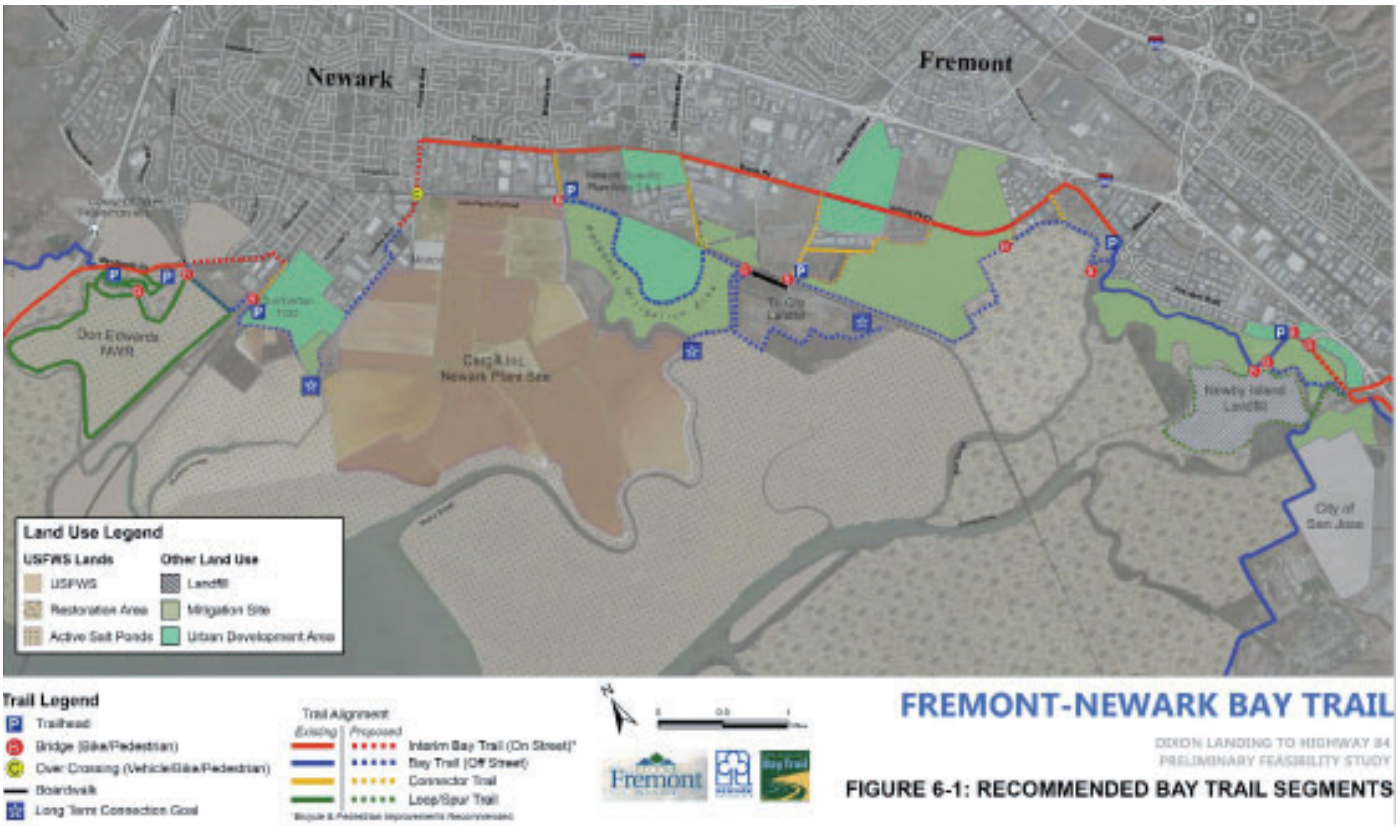


Bayview Trail, Bay Trail section in Coyote Hills Regional Park

Bay Trail along levee near Fremont Boulevard (Google Streetview)

Current San Francisco Bay Trail Alignment

Much of the current Bay Trail alignment through Fremont and Newark is on-street and away from the shoreline. The trail follows Cherry Street, Boyce Road, and Cushing Parkway through Newark and has gaps in Fremont at each end before an on-street route along the Paseo Padre Parkway to the north, the Tidelands Loop Trail in the Don Edwards National Wildlife Refuge, and an on-street route along Fremont Boulevard to the south.



Existing and proposed Bay Trail routes from 2013 study

Thornton Avenue approaching Marshlands Road, on-street Bay Trail

Thornton Avenue & Hickory Street, on-street Bay Trail

Corridor Environment

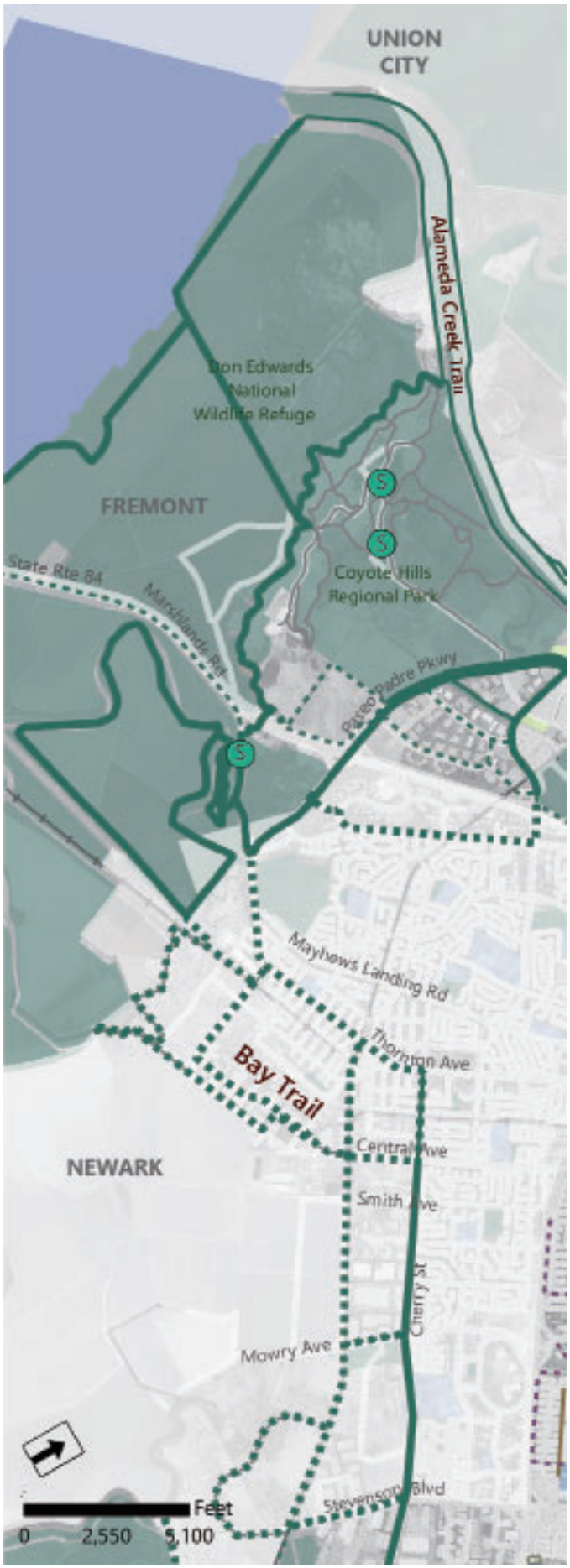
While the goal of the Bay Trail is to be Class I trail around the Bay, many of the levees in Fremont are not feasible to pave for trail use due to environmental restrictions. Property owner challenges could also stall the creation of the envisioned off-street alignment. In addition, an on-street alignment may provide more utility for commuting if it were a more direct route with a paved surface and lighting.

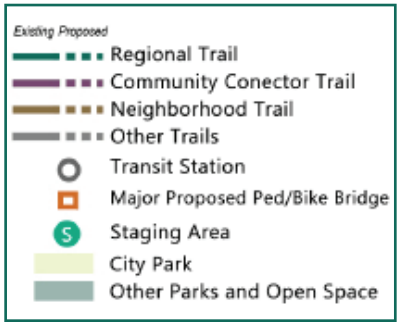
In Fremont, there are existing, designated off-street Bay Trail segments:

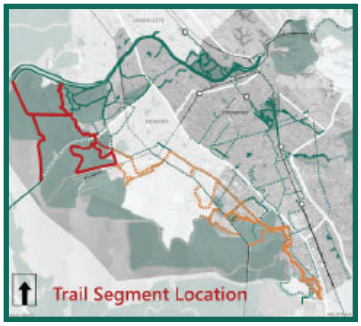
- Loop shoreline trails around salt ponds along the San Francisco Bay and Alameda Creek within Coyote Hills Regional Park, north of Highway 84
- Loop shoreline trail around salt ponds within Don Edwards National Wildlife Refuge
- Loop trails within San Francisco Bay National Wildlife Refuge and nearby trails to access the Francisco Bay National Wildlife Refuge from Marshlands Road
- Off-street path between Auto Mall Parkway and Nobel Drive
- Coyote Creek Lagoon Trail in southeastern Fremont.
- Two-mile shoreline segment completed in the early 1980s as part of the Bayside Business Park, west of Fremont Boulevard and south of Warren Avenue

In Newark, there are no existing, designated off-street Bay Trail segments.

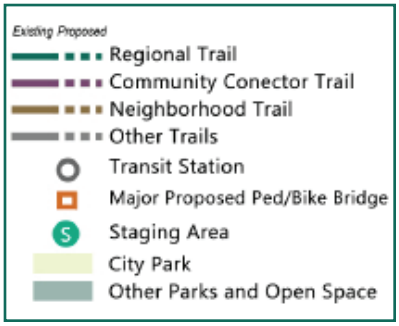
Bay Trail Corridor (1 of 2)

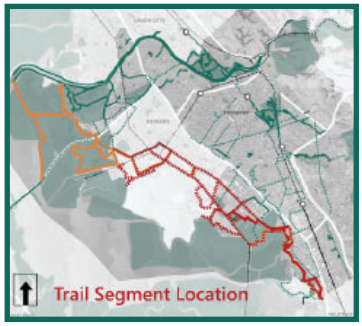






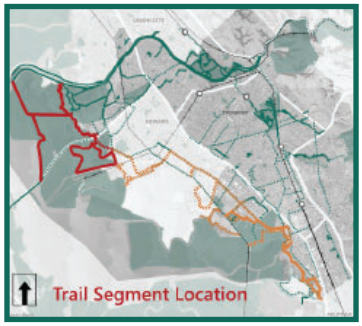
Bay Trail Corridor (2 of 2)





Crossing Ardenwood Boulevard from the Bay Trail sidepath along Paseo Padre Parkway near Coyote Hills Regional Park

Bay Trail Corridor Environment (1 of 2)



Bay Trail Corridor Environment (2 of 2)

4. East Bay Greenway

The East Bay Greenway is a proposed 49-mile bicycle and pedestrian trail through Alameda County that generally follows the BART corridor, encompassing the existing Ohlone Greenway in Albany and Berkeley and ending at the county line at the south end of Fremont.

The Greenway is partially constructed and some new segments are currently undergoing preliminary design and environmental review. The City of Fremont has applied for grant funding to develop trail plans for four East Bay Greenway segments.

Key Destinations

The East Bay Greenway will connect many key destinations in Fremont and is an important opportunity for active transportation and recreation.

The proposed Irvington BART Station and the existing Union City BART Station, Fremont BART Station, and Warm Springs BART Station are major transit centers along the East Bay Greenway corridor. The Greenway will provide critical connections to transit stations, schools, job centers, commercial areas, and recreational destinations.

The Greenway will cross Irvington Transit PDA, Osgood Road Connected Community PDA, Warm Springs Innovation District Transit PDA, Warm Springs Boulevard, Connected Community PDA, and Bayside Industrial PDA. It will likely become a major pedestrian corridor between these PDAs.

The Greenway will also connect across several business/commercial centers, including the commercial district of Irvington neighborhood as well as the Auto Mall Parkway shopping mall.

Some schools within walking distance of the Greenway include The California School for the Blind, California School for the Deaf, and the John Gomes Elementary School.

Trails and recreational destinations that the Greenway will connect to include the Alameda Creek Trail, Bay Trail, and the Hetch Hetchy East-West Trail. It is also in close proximity to the Sabercat Historical Park Trail and PG&E Channel Trail corridor.

Some regional recreational destinations, including Alameda Creek Park, Fremont Central Park and Don Edwards National Wildlife Refuge, will become more accessible.

Trailside Elements

- Partially landscaped along existing trail with pedestrian-level lighting

East Bay Greenway near Paseo Padre Parkway

Warm Springs BART bike parking

Overview

Typology: Regional

Length: 9 miles

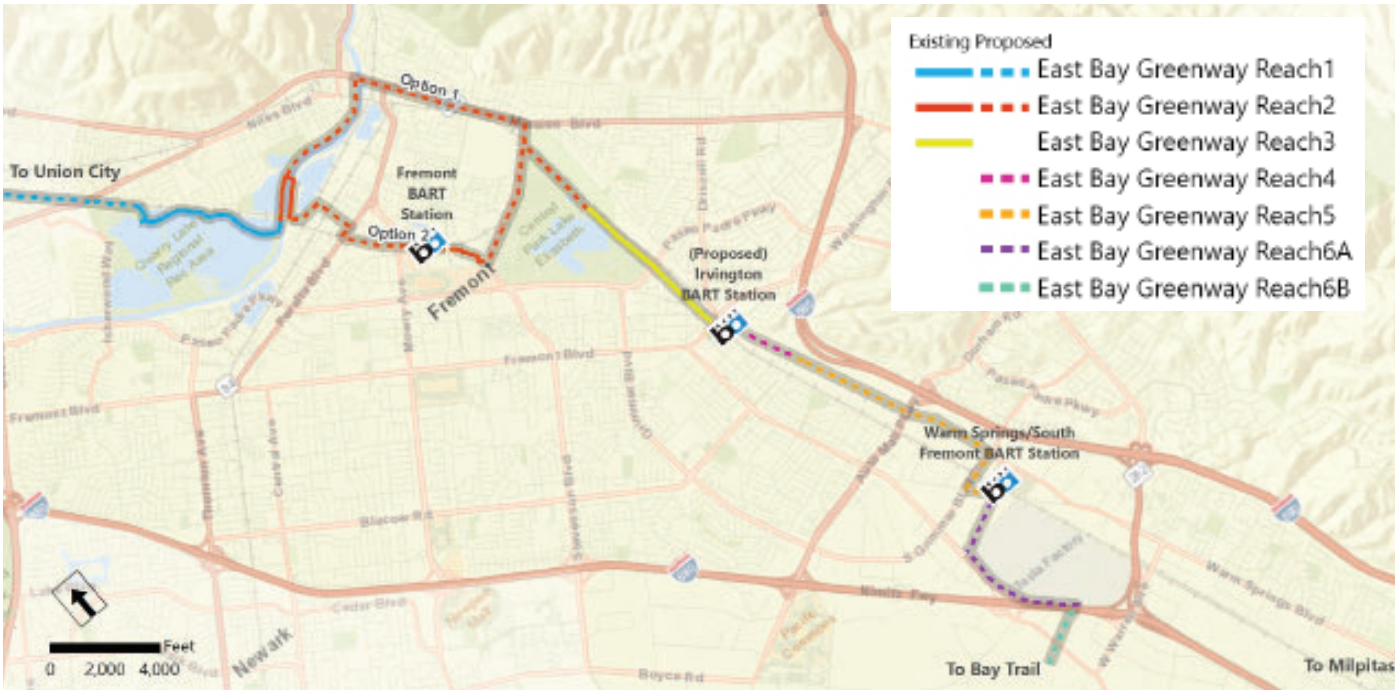
Width: 12 feet

Surface Material: Asphalt, concrete (existing)

Ownership: Varies

Maintenance: TBD

Current Condition: Existing and proposed trail



Existing and Planned Segments in Fremont

Reach 1 — Union City limits to Alameda Creek Trail
Reach 2 — Alameda Creek to Central Park
Reach 3 — Central Park to Irvington BART/Washington Boulevard (Existing)
Reach 4 — Irvington BART/Washington Boulevard to Blacow Road
Reach 5 — Blacow Road to Warm Springs BART/S Grimmer Boulevard
Reach 6A — Warm Springs BART/S Grimmer Boulevard to Tesla (in construction via Lennar development)
Reach 6B — I-880/Tesla Bridge and Trail (in environmental/design)

Plans and Studies

City of Fremont — Union Pacific Railroad Corridor Trail Feasibility Study (2009)

This feasibility study explored the engineering feasibility, alignment, design opportunities, and constraints associated with the construction of a Class I multi-use trail along nine miles of the Union Pacific rail and non-active BART corridor in Fremont from the Niles area (Clarke Drive) to the Milpitas city limits. At the time of the study the corridor was abandoned along the northern UPRR segments and was intended as a BART extension to Warm Springs and Santa Clara County.

Note: Since the completion of this feasibility study, subsequent planning and project development efforts have modified the proposed alignment for segments, including Reach 2: Alameda Creek to Central Park and Reach 4: Irvington BART Area/Washington Boulevard to Blacow Road segment.

www.railstotrails.org/resourcehandler.ashx?id=4288

East Bay Greenway: Central Park to Alameda Creek Scoping Study (2016)

This report provides a scope and delivery strategy for the East Bay Greenway Rails-to-Trails project from Central Park to Alameda Creek Trail. The proposed alignment would begin at the City of Fremont's Mission Creek Trail at Central Park and run along the abandoned UPRR corridor to Orchard Drive, then along Orchard Drive and Mission Boulevard to the Alameda Creek Trail. The 12-foot wide trail is designed to accommodate a mix of trail users, including bicyclists, pedestrians, and runners.

Note: The City of Fremont pursued due diligence investigations of acquiring the abandoned UPRR line in 2018. Based on the findings of these investigations, which are subject to a non-disclosure agreement, the City elected not to further pursue the acquisition. The new East Bay Greenway alignment will enter Central Park from Stevenson Boulevard at the existing trail parallel with the BART rail line.

www.fremont.gov/3133/East-Bay-Greenway-Rails-to-Trails-Project

Plans and Studies

I-880 Bicycle/Pedestrian Bridge and Trail (2016)

This scoping study defines the project scope, purpose, alignment, design recommendations and delivery strategy for the project. The project lies at the southernmost segment of Alameda County's East Bay Greenway Trail, which will provide safe and convenient pedestrian and bicycle connectivity from the Warm Springs/South Fremont BART Station to jobs, schools, and key destinations in Fremont's Innovation District on the east side of I-880 as well as connecting over the bridge to destinations west of I-880 in order to connect to the Bay Trail.

Note: City received $5.5 million Alameda County Transportation Commission (ACTC) grant for planning and design, which is estimated to be completed by Fall 2021. The City is current pursuing construction funds.

www.fremont.gov/DocumentCenter/View/37820/I-880-PedBrdg-Final-Scoping-Report?bidId=

Irvington BART Station Area Plan (2019)

This Station Area Plan provides a framework for the development of the future Irvington BART station in Fremont. The plan includes a vision section focused on supporting transit-oriented-development and access, and sections on access and mobility, site and building design, and an implementation and financing plan.

The plan includes the continuation of the East Bay Greenway which circles through the station and over and along Fremont Boulevard and Osgood Road as a two-way raised bicycle lane adjacent to 5 to 6 lanes of vehicle traffic. Conceptual access plans and recommended street enhancements for pedestrians and bicyclists are provided.

Since the completion of Preliminary Engineering in the Summer of 2020, the BART Irvington Station Project Team has been making significant progress with Final Design. The Station architecture continues to advance as the Project Team dives deeper into the details. In addition, the concept for the former Gallegos Winery site is being further developed. The Project Team has also published preliminary renderings of the Irvington BART Station Experience.

www.fremont.gov/2977/Irvington-BART-Station

www.fremont.gov/DocumentCenter/View/40806/3_Access-and-Mobility

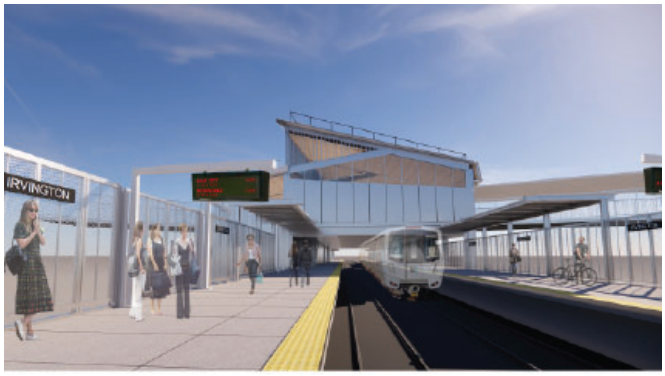
https://www.bart.gov/about/projects/wsx/news

https://www.fremont.gov/2977/Irvington-BART-Station

PRELIMINARY AND SUBJECT TO CHANGE — VIEW FROM WEST - LOOKING AT STATION ENTRANCE

PRELIMINARY AND SUBJECT TO CHANGE — VIEW FROM PLAZA - LOOKING NORTH

PRELIMINARY AND SUBJECT TO CHANGE — VIEW FROM CONCOURSE 'PAID AREA' - LOOKING NORTH



PRELIMINARY AND SUBJECT TO CHANGE — VIEW FROM PLATFORM - LOOKING SOUTH

Corridor Environment

Reach 1 — Union City limits to Alameda Creek

The corridor will begin at the Union City BART station. The long-term goal is for the Greenway to follow the BART corridor to Alameda Creek. The short-term goal is to follow the BART corridor before connecting to existing trails through Fremont's Quarry Lakes Regional Recreation Area.

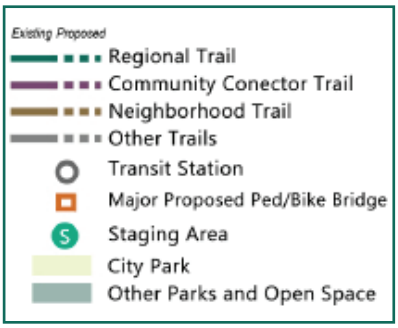
Reach 2 — Alameda Creek to Central Park

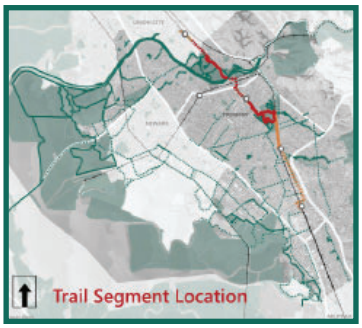
There are two alternatives for reach 2.

Alternative 1 would cross Alameda Creek at the proposed bicycle/pedestrian bridge near Niles Community Park. The Greenway would then follow the South Side Alameda Creek Trail west and exit the trail at Von Euw. It would follow Von Euw and Shinn Street until returning to the BART corridor at Peralta Boulevard. The Greenway would pass the Fremont BART Station and would follow a short existing trail between Walnut Avenue and Stevenson Boulevard. The Greenway would follow Stevenson Boulevard and then continue south along a former UPRR line.

Alternative 2 would cross Alameda Creek at the proposed bicycle/pedestrian bridge near Niles Community Park. The Greenway would then follow the South Side Alameda Creek Trail east. It would then exit at Mission Boulevard, following the Mission Boulevard until Stevenson Boulevard. It would briefly turn on Stevenson Boulevard before continuing south along a former UPRR line.

East Bay Greenway Trail Corridor (1 of 3)





East Bay Greenway Trail Corridor (2 of 3)

Reach 3 — Central Park to Irvington BART/ Washington Boulevard (Existing)

This existing multi-use trail segment starts in Fremont Central Park and includes an overcrossing of Paseo Padre Parkway.

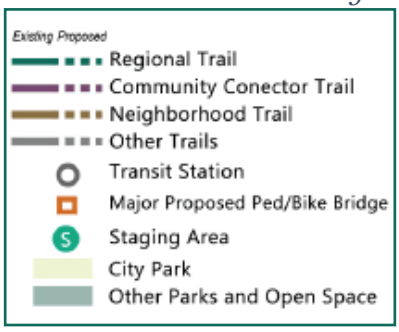
On Paseo Padre Parkway there is an existing Class 4 Separated Bikeway. Adding ramps on either side of Paseo Padre Parkway would enable bicyclists and pedestrians to access the East Bay Greenway more efficiently. These improvements are proposed in the 2016 Pedestrian Master Plan.

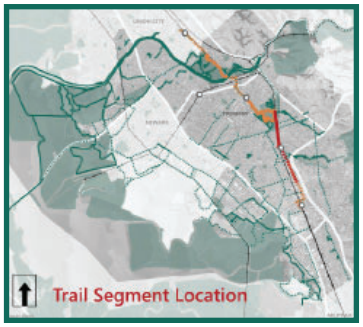
The Greenway then extends south 0.5 miles to Main Street near Washington Boulevard.

Reach 4 — Irvington BART/Washington Boulevard to Blacow Road

The Greenway would cross beneath Washington Boulevard and connect to Irvington BART. At Washington Boulevard and Roberts Avenue, it would briefly follow Washington Boulevard until Osgood Road.

East Bay Greenway overcrossing at Paseo Padre Parkway





Warm Springs BART from Osgood Road and S Grimmer Boulevard

Reach 5 — Blacow Road to Warm Springs BART/ S Grimmer Boulevard

The Greenway would follow on Osgood Road south until it turns on S Grimmer Boulevard and then west to Lopes Court. It would connect with Warm Springs BART.

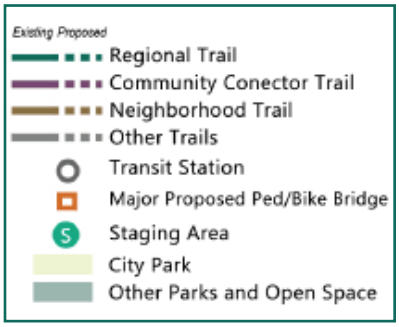
Reach 6A — Warm Springs BART/S Grimmer Boulevard to Tesla (in construction via Lennar development)

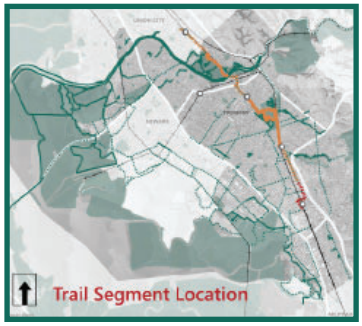
The Greenway would to turn west on Innovation Way from Lopes Court and then south on Fremont Boulevard. It would then turn west to Kato Road, a frontage road on the east side of I-880.

Reach 6B — I-880/Tesla Bridge and Trail (in environmental/design)

The Greenway would then cross a planned bridge over I-880 and travel along the levee on Agua Caliente Creek to Coyote Creek and the Bay Trail.

East Bay Greenway Trail Corridor (3 of 3)





5. Dumbarton Bridge to Quarry Lakes Trail

This trail corridor will link the Dumbarton Bridge to Quarry Lakes, creating a 12-mile route. Most segments will be off-street; however, some segments will be sidepaths (along major roadways) and protected bicycle lanes. The trail will connect to Fremont neighborhoods, transit, Priority Development Areas (PDAs), businesses, regional trails, parks, and schools.

Key Destinations

The Dumbarton Bridge to Quarry Lakes Trail will provide an east-west connection to transit stations (BART — Union City, ACE — Centerville, Amtrak), regional trails (Bay Trail, Dumbarton Bridge Path, Alameda Creek Trail, East Bay Greenway, and Niles Canyon Trail), parks, schools, and neighborhoods. The trail will provide connections to local employment centers, such as the Ardenwood Business Park and future Priority Development Areas (PDAs) like the City Center. The trail will provide recreational opportunities to many Fremont residents and will provide connections to the Don Edwards San Francisco Bay Wildlife Refuge, Coyote Hills Regional Park, and Quarry Lakes.

Trailside Elements

- Landscaped corridor in commercial developments

Overview

Typology: Regional

Length: 12 miles

Width: TBD

Surface Material: TBD

Ownership: Varies (City of Fremont and others)

Maintenance: TBD

Current Condition: Undergoing preliminary design and environmental review

Alignment per Scoping Study

Plans and Studies

Dumbarton Bridge to Quarry Lakes Trail Study (2018)

This scoping study describes the need for the trail, identifies the proposed segments, describes relevant issues, and defines designs and costs.

www.fremont.gov/DocumentCenter/View/38635/Final-Scoping-Study?bidId=

Dumbarton Bridge to Quarry Lakes Trail Preliminary Design and Environmental Analysis Project (2020)

This project will prepare 35% progress construction documents and environmental documents for the entire trail corridor. The environmental and preliminary engineering design is underway and is estimated to be completed in 2022. The project will provide opportunities to complete engineering design and pursue construction funds.

Quarry Lakes Parkway Project (2020)

Quarry Lakes Parkway, a project by Union City, is a new four-lane local street with buffered bike lanes and a separated Class I multi-use trail that connects Paseo Padre Parkway and the Alameda Creek Trail in Fremont northeast to Mission Boulevard in Union City – the route of the planned East Bay Greenway. This connection is an extension of the Dumbarton Bridge to Quarry Lakes Trail being planned by Fremont. It is an essential component of the planned thriving pedestrian and transit-oriented community.

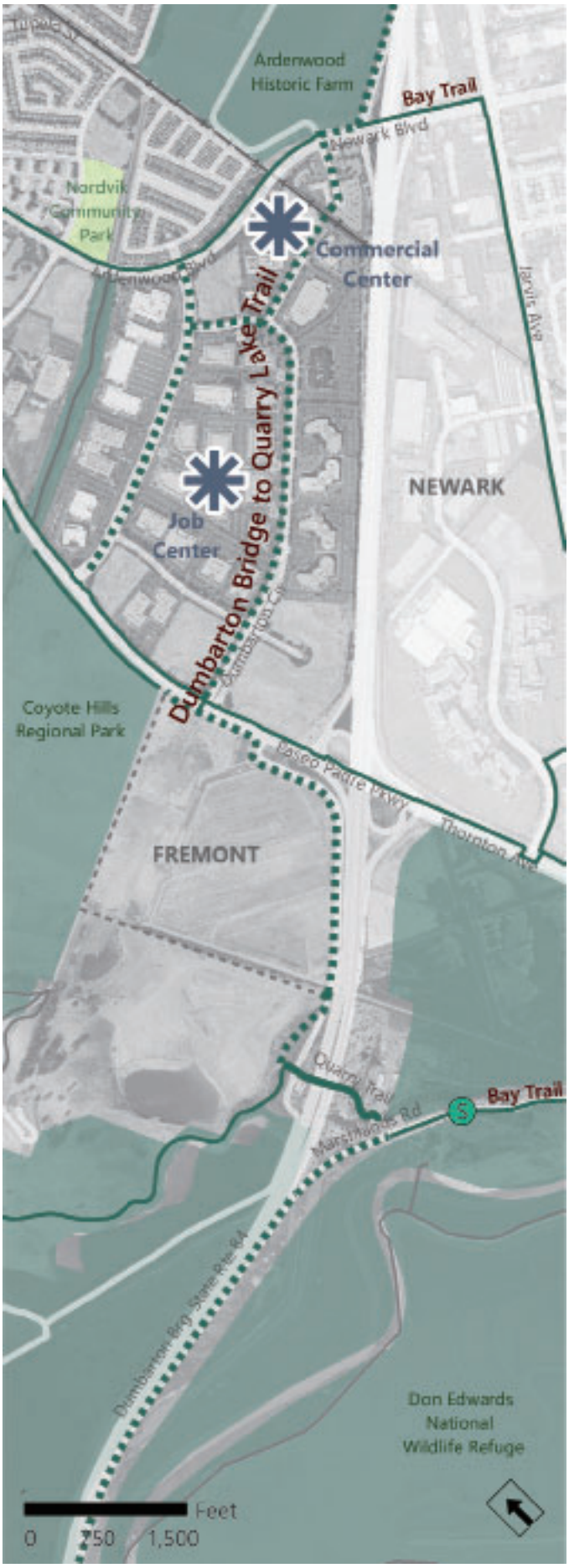
Trail route along channel east of Decoto Road (Google Streetview)

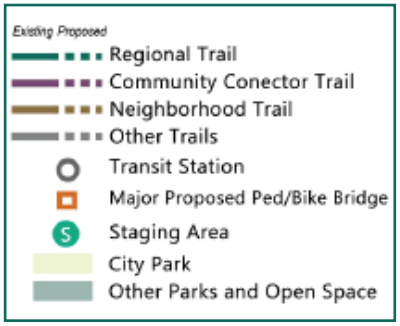
Trail route along Kaiser Drive

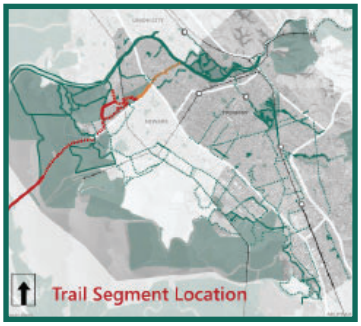
Corridor Environment

The trail will begin at the existing sidepath along Dumbarton Bridge. It then will follow Marshlands Road until it meets the existing Quarry Trail and overcrossing of CA-84. The trail will follow Quarry Road until Paseo Padre Parkway where it then will cross Paseo Padre Parkway to follow Dumbarton Circle. It will turn on Ardentech Circle, which is not a through street. A undeveloped parcel divides Ardentech Circle from Ardenwood Boulevard.

Dumbarton Bridge to Quarry Lakes Trail Corridor (1 of 3)







Corridor Environment

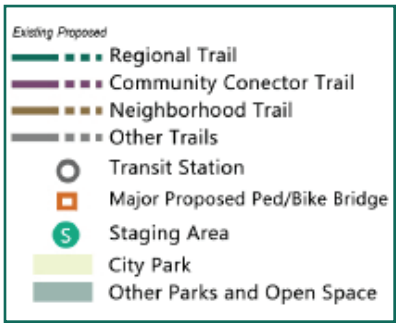
The trail will then skirt the Ardenwood Historic Farm, following State Route-84. It follows the existing Ardenwood Path until a signalized crossing at Decoto Road.

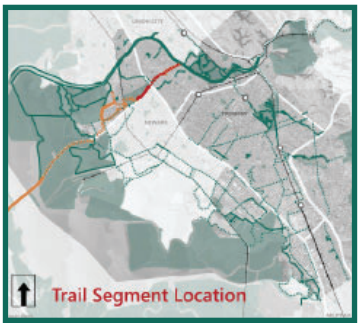
It then will follow the south side of Decoto Road before turning onto an Alameda County Flood Control channel maintenance road until it reaches Fremont Boulevard.

East of Fremont Boulevard, the trail will use a Fremont Unified School District parcel to connect to the Alameda Creek Trail.

The trail will cross the Alameda Creek to then follow the existing Dumbarton Bridge to Quarry Lakes Trail.

Dumbarton Bridge to Quarry Lakes Trail Corridor (2 of 3)

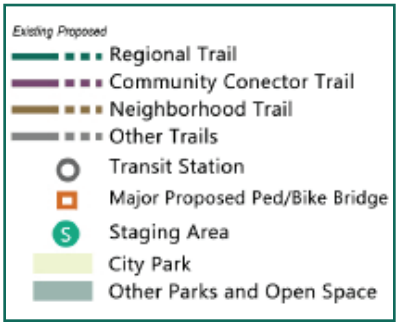


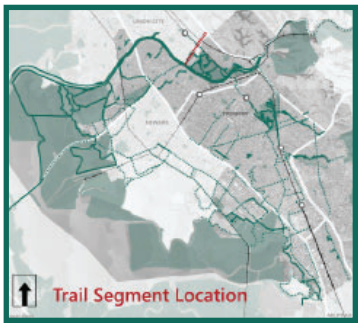


Dumbarton Bridge to Quarry Lakes Trail Corridor (3 of 3)

Corridor Environment

From the existing Dumbarton Bridge to Quarry Lakes Trail, the trail will connect north to Mission Boulevard along the proposed Quarry Lakes Parkway Trail.





6. Mission Creek Trail

Mission Creek Trail

This 1.5 mile corridor between I-680 and the Gomes Neighborhood Park trails connects many neighborhoods, Hopkins Junior High, and Mission San Jose High School and Park. The 10 to 16-foot wide asphalt and concrete trail is well-used.

Gomes Neighborhood Park Trails

The Gomes Neighborhood Park trails are part of the Mission Creek Trail system. These trails serve the surrounding neighborhood, connecting to Gomes Elementary School and linking the Mission Creek Trail to Central Park and Lake Elizabeth. The main trail is 12 feet wide, asphalt, and separated from the park playground. Nine-foot concrete trails provide a school, five neighborhood, and separate playground connections.

Key Destinations

The Mission Creek Trail connects to many key destinations.

Destinations include:

- Schools (Gomes Elementary, Hopkins Junior High, Chadbourne Elementary, and Mission San Jose High School)
- Local Parks (Gomes Neighborhood Park, Mission San Jose Community Park)
- Regional Park (Central Park/Lake Elizabeth)
- Transit Station (Central Park/Lake Elizabeth trails, Gomes Neighborhood Park, and Mission Creek Trail provide access to the Fremont BART station that is 1 mile away)

Trailside Elements

- Partially landscaped corridor
- Some benches and table in park sections
- Interpretive panels in Mission San Jose Community Park

Overview

Typology: Community Connector

Length: 2 miles

Width: Varies (9-16 feet)

Surface Material: Varies (concrete and asphalt)

Ownership: ACFC

Maintenance: City of Fremont

Current Condition: Existing trail

New trail in Mission Creek development

Railroad crossing connecting Central Park

Plans and Studies

Mission Creek Trail Gap Closure Scoping Study (2018)

The proposed Mission Creek Trail project in the City of Fremont will extend an existing multi-use path by nearly 2,200 feet to complete the connection between Palm Avenue and Mission Boulevard, and will provide an accessible route along the existing flood control channel. The project will also implement a pedestrian bridge crossing that will span approximately 100 feet over the flood channel at a key location in order to provide enhanced connectivity and access to the trail for the surrounding neighborhoods.

It is expected that permits will be required from the U.S. Army Corps of Engineers to permit work within the riparian corridor. After completion of the project, a maintenance agreement between the City of Fremont and Alameda County Flood Control would be required. The City and the District would both need to request easements from the San Francisco Public Utilities Commission for the portion of the project that falls within its right-of-way.

Trail along flood channel in Gomes Neighborhood Park

Trail in central Gomes Neighborhood Park

Protruding manhole on a trail in Mission San Jose Community Park

Benches and tables in Mission San Jose Community Park

Corridor Environment

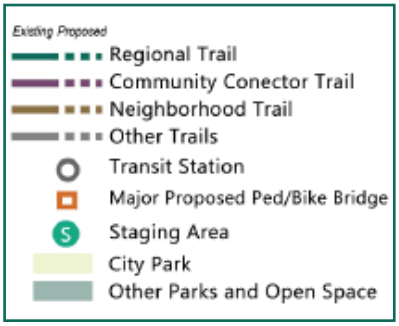
A signalized bicycle and pedestrian crossing of the UPRR tracks connects the Lake Elizabeth Loop Trail to Gomes Neighborhood Park. The trails in Gomes Neighborhood Park are predominately along Mission Creek. Trails within the park connect to surrounding communities and a playground. The trails were rebuilt recently and are in good condition.

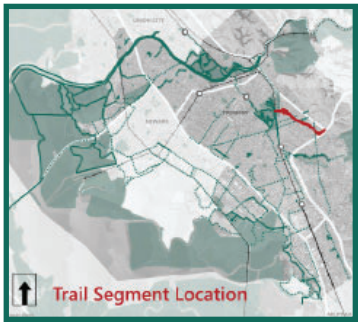
The trail continues along Mission Creek to Driscoll Road. The trail crosses Driscoll Road mid-block. The trail continues along Mission Creek. The creek is mostly narrow and channelized.

Along the Mission Creek Trail there are some neighborhood access points. The asphalt trail surface along Mission San Jose Park is in moderate condition, but tree roots have uplifted the asphalt in some places and at least one manhole cover protrudes.

Southeast of Palm Avenue, the creek corridor is not open to the public. A quarter mile after Palm Avenue, just beyond the Hetch Hetchy North-South Corridor, the trail exists as part of the Mission Creek development. The trail along the Mission Creek development is new and in good condition. The concrete trail at this location is 16 feet wide with three neighborhood connections. The trail ends at Mission Boulevard.

Mission Creek Trail Corridor (1 of 1)





Mission Creek Trail Corridor Recommendations (1 of 1)

Recommendations

Widen existing 12' paved trail to 14'.

Widen existing 10' paved trail to 14'-16'.

Improve access to schools and parks.

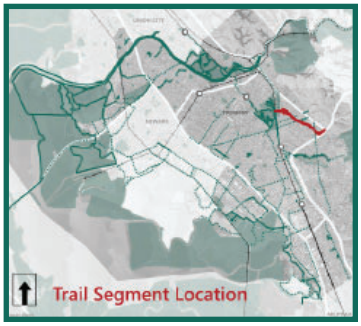
Add a new access point and bridge where a desire line and informal creek crossing exists.

Add a new access point at Palm Avenue and Mission Creek in conjunction with completing the southern segment of Mission Creek Trail.

C E

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



7. Sabercat Historical Park Trail

The Sabercat Historical Park Trail lies in Sabercat Creek Historical Park along the creek. The trail is typically 10 feet wide and either concrete or asphalt. It connects several neighborhoods between Mission Boulevard and Ohlone College towards the foothills (to the east).

Once the proposed I-680 bridge is built, the trail will connect these neighborhoods to the new Irvington BART station. This connection to BART will offer residents new active transportation opportunities.

The trail passes through serene natural areas along a creek. The Sabercat Historical Park Trail is very popular with neighborhood residents and people across Fremont.

New concrete section of trail to the east

Overview

Typology: Community Connector

Length: 2 miles

Width: Varies (6-12 feet)

Surface Material: Varies (concrete, asphalt, and unpaved)

Ownership: ACFC

Maintenance: City of Fremont

Current Condition: Existing trail

Key Destinations

The Sabercat Historical Park Trail connects to many key destinations in the eastern part of Fremont and provides an opportunity for active transportation.

When the proposed I-680 overcrossing is completed, the Sabercat Historical Park Trail will connect to the planned Irvington BART station and the Irvington Transit PDA on its west end.

The proposed Hetch Hetchy North-South Trail is a major corridor that will intersect the Sabercat Historical Park Trail near Paseo Padre Parkway. The East Bay Greenway will also connect to the Sabercat Historical Park Trail. An on-street connection along Pine Street could connect the trail to the Mission Boulevard commercial corridor, Ohlone College, and Mission Peak Regional Park on the east.

Mission San Jose Elementary School is within walking distance of the Sabercat Historical Park Trail.

Trailside Elements

- Rustic log benches along the concrete portion to the east
- Interpretive panels

Sabercat Historical Park Trail near Castillejo Entrance

Plans and Studies

I-680 v Bridge and Trail (Irvington BART to Ohlone College) Scoping Report (2018)

This report defines the project scope and implementation strategy for a bicycle and pedestrian bridge over I-680. The bridge will connect to a Class I multi-use trail that will link the Sabercat Historical Park Trail, the East Bay Greenway, bikeways on Blacow Road, the future Irvington BART station, and a future Paleontological Museum.

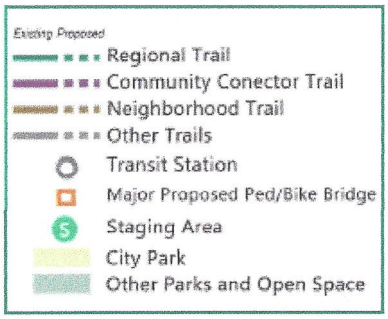
Proposed Bridge and Trail Alignment per Study

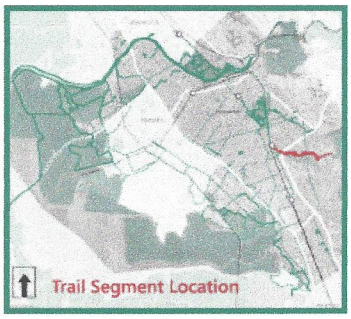
Note: The Sabercat Trail Extension project is underway with a goal to obtain environmental clearance and complete engineering design by 2022 so that City can begin to pursue construction funds

Note: Near I-680, a barrier to trail connectivity, there is an informal system of unpaved roads and paths, including some informal mountain bike trails.

Future I-680 overcrossing location

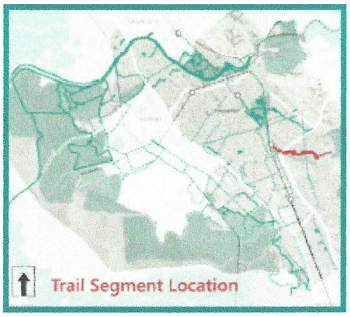
Sabercat Historical Park Trail Full Corridor





Recommendations

Proposed I-680 Trail Bridge.



Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier

Location-Specific Trail Recommendations

From west (near I-880) to east (Pine Street terminus)

The section of paved trail west of the Banda Terrace fire vehicle emergency path connection crosses a steep, oak-shaded slope. Dirt and mud from the slope can obstruct the trail. A short retaining wall with an adjacent drain ditch on the uphill side would prevent debris from obstructing the trail.

Steep cross slope section

East of Banda Terrace connection, the valley broadens and the 10-foot wide trail is unobstructed. This portion is seasonally grazed, with gates that can be closed to prevent the animals from escaping.

Broad valley section east of Banda Terrace

At the Paseo Padre Parkway undercrossing, there is a sharp turn with poor sightlines, particularly on the east side. The visibility is reduced by baccharis shrubs and slats in the fence. Pruning the shrubs and removing the slats on the eastern portion of the fence would improve visibility. Warning signs and/or markings in addition to adding a mirror around the curve may also improve safety.

East side of undercrossing at Paseo Padre Parkway

West of the Gallegos Avenue connection, there is a section with a 15% slope, which exceeds the ADA and Class I Trail standard of 5% maximum slope. A slope of 15% is difficult for bicyclist to climb. There are other segments that are nearly as steep, but generally, the Sabercat Historical Park Trail is feasible for bicyclists to climb. Steep slopes also increase downhill bike speed and the need for caution. On these steep downhill sections, warning signs and/or markings and tactile feedback for bikes may also improve safety.

West of the Laurel Glen Commons stairway, a drain protrudes into the trail. The drain should be relocated away from trail users and/or warning signs/markings should be added to improve safety.

Drain intrudes into the path on the left

To the east of Laurel Glen Commons stairway, vegetation encroaches upon the 10-foot wide, asphalt trail, causing the trail to narrow to 6-7 feet. West of Becado Place, an adjacent fence creates poor viability and a bollard blocks the middle of the trail. Pruning the vegetation here would improve visibility.

Pruning vegetation and removing the bollard in the background would improve safety

The Laurel Glen Commons stairway provides an important connection; however, the stairs intrude on the trail. In addition, the stairs also restrict access for wheeled trail users.

Stairs to Laurel Glen Common

The trail then runs adjacent to Becado Place. There is a sharp turn where a small oak tree blocks the view ahead. Pruning the lower branches of this oak tree would significantly improve visibility. Warning signs and/or markings may also improve safety.

Curve along Becado Place with view blocked by small oak tree

Where the trail departs from Becado Place/Drive, there is a sharp turn crossing a private driveway with poor visibility into the turn. Removal of a palm tree to the east of the driveway would increase visibility. Warning signs and/or markings on both sides of this sharp curve may also improve safety.

Sharp curve across private driveway

The eastern edge of the Sabercat Historical Park Trail, terminating at Pine Street, is a new, 10-foot wide, concrete trail along relatively flat terrain. Orientation maps and signage highlight the eastern entrance. Entrances include bollards and gates, some of which hinder access.

Eastern concrete portion of trail

Overall Recommendations

» Maintenance

Good maintenance may decrease conflicts between bicycles and pedestrians. On the Sabercat Historical Park Trail, debris, vegetation encroaching onto the trail, and inadequate overhead clearance significantly narrows the 10-foot trail. The trail should be kept clear of debris and encroaching vegetation.

» Add Shoulders and Pedestrian Space

The standards for a Community Connector Trail call for 11 feet minimum width. Where that width is not feasible, improving sightlines, adding warning signs and/or markings ahead of sharp curves and on steep downhills, and adding 2-foot wide, decomposed granite or quarry fines shoulders on each side may improve safety.

Where there is only room for one shoulder, this shoulder should be placed on the lower side of the trail, closer to the creek. Signage should encourage pedestrians to use the shoulder. With or without shoulders, using a white stripe to delineate 2 feet of the space for pedestrians may also improve safety.

» Move Interpretive Signs

Interpretive signs along the edge of the trail may also cause trail user conflicts. If people were to stop and read them, they would block part of the trail. The signs should be moved several feet away from the trail into a clearing, similar to how the interpretive signs are placed along the Mission Creek Trail.

» Improve Pavement

The eastern part of the trail was recently constructed with concrete. Along much of the corridor, the asphalt trail surface is in poor condition. Most of the asphalt pavement is in poor condition with “alligator” cracking over the surface. The trail needs repaving. When the trail is repaved, its new surface material should be concrete to better withstand cracking from the underlying soil's instability.

Long-Term Recommendations

When the connection across I-680 is complete, trail use patterns will change. With more people commuting, more conflicts may arise between trail users.

» Keep New Connections as Level as Possible

The existing steep, unpaved route from the top of the hill near I-680 would need to be realigned to meet Class I trail standards.

» Install Retaining Wall at Steep Cross-Slope

To widen the trail to 12 feet or greater, a tall, concrete retaining wall would be required west of the Banda Terrace connection. A retaining wall is needed because this is a steep, cross-slope section of trail. There should be an additional foot of clearance from the wall and from the steep drop-off. A fence should be installed near the steep drop-off to improve safety.

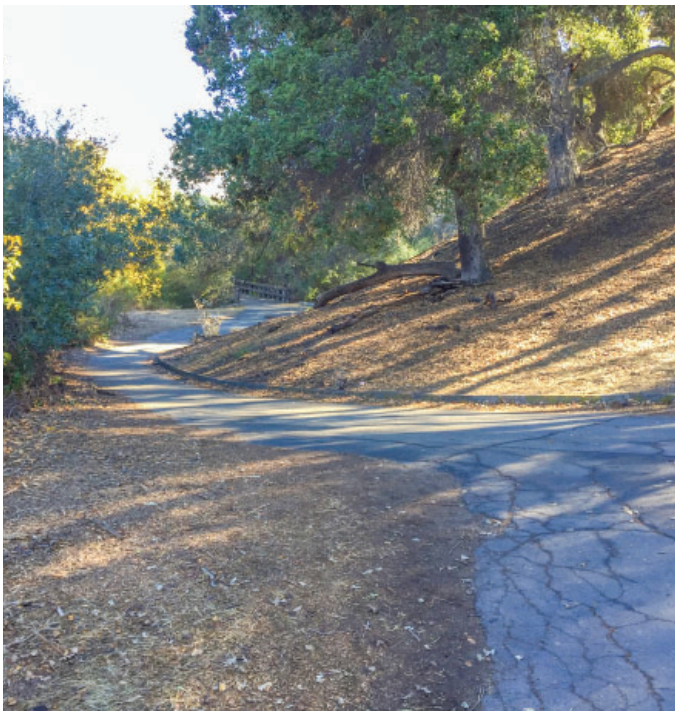
» Create Space for Bikes and Pedestrians

Trail widening, creating a designated side for pedestrians and allowing for centerline striping for bicyclists, may improve safety. These recommendations are consistent with the design guidelines for Regional Trails.

» Add Lighting

If the trail were to serve people commuting, lighting would be needed, particularly to support use on winter evenings and mornings.

Interpretive panel along the trail



Pavement cracking near Banda Terrace connection

8. Fremont Boulevard Channel Trail

The proposed Fremont Boulevard Channel Trail would follow the Laguna Creek Channel. It would connect to the East Bay Greenway, Sabercat Historical Park Trail, the PG&E Corridor and Channel Trail, and the Bay Trail. It would also connect to many key destinations along its route, providing opportunities for active transportation and recreation.

Key Destinations

Nearby destinations include the future Irvington BART station, future housing and job centers located at the BART station, job centers (including Tesla) further south, and connections to the East Bay Greenway, Sabercat Historical Park Trail, the PG&E Corridor and Channel Trail, and the Bay Trail.

Schools and local destinations to the west of the corridor include the Irvington Library and Community Center, Irvington High School, Horner Junior High School, and Hirsch Elementary School.

Trailside Elements

- None at present

Overview

Typology: Community Connector

Length: 3.8 miles

Width: 10 feet (existing maintenance road)

Surface Material: Compacted aggregate (existing)

Ownership: ACFC

Maintenance: TBD

Current Condition: Proposed trail — no past or current studies or plans

Corridor Environment

The proposed Fremont Boulevard Channel Trail follow Alameda County Flood Control (ACFC) channel maintenance roads. The corridor begins at the BART/railroad corridor, but does cross the tracks. An approximately 16-foot wide, base rock maintenance road continues along the south/east side of the channel, adjacent to Ronald Court.

The corridor crosses Roberts Avenue mid-block. From here the maintenance road switches to the west side of the channel, closer to Fremont Boulevard. The corridor crosses Blacow Road mid-block and shortly thereafter is adjacent to Fremont Boulevard. The maintenance road continues on the west side. At Delaware Drive, the corridor crosses at a signalized intersection, which would require improvements.

Fremont Boulevard Channel at Doane Street

Corridor Environment

The channel crosses the PG&E corridor shortly before crossing under Fremont Boulevard. The maintenance road does not go under Fremont Boulevard. There is a short segment of channel and maintenance road extending to Auto Mall Parkway. The maintenance road is on the east side of the channel in this location. From Auto Mall Parkway to just after Ice House Terrace the maintenance road is between the channel and Fremont Boulevard.

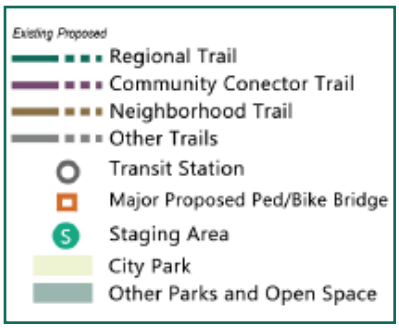
Where the channel diverges from Fremont Boulevard, the maintenance road crosses to the west side of the channel using an existing access bridge. Also at this point, another small channel joins the Laguna Creek Channel with an accompanying maintenance road.

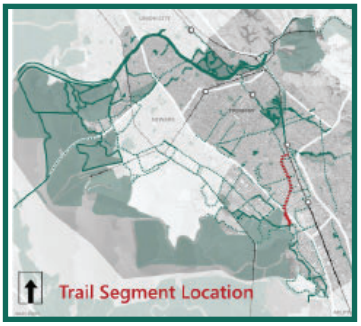
Further south, yet another channel joins the Laguna Creek Channel. Narrow maintenance roads on either side of this smaller channel connect to Fremont Boulevard. The original Laguna Creek Channel maintenance road (on the west side) is approximately 20 feet and is unobstructed to Grimmer Boulevard. The additional road on the east side is approximately 14 feet wide but is not continuous.

At Grimmer Boulevard the channel crosses mid-block. The maintenance roads do not go under Grimmer Boulevard. Past Grimmer Boulevard there is only a maintenance road on the east side. The maintenance road continues until I-880, but does not cross the highway.

Given the nearby East Bay Greenway connection across I-880 (the I-880/Tesla Bridge and Trail, currently in environmental/design), the high cost of a second I-880 overcrossing is not warranted. The dead end segments of the trail can connect industrial/employment areas to the north and south.

South of I-880, the channel continues through the industrial development with maintenance roads on both sides of the channel. The channel crosses Starboard Drive and then Cushing Parkway mid-block. The existing Bay Trail follows Cushing Parkway in this location.





Fremont Boulevard Channel Trail Full Corridor

Recommendations, continued

Fremont Boulevard Channel Trail Corridor Recommendations (1 of 2)

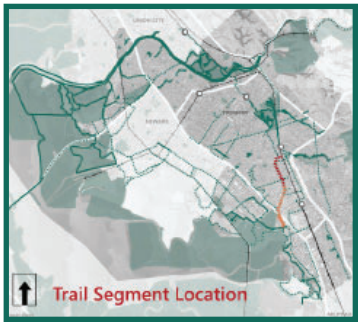
Add a trail connection to local retail.

Coordinate crossing with PG&E Corridor & Channel Trail (B D)

Add a Class I connection south to Auto Mall Parkway using the 10-foot sidewalk on the east side of Fremont Boulevard. (B D)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Recommendations, continued

Use the existing maintenance access bridge over the channel as a bicycle and pedestrian bridge.

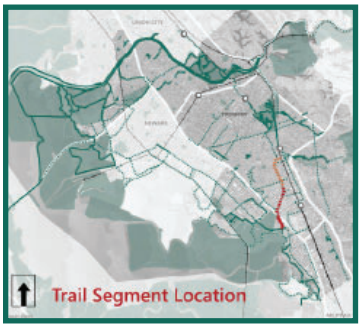
Coordinate with business owners to provide trail access connections and bicycle parking.

Coordinate with business owners to provide trail access/connections and bicycle parking.

Fremont Boulevard Channel Trail Corridor Recommendations (2 of 2)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



9. Hetch Hetchy East-West Trail

The Hetch Hetchy East-West Trail proposes to use a San Francisco Public Utility Commission 80-foot wide corridor that spans 4 miles within Fremont. The SFPUC supports the use of trails within their corridors, but prefers unpaved surface trails and trailside infrastructure that does not include footings.

There are some private encroachments and permitted developments (churches, schools) on the Hetch Hetchy right-of-way. The SFPUC would probably require the City to address private encroachments as part of a trail establishment agreement.

It connects to the Mission Creek Trail, Central Park/ Lake Elizabeth, proposed Alameda County Flood Control trails, many neighborhoods, schools, and retail along Fremont Boulevard near Central Fremont.

Key Destinations

The Hetch Hetchy East-West Trail would connect to many key destinations in the central part of Fremont and provide opportunities for active transportation and recreation.

Paseo Padre Parkway wide sidewalk offers crossing under tracks (Google Streetview)

Water facility barrier at Eugene Street (Google Streetview)

The trail would connect to BART stations (via Central Park and the proposed East Bay Greenway).

The Hetch Hetchy East-West Trail would cross the Irvington Transit PDA. One local commercial zone is located on the east end of the proposed trail, near the Mowry Avenue.

There are several schools located along the trail, including Mission Hopkins Junior School, Mission San Jose High School, Joshua Chadbourne Elementary School, Walters Junior School, and Joseph Azevada Elementary School. Several other schools are within walking distance of the trail.

Fremont Central Park and other neighborhood parks are located along the trail. This trail also connects to the U-Channel Trail, Farwell Linear Park Trail, Grimmer Greenway Trail, Irvington Neighborhood Trail, and Mission Creek Trail.

There are also some religious buildings along the trail.

Trailside Elements

- None at present

On-street connection to corridor at Driscoll Road (Google Streetview)

Overview

Typology: Community Connector

Length: 4 miles

Width: 80-foot right-of-way

Surface Material: TBD

Ownership: SFPUC

Maintenance: TBD

Current Condition: Proposed trail

Corridor Environment

The trail will start at Mission San Jose High School and William Hopkins Jr. High School, where the corridor extends between the campus and the athletic fields to the south.

The trail will then travel west along the SFPUC corridor, crossing Driscoll Road/Chiltern Drive at an angle. The trail then continues until it connects to Paseo Padre Parkway.

The trail will then follow the wide sidewalk and Class 4 separated bike lanes along Paseo Padre Parkway until it connects to the proposed Grimmer Greenway.

The trail will briefly follow the Grimmer Greenway and then turns to the SFPUC corridor. The trail will cross Fremont Boulevard and its frontage roads.

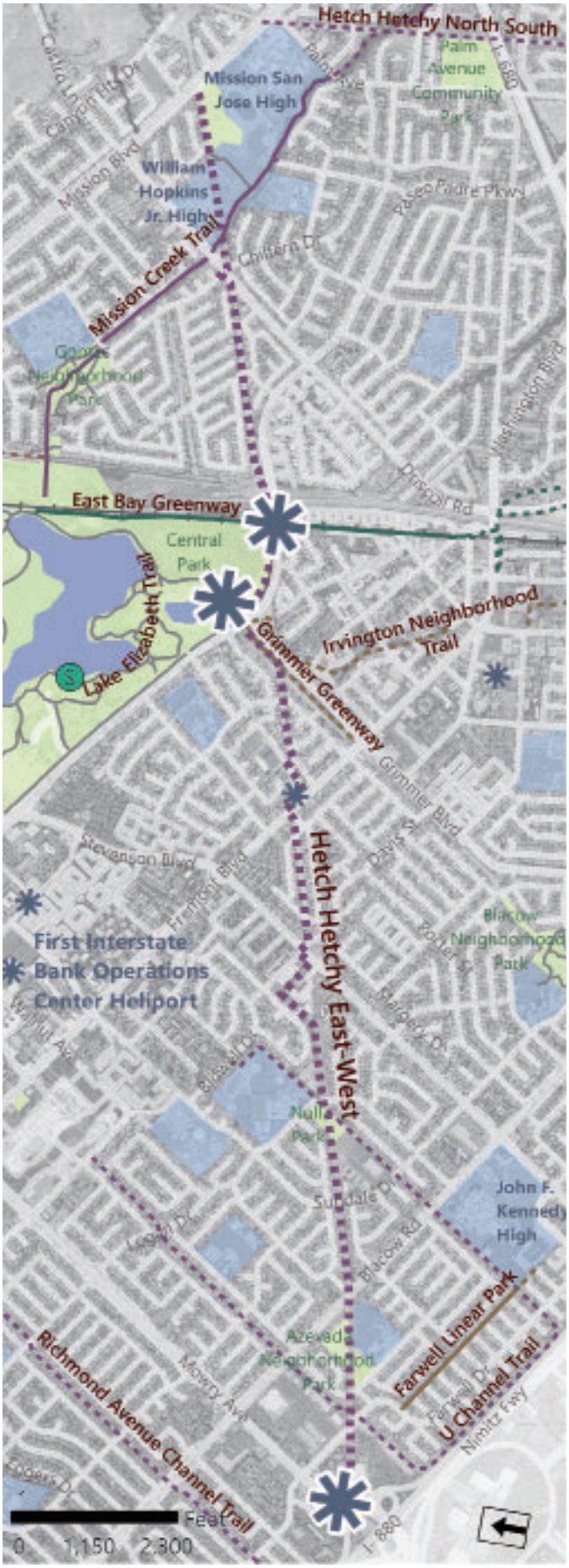
Further west, the corridor crosses residential streets at an angle and there is a very complex intersection at Davis Street/Stevenson Boulevard. After the intersection, private encroachments in the corridor present a significant barrier.

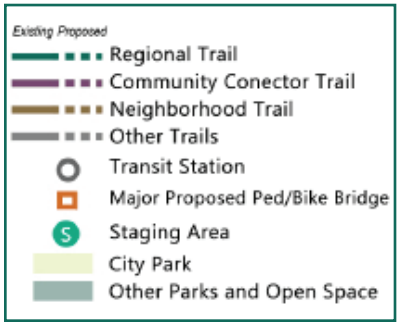
The corridor is then open until Sundale Drive where it is partially occupied by a parking lot for the Daniel Christian Academy.

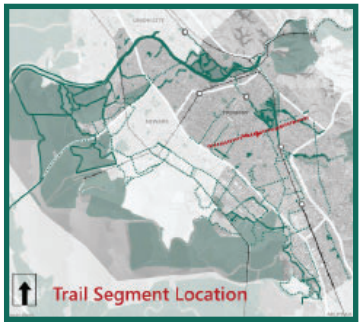
After Sundale Drive, Blacow Road (and its frontage roads) is the next major crossing. Furthermore, the corridor crosses Blacow Road at an angle.

After Farwell Drive, the trail would enter a major retail commercial complex. The Fremont section of the Hetch Hetchy Corridor ends at Mowry Avenue/I-880.

Hetch Hetchy East-West Trail Full Corridor







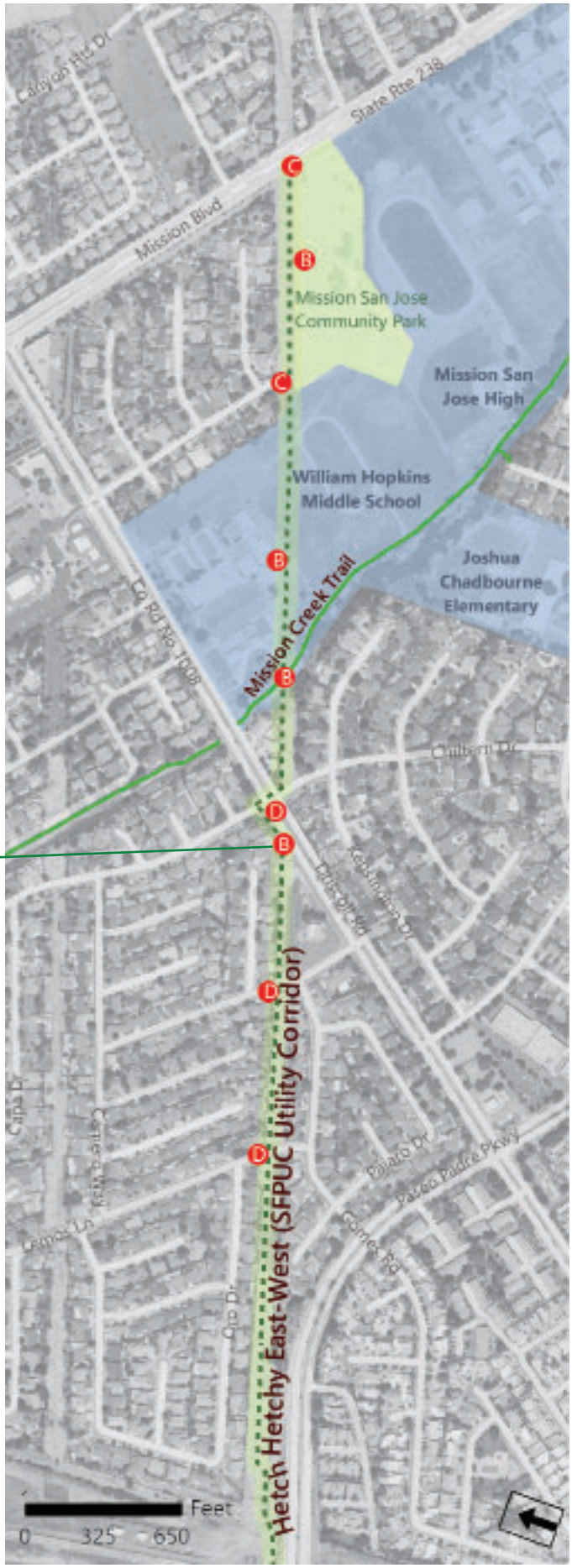
Complex intersection crossing at Stevenson Boulevard and private improvements barrier beyond (Google Earth)

Playground barrier at Our Lady of Guadalupe Church and School (Google Streetview)

Existing school crosswalk to corridor at Fremont Boulevard (Google Streetview)

Recommendations

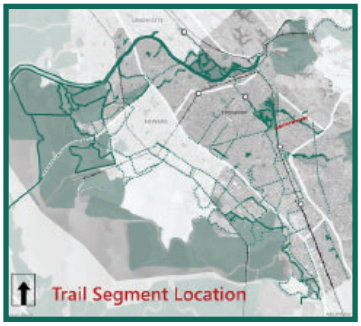
Hetch Hetchy East-West Trail Corridor Recommendations (1 of 3)



Add a trail connection by either creating a detour or modifying the Christian Science Church parking lot, which occupies part of the corridor.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Recommendations, continued

Use the 10-foot wide sidewalk that parallels Paseo Padre Parkway.

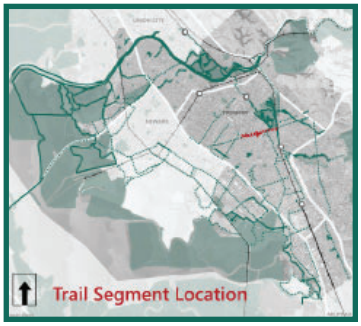
Add a detour north into Fremont Central Park to cross Paseo Padre Parkway at the existing signalized intersection at Grimmer Boulevard. This is part of the proposed Grimmer Greenway.

Add trail access where there are two fenced water pumping/monitoring facilities on either side of Eugene Street.

Hetch Hetchy East-West Trail Corridor Recommendations (2 of 3)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Recommendations, continued

Design new crossing at Logan Drive integrated with a U-Channel Trail crossing.

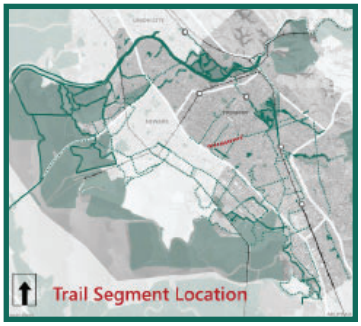
Add a half-block detour south to the signalized intersection at Coco Palms Drive to avoid the angled crossing of Blacow Road and its frontage roads. Add crossing improvements at Coco Palms Drive (refuge islands and high-visibility crosswalks).

Design new crossing at Farwell Drive integrated with a U-Channel Trail crossing.

Hetch Hetchy East-West Trail Corridor Recommendations (3 of 3)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



10. Hetch Hetchy North-South Trail

The proposed Hetch Hetchy North-South Trail would use a San Francisco Public Utility Commission (SFPUC) 80-foot wide corridor that spans 5.75 miles along the foothills through Fremont.

The Hetch Hetchy North-South Trail will link the Mission Creek Trail to the Sabercat Historical Park Trail, connecting many neighborhoods along its route and providing opportunities for active transportation and recreation.

The SFPUC supports the use of trails within their corridors, but prefers natural surface trails and trailside infrastructure that does not include footings.

Key Destinations

The corridor connects to local commercial areas, regional trails, neighborhood parks, and schools.

The corridor is adjacent to the Franciscan Center and Warm Springs Plaza, which are local commercial areas.

The corridor also connects the Mission Creek Trail to the Sabercat Historical Park Trail. There are several neighborhood parks along the corridor, but there is no regional park close to this corridor.

William Hopkins Junior High School, Mission San Jose High School, Weibel Elementary School, Leitch Elementary School, and Warm Springs Elementary School are all within walking distance of the corridor.

The Hetch Hetchy North-South Trail will not connect to any PDAs.

Trailside Elements

- Portions of the corridor at the southern end are developed as a linear park with playgrounds, basketball courts, benches, and connecting concrete paths.

Overview

Typology: Community Connector

Length: 5.75 miles

Width: 80 foot right-of-way

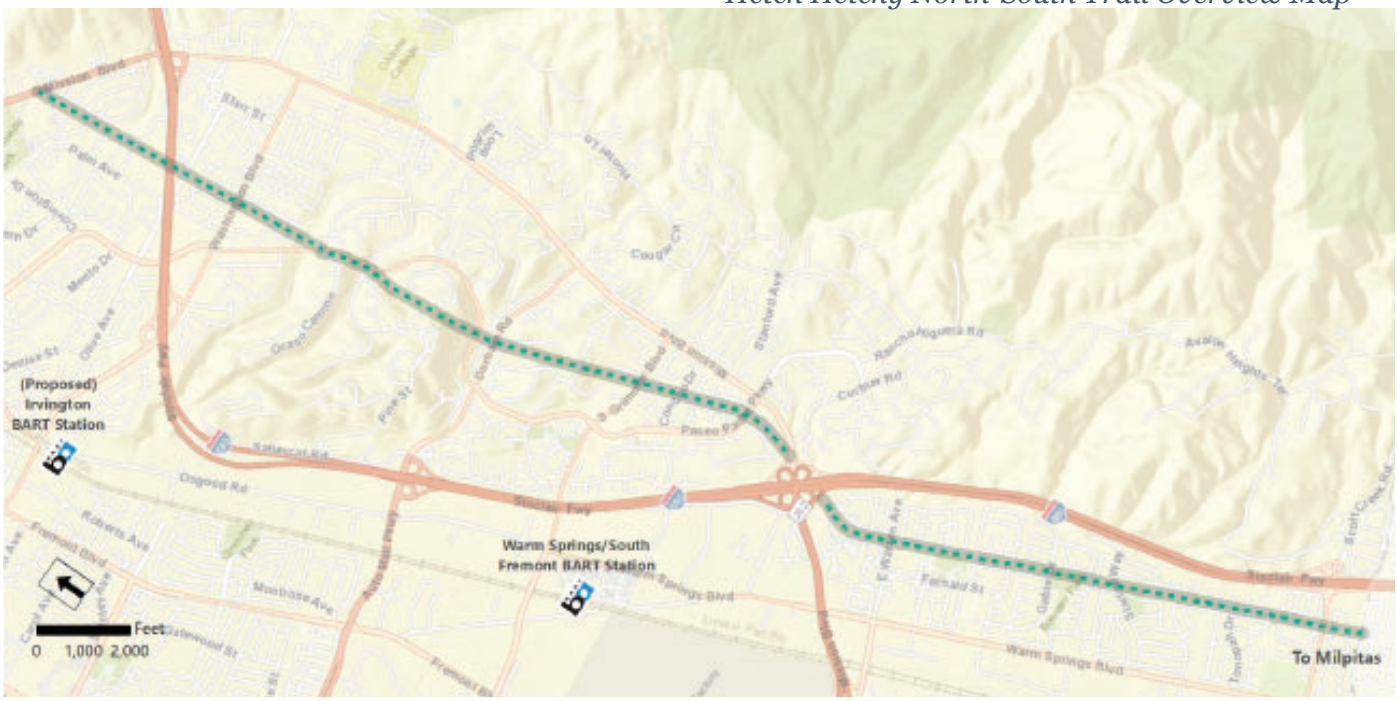
Surface Material: TBD

Ownership: SFPUC

Maintenance: TBD

Current Condition: Proposed trail

Hetch Hetchy North-South Trail Overview Map



Corridor Environment

The Hetch Hetchy North-South trail corridor begins at Palm Avenue and Mission Boulevard.

South of Palm Avenue a private parking lot blocks the corridor so an on-street route may be required along Palm Avenue and along Via San Miguel to connect back to the SFPUC corridor.

Further south, the corridor crosses the Mission Creek Trail corridor. To cross Mission Creek a bridge would be required as well as trail access through the agricultural space on the south side of Mission Creek. From here, the corridor crosses Tangelo Court and San Marco Avenue mid-block. Shortly thereafter, I-680 acts as a major barrier.

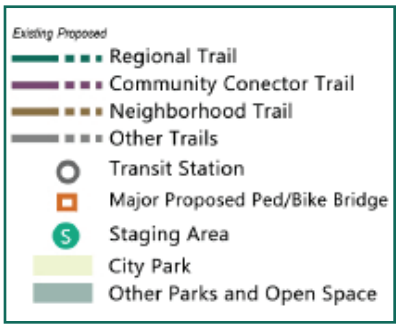
After I-680, the corridor crosses Olive Street mid-block. Then, south of Washington Boulevard, a cul-de-sac on Hawthorne Drive protrudes into the corridor. From here the corridor continues unobstructed, crossing Glenhill Drive mid-block and the Sabercat Historical Park Trail and Creek. The nearest creek crossing is at Paseo Padre Parkway.

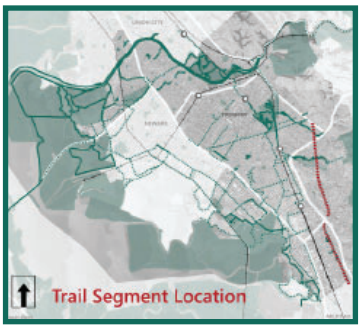
From here the corridor, now on the west side of Paseo Padre Parkway, continues south to Pine Street. There is an existing paved trail approximately 6 feet wide from Ocaso Camino to Pine Street.

The corridor continues through open space and crosses Paseo Padre Parkway again. It then crosses Durham Road, Sioux Drive, Washo Drive, South Grimmer Boulevard, Little Foot Drive, Concho Drive, Indian Hill Place, Cayuga Place, and once again crosses Paseo Padre Parkway. The corridor then crosses Nugget Way before the challenging interchange with I-680 at Mission Boulevard/Highway 238.

South of this interchange, the corridor crosses Crawford Street and East Warren Avenue. Here, an existing trail begins, connecting to Warm Springs Community Park and terminating near Towee Street and Covina Way.

Hetch Hetchy North-South Trail Corridor (1 of 2)



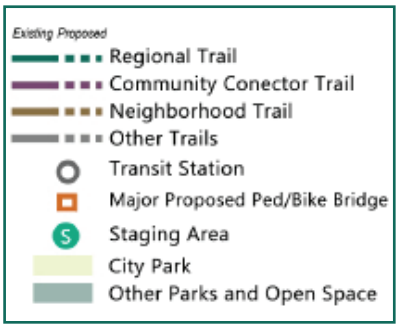


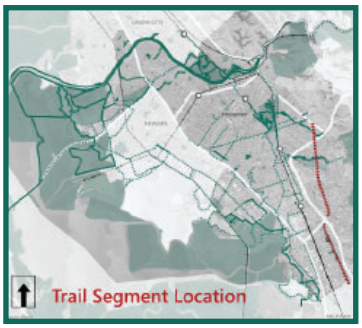
The corridor, without an existing trail, then continues, crossing Lippert Avenue, a concrete-lined drainage channel, and Gable Drive. It connects to Booster Neighborhood Park before it crosses McDuff Avenue, Ulmeca Place, and Starlite Way, where it reaches Lone Tree Creek Neighborhood Park. It then crosses Mayten Way, a concrete-lined drainage channel, Plomosa Way, and Tonopah Drive where the corridor becomes Plomosa Neighborhood Park. After a basketball court, a path connects from Wilaneta Avenue to Merlot Avenue. There is then a playground and basketball court at Gamay Court. The corridor then crosses Chardonnay Drive. An path connects from Chardonnay Drive to Scott Creek Road. The corridor then crosses Yampa Way before reaching the Milpitas city limits. A trail has already been constructed within the Milpitas Hetch Hetchy right-of-way.

This Hetch Hetchy right-of-way continues to the south side of Scott Creek Road to Milpitas.

View of the Hetch Hetchy corridor looking north from Mission Creek Trail

Hetch Hetchy North-South Trail Corridor (2 of 2)





Hetch Hetchy North-South Trail crosses Paseo Padre Parkway at Tissiack Way

Hetch Hetchy North-South Trail connection Navajo Way/ Havasu Street

Hetchy Hetchy North-South Trail connection to Warm Springs Community Park

Hetchy Hetchy North-South Trail at Plomosa Park

Recommendations

Modify parking area to add a trail connection or route trail via Palm Avenue or Camino Santa Barbara.

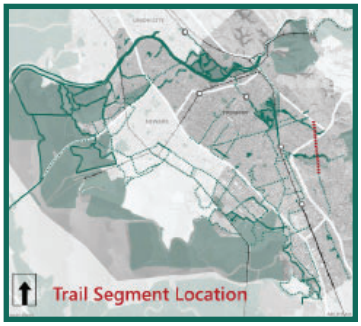
Add a Class I connection to the Palm Avenue overcrossing of I-680. Widen sidewalks and/or add bike lanes on the overcrossing.

Add a trail connection by creating a detour South of Washington Boulevard around a cul-de-sac that protrudes into the corridor.

Hetch Hetchy North-South Trail Corridor Recommendations (1 of 3)

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Recommendations, continued

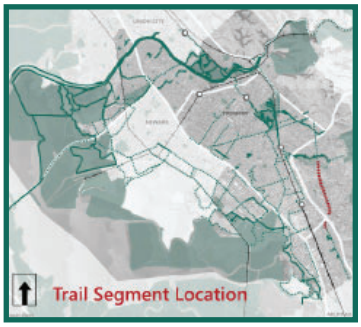
Hetch Hetchy North-South Trail Corridor Recommendations (2 of 3)

Add an on-street detour along the adjacent Tissiack Way. A filtration/monitoring facility blocks the corridor South of Paseo Padre Parkway.

Add a separate bike/pedestrian overcrossing of I-680. The first intersection to the west is signalized Mohave Drive, which leads to Crawford Street and connects back to the corridor.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



Hetch Hetchy North-South Trail Corridor Recommendations (3 of 3)

Recommendations, continued

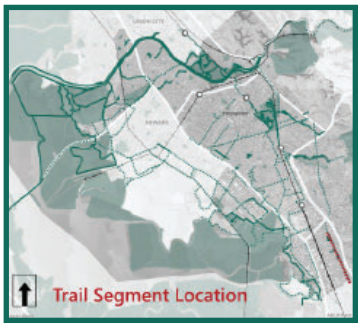
Use the new Bradley St/East Warren rapid flashing pedestrian beacon to cross.

Add a pedestrian bridge to cross south of Lippert Avenue. A detour along Hoyt Street to the west would eliminate the need for a pedestrian bridge.

Add a pedestrian bridge over channel between Craycroft and Tonopah. A detour at Ursa Drive is a alternative to adding a pedestrian bridge.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



11. PG&E Corridor & Channel Trail

This proposed trail would occupy a 230-foot wide utility corridor right-of-way on a Alameda County Flood Control levee between Hopkins Avenue and Grimmer Boulevard.

Most of the corridor is privately owned with an easement to PG&E. Access rights would be required to construct a trail.

The corridor connects to two proposed trails, Fremont Boulevard Channel Trail and Pacific Commons Connection. The corridor is adjacent to many residential developments and would enhance trail connectivity.

Key Destinations

The PG&E Corridor & Channel Trail will connect to many key destinations in the southeastern part of Fremont, providing opportunities for active transportation.

The PG&E Corridor & Channel Trail will connect to Osgood Road Connected Community PDA. It is also close to Skyway Plaza and Home Depot, which are located on Auto Mall Parkway. The corridor intersects the proposed Fremont Boulevard Channel Trail on Fremont Boulevard. There are no schools, parks, or public facilities near the PG&E Corridor & Channel Trail.

Trailside Elements

- None at present

Overview

Typology: Community Connector

Length: 1.3 miles

Width: 230 foot right-of-way

Surface Material: TBD

Ownership: ACFC/Private (owner) PG&E (easement)

Maintenance: TBD

Current Condition: Proposed trail

Fremont Boulevard & Auto Mall, PG&E power lines near PG&E Corridor & Channel Trail route

PG&E Corridor & Channel Trail from Grimmer Boulevard

Corridor Environment

The northeastern part of the trail will begin at Hopkins Avenue and travel along the PG&E utility corridor. There is a channel along the utility corridor. A 17-foot wide base rock surface maintenance road exists on the southeast side of the channel.

The channel then turns south and merges with the Fremont Boulevard Channel. A bridge would be required to cross the Fremont Boulevard Channel and extend the trail to the southwest. Fremont Boulevard lacks a safe crossing.

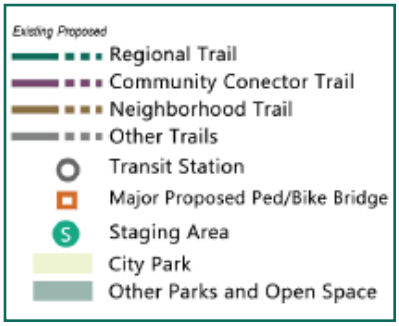
From here, there is a maintenance road on the northwest side of the channel. Private park improvements and parking lots with connecting neighborhood paths are located on the southeast side of the channel. These structures are associated with an adjacent mobile home park.

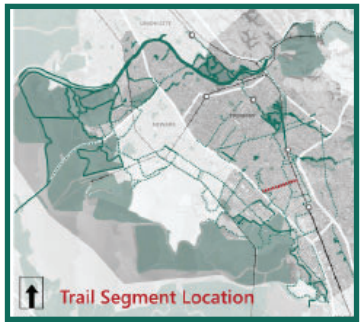
The channel and maintenance road both end at Cedarwood Drive. This section of the corridor is partially blocked by a truck/RV storage yard, reducing the corridor to 60 feet in width. The corridor is also entirely fenced off adjacent to Grimmer Boulevard.

To avoid these obstructions, the trail will continue to Grimmer Boulevard along an on-street route at Cedarwood Drive. It will continue along Doane Street to a signalized intersection at Grimmer Boulevard.

The trail will link to the Pacific Commons Connection along S Grimmer Boulevard.

PG&E Corridor & Channel Trail Full Corridor





PG&E Corridor & Channel Trail existing connection to Cedarwood Drive

PG&E Corridor & Channel Trail existing connection to Cedarwood Drive

PG&E Corridor & Channel Trail existing connection to Gatewood Street

PG&E Corridor & Channel Trail Full Corridor Recommendations

Recommendations

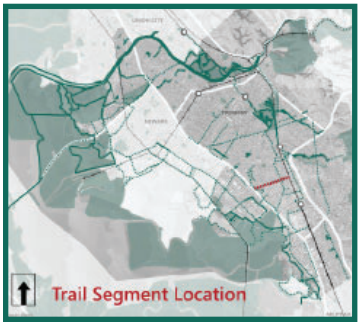
Add a connection to the proposed Irvington BART station and the existing Warm Springs/South Fremont BART station.

Add a bridge over a channel.

Add an on-street route at Cedarwood Drive, continuing along Doane Street to a signalized intersection at Grimmer Boulevard.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



12. Richmond Avenue Channel Trail

The Richmond Avenue Channel Trail is a proposed trail along an Alameda County Flood Control (ACFC) maintenance road.

This corridor follows a channel and stretches from Central Fremont to I-880, connecting neighborhoods, schools, and retail. The corridor mainly crosses low-volume/low-speed neighborhood streets.

Key Destinations

The Richmond Avenue Channel Trail will connect many key destinations in central Fremont, providing opportunities for active transportation and recreation.

Local destinations include:

- Schools (Washington High School, Maloney Elementary School, Glenmoor Elementary School)
- Transit (Fremont BART station)
- Retail (along Mowry Avenue, Paseo Padre Parkway, Fremont Boulevard, Blacow Road)

Trailside Elements

- None at present

Overview

Typology: Community Connector

Length: 2 miles

Width: 10 feet (existing maintenance road)

Surface Material: Compacted aggregate

Ownership: ACFC

Maintenance: TBD

Current Condition: Proposed trail

Richmond Avenue Channel begins at Stivers Street (Google Streetview)

Crossing point at Paseo Padre Parkway (Google Streetview)

Crossing at Blacow Road (Google Streetview)

Corridor Environment

The Richmond Avenue Channel Trail will follow the Alameda County Flood Control (ACFC) operations and maintenance access road next to a channel.

The corridor begins a block northeast of Paseo Padre Parkway, where there is a maintenance road on the southeast side of the approximately 45-foot wide corridor.

The corridor then crosses Paseo Padre Parkway mid-block. After Paseo Padre Parkway, the channel continues, widening somewhat, with the access road still on the southeast side. The corridor crosses Hastings Street mid-block.

The channel goes underground south of Lexington Street, along Monroe Avenue. The corridor follows Monroe Avenue and then crosses Fremont Boulevard mid-block before continuing on the maintenance road on south of Fremont Boulevard.

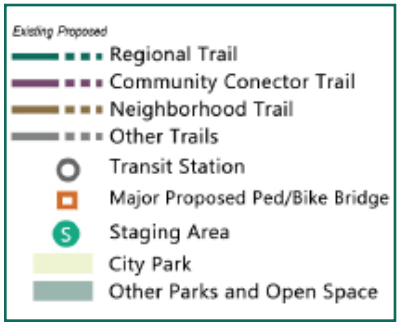
The channel then bends and the maintenance road is now on the northwest side in an approximate 50-foot wide corridor.

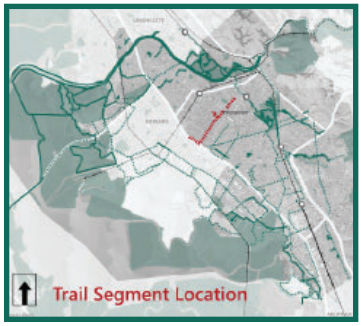
The corridor bends again near Maloney Elementary and another channel joins the Richmond Avenue Channel from the northwest. A bridge would be required to cross that channel.

The corridor then crosses Logan Drive mid-block and then Glenview Drive mid-block before intersecting Blacow Road and its frontage roads. The nearest signalized intersection is at Eggers Drive, over 1000 feet to the northwest.

The corridor continues southwest past Farwell Drive and then turns northwest along I-880 to connect to Granville Drive.

Richmond Avenue Channel Trail Full Corridor





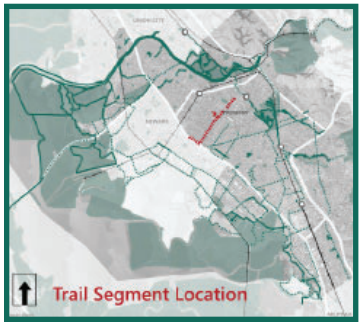
Recommendations

Richmond Avenue Channel Trail Full Corridor Recommendations

Work with property owners to add an on-street trail street connection. The corridor continues without public access.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



13. Brookvale, Cabrillo, and Patterson Park Trails

In the Centerville Planning Area there are a series of neighborhood trails. The trails were originally developed as a greenbelt, connecting a series of residential neighborhoods.

Key Destinations

The Brookvale, Cabrillo, and Patterson Park Trails either directly or indirectly (along short, on-street routes) connect to:

- The Alameda Creek Trail
- Brookvale Shopping Center
- Schools (American High and Patterson Elementary Schools)
- Local Parks (Patterson Neighborhood Park)
- Centerville Library

Trailside Elements

- Landscaped corridor
- Benches and trash receptacles
- Street lighting at cul-de-sacs connecting to trails

Brookvale Trail

Cabrillo Trail

Patterson Park Trail

Overview

Typology: Neighborhood

Length: 1.7 miles

Width: Varies (8–10 feet)

Surface Material: Concrete

Ownership: City of Fremont

Maintenance: City of Fremont

Current Condition: Existing trails

Corridor Environment

The Brookvale, Cabrillo, and Patterson Park trails are located in a greenbelt or park that is managed and maintained by the City of Fremont.

There is a signalized crossing at Paseo Padre Parkway for accessing both the Alameda Creek Trail and the Brookvale Trail.

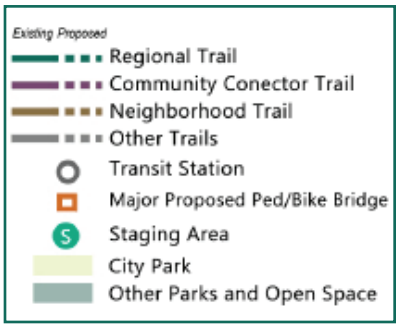
The Brookvale Trail begins at Isherwood Way, half a block from the Alameda Creek Trail. The 10-foot wide concrete trail travels a half mile, connecting 15 residential streets and ending at the Centerville Library/Brookvale Neighborhood Park.

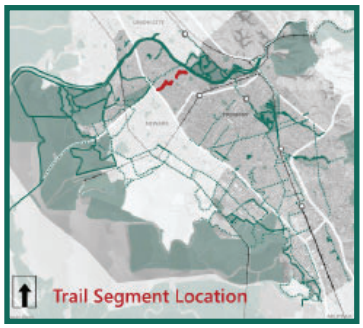
The separate Cabrillo Trail is a 9-foot wide concrete path and travels another half mile, connecting 16 residential streets before ending at Cabrillo Drive.

Across Cabrillo Drive, there is an adjoining 8-foot wide concrete path through Patterson Neighborhood Park and adjacent to Patterson Elementary School.

The Fremont Bicycle Master Plan proposes Class II bike lanes, which would link these trails to the Alameda Creek Trail and Dumbarton Bridge to Quarry Lakes Trail.

Brookvale, Cabrillo, and Patterson Park Trails Full Corridor





Recommendations

Redesign the paved areas around the library to add trail and park connections.

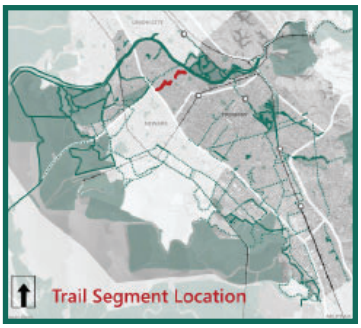
Add a trail connection to Fremont Boulevard in the event of future parcel redevelopment (or through parking redesign).

Add wayfinding signs to direct trail users to cross at the Cabrillo/Gibraltar intersection, recently upgraded in 2019/20.

Brookvale, Cabrillo, and Patterson Park Trails Full Corridor

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



14. Northgate Trail

The Northgate Trail is a 3/4-mile concrete trail developed as a greenbelt for a residential development and is managed and maintained by the City of Fremont. The trail connects many streets in the Northgate community and directly connects to the Alameda Creek Trail. The trail terminates near Northgate Community Park where a system of trails provide neighborhoods connections.

Key Destinations

The Northgate Trail connects to adjacent residential streets at 18 locations.

Nearby destinations include:

- Schools (Warwick Elementary School)
- Local park (Northgate Community Park)
- Neighborhood retail along Fremont Boulevard
- Neighborhood connection to the Alameda Creek Trail

Trailside Elements

- Landscaped corridor with playground
- Benches and trash receptacles in the park
- Some lighting from adjacent street lights

Overview

Typology: Neighborhood

Length: 0.75 miles

Width: Varies (8–10 feet)

Surface Material: Concrete

Ownership: City of Fremont

Maintenance: City of Fremont

Current Condition: Existing trail

Corridor entry south of Paseo Padre Parkway (Google Streetview)

Trail at Montgomery Place (Google Streetview)

Playground at Newton Court (Google Streetview)

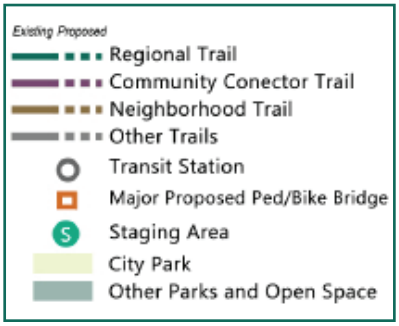
Corridor end at Granville Drive (Google Streetview)

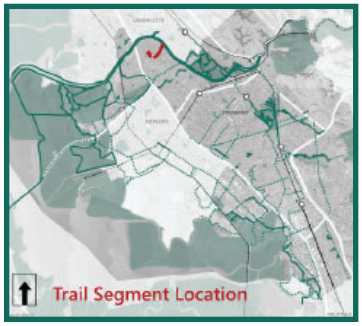
Corridor Environment

The trail spans from the Alameda Creek Trail at the north end to Chaucer Drive at the south end. Paseo Padre Parkway divides the trail.

From the south end of the trail that terminates at Chaucer Drive, there is a system of private paths through a condominium complex with an entryway plaza. There is currently no prohibition of public use of these paths.

Northgate Trail Full Corridor





Recommendations

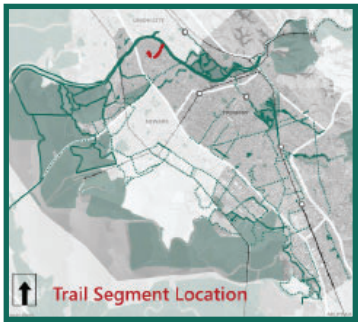
Widen the trail connection to the Alameda Creek Trail to accommodate bicyclists turning.

Install wayfinding signs to direct trail users to cross at the Paseo Padre Parkway/Whitehead Lane intersection. The trails end at 100 and 130 feet from this signalized intersection.

Northgate Trail Full Corridor Recommendations

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



15. Crandall Creek Trail and Ardenwood Path

The Crandall Creek Trail and Ardenwood Path consists of a proposed and existing trail system.

The existing Ardenwood Path is a one mile, 6-foot wide asphalt path that parallels and connects to the Alameda Creek Trail before continuing to the southeast along the railroad tracks.

The path connects to one mile of a proposed Alameda County Flood Control maintenance road atop levees on both sides of Crandall Creek.

Key Destinations

Crandall Creek Trail and Ardenwood Path connect to neighborhoods, retail, and Ardenwood Historic Farm and would provide an important uncrossing of I-880.

Crandall Creek Trail and Ardenwood Path connect to Alameda Creek Trail on the northwest end and the proposed Dumbarton Bridge to Quarry Lake Trail on the southeast end.

Ardenwood Historic Farm is located near this corridor. Ardenwood Elementary School and Forest Park Elementary School are within walking distance of the corridor.

The Crandall Creek Trail and Ardenwood Path do not connect to any PDAs, commercial zones, or public facilities.

Trailside Elements

- Partially landscaped

Crandall Creek Trail corridor, south of Paseo Padre Parkway

Ardenwood Path adjacent to Bardolph Circle

Ardenwood Path end, north of Paseo Padre Parkway

Overview

Typology: Community Connector

Length: 3.2 miles combined

Width: Varies (6 feet on existing path, 18 feet on levee maintenance road)

Surface Material: Asphalt on existing path and compacted aggregate on levee maintenance road

Ownership: City of Fremont (Ardenwood Path); ACFC (Crandall Creek Trail)

Maintenance: City of Fremont (Ardenwood Path); TBD (Crandall Creek Trail)

Current Condition: Existing (Ardenwood Path) and proposed (Crandall Creek Trail)

Corridor Environment

The existing Ardenwood Path starts along Caliban Drive near Stephano Court and parallels the Alameda Creek Trail before turning south along the east side of the Amtrak railroad corridor.

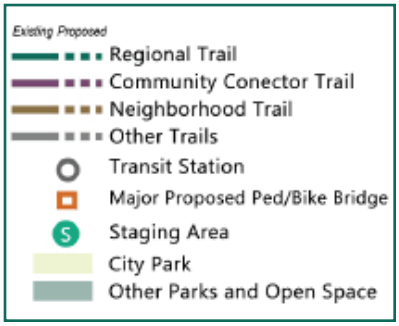
Then it turns east between Capulet Circle and an ACFC maintenance road and channel, before terminating at Paseo Padre Parkway. The existing trail is 6 feet wide.

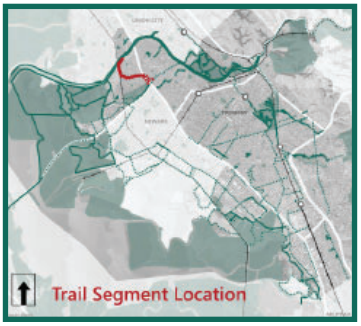
The Crandall Creek Trail will be located along an Alameda County Flood Control (ACFC) operations and maintenance road.

The trail will extend on the maintenance road on either side of the creek. The trail will cross Paseo Padre Parkway mid-block. There is a subsequent mid-block crossing of Deep Creek Road and Siward Drive.

At I-880, the north side maintenance road goes under the freeway and ends at Decoto Road. The south side continues toward Ardenwood Historic Farm. Both sides of the trail will connect to the planned Dumbarton Bridge to Quarry Lakes Trail.

Crandall Creek Trail corridor from Deep Creek Road





Crandall Creek Trail and Ardenwood Path Full Corridor

Recommendations

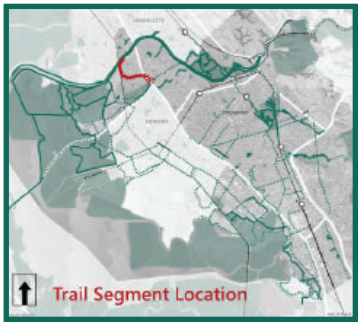
Crandall Creek Trail and Ardenwood Path Full Corridor Recommendations

The existing undercrossing of I-880 offers a opportunity for community connectivity.

Add connections to the Dumbarton Bridge to Quarry Lakes Trail north and south of I-880.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



16. Farwell Linear Park

Farwell Linear Park is a 16-foot wide, 0.7-mile long, primarily asphalt trail. The corridor is owned and managed by the City, creating connections for the homeowners along Farwell Drive. The trail goes from Farwell Drive to Lemke Place, creating an off-street route for 16 streets that connect to the trail.

On the northwestern end, the trail terminates a block from a series of local shops and the proposed U-Channel Trail, which presents an opportunity for further trail connectivity.

On the southeastern end, there are currently many barriers, but improved connectivity is feasible. The trail intersects with the proposed U-Channel Trail and then is adjacent to John F. Kennedy High School.

Corridor south of Farwell Drive (Google Streetview)

Corridor access from Willkie Place (Google Streetview)

Key Destinations

Farwell Linear Park connects to neighborhoods, retail, job centers, schools, and the proposed U-Channel Trail.

On the southeastern end, the trail is adjacent to John F. Kennedy High School and Azevada Elementary School is within walking distance.

There are no major transit centers, PDAs, commercial zones, or regional parks that directly connect to Farwell Linear Park Trail.

Trailside Elements

- Partially landscaped

Overview

Typology: Neighborhood

Length: 0.7 miles

Width: 16 feet

Surface Material: Asphalt

Ownership: City of Fremont

Maintenance: City of Fremont

Current Condition: Existing trail

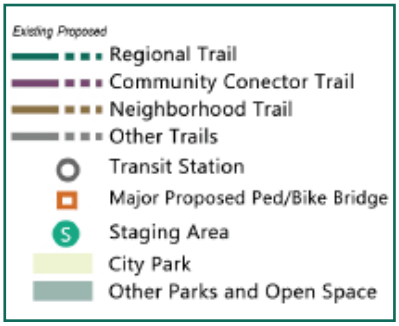
Corridor Environment

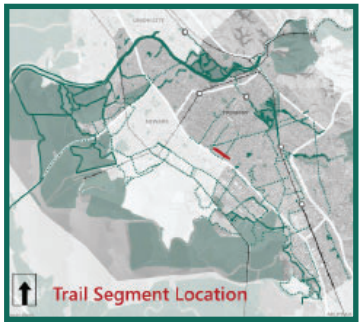
The trail starts at the western end of Farwell Drive. The asphalt path varies in width from 8 feet to 17 feet. A series of 11 cul-de-sacs connect to the corridor but the connections lack curb ramps.

At the proposed U-Channel Trail, an existing bridge crosses the drainage channel and there is a gate to the back side of John F. Kennedy High School.

Past this bridge, the corridor is not paved and a gate blocks a private path that continues through the adjacent residential development.

Farwell Linear Pathway Full Corridor





Recommendations

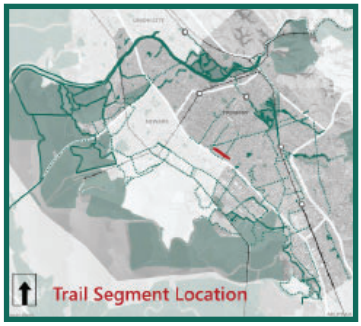
Farwell Linear Pathway Full Corridor Recommendations

Extend trail Farwell Drive and pave this trail section.

Work with property owner to allow public access to Farwell Drive on existing pathway.

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



17. Lowry Neighborhood Park Trail

The Lowry Neighborhood Park Trail includes a series of 10-foot wide, concrete trails in a park. The trail connects residences and ends near Sylvester P. Harvey Community Park.

Key Destinations

The Lowry Neighborhood Trails provides neighborhood connections and indirectly connects to the Alameda Creek Trail via Alvarado Boulevard.

Trailside Elements

- Landscaping (trees and turf)
- Benches
- Playground
- Some lighting from adjacent street lights

Lowry Neighborhood Park entrance at Great Salt Lake Drive

Crosswalk without curb ramps at Lowry Neighborhood Park at Great Salt Lake Drive

Overview

Typology: Neighborhood

Length: 0.6 miles

Width: 10 feet

Surface Material: Concrete

Ownership: City of Fremont

Maintenance: City of Fremont

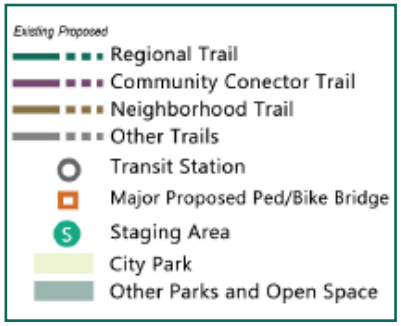
Current Condition: Existing trail

Corridor Environment

Enhancing access across and along Alvarado Boulevard could connect Lowry Neighborhood Park to Alameda Creek Trail to the east and retail and jobs to the west, a few blocks away. The City of Fremont Bicycle Master Plan proposes Class II bike lanes along Alvarado Boulevard to the Alameda Creek Trail.

Great Salt Lake Drive/Alvarado Boulevard, two blocks from the Alameda Creek Trail

Lowry Neighborhood Park Trail Full Corridor



Recommendations

Approaching Lowry Road on Alvarado Boulevard and then the Alameda Creek Trail

Lowry Neighborhood Park Trail Full Corridor Recommendations

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier

18. U-Channel Trail

The proposed U-Channel Trail lies just south of Fremont's Central District along an Alameda County Flood Control (ACFC) operations and maintenance road atop a levee. The 3 mile trail would connect many residential neighborhoods, schools, retail areas, the Hetch Hetchy East-West corridor, and Farwell Linear Park.

Corridor south of Monterey Way (Google Streetview)

Corridor south of Farwell Drive (northern leg) (Google Streetview)

Key Destinations

The U-Channel Trail corridor connects to neighborhoods, retail, job centers, PDAs, schools, and trails.

The U-Channel Trail corridor connects to the Downtown/City Center Transit PDA. It also connects to Fremont Central District, which is a major commercial and employment center. Another business plaza, Mowry East Shopping Center, is located at southwest side of the U-Channel Trail corridor.

The trail corridor intersects Farwell Linear Pathway and Hetch Hetchy East-West Trail.

There are many schools within walking distance, including Fremont Adult School, Azevada Elementary School, John F. Kennedy High School, Walters Junior High School, and Brier Elementary School.

There are no major transit centers near this corridor.

Trailside Elements

- None at present

Overview

Typology: Community Connector

Length: 3 miles

Width: 11 feet (on existing maintenance road)

Surface Material: Base rock (asphalt recommended)

Ownership: ACFC

Maintenance: City of Fremont

Current Condition: Proposed trail

Corridor Environment

The proposed U-Channel Trail is located along an approximately 45-foot wide Alameda County Flood Control (ACFC) corridor with a concrete-lined channel. The trail would occupy an operations and maintenance road.

The corridor begins at Argonaut Way, opposite of a large retail complex. There is a base rock maintenance road on the west side of the concrete-lined channel, occupying an approximately 20-foot wide space. The channel crosses Monterey Way, Logan Drive, Sutter Drive, and Blacow Road and its frontage roads mid-block.

After Blacow Road, the maintenance road switches to the east side of the channel. The width of the maintenance road varies, but the minimum width is approximately 15 feet. Near Farwell Drive the channel crosses the Hetch Hetchy East-West Trail. The corridor then will cross Farwell Drive mid-block.

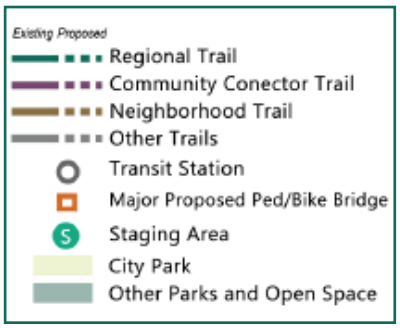
At I-880, the corridor turns east to parallel the freeway. Then, after a little over 1/2 mile without street connections, the corridor turns north to cross Farwell Drive mid-block again.

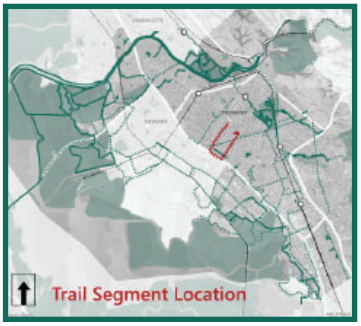
The corridor turns abruptly, intersecting Farwell Linear Park, and then paralleling John F. Kennedy High School. There is an existing path and bridge from the cul-de-sac at Dewey Place that crosses the channel to access the High School. This bridge is part of Farwell Linear Park.

At the end of the campus, the corridor again crosses Blacow Road mid-block. Blacow Road has a frontage road on the northern side, but not on the southern side. The corridor crosses Sundale Drive mid-block and is now adjacent to the Forerunner Christian Church and the Daniel Christian Academy.

It again crosses the Hetch Hetchy East-West Trail before crossing Logan Drive mid-block. The corridor here is now adjacent to Walters Junior High. The maintenance road terminates about 1100 feet after Logan Drive.

U-Channel Trail Full Corridor



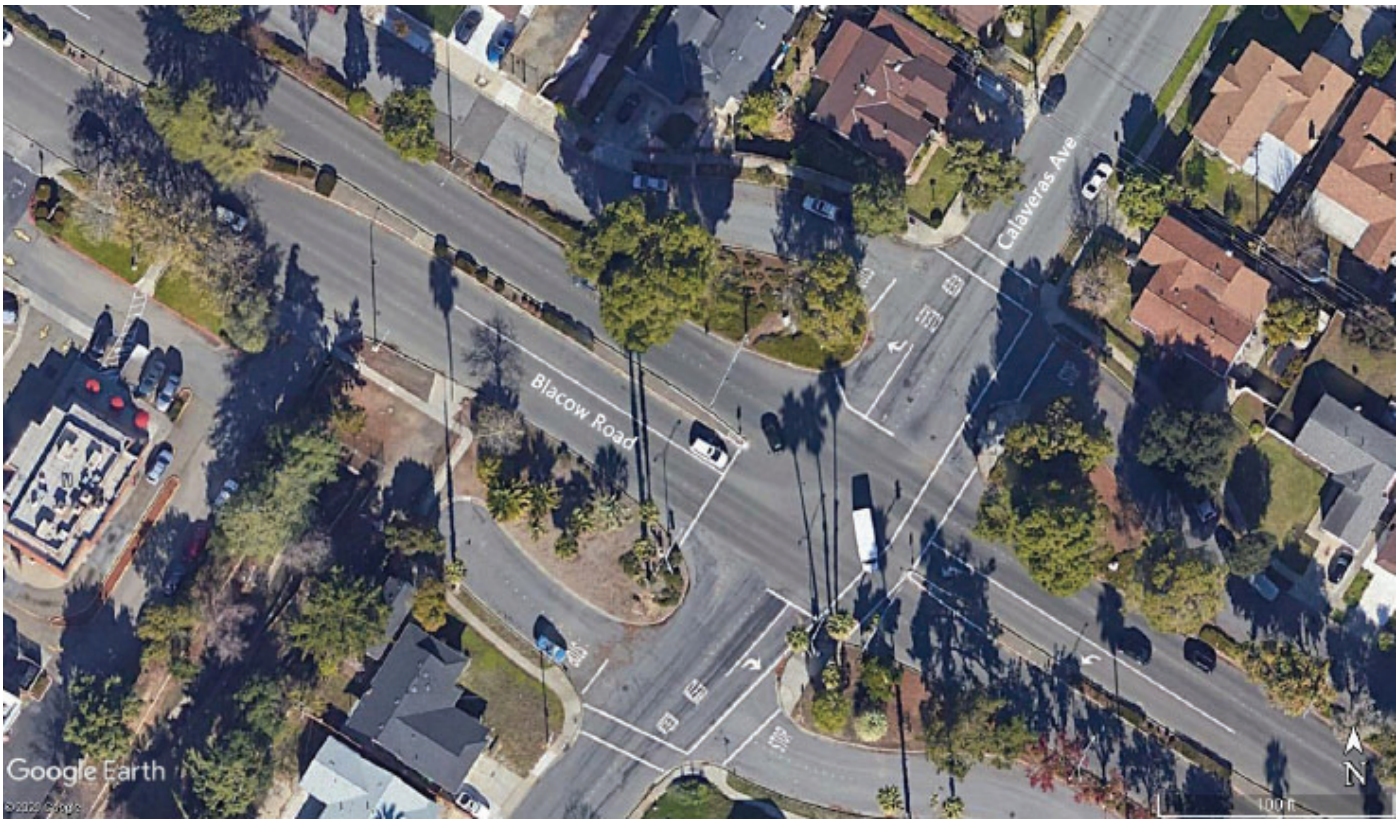


There is an existing short path that connects the campus to Bidwell Drive, which is parallel the channel. The channel is significantly narrower here. There is also an existing mid-block crosswalk on Bidwell Drive.

The corridor continues northeast; however, without much space along the channel, the trail would terminate here.

Corridor adjacent to G .M. Walters Middle School (Google Streetview)

Corridor terminus at Bidwell Drive (southern leg) (Google Streetview)



Intersection with Blacow Road near Calaveras Avenue (northern leg) (Google Earth)

Recommendations

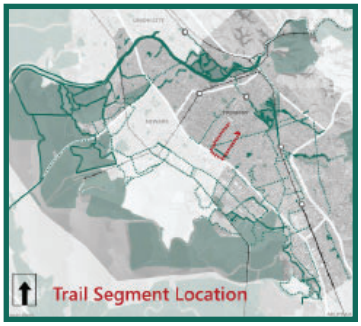
Create a public right-of-way and build a bridge at Cindy Street to connect to the Fremont Adult and Continuing Education Center.

Add a bridge at Tropic Way to connect neighborhoods to the retail center.

U-Channel Trail Full Corridor Recommendations

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



19. Grimmer Greenway

This proposed trail would extend southwest from Central Park to Fremont Boulevard between the flood control channel and Grimmer Boulevard. It would connect to the Hetch Hetchy East-West Trail and connect to the Irvington Neighborhood Trail.

Key Destinations

The Grimmer Greenway would connect to neighborhoods, parks, trails, retail, and job centers.

The trail connects to a commercial plaza in the Irvington Transit PDA on one end, and Fremont Central Park on the other end. It intersects Hetch Hetchy East-West Trail and connects to Irvington Neighborhood Trail.

Trailside Elements

- Existing tall street lights adjacent to the proposed trail

Plans and Studies

- Included in Pedestrian Master Plan (2016)

Overview

Typology: Neighborhood

Length: 0.4 miles

Width: 15 feet recommended

Surface Material: Asphalt recommended

Ownership: City of Fremont; PG&E; ACFC

Maintenance: City of Fremont

Current Condition: Proposed trail

Corridor at Paseo Padre Parkway (Google Streetview)

Central part of corridor adjacent to Grimmer Boulevard (Google Streetview)

Corridor near Fremont Boulevard (Google Streetview)

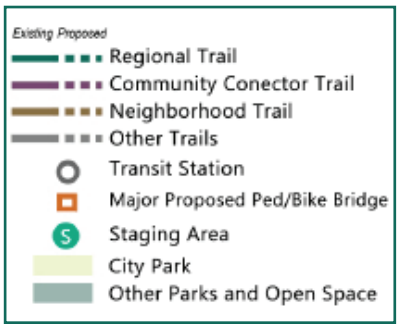
Corridor Environment

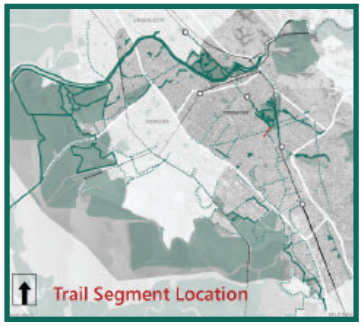
There is a partly paved unused right-of-way approximately 48 feet wide along Grimmer Boulevard that would allow for a neighborhood trail and greenbelt, as proposed in the Pedestrian Master Plan 2016. The proposed trail is called the Grimmer Greenway and would follow an Alameda County Flood Control channel. The channel is vegetated and lined by trees.

The Greenway will begin at Fremont Central Park at an existing park trail. It then will cross Paseo Padre Parkway at an existing signalized intersection at Grimmer Boulevard. The Greenway will parallel Grimmer Boulevard on one side and ACFC channel on the other side.

The Grimmer Greenway corridor continues unobstructed to Fremont Boulevard; however, it narrows considerably as it approaches Fremont Boulevard. Here Grimmer Boulevard becomes 4 lanes, causing the corridor to narrow. Grimmer Boulevard now utilizes the available right-of-way for a distance of approximately 300 feet. No sidewalk exists along this portion of the corridor, just a narrow base rock path with ivy growing on a fence along the adjacent channel.

Grimmer Greenway Full Corridor



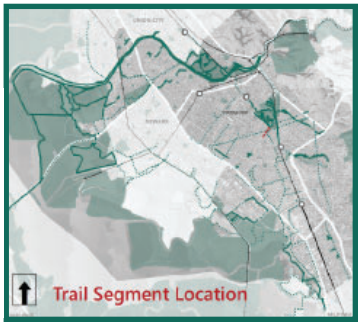


Recommendations

Grimmer Greenway Full Corridor Recommendations

Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



20. Irvington Neighborhood Trail

This proposed trail would extend along part of an ACFC channel from Central Park across Paseo Padre Parkway at Grimmer Boulevard to Irvington Transit PDA.

Key Destinations

The Irvington Neighborhood Trail corridor connects to neighborhoods, parks, trails, retail, and job centers.

The corridor connects to the Irvington Transit PDA at one end and Fremont Central Park at the other end.

The Irvington BART Station is within walking distance of the corridor; however, the existing East Bay Greenway segment between Irvington BART Station and Central Park connects these two major destinations efficiently.

The corridor also connects to other trail corridors: Hetch-Hetchy East-West Trail and the Grimmer Greenway.

Corridor north of Chapel Lane (Google Streetview)

Trailside Elements

- None at present

Plans and Studies

- Included in Pedestrian Master Plan (2016)

Overview

Typology: Neighborhood

Length: 0.63 miles

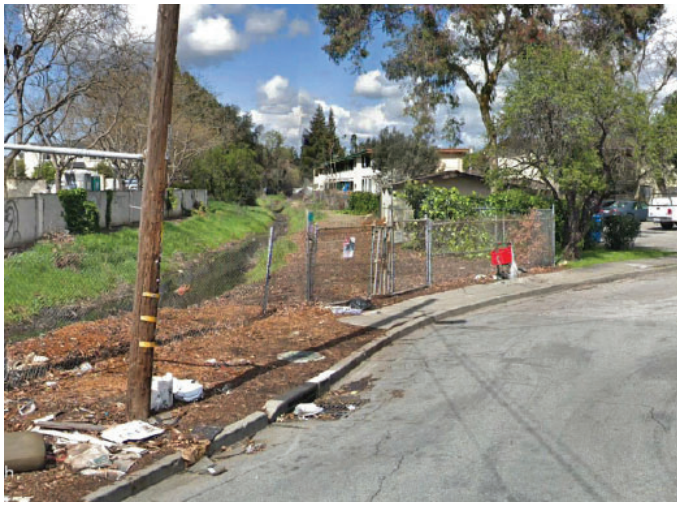
Width: ~12 feet

Surface Material: Asphalt recommended

Ownership: ACFC

Maintenance: City of Fremont

Current Condition: Proposed trail



Corridor northwest of Lee Street (Google Streetview)

Corridor Environment

The corridor begins at the corner of Paseo Padre Parkway and Grimmer Boulevard, opposite of the Grimmer Greenway.

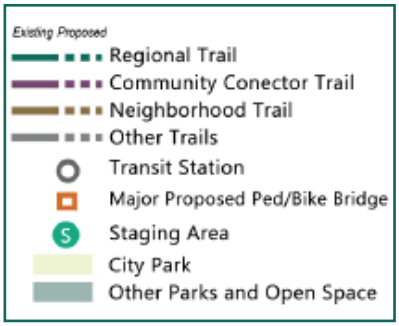
The corridor turns east on a SFPUC right-of-way, along the south side, as a series of pipelines on the surface block the north side.

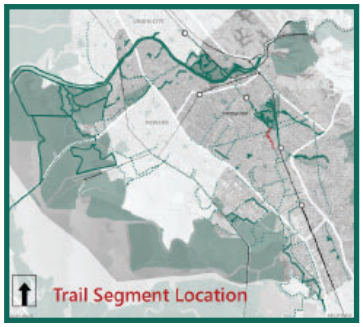
The corridor then turns south along an ACFC channel that has no formal maintenance road, except near the entrances. This approximate 40-foot wide corridor is a low-banked, vegetated channel is adjacent to residences.

At High Street, a mid-block crossing would be required. Pebble Creek Communities, a condominium complex, is just south of High Street. Here the channel is densely lined with trees. At the other end of the condominium, when the channel reaches Chapel Way, there is an unimproved access space with gates.

The corridor crosses Chapel Way at an angle, mid-block and the intersection at Chapel Way/Lincoln Street is unimproved. The corridor continues southeast after Chapel Way, ending at Lee Street.

Irvington Neighborhood Park Trail Full Corridor

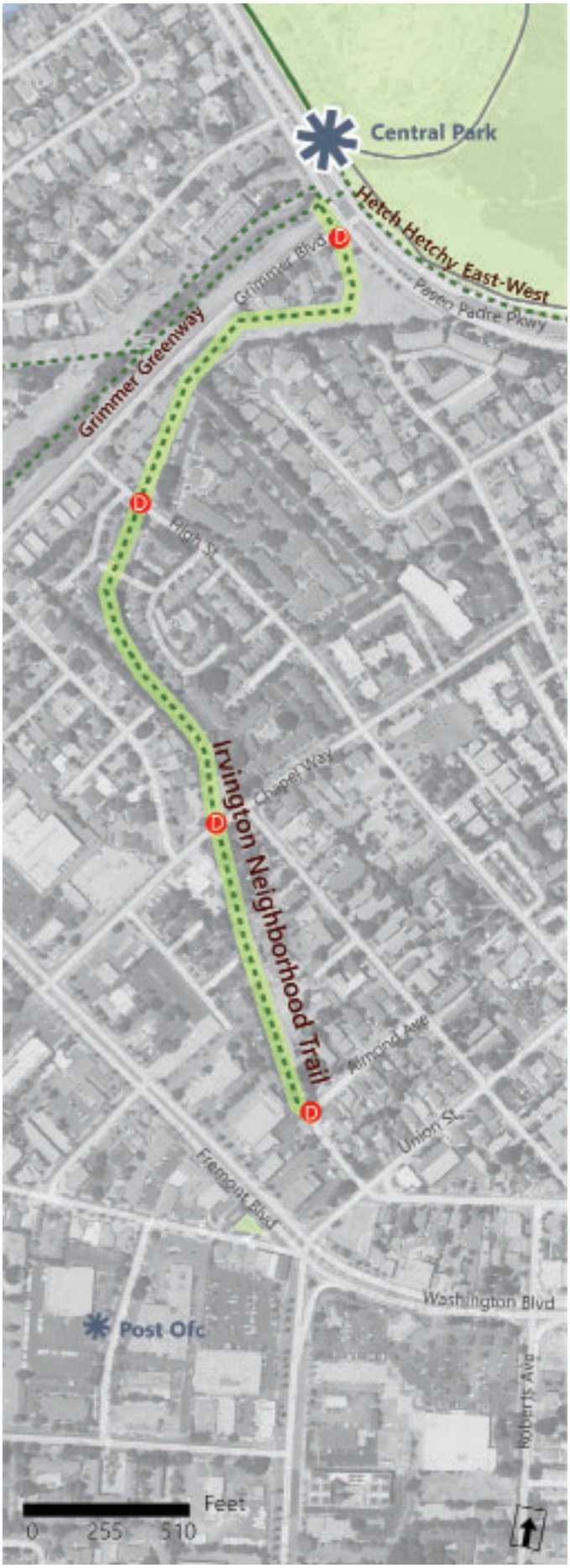




Irvington Neighborhood Park Trail Full Corridor Recommendations

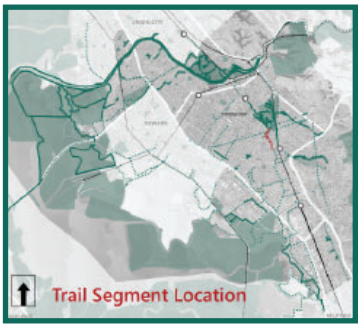
Recommendations

(see recommendations map)



Types of Recommendations

- A Other
- B Add Trail Connection
- C Add/Widen Ramp
- D Add/Improve Crossing
- E Remove Trail Entry Barrier



21. Morrison Canyon Road

In 2020 the City permanently closed a 1.25 mile portion of Morrison Canyon Road to vehicles from the intersection with Ridge Terrace east to the intersection with Vargas Road. This section of the road, which is closed to vehicles, is not designated as a trail; however, the closure effectively made the road a Class I trail.

The closure features a series of flexible delineators or bollards. Since the barriers are mountable, emergency access is not hindered. Additional advanced warning signs and flashing beacons may improve safety.

Morrison Canyon Road allows for pedestrian/bicycle access to parks and open space in Fremont.

Key Destinations

The Morrison Canyon Road allows people to access Vargas Plateau Regional Park and Vargas Road on foot or by bike. The road is primarily used for recreation.

Closed portion of Morrison Canyon Road (Google Streetview)

Overview

Typology: Community Connector Trail

Length: 1.25 miles

Width: ~16 feet

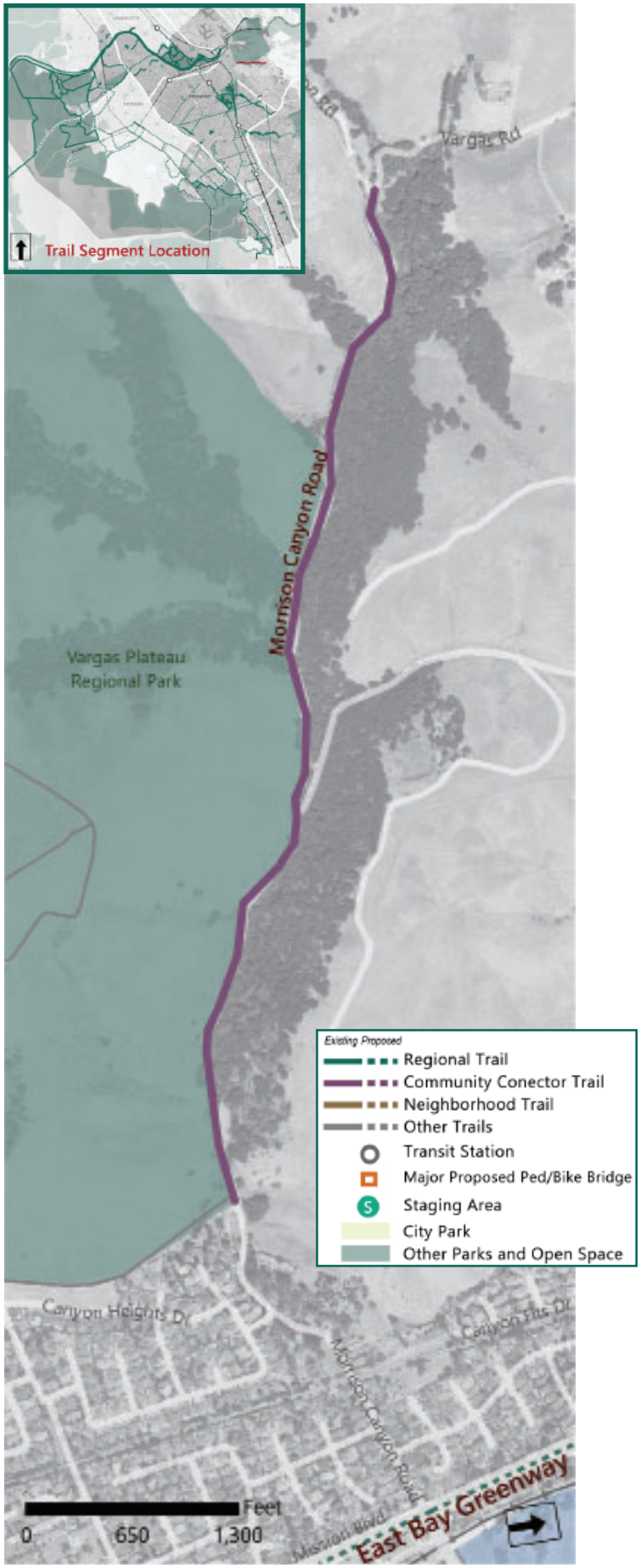
Surface Material: Asphalt

Ownership: City of Fremont

Maintenance: City of Fremont

Current Condition: Asphalt roadway in good condition

Morrison Canyon Road Full Corridor



22. Warm Springs BART to Milpitas Trail

The Class I Trail along the railroad from Warm Springs BART to Milpitas is a long-term concept that was introduced in both the Fremont Pedestrian Master Plan (2016) and the Fremont Bicycle Master Plan (2018). This connection is constrained by limited space in the railroad right-of-way and crossings over major streets and highways. This long-term trail could connect the East Bay Greenway with trail systems in Milpitas. Its design and implementation would require coordination among different agencies.

Key Destinations

This connection would directly connect the Tesla Factory, Warm Springs BART, Northwestern Polytechnic University, and businesses between Dixon Landing Road and East Warren Avenue.

Trailside Elements

- None at present

Overview

Typology: Community Connector Trail

Length: 3.3 miles

Width: 12 feet

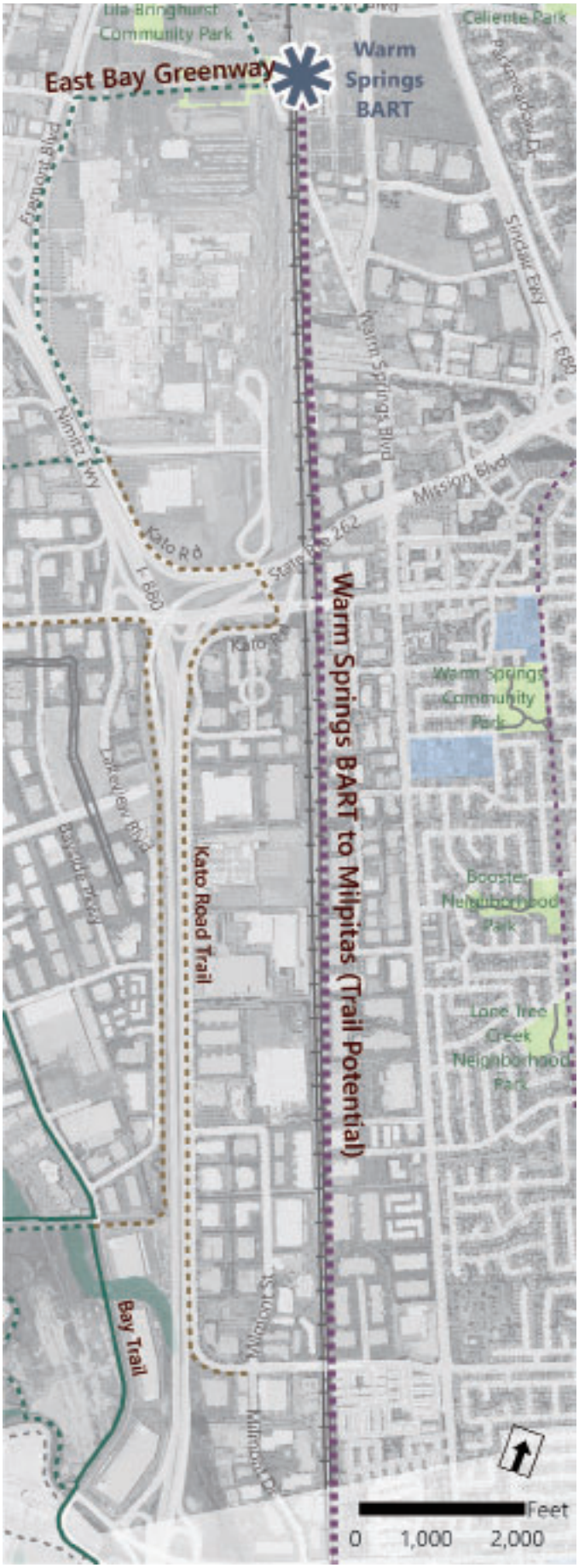
Surface Material: Asphalt or Concrete

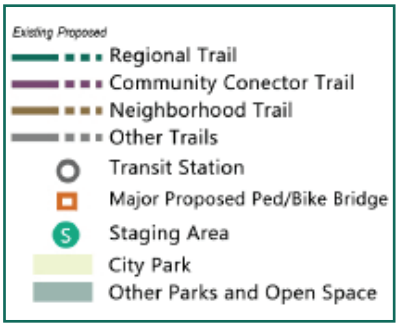
Ownership: BART

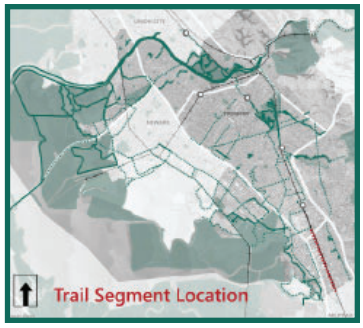
Maintenance: TBD

Current Condition: Proposed trail

Warm Springs to Milpitas Trail Full Corridor







23. Pacific Commons Bicycle/Pedestrian Connection

The Pacific Commons Bicycle/Pedestrian Connection is an overcrossing at I-880, just south of Auto Mall Parkway. The overcrossing is in the design stage. The design team for this overcrossing is considering the connections to this overcrossing that are described in the corridor environment section.

Key Destinations

This connection would connect neighborhoods on the east side of I-880 with a major shopping center and employment areas on the west side of I-880.

Trailside Elements

- None at present

Auto Mall Parkway overpass of I-880

Overview

Typology: Community Connector Trail

Length: 2.6 miles

Width: 10-12 feet

Surface Material: Asphalt or concrete

Ownership: City of Fremont

Maintenance: TBD

Current Condition: Proposed trail

Plans and Studies

Pacific Commons Bridge Project (2020)

The City of Fremont's I-880 Pacific Commons Bridge Project proposes to build a bridge over I-880 just south of the Auto Mall Parkway Interchange near the Tesla Factory, providing pedestrians and bicyclists with a safe way of crossing I-880 and avoiding the busy interchange at Auto Mall Parkway.

On the east side, the bridge will connect to a bikeway on Grimmer Boulevard and the Warm Springs BART Station area.

On the west side, it will connect to the Pacific Commons shopping center and the Fremont Technology Business Park, and ultimately link to the Bay Trail.

This project would close a key gap in the pedestrian and bicycle network between the Pacific Commons commercial district and the Warm Springs BART transit-oriented development district.

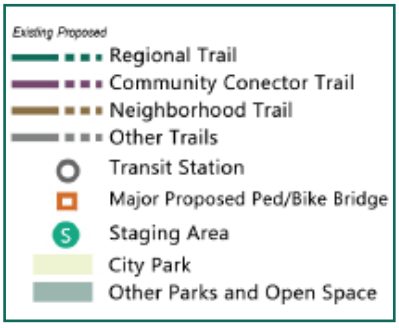
S Grimmer Boulevard from intersection with Auto Mall Parkway

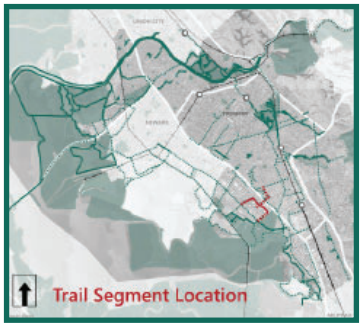
Corridor Environment

This Pacific Commons Bicycle/Pedestrian Connection will add a bridge crossing I-880. The connection will extend from the west end of the PG&E Corridor & Channel Trail at Grimmer Boulevard. It then will add an alignment on S Grimmer Boulevard, connecting via Hannover Place to the planned bicycle/pedestrian bridge over I-880. The bridge will connect to the Pacific Commons Shopping Center via Brandin Court/Bunche Drive.

There are green bike lanes and sidewalks on Grimmer Boulevard that will serve this connection, but the sidewalks end just north of Hanover Place. The sidewalks would need to be extended and a crossing of Grimmer Boulevard created at Hanover Place as part of the Pacific Commons Connection.

Auto Mall Parkway/Christy Street before I-880 overpass





Pacific Commons Bicycle/Pedestrian Connection Full Corridor

24. Kato Road Trail

The Kato Road Trail improvements would connect neighborhoods and employment areas to the I-880 Innovation Bridge, which is described under Reach 6 of the East Bay Greenway.

The City has a federal grant to implement a Class I trail between Kato Road and the freeway. It will connect to the planned East Bay Greenway Reach 6 and continue south, serving major employers such as Tesla and Seagate.

Key Destinations

This trail would connect neighborhoods on the east side of I-880 with employment centers and with the Innovation Bridge, a bicycle/pedestrian overcrossing of I-880 that is part of the East Bay Greenway, extending to employment and shopping centers on the west side of I-880.

Trailside Elements

- None at present

Plans and Studies

The City currently has conceptual plans for the trail completed, and a preliminary cost estimate.

Kato Road Overcrossing of Mission Boulevard (Google Streetview)

Kato Road near Tesla Plant (Google Streetview)

Kato Road southern portion (Google Streetview)

Overview

Typology: Community Connector Trail

Length: 2.6 miles

Width: 10-12 feet

Surface Material: Asphalt or concrete recommended

Ownership: City of Fremont

Maintenance: TBD

Current Condition: Proposed trail

Corridor Environment

Kato Road is a frontage road of I-880 that passes through an industrial area.

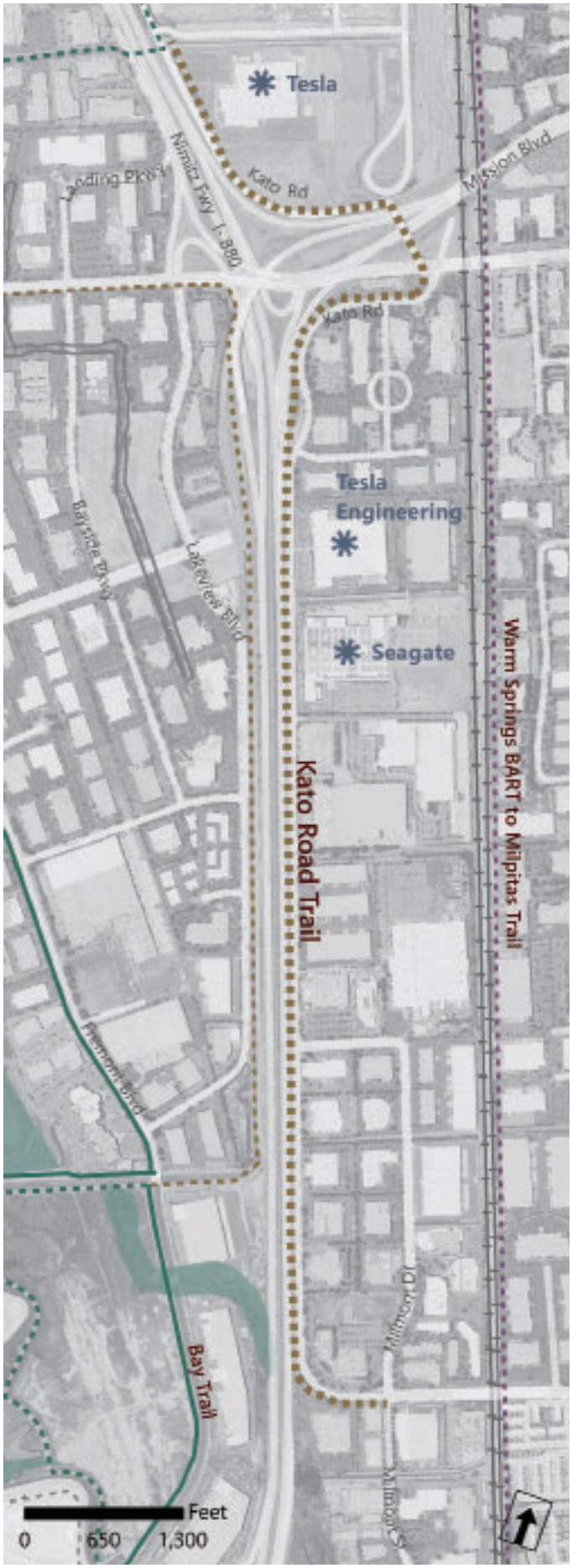
The Kato Road Trail will extend along Kato Road on the west side across an existing overcrossing of Mission Boulevard/Highway 262. The trail will then pass Tesla Engineering and Seagate, continuing all the way to Scott Creek Road.

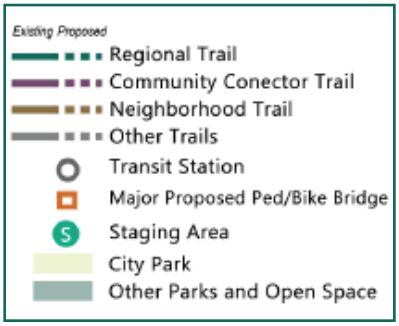
Kato Road currently has wide shoulders but no bike lanes and portions of it have no sidewalks.

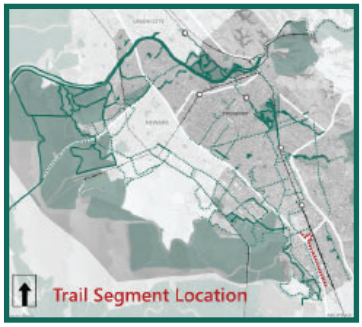
The current plans and estimate propose pedestrian/bike activated signals at Warren Avenue (south of the Mission Boulevard overcrossing) and at Milmont Drive at the south end where Kato Road turns east.

Several crosswalks will be required to connect to the employment areas on the east side of Kato Road. Crossing improvements required would include rapid flashing beacons (RRFBs) to alert drivers of bicyclist and pedestrian crossings. There are many trucks along this frontage road.

Kato Road Trail Full Corridor

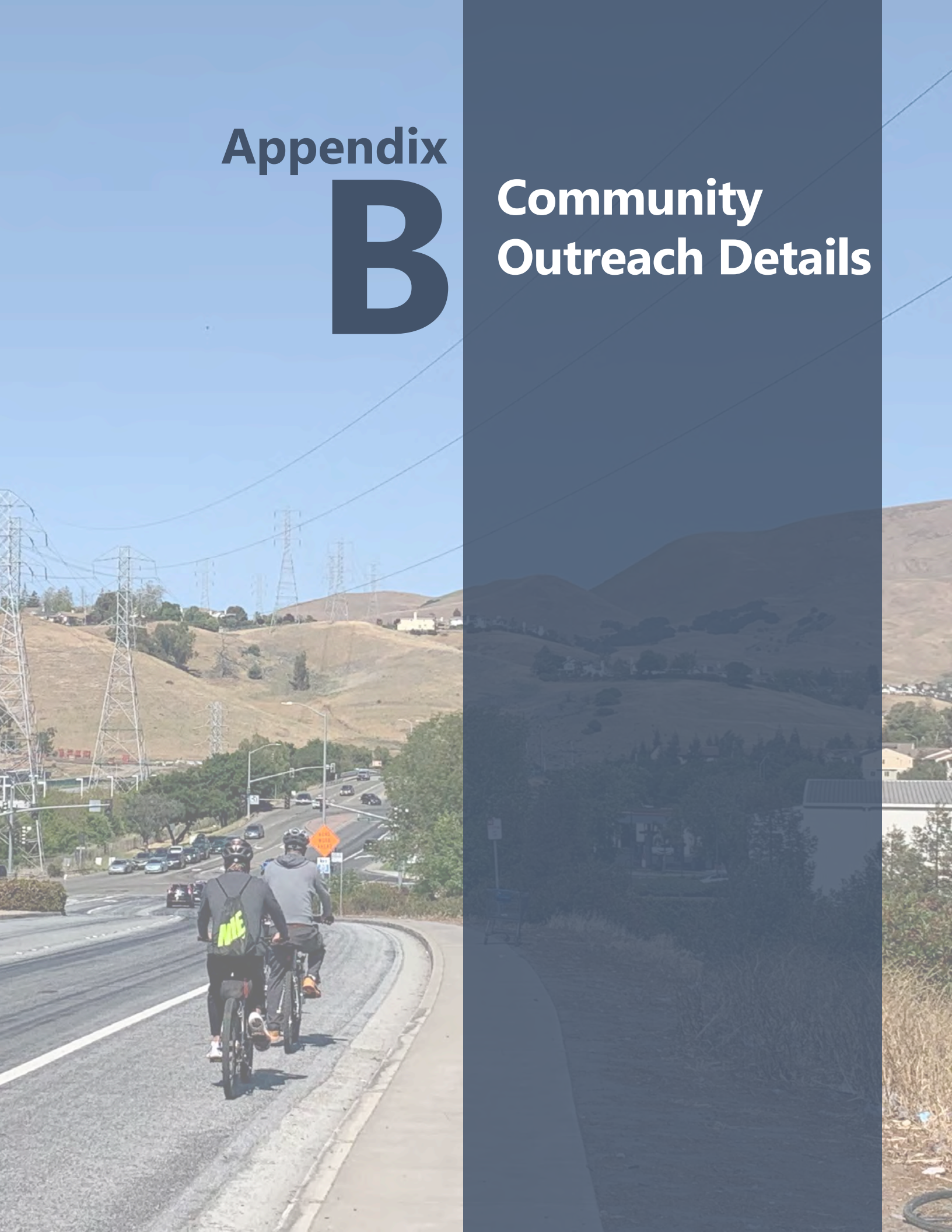






Appendix B

Community Outreach Details



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Community Outreach Details

Throughout the Trails Strategy Plan development process, feedback was received and included the following venues, which are each described in detail in this Appendix:

- Technical Advisory Committee Meetings
- Mobility Commission Meetings
- Focus Group Meetings
- Online Survey
- Interactive Map
- Community Emails

During the Plan development period, a separate, but related Parks and Recreation Needs Assessment was undertaken for the preparation of the City of Fremont Parks Master Plan. A summary of the needs assessment findings, as related to Fremont Trails, is included at the end of this Appendix.

Technical Advisory Committee

A project Technical Advisory Committee (TAC) was formed from representatives of agencies that own or manage property where Fremont trails exist or are envisioned and agencies and organizations that plan and manage trails. The TAC met at every stage of the plan development process and reviewed technical deliverables.

Agencies and organizations represented on the TAC include:

- Alameda County Flood Control (ACFC)
- Alameda County Transportation Commission (ACTC)
- Bay Area Rapid Transit (BART)
- California Department of Transportation (Caltrans)
- East Bay Regional Park District (EBRPD)
- San Francisco Bay Trail
- San Francisco Public Utilities Commission (SFPUC)
- Pacific Gas and Electric Company (PG&E)

Trails Strategy Plan Development Timeline

Mobility Commission Meeting and Focus Group Meeting

In the fall of 2020, the preliminary online survey results and overview of the background studies for the Trails Strategy were presented to a virtual meeting of the Fremont Mobility Commission. A follow-up Focus Group meeting was held soon after. This meeting included select Mobility Commissioners and representatives of groups that promote and advocate for trails and biking. Minutes and notes from these meetings are included below.

Mobility Commission Meeting Notes

Date: September 16, 2020 (virtual meeting)

Members Present: Nisar Ahmed, Melissa Avery, Julie Huang, Flavio Poehlmann, Mark Spencer, Stephen Tu, Erin Vaca, Ken Wu

Members Absent: None

Staff Present: Hans Larsen, Public Works Director; Noe Veloso, Assistant City Engineer; Matthew Bomberg, Senior Transportation Engineer; Natalie Khwaja, Management Analyst II; Eliza Villaluz, Senior Office Specialist

Trails Strategy Plan Presentation: Randy Anderson from TrailPeople presented the Strategy Plan which consisted of project updates, schedules, design guidelines, prioritization framework and next steps.

Commissioner and Staff Comments:

•It was noted that the Alameda Creek Trail is currently being repaved by East Bay Regional Parks.

•Upgrades to existing trail to make them more suitable for transportation

•Melissa Avery mentioned connectivity issues – would like to see use numbers shift from recreation to transportation.

•Nisar Ahmed would like to prioritize safe routes to school trails.

•Currently 115 people are receiving the digital Mobility Newsletter and 80% are opening it. It can be used to promote participation in the Trails Strategy. The next issue will be in October.

•Hans Larsen suggested that Trails Strategy focus on a 5 year program of trail priorities that Fremont should focus on.

•Mark Spencer commented the key to Trails Strategy success is its relationship to the Parks Master Plan, the Bicycle Master Plan and the Pedestrian Master Plan – it should be carefully coordinated with those plans.

•Stephen Tu agreed with that comment.

•An E-bike usage policy would be desirable. Matt Bomberg noted that motorized scooters and bikes are not allowed on Lake Elizabeth trails.

Public Comment:

Gary Suplick: Was interested if there was a list of concerns from the public regarding the trails plan.

William Yragui: Would like to see more connections to the Bay Ridge Trail, Bay Trail and Greenway Trail

Bicycle and Pedestrian Focus Group Meeting Notes

Date: September 25, 2020 (virtual meeting)

Attendees
•Ken Wu, Mobility Commission
•Mark Spencer, Chair Fremont Mobility Commission
•William Yragui, Mission Peak Conservancy
•Andreas Kadavanich, Bike Fremont
•Steve Skala, Bicycle and Pedestrian Advocate

City of Fremont
•Rene Dalton, Associate Transportation Engineer, Transportation Engineering Department
•Matthew Bomberg, Senior Transportation Engineer, Transportation Engineering Department
•Tara Bhuthimethee, Senior Landscape Architect and Project Manager, Parks and Recreation Master Plan

Consultant Team
•Randy Anderson, TrailPeople
•Megan Wooley-Ousdahl, Toole Design
•Kerry Aszklar, Toole Design

Meeting notes

Existing Trail Network

•Definition of a trail versus a shared-used path? Interest in differentiating the two here.

•Questions about the mileage that's shown on the map.

•Need to differentiate on the map what's on-street versus off-street trails.

•Trails need to have connections.

•Desirable trail qualities:

o Connect to destinations, facilitate north-south connections. Schools, businesses, churches, transit centers. Encourage people to get out of their cars.

Purpose and Vision of the Plan

Mark:

•Focus of the Mobility Commission – lower the single-occupancy mode share. We want to give people in Fremont choices. We have a disjointed network of trails, bicycle network, gaps in the pedestrian network. Want to integrate all the plans – how do the trails provide connectivity to the bicycle and pedestrian network.

•Fremont residents need mobility options. Our students need options to connect to schools – safe routes that avoid major corridors. The trail system can connect to schools, help with this. Want to provide options so students can bike to the schools, especially elementary. Destinations – Also have a lot of people coming into Fremont, via Bart, and dispersing to workplaces. Want to connect people from BART stations to employment hubs. Fremont residents need options, and so do people who commute to Fremont for work. How do all these plans (Pedestrian Master Plan, Bicycle Master Plan, Parks Master Plan and Trails Strategy) complement one another? And not compete against each other.

Andreas:

•The bicycle master plan basically punted on trails – acknowledged that trails are coming. Trails are unique – no vehicles, which makes them very safe. The more trails, the more people we are going to get.

•We need to lock down every piece of land that can support a trail as soon as possible, and connect to these areas. Would like an inventory of all the possibly available trail routes, and can prioritize which can be used for recreation, commuting, etc.

William:

Bicycle and Pedestrian Focus Group Meeting Notes, continued

•The City is missing a vision – you have to look at the trail plan over a period of 20, 30 years. Believe today that we have 39 miles of trails. Then have to buy, improve, and maintain the trails over time.

•Recommendation: Put together a map that shows how the City could connect the trails over time – a plan for 30+ years.

Steve:

•Fremont needs a strategy for developing the trails network.

•Fremont has many smaller segments of trails. May be very challenging to connect one long trail segment across Fremont.

•Focus on local connections. Can identify areas that need connectivity (schools, shopping, neighborhoods), and develop trail segments in these smaller areas – and connect to the larger bicycle network and the pedestrian improvements.

Ken:

•Trails in Fremont have not been a focus of the city. Few miles added over 20 years.

•Short term: What quick and meaningful improvements can be done? Agrees that trails play important role in mode shift away from vehicular use. Trails complement bike and ped use. Pivot to connectivity to businesses and commuting is important.

•Trail issues: no lighting, no signage (need to clarify alternative routes), crowding - etiquette and connections to other trails and bike facilities, and far from ideal for practical reasons; uses trails only for recreation.

<u>User Conflicts</u>

•Andreas: East Bay Greenway Trail: signage for bikes and separation between bikes and peds because of speed. Commuting: high bike speeds. Lighting is important.

Tying in with the Parks and Recreation Master Plan

•Tara, City staff: Appreciates previous involvement of group in other plans. Understands issues brought up by the Focus Group. Can't commute to Fremont; commiserates with connectivity issues group brings up.

o As the project manager for the Parks & Recreation Master Plan, we are mapping schools, libraries, neighborhoods, and creating atlas of maps that group would enjoy. Wants to share this information, wants to break down silos. Says there is a shared vision.

<u>Commuting</u>

•Steve: Commuting on trail network - wants to take that off table. To get somewhere quickly, likely to use bike network and not the trail network. For family and for recreation, or access to school or weekend errands, would more likely take the trail. It's important to identify the use of trail network.

•Andreas: I disagree; some trails are still good, direct routes with commuting in mind, and good connection to other trails. Some folks will go out of their way to access a trail to avoid cars.

•Ken: I agree, I have similar preference as a commuter. Maybe commuting is not a primary focus.

•Steve: For primary purpose: it shouldn't be commuting.

<u>Trail Typology</u>

• Matt, City of Fremont: Looking at different facilities and their purposes. The typology idea helps to classify trails by a hierarchy. Higher up - better connectivity and length, higher volume of users. Recommendations include separation and lighting. Lower on hierarchy: shorter distance trails, destinations not as big or as demanded as other destinations. Recommendations include not separating mode, lower level of amenities. The hierarchy framework is in development; great discussion so far.

Bicycle and Pedestrian Focus Group Meeting Notes, continued

Connections to Downtown Core

•Mark: Fremont and its downtown core – Fremont has five distinct downtown centers. Now, we're creating a downtown core. Other plans have noted this. Anything that brings people safely and comfortably to downtown core will reinforce and help the downtown core be more successful. Land use changes will help DT core; supporting that with good trails is important. There are different planning areas in Fremont – this plan needs to look at this through lens of equity and not equality - to help better serve those residents. Need to look at districts differently in terms of users, income levels, etc.

Trail Safety and Character

•Mark: Sabercat Creek Trail - woman expressed concern to Mark about ruining the character of the trail. Really, she was getting at safety and future of the trail, and the aesthetic value. How will the trail change? In looks, amenities, lighting, etc., and how will that change trail usage?

Communication of Projects

•William: Communications is important piece between city and community to avoid conflict. Same with Sabercat Creek Trail – it could connect further. Maintain commuting in the dialogue is important for funding reasons - demonstrating that commuting is important is a vital piece.

Land Easements

•Steve: Issue of developing network, including easements from private property owners, and maintenance. Property is important. The Bay Trail - should consider recreational abilities. We should be looking at the parts of the Bay Trail that are broken. Alameda Creek Trail is nice and long, with destinations, and is unbroken. That's important. Big opportunity there.

•Andreas: Don't underestimate trails and commuting. E-bikes are changing the game.

Long-Term Vision

•William: Vision and long-term planning: state is looking at capital corridor and transit lines. What is the vision for the city for 20 years from now? Converting streets to one-way lanes with shared modes with expanding bikes and peds facility is an idea/vision.

Online Map

•Megan, Toole Design, asks that the group share the map before it closes next Wed, especially to folks who use the trails in different ways.

Private Developments, Public Land

•Steve: Bay Area Ridge Trail: proposed foothills trails, and big issue: private developments. Inaccessible because of private development on southern end of Fremont. Lost opportunity. Need to put in place rules for private development to have easements for public use. Can't use it.

•William: City owns most of the eastern foothills - could create a trail extending south to Ohlone College and connecting to Milpitas.

Maintenance

•Andreas: Another big thing: funding models for maintenance. Fear of overloading ability to maintain them. Being discussed in Parks Master Plan, I believe.

•Tara, City staff: Significant component of Parks and Recreation Master Plan is funding and long-term sustaining.

•Randy, TrailPeople: Will have maintenance component of the Trails Strategy plan. Will coordinate with staff on approach and cost for future, we'll come up with costs for maintenance for trail system.

Pavement Preference

•Tara, City staff: In terms of trail surfacing: what's preferred? In parks, standard is concrete, vs asphalt.

-Andreas: maybe ask folks who don't use trails. I think in general paved is preferred.

-Ken: is one easier to maintain?

-Tara: yes, we require cement concrete because it lasts longer. Requires less maintenance money. But costs more up front.

-Matt: easier to find money for capital projects too.

-Mark: if paved and good condition, great. When it needs maintenance, generally residents won't care. Values higher up-front cost and better long-term maintenance.

-Will: comes down to who owns property.

-Andreas: other demographic who might have input - people with small wheels (scooters) might care a lot more – concrete has joints that can be an issue.

-Steve: look at other demographics, esp. young families with kids and elders for preference.

-Megan: Paved! Better for strollers. And if it's connected. Getting to the topic of connectivity and the inventory and mapping.

Funding

•Tara: Have you explored funding sources yet?

•Randy: Assessment districts. Benicia hopes to get funding for assessment district. They're doing a master plan currently. Property tax on all residents to take care of maintenance. Assessment districts or ongoing maintenance requirements are often established in conjunction with developments. Other mechanisms exist, but that's a primary source. Appears on property taxes.

Land and Maintenance Opportunities

•Will: City of Fremont has lots of land. Consider trade for maintenance with the East Bay Regional Park District. They just spent lots of money for land. But it ties together public properties. Sell it to the Park District in exchange for help maintaining linear parks under control of city? Like other trails East Bay Regional Parks maintains.

What's one thing you want to see in the Plan?

•Andreas – An inventory of trail opportunity locations.

•Ken – What could we do to make immediate improvements? Lighting, wayfinding – Short-term meaningful improvements.

•Mark – In the Plan, a discussion of how this plan relates to other City plans and how do they integrate with one another? (Pedestrian Plan, Bicycle Plan, Parks and Rec Plan) – specifically called out in the Plan.

•William – Developing a vision, and then the will to see things through. Including a realistic implementation strategy.

•Steve – Local network within neighborhoods; ranking of connectivity; closing gaps, especially the Bay Trail. Implementation/path forward must be included. Show the prioritized ranking of the projects, and the feasibility.

•Rene, City – Creating choices for the community.

•Matt, City – Final Plan needs a balance with transformational/long-term projects and small/quick win projects. City is working on many projects right now, but they are longer-term. Especially on popular trail corridors.

•Tara – I want all of it! Like the visionary piece of it 20, 30, 100 years out. And how to fund/maintain it. Regional connectivity throughout the Bay Area, connecting to Fremont would be great.

Online Survey and Interactive Map

An online survey and interactive map was released to the community on June 10, 2020 and was open through September 30, 2020.

Methodology

Online Survey Methodology

The survey included 11 questions regarding trails and related transportation, and questions regarding respondent's neighborhood, age, and email if further contact was desired. A total of 483 people completed all or part of the survey.

Approximately 118 "yard signs" were placed around popular trails and trailheads in Fremont to encourage people to complete the survey and provide comments using the interactive map.

Interactive Map Methodology

During the same time period, community input was also received via an interactive map, or "webmap", on which respondents could drop pins or draw lines on places they would like to see trails improved or developed and could leave comments regarding site-specific ideas or issues. Participants were asked to share their input on the existing trail network in the City of Fremont and to propose new trail connections. The webmap can be found here: *https://tooledesign.github.io/Fremont-Trails-Strategy-Plan/*

During this time, participants shared over 311 unique responses. The table below provides an overview of the functionality of the webmap and the types of comments respondents could provide.

Table B-1. Interactive Map (Webmap) Capabilities

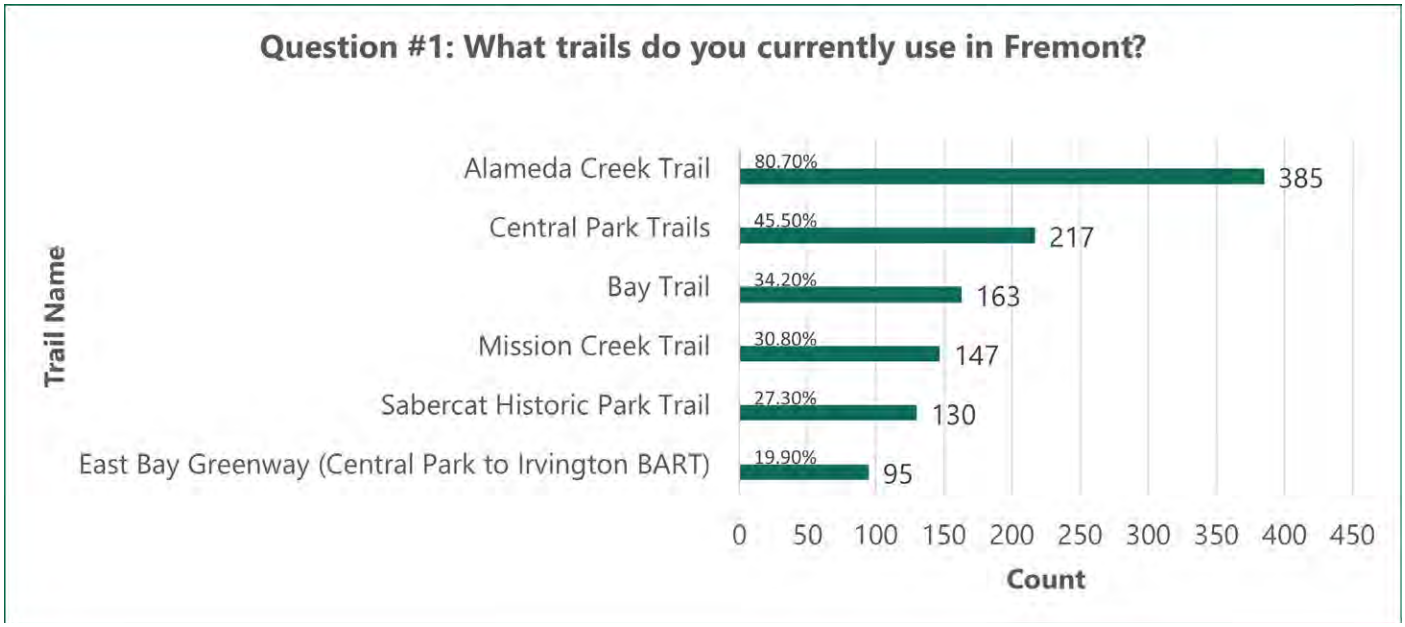
Webmap Capabilities	Application	Example Comments
Comment on existing trails	Existing trails only	Add a Creek crossing at BART tracks
Select types of trail improvements	Existing trails or suggested new trails/connections	This trail needs: · additional amenities/trailside elements (benches, trash cans, bike racks, etc.) · separate paths for pedestrians and bicyclists · something else
Draw segments for new trails and leave comment	Suggested new trails/connections	Bicycle and walk path through Niles Canyon
Reply to a suggested new trail or connection ("DrawReply")	Suggested new trails/connections	This would be amazing and my #1 request
"Voting" to show support or dislike for existing comments	Either existing trails or suggested new trails/connections	(Displayed as "+1" by clicking thumbs up symbol)

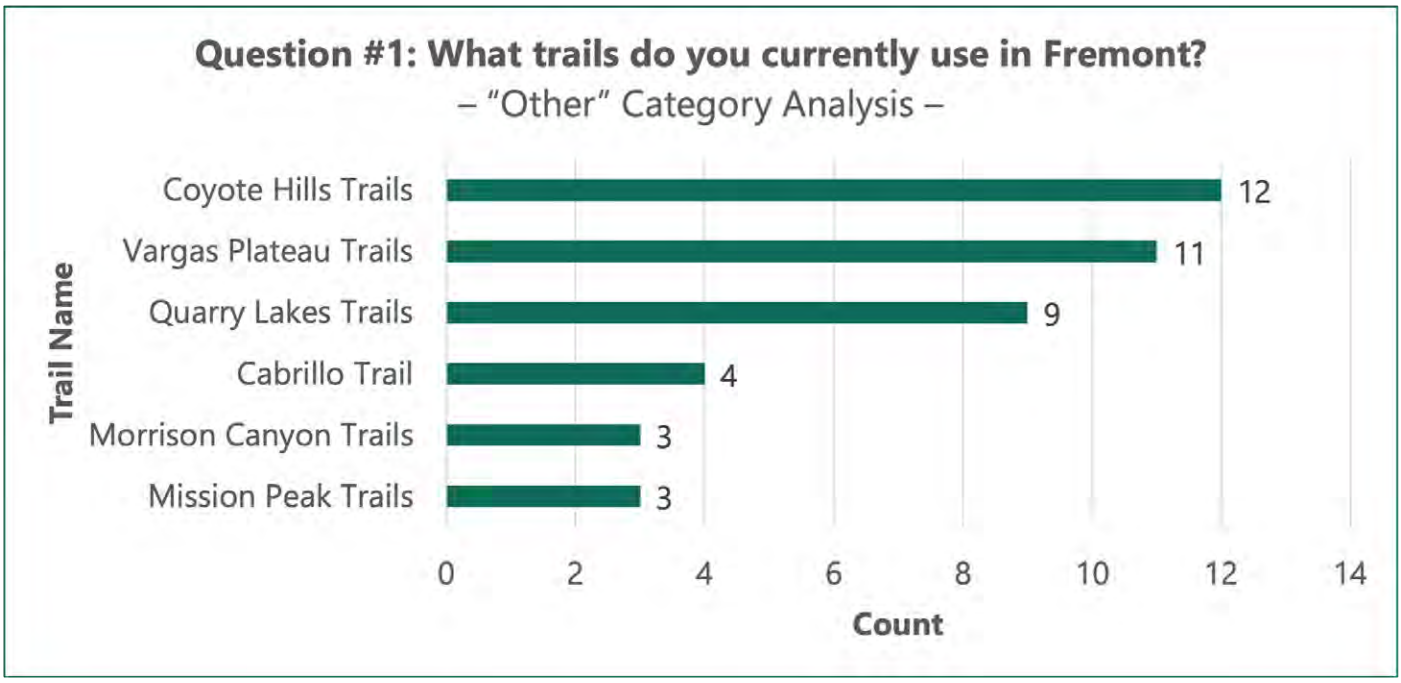
Online Survey Questions and Responses

Question #1: What trails do you currently use in Fremont?

477 people answered this question, 6 people skipped this question.

Alameda Creek Trail is by far the most popular trail in Fremont, followed by Central Park Trails, the Bay Trail, Mission Creek Trail, and Sabercat Historic Park Trail. The response to the "Other" category shows the popularity of unpaved trails in the hills, but these are not a focus of the Trails Strategy Plan, which focuses on trails that can be used for transportation.

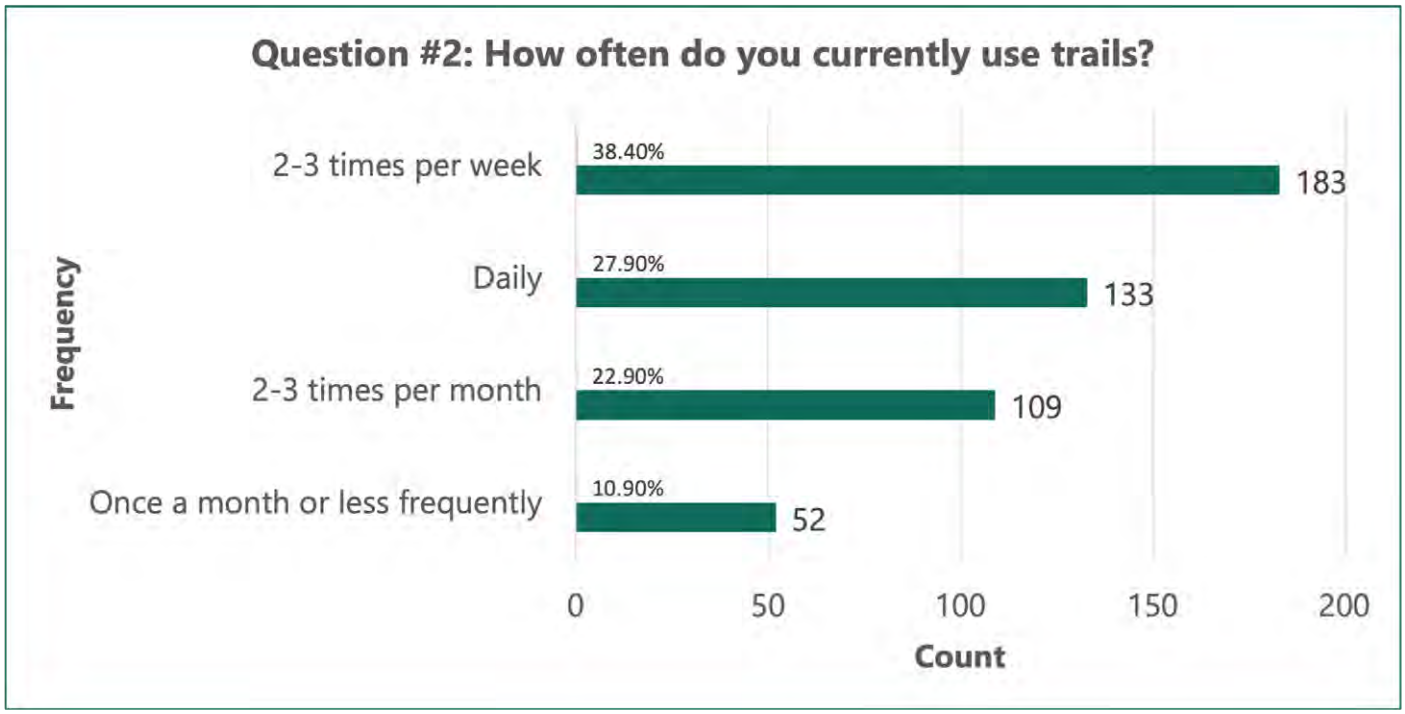




Question #2: How often do you currently use trails?

476 people answered this question, 7 people skipped this question.

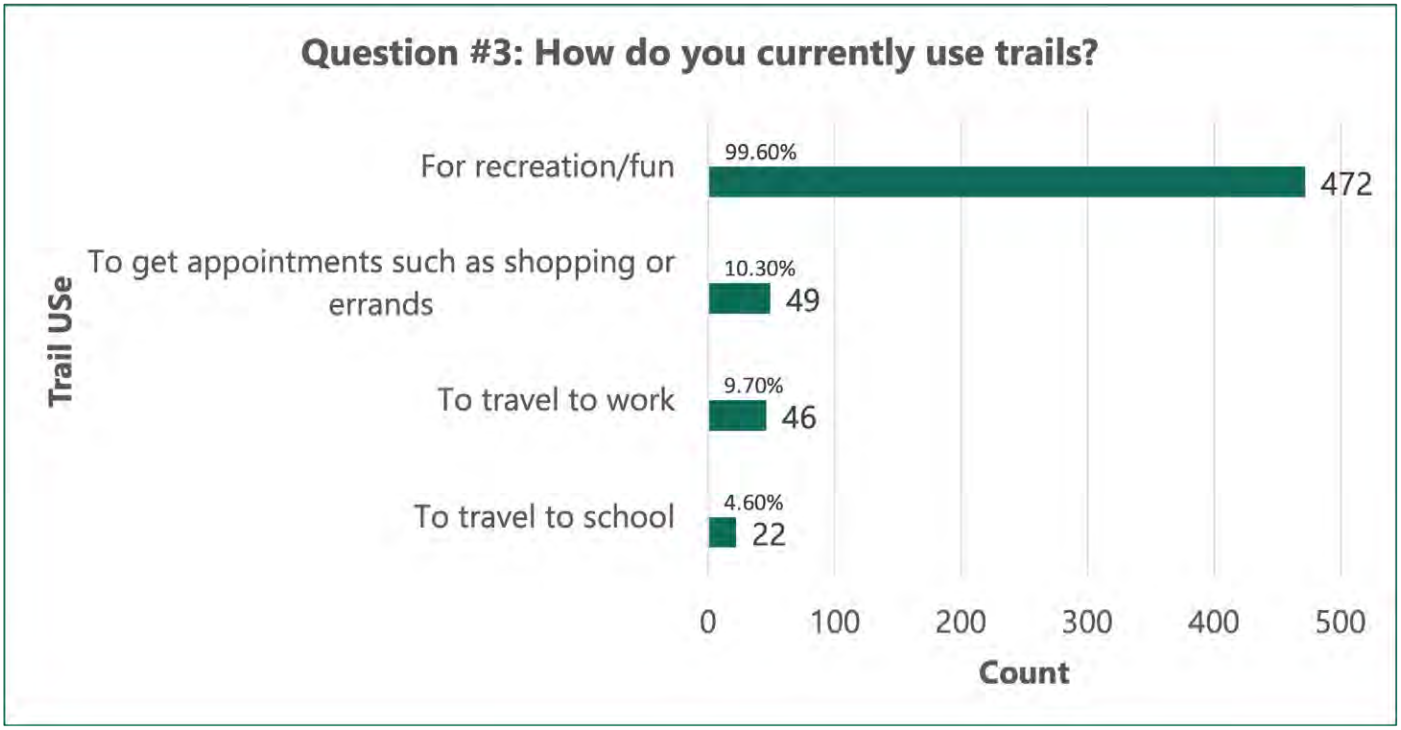
Trails are popular with the respondents, with 2-3 times per week being the top answer, followed by daily.



Question #3: How do you currently use trails?

474 people answered this question, 9 people skipped this question.

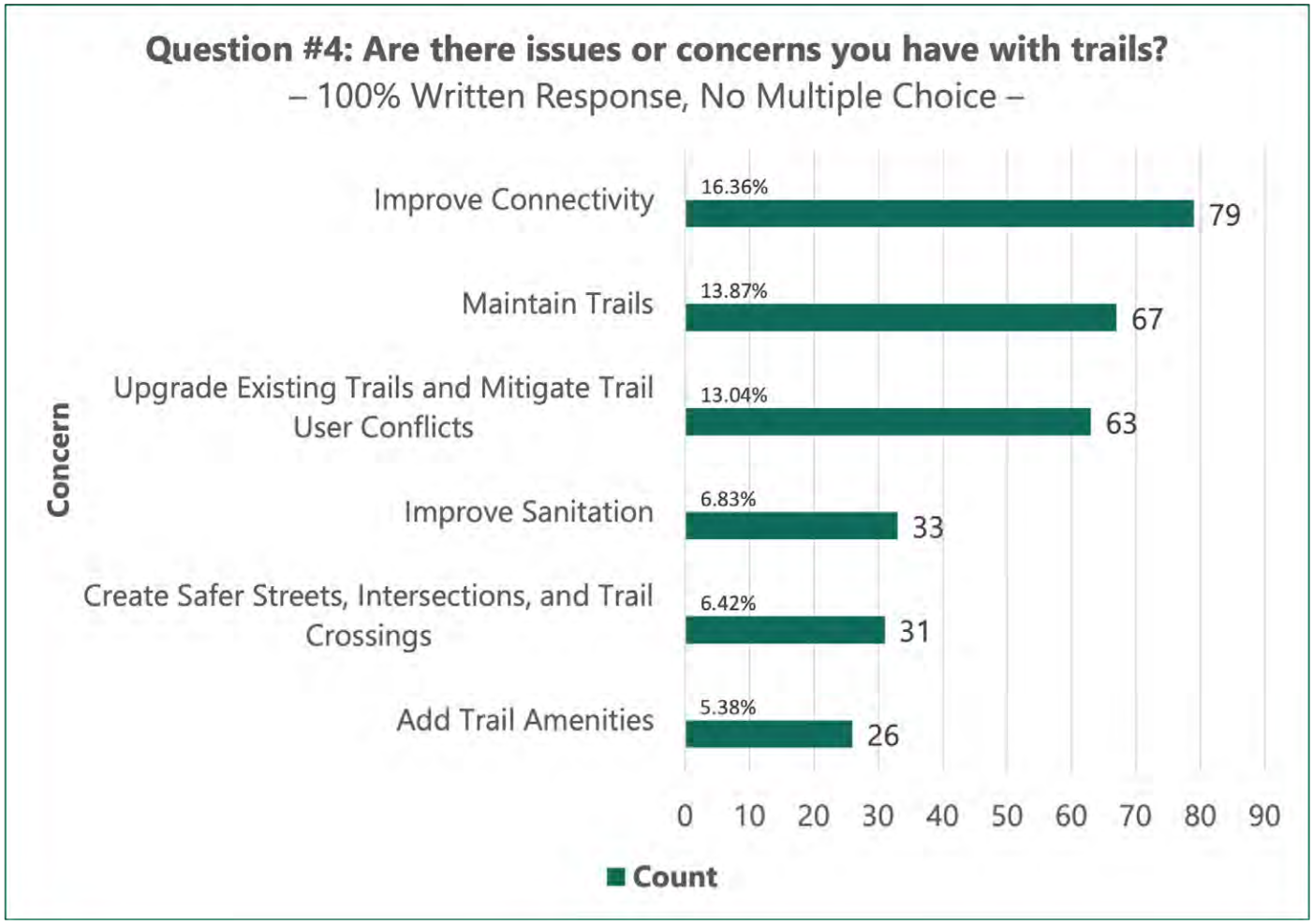
Trail use is almost entirely recreational, though over 10% use trails for errands, and almost 10% to get to work, and 5% to get to school. The answer to **Question #6** regarding how people would like to use trails is an interesting point of comparison.



Question #4: Are there issues or concerns you have with trails?

329 people answered this question, 154 people skipped this question.

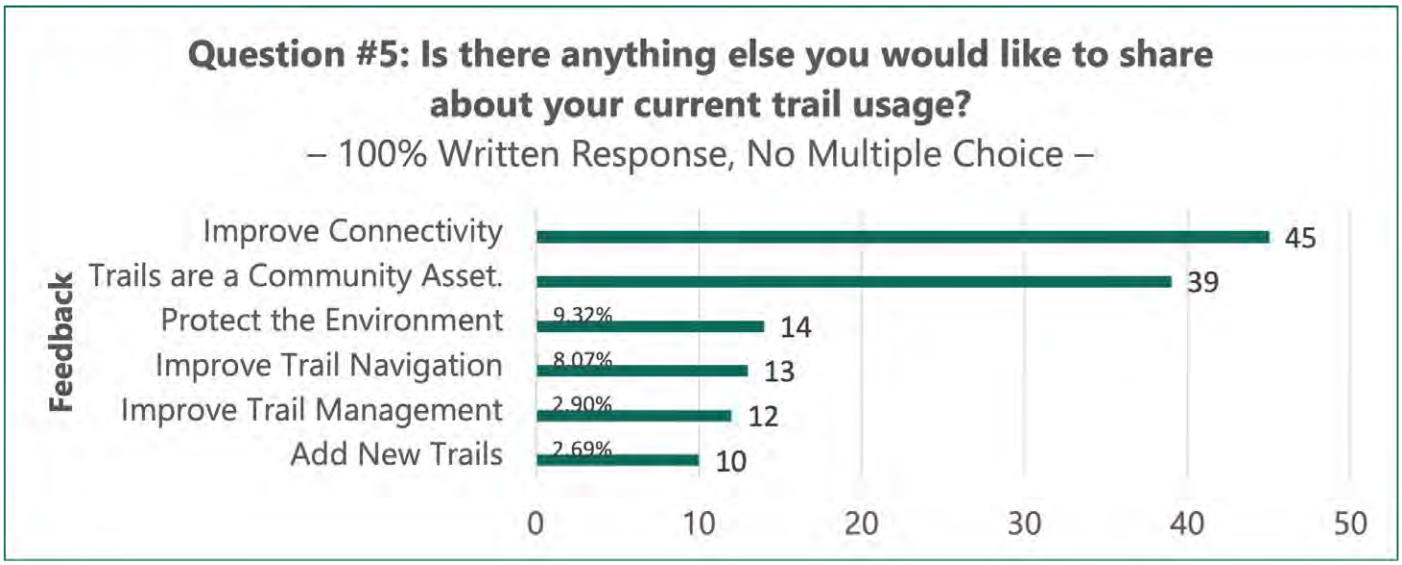
The top six themes for issues or concerns were Improving Connectivity, Trail Maintenance, Upgrading Existing Trails (to reduce congestion and conflicts), Sanitation, Safe Street Crossings and Street Design, and Trail Amenities (Trailside Elements).



Question #5: Is there anything else you would like to share about your current trail use?

221 people answered this question, 262 people skipped this question.

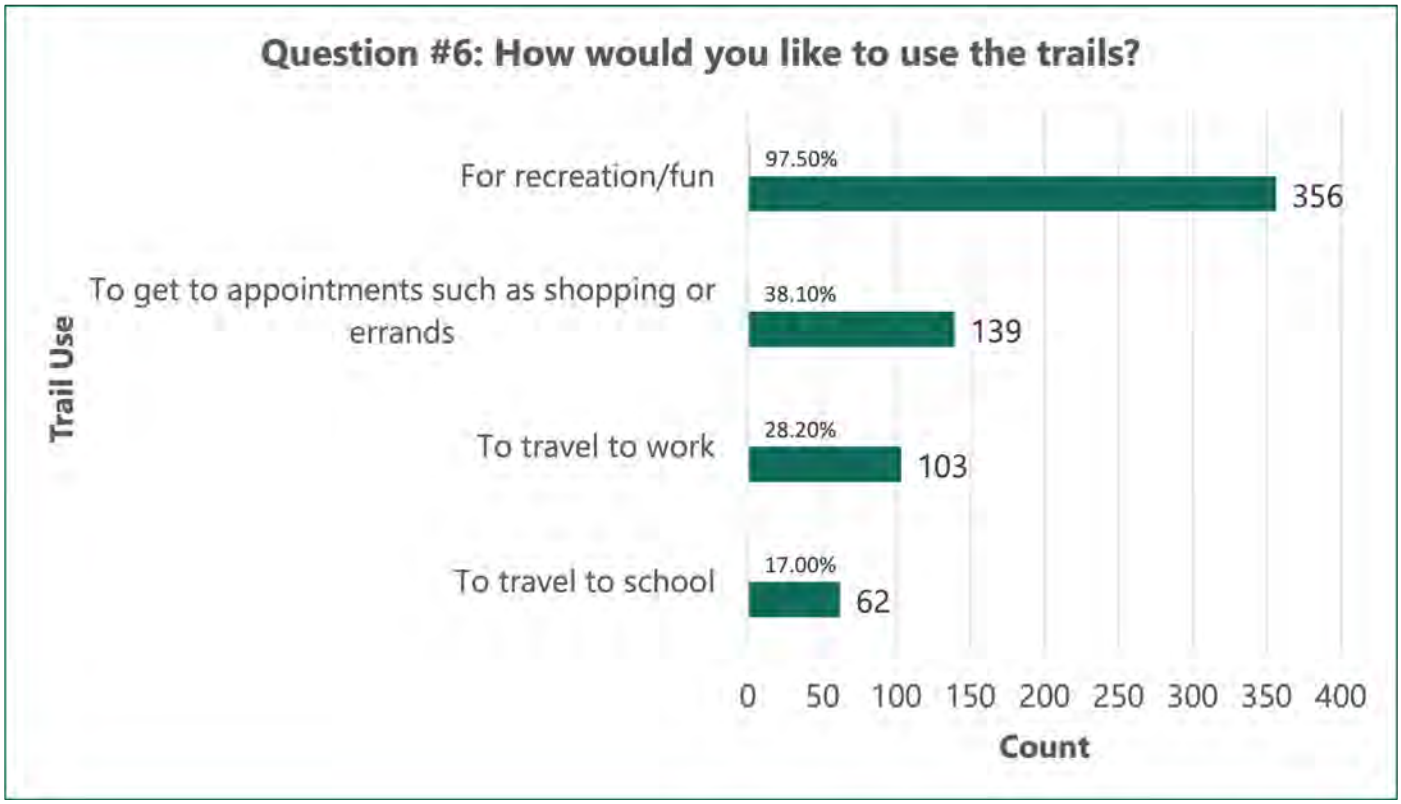
The top theme was Improving Connectivity, followed by Trails are a Community Asset, Environmental Protection and Improvement, Signage and Wayfinding, Trail Management, and New Trails.



Question #6: How would you like to use the trails?

365 people answered this question, 118 people skipped this question.

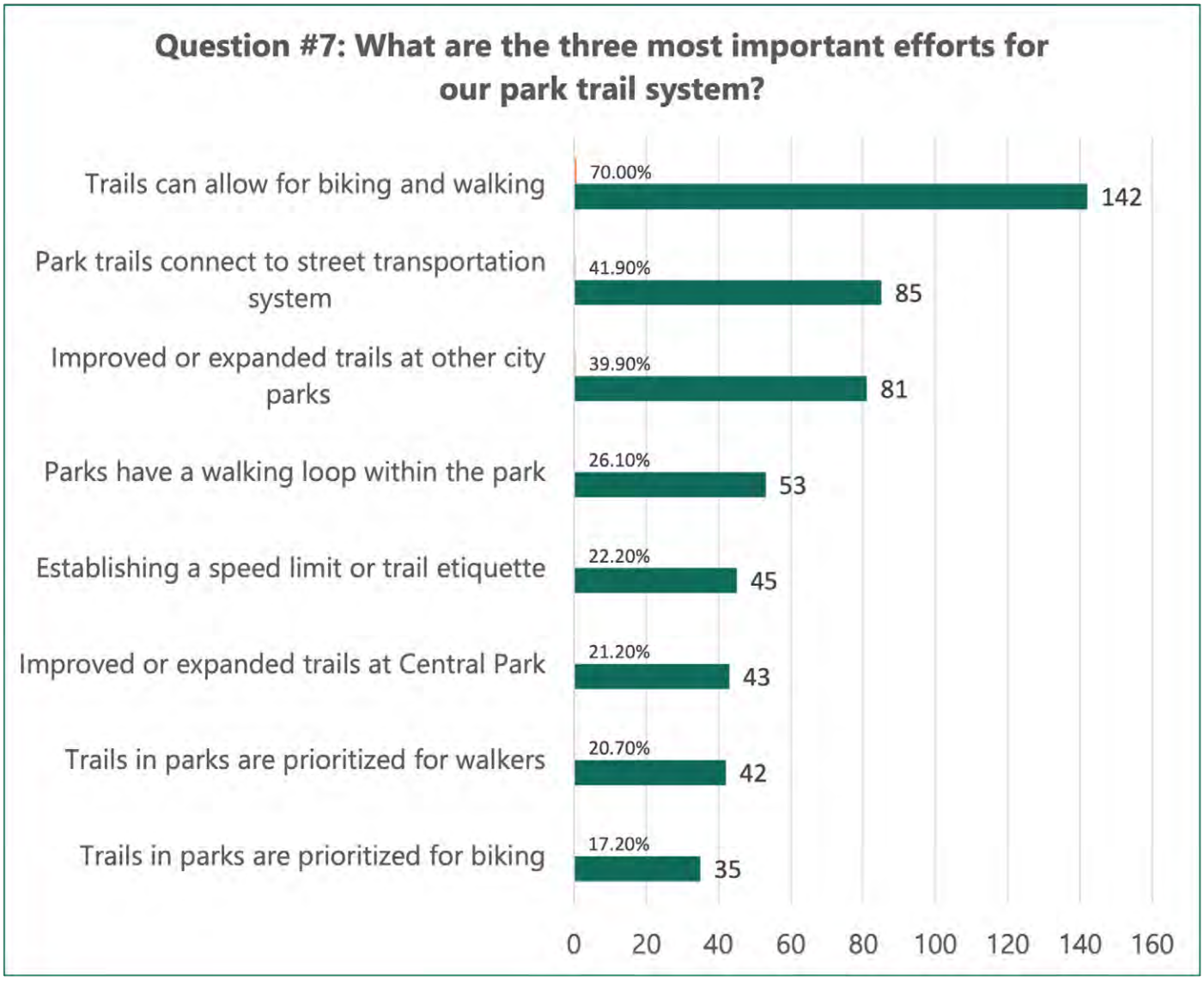
Almost 100% of respondents want to use trails for recreation, but a much larger percentage than the existing trail use from Question 3 would like to use trails for errands, to get to work, and to school.



Question #7: What are the three most important efforts of our park trail system?

203 people answered this question, 280 people skipped this question.

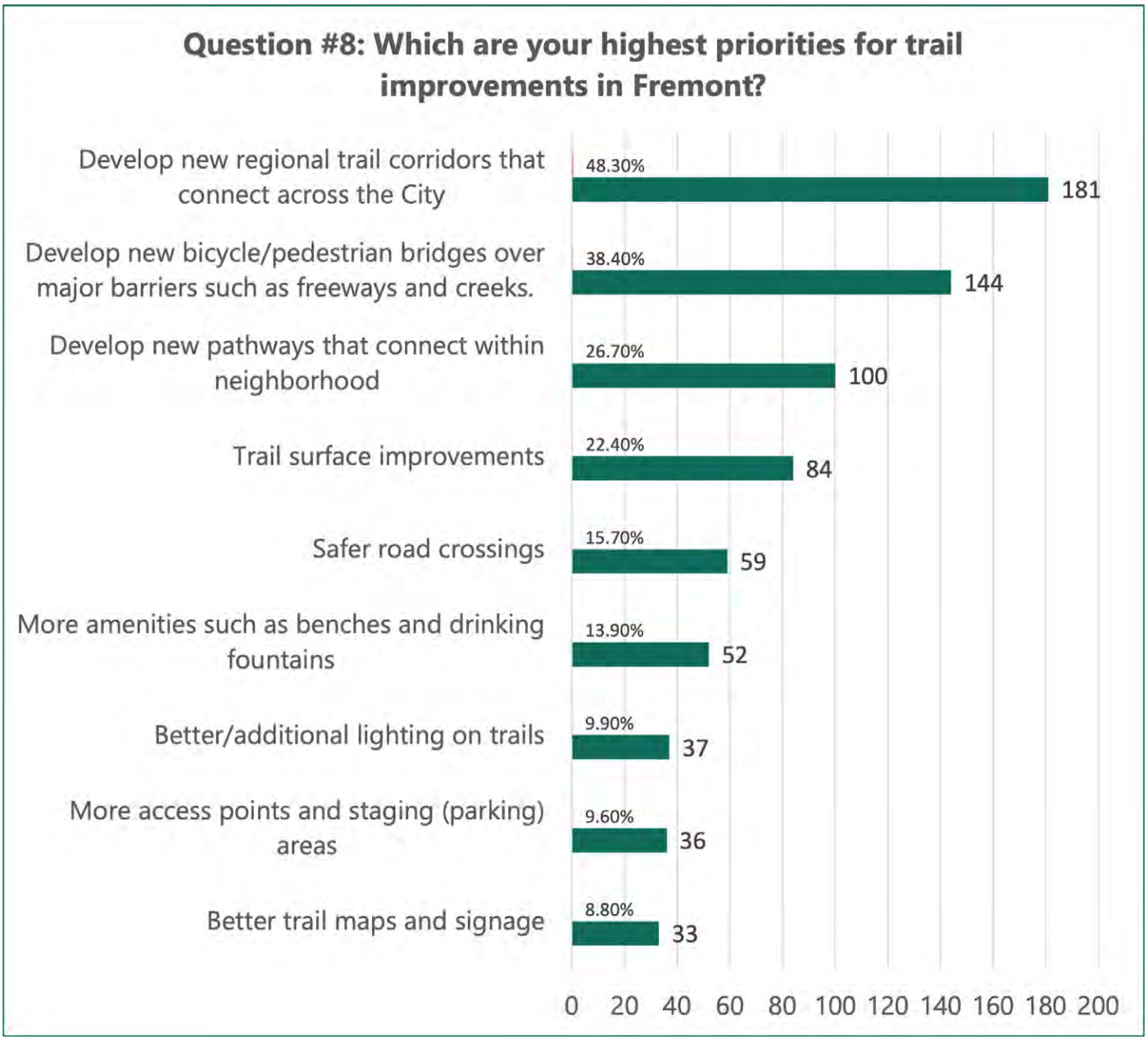
The three most important efforts for the park trail system are "allowing biking and walking," "connecting to the street transportation system" and "improved or expanded trails at other City parks."



Question #8: Which are your highest priorities for trail improvements in Fremont?

203 people answered this question, 280 people skipped this question

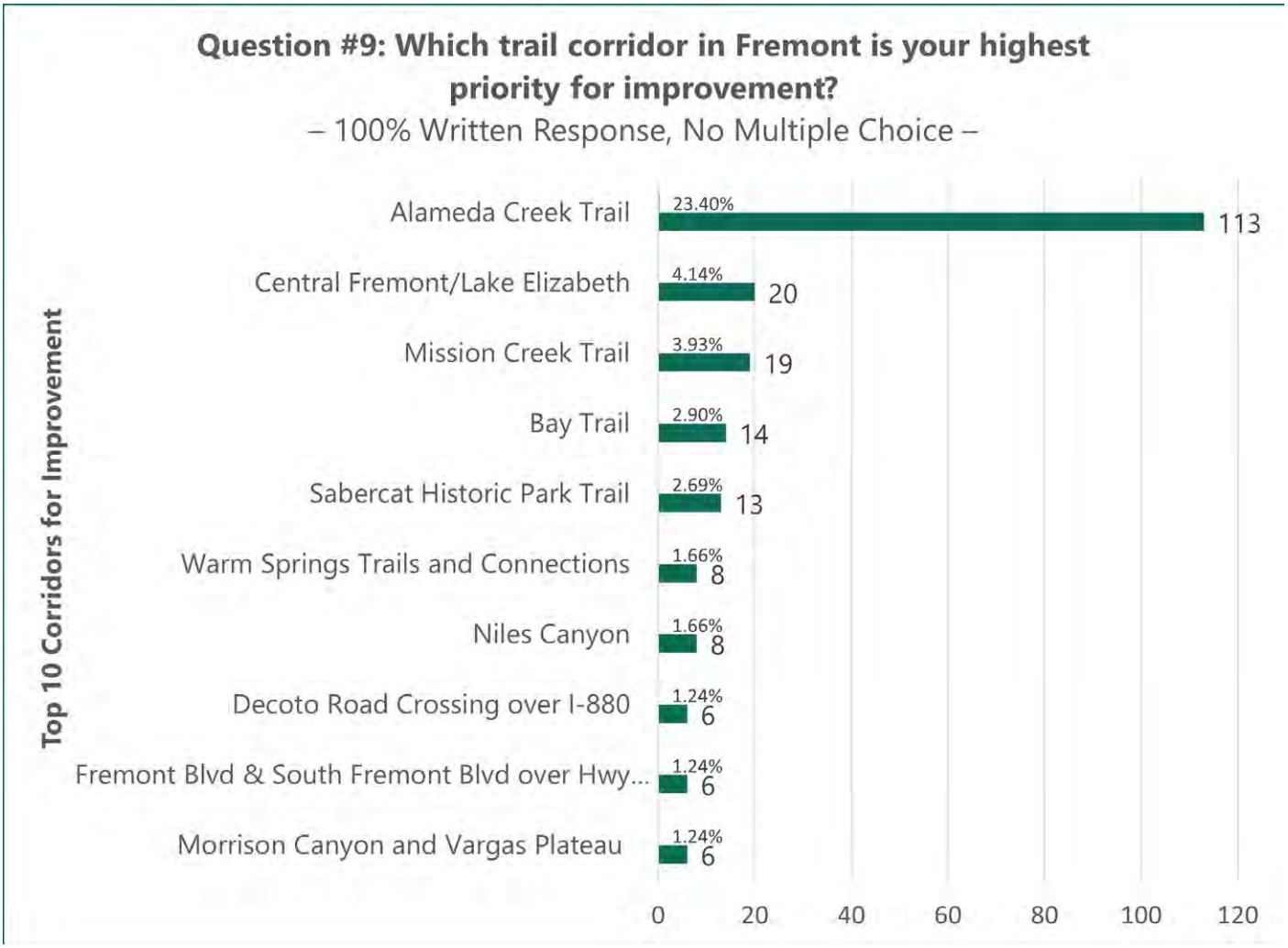
The top choices on this multiple choice question were "new regional trail corridors," "new bicycle/pedestrian bridges over major barriers," and "new pathways that connect within neighborhoods." Community interest in adding amenities (trailside elements), access points, maps and signage, and lighting is somewhat lower, which may reflect that Fremont has a relatively sparse trail network in many parts of the City.



Question #9: Which trail corridor in Fremont is your highest priority for improvement?

278 people answered this question, 205 people skipped this question.

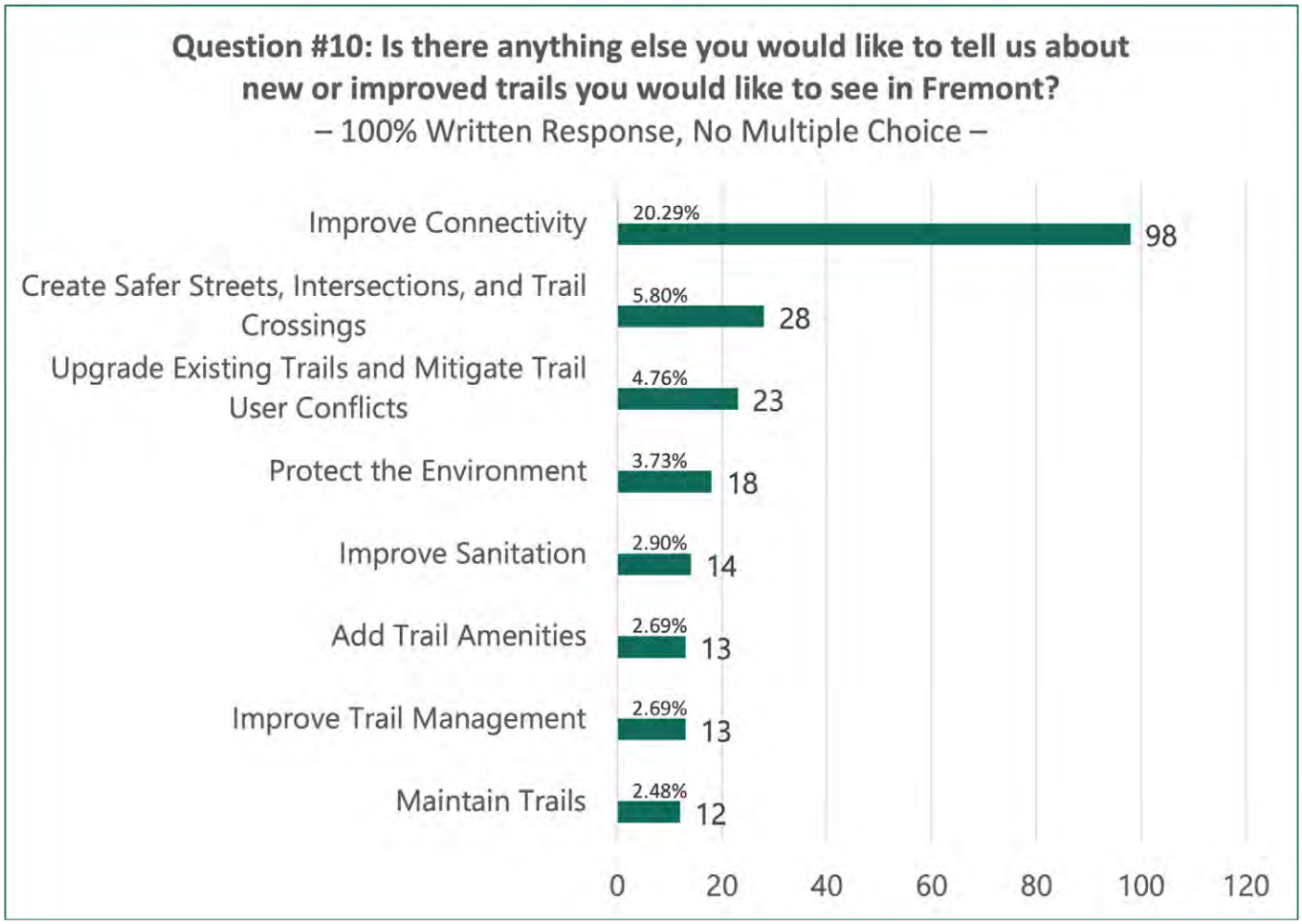
By far the most important trail corridor for improvement is Alameda Creek Trail, followed by Fremont Central Park Trails, and Mission Creek Trail. It should be noted that elsewhere in the survey, respondents had many comments about the pavement along the Alameda Creek Trail and that EBRPD initiated a resurfacing project between Isherwood and Mission Boulevard shortly after the survey closed.



Question #10: Is there anything else you would like to tell us about new or improved trails you would like to see in Fremont?

220 people answered this question, 263 people skipped this question.

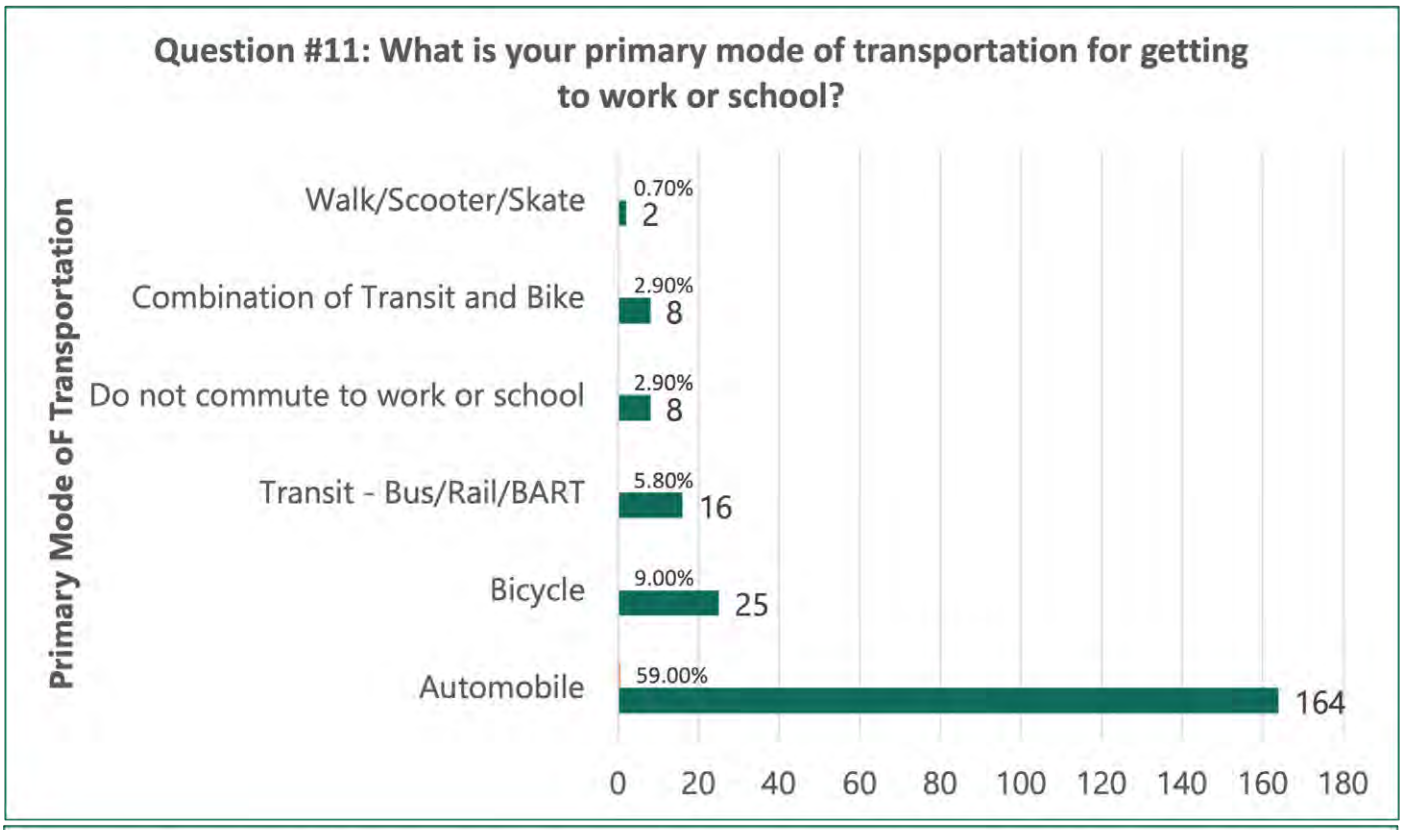
By far the most frequent response theme was improving connectivity, creating safer streets, intersections, and trail crossings, and upgrading existing trails and mitigating trail user conflicts.

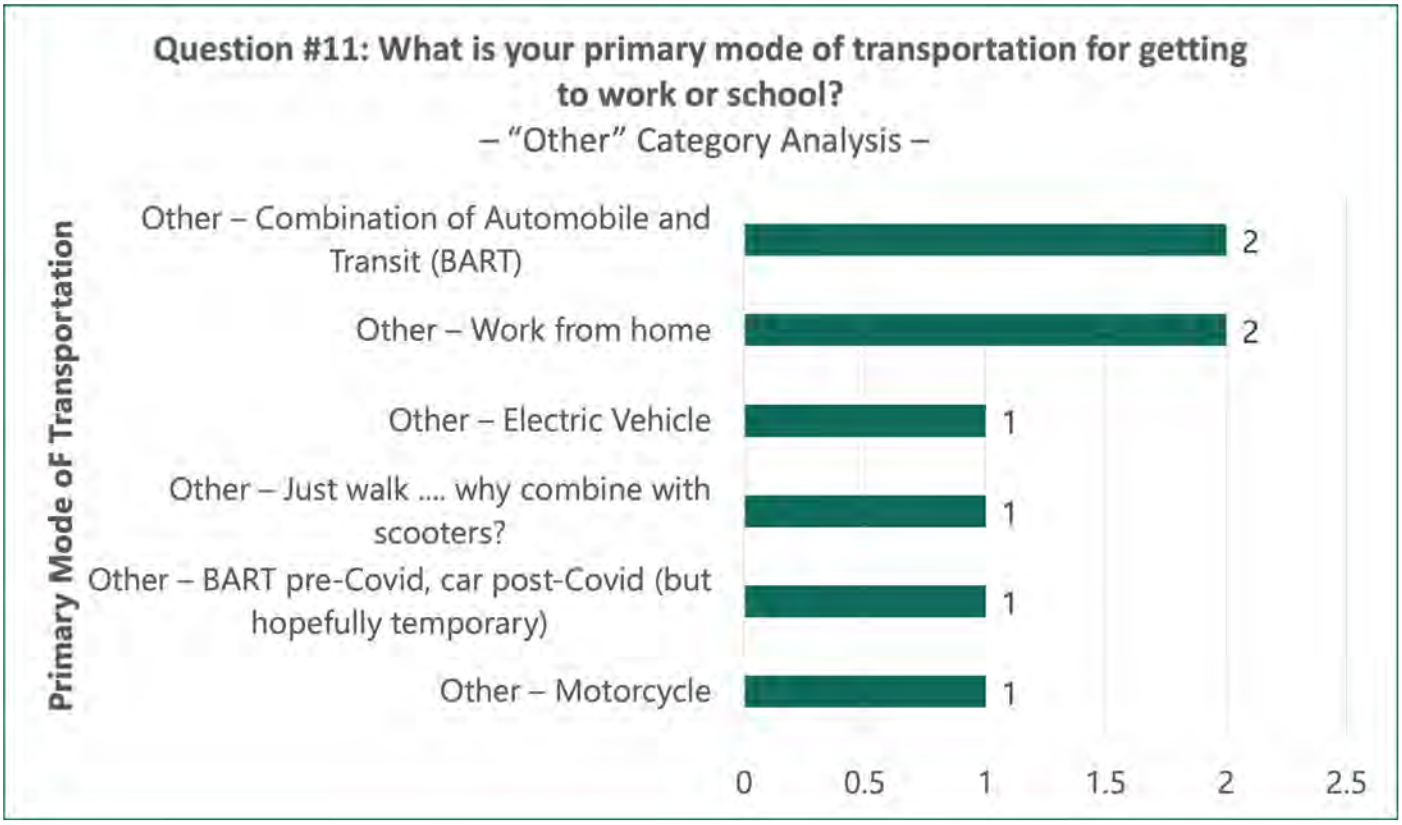


Question #11: What is your primary mode of transportation for getting to work or school?

278 people answered this question, 205 people skipped this question.

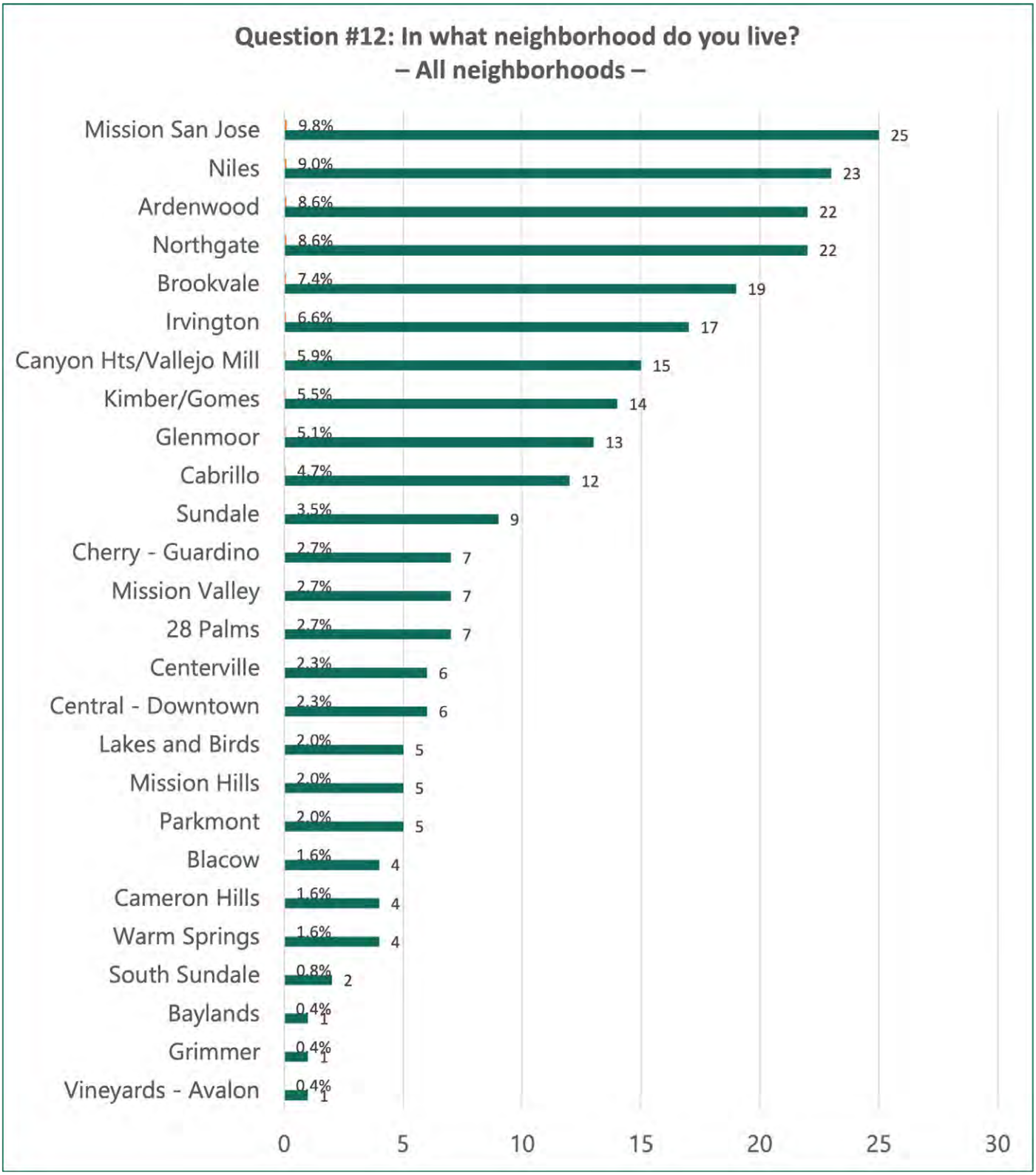
For those who responded, the primary mode of transportation is Automobile, though 9% of respondents use Bicycles, and almost 6% Bus, Rail, or BART. As a point of comparison, the commute mode share of Fremont residents is around 1% biking.

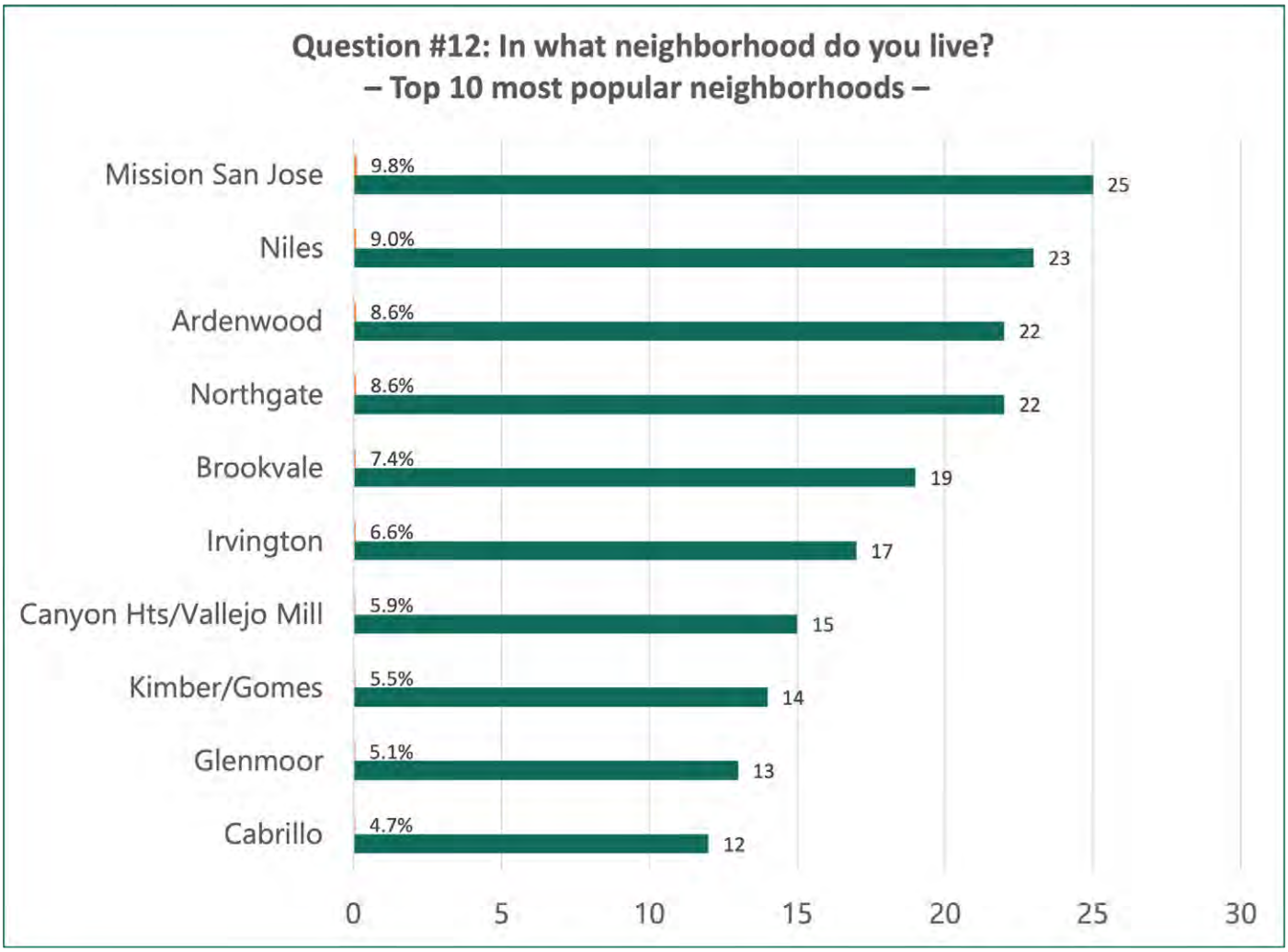




Question #12: In what neighborhood do you live?

275 people answered this question, 208 people skipped this question.

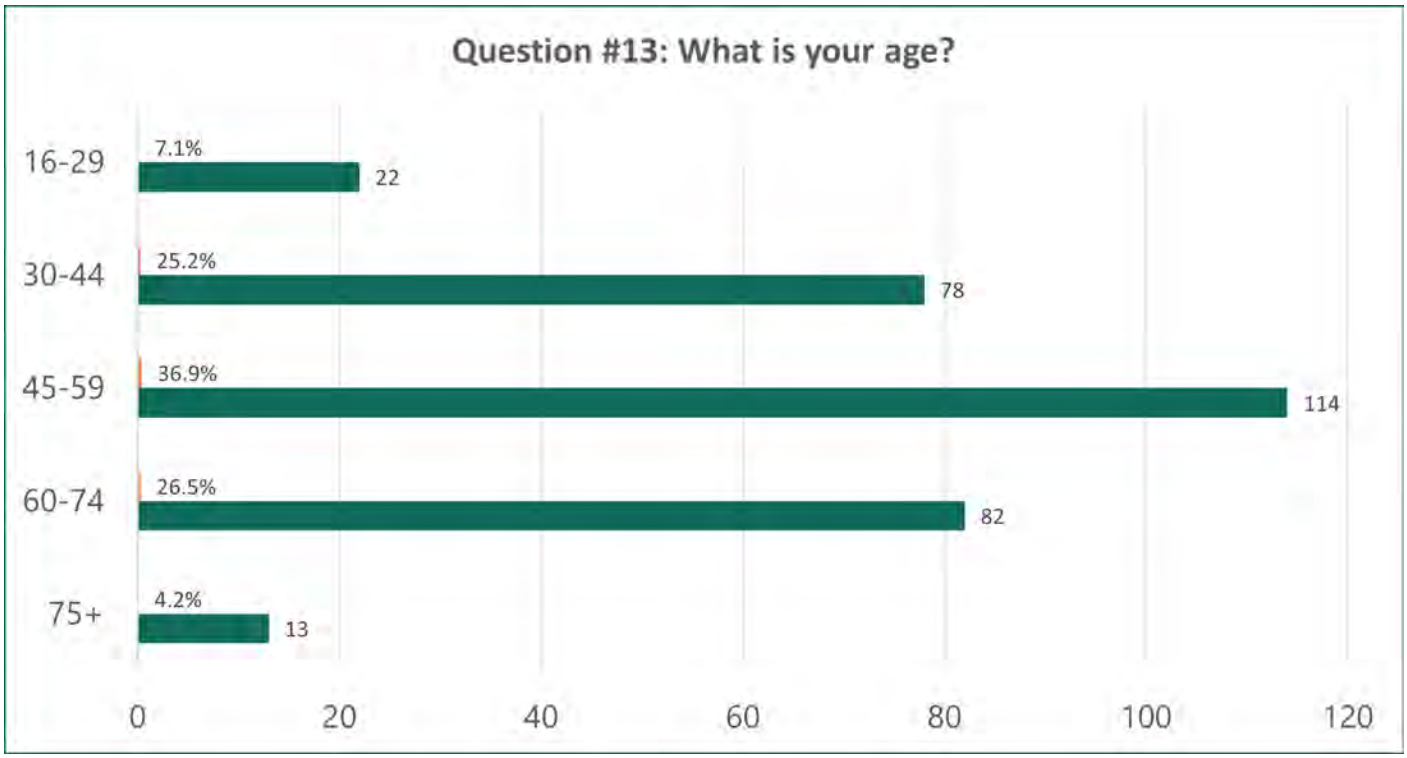



Question #12: In what neighborhood do you live?
– Top 10 most popular neighborhoods –
Mission San Jose
9.8%
25
Niles
9.0%
23
Ardenwood
8.6%
22
Northgate
8.6%
22
Brookvale
7.4%
19
Irvington
6.6%
17
Canyon Hts/Vallejo Mill
5.9%
15
Kimber/Gomes
5.5%
14
Glenmoor
5.1%
13
Cabrillo
4.7%
12
0
5
10
15
20
25
30

Question #13: What is your age?

310 people answered this question, 173 people skipped this question.

While there was a spread of responses across age ranges, the demographics of the responses do not match the demographics of the City.



Question #14: Please provide your e-mail if you would you like to be informed of project updates in the future. Your email will only be shared with survey administrators.

85 people answered this question, 398 people skipped this question.

Interactive Map Responses

Community members provided 311 responses on the interactive map, including comments on specific points as well as linear features. The graphic below summarizes the point-based and linear comments by quantity of responses.

Key Takeaways

Popular responses from community members:

- Responding to a comment or suggested trail from another participant (45 percent of responses)
- Suggestions for new trails or trail connections (38 percent of responses)
- Comments on existing trails (16 percent of responses)

Many community members commented on the Alameda Creek Trail, with comments ranging from:

- Improving the pavement quality
- Providing or removing vegetation
- Improving trail crossings at major intersections

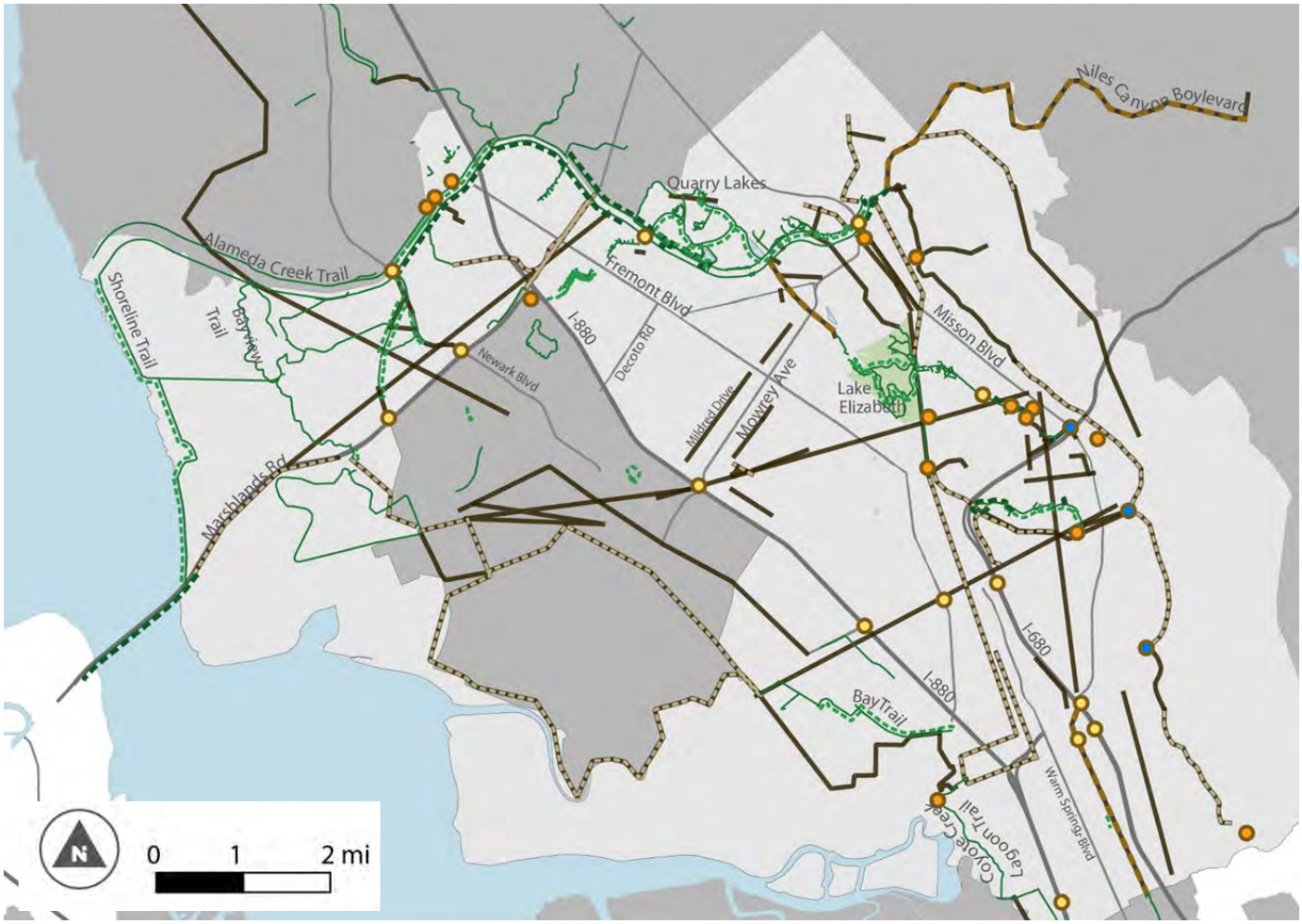
Popular new, suggested trails include:

- A trail parallel to Niles Canyon Road
- A trail connecting to the Hetch Hetchy Trail in Milpitas
- A trail connecting the Alameda Creek Trail to the Fremont BART station

Locations for new connections, or desired crossings improvements, were proposed at:

- Paseo Padre Parkway and Isherwood Way
- Mission Boulevard crossing Alameda Creek
- High Street and Main Street

A handful of comments suggested new cross-jurisdictional trails, such as a new trail connecting Fremont and Union City.



Responses to the Online Map, Open June-Sept 2020

TOOLE DESIGN

Comments on Existing Trails

- Trails
- Low Number (2 or fewer)
- High Number (3 or more)

Comments on New, Suggested Trails

- New, Suggested Trails Drawn
- Low Number of Response Comments (3 or fewer)
- High Number of Response Comments (4 or more)

Suggested Improvements, Connections

- Crossing
- Amenities
- Access Point
- Other

Interactive map showing existing trails and suggested new trails/connections across the City of Fremont

Interactive Map Comments by Theme and Location

Overall, there were 20 comments regarding crossings, 14 for access points, five related to "other," and one for amenities. The following tables detail the specific comments.

Table B-2. Suggested Trail Connections, Crossings

Comment	Location Description
No crosswalk at busy street to user made access in poor condition	*Falcon Drive and Peregrine Way*
Connect sidewalk on each side of railroad crossing Pedestrians and bikers risk their life to get trough this restriction on Lowry Road	*Alameda Creek Trail and Lowry Road, near Novato Street*
Provide a sidewalk and safe crossing over Alameda Creek!	*Alameda Creek and Ardenwood Boulevard/Union City Boulevard*
No comment	*Paseo Padre Parkway and 84*
No comment	*Ardenwood Boulevard and 84*
No comment	*Windemere Drive and Omaha Place*
This intersection is scary. The problem is cars turning left from Isherwood onto Paseo Padre. The cars looking for a gap in traffic to make a left turn, so they don't look for pedestrians/ bicyclists. Also because Paseo Padre is 3 lanes in each direction, pedestrians never know which of the three lanes the car will turn into, making it very hard for pedestrians to be safe. The many lanes also encourage drivers to cut in front or behind passing pedestrians. This intersection is important to connect the Brookvale trail to Quarry Lakes.	*Paseo Padre Parkway and Isherwood Way*
to cross creek to access downtown Niles from paved bike path	*Mission Boulevard and Alameda Creek*
Rail tunnels need trail ped/bike access	*Mowry Avenue and Mission Boulevard*
I would love if the city added a safe access point with medium-sized parking for people to hike onto existing trails	*Canyon Heights Drive and Morrison Canyon Road*
Dangerous crossing for children to get to/from school	*Driscoll Road north of Chiltern Drive*
Traveling south on Mission Blvd. is fine until you reach the on ramp area to 680. Cyclists must negotiate two right turns, go under the freeway, and then try to cross the right turn to an eastbound 680. That's dangerous enough, but then the Mission Blvd. narrows just at McDonald's and it is a single lane that is very precarious and narrow for cyclists and cars. Please find a way to make this bicyclist friendly, or, find a new route to cross here.	*Mission Boulevard and Interstate 680*
Unsafe to cross 880	*Interstate 880 and Mowry Avenue*
Currently difficult to access Pacific Commons due to freeway crossing	*Interstate 880 and Auto Mall Parkway*
No bike lane, no sidewalk, heavy traffic; impossible to walk to shopping centers or bus stops bus stop (on Auto Mall east of Fremont Blvd))is without sidewalk or bike lane as well	*Auto Mall Parkway and Fremont Boulevard*

Comment	Location Description
There is currently no safe pedestrian crossing over Hwy 680 between Grimmer Blvd and Washington.	*Interstate 680 and Durham Road*
Old Mission Park has a parking lot and bathroom, but the trails stemming from Old Mission Park are disjointed. It would be great if you could add a safe crossing and connection to Sabercat trail's Pine Street entrance here.	*Old Mission Park*
The new 262 project should include a path that connects segments of Hetch Hetchy.	*Interstate 680 and Mission Boulevard*
Warren has cars moving at high speeds. If a new trail is added, having more design focused changes to slow down cars (in addition to the signal) would be great.	*Warren Avenue near Bradley Street*
There is not a good way to get to the Bay Trail in far South Fremont unless you go back up to Warren. This is a major barrier if wanting to take the Coyote Trail to work place in South Bay	*Near Interstate 680 and Page Avenue*

Table B-3. Suggested Trail Connections, Access Points

Comment	Location Description
Connect sidewalk on each side of railroad crossing Pedestrians and bikers risk their life to get trough this restriction on Lowry Road	*Alameda Creek Trail and Lowry Road, near Novato Street*
No crosswalk at busy street to user made access in poor condition	*Falcon Drive and Peregrine Way*
This area has a user made eroded dangerous access which has a concrete and stone park naming monument located there. Why welcome people from AC Trail to injure themselves sliding down the levee	*Quarry Lakes Parkway*
No comment	*Windemere Drive and Omaha Place*
Rail tunnels need trail ped/bike access	*Mowry Avenue and Mission Boulevard*
I would love if the city added a safe access point with medium-sized parking for people to hike onto existing trails	*Canyon Heights Drive and Morrison Canyon Road*

Comment	Location Description
Enable a way to get onto Paseo Padre from the park	*Paseo Padre Parkway and Railroad Avenue*
Improve flow between MSJHS and Hopkins with this trail	*Mission San Jose Park, southside*
Add new trail access point as part of new Mission Creek Trail development	*Trail near Palm Ave and Mission Creek Drive*
No comment	*Palm Avenue at Corte Santa Ines*
I would love an access point to Mission Peak and the trails here, with a medium-sized parking area. A lot of people use Mill Creek Road to detour walk into Mission Peak.	*Mill Creek Road, north of Linmore Drive*
Old Mission Park has a parking lot and bathroom, but the trails stemming from Old Mission Park are disjointed. It would be great if you could add a safe crossing and connection to Sabercat trail's Pine Street entrance here.	*Old Mission Park*
Connect to proposed Irvington Bart station	*Washington Boulevard and Osgood Road*
Can we have more trails into Don Edwards Wildlife Refuge	*Coyote Creek Trail Lagoon*

Table B-4. Suggested New Connections, Other

Comment	Location Description
Traveling south on Mission Blvd. is fine until you reach the on ramp area to 680. Cyclists must negotiate two right turns, go under the freeway, and then try to cross the right turn to an eastbound 680. That's dangerous enough, but then the Mission Blvd. narrows just at McDonald's and it is a single lane that is very precarious and narrow for cyclists and cars. Please find a way to make this bicyclist friendly, or, find a new route to cross here.	*Mission Boulevard and Interstate 680*
Dedicated trail parking for access to MP trails that is not subject to Ohlone College confusing parking rules and ticketing.	*Aquatic Way and Pine Street*
Expanded, improved parking to accommodate all of the visitors to Mission Peak	*Stanford Avenue and Mission Creek Trailhead*
Connect sidewalk on each side of railroad crossing Pedestrians and bikers risk their life to get trough this restriction on Lowry Road	*Alameda Creek Trail and Lowry Road, near Novato Street*
There is no access point to any trails in the hills in South Fremont because the end of Scott Creek is gated and closed to the public. The public has to detour 6 miles to access point in Milpitas to get back to trails in Fremont : (	*Near Calaveras Road and Vista Ridge Drive*

Table B-5. Suggested Trail Connections, Amenities

Comment	Location Description
Improve flow between MSJHS and Hopkins with this trail	*Mission San Jose Park, southside*

Interactive Map Comments Analysis

Of the 311 responses, 51 responses pertained to conditions on existing trails, and 261 responses were related to either suggesting a new trail or connection, or expressing an opinion on a suggested new trail or connection.

Comments on the existing trails within the Fremont varied slightly; however, most comments addressed segments of the Alameda Creek Trail, then the Lake Elizabeth Trails, and finally other trails. Respondents were also invited to select options for how they think existing trails could be improved.

Table B-6 shows the number of comments and suggested improvements by trail. **Table B-7** indicates the top suggestions and improvements.

Table B-6. Existing Trails with Comments and Suggested Improvements

Trail	Comments	Respondents expressed an interest in . . .
Alameda Creek Trail	21	• Providing cross-jurisdiction connections to Union City • Improving the pavement quality • Providing or removing vegetation • Providing restroom amenities
Lake Elizabeth Trail	4	• Mowing • Discouraging visitors from feeding wildlife • Restroom maintenance • More available automobile parking
Other Trails	4	• Planting more trees • Improving access from nearby roads • Improving safety and connectivity to trails • Vegetation maintenance • Not enough trail space for pedestrians and bicyclists • Removing poisonous vegetation
East Bay Greenway	3	
Mission Creek Trail	3	
Sabercat Historic Park Trail	3	
Quarry Lakes Parkway	3	

Note: Trails with two comments or fewer were not included.

Table B-7. Top Comments and Suggested Improvements for Existing Trails

Trail	No. of suggested improvements cited	First	Second
Alameda Creek Trail	16	Something Else (Desire for paving/ re-paving, more trees, improve crossings, difficulty accessing the trail, and the need for a pedestrian/bicyclist bridge)	More frequent mowing
Quarry Lakes Parkway	5	Something else (More trees and shade, removing poisonous vegetation)	Expanded hours of operation/ additional amenities/separated path for pedestrians and bikes
Lake Elizabeth Trail	9	Separated paths for pedestrians and bicyclists	Additional amenities (trailside elements)
Other Trails	7	Something else (Better lighting, improved restrooms, better signage)	More frequent trash pick-up
East Bay Greenway	4	Tie: More frequent mowing, more frequent trash pick-up; additional amenities (trailside elements); something else	
Mission Creek Trail	5	More frequent trash pick-up	(Four-way tie)
Sabercat Historic Park Trail	3	Something else (Overgrown vegetation, unpaved trail, removing gates)	More frequent mowing
East West Connector Trail	3	Tie: More frequent mowing; more frequent trash pick-up; something else	
Cabrillo Trail	3	Tie: Additional amenities (trailside elements); separate paths for pedestrians and bicyclists; something else	

Note: Trails with only one improvement selected were not included. This includes the Bay Trail, Newark Slough Trail, Northgate Trail, and Shoreline Trail.

Suggested New Trails or Connections

In addition to commenting on existing trails, respondents were also invited to suggest a new trail or connection by drawing a route on the map. Comments, or new route suggestions, were not limited to existing roads or trails. Respondents also could simply vote up or down a suggested new trail; however, no suggested new trail received a "down vote." In total, respondents suggested over 80 new trails, as shown on the comments map.

Suggested trails ranged in length and location and included suggestions for trails that:

- Cross the city
- Run along the Bay on the west
- Run along the hills to the east
- Provide short-distance connections
- Connect to neighboring cities

Suggested trails that received the most comments or "up-votes" included:

- A trail parallel to the Niles Boulevard heading into the canyon (nine response comments + nine votes)
- A rails-to-trails suggestion connecting Alameda Creek Trail to Lake Elizabeth through UPRR right-of-way land (eight votes)
- A trail along power lines from approximately Bradley Court and Crawford Street to the edge of Fremont, connecting to the Hetch Hetchy Trail in Milpitas (seven response comments)
- A trail to extend the Hetch Hetchy Trail in Milpitas north through land under utility lines (seven votes)
- A trail connecting from the Alameda Creek Trail to the Fremont BART station and downtown Fremont (six response comments)

The most up voted suggested new trails are described below.

Table B-8: Summary of Suggested New Trails Receiving Up Votes

Location Description	Comment	# Votes
Path along Niles Canyon Road	Bicycle & walk path through Niles Canyon	9
Path from Alameda Creek Trail at Old Canyon Road and Paradise Drive to at Lake Elizabeth	Rails to trails	8
Trail from Crawford Street and Bradley Street, traveling south under utility lines, to the Hetch Hetchy Trail in Milpitas	Trail would connect the entirety of the Warm Springs Neighborhood Area, Milpitas, and the Warm Springs town area. The main neighborhood connection, Warm Springs Boulevard, can be unpleasant due to high-speed traffic. The path would be on the Hetch Hetchy right of way, which has few structures and obstructions for construction.	7
Trail from the Mission Creek Trail at Mission San Jose High School to Emory Commons Path	Pave a new trail	5
Trail from the Albany Path at Walnut Avenue, north to the Alameda Creek Trail	A trail connecting the Alameda Creek Trail to Fremont BART/Downtown/Albany Path would be wonderful.	5

Suggested Trail Connections and Crossings

Participants also indicated locations where they desired new or improved trail connections. Of the 300+ responses, 33 comments related to connections. Participants interpreted "connection" in a variety of ways, as illustrated by their comments. Comments about connections largely related to initial trail access, a trail crossing, or unsafe infrastructure along the trail.

Initial Trail Access Comments:

- Add new trail access point as part of new Mission Creek Trail development
- Connect to proposed Irvington BART station
- Provide a sidewalk and safe crossing over Alameda Creek
- Dedicated trail parking for access to Mission Park trails that is not subject to Ohlone College confusing parking rules and ticketing.

Trail Crossings Comments:

- Crossing Warren Avenue by bike is dangerous. There is no designated bike lanes over the bridge with very narrow shoulders. Connecting to Coyote Creek should not be so perilous!
- Improve flow between MSJHS [Mission San Jose High School] and Hopkins [Junior High School] with this trail

Unsafe Infrastructure Comments:

- This area [Quarry Lakes Parkway] has a user made eroded dangerous access which has a concrete and stone park naming monument located there. Why welcome people from AC Trail to injure themselves sliding down the levee
- Connect sidewalk on each side of railroad crossing. Pedestrians and bikers risk their life to get trough this restriction on Lowry Road [and Alameda Creek Trail]

Of the 33 comments relating to connections, three had multiple responses that were "up-voted" and are noteworthy to mention; these include connections at:

- Paseo Padre Parkway and Isherwood Way
- Mission Boulevard (Route 238), crossing Alameda Creek
- High Street (Railroad Ave) and Main Street

Desired improvements at these locations:

- Safe traffic conditions
- Safe crossing infrastructure such as dedicated bicycle and pedestrian crossings at intersections that are currently uncomfortable or have high vehicle volumes
- ADA-compliant curb ramps
- General walking and biking improvements

Trail Connections to Surrounding Areas

Some comments extended beyond the Fremont City limits and into the City of Union City, City of Milpitas, or unincorporated Alameda County.

Comments extending to unincorporated Alameda County:

- Suggested walking and biking trail through Niles Canyon, east into Unincorporated Alameda County, ending at Sunol. This comment was strongly supported by other commenters via nine additional comments and up-voting by nine others.

Comments extending to Union City:

- Suggested new trails, such as a bridge over Alameda Creek at Coyote Hills Regional Park that extends the Bay Trail.
- Improved connections to existing trails, such as a connection between the existing trails at Sugar Mill Landing Park and San Andreas Park.

Comments extending to Milpitas:

- Closing a trail gap between the Hetch Hetchy Trail ending at Washington Drive and Escuela Parkway, and connecting to Sandalwood Park.

Location-Specific Trail Improvement Comments (Survey and Map)

The list below includes all the online survey comments that were location-specific. These are grouped by existing and proposed trail corridors. The number of people who mentioned each location-specific trail improvement is shown in parentheses **(#)**. The second number represents the number of interactive map comments received (#+#).

Alameda Creek Trail

- **Improve Crossings:**
  - Improve all underpasses/crossings **(13)**
  - Mission Boulevard & ACT **(2)**
- **Add Connections:**
  - To Mission Boulevard (near Mowry Ave) **(5)**
  - To Central Fremont hub & commercial district **(3+5)**
  - To Fremont BART Station (a pedestrian/bike bridge or a separated bike lane on Fremont Boulevard South) **(2)**
  - To Vallejo Mill School through Amtrak Rail Line **(3)**
  - To Ardenwood Park & Ride and Ardenwood Historic Farm **(2)**
  - To Lowry Road **(1)**
  - To WHHS and Kaiser **(1)**
  - To Centerville Station **(1)**
  - To Parkmont neighborhood **(1)**
  - From I-880 & Decoto Rd using the land along I-880 to access to the ACT **(1)**
- **Repave or Pave:**
  - Southside of ACT **(5)**
  - From Isherwood Way to Mission Boulevard (**4)**
  - West of Isherwood **(2)**
  - Informal trail access points **(2)**
  - Use soft materials on shoulders, not sharp rocks/boulders **(2)**
  - Pave Northside of ACT **(1)**
  - New gravel needed on the Northside of ACT **(1)**
  - Southside from the Beard Road Staging Area to Niles Canyon **(1)**
- **Build Bridges:**
  - Beard Road Staging Area to Northside of ACT **(1)**
  - Between the Mission Boulevard Bridge and Sequoia Terrace Bridge **(1)**
  - From the Northside of ACT to access Coyote Hills **(1)**

Niles Canyon Trail

- **Add Connections:**
  - Start at Vallejo Mills Historical Park and at the East end of Old Niles Canyon Road **(1)**
  - Start at the abandoned RR by Morrison Canyon Road **(1)**

San Francisco Bay Trail

- **Improve Crossings:**
  - Fremont Boulevard & Cushing Parkway **(2)**
  - RR crossing near Boyce Rd. & Stewart Ave **(1)**
  - Ardenwood Blvd Crossings **(1)**
  - Add a stoplight at the Paseo Padre Parkway & the Coyote Hills Entrance **(1)**
- **Add Connections:**
  - Reopen and pave the Shoreline Trail & Marshlands Rd connection **(2)**
  - To Bay Area Ridge Trail **(1)**
  - Off-street trail from Dumbarton Bridge to South Fremont **(1)**
- **Repave or Pave:**
  - From the Dumbarton Bridge overpass to the Coyote Hills Loop **(1)**

- **Re-Route or Improve Segments:**
  - From Dumbarton Bridge Toll Plaza to Quarry Road **(2)**
  - Build a trail following SR-84 for bikes as an alternate route to the start of the ACT along Lowry Rd **(1)**
  - Biking along Dumbarton Bridge to Thornton Ave, Cherry Ave, Boyce Ave, Cushing Parkway, and Fremont Blvd to connect with the Bay Trail in the wetlands near Warren Ave is dangerous **(1)**
  - Cushing Parkway & Fremont Blvd to Auto Mall Parkway **(1)**
  - Formalize Coyote Creek Lagoon Trail behind the USD plant by Warren to avoid Fremont Boulevard **(1)**
  - Connect Boyce Road to Cherry Street to Fremont Boulevard **(1)**
  - Alternative Route Proposal: Willow to Plummer Creek to land bridge to Don Edwards and the Mowry Slough then moving inland towards Auto Mall Parkway **(1)**

East Bay Greenway

- **Add Connections:**
  - Along Osgood Road Bart Tracks to Fremont Warm Springs Bart Station and Milpitas **(5)**
  - To Paseo Padre Southbound bike lane (build a staircase or ramp) **(2)**
  - Warm Spring Trail and Connections (2+8)
  - To the Tesla factory **(2)**
  - To Union City BART **(1)**
  - From Orchard Ave **(1)**
- **Requires Landscaping:**
  - Plant trees from Union St. to Central Park **(1)**

Dumbarton Bridge to Quarry Lakes Trail

- **Add Crossings:**
  - I-880 & Decoto Road **(10+6)**
- **Add Connections:**
  - Across Dumbarton Bridge **(3)**
  - To Alameda Creek Trail **(2)**
  - To Lake Elizabeth **(1)**
  - To Mission San Jose **(1)**
  - To Milpitas **(1)**
- **Repave or Pave:**
  - Marshlands Road **(2)**

Mission Creek Trail

- **Improve Crossings:**
  - Create a safer, aligned crossing at Driscoll Road with the trail **(2)**
  - Palm Ave & Via San Miguel **(1)**
- **Add Connections:**
  - From the East Bay Greenway & Mission Creek Trail across Stevenson Blvd to Mission Blvd **(13)**
  - Extend the trail beyond Palm Ave towards the I-680 freeway to close the gap **(8+5)**
  - Connect to Camino Santa Barbara instead of Palm Ave **(1)**
- **Build Bridges:**
  - Connect the two sides of Mission Creek **(1)**
- **Repave or Pave:**
  - The entire trail **(2)**
- **Unlock Gates:**
  - Los Pinos St **(1)**
- **Requires Landscaping: (2)**
  - Trim the bushes in front of Hopkins Junior High School and Mission San Jose High School along the Creek
  - Distribute the mounds of wood chip mulch front of MSJ

- Remove the tall Eucalyptus trees that have been cut down (this is a fire hazard near Fremont schools and neighborhoods)
- Tree and brush trimming fire hazard at Covington Dr. & Mission Creek

Sabercat Historic Park Trail

- **Add Connections:**
  - To Irvington BART (build a bridge) **(4)**
  - Create a loop from East Bay Greenway Trail to Mission Creek Trail to Sabercat Trail and back to Irvington BART station **(2)**
  - Create a loop from Antelope Hills, back to Pine Street and Old Mission Park **(1)**
- **Requires Landscaping:**
  - Trim bushes to allow for social distancing and greater visibility **(1)**

Hetch Hetchy North-South

- **Add Connections:**
  - Southern Segments from Milpitas to I-680 **(6+7)**
    - Close the gaps between Warren Ave and Scott Creek Road **(3)**
    - Close the gaps to avoid Dixon Road **(1)**
    - To Warm Springs Area **(1)**
    - To the Hetch Hetchy Trail in Milpitas **(1)**
- **Add Amenities:**
  - Add better lighting on Plomosa Park (add some ped level lighting along the section between Wilaneta Ave and Merlot Drive) **(1)**

Hetch Hetchy East-West

- **Add Connections:**
  - To Ardenwood **(1)**
  - To Newark **(1)**

Cabrillo Park Trails

- Add benches for seniors at park entry points and within the park **(1)**
- Add overcrossings at Paseo Padre Parkway & Isherwood Way **(1)**

Northgate Trail

- **Improve Crossings:**
  - Paseo Padre Parkway & Whitehead Lane near Northgate Trail Entrance to create safe routes to school **(2)**
- **Repave or Pave:**
  - Widen pathways **(1)**
- **Requires Landscaping:**
  - Remove Northgate Central Park debris, trash, and tall grasses near Paseo Padre Parkway and plant trees along the trail **(1)**

Central Park Loop Trail

- **Add Connections:**
  - RR from Lake Elizabeth to Niles Crest and Niles Canyon **(4)**
  - To Alameda Creek Trail **(3)**
  - To Mission/Ohlone **(1)**
- **Repave or Pave:**
  - New pavement markings indicating the flow of traffic on Central Park trails **(1)**
  - Widen the trails and add dedicated bike lanes **(1)**
- **Requires Animal Control and Regular Cleaning:**
  - Discourage the feeding of wildlife and keep the sidewalks at Central Park free of geese droppings **(3)**

Crandall Creek Trail & Ardenwood Path

- **Unlock Gates:**
  - Open Yukon Court Entrance **(1)**

U-Channel Trail

- **Unlock Gates:**
  - Greenbelt from Central Park to Mowry East Shopping Center **(1)**

PG&E Corridor & Channel Trail

- **Unlock Gates:**
  - Doane St **(1)**

Morrison Canyon Road

- **Improve Intersections:**
  - Sheridan Road & Mission Blvd **(1)**
- **Add Connections:**
  - Create a pathway along Morrison Canyon Road to access Vargas Plateau **(6+6)**
  - Connect Mission Peak to Vargas Plateau and Vargas Plateau to Niles Canyon **(5)**
  - To Central Park **(3)**
  - Work with EBRPD to connect Vargas Plateau to Mission Peak and Ohlone via Vargas Road **(3)**
  - Open a trail between the end of Canyon Heights Drive (presently there is a gate) and Morrison Canyon Road **(2)**

Highways and Streets

- **I-880 Crossings:**
  - I-880 & Fremont Blvd **(8+6)**
  - I-880 & Dixon Landing Road **(4)**
  - I-880 & Warren Ave **(3)**
  - Build a pedestrian and bicycle bridge near Scott Creek Road & Kato Road **(1)**
  - New crossing at I-880 in South Fremont, the Warm Springs Area, allowing for easier access to the Highway 237 bikeway **(1)**
- **I-680 Crossings:**
  - I-680 & Auto Mall Parkway **(1)**
  - I-680 & Vargas Road **(1)**
- **Enhance Connectivity**
  - Warm Springs neighborhood **(3)**
  - Connect Plomosa Neighborhood Park, Lone Tree Neighborhood Park, Booster Neighborhood Park, and Warm Springs Community Park **(2)**
  - Parkmont Drive (and neighborhood) **(1)**
  - Mowry Ave & Peralta Blvd **(1)**
  - Brookvale neighborhood **(1)**
  - Warm Springs to central Fremont **(1)**
  - Mission Neighborhood **(1)**
  - Irvington Neighborhood **(1)**
  - Connect Ardenwood to Central Fremont **(1)**
  - Create protected two-way bike lane along Palm Ave from Mission Blvd to Washington Blvd **(1)**
  - Bay Area Ridge Trail **(1)**
- **Redesign Streets for Bike/Ped Safety:**
  - Fremont Blvd **(6)**
  - Mowry Ave **(4)**
  - Mission Blvd (and repave) **(3)**
  - Cherry St **(2)**
  - Boyce Rd **(2)**

    - Add protected bike lanes, using physical separation such as curbs or movable concrete safety barriers, called K-rails by Caltrans **(2)**
    - Warren Ave **(1)**
    - Stevenson Blvd **(1)**
    - Peralta Blvd between Paseo Padre Parkway and Fremont Blvd **(1)**
    - Decoto Road Eastbound **(1)**
    - Albrea St **(1)**
    - Mission Rd & Andrade Rd (Sunol) to Niles Canyon Rd, Paloma Way, Calaveras Rd. (Sunol) **(1)**
    - Decoto Road & 11st to Osprey Drive & Quarry Lakes Drive **(1)**
    - Remove a lanes from Fremont roads and dedicate them to pedestrians and bicyclists **(1)**
- **Bike Lanes End Abruptly:**
    - Blacow Rd (or Cherry St in Newark), Improve Safety **(1)**
    - Railroad Ave. to Paseo Padre Parkway (South) **(1)**
- **More parking needed at the following locations:**
    - Morrison Canyon Staging Area **(1)**
    - Mission Peak at Stanford Staging Area **(1)**
    - Mission Peak at Ohlone College **(1)**
    - End of Auto Mall Parkway **(1)**
    - Coyote Hills at Paseo Padre Parkway (large potholes at dirt lot) **(1)**
- **East Bay Regional Park District Trails**
    - Fremont neighborhood trail access to EBRPD trails (major parks: Coyote Hills Regional Park, Alameda Creek Trail, Quarry Lakes, Mission Peak Regional Preserve, Vargas Plateau Regional Park, and others **(1)**
    - Build a trail from Vallejo Mill Historical Park to Dry Creek Pioneer Regional Park **(1)**

Specific Comments about Parks and Streets

- **Niles Community Park**
    - **Requires Landscaping (1)**
    - The park does not feel safe (1)
        - Plants/trees/shrubs block views and create hiding places
        - Homeless often camp in this park
        - Graffiti tags make visitors uneasy
- **Azevada Park**
    - Build trails and improve drainage in Azevada Park. This park has no trails but is used as a shortcut for Mowry Ave and Blacow Road and for kids going to Kennedy High School **(1)**
- **Paseo Padre Parkway**
    - Create safe entry and access points. Redesign for safety. High curbs, a lack of ramps, confusing crossings to go South, and a lack of separation from vehicles make this road dangerous **(4)**
    - Widen Sidewalks **(1)**
- **Walnut Avenue Bikeway**
    - Add signage in multiple languages **(1)**
- **Blue Fin Way Pedway 28 Palms**
    - End Neighborhood Encroachment & Storage Shed/Junkyard **(1)**
- **Truman Place & Blue Fin Way**
    - Reopen the pedestrian connection **(1)**
- **Close Streets for People Walking and Biking**
    - Develop a Fremont Slow Streets Network **(1)**
- **Mission Lakes Neighborhood**
    - Repave the perimeter trail **(1)**

Public Trail Ideas

Relationship of Public Proposed Trails to Fremont Trail Corridors

The trail lines that were drawn on the interactive map and up-voted by others often corresponded to Fremont's trails network. Fremont's trail corridors overview map was compared to the webmap comments. Some of the trails drawn and up-voted were a segment of a longer trail corridor. One of the objectives of this Trails Strategy Plan is to identify the most popular and beneficial segments of potential trail corridors, and this input helps.

The map below shows the existing and proposed trail corridors that correspond to the public trail suggestions. There are some additional trails proposed – primarily into and along the foothills, from Central Park to the Alameda Creek Trail/Niles Canyon, and beyond.

Public Input on the Webmap with Corresponding Trail Corridor Numbering

1. Alameda Creek Trail
2. Niles Canyon Trail
3. San Francisco Bay Trail
4. East Bay Greenway
5. Dumbarton Bridge to Quarry Lakes Trail
6. Mission Creek Trail
7. Sabercat Historic Park Trail
8. Fremont Boulevard Channel Trail
9. Hetch Hetchy East-West Trail
10. Hetch Hetchy North-South Trail
11. PG&E Corridor & Channel Trail
12. Richmond Avenue Channel Trail
13. Brookvale, Cabrillo, and Patterson Park Trails
14. Northgate Trail
15. Crandall Creek Trail and Ardenwood Path
16. Farwell Linear Park
17. Lowry Neighborhood Park Trail
18. U-Channel Trail
19. Grimmer Greenway
20. Irvington Neighborhood Trail
21. Morrison Canyon Road
22. Warm Springs BART to Milpitas (via BART corridor)
23. Pacific Commons (Bicycle/Pedestrian) Connection
24. Kato Road Trail

Proposed Fremont Foothills Trails

On the interactive online map people drew trails along the foothills and others voted for them. These alignments were drawn on a large-scale map that lacked detailed features for reference. To clarify the implied location of these trails, an overlay map was made. See the two maps on the following pages. Although there are existing trails in Vargas Plateau Regional Park that could be used for a short portion of these proposed trails, most of the alignments were drawn over private property, which presents significant challenges. These private foothill properties also have limited development potential due to the General Plan open space designation and zoning. For these reasons, these trails ar not formally evaluated with the other trail corridors, which are more transportation oriented than recreational.

The Upper Foothill Trail

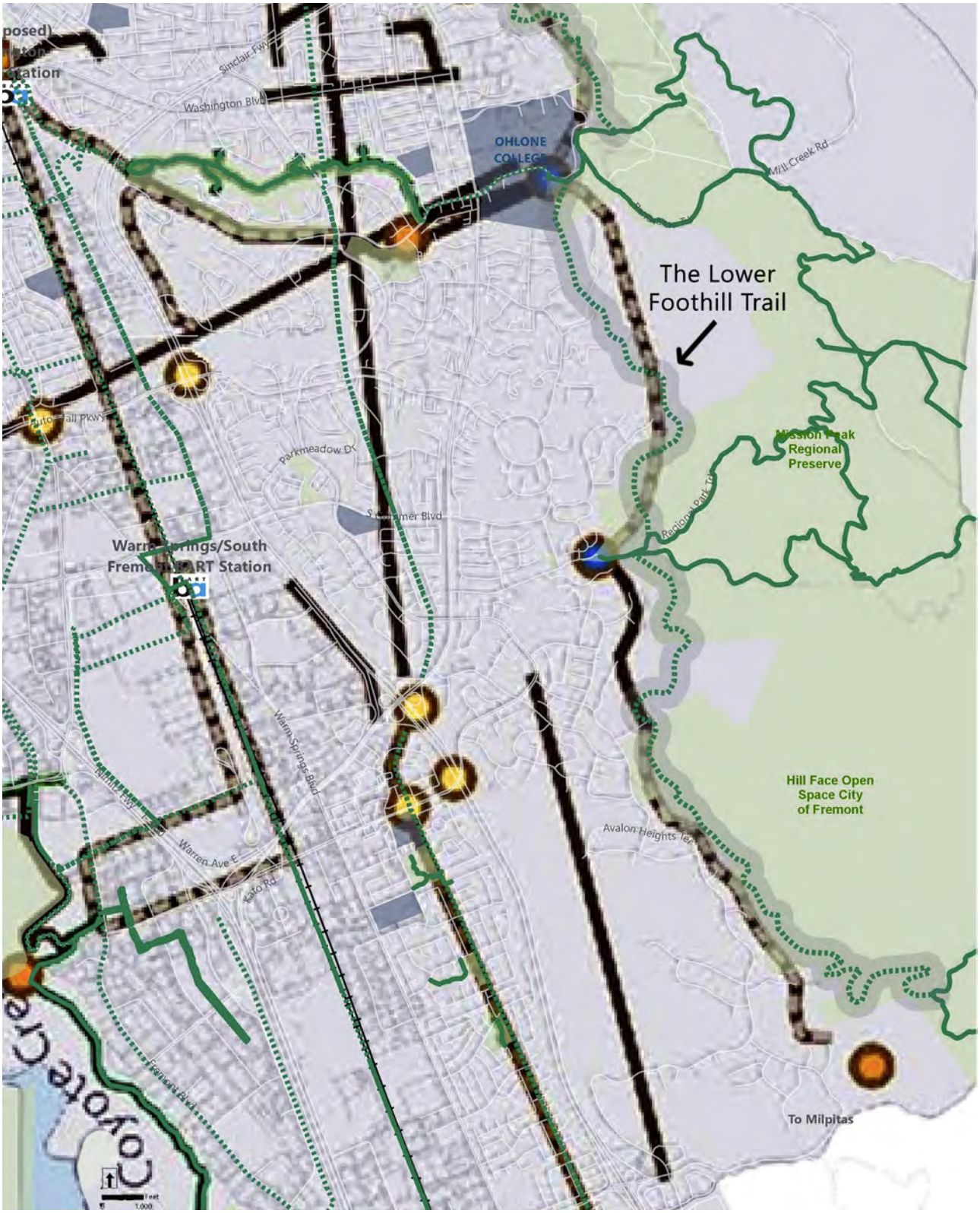
The Upper Foothill Trail drawn on the interactive map extends from the proposed Niles Canyon Trail and ends at Mill Creek Road above Mission Peak Regional Preserve. From the proposed Niles Canyon Trail, the trail would most likely require a connection across private property to connect to Vargas Plateau. From here the trail will follow informal trails in Vargas Plateu and then follows some designated public trails in Vargas Plateau to connect to Vargas Road. The trail would follow the Vargas Road right-of-way south to I-680 to avoid crossing private property. The Vargas Road undercrossing at I-680 is constrained and would require significant engineering to facilitate bicycle and pedestrian access. Beyond I-680, there are private property and topographic barriers along the connection to Mill Creek Road. There are hiking trails within Mission Creek Regional Preserve.

The Lower Foothill Trail

The Lower Foothill Trail drawn on the interactive map extends from the proposed Niles Canyon Trail along the base of the foothills to Milpitas.

From the proposed Niles Canyon Trail near the Canyon Heights/Vallejo Mills neighborhood the trail would briefly cross private property at a 500 foot wide private ravine with topographic constraints. Acquisition, environmental, and engineering work would be needed to connect across the ravine to the Deer Gulch Trai in Vargas Plateau Regional Park. The trail would follow the Deer Gulch Trail to an existing unpaved public trail between Pickering Ave and Morrison Canyon Road. From Morrison Canyon Road to the south there are topographic constraints to connect the trail south the Ohlone College and Mission Peak Regional Preserve, and beyond to Ed R. Levin County Park. Most of the properties along this route are privately owned and only two parcels are owned by City of Fremont (highlighted in orange). Crossing I-680 would be another significant barrier. After I-680 the trail would continue across many private properties, Mission Creek Regional Reserve, and Fremont open space areas until it would end in Milpitas.

Two alternative "Northeastern Foothill Trails" shown with green dashed lines and a grey buffer.



The "Southwestern Foothill Trail" extending south from Ohlone College to Milpitas

Proposed Alameda Creek Trail to Central Park Connection

Four lines were drawn on the interactive map connecting the Alameda Creek Trail (ACT) to Fremont Central Park. The proposed alignments from interactive map are shown on the following page.

The First Alignment

The first alignment utilizes the abandoned Union Pacific Railroad (UPRR) from the Alameda Creek Trail to the east side of the golf course in Central Park. This alignment was also mentioned in the online survey. The City of Fremont determined that this alignment was infeasible after the completion of the UPRR Rails-to-Trails Feasibility Study. This alignment is not being considered in the Trails Strategy Plan.

The Second Alignment

The second alignment begins at the Alameda Creek Trail then continues along Mission Boulevard to Central Park. This alignment is described in the Trails Strategy Plan as **East Bay Greenway Reach 2 Alternative 2**.

The Third Alignment

The third alignment begins at the Alameda Creek Trail, following the active Union Pacific Railroad (UPRR) to Central Park. This alignment was also mentioned in the online survey. This alignment is not being considered in the Trails Strategy Plan.

The Fourth Alignment

The fourth alignment would use Guardino Drive to connect the Alameda Creek Trail to Central Park. The Bicycle Master Plan (BMP) proposes adding buffered bike lanes along Guardino Drive.

Central Park to Niles Canyon Trails

Community Emails

City of Fremont received 13 emails from community members between August of 2020 and April of 2021. Most of these emails come from regular trail users and recommended improvements for specific trails. These recommendations are documented and summarized below.

From: Arun (August 28, 2020)

- Sabercat Historic Park Trail: Shelters and seats at intervals for rest and protection against sun, rain, and wind
- Sabercat Historic Park Trail: One or two rest rooms for the entire length of trail
- Sabercat Historic Park Trail: Widening and repaving in some portions for a smooth walk or run

From: Reza (August 31, 2020)

- Sabercat Historic Park Trail: Adding light amenities for evening walk.

From: Jeneva (August 29, 2020)

- Support Fremont Trails Strategy Plan and Fremont Bicycle Master Plan.

From: Harlon (September 1, 2020)

- Mission Creek Trail: Complete the unimproved section between Palm Avenue and northwest of I-680/ Mission Boulevard interchange

From: Gerald (September 23, 2020)

- Hetch-Hetchy East-West Trail: Current Azeveda Park does not have any formally improved trails, while students at Kennedy High School use it as a short cut to school. In addition, the Azeveda Park has some drainage issue during rainy season. Gerald recommended that formal trails to be added to Azeveda Park.

From: Steve (October 2, 2020)

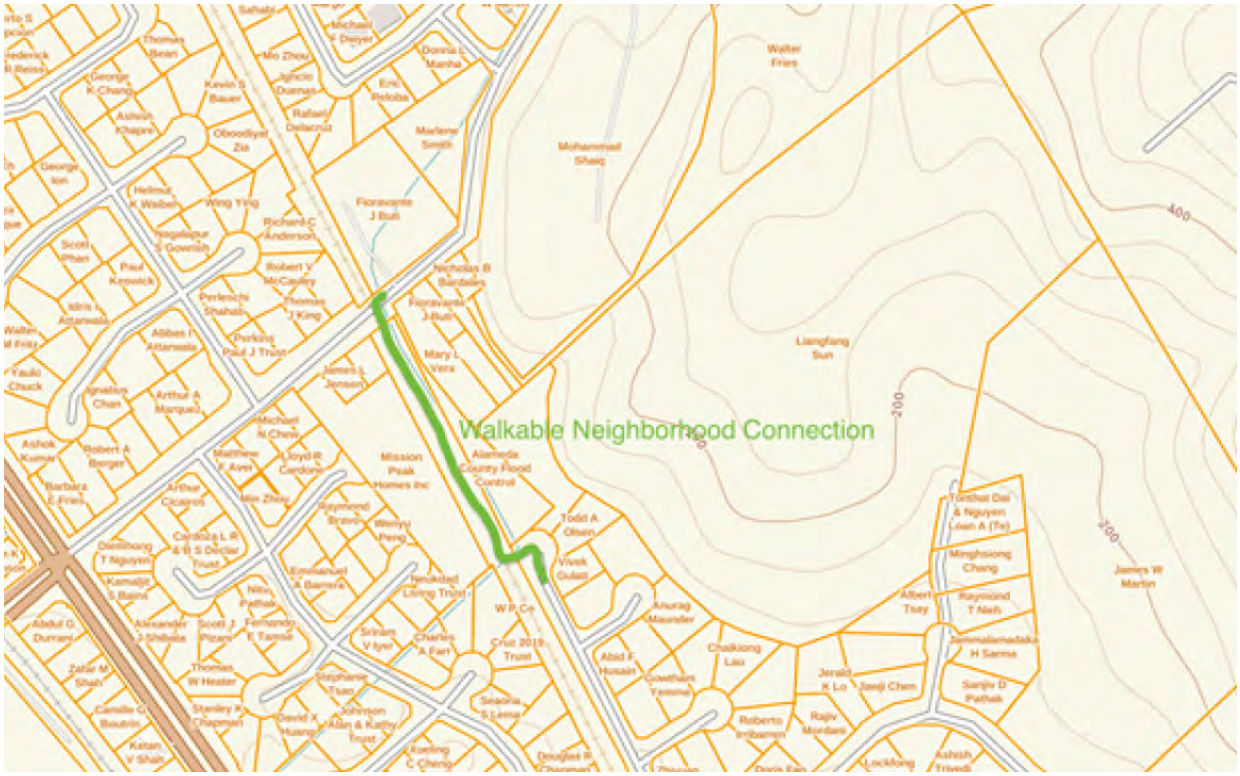
- General comments (not location specific): City should collect public comments regarding identifying types of trails.

From: Olga and Louis (October 21, 2020)

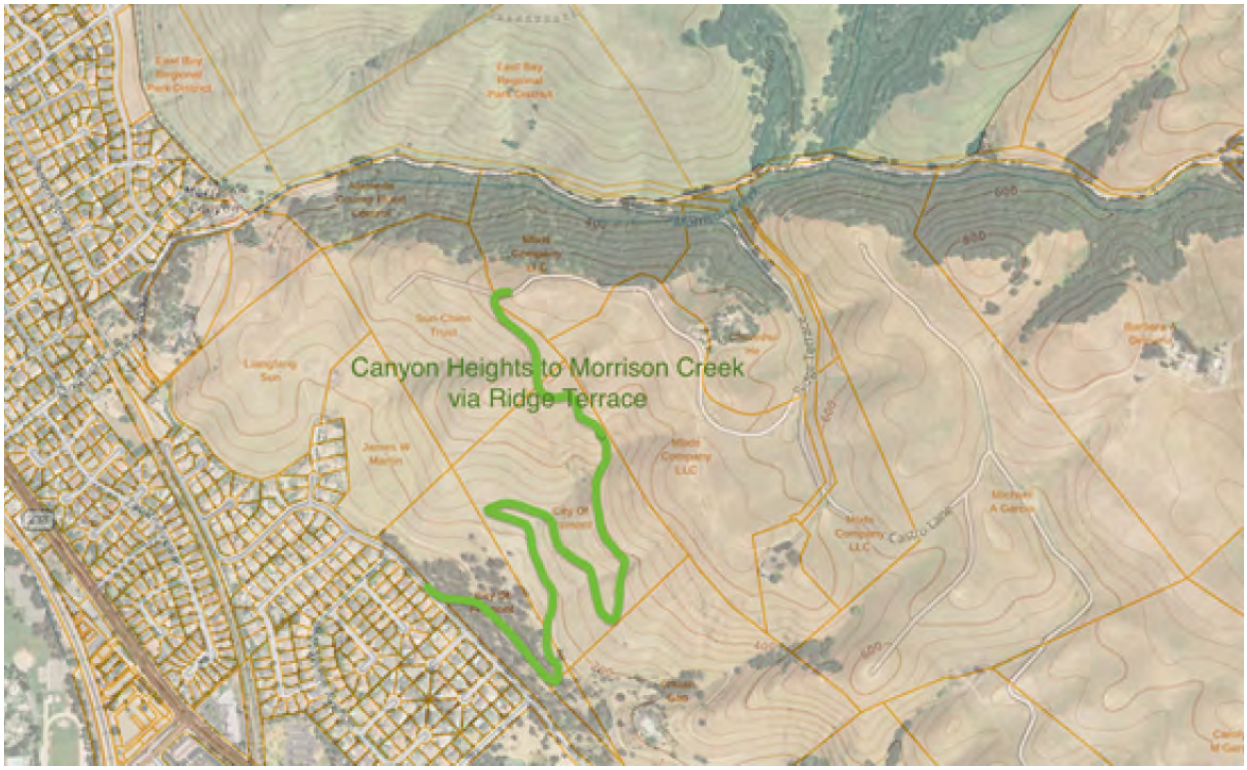
- Alameda Creek Trail: The community member expressed their concern for safety issues. They mentioned that they stopped walking the Alameda Creek Trail between Isherwood Drive and Dominici Drive because of the presence of needles litter, unleashed dogs, and homeless people walking with a machette.

From: Jim (November 3, 2020)

- Connection to Morrison Canyon Road: make a connection to Morrison Canyon Road from Canyon Heights Drive via the former rail line.



- Better connection to Vargas Plateau Regional Park: formalizes the hiking trails that connect the hillside to Morrison Canyon via Ridge Terrace.



From: Paul (November 12, 2020)

- Open the gate on Canyon Heights Drive between 37904 and 37912 to create another entrance to Vargas Plateau Regional Park.

From: Christina (November 16, 2020)

- Fremont Central Park: Make it mandatory to wear face mask and practice social distancing. Make the Lake Elizabeth Lake trail one way to avoid overcrowding during Covid-19 Pandemic.
- Fremont Central Park: Keep dogs on leash. Consider restricting bicyclists on Lake Elizabeth Look Trail. Put more warning signs of "do not feed ducks, cats, and birds."

From: Leila (December 27, 2020)

- East Bay Greenway: Recommend that unused train tracks could be converted to a paved walking and biking to trail to connect to the Alameda Creek trail and Lake Elizabeth.

From: William (January 29, 2021)

- East Bay Greenway: would like to explore the option of building a multi-use trail across the city owned land from Ohlone College to Ranch Higuera Park.
- Hetch Hetchy North-South Trail: The terminus of the trail mentioned above would be in an area that would provide access to the Hetch Hetchy easement to allow a connection from one trail system to another.

From: Suzanne (April 20, 2021)

- City of Fremont owns 2.4 acres of land at the end of Pickering Avenue: to develop this land into a community park with parking, restroom, playground, and a community garden. This could also serve as a staging area for the trail along abandoned the UPRR railroad.
- East Bay Greenway: to develop the abandoned UPRR railroad as a multi-use trail.

Parks and Recreation Needs Assessment Summary

The following is a summary of the City of Fremont Parks and Recreation Needs Assessment as it directly relates to Fremont's Trails Strategy Plan. The needs assessment was prepared by ETC Institute, a national firm that conducts community, organizational, and transportation surveys. In 2020, ETC Institute mailed a survey packet to a random sample of households in Fremont. The survey results will be used to help determine priorities for parks, recreation facilities, program offerings, special event offerings, and planning in Fremont. Since the parks needs assessment survey also addresses trails and trailside elements/amenities, the survey also provides important public input for the Trails Strategy Plan.

The statistically valid survey received 527 responses, resulting in a precision of at least +/-4.2% at the 95% level of confidence. The survey respondents mirrored the demographics of Fremont's residents. 50.4% of respondents were male, 49.4% female, and 0.7% non-binary. 20% of respondents were 18-34 years old, 19% were 35-44 years, 21% were 45-54 years, 20% were 55-64 years, and 21% were 65+ years. There was a wide range in the number of years respondents have lived in Fremont. 58% identified as Asian, 25% as White/Caucasian, 13% as Hispanic/Latino, 3% as African American/Black, 2% as Native American, and 1% as other. With this diverse array of ages, demographics, and years of residency in Fremont, and with the demographic breakdown of the survey respondents mirroring the census data for Fremont, the survey findings carry a lot of weight. The breakdown of responses for each question can also be scaled to the community's actual size, unlike an online survey open to anyone regardless of their place of residence where the results can be skewed by a vocal interest group.

This survey was conducted during the global Coronavirus pandemic. Question 18 speaks to the effect of the pandemic on how Fremont residents value parks and trails: "Given the recent COVID-19/Coronavirus pandemic, how has your and your household's perception of the value of parks, trails, open spaces, and recreation changed?"

- 37% say the value has significantly increased,
- 22% say the value has somewhat increased,
- 25% say no change,
- 5% say the value has somewhat decreased,
- 6% say the value has significantly decreased, &
- 6% did not provide a response.

The pandemic has inspired a heightened appreciation for parks, trails, open spaces, and recreation as well as an increased use of parks.

Question 1 states, **"Have you or any member of your household visited any parks or facilities offered by the City of Fremont during the last 2 years?"**

- 97% of respondents said yes, compared to the national average of 79%.

Below is a summary of question responses directly related to trails and trailside elements:

Question 1c. states: **"If your household has NOT visited any City of Fremont parks/facilities during the last 2 years, please CHECK ALL of the following reasons you have NOT visited, before the COVID-19 Pandemic."** The top responses are:

- Lack of parking to access parks/trails (44%),
- Not aware of parks' or trails' locations (39%),
- Do not feel safe using parks/trails (33%)
- Lack of restrooms (33%)

Although "do not feel safe using parks/trails" is too vague to offer a concrete solution, inadequate park or trail access (lack of parking), inadequate wayfinding, signage, and maps, and inadequate restrooms are significant deterrents to visiting Fremont's parks.

Question 4, **"Most Preferred Methods of Communication For Information About**

City of Fremont Parks Master Plan Survey Results Excerpt, Priority Investment Rating Chart

Recreation Programs and Activities" affirms the importance of the City recreation guide, email/eblasts from City, the City website, and the Quarterly City newsletter as a news source. It is critical that the City provides detailed trail network maps and trail network updates on these preferred communication channels.

Question 7, **"Households' Facility/Amenity Needs,"** first reports the percentage of respondents who expressed a need for certain facilities/amenities. The respondents could select multiple facilities/amenities. The top 5 most needed facilities/amenities all relate to the Fremont Trails Strategy plan:

- 73% of respondents' households need multi-use "paved" trails
- 73% need restrooms
- 62% need large community parks
- 61% need multi-use "unpaved" trails
- 60% need open & conservation areas

Once the community facility needs were documented, Question 7 proceeds to assess **"How Well Facility/Amenity Needs Are Being Met."**

For multi-use "paved" trails:

- 27% of respondents reported their need was 100% met
- 30% said their need was 75% met
- 30% said their need was 50% met,
- 12% said their need was 25% met
- 2% said their need was 0% met

The needs of the survey respondents as a whole were less met for facility/amenity multi-use "unpaved" trails:

- 25% of respondents' needs were 100% met
- 27% said their need was 75% met
- 30% said their need was 50% met
- 13% said their need was 25% met
- 6% their need was 0% met

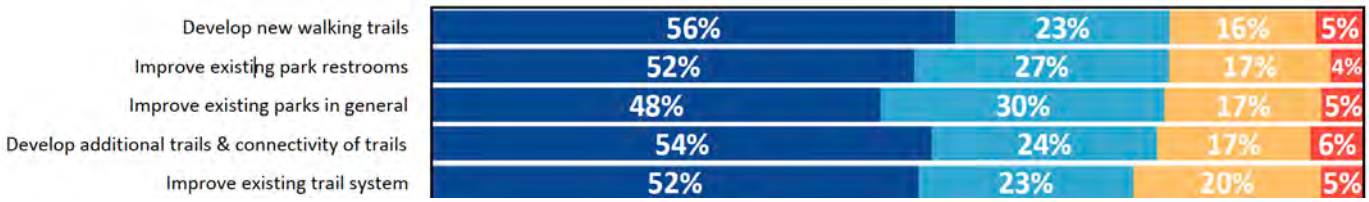
Extrapolating the number of Fremont households whose facility/amenity needs are 50% or less met by the existing conditions, for multi-use paved trails, the estimate is 26,011 households based on an estimated 81,652 households. 32% of Fremont households need for multi-use paved trails are 50% or less met by existing conditions. This reveals a widespread and significant need for a greatly expanded trail network with multi-use paved trails. For multi-use unpaved trails, the estimate is 23,997 households. 29% of Fremont households need for multi-use unpaved trails are 50% or less met by existing conditions. This similarly reveals a widespread and significant need for a greatly expanded trail network with multi-use unpaved trails.

Question 8, **"Facilities/Amenities Most Important to Households"** by percentage of respondents who selected the items as one of their top four choices, indicates multi-use paved trails are the top priority:

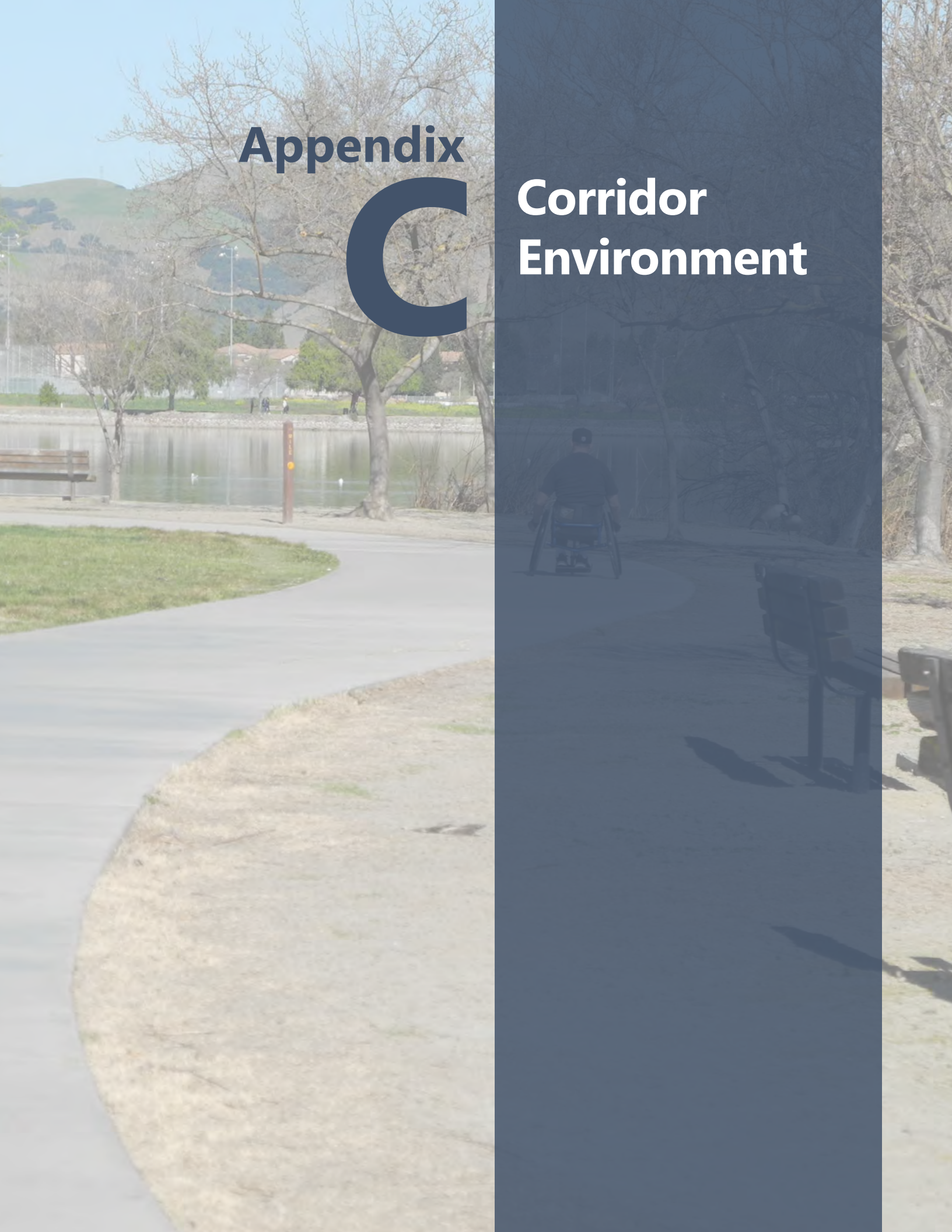
- 43% of respondents selected multi-use paved trails as one of their top four choices
- 30% of respondents selected multi-use unpaved trails as one of their top four choices
- 26% of respondents selected restrooms as one of their top four choices

Question 19, **"Please rate your level of support for each of the following actions the City of Fremont could take to improve the parks and recreation system,"** ranks the responses by the percentage of respondents using a 4-point scale, where 4 means "very supportive" and 1 means "not supportive."

Understanding the priority investment rating is critical to prioritizing funding for park improvements. The priority investment rating reflects the importance residents place on items (sum of top 4 choices) and the level of unmet need (needs that are only being partly or not met) for each facility and program relative to the facility and program that rated the highest overall. The priority investment rating weights each of these two components equally. Priority Investment Rating = Unmet Needs Rating (out of 100) + Importance Rating (out of 100). High Priority Areas are those with a priority investment ratings of at least 100. Medium Priority Areas are those with ratings of 50-99. Low Priority Areas are those with ratings below 50. Below are the highest priorities for investment. Multi-use paved trails are the most important, followed by restrooms and multi-use unpaved trails.



City of Fremont Parks Master Plan Survey Results Excerpt, Question 19



Appendix C

Corridor Environment

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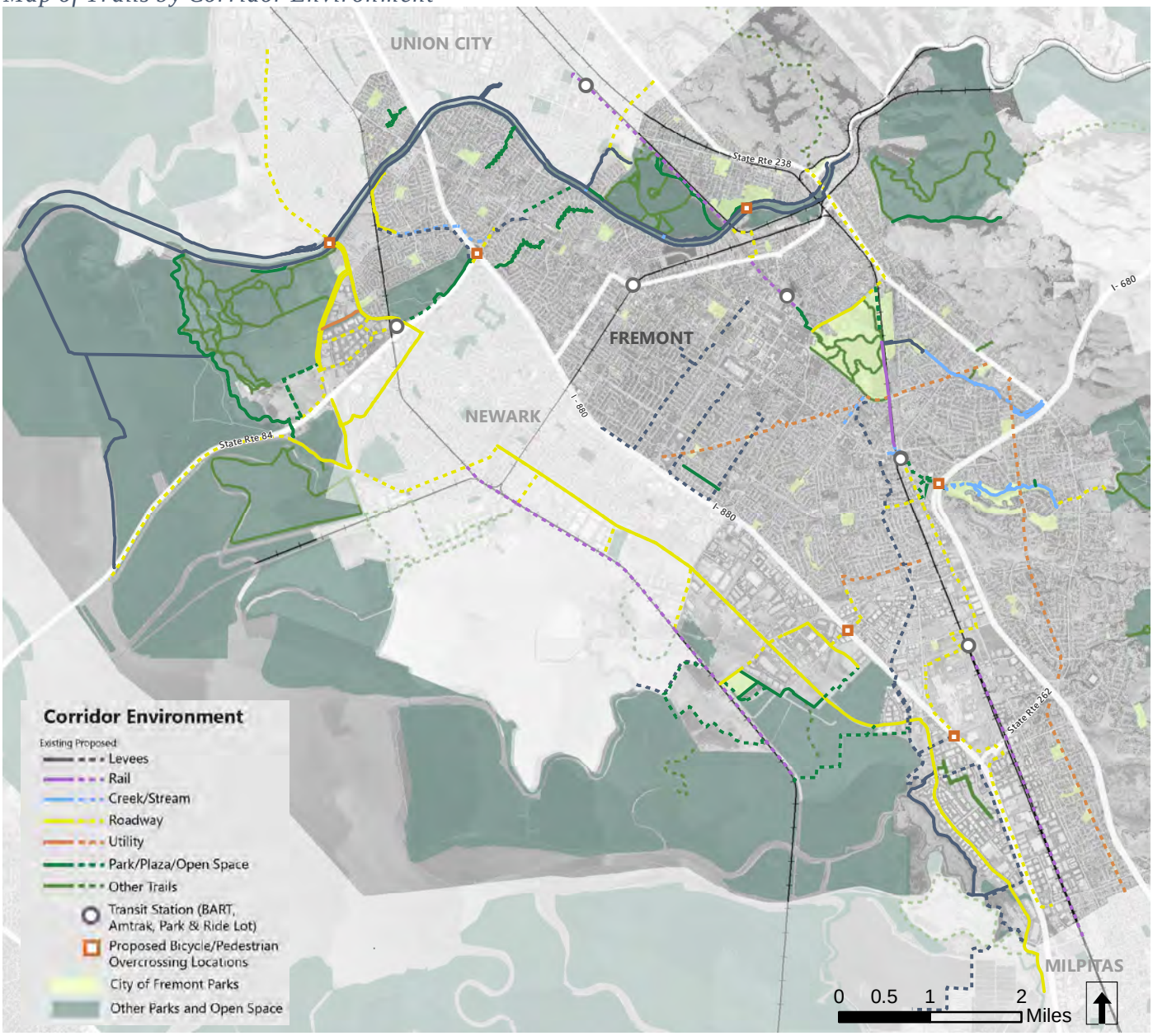
Corridor Environment

A trail's corridor environment, whether along a levee, rail line, creek, roadway, or utility line, impacts the design, use, management, and maintenance of a trail.

This Appendix provides an overview of guidance, opportunities, and limitations when designing, building, and maintaining trails along different corridor environments. This report section should be used in conjunction with **Chapter 6, Corridor Ownership** and **Chapter 7, Trail Typologies and Design** to ensure that trails in Fremont are built or upgraded to meet the trail typology standards while recognizing that each corridor environment will be unique and each corridor owner will have their own trail specifications.

Map of Trails by Corridor Environment



Levees

Levees are constructed earthen walls along creeks and present an important opportunity for trail networks. The primary purpose of levees is to control flood water. While the crowns of levees are typically designed to accommodate maintenance vehicles and can often accommodate trail users, trail design and management should recognize the original flood control purpose. These long, scenic, uninterrupted corridors typically feature few street crossings, which reduces trail user conflicts with vehicles.

Levees are long, linear structures intended to control water flow.

The parts of a levee include:

- crown (top)
- waterside slope and toe (bottom)
- land-side slope and toe (bottom)

In Fremont, levees have been built in the Bay (for salt ponds) and along creeks and drainage channels (for flood control). Most have a maintenance road on the crown of the levee.

Levees within the existing or proposed Fremont trail network are owned and/or managed by:

- Alameda County Flood Control District (ACFC)
- US Fish and Wildlife Service (USFWS)
- East Bay Regional Park District (EBRPD)

Levee Maintenance

Levee maintenance is typically conducted by the levee owner or the land management agency responsible for that area. When present, trail maintenance is typically conducted by the trail operator, although there is much overlap between trail and levee maintenance.

Levee maintenance includes road repair, removal of plants and trees along the slope and toe, and maintenance of fencing, gates, signs, and water control facilities. Major maintenance of the levee structure sometimes occurs as part of a major Capital Improvement Program (CIP), and may include opportunities for additional trail development. A trail entity may be responsible for, or choose to take on,

Alameda Creek Trail at David Jones Neighborhood Park

the removal or maintenance of plants and trees on the land-side slope and toe, trash pick-up, signage replacement, and graffiti abatement, among other responsibilities.

Levee Trail Development

In Fremont, there are numerous opportunities to add to the trail network by working with levee agencies, particularly ACFC, which owns most of the levees within the existing and proposed Fremont trail network. For further information about opportunities for levee trail development along ACFC channels, see **Chapter 6, Corridor Ownership**.

Entities that own and operate levees often support trail use, particularly when trail use can support funding and maintenance of the levee facilities.

Trails on levees, however, must not interfere with flood control functions or levee maintenance, inspections, and improvements. Levee trails may also need to be closed during high water events to protect public safety.

Details regarding levee maintenance operations, public safety liability, and trail closures are covered in operating agreements and/or memorandums of understanding between the levee agency and the trail operating agency.

To accommodate trail use, a levee may require the construction of ramps or switchbacks to connect the community to the trail on the levee crown. Other minor and major trailside elements may also be required, such as signage, benches, lighting, and trash receptacles. Ramps or stairs on the waterside slope to allow community access to the water (where allowed) may also be considered.

Environmental Permitting

Most construction work done on a levee will one or more require environmental permits or review, including:

- US Army Corps of Engineers (USACE) Section 408
- National Environmental Policy Act (NEPA)
- California Environmental Quality Act (CEQA)
- Endangered Species Act, Section 7
- National Historic Preservation Act, Section 106
- Clean Water Act (CWA) Section 404
- California State Water Resources Control Board (CSWRCB) Section 401

Section 408 permits are typically required for construction or modification on the waterside of a levee, but may also be required for some activities on the crown or land-side of a levee. Exceptions are made for specific operations and maintenance activities. Typical activities requiring a Section 408 permit include: construction of ramps, stairs, or modifications to levee maintenance roads (or trails).

Alameda Creek Trail at David Jones Neighborhood Park

Locally-approved Section 408 permits may be used for activities on the crown or land-side of a levee, outside of the floodway, as long as the work does not affect levee performance. Examples of such activities include paving a gravel maintenance road, modifying land-side ramps, and/or adding trailside elements.

Section 404 permits and Section 401 certification would be required if any activity could result in the filing of a waterway considered to be a "water of the US". A Section 408 and 404 permits would also require compliance with NEPA, CEQA, the Endangered Species Act, and the National Historic Preservation Act. All activities would be required to meet all other local, state, and federal codes and regulations.

Additional information can be found in the U.S. Army Corps of Engineer's "Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Engineers Civil Works Projects Pursuant to 33 USC 408." Engineer Circular 1165-2-216, Washington, DC. September 30, 2015.

Rails

Rail-trails take two forms: rails-to-trails, where an abandoned rail line is converted into a trail, and rails-with-trails, where a rail line is parallel to a trail. In Fremont, there are locations where both rails-to-trails and rails-with-trails may be possible. These include both freight lines and passenger lines, such as along the BART tracks. Similar to levees, rail lines often present long, uninterrupted corridors with gentle grades and few street crossings.

Rails-to-Trails

Rails-to-trails use rail corridors that are not in use (either abandoned or railbanked) for the construction of a trail. This has numerous advantages for trail development as rail corridors are typically designed as elevated surfaces with good drainage; do not exceed 5% grades; have minimized street crossings; and are usually ten feet wide or more (rail ties are typically eight feet apart). Rail lines also were often developed to link city centers (or a town grew around a rail station) and can enhance access to a City's downtown.

A rail-to-trail project developer may gain control of an unused rail corridor through railbanking, property acquisition, and/or easement agreements. Property acquisition requires the corridor be officially abandoned through a federal process.

Railbanking

Railbanking, established in 1983 as an amendment to Section 8(d) of the National Trails System Act, is a voluntary agreement between a railroad company and a trail agency to use an out-of-service rail corridor as a trail until a railroad might need the corridor again for rail service. Railbanking also preserves the linear right-of-way by preventing subdivision of the land, which can occur if the railway is abandoned.

When a railroad files for abandonment with the Surface Transportation Board (STB), the trail developer will work directly with the railroad — via sale, donation, or lease — to temporarily acquire the railroad corridor and convert it into a trail.

Because a railbanked corridor may be converted back to a rail line, railbanking provides an option for rail agencies to give up control of a corridor until the corridor is needed for rail use again. Tracks and ties on a railbanked line may be removed, but bridges and trestles must typically remain in place.

Rails-with-Trails

Rails-with-trails, where the trail is placed adjacent to an active rail line, allows the use of a continuous corridor that might not otherwise be accessible. Where the trail follows a passenger line, the trail can create direct access to a station. Rails-with-trails are typically more complicated to design and construct because of limited corridor width, adjacent drainage ditches, varying grades, and rail line safety.

Where a trail is constructed adjacent to an active, or potentially active rail line, the California Public

Utilities Commission (CPUC) regulates the safety of rail operations, including rail crossings. Rules established by the CPUC include General Order No. 26D, which establishes that the edge of a trail must be at least ten feet from the center line of a rail line. Many private rail lines may require a wider separation.

Rails crossing a trail or roadway can also create a hazard for bicycle wheels, which can catch in the space between the tracks and the pavement. A best practice is to have the trail approach the railroad crossing at a perpendicular angle, which reduces the wheel hazard and also increases visibility for the trail users.

Contamination

Soil within rail corridors are commonly contaminated with arsenic (used to treat rail ties), lead and polycyclic aromatic hydrocarbons (PAH) (from diesel fuel combustion), and/or pesticides. Additional contamination can occur if the rail line carried hazardous substances (raw product, waste, etc.) and there was a spill. Traditional Phase I and Phase II Environmental Assessments (ESA) will find the common contaminants, but may overlook contamination from spills.

It is important to understand that in most rail settings (where there is no indication of a spill in transit of a hazardous substance) the distribution of rail use-related substances differs from that in a traditional industrial setting. Unlike fixed facilities where spills come from tanks, pipes, or processes that do not change in physical location, the application of pesticides or the distribution of combustion by-products produces a somewhat chaotic environmental signature that is difficult to characterize — i.e. their distribution is unpredictable. Care must be taken to design a plan of assessment that takes this into account and also factors the objective of the undertaking such that a truly useful (and cost-effective) data set is produced.

San Francisco Bay Trail along BART tracks, Oakland

Creeks and Streams

Creeks and streams are non-channelized, natural waterways. As with levees and rail lines, creeks and streams are long features with few street crossings and may have space for trails and allow trail users to easily connect with nature. However, there may be significant environmental constraints for trails near waterways.

Trails along waterways can be placed directly adjacent to the waterway, within the floodway, or within the flood plain, and each requires different design techniques. Ideally, the trail will be set back from the waterway via a riparian buffer whose width may be determined by the permitting agency. Riparian buffers filter stormwater pollution, stabilize streambanks, moderate stream flow and temperature, and provide animal habitat. Regardless of what the permitting agency requires, the riparian buffer should be established according to site conditions, such as slope, soil, hydrology, and vegetation. The establishment of the riparian buffer should address the potential water quality impacts of impervious surface trails.

For trails immediately adjacent to a waterway, which most often occurs in urban areas where space is limited, the trail will be prone to frequent flooding. These trails should be built of hard-paved material, preferably concrete, which can best withstand high-velocity water flows. Trailside elements such as benches, trash receptacles, and signage should be designed to withstand, but not obstruct, water flows. To stabilize the trail, retaining walls or other structural elements are often required.

Trails developed in the floodway or floodplain should be designed with vegetated buffers. While they may be subject to periodic flooding, the occurrence will be less frequent. Depending on the frequency of flooding and expected velocity of water, these trails should be paved with concrete or asphalt with a focus on a substantial foundation, which will increase the longevity of the trail. Where flooding is expected to be minimal, a stone or natural earth trail may be adequate.

A boardwalk may be used in more sensitive environments to reduce impacts from trail development.

Waterway Trail: Mission Creek Trail

Roadways

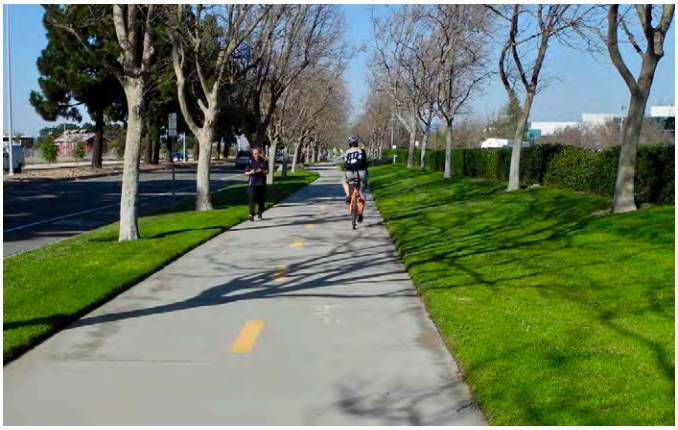
Roadway environments can facilitate trail development. In Fremont, most trail facilities are not developed along roadways, unless the trail is developed as a sidepath. In some limited cases, a corridor may rely on a separated bike lane (Class IV bikeway) to make a connection. Because roadways are the primary transportation network in Fremont, they connect to all important destinations; however, vehicular traffic on roadways presents a hazard to trail users and may create an unpleasant environment.

Sidepaths

Sidepaths are multi-use paths located immediately adjacent to the roadway; they are similar to sidewalks except they explicitly allow two-way bicycle travel. Sidepaths are referred to as Class I bikeways in some cases and the design of sidepaths may be similar to the design of a Class I bikeway. However, because sidepaths run parallel to the roadway, they typically have more street and driveway crossings, which presents more potential conflicts.

Sidepaths should be considered where street crossings and driveways are limited, and where the corridor right-of-way is wide enough to provide ample clearance from the roadway and the adjacent properties.

In Fremont, streets such as Paseo Padre Parkway, Ardenwood Boulevard, Cushing Boulevard, and southern sections of Fremont Boulevard all feature sidepaths on the Bay side of the street. These roadways form the western boundary of the urbanized area and directly abut open space on the sidepath side where there are few intersecting streets or conflict points.



Sidepath on Paseo Padre Parkway between Kaiser Drive and Commerce Drive

Separated Bikeways

Separated (Class IV) bikeways are bike facilities that are in or adjacent to a roadway, but are separated from vehicle traffic by a physical barrier. Whereas sidepaths are shared use spaces, separated bike lanes are exclusively for bicyclists, with pedestrians using sidewalks.

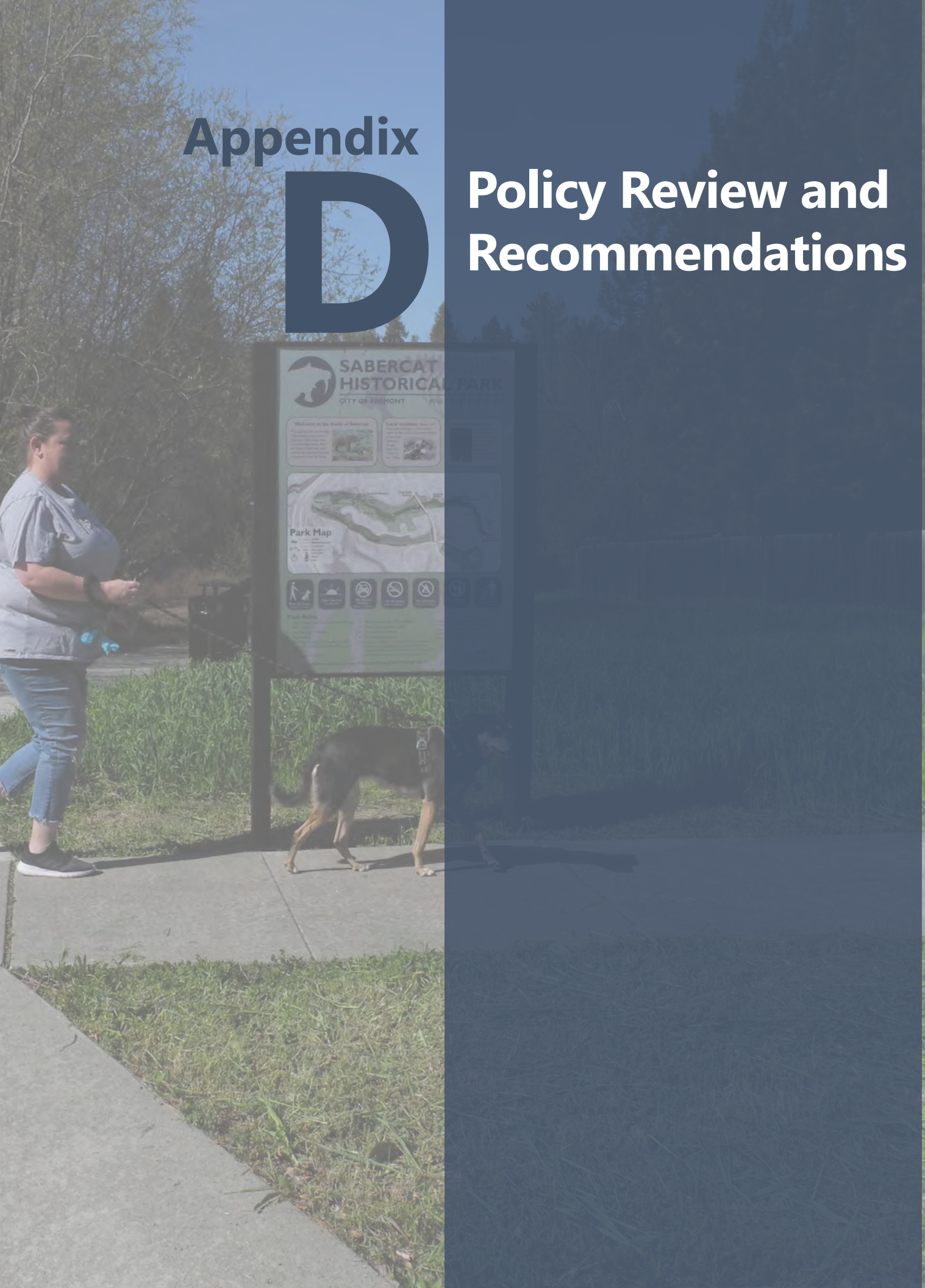
The physical barriers separating people biking from vehicles range from raised curbs or concrete barriers, grade separation, flexible delineators or bollards, planters or landscaped medians, and parked cars. These bikeways may be either one-way or two-way cycle tracks.

Separated bikeways are most frequently used on streets with higher traffic volumes and vehicular speeds. While Fremont features a growing network of separated bike lanes, these are only considered part of the trail network in limited situations where they form a link in an overall trail corridor. Separated bikeways are mainly considered as part of the City's Bicycle Master Plan.

Separated bikeway on the Embarcadero, San Francisco

Appendix D

Policy Review and Recommendations



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Policy Review and Recommendations

Over the last decade the City of Fremont has undertaken a wide range of planning and design efforts for recreational land use, active transportation, and trails. Fremont has adopted many goals, policies, and implementation measures related to trails in it's General Plan, Bicycle Master Plan, Pedestrian Master Plan, Mobility Plan and other documents. This Policy section suggests some additional or more specific policies to support the creation, operation, and maintenance of the envisioned trails system.

Purpose of Policy Review

The purpose of this policy review section is to:

1. Conduct a high-level review of existing City policies and plans and identify broad policies related to trail development, operations, and maintenance.
   This section identifies general policy areas and themes, rather than specific language.
2. Make recommendations for select trails policies that can supplement and expand existing City policies.
   This section outlines six recommended trail policies, based on state and national best practices and Fremont's existing trails planning efforts.

Defining Trails

According to Fremont General Plan 2011, Policy 4-2.4: Pedestrian and Bicycle Trails, recreational trails are considered off-road Class I facilities used by people biking, walking, or jogging. Fremont trails include regional facilities such as the Alameda Creek Trail and the Bay Trail. Trail facilities also include existing and proposed trails that fall outside of Fremont's jurisdiction that are typically managed by the East Bay Regional Park District (EBRPD).

Key Findings

Existing Policies Include:	Proposed or Expanded Policies Include:
• Cross-jurisdictional and inter-departmental coordination • Safe, comfortable bicycle and pedestrian facility design • Land acquisition and funding • Site identification and prioritization	• Railbanking for trails • Utility corridors for trails • Private trail development requirements • Safe and comfortable trail design • Coordinated Trail Maintenance Plan (CTMP) • Policy regarding the use of electric powered or assisted bicycles (e-bikes)

Existing Policies

Over the last decade The City of Fremont has undertaken a wide range of planning and design efforts, and policy changes related to recreational land use and active transportation. Most existing policies, plans, and infrastructure projects contain some high-level language related to trail development. Existing trails policy language can be grouped under the following policy areas:

Policy Area 1

Integrate local trail development with regional trail development efforts and coordinate across jurisdictions, agencies, and departments

Fremont is closely connected to its neighboring cities, the wider Bay Area, and nearby regional parks by wide transit and trails networks. Specific regional facilities that require cross-jurisdictional coordination are the San Francisco Bay Trail, the Alameda Creek Trail, and the East Bay Greenway.

Existing General Plan policies address inter-jurisdictional collaboration:

- Policy 3-5.2: Regional Trail Development
- Goal 3-5: Connecting to the Region
- Policy 4-2.4: Pedestrian and Bicycle Trails
- Goal 8-3: Inter-agency Collaboration
- Implementation 8-3.1.A: Existing and Future Regional Parks and Trails
- Implementation 8-3.1.D: Alameda County Flood Control District

Overall, these policies call for coordination across:

- **Neighboring local jurisdictions** including Newark, Milpitas, Union City, and Santa Clara County
- **County agencies** including Alameda County Transportation Commission (ACTC) and Alameda County Flood Control (ACFC)
- **Regional agencies** including Metropolitan Transportation Commission (MTC), Association of Bay Area Governments (ABAG), San Francisco Bay Conservation and Development Commission (BCDC), East Bay Regional Park District (EBRPD), San Francisco Public Utilities Commission (SFPUC), Bay Area Rapid Transit (BART), and Valley Transportation Authority (VTA)

Existing General Plan policies also call for coordination with utilities:

- Policy 4-2.4: Pedestrian and Bicycle Trails
- Policy 9-1.4: Facilitate Public Uses Within Public Easements
- Implementation 9-1.4.A: Utility Agency Partnerships

Policies in the Fremont Bicycle Master Plan also call for inter-departmental coordination for efficient and effective trail operations and maintenance:

- Action 1-1E: Work across departments to implement the City's area plans and major capital projects, such as the Centerville Framework Plan, Route 84 Relinquishment project, and the Fremont City Center Community Plan
- Action 1-2A: Coordinate closely with East Bay Regional Parks District, San Francisco Bay Trail, and neighboring jurisdictions in planning, designing, and funding Fremont's trail system
- Action 1-2B: Coordinate with stakeholders and across City departments to ensure that all development and roadway projects shall implement bikeways and paths, such as the East Bay Greenway, Niles Canyon Trail, Dumbarton Bridge to Quarry Lakes Trail, Bay Trail, and Public Utility Commission trails and provide access points to these

Key departments for coordination are the City of Fremont's Transportation Engineering Division, Recreation Services Department, Park Maintenance Services, Public Works Department, Community Services Department, and Community Development Department. Policy language related to roles and responsibilities remains general.

Policy Area 2

Integrate trails into Fremont's land use patterns, the existing bicycle and pedestrian network, and the wider transportation system

Several adopted City plans have policy language related to building a safe and comfortable bicycle and pedestrian network, including some language on integrating trails into local and regional networks:

- General Plan Policy 2-6.5: Linear Open Space Connections, Implementation 2-6.5.A: Linear Park Network
- Vision Zero Action Plan (2012) Goal Six: "Build Better Bikeways" by creating a connected system of bike trails, bikes lanes, and bike routes that will also connect to larger regional bikeway systems and trails

Existing policies and plans call for trails complement and support land use patterns and key destinations, including the Priority Development Areas (PDAs), transit stations, employment centers, public facilities, neighborhood commercial uses, and parks. For example, the General Plan - Mobility Element (2011) proposes using the development review process to require pedestrian connectivity within proposed development and between development and key destinations.[1]

1 The City of Fremont General Plan Chapter 3 Mobility Element 3-2.3C (2011)

Policy Area 3

Develop safe, comfortable trails that meet best practices for bicycle and pedestrian facility design

Fremont has existing policies related to bicycle and pedestrian facility design and has general policies for trail design:

- General Plan Policy 4-2.2: Connectivity, Policy 4-2.4: Pedestrian and Bicycle Trails

This Trails Strategy Plan addresses specifics of trail design. The Bicycle Master Plan (2018) provides some site-specific design recommendations for the future Dumbarton Bridge to Quarry Lakes multi-use path, including protected intersections, interchange improvements, trail crossing treatments, and grade separated crossings.[2] The Pedestrian Master Plan (2016) includes an extensive pedestrian design guide with some language related to materials for, erosion prevision around, and accessibility of unpaved trail design.[3] The Mobility Element of the General Plan provides further design guidance for trail materials to address stormwater, soils, grading, and erosion considerations.[4]

Policy Area 3:

2 Bicycle Master Plan Chapter 5: Five-Year Project List
3 Pedestrian Master Plan – Pedestrian Design Guidelines
4 The City of Fremont General Plan Chapter 3 Mobility Element (2011)

Policy Area 4

Identify and acquire land for trail development, and strategically fund projects

Existing General Plan policies point to local parks, flood control channels, greenbelts, utility easements, and abandoned rail right-of-ways as opportunities for trail development:

- Implementation 3-5.2.B: Rails to Trails
- Implementation 3-5.2.C: Trail Dedication
- Implementation 4-2.4.A: Trail Right-of-Way Dedication
- Implementation 8-1.5.A: Land Corridors for Linear Parks

The Pedestrian Master Plan (2016) specifically calls for a Rails-to-Trails policy to convert vacated railways into bicycle trails or pedestrian paths with a focus on the surplus Union Pacific corridor between Niles and Milpitas. Under the current General Plan, land dedicated to resource conservation and public open space can occasionally be used for trails but is prioritized for preservation.

The City's current policies call for strategic funding for prioritized trail corridors to be secured by 2021. Other funding mechanisms in the plans include public-private partnerships and requirements for developers to dedicate public-access easements for trails in private open-space areas, where feasible.

Policy Area 5

Identify, prioritize, and study the feasibility of specific sites and trail facilities

Existing General Plan policies recommend strategic selection and prioritization of facilities based on partnerships:

- Implementation 3-5.2.A: Bay Trail and Ridge Trail, Policy 8-1.5: Linear Parks
- Implementation 8-3.1.A: Existing and Future Regional Parks and Trails
- Implementation 8-3.1.D: Alameda County Flood Control District

The plans identify the Union Pacific Railroad Corridor, Bay Trail, and Alameda Creek Trail for feasibility studies and the Dumbarton Bridge to Quarry Lakes Trail for a scoping study, which is currently underway. The General Plan (2011) and Bicycle Master Plan (2018) call for off-road trails along Mission Creek, in the Hetch Hetchy Right-of-Way, between Fremont Boulevard and Dixon Landing Road, and between Farwell Drive and Lemke Place.

Policy and Plan Summary

Table D-1 highlights the policies and plans that contain language specific to trail strategies and planning. The Bicycle Master Plan (2018), the Pedestrian Master Plan (2016), and the Mobility Element of the General Plan (2011) contain most of the City's trail policies, including some detailed design guidance. Other policies and plans contain more general language that can be applied to trail development – for example, the Mobility Action Plan (2019) makes the case for a well-connected bicycle and pedestrian network that is integrated with the broader transportation system. Some policies and plans such as the Climate Action Plan (2012) and Safe Routes to School program do not speak directly to trail development but provide important environmental and safety context to help shape policy and design recommendations.

The City of Fremont will begin preparation and development of new Active Transportation Plan with biking and walking a focus mode of that Plan. The Trails Strategy Plan will be a resource to develop and implement new Trails Policies and Design Guideline into the future Active Transportation Plan and update of General Plan.

Other Policies and Plans

The City of Fremont has a wealth of regional plans and local studies that can inform the Trails Strategy Plan, including but not limited to:

- Alameda County Bicycle and Pedestrian Plan for Unincorporated Areas (Alameda County, 2019) *http://www.acgov.org/board/bos_calendar/documents/DocsAgendaReg_8_5_19/GENERAL%20ADMINISTRATION/Regular%20Calendar/2019_Bike_Ped_Master_Plan.pdf*
- East Bay Regional Parks District Bicycle Plan
- Niles Canyon Trail Feasibility Study (EBRPD, 2015) *https://www.acgov.org/board/district2/documents/Niles-Trails-Options.pdf*
- UPRR Trail Feasibility Study (Questa, 2009) *https://www.railstotrails.org/resourcehandler.ashx?id=4288*
- Newark to Fremont Bay Trail Realignment Feasibility Study (Questa, 2013) *https://fremont.gov/DocumentCenter/View/37822/Bay-Trail-Realignment-Study?bidId=*
- Fremont Bay Trail Gap Feasibility Study (Questa, 2013)
- San Francisco Bay Trail Design Guidelines (2015) *https://baytrail.org/pdfs/BayTrailDGTK_082616_Web.pdf*

Table D-1. Policy and Plan Summary

	Regional & Agency Coord.	Integrate Transportation & Land Use	Safe Bike/Ped Design	Acquire Land & Funding	Identify Priority Projects
Mobility Action Plan (2019)	x	x			x
Landscape Development Requirements & Policies (2019)		x			x
Bicycle Master Plan (2018)	x	x	x	x	x
Pedestrian Master Plan (2016)	x	x	x	x	x
Vision Zero Action Plan (2016)		x			
Complete Streets Policy (2013)		x		x	
Development Policies (2013)		x			
Climate Action Plan (2012)		x			
City of Fremont General Plan (2011)					
• **Chapter 2: Land Use & Open Space**	x	x		x	
• **Chapter 3: Mobility**	x	x	x	x	x
• **Chapter 8: Parks and Recreation**	x				x
Safe Routes to School (Ongoing)		x			
Pedestrian Safety Projects (Ongoing)			x		x
Citywide Design Guidelines (2017)		x			

Policy Recommendations

Policy Recommendation: Railbanking

Railbanking Background

Railbanking, a practice that allows long term, temporary use of a rail corridor for trail purposes, is discussed in detail in **Appendix C, Corridor Environment**.

General Plan Implementation 3-5.2.B: Rails-to-Trails call for trail development along vacant rail lines in Fremont. The 2009 Union Pacific Railroad Trail Feasibility Study included design and construction recommendations but did not provide policies for land acquisition or property negotiations.

Railbanking Policy Recommendations

Further study is required to determine if any rail lines in Fremont are eligible for railbanking (i.e., are not yet abandoned). If there are eligible rail lines, when a railroad files for abandonment with the Surface Transportation Board (STB), the City must submit a railbanking request, along with a Public Use Condition (PUC). This action will provide the time and opportunity for the City to negotiate a sale or lease agreement with the railroad.

Railbanking Resources

- Rails-to-Trails Conversions: A Legal Review, Andrea C. Ferster, General Council, Rails-to-Trails Conservancy, 2017
- Railbanking and Rail-Trails: Legacy for the Future, Rails-to-Trails Conservancy, 2006

Policy Recommendation: Utility Corridors

Utility Corridor Background

The same linear corridors that utility companies need for their power lines, pipes, and cables often make excellent routes for non-motorized, multi-use trails.

Levees are discussed in detail in **Appendix C, Corridor Environment**. Other utilities are discussed in detail in **Chapter 6, Corridor Ownership**.

Many of the City's existing plans call for trail development along utility easements. Specific guidance on land acquisition and trail planning is typically provided in feasibility studies, many of which have been completed for priority trail corridors.

Utility Corridor Policy Recommendations

New or revised policies should provide specific recommendations and support for trails in utility corridors. These policies should address legal agreements, liability, easements, and maintenance to make future development negotiations with between the City and utilities clear and transparent.

Operations, maintenance, and liability related to trail use is discussed further in **Chapter 10, Operations and Maintenance**.

Utility Corridor Resources

- York County Department of Parks and Recreation *https://yorkcountypa.gov/parks-recreation/the-parks/heritage-rail-trail-parks.html*
- Florida Power and Light Greenway Trail Assessment Study *https://www.railstotrails.org/resource-library/resources/trail-assessment-study-florida-power-and-light-greenway-a-shared-use-corridor-pilot-project/*

Policy Recommendation: Private Development Requirements

By requiring developers to dedicate a certain proportion of land to open space or conservation, property owners along priority trail routes may consider contributing their open space allotment to trail development. For many developers, proximity to a recreational trail is an attractive amenity and boosts land value. Some communities offer additional incentives for developers to construct trails in exchange for zoning variances or tax benefits. In lieu of these enforcement or incentives policies, the City can choose to work with property owners one-on-one to negotiate trail development through tax-deductible donations, purchasing, leasing and leasing-to-own, easements, right of first refusal, or traditional land dedication.

Development Requirements in Fremont

Existing City policy requires developers to finance and install sidewalks, pedestrian walkways, and other pedestrian-oriented features in new development, including infill development and redevelopment. The General Plan Mobility Element states in three policies that developers are required to dedicate land for trails.

Private Development Policy Recommendation

The City should consider modifying General Plan Policy 3-2.3-C to explicitly require developments to provide access points to new and existing trails.

Development Requirements Resources

- Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails 2nd Edition, Charles Flink, Kristine Olka, Robert Searns, 2001

Policy Recommendation: Safe and Comfortable Trail Design

Trail Design Policy Recommendations

This Trails Strategy Plan includes recommendations for specific design of trails to make them safe, comfortable, and efficient for transportation and recreation including:

Chapter 7, Trail Design and Typologies — outlines trail design standards (typologies) to guide the design of different trails based on expected use, context, and connections.

Chapter 8, Trail Improvement Recommendations — sets standards for smooth transitions and connections from the on-street bike route and sidewalk system to the trail system and for safe and comfortable crossings of streets and railroads for all trail users.

Chapter 9, Trailside Elements — describes trailside elements, best practices, and recommendations for their application in Fremont, including Trailside Element Installation Policies:

- Ensure Ongoing Maintenance
- Prioritize Context
- Prioritize Park Locations
- Prioritize Low Frequency Maintenance

The City of Fremont will begin preparation of a new Active Transportation Plan with biking, walking, and trails a focus of the Plan.

Design Policy Recommendation

This Trails Strategy Plan should be used as a resource to develop and implement new Trails Policies and Design Guidelines into the future Active Transportation Plan and update of the General Plan.

Trail Design Policy Resources

The upcoming revision to the AASHTO Guide will include a new section on trails design. The ASSHTO guide will provide benchmarks for trail design best practices across the country.

Policy Recommendation: Coordinated Trail Maintenance Plan

National best practices suggest that a City-led Coordinated Trail Maintenance Plan (CTMP) is critical to manage costs and provide a safe, efficient, and uniform trail system to the public. A CTMP includes standardized trail maintenance guidelines for both the trail infrastructure and the surrounding environment, both of which can greatly impact the safety and the perception of safety for users. Plan development requires comprehensive stakeholder meetings with all coordinating agencies and departments, both regional and local, to establish clear responsibilities for financing, construction, maintenance, operations, and enforcement. **Chapter 10, Operations and Maintenance**, describes this in detail.

Trail Maintenance Coordination in Fremont

Existing policies and plans call for routine maintenance of bicycle and pedestrian facilities, including paved trails and bicycle parking facilities. The Bicycle Master Plan (2018) Goal 5 calls for coordination across City departments to conduct regular and frequent sweeping, pavement repairs, and vegetation trimming. Pedestrian Master Plan Design Guidelines policies touch on trails maintenance related to erosion, accessibility, and stormwater drainage, but do not provide specific guidance. Trail maintenance in Fremont currently falls under Park Maintenance Services or Public Works, depending on the specific facility.

Trail Maintenance Policy Recommendations

To maintain the ambitious vision of a comprehensive trail network, Fremont needs a more specific and adequately funded plan for trail operations and maintenance.

Key elements of a Coordinated Trail Maintenance Plan include:

- Staff and funding allocation for routine trail inspections and maintenance. This includes mowing, trash pick-up, pruning, graffiti abatement, weed control (focused on weed growth through the trail), and routine detailed inspections.
- Focused attention on trails used for recreation and transportation purposes. The users of these trails are reliant on the system to get to work, school, or other vital destinations such as health clinics and deferred maintenance on these trails can have a cascading impact on the community.
- A trail-oriented line item in capital projects, with funds allocated for major maintenance and repairs that have already been identified (such as trail resurfacing or bridge replacements) and on short-term construction projects to improve the system.
- Police integrated into trail-focused operations to ensure that coordination of patrol duties and information. Crime needs to be understood based on where on the trail it occurs so patrols as well as additional maintenance and programming can be focused.
- Trail-oriented funds and staff allocated to trail planning, acquisition, construction, and maintenance activities to ensure positive progress in building out the future trail system.

Trails Maintenance Planning Resources

- Trails Implementation Plan for Prince George's County, 2017

Policy Recommendation: E-Bike Policy for Trails

E-bikes (electric powered or assisted bicycles) are rising in popularity and can provide wide ranging transportation benefits. The focus of this section is e-bikes and does not incorporate policies/regulations around e-scooters or e-skateboards, although some of the same recommendations may apply.

Fremont and most other local agencies do not have comprehensive e-bike related policies, but rather prohibit e-bikes in specific locations. For example, Fremont has prohibited e-bikes and motorized devices on paths around Lake Elizabeth in Central Park, and EBRPD has prohibited e-bikes on part of the Bay Trail near Alameda Creek Trail and Coyote Hills Regional Park.

Key Takeaways

- The State of California categorizes e-bikes using a system with three defined Classes. This helps define laws based on the features and maximum speeds of the e-bikes. [1]
  3. A "Class 1 (Type 1) electric bicycle" is a bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour.
  4. A "Class 2 (Type 2) electric bicycle" is a bicycle equipped with a motor that may be used exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour.
  5. A "Class 3 (Type 3) electric bicycle" is a bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour, and is equipped with a speedometer.
- State law permits most low-speed e-bikes (Class 1 and Class 2, less than 20mph) and restricts higher-speed e-bikes (Class 3 and all other e-bikes) from State Park trails.
- Most agencies allow Class 1 and 2 e-bikes on their trails
- E-bikes are allowed on most trails, but not all. Where e-bikes are allowed, many agencies have set speed limits that apply to any type of bicycle (electric or traditional) on their trails.
- Studies have shown that e-bikes do not pose more safety concerns than traditional bicycles.[2]
- The lack of trail-related policies, and the patchwork of legal definitions regarding e-bikes across state and local agencies, can often lead to confusion about where e-bikes are permitted.

Local Agency Policy Review

As e-bikes often closely resemble conventional bicycles, many trail agencies avoid e-bike-specific rules and instead opt for policies that apply to all trail users.

For example, both the City of San Jose and the East Bay Regional Park District (EBRPD) established a 15mph speed limit for all users on their trails. Speed limits are generally posted at trail entrances along with other rules and regulations for trail use.

The Town of Tiburon in Marin County occasionally uses a portable speed indicator.

The City of Boulder, CO permits e-bike use only on certain multi-use paths within the city. A Map of Multi-Use Paths that Allow E-Bike Use was created to help raise awareness regarding where e-bikes are permitted.[3]

E-Bike Policy Recommendation

The City should adopt a comprehensive e-bike policy to clarify acceptable use throughout the City. The policy should define criteria for where e-bikes are allowed that can be applied to both existing and future trails and should also include maximum speed limits. The new policy should be well publicized and included on all trails and active transportation maps.

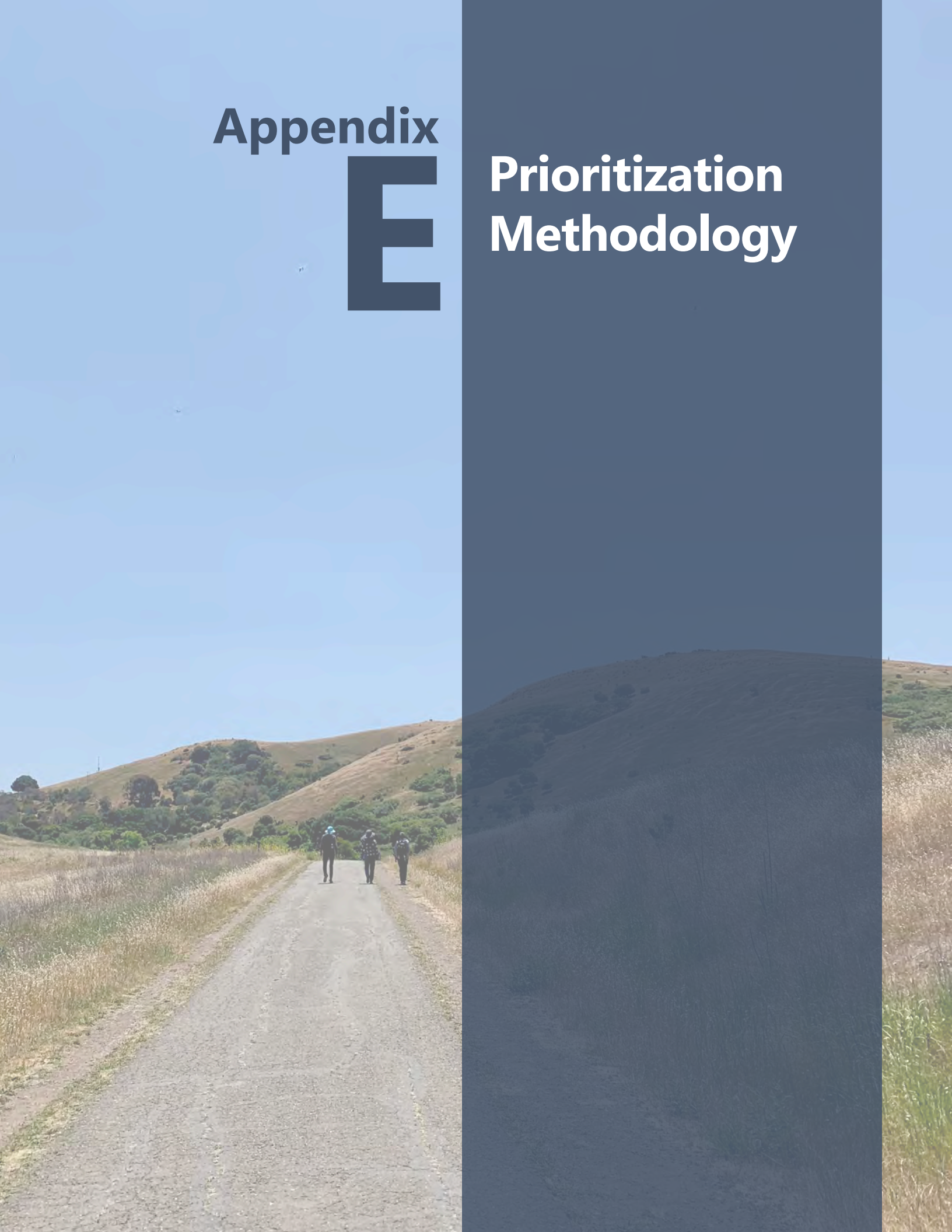
1 https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1096

2 "Risky riding: Naturalistic Methods Comparing Safety Behavior from Conventional Bicycle Riders and Electric Bike Riders" Langford, et. al., 2015

3 *https://www-static.bouldercolorado.gov/docs/map-boulder-existing-paths-allow-e-bikes-1-201401071034.pdf*

Appendix E

Prioritization Methodology



Prioritization Methodology

This appendix provides details on the methodology for evaluating and prioritizing trail projects.

Scoring Methodology Overview

A total of seven criteria were identified to evaluate and prioritize trail projects. The first five criteria are considered trail benefits. The last two criteria are related to feasibility and practicality, including cost.

1. Safety and Low-Stress
2. Regional Connectivity and Key Destinations
3. Parallel Bikeways and Trails
4. Public Input
5. Facilitating Parks Access
6. Constructability/Complexity
7. Planning-Level Cost Estimates

The scoring for each criterion was either high, medium, or low, as explained in **Table E-1.**

Priority Tiers

Based on the total score the segments are sorted into three tiers of projects:

- **Tier 1 Trails:** Regional trail corridors actively under development are the top tier trail priorities. These trails were not evaluated, as they are already City priorities.
- **Tier 2 Trails:** Emerging priorities – priorities for City to implement within 5-10 years.
- **Tier 3 Trails:** Vision corridors – anticipated timeline of 10-30 years.

Table E-2 presents the evaluation results for existing trail improvements and new trails. Some segments of existing and proposed trails were evaluated separately to clarify their relative performance. The tables include both symbols reflecting the scores and numerical scores, as explained in the legend. The existing and proposed trails are listed in descending order of scores.

Alameda Creek Trail near Farmhouse Street

Table E-1. Detailed Scoring Methodology

High Score	Medium Score	Low Score
Criteria 1: Safety and Low-Stress		
Provides an alternative route to an on-street route with a high incidence of pedestrian and bicycle injuries or fatalities	Provides an alternative route to an on-street route with a medium level of collisions or public mentions for improvements	Provides an alternative route to an on-street route with a low level of collisions or no public comments for improvements
Criteria 2: Regional Connectivity and Key Destinations		
Connects to regional transit, Central Park, Fremont's Downtown, a Town Center (Centerville, Irvington, Warm Springs, Niles, Mission San Jose), or a major employment hub (Ardenwood, Pacific Commons, or Bayside Industrial)	Connects to major public facilities (library, schools, community park)	Other
Criteria 3: Parallel Bikeways and Trails		
Trail corridors with no major adjacent parallel bikeway system	Trail corridors with any segments that are adjacent to and parallel with other major trails or bicycle facilities	Trail corridors parallel to major existing or proposed bikeways or trails
Criteria 4: Public Input		
High number of supporting comments	Medium number of supporting comments	Low number of supporting comments
Criteria 5: Facilitating Parks Access *For the current Parks Master Plan effort one of the goals, endorsed by the Mayor, is that all residents of Fremont should be no more than a 10 minute walk from a City park.*		
The trail additions or improvements make it possible for a significant part of a neighborhood and/or a higher residential density neighborhood to access a City park with a 10 minute walk that is currently farther away. Or the trail additions or improvements provide recreational opportunities to a higher density residential community with no parks nearby.	The trail additions or improvements make it possible for a limited part of a neighborhood and/or a lower residential density neighborhood to access a City park with a 10 minute walk that is currently farther away. Or the trail additions or improvements provide recreational opportunities to a lower density residential community with no parks nearby.	Does not improve neighborhood access to a park
Criteria 6: Constructability/Complexity		
Fully in a City right-of-way that is generally flat with minimal barriers	Requires agency (ie. ACFC or SFPUC) permission, but has minimal barriers or slopes	Has major barriers, slopes, and/or requires right-of-way acquisition/ permission – especially railroad or private properties
Criteria 7: Planning-Level Cost Estimates		
Relatively low cost per mile	Medium cost per mile	High cost per mile

Table E-2. Evaluation of Existing Trail Corridor Improvements and Proposed Trails

Legend:

Large Black Symbols = High Score (2)

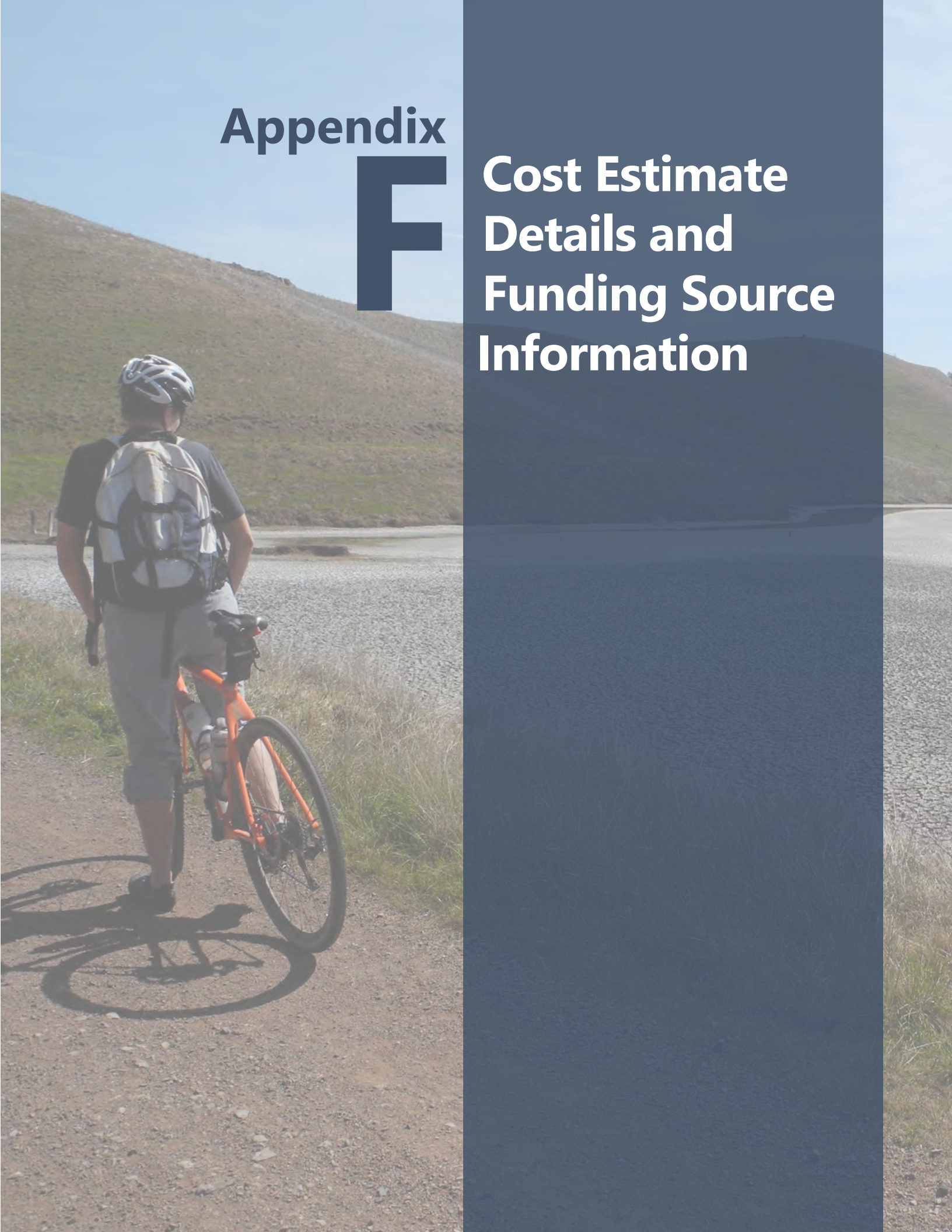
Small Gray Symbols = Medium Score (1)

No Symbol = Low Score (0)

Proposed Trail Corridor

Existing Trail Corridor

Corr. No.	Corridor Name	Evaluation Criteria														Total Score
		Safety and Low Stress		Regional Connectivity and Key Destinations		Parallel Bikeways and Trails		Public Input		Facilitating Parks Access		Construct. / Complexity		Planning-Level Cost Estimates		
		Symbol	Score	Symbol	Score	Symbol	Score	Symbol	Score	Symbol	Score	Symbol	Score	Symbol	Score	
10A	Proposed Hetch-Hetchy North-South Trail (680 to Milpitas)		1		2		1		2		2		1		1	**10**
6B	Proposed Mission Creek Trail Gap Closure (Palm to Mission)		2		1		0		1		1		2		2	**9**
1A	Alameda Creek Trail Enhancements (Ardenwood to Isherwood)		1		1		1		2		0		1		2	**8**
6A	Mission Creek Trail Enhancements (Central Park to Palm)		1		1		2		1		0		1		2	**8**
7	Sabercat Historical Park Trail Extension (I-680 Bridge) and Enhancements		2		1		2		1		0		1		1	**8**
19	Proposed Grimmer Greenway		2		2		1		0		0		1		2	**8**
9	Proposed Hetch-Hetchy East-West Trail		2		1		2		0		2		1		0	**8**
23	Proposed Pacific Commons Bicycle/Pedestrian Connection		2		2		2		1		1		0		0	**8**
24	Proposed Kato Road Trail		2		2		1		0		0		1		2	**8**
8	Proposed Fremont Blvd Channel Trail (ACFC Line Roberts to Cushing)		1		1		1		1		2		1		0	**7**
12	Richmond Ave Channel Trail (ACFC Line Stivers to 880)		2		2		0		0		2		1		0	**7**
14	Northgate Trail Enhancements		1		1		1		0		0		2		2	**7**
15A	Ardenwood Path Enhancements (Alameda Creek Trail to proposed Crandall Creek Trail)		1		1		1		0		0		2		2	**7**
20	Proposed Irvington Neighborhood Trail (ACFC Line Paseo Padre to Lee St.)		2		2		1		0		2		0		0	**7**
22	Proposed Warm Springs BART to Milpitas via the BART Corridor		2		1		1		1		1		0		1	**7**
1B	Alameda Creek Trail Enhancements (Isherwood to Niles Canyon) - recently repaved		1		1		1		1		0		1		1	**6**
13	Brookvale/Cabrillo/Patterson Park Trail Enhancements		0		1		1		1		0		2		1	**6**
17	Lowry Park Trail Enhancements		0		0		2		0		0		2		2	**6**
15B	Proposed Crandall Creek Trail (connects to existing Ardenwood Path)		1		1		1		1		0		1		1	**6**
18	Proposed U-Channel Trail		2		1		0		0		2		1		0	**6**
16	Farwell Linear Park Trail Enhancements		0		1		0		0		0		1		2	**4**
10B	Proposed Hetch-Hetchy North-South Trail (Mission to 680)		0		0		1		1		1		1		0	**4**
11	Proposed PG&E Corridor and Channel Trail		0		0		0		0		2		0		0	**2**



Appendix F

Cost Estimate Details and Funding Source Information

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Cost Estimate Details and Methodology

This first part of this Appendix addresses cost estimates for the 24 trail corridors identified by the current Trails Strategy Plan. Some trail corridors have prior or current studies that cover the entire corridor or part of the corridor. These studies typically went into more detail than a planning-level estimate. For corridors that were not covered by any previous studies, a planning-level cost estimate was prepared. The overall cost for each trail corridor, including design, permitting, environmental assessment, mitigation, and construction (including administration and coordination of construction) are summarized in **Chapter 11, Priorities, Costs, and Funding**.

Cost Estimate Methodology

Corridors with Previous Studies

Previous studies researched the cost of building the following trail corridors

- Niles Canyon Trail
- Bay Trail
- East Bay Greenway (portions)
- Dumbarton Bridge to Quarry Lakes Trail
- Mission Creek Trail
- Sabercat Historic Park Trail Extension
- Farwell Linear Park Trail

The current cost estimate study took the numbers from these previous plans and applied an annual inflation rate of 2.3% to adjust the original years' cost to 2021 dollars. If the prior estimate did not include construction planning, design, environmental and administration costs, a 35% factor was added to the estimate to cover those costs.

These previous cost estimates are included in **Table F-2.** To avoid conflicting costs and duplicated work, cost estimates for corridors with previous studies do not add in costs for any additional improvements, such as trail markings or trailside elements.

Corridors with No Previous Studies

For trail corridors without previous studies, the project team prepared planning-level cost estimates based on the length of the trail corridors and the trail's Typology.

To arrive at these estimates, the following information was calculated in a series of linked spreadsheets:

- Trail Length
  Trail mileage was calculated in GIS, broken down by Existing or Proposed and by Typology (Regional, Community Connector, or Neighborhood Trail).
- Trail Markings, Trailside Elements, and Signage
  *Calculated based on trail length and Typology with different assumptions for typical trail marking and trailside element quantities used for each Typology (see **Table F-1** for these assumptions).*
- Proposed Access and Crossing Improvements
  Calculated based on the improvements identified in the detailed corridor plans.

Where needed, unit costs were calculated based on recent bid documents and research from sources including Caltrans and a recent study by the University of North Carolina.

Right of Way (ROW) acquisition costs were not specifically estimated, unless they were estimated in more detailed studies or plans. Most of the corridors are flood control or utility corridors which would not require ROW acquisition, unless the corridor is on an easement over private property, or where a license has been granted for private improvements that would have to be modified to continue the trail in the corridor.

A summary of the cost estimates is included in **Table F-2.** The more detailed, linked spreadsheets are available as a reference for City Staff.

Table F-1. Trail Markings, Trailside Elements, and Signage Assumptions

	Regional Trails	Community Connector Trails	Neighborhood Trails
Existing	☑ new trail markings ☑ new signage, lighting, benches, and trash receptacles	☑ new trail markings ☑ new signage, benches, and trash receptacles	☑ new trail markings ☑ new signage
Proposed	☑ trail construction* ☑ trail markings ☑ signage, lighting, benches, trash receptacles, drinking fountains, landscaping (in some locations), trees ☑ trail crossings **cost varies depending on whether it is separated or constrained, or to be built on soil or an existing maintenance road*	☑ trail construction* ☑ trail markings ☑ signage, benches, and trash receptacles ☑ trail crossings **cost varies depending on whether it is to be built on soil or an existing maintenance road*	☑ trail construction* ☑ trail markings ☑ signage ☑ trail crossings **cost varies depending on whether it is to be built on soil or an existing maintenance road*
Widening	☑ trail construction/ widening ☑ new trail markings (applies to part of the Alameda Creek Trail and Mission Creek Trail)	☑ trail construction/ widening ☑ new trail markings (applies to part of the Sabercat Historical Park Trail)	Not applicable.

Note that costs for all trail types and improvement types include all recommendations listed in the corridor studies in **Appendix A, Fremont Trail Corridors.**

Cost Estimate Detail Table

Table F-2. Planning Level Cost Estimate Detail Summary

#	Corridor and Reach Name	Total Construction Cost	Design, Admin, Contingency Costs - 35%	Total Cost	Cost per Mile	Source	Plan Year
1	Alameda Creek Trail	$11,946,999	$4,181,450	$16,128,449	$675,420	Current Study	2021
	Alameda Creek Trail Enhancements (Ardenwood to Isherwood)	$8,083,884	$2,829,359	$10,913,244	$660,393	Current Study	2021
	Alameda Creek Trail Enhancements (Isherwood to Niles Canyon)	$3,863,115	$1,352,090	$5,215,205	$709,188	Current Study	2021
2	Niles Canyon Trail	N/A	N/A	$25,000,000	$19,045,731	Niles Canyon Phase 1 Trail Presentation	2020
3	San Francisco Bay Trail	$8,896,742	$5,004,417	$13,901,160	$292,687	Newark-Fremont Bay Trail Realignment Feasibility Study	2013
	San Francisco Bay Trail Fremont Section	$5,409,901	$3,043,069	$8,452,970	$226,865	Ibid	2013
	San Francisco Bay Trail Newark Section	$3,486,841	$1,961,348	$5,448,189	$532,307	Ibid	2013
4	East Bay Greenway	$78,068,142	$27,466,215	$105,534,357	N/A	Varies	Varies
	Reach 1 - North of Alameda Creek	$4,500,000	$1,575,000	$6,075,000	$2,536,578	Current Study	2021
	Reach 2 - Alameda Creek to Central Park	$15,000,000	$5,250,000	$20,250,000	$5,762,558	Current Study	2021
	Reach 3 - Central Park to Irvington BART/ Washington Boulevard (Existing)	$192,470	$67,365	$259,835	$731,694	Current Study	2021
	Reach 4 - Irvington BART Area (Washington Boulevard to Blacow)	N/A	N/A	N/A	N/A	Part of BART Station Project	2021
	Reach 5 - Blacow to Warm Springs BART/S Grimmer	$2,400,000	$840,000	$3,240,000	$1,200,000	Current Study	2021
	Reach 6A - Warm Springs BART to Tesla (in construction via Lennar development)	$1,168,142	$408,850	$1,576,992	$1,143,141	Current Study	2021
	Reach 6B - 880/Tesla Bridge and trail (in environmental/design)	$55,000,000	$19,250,000	$74,250,000	N/A	I-880 Bicycle and Pedestrian Bridge and Trail Scoping Report	2016
5	Dumbarton Bridge to Quarry Lakes Trail	$21,908,544	$4,487,292	$26,395,837	$3,056,532	2018 Dumbarton Bridge to Quarry Lake Trail Study	2018

Table F-2. Planning Level Cost Estimate Detail Summary, continued

#	Corridor and Reach Name	Total Construction Cost	Design, Admin, Contingency Costs - 35%	Total Cost	Cost per Mile	Source	Plan Year
6	Mission Creek Trail	$2,016,098	$549,637	$2,565,735	$1,141,577	2018 Mission Creek Trail Feasibility Study	2018
7	Sabercat Historic Park Trail (I-680 Bridge and Extension and Enhancements Total	$40,029,852	$14,010,448	$54,040,300	N/A	PSR-PDS I-680/ Sabercat Bridge and Trail; UPRR/Blacow Underpass	Varies
	Existing Sabercat Trail Enhancement (I-680 to Pine)	$715,436	$250,403	$965,839	$603,649	Current Study	2021
	I-680 Sabercat Bridge & Trail	$39,314,416	$13,760,046	$53,074,462	N/A	PSR-PDS I-680/ Sabercat Bridge and Trail; UPRR/Blacow Underpass	2018
8	Fremont Boulevard Channel Trail	$2,579,784	$902,924	$3,482,708	$1,532,519	Current Study	2021
9	Hetch Hetchy East-West Trail	$5,775,409	$2,021,393	$7,796,802	$1,963,723	Current Study	2021
10	Hetch Hetchy North South Total	$7,187,251	$2,515,538	$9,702,789	$1,683,085	Current Study	2021
	Hetch-Hetchy North-South Trail (680 to Milpitas)	$4,679,998	$1,637,999	$6,317,997	$1,826,490	Current Study	2021
	Hetch-Hetchy North-South Trail (Mission to 680)	$2,507,253	$877,539	$3,384,792	$1,467,952	Current Study	2021
11	PG&E Corridor & Channel Trail	$1,548,429	$541,950	$2,090,379	$1,810,268	Current Study	2021
12	Richmond Avenue Channel Trail	$3,411,232	$1,193,931	$4,605,163	$1,655,165	Current Study	2021
13	Brookvale, Cabrillo and Patterson Park Trails	$208,539	$72,989	$281,528	$164,272	Current Study	2021
14	Northgate Trail	$135,672	$47,485	$183,157	$240,312	Current Study	2021
15	Crandall Creek Trail & Ardenwood Path	$2,443,395	$855,188	$3,298,584	$1,035,358	Current Study	2021
16	Farwell Linear Park	N/A	N/A	$550,123	$1,066,405	Fremont Pedestrian Plan	2016
17	Lowry Neighborhood Park Trails	$329,677	$115,387	$445,065	$772,781	Current Study	2021
18	U-Channel Trail	$3,220,480	$1,127,168	$4,347,648	$1,487,965	Current Study	2021
19	Grimmer Greenway	$2,200,000	$80,000,000	$3,000,000	$6,000,000	Current Study	2021
20	Irvington Neighborhood Trail	$493,872	$172,855	$666,727	$1,044,969	Current Study	2021
21	Morrison Canyon Road Trail	$0	$0	$0	$0	Current Study	2021
22	Warm Springs BART to Milpitas (via BART Corridor)	$3,682,967	$1,289,038	$4,972,005	$1,438,548	Current Study	2021

Table F-2. Planning Level Cost Estimate Detail Summary, continued

#	Corridor and Reach Name	Total Construction Cost	Design, Admin, Contingency Costs - 35%	Total Cost	Cost per Mile	Source	Plan Year
23	Pacific Commons Bridge and Trail	$30,940,585	$10,829,205	$41,569,790	$15,746,132	City Input	2021
24	Kato Road Trail	$10,277,823	$1,541,673	$11,819,496	$11,819,496	Kato Road Trail Cost Estimate 21-4-28 by City of Fremont	2021
			Total Cost	**$342,495,272**			

Note: Not all segments on the list are counted. For example, projects that the City of Fremont is applying funding for planning grants are excluded.

Funding Sources

The implementation of the trail system in Fremont will likely take many years and will require the use of a variety of funding sources. Funding sources are available from local, county, regional, state, and federal agencies, as well as local organizations and non-profits. Additionally, the City of Fremont is currently updating its Parks and Recreation Master Plan, and funding opportunities for trails and parks projects should be considered together. Some of the proposed trails in this Trails Strategy are located within City parks and may be eligible for funding sources identified in the Parks and Recreation Master Plan.

Funding Sources Table

Table F-3 describes various grant programs and other funding sources that can be resources for developing trails in Fremont.

Table F-3. Funding Sources

Trail Funding Source	Description
Local Funding Sources	
Fremont Capital Improvement Plan (CIP)	Fremont can utilize funds already allocated in their capital improvement plan to fund trail development. The capital improvement plan is a short-range plan which identifies capital projects and equipment purchases, provides a planning schedule, and identifies options for financing the plan. City of Fremont funds capital improvement projects and programs every 2 years and plans for 5 years.
Developer Fees and/ or Transportation Impact Fees	Local or area-wide transportation impact fees are required for new developments. Funds from these impact fees can be used to plan and build transportation infrastructure, such as trail projects. The nexus is often made that vehicle trip reductions can be supported through multimodal projects.
Local organizations and non-profits	Occasionally local organizations and non-profits will help fund portions of trail projects. While these organizations do not often fund the design, construction, or maintenance of the actual trail, they can provide funding for trail amenities such as benches, bike racks, wayfinding, bicycle repairs stations, and more.
County and Regional Funding Sources	
Vehicle Registration Fees	The Measure F Alameda County Vehicle Registration Fee (VRF) Program was approved by voters in November 2010, with 63 percent of the vote. Starting in 2011, the fee will generate about $11 million per year by a $10 per year vehicle registration fee. The goal of the VRF program is to sustain the County's transportation network and reduce traffic congestion and vehicle-related pollution. The program includes four categories of projects, including local road improvement and repairs, transit congestion relief projects, local transportation technology, and pedestrian and bicyclist access and safety program. Alameda County Transportation Commission distributes an equitable share of the funds among the four planning areas of the county (North County, Central County, South County, and East County) to fund additional projects identified by local jurisdictions. Fremont is part of the South County planning area.

Table F-3. Funding Sources, continued

Trail Funding Source	Description
One Bay Area Grants (OBAG)	The Metropolitan Transportation Commission's (MTC) One Bay Area Grant program (OBAG) is a funding approach that aligns the Commission's investments with support for focused growth. Established in 2012, OBAG taps federal funds to maintain MTC's commitments to regional transportation priorities while also advancing the Bay Area's land-use and housing goals. OBAG includes both a regional program and a county program that both targets project investments in Priority Development Areas (PDAs) and rewards cities and counties that approve new housing construction and accept allocations through the Regional Housing Need Allocation (RHNA) process. Cities and counties can use these OBAG funds to invest in local street and road maintenance, streetscape enhancements, bicycle and pedestrian improvements, transportation planning, and Safe Routes to School projects. The most recent OBAG funding cycle (OBAG 2) is funded approximately $800 million in projects from 2017/2018 through 2021/2022.
Transportation Development Act (TDA) Article 3	The Transportation Development Act Article 3 (TDA 3) provides funding annually for bicycle and pedestrian projects, which could include trails. Two percent of TDA funds collected in the County are used for TDA 3. MTC allows each county to determine how to use funds. Some counties competitively select projects while other counties distribute the funds to jurisdictions based on population. Each county coordinates a consolidated annual request for projects to be funded in the county.
Regional Measure 1, 2, 3, and Future Regional Measures	To help solve the Bay Area's growing congestion problems, MTC worked with the state Legislature to authorize a series of ballot measure that would finance a comprehensive suite of highway and transit improvements by increasing tolls on the region's seven state-owned toll bridges. In the most recent Regional Measure (RM 3), toll revenues will be used to finance a $4.45 billion slate of highway and transit improvements in the toll bridge corridors and their approach routes. Current interpretation of these measures indicate that trail projects may be included as accessory parts to larger infrastructure projects.
Regional Active Transportation Program	While the California Department of Transportation (Caltrans) administers statewide Active Transportation Program grants, MTC allocated a portion of the funds to administer a regional component. MTC provides a regional supplemental application in addition to the statewide application to apply for the competitive program funds. The program allows cities, counties, transit agencies and other public agencies to compete for grants to build bicycle/pedestrian paths, install bike racks, and other projects or programs that make walking or biking easier, safer, and more convenient.

Table F-3. Funding Sources, continued

Trail Funding Source	Description
Transportation Fund for Clean Air (TFCA)	In 1991, the California State Legislature authorized the Air District to impose a $4 surcharge on cars and trucks registered within its jurisdiction to be used to provide grant funding to eligible projects that reduce on-road motor vehicle emissions. The Air District allocates these funds to its Transportation Fund for Clean Air Program, which in turn provides funding to qualifying trip-reduction and alternative-fuel vehicle-based projects, including plug-in electric vehicles. Sixty percent of TFCA funds are awarded by the Air District to eligible programs and projects through a grant program known as the Regional Fund, through various Air District sponsored programs and projects such as Spare the Air, and through certain alternative-fuel vehicle-based and bicycle facility programs. The remaining 40 percent of TFCA funds are passed through to the County Program Manager Fund and are awarded by the Congestion Management Agencies of the nine counties to TFCA-eligible projects located within those counties. Qualifying projects include "bicycle and pedestrian facility improvements," which could include the construction of trails and trail amenities.
Local BART Sales Tax	One of BART's primary funding mechanisms is a local sales tax collected across its service area. Bonds are secured through BART's sales tax revenue, consisting of 75 percent of revenue from a 0.5-cent sales tax collected in the three-county service area with the remaining 25 percent distributed to the Metropolitan Transportation Commission (MTC). BART implements projects on agency-owned properties to improve safety and access for all modes to its stations.
Measure RR	The elected BART Board of Directors voted unanimously to put forward a $3.5 billion general obligation measure on the November 2016 ballot that was approved by voters. The funds will help replace and maintain much of BART's assets that are reaching their useful life. Additionally, approximately $135 million will be spent to expand opportunities to safely access stations. This includes improving trails on BART-owned properties that provide access for all BART users, including seniors and people with disabilities. Local agencies can work with BART to identify opportunities for access improvements to local stations.
Measure B	In 2000, nearly 82 percent of Alameda County voters approved Measure B, the half-cent transportation sales tax. Alameda County Transportation Commission administers Measure B funds to deliver essential transportation improvements and services. The Alameda County 20-year Transportation Expenditure Plan guides the expenditures of more than $1.4 billion in county transportation funds generated through the continuation of the sales tax over the next 20 years. This program comes to an end in 2022 with continuation of Measure BB tax. The expenditure plan was developed to serve major regional transportation needs in Alameda County and to address congestion in every major commute corridor in the county. Regional priorities are to expand mass transit, improve highway infrastructure, improve local streets and roads, improve bicycle and pedestrian safety, and expand special transportation for seniors and people with disabilities. Funds are allocated through direct local distributions, discretionary programs, and to individual capital projects.

Table F-3. Funding Sources, continued

Trail Funding Source	Description
Measure BB	Alameda County voters approved the 2014 Transportation Expenditure Plan (2014 TEP) as part of Measure BB in November 2014. Measure BB authorized the augmentation and continuation of the voter-approved 2000 Measure B sales tax with a second half-cent sales tax through the end of the 2000 Measure B collection period, i.e. March 31, 2022, followed by a one-cent sales tax authorizes from April 1, 2022 through March 31, 2045.
State Funding Sources	
Active Transportation Program (ATP) Grants	The Active Transportation Program consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation. The ATP is administered by the Division of Local Assistance, Office of State Programs. The purpose of the ATP is to encourage increased use of active modes of transportation by increasing the proportion of trips completed by biking and walking, increasing safety of non-motorized users, reducing greenhouse gases, enhancing public health, and ensuring that under-resourced communities fully share in the benefits of the program.
Recreational Trails Program (RTP)	The Recreational Trails Program (RTP) provides funds annually for recreational trails and trails-related projects. The RTP is administered at the federal level by the Federal Highway Administration (FHWA). It is administered at the state level by the California Department of Parks and Recreation (DPR) and the Department of Transportation (Caltrans) Active Transportation Program (ATP). Eligible non-motorized projects include acquisition of easements and fee simple title to property for recreational trails and recreational trail corridors and development, or rehabilitation of trails, trailside, and trailhead facilities. The program requires a 12 percent match. FHWA must approve project recommendations before California State Parks can execute grant contracts. Prior to forwarding these projects to FHWA, each must comply with the National Historical Preservation Act of 1966 (Section 106), National Environmental Policy Act (NEPA), and be listed on the State Transportation Improvement Plan (STIP).
Affordable Housing and Sustainable Communities (AHSC) Program	The purpose of the AHSC Program is to reduce greenhouse gas (GHG) emissions through projects that implement land-use, housing, transportation, and agricultural land preservation practices to support infill and compact development, and that support related and coordinated public policy objectives. The AHSC program includes transportation focuses related to reducing air pollution, improving conditions in under-resourced communities, supporting or improving public health, improving connectivity and accessibility to jobs, increasing options for mobility, and increasing transit ridership. Funding for the AHSC Program is provided from the Greenhouse Gas Reduction Fund (GGRF), an account established to receive Cap-and-Trade auction proceeds.

Table F-3. Funding Sources, continued

Trail Funding Source	Description
Transformative Climate Communities (TCC) Program	The Transformative Climate Communities Program was established by Assembly Bill (AB) 2722 to fund the development and implementation of neighborhood-level transformative climate community plans that include multiple, coordinated greenhouse gas emissions reduction projects that provide local economic, environmental, and health benefits to disadvantaged communities. The TCC Program is also an opportunity to realize the State's vision of Vibrant Communities and Landscapes, demonstrating how meaningful community engagement coupled with strategic investments in transportation, housing, food, energy, natural resources, and waste can reduce GHG emissions and other pollution, while also advancing social and health equity and enhancing economic opportunity and community resilience. The TCC Program funds both implementation and planning grants. While the program can fund a variety of projects, transportation-related projects can include, but are not limited to developing active transportation and public transit projects, supporting transit ridership programs and transit passes for low-income riders, expanding first/last mile connections, building safe and accessible biking and walking routes, and encouraging education and planning activities to promote increased use of active modes of transportation.
Environmental Enhancement and Mitigation (EEM) Grant Program	The Environmental Enhancement Mitigation program authorizes the California state legislature to allocate up to $7 million each fiscal year from the Highway Users Tax Account. EEM projects must contribute to mitigation of the environmental effects of transportation facilities. The EEM Program does not generally fund commute-related trails or similar bicycle/pedestrian infrastructure. However, it does fund recreational and nature trails as part of stormwater management or green infrastructure projects.
California Natural Resources Urban Greening Program	As part of the California State Senate Bill (SB) 859, the California Natural Resources Agency's Urban Greening Program was created and is funded by the Greenhouse Gas Reduction Fund (GGRF) to support the development of green infrastructure projects that reduce GHG emissions and provide multiple benefits. In 2017, approximately $26 million was allocated from the GGRF to the Urban Greening Program. Projects should be focused in disadvantaged communities to maximize economic, environmental, and public benefits. The Urban Greening Program will fund projects that reduce greenhouse gases by sequestering carbon, decreasing energy consumption, and reducing vehicle miles traveled, while also transforming the built environment into places that are more sustainable, enjoyable, and effective in creating healthy and vibrant communities. These projects will establish and enhance parks and open space, using natural solutions to improve air and water quality, reduce energy consumption, and create more walkable and bikeable trails.
Rebuilding American Infrastructure with Sustainability and Equity (RAISE) (formerly BUILD and TIGER)	The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants were announced in 2021. Formerly known as BUILD and TIGER, these discretionary grants will be available in Fiscal Year 2021 for transportation projects that meet specific criteria, with priority given to projects that demonstrate improvements to racial equity, environmental protection, and job creation.

Table F-3. Funding Sources, continued

Trail Funding Source	Description
FHWA Congestion Mitigation and Air Quality Improvement Program (CMAQ)	FHWA's CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards.
FHWA Surface Transportation Block Grant Program (STBG)	The STBG, formerly known as the Transportation Alternatives Program, authorizes funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities. The Metropolitan Transportation Commission (MTC) helps coordinate the Transportation Alternatives (TA) program in the San Francisco Bay Area.
Land and Water Conservation Fund (LWCF)	The LWCF provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. Over its first 49 years (1965 - 2014), LWCF has provided more than $16.7 billion to acquire new Federal recreation lands as grants to State and local governments. Projects can include acquisition of open space, development of small city and neighborhood parks, and construction of trails or greenways.
Community Services Block Grant Program (CSBG)	The Community Services Block Grant provides funding to alleviate the causes and conditions of poverty in communities. This includes transportation projects. Administered by the U.S. Department of Health and Human Services, funding is allocated to states who then make it available to local communities. Funded projects have included commercial district streetscape improvements, sidewalk improvements, safe routes to school, and neighborhood-based bicycling and walking facilities that improve local transportation options or help revitalize neighborhoods.
FHWA Highway Safety Improvement Program (HSIP)	The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land.
Rivers, Trails, and Conservation Assistance Program	The National Park Service Rivers, Trails, and Conservation Assistance (RCTA) program supports community-led natural resource conservation and outdoor recreation projects across the nation. The National Park Service helps community groups, nonprofits, tribes, and state and local governments to design trails and parks, conserve and improve access to rivers, protect special places, and create recreation opportunities.

Appendix G

Operation and Maintenance Detail

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Operation and Maintenance Detail

This appendix details the tasks and costs of operation and maintenance of the trail system.

Trail Maintenance Tasks

The following sections describe various tasks that should be performed as part of a comprehensive trail maintenance program. The tasks are organized according to the frequency with which they must be performed:

- Routine Maintenance Tasks
- Seasonal or Annual Maintenance Tasks
- As-Needed Maintenance Tasks
- Capital Maintenance
- Special Maintenance Tasks

There is an interrelationship between the design of a trail facility and the level of maintenance required. For instance, trail facilities with numerous amenities and landscaping will require more maintenance tasks to be performed than facilities with no amenities or landscaping.

Damaged sidewalk on Paseo Padre Parkway near Dumbarton Circle

Routine Maintenance Tasks

Tasks that require weekly or monthly attention. Tasks with an asterisk (*) are generally required regardless of how the trail facility is designed. Tasks without an asterisk may not be required, depending on the design of the trail facility.

Trash Removal*

The purpose of removing trash on trail systems is to protect public health and safety and to improve conditions for wild animals, and air, water, and soil quality. Trash removal includes removing ground trash including broken glass, and emptying trash containers if they are present. Trailheads where dogs are allowed should also have dog waste stations with disposable bags. Trash removal should occur regularly – i.e. at least weekly. The most common approach to removing trash from trail systems is to implement an ongoing trash removal and an as-need trash management program. Where resources are limited trash receptacles can be located at entry points to trails so that the trash cans are easily accessed and serviced by maintenance staff. A less common, and often less effective, approach to trash removal is implement a "carry in/carry out" trash policy in which trail users are supposed to be responsible for removing all trash. Trash cans are not provided. Especially with dog waste, people are not inclined to take it with them and tend to leave it bagged on the trail, so this approach may not be practical for an urban trail system.

Blowing or Sweeping*

To keep a paved trail safe, especially where there are nearby trees and shrubs, it is important to blow or sweep the surface clear of leaves and other debris. Blowing with a hand-held power blower should be done weekly during peak times of leaf or bark litter, and more effective sweeping with a small truck or tractor-based sweeper should be done monthly.

Inspection and Maintenance of Active Use Trailside Elements

Trailside elements are features along the trail designed to enhance the safety and enjoyment of trail users. Some elements are actively used and require frequent, regular cleaning or inspection to ensure they are working properly. These types of amenities include picnic tables, drinking fountains, or bicycle repair stations. Because of their higher maintenance requirements, these elements may be restricted to a few strategic locations or corridors, only installed within parks where they can be maintained as part of an overall park facility, or even not installed at all along trails.

Seasonal or Annual Maintenance Tasks

Tasks that may have more seasonal requirements or may be scheduled annually or as needed.

Landscaping and Irrigation Inspection

See Landscaping and Irrigation Maintenance under Special Maintenance Tasks, below.

Clearing, Brushing, and Pruning

Clearing is the removal of windfall trees, protruding roots, leaning trees, and loose limbs or large pieces of bark from the trail tread to the recommended buffer zone. Brushing is the removal of all living or dead vegetation from the outside of the trail tread to the recommended buffer zone. Overhanging branches should be pruned to 12 feet on shared-use, limited-use, and single-use trails for equestrians and bicycles. Vegetation should be pruned to the minimum clearance of 2 feet on each side of the trail. All cut tree limbs and other cuttings should be removed from the trail edge and discarded from drainages, to avoid creating a fire hazard.

Mowing, Trimming, and Weed Abatement*

Ensuring that shrubs and grasses do not intrude on or above the trail tread is essential to trail safety, functionality, and longevity. It also helps protect against fire risk, which may include more extensive mowing, or grazing, such as on the Sabercat Creek Trail. At minimum, mowing is the clearing of shrubs and grasses with a minimum clearance of 2 feet on each side of the trail. Paved trails should have compacted aggregate shoulders 2 feet wide on each side of the trail, which helps prevent encroachment by vegetation. Grass around fencing may need to be cut manually with a hand-held trimmer rather than a tractor-mounted mower.

Pavement Inspection and Asphalt Crack Patching*

Annual pavement inspection is part of a comprehensive pavement management plan. Pavement management plans should evaluate four trail characteristics: roughness (ride), surface distress (condition), surface (skid characteristics), and structure (pavement strength and deflection). Preserving the trail surface condition through preventive maintenance keeps trails safe, extends pavement life, and reduces long-term expenses.

The asphalt pavement must routinely be inspected for cracks, raveling, and disintegration. Cracks that are more than 1/4 inch to 1/2 inch wide should be thoroughly cleaned, dried, and filled with a sealant.

With proper design and construction, asphalt pavement requires minimal maintenance. A significant advantage of asphalt pavement over concrete pavement is that asphalt pavement repairs can be quick and cost effective.

Replacing and Refreshing Signage and Striping*

Trail markings (centerline striping, crossings, and other markings) and signage (regulatory, wayfinding, and interpretive signs) need to be regularly refreshed and/or replaced as they become damaged, faded, or out of date.

Inspection and Maintenance of "Passive" Trailside Elements

Some trailside elements do not require frequent, active maintenance, but should still be inspected on a regular cycle, with minor repairs performed as needed. These elements include: benches, bicycle parking, fencing, railing, gates, and bollards. Typical inspection includes checking for:

- Damage, deterioration or rusting on metal parts, requiring cleaning, painting or replacement
- Deterioration of wood elements, including vandalism, rotting, splintering or other condition that presents a hazard, requiring repair or replacement
- Cracks or other failure in concrete benches, tables, pads or footings

As-Needed Maintenance Tasks

Graffiti Removal*

The key to a successful graffiti control program is pre-treating walls or surfaces with anti-graffiti coatings, crime prevention through environmental design (making sure that the surfaces are highly visible), and prompt graffiti removal – especially offensive writing and drawing. A successful graffiti control program discourages vandalism, ensuring that trails are safe places for people to bike and walk. Graffiti removal may occur weekly in conjunction with other regular maintenance, or on as-needed basis.

Lighting Inspection and Maintenance

Some Fremont trail corridors that serve commuters who may travel during dusk hours in winter have been identified for potential lighting upgrades. The chief concern with lighting maintenance is tracking and fixing outages. Bulbs also need to be kept clean. Posting signage on fixtures and trailheads requesting that trail users report outages along the trail helps with lighting maintenance. Solar power lighting may be considered for some corridors where running conduit presents issues, but introduces different maintenance needs.

Addressing Homeless Encampments

During public engagement, several people commented on homeless encampments along trails. These encampments are not unique to Fremont, and reflect the local and regional housing and homelessness crisis. Addressing the homeless encampments along the trails is a complex project that would likely be a special project involving Environmental Services and Human Services staff. Increasing housing, providing shelter options, and providing debris removal services would be required as part of the City's Compassionate City Charter.

Capital Maintenance

The following maintenance tasks would generally happen as standalone, capital improvement projects (CIP), or as major rehabilitation is needed (on a multi-year cycle).

Rehabilitation of Paved Trails

Well-maintained asphalt trails typically need resealing every 5 to 7 years, depending on wear and type of pavement deterioration. Well-maintained concrete trails need replacing roughly every 25 years.

Resealing Asphalt Trails

Asphalt trails can be resealed using a slurry seal or seal coat application.

Slurry sealing asphalt is a preventive maintenance treatment that extends the life of the paved trail by applying a mixture of asphalt emulsion and aggregate (crushed stone and/or sand) to the trail. Slurry seals preserve and protect the underlying pavement structure and provide a new surface. The expected life of a slurry seal is three to five years.

Seal coating is a preventive maintenance treatment that extends the service life of the paved trail by waterproofing the surface, sealing small cracks, reducing oxidation of the pavement surface, and improving friction. A seal coat is an application of a layer of asphalt followed immediately with an aggregate (crushed stone and/or sand) cover. Two-layer applications are referred to as a double chip seal. Dry, raveled pavement can be seal coated. The seal coat itself may only last three to six years, but it may extend the life of the treated pavement by ten years.

Maintenance and Repair of Aggregate Trails and Trail Shoulders

Some trails currently have portions that are surfaced with compacted aggregate (base rock that typically underlies pavement). Ideally this aggregate surface would be carefully designed with a binder to make it smoother and firmer than typical aggregate base rock roads.

Most asphalt trails also require compacted aggregate shoulders, ideally 2 feet wide or more, on each side of a asphalt surface to prevent paved edges from crumbling.

Compacted aggregate tends to wear more quickly than pavement and needs to be refilled, smoothed, and compacted where it has been damaged or deteriorated. Frequency of maintenance depends on the trail use: trail shoulders that are used by runners and walkers may only need to be regraded every few years, while trails that support maintenance trucks may need to be regraded every year.

Trailside Elements Major Repairs or Replacement

The trailside elements and facilities listed above will ultimately require major repairs or replacement, usually over a period of 10 years.

Special Maintenance Tasks

The following tasks relate to drainage, landscaping, or structural features that may or may not be present in all trail segments. To the extent that the design requires maintenance of these elements, these maintenance tasks may be required on a seasonal, annual, or as needed basis.

Drainage Maintenance

Drainage facilities control or direct the flow of water under or around a trail. Drainage maintenance work is critical to prevent damage to trails during storms, and to keep them open for use. Common drainage maintenance activities include:

- Clearing Ditches
  Ditches may be parallel to the trail tread or leading away from the trail or to a culvert. They must be deep and wide enough to carry the anticipated volume of water in a serious storm. Clearing ditches requires removing vegetation and/or trash that may block water flow and fixing bank slumping that may block the ditch. Typically ditches are maintained by the landowner or utility company that created them.
- Clearing Culverts
  When surface flow or subterranean springs cross a trail, culverts may be placed perpendicular to the trail or at an angle to redirect the water under the trail to the downhill side. Culverts need to be checked and cleared, particularly before big storms, to ensure that they function properly to avoid damage to or closure of the trail. Typically culverts are maintained by the landowner or utility company that created the culverts.

Landscaping and Irrigation Maintenance

In public engagement, community members expressed an interest in shade trees along trails. To make trails attractive for users landscaping is also often a desired amenity. Any landscaping along trails should be low-maintenance, and ideally rely on native and low-water use plants. Such landscaping, including the required water-conserving irrigation system, will require regular inspection and occasional weed control, mulch placement, replanting and irrigation repair. Landscaping can be minimized as a part of the design of trails if greater levels of funding for trail maintenance are not available, or if maintenance is not conditioned on an associated development.

Bridge Inspection and Repair

Concrete and metal bridges are generally more durable than wood, but metal may rust and require cleaning and repainting. Wooden bridges in particular require checking for damage or deterioration; particularly wooden decking.

Retaining Wall, Steps and Ramps Inspection and Repair

Concrete or masonry unit retaining walls and steps are generally more durable than wood. Wooden retaining walls require more frequent checking for damage or deterioration.

Invasive Species Removal/Reintroduction of Native Species

Invasive plant species can poison wildlife and out-compete native species, harming a trail's environment. Often the removal of invasive plant species and re-introduction of native species involves coordinated volunteer efforts. If there are invasive species or weeds located along a corridor, the use of synthetic weed killers is a last resort.

Volunteer Maintenance: Trail Ambassador Programs

Through a Trail Ambassador Program, local volunteers help to monitor trail systems and provide weekly reports on trail condition and issues. The volunteers, or Trail Ambassadors, report to a coordinator or Trail Steward. In some cases, Trail Ambassadors wear a uniform so the public can easily identify them. When on the trail they carry notebooks, pencils, trash bags, and cellphones/cameras. This helps them to document trail conditions and issues.

Establishing a Trail Ambassador Program engages the community in trail maintenance and trail security to encourage trail use, keep trails safe, and strengthen community engagement in trail systems.

The responsibilities of a Trail Ambassador may include:

- Walking and monitoring the condition of a trail (or section of it) at least once a week
- Meeting and greeting people on the trail
- Observing trail conditions and potential hazards
- Reporting trail conditions and repairs needed
- Performing some routine maintenance such as removing fallen branches and monitoring culverts for wash-outs or blockages

Case Study: City of Richmond and Non-Profit Partnerships

The City of Richmond partners with non-profits, such as the Friends of the Richmond greenway (see below) for advocacy, programming, stewardship, and development support. Some of the City's non-profit partners include Groundworks Richmond, Urban Tilth, Rich City Rides, POGO Park, and The Watershed Project. These groups all help maintain the Richmond Greenway: a 3-mile bicycle and pedestrian rail-trail surrounded by 32 acres of community-designed artwork, urban agriculture, and recreational space. Many of these non-profits have received grant funding from Cal Fire, the Richmond Environmental and Community Investment Agreement (ECIA), the California Natural Resources Agency (CNRA), and the Coastal Conservancy to help create, improve, and sustain the Richmond Greenway.

The Parks & Landscaping Superintendent in the Public Works Department's Parks & Landscaping Division for the City of Richmond, is a liaison between these non-profits and can provide tools and mulch for any facility maintenance needs.

Friends of the Richmond Greenway (FORG)

The Friends of the Richmond Greenway (FORG) is one non-profit organization involved in the support of the Richmond Greenway. FORG is a collaboration of community members and over 17 local organizations working together to maintain and manage the Richmond Greenway as a beautiful and healthy space serving the local community. FORG provides many ways for individuals and organizations to get involved, including volunteer days, committee meetings, and advocacy drives.

Trail Operation and Maintenance Cost

Operation and Maintenance Cost Implications from other Agencies

Estimated operations and maintenance (O&M) costs for trails per mile from a representative sample of peer agencies are used here to generate a planning-level cost to maintain Fremont's proposed trail network.

The City of San Jose was one of the sources for cost estimates. The City has an extensive trail system with good wayfinding and rules signage and marking, and in some cases associated amenities. San Jose budgets $17,050 per mile of trail for operations and maintenance annually. They also budget $2,000 per mile for Park (Trail) Rangers annually. These costs were estimated based on time records per task for typical operations and maintenance tasks. The $17,050 figure is used for all paved trails, regardless of content. It is reduced to 50% ($8,525) for an interim (gravel) trail. San Jose also adds $17,050 per acre if the trail travels through a landscaped area solely for the trail, rather than part of a park or a development that is responsible for landscape maintenance.[1]

The Napa Valley Vine Trail, was another source for cost estimates. The Vine Trail is a non-profit organization that leads and coordinates the construction of a 47 mile walking and biking trail system through Napa County from Vallejo north to Calistoga. Approximately 1/3 of the trail has been completed. In 2014 the Vine Trail prepared a Maintenance White Paper based on research of local trail maintenance costs and prior studies.[2] **Table G-1** (reproduced from the Vine Trail Maintenance White Paper) summarizes this research. The costs are updated to 2020 dollars but vary widely.

A third cost source was EBRPD, which budgeted $25,000 for the Iron Horse Trail, a paved trail that stretches across Alameda and Contra Costa counties. It was described as all-inclusive, with a reserve for crack sealing, overlays, police patrol, as well as trash pickup and mowing.

The Town of Yountville and City of Napa costs (included in the Vine Trail white paper) are probably on the high end because they are short, heavily used segments of trail. For a larger system the average cost per mile would go down. But these are probably the most realistic references for operations and maintenance costs for Fremont.

To account for inflation, all costs evaluated were updated to 2020 dollars using the Consumer Price Index (CPI). The Consumer Price Index for the U.S. city average was 237 in October 2014, and 260 in October 2020. This is a 0.097 increase, or about 10%. Thus the 2020 costs would be $27,500 for the Iron Horse Trail, $30,049 for the Yountville Vine Trail, and $24,013 for the City of Napa Vine Trail. The average would be $27,187. These costs are much higher than the current $17,050 per mile for City of San Jose trail maintenance, plus $2,000 per mile for Trail Rangers. The latter was used as **the low O&M cost assumption: $19,050 per mile rounded to $19,000.**

The median of the average October 2020 cost of the prior three agencies ($27,187) plus the total City of San Jose costs ($19,050) was used as a per mile baseline for **the medium O&M cost assumption: $23,119 per mile rounded to $23,000**.

In addition, for trails that are expected to feature landscaping and amenities, the $17,050 per acre used by the City of San Jose, assuming one acre per mile, was added for amenity rich Primary trails, totaling **$40,000 per mile for the high O&M cost assumption.**

1 Yves Zsutty, Division Manager, Capital Improvement Program, City of San Jose, CA, personal communication, November 16, 2020

2 Philip Sales, Executive Director, Napa Valley Vine Trail, Napa, CA

Table G-1. Average Trail Maintenance Cost from 2014 Vine Trail White Paper

Author of data	Source/study	Average cost per mile	Year of study data	Adjusted average cost/mile in October2014 dollars using CPI index	Notes/Comments
National Studies					
Rails to Trail Conservancy North East	Rail Trail Maintenance and Operations (survey of 100 trails)	$1,500	2003	$1.936	Wide range of bike path types some maintained by volunteers
Santa Cruz County Regional Transportation Agency	Monterey Bay Sanctuary Scenic Trail-Operations and Management Plan	$8,000	2008	$8,822	Projections not actuals
City of Billings	Trail Assessment Management Plan for Billings Montana	$4,100	2011	$4,328	
Michigan Trails and Greenways Alliance Pere Marquette Trail	Statewide Greenways Maintenance Inventory and Case Studies	$4,238	2006	$4,991	Pere Marquette Trail is a 21 miles long asphalt bike path.
National Institute of Health	Cost Analysis of the Built Environment: The Case of Bike and Pedestrian Trials in Lincoln, Nebraska	$4,381	2004	$5,508	Study of five bike paths Trail lengths ranging from 1.6 to 4.6 miles.
Bay Area Agencies					
Transportation Authority of Marin	Marin County Bike Paths Maintenance Report (2007)	$10,417	2007	$11,928	9 mile bike path. Does not include overhead
East Bay Regional Parks	Iron Horse Trail (personal communication)	$25,000	2014	$25,000	40 mile bike path. Includes policing and a reserve for trail overlays and repairs
Sonoma County Regional Parks	Joe Rodota and West County Trails (personal communication)	$6,424	2013	$6,642	12.5 mile bike paths. Does not include overhead. Includes some repairs (appx.$15k)
Napa County Agencies					
Town of Yountville	Existing Vine Trail	$26,850	2013	$27,316	0.88 bike path. Includes overhead (50%+)
City of Napa Parks Dept.	Bike paths within City of Napa	$21,434	2013	$21,830	Includes overhead (50%+)

Table G-1 Notes:

Although there is a DRAFT watermark, this is the final version of the table.

Costs in this table are in 2014 dollars. These costs are inflated to 2020 dollars in the estimates provided for Fremont.

Trail Maintenance Cost Estimates

Table 10-2 presents a summary of the projected trail operations and maintenance cost for each trail corridor in the envisioned Fremont Trail System.

Low Maintenance Cost Trails

Estimate: $19,000 annually per mile

Trails that have minimal trailside elements, no landscaping, and only require basic maintenance tasks (pavement maintenance, mowing, clearing, trash pick-up, graffiti removal).

Low maintenance trails include:

- Channel trails, as they tend to have little space for amenities and landscaping.
- Morrison Canyon Road.

Medium Maintenance Cost Trails

Estimate: $23,000 annually per mile

Trails that include basic trailside elements (such as benches, trash cans, and interpretive signage) bud do not require frequent maintenance.

Medium maintenance trails include:

- Park Trails, as they have benches and trash receptacles and typically heavier use.
- Trails along roadways, such as Kato Road Trail.
- Both Hetch-Hetchy Trails, due to the expected gravel surface (per SFPUC preference). However, their wide corridors provide many opportunities for amenities, including local mini-parks.
- Parts of the Alameda Creek trail that are gravel surfaced.

High Maintenance Cost Trails

Estimate: $40,000 annually per mile

Trails that include separate bicycle and pedestrian spaces and more extensive trailside elements (such as lighting, rest areas, picnic areas, bike parking, repair stations, and landscaping) require significantly more maintenance.

High maintenance cost trails include:

- Regional trails, as they typically require more amenities and trail user separation.
- Grimmer Greenway.

Total Maintenance Cost vs. Shared Maintenance Cost

These maintenance costs reflect the higher level of operation and maintenance desired by the public and reflected in the costs derived from other agencies.

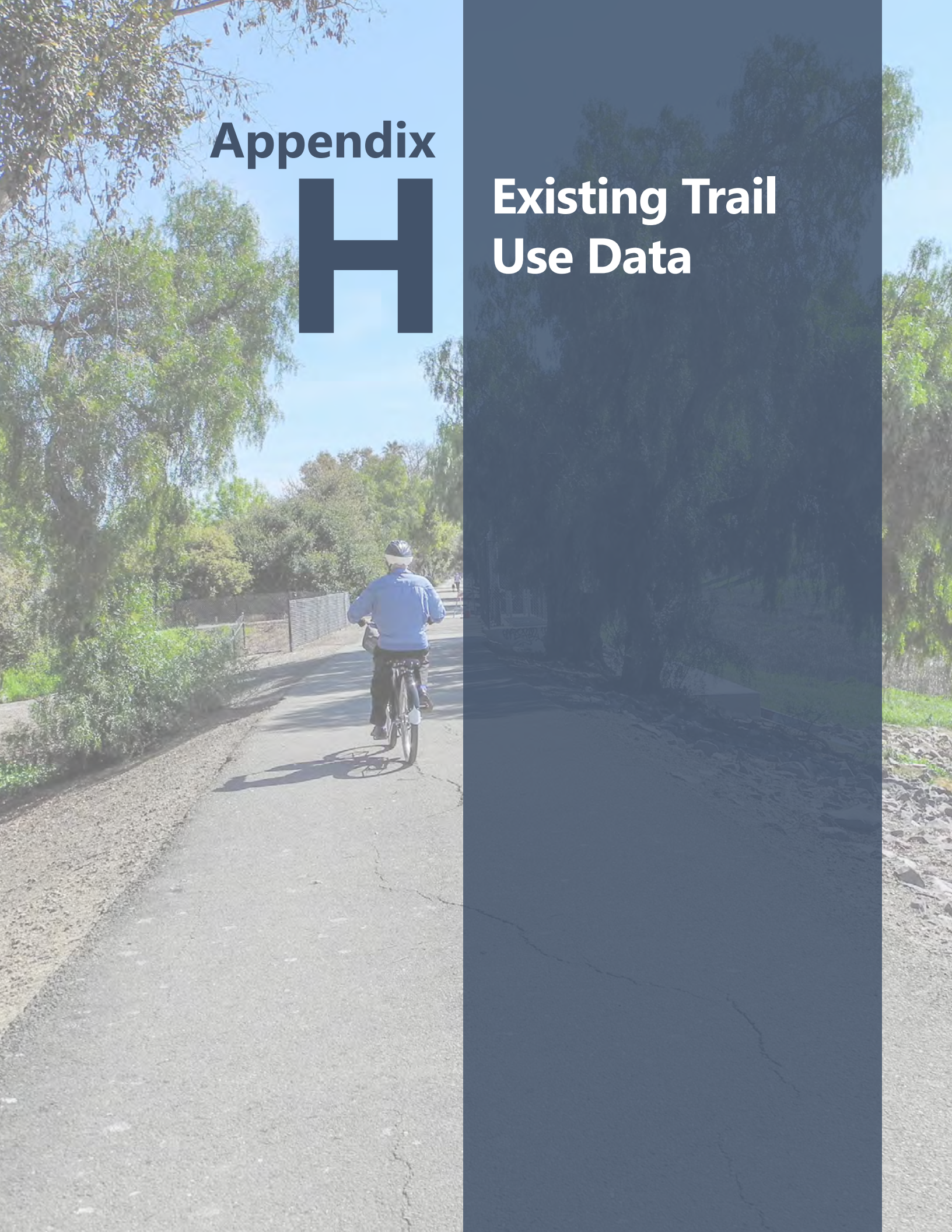
Trails that are currently maintained by Fremont are labeled so, and grouped as a total. Trails where the maintenance is "To Be Determined" (TBD) are also grouped into a total. Maintenance and operations costs were also estimated for trails that are already maintained by other agencies (i.e. EBRPD for the Alameda Creek Trail or parts of the Bay Trail), and trails that are partly maintained by developers as part of the landscape (i.e. Pacific Commons Linear Park), Also, there are at least a few segments of trail where the trail maintenance may overlap with existing roadway resurfacing or sidewalk repair budgets/projects (e.g. if the trail has a section of Class IV bikeway or Class I sidepath).

The overall operations and maintenance cost for specific corridors and the entire Fremont trail system may actually be shared by other partners, agencies and developers, and assistance from "Trail Ambassadors" reducing the overall maintenance cost for Fremont.

Table 10-2. Trail Maintenance Cost Summary

#	Corridor Name	Maintenance Entity	Total Trail Length (Miles)	Cost Per Mile Assumption	Total Cost
1	Alameda Creek Trail[1]	EBRPD	22.6	Medium	$519,800
2	Niles Canyon Trail	TBD	10	Medium	$230,000
3	San Francisco Bay Trail - In Fremont, not by EBRPD	TBD	30.5	Medium	$600,300
3	San Francisco Bay Trail - In Fremont, by EBRPD[2]	EBRPD	5.8	High	$133,400
4	East Bay Greenway	TBD	9	High	$360,000
5	Dumbarton Bridge to Quarry Lakes Trail	TBD	12	High	$480,000
6	Mission Creek Trail	City of Fremont	2	High	$80,000
7	Sabercat Historic Park Trail	City of Fremont	2	High	$80,000
8	Fremont Boulevard Channel Trail	TBD	3.8	Low	$72,200
9	Hetch Hetchy East-West Trail	TBD	4	Medium	$92,000
10	Hetch Hetchy North-South Trail	TBD	5.75	Medium	$132,250
11	PG&E Corridor & Channel Trail	TBD	1.3	Low	$24,700
12	Richmond Avenue Channel Trail	TBD	2	Low	$38,000
13	Brookvale, Cabrillo, and Patterson Park Trails	City of Fremont	1.7	Medium	$39,100
14	Northgate Trail	City of Fremont	0.75	Medium	$17,250
15	Crandall Creek Trail and Ardenwood Path	TBD	3.2	Low	$60,800
16	Farwell Linear Park	City of Fremont	0.7	Medium	$16,100
17	Lowry Neighborhood Park Trail	City of Fremont	0.6	Medium	$13,800
18	U-Channel Trail	City of Fremont	3	Low	$57,000
19	Grimmer Greenway	City of Fremont	0.4	High	$16,000
20	Irvington Neighborhood Trail	City of Fremont	0.63	Low	$11,970
21	Morrison Canyon Road	City of Fremont	1.25	Low	$23,750
22	Warm Springs BART to Milpitas Trail	TBD	3.3	Medium	$75,900
23	Pacific Commons Bicycle/Pedestrian Connection	TBD	2.6	Medium	$59,800
24	Kato Road Trail	City of Fremont	2.6	Medium	$59,800
				Total Annual Cost of Operation and Maintenance by City of Fremont	**$1,074,870**
				Total Annual Cost of Operation and Maintenance TBD	**$1,565,850**
				Total Annual Cost of Operation and Maintenance EBRPD	**$653,200**
				Grand Total	**$3,293,920**

1 The "Medium Cost Per Mile" is an average of both paved and unpaved portions of the Alameda Creek Trail.
2 The length of Bay Trail in Fremont excludes Coyote Hills Regional Park trails, Don Edwards San Francisco Bay National Wildlife Refuge trails and existing privately maintained trails between Nobel Dr and Auto Mall Auto Mall Pkwy.



Appendix H

Existing Trail Use Data

Existing Fremont Trail Use Data

Trail Counts

Trail use is typically measured by using trail counters positioned at key points along trails in question. These counters are a reliable method of determining existing trail use and analyzing trends over time. Information from trail counts can help agencies prioritize improvements and modifications to trail systems.

In Fremont, trail usage data was available at two locations along the Alameda Creek Trail (Alameda Creek Trail & Ardenwood Boulevard and Alameda Creek Trail & Isherwood Way) and at one location along the Central Park Trail adjacent to the railroad (Central Park Trail & Fremont Golf Course). Weekday counts were conducted over a 14-hour period in June 2017 and weekend counts on a day in October 2019. In general, there were a much higher number of users on the weekends than on the weekdays. However, there is still a substantial number of weekday users. Near Quarry Lakes Regional Recreational Area, the weekday count captured all park users on the south side of Isherwood Way while the weekend count only captured trail users on the north side of Isherwood Way. Similarly, the Central Park Trail weekend count captured high volumes of internal park users along the trail. **Table 1** summarizes the total numbers of trail users for all trails with count data collected in Fremont.

For reference, in 2017 the trail counts on the Guadalupe River Trail in San Jose ranged from 724 to 2,325. That same year, counts on the Los Gatos Creek Trail in San Jose ranged from 160 to 1,135. Counts on both trails were held over a 12 hour period on a weekday in September.

Based on the San Jose and Fremont trail count numbers, we can see that the existing Fremont trail network is heavily used on the weekends, but the weekday use is lighter than what might be expected for a significant regional trail. The numbers, however, could be skewed due to the proximity to the parks and the time of year the counts were conducted.

Table 1. Trail Usage Data

Location	Trail Location	Surface Material	Weekday Counts			Weekend Counts		
			Bicyclists	Pedestrians	Total Weekday Count	Bicyclists	Pedestrians	Total Weekend Count
Alameda Creek Trail & Ardenwood Boulevard (Near Coyote Hills Regional Park)	North side	Gravel	40	64	**104**[1]	428	446	**874**[4]
	South side	Paved	282	76	**358**[1]	551	399	**950**[4]
Alameda Creek Trail & Isherwood Way (Near Quarry Lakes Regional Recreation Area)	East side	Gravel	76	1086	**1162**[2]	115	904	**1019**[4]
	West side	Paved	221	124	**345**[2]	88	377	**465**[4]
Central Park Trail & Fremont Golf Course (Near rail crossing)	-	Paved	29	250	**279**[3]	254	3139	**3393**[4]

Note: (1) Counts conducted on Friday, June 23, 2017 for 14 hours; (2) Counts conducted on Wednesday, June 28, 2017 for 14.5 hours adjacent to the park on the south side of Isherwood Way and may represent park users rather than through trail users; (3) Counts conducted on Friday, June 30, 2017 for 14.5 hours; (4) & (5) Counts conducted on Sunday, August 19, 2018 for approximately 14 hour period.

Strava Data Bicycle and Pedestrian Use Maps

Strava is a phone app that is popular with recreational cyclists, runners, and hikers to record the routes that they ride, run, or walk. These maps can be helpful in understanding the relative popularity of routes, as well as identifying unofficial routes that might benefit from improvement.

Strava aggregates the user-recorded route data and uses the data to generate "heat maps" that show route popularity. These heat mats are then made available to transportation agencies for planning purposes. The spectrum of higher use is from red to purple, and lower use is from yellow to orange. The actual user counts are not available — only the relative levels of use on routes. The data shown is for the two-year period from October 2018 through September 2020.

Note that the data shows use of both official and non-designated unofficial routes and connections. Note also that the maps presented below only show use from Strava App users. This is not necessarily reflective of overall demand for walking or biking.

Bicycle Map Routes Relative to Trail Network

The map on the following page shows the bicycle route heat map for Fremont and the surrounding vicinity. The south side of the Alameda Creek Trail is the most popular bike route that lines up with an existing trail. The north side is less popular because parts are not paved. Other popular trails include: trails in the Coyote Hills Regional Preserve and the adjacent parts of the Bay Trail; the trail segment in Ardenwood Regional Preserve (accessed by on-street routes); the existing portion of the East Bay Greenway in the former UPRR right-of-way; trails in Fremont Central Park around Lake Elizabeth; trails in Quarry Lakes Regional Recreation Area; and the Sabercat Trail.

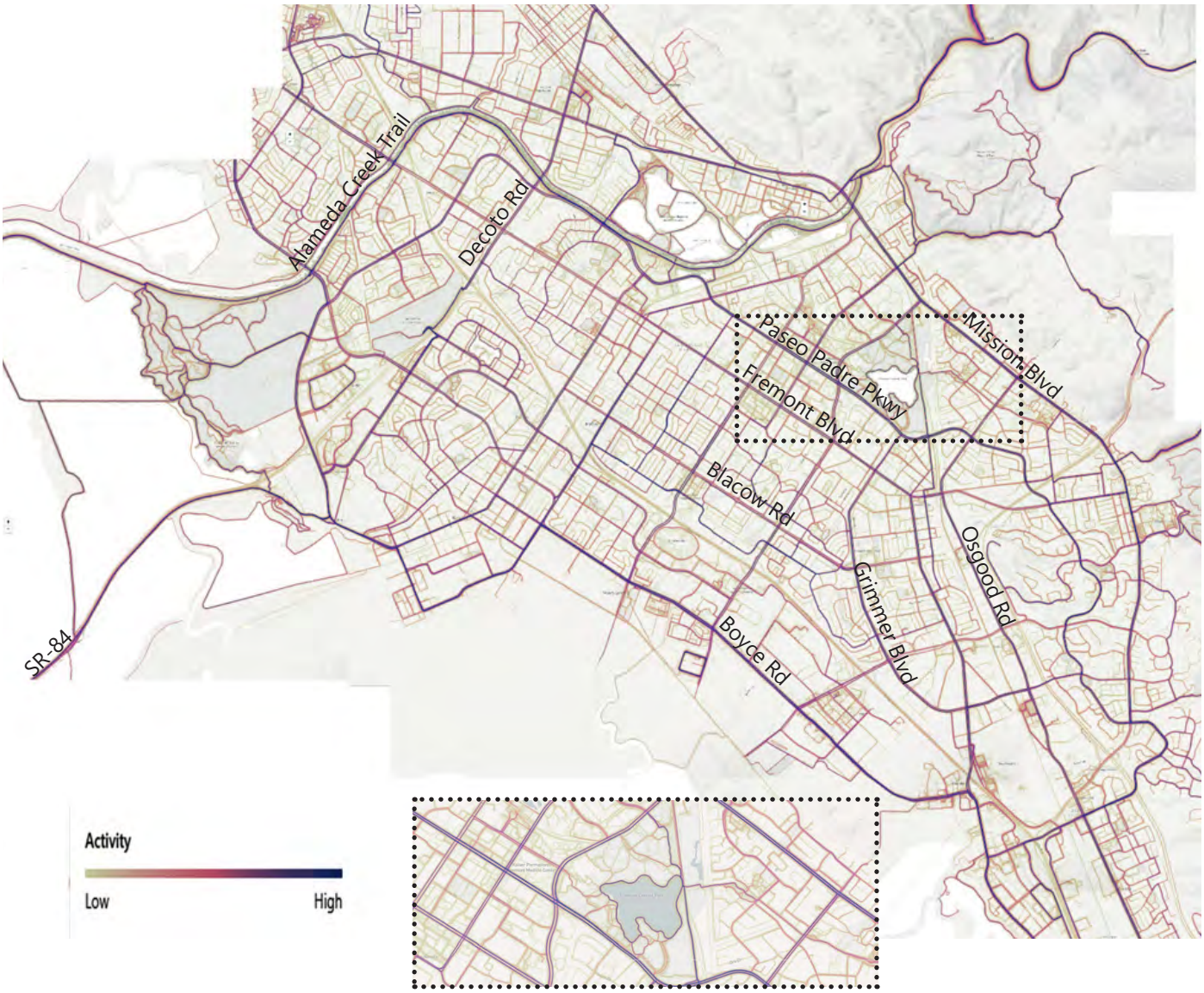
On-street routes that see very high levels of bicycle use include Mission Boulevard/Highway 238, Alvarado-Niles Road, Farwell Drive, and the on-street portions of the Bay Trail along Boyce Road, Paseo Padre Parkway, Fremont Boulevard, Central Avenue, Eggers Drive, and Thornton Avenue/Highway 84. Also popular are Quarry Lakes Drive/Isherwood Way, Grimmer Boulevard, and Osgood Road.

One notable non-designated route that sees high bicycle use (and nearly as high pedestrian use) is the route through the Fremont park Golf Club. This is a proposed route, but not yet a designated route (see above).

Based on the popular on-street routes, the completion of the East Bay Greenway, the Richmond Avenue Channel Trail, the Hetch Hetchy East-West Trail, and the Hetch Hetchy North – South Trail would promote bicycle travel.

Routes in the hills that see high levels of bicycle use include Niles Canyon/Highway 84, Morrison Canyon Road, Vargas Road, trails up into Vargas Plateau Regional Park, and Mill Creek Road.

Strava Bicycle Route Heat Map



Excerpt from Strava Bicycle Heat Map

Strava Pedestrian Route Heat Map

Pedestrian Routes Relative to the Trail Network

The map below shows the pedestrian route heat map. For pedestrians, both sides of the Alameda Creek Trail are popular, particularly east of the Nimitz/I-880 Freeway. Trails in Coyote Hills Regional Park, Quarry Lakes Regional Recreation Area, and Fremont Central Park, particularly the loop around Lake Elizabeth, are popular with walkers. The Mission Creek, Sabercat and Brookvale, Cabrillo and Patterson Park trails, and Farwell Linear Park are frequently-used.

Popular on-street routes include Commerce Drive, which leads to Coyote Hills Regional Park; Ridgewood Drive, which is adjacent to Ardenwood Regional Preserve; Thornton Avenue and Marshlands Road, which lead to trails in the Don Edwards San Francisco Bay National Wildlife Preserve and are part of the Bay Trail; and Palm Avenue, which connects to the Mission Creek Trail. Paseo Padre Parkway, Eggers Drive, Blacow Road, Stevenson Boulevard, and Grimmer Boulevard are also popular pedestrian routes.

Based on these popular on-street routes the completion of the Dumbarton Bridge to Quarry Lakes Trail, the East Bay Greenway, the Richmond Avenue Channel Trail, the Hetch Hetchy East-West Trail, the Hetch Hetchy North - South Trail, the gap closure in the Mission Creek Trail, and the bridge over I-680 connecting to the Sabercat Trail would particularly facilitate pedestrian travel.

In the hills, Mill Creek Road connecting to the Ohlone Trail and Ohlone College is a popular route, as are the trails into Vargas Plateau Regional Park and Mission Peak Regional Preserve.

Appendix I

Trail User Guidance and Liability

Contents

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Trail User Guidance, Conflict Solutions, and Liability

This appendix starts with a discussion of **Trail User Guidance and Conflict Solutions** and reviews common underlying factors that contribute to trail conflicts and provides design and operational strategies to help mitigate or avoid them. A section on **Liability** and related laws follows.

Trail User Guidance and Conflict Solutions

Conflict between trail users arises when there are incompatible trail uses that lead to crashes or near misses. Providing balanced trail design and operations can help avoid conflict among users with different characteristics or trip purposes

The local desire for proactive trails conflict management has been highlighted recently on Fremont's Cabrillo Trail and Sabercat Historic Park Trail. Respondents to the online survey question about local trail issues also ranked addressing potential conflicts among trail users as the fourth most important issue.

This section reviews common underlying factors that contribute to trail conflicts and provides design and operational strategies to help mitigate or avoid them.

Crissy Field multi-use trail with centerlines, San Francisco

Why do conflicts occur on trails?

Trails often serve multiple trip purposes: recreation, socialization, and active transportation. They also serve a variety of trail user types, including bicyclists, e-bicyclists, scooter riders, and pedestrians of all ages and abilities. Heavily-used trails often feature crowding that can contribute to conflicts between different trail users.

Bicyclists (and other micromobility users such as e-bicyclists and scooter riders) typically travel between approximately seven and fifteen miles per hour, depending on fitness, trip purpose, and ability. Additionally, bicyclists may reach excessive speeds on downhills or long straight stretches without intending to.

Meanwhile, pedestrians typically travel more slowly, between one and three miles per hour, or slightly faster if jogging.

Groups of bicyclists or pedestrians traveling together tend to naturally spread out across a trail's full width to facilitate social interaction, which can cause conflicts with users approaching in the opposite direction or in the same direction at a different speed.

Children also tend to wander across the full width of a trail (whether traveling by bicycle, scooter, or as pedestrians), and their movements can be difficult for other trail users to predict, posing a challenge for conflict avoidance. If allowed on a trail, dogs can also contribute to conflicts by wandering across a trail.

How can conflicts be avoided?

Conflicts on trails are primarily a function of the design of the facility and the volume of users across different trip purposes and design profiles. Therefore,, like any multimodal transportation facility, designs should be context sensitive and accommodate projected use over time (designing the trail for anticipated use).

Providing a wide trail (e.g. 15 feet or greater) or separating micromobility and pedestrian pathways along a parallel alignment (using continuous horizontal or vertical separation) is a generally recommended approach to help ensure a more comfortable experience for everyone and prevent conflicts between trail users. Assessing the anticipated volumes of trail users at different times of day and days of the week can help determine the necessary width or need for horizontal or vertical separation among modes (i.e. pedestrians and micromobility riders such as bicyclists, e-bicyclists, and/or scooter users), based on the corresponding Shared Use Path Level of Service.[1] This is especially important when volumes are high, for example, near existing or proposed high-density residential or commercial land uses.

1 See, e.g. FHWA Shared Use Path Level of Service Calculator, Appendix C, for look-up tables of recommended trail widths with different combinations of pedestrian and bicyclist volumes.

More nuanced design treatments like material changes, color changes, painting or pavement markings (such as edge lines, centerlines, and directional symbols), art, and signage should also be considered to inform the preferred design strategy, as they can provide important design cues to trail users that help to naturally manage conflicts without the need for active and ongoing supplemental intervention.

Design options recommended in national best practice (e.g. AASHTO Bike Guide) to manage conflicts between trail users, like trail widening or providing separate bicyclist and pedestrian facilities, may have a bigger impact than attempting to influence user behavior through speed limits or education.

Where constrained trail corridors prevent such design approaches, there are also a variety of operational approaches that can help avoid conflicts on trails. For example, robust communication and education efforts built into the management of the trail network can foster ongoing dialog between the various user groups — a friends of the trails group can work well in this case.

The following recommendations for trail design, user norms and guidance, and coordination with trail user groups is based on research of Bay Area and national practices.

Walkers enjoy separate, dedicated space for then, while avoiding conflicts with faster bicycles at Benicia State Park.

Recommendations: Physical Design

Especially for popular trails with high volumes of existing or projected pedestrian users, separate facilities for pedestrian and micromobility users is ideal.

This is the goal for Fremont's Regional typology trails. In some constrained locations, enough width is not available for separate pedestrian and micromobility trails. For example, the width of a levee, rail corridor, or topographic constraints can preclude having separate facilities. In these cases, a shared use trail may be necessary.

Design elements that help reduce conflicts between users include:

- The widest possible paved trail (e.g. 15 feet or greater).
- Designated micromobility and pedestrian portions separated by continuous horizontal or vertical elements, striping, and/or different colored pavement.
- Centerline striping on the bicycle portion — implies that it is designated for higher speed use
- Use curves or horizontal deflection, tactile feedback (rough surfaces), and pavement markings to manage bicycle speeds. Note that recommendations call for a 15 MPH maximum speed limit, but most bikes or bicyclists do not have a speedometer, so physical design and sign warnings to slow can be more effective.
- Improve soft surface shoulders to encourage runners, walkers, and dog walkers to stay to the side of the trail. Ideally the shoulder surface will be relatively firm, stable (not rough base rock), and wide to accommodate wheelchairs and walkers, and to be comfortable for people and dogs to walk on.
- Provide adequate sight lines (at least 150 lineal feet ahead) so bicyclists and pedestrians can see each other in advance.
- Where sight lines are not possible, such as at an undercrossing or a curve around a steep hill, a "blind driveway" mirror may help.
- Avoid sharp corners and steep gradients. The Caltrans Highway Design Manual has maximum slopes and minimum radii for Class I multi-use trails (see **Chapter 7, Trail Typologies and Design**). Often it isn't feasible to maintain these radii in a constrained setting, but using the maximum practical radius will help reduce conflict.
- Smooth transition on and off the street and sidewalk system to the trail, and between different trail configurations (separated, shared use, etc.). **Chapter 8, Trail Improvement Recommendations** goes into detail about these connections and transitions
- Ensure access for maintenance vehicles, which could be a separate gate if the divided entry prevents vehicle access.

Trail mirror at path under the Golden Gate Bridge provides additional safety where adequate sight lines are not possible.

Recommendations: User Norms and Guidance

- Consider a posted speed limit (typically 15 mph), and norms and signage regarding use and speed of E-bikes (see **Appendix D, Policy Review and Recommendations**)
- Have signage that clarifies purpose of separate facilities, and encourages use of a portion of shared use trails — i.e. the shoulder for pedestrians
- Consider equity implications of these decisions (e.g. the likelihood of inequitable enforcement leading to disparities in trail access).
- Consider the needs of people with limited English proficiency (e.g. multilingual signs or universal design using symbols) and trail users with vision disabilities (guidance may be accomplished through physical design cues)
- Have an organized trail identification and wayfinding system (see **Chapter 9, Trailside Elements**)
- Have signage regarding trail courtesy and yielding (i.e. “wheels yield to heels” for trails with no horses)
- Have norms and signage regarding trail access, control of, and cleanup for dogs.
- Have a brochure, social media, and website information that clarifies rules and etiquette — ideally multi-lingual
- Promote education through an affiliated support group and the trail manager. Bringing users together early and often can mitigate many conflicts.
- Organize meetings and volunteer maintenance events that include different user groups and facilitate dialogue between them.
- Form and support a volunteer trail patrol and volunteer maintenance group (see **Appendix G, Operation and Maintenance Detail** for examples and more detail)

Recommendations: Deaf and Blind Community User Norms and Guidance

The California School for the Deaf and the California School for the Blind are located north of Central Park in Fremont. Both deaf and blind trail users benefit from wider trails or separation of bikes and pedestrians. Because hearing loss is an "invisible" disability, deaf trail users report being harassed by faster moving trail users for a perceived lack of response to their approach. Providing wider trails and/or separation of users can reduce these conflicts by giving adequate space for all users.

As a secondary measure, signs may be helpful to alert trail users to the presence of deaf and blind trail users. These signs would ask faster moving trail users to slow down and avoid passing close to other users.

Clarity of the trail system and guidance for safe use should also be provided to the deaf and blind trail users via both visual and audible notices, and both visual and audible crossing signals.

Multilingual trail guidelines (Toole Design)

Liability

Public entities and private landowners must know the legal responsibilities, laws, and strategies associated with developing and maintaining trails.

Liability Overview

One concern for potential trail operators, trail landowners, and nearby landowners is the whether they may be legally responsible (liable) for activities on or near the trail. The good news is that state and case law both clearly indicate that landowners and trail operators are generally protected from liability for trail use, with some specific exceptions, and that there are common-sense ways to reduce risks.

There are three types of individuals or organizations that are typically concerned about such liability: the entity that operates the trail; the entity that owns the trail property; and the adjacent landowners. These entities are typically concerned about three types of risks: injury to individuals, vandalism, and trespassing. Slightly different laws apply whether the entity is a private individual, public agency, or private business, but the resulting protection is generally the same.

In all cases, individuals or organizations that operate a trail, own trail property, or own property adjacent to a trail should seek legal advice specific to their situation.

California State Law

Liability for injury or other harm on any portion of a trail will be regulated by several existing California laws. California laws, also called statutes, are organized into 29 codes which cover specific subject areas.

Recreational trail use is addressed in several sections of codes, including (but not limited to):

- California Government Code Sections 830.6, 831.2, 831.4, 831.7, 835, 846, 14662.5 and 51238.5
- California Civil Code Sections 813, 846, 846.1, 1006, 1007, 1008, and 1009
- California Public Resources Code Section 5075.4
- California Code of Civil Procedure Sections 128.7 and 1038

Broad legal protection for landowners with trails on or near their property is provided by state laws and statutes, including California Civil Code Section 846, known as the California Recreational Use Statute (RUS), and the California Recreational Trails Act (Public Resources Codes Article 6, Section 5070 – 5077.8). which requires the Director of California State Park to develop and maintain a "comprehensive plan for the development and operation of a statewide system of recreation trails." Section 5075.4 of the Recreational Trails Act states that "No adjoining property owner is liable for any actions of any type resulting from, or caused by, trail users trespassing on adjoining property, and no adjoining property owner is liable for any actions of any type started on, or taking place within, the boundaries of the trail arising out of the activities of other parties." California's RUS and the Recreational Trails Act potentially offset some or all of a private landowner's increased liability associated with a trail.

Duty of Care

Duty of Care is a term used to describe how responsible one entity may be for injuries caused to another entity or individual. For trail purposes, this term refers to how much liability (responsibility) the trail operator or landowner has for injuries that occur on or near the trail. A higher duty of care indicates more potential responsibility for any injuries.

In most states a landowner or trail operator has varying levels of responsibility depending on how the injured party accessed the trail (as a trespasser, licensee, invitee, etc.). However, in California, the law has typically been interpreted that the duty of care is the same regardless of how the injured person accessed the property. Rather, the trail operator or landowner has generally not been found liable except when they willfully or maliciously failed to guard against a dangerous condition;, the injured person paid to use the trail;, or there was a specific invitation for use. These exceptions are covered in detail in California Civic Code Section 846, also known as the Recreational Use Statute (RUS), and in California Government Code Section 835, which pertains to agency awareness of a hazardous condition and failure to act to protect against it..

Indemnification

Indemnification is a term for a guarantee against potential liability or loss experienced by another individual or entity. In trail development, indemnification refers to the situation in which one entity (typically a government agency or non-profit) assumes the responsibility for injury or harm that occurs on a trail managed and/or owned by another individual or entity. In California a state agency or county non-profit organization may agree to take responsibility for injuries or loss occurring on trails on or near private property, therefore encouraging and supporting public trail development while reducing potential liability for private landowners.

Risk Reduction Strategies

There are some simple, common-sense strategies that can reduce risks to trail operators and landowners. These include proper trail planning, design, operation, and maintenance. Successful risk reduction also requires public awareness, through published rules, guidelines, and signage.

Trail Planning and Design

Following standard trail best practices when planning and designing the trail will go a long way in reducing the potential for injury to trail users. General design guidelines are developed by national organizations, such as the American Association of State Highway and Transportation Officials (AASHTO) and the National Association of City Transportation Officials (NACTO). State guidelines and standards are issued by Caltrans, including the California version of the Manual on Uniform Traffic Control Devices (CAMUTCD). Local agencies, such as cities and counties, typically adopt the Caltrans guidelines and standards as is, or with slight modifications. These guidelines and standards pertain to paved, transportation-oriented trails. Recreational trails, especially unpaved trails, have fewer clear standards, but the U.S. Forest Service publishes planning and design standards and details for them, as does California State Parks, and many regional park and open space agencies.

Privacy, safety, security and liability issues are often affected by the setting of the trail. Given the sensitivity of these issues, alternative alignments that buffer the trail from private land uses should be developed when feasible.

Operation and Maintenance

Possible operation and maintenance strategies to improve public safety and mitigate liability include implementation of a safety program, implementation of an emergency response protocol, implementation of a management system data base, implementation of a trail user education program, conducting routine trail inspections, posting and enforcing safe trail behavior, and trail maintenance and vegetation management.

Provision of adequate operation, maintenance, and emergency response is essential to minimize trail user safety issues. The trail will require maintenance to address deterioration due to weather or general use. Patrol and maintenance will be required to prevent and address potential problems such as damage to signs, litter, and graffiti; travel at unsafe speeds; mismanaged pets; or unauthorized motor vehicles on the trail. Operations and maintenance activities will require staff, equipment, and the associated funding. Each trail segment or project should have a specific operations and maintenance plan that identifies tasks, responsible parties, sources of funding and support.

Entities responsible for trail construction should fund or endow operations and maintenance activities in conjunction with implementation of any specific trail plan.

Developing and following a written maintenance plan is another important strategy for reducing potential risks. The plan should include details for how trail inspection, record keeping, inventory of potential hazards, and emergency response procedures. The trail operator would be responsible for developing and implementing the plan, but the property owner (if different than the trail operator) should review the plan and confirm that the plan is in place and being followed.

Public Information

Clear and consistent published rules, guidelines, and signage is a third important strategy for reducing potential risks. Using a combination of words and graphics to convey only the most important information is key — signage fatigue, visual clutter, and language barriers can reduce the impact and effectiveness of the signs. Key information includes permitted and prohibited uses; trail use behavior guidelines; potential hazards; permanent and temporary closures; and emergency contact

information. Signs should be posted at the trail entry and at the location of the hazard (along with physical barriers), where appropriate.

Insurance and Waivers

Insurance and waiver forms are also typical components of risk reduction strategies, although they do not reduce the future risk of injuries, only the risk of financial losses due to injuries.