



CITY OF HALF MOON BAY BICYCLE AND PEDESTRIAN MASTER PLAN

Approved - September 2019



Half Moon Bay

Bicycle and Pedestrian Master Plan

Approved - September 2019

Acknowledgements

City of Half Moon Bay

Bicycle and Pedestrian Advisory Committee

Elizabeth Brown
Michelle Dragony
Adrienne Etherton
Paul Gater
Bill Murray
Mario Rendon
Carlene Foldenauer
Paulette Eisen
Max Paik
Steve Ruddock

Planning Commission

Brian Holt, Chair
James Benjamin, Vice Chair
Rick Hernandez
John Evans (former)
Les Deman (former)
Steve Ruddock
Sara Polgar

City Council

Harvey Rarback, Mayor
Adam Eisen, Vice Chair
Deborah Penrose
Rick Kowalczyk (former)
Debbie Ruddock
Robert Brownstone

City Staff

Carol Hamilton, Project Manager, Senior Planner
Scott Phillips, Associate Planner
Jill Ekas, Community Development Director
John Doughty, Public Works Director
Maziar Bozorginia, City Engineer

Alta Planning + Design

Hugh Louch, Principal
Dara O'Byrne, Project Manager, Planning Associate
Lola Torney, Senior Planner
Grace Stainback, Planner
Lisa Schroer, GIS Specialist

Table of Contents

1. Introduction and Background	1-1
Introduction.....	1-1
Background.....	1-1
Relationship to Other Plans.....	1-11
Community Involvement in Development of the Master Plan.....	1-14
Chapter Summary.....	1-16
2. Existing Conditions	2-1
Existing Bicycle Network.....	2-1
Existing Pedestrian Network.....	2-3
Connections to Adjacent Jurisdictions.....	2-4
Collision Analysis.....	2-7
Chapter Summary.....	2-11
3. Recommendations	3-1
Key Themes.....	3-1
Project Recommendations.....	3-3
Program Recommendations.....	3-38
Chapter Summary.....	3-44
4. Implementation	4-1
Prioritization.....	4-1
Cost Estimates.....	4-5
Funding Strategy.....	4-6
Maintenance.....	4-7
Small-Scale Projects.....	4-8
Implementation Strategy.....	4-12
Chapter Summary.....	4-14
Appendix A. Related Plans and Policies	A-1
Appendix B. Community Outreach and Engagement	B-1
Appendix C. Detailed Needs Analysis	C-1
Appendix D. Project Recommendations	D-1
Appendix E. Funding Sources	E-1

INTRODUCTION AND BACKGROUND

CHAPTER

1



1. Introduction and Background

Introduction

The Half Moon Bay Bicycle and Pedestrian Master Plan (BP Master Plan) guides the development of programs and facilities to enhance bicycling and walking as practical, efficient, and safe transportation choices for Half Moon Bay residents, workers, and visitors. This BP Master Plan provides recommendations to improve safety, comfort, and connectivity of the bicycle and pedestrian networks in Half Moon Bay.

Purpose

This BP Master Plan identifies needs and prioritizes improvements to the City of Half Moon Bay's pedestrian and bicycle facilities and programs. Building off existing infrastructure and current safety issues, the master plan recommends improvements to address current and future demand based on current conditions and anticipated infill development. This BP Master Plan provides a blueprint for the City to implement a complete bicycle and pedestrian network, but it will take time. The master plan also provides the City with the necessary tools to apply for grant funding for implementation. The BP Master Plan should be revised over time as new conditions and opportunities arise.

Background

Project Setting

The City of Half Moon Bay is located along the northern California coast, with beautiful beaches, open bluffs, and forested hills. The City is comprised of residential neighborhoods, a historic downtown, and a combination of agriculture and open space that help the community retain its rural heritage. Half Moon Bay is physically near the Bay Area's economic centers in San Francisco and the Peninsula, but feels relatively remote from the rest of the Bay Area due to its coastal setting and separation from the urbanized San Francisco Bay side of San Mateo County by the Santa Cruz Mountains.

The scenic setting, downtown amenities, and recreational opportunities make Half Moon Bay an attractive destination for tourists year round. The coast is a major destination for residents and visitors alike. The California Coastal Trail runs north-south along the coast and provides bicycle and pedestrian access to the beach at several locations. Highway 1 runs north-south through the center of the city and is the main connection for neighborhoods located on either side of the highway. Due to significant vehicle gridlock during weekday and weekend peaks, Highway 1 acts as a barrier to cohesive east-west connections from downtown to the coast. Highway 92 runs east-west through the center of the city and connects to the other communities along the San Francisco Bay Peninsula to the east.

The City has limited future opportunities for transit expansion and environmental constraints limit growth. With a relatively small geographic size and generally flat topography, there is great opportunity for improving circulation through the bicycle and pedestrian networks. Making it easier and safer for residents to walk and bike in Half Moon Bay will also create the same opportunity for visitors, allowing visitors to park once and then walk or bike around the City without a car.

Land Uses

Half Moon Bay contains a mix of urban and undeveloped or rural land uses. Vacant land and agricultural, open space, and residential uses are dominant. Large tracts of land are used for agricultural, nursery and greenhouse operations around the edges of the city and along Highway 92. A greater diversity of land uses is found near the City's downtown core, including commercial and mixed uses, institutional uses, as well as residential, and parks. **Figure 1-1** shows the breakdown of existing land uses, from the Land Use Element of the General Plan.

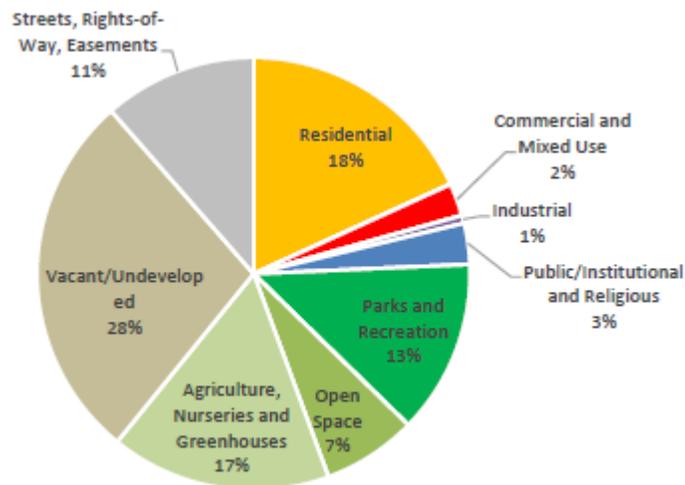


Figure 1-1: Existing Land Use in Half Moon Bay

Figure 1-2 shows the future proposed land uses, copied from the draft Local Coastal Land Use Plan and General Plan.

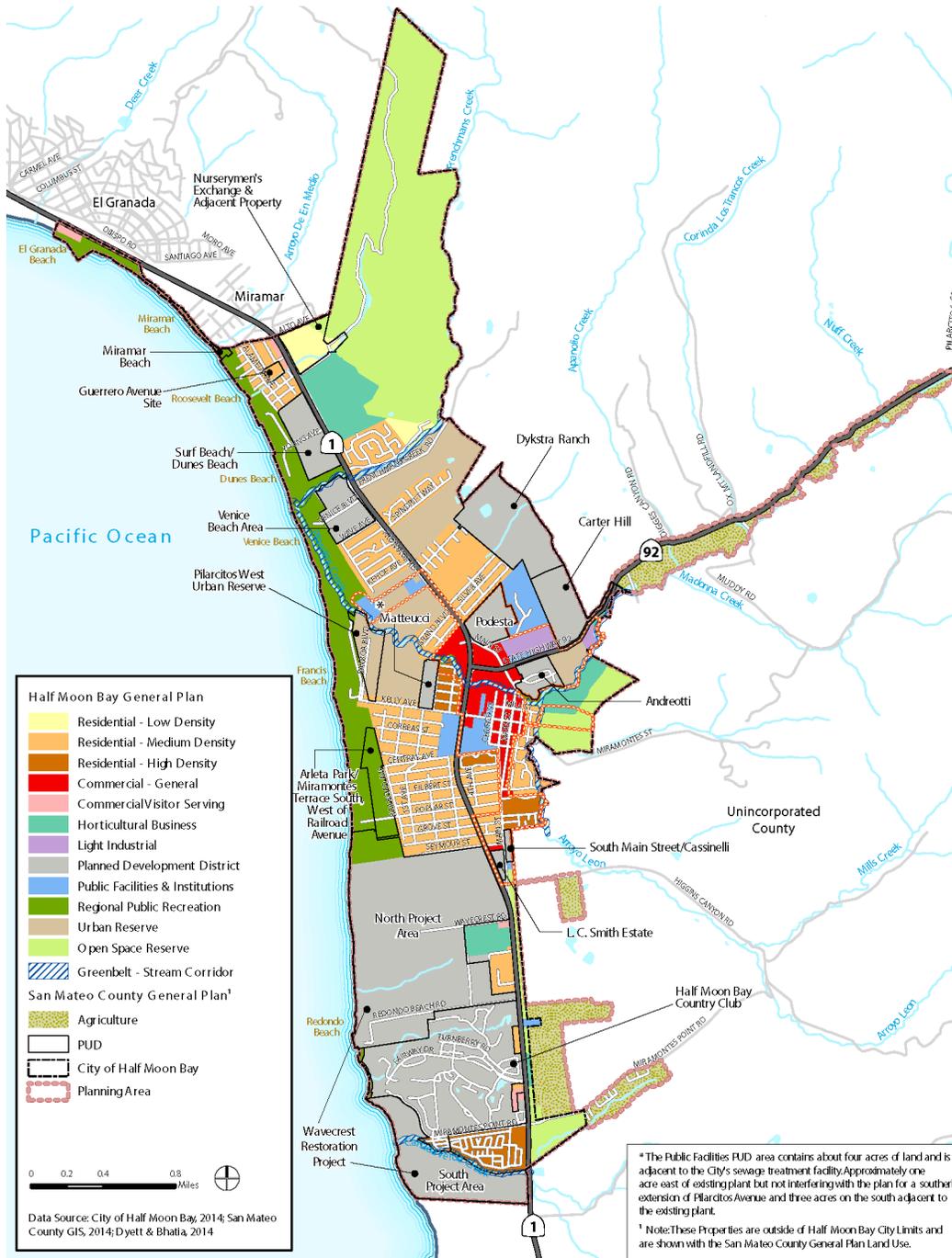


Figure 1-2: Land Use Map in effect at time of Plan adoption.

Activity Generators

Major activity generators include the coast/beaches, schools, downtown, shopping centers, and parks. The following figures show these destinations that community members most commonly visit and where bicycle and pedestrian access should be

prioritized. The buffer zones shown around each destination provide typical walking distances around each destination.

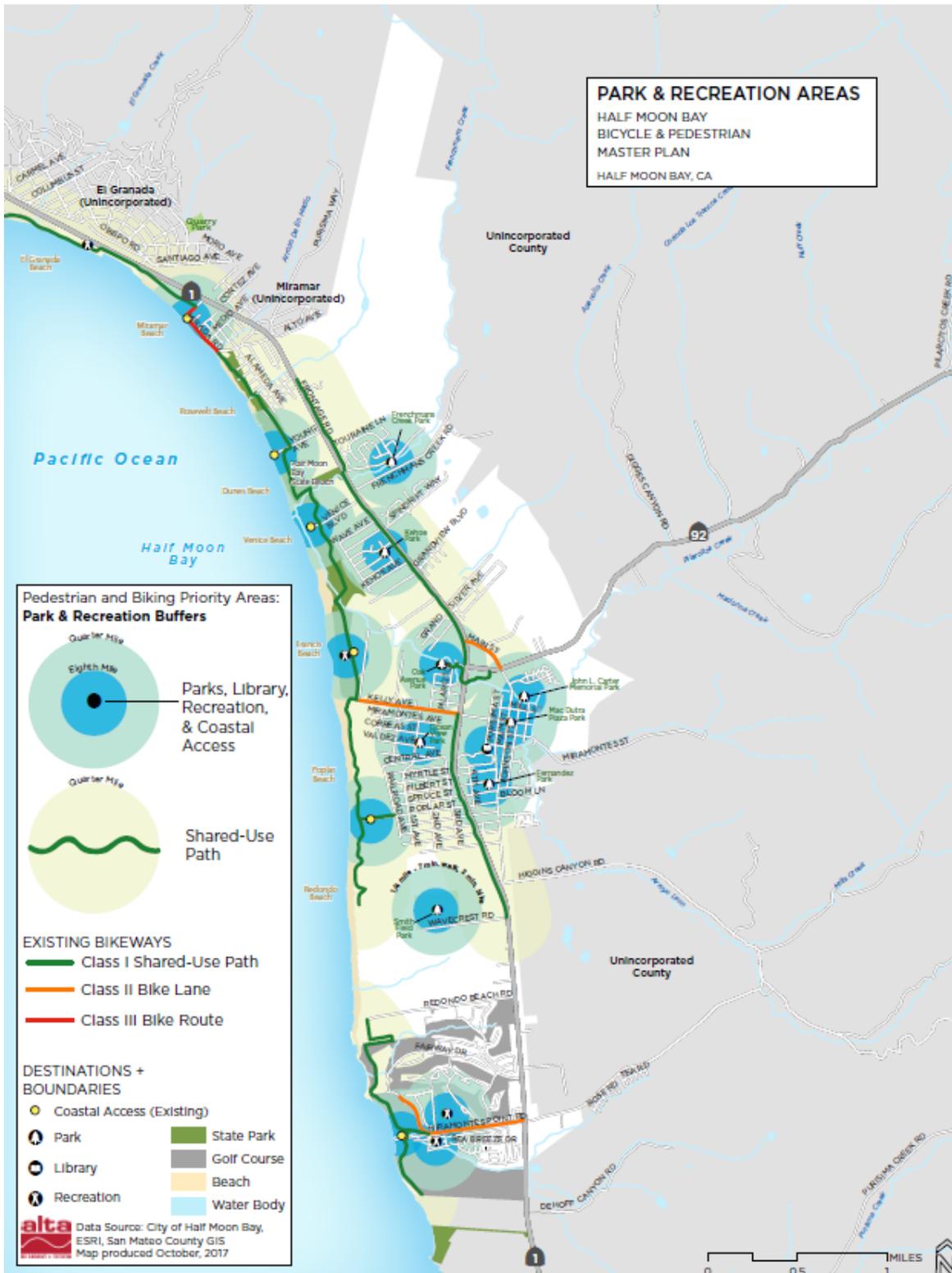


Figure 1-3: Parks and Recreation Areas

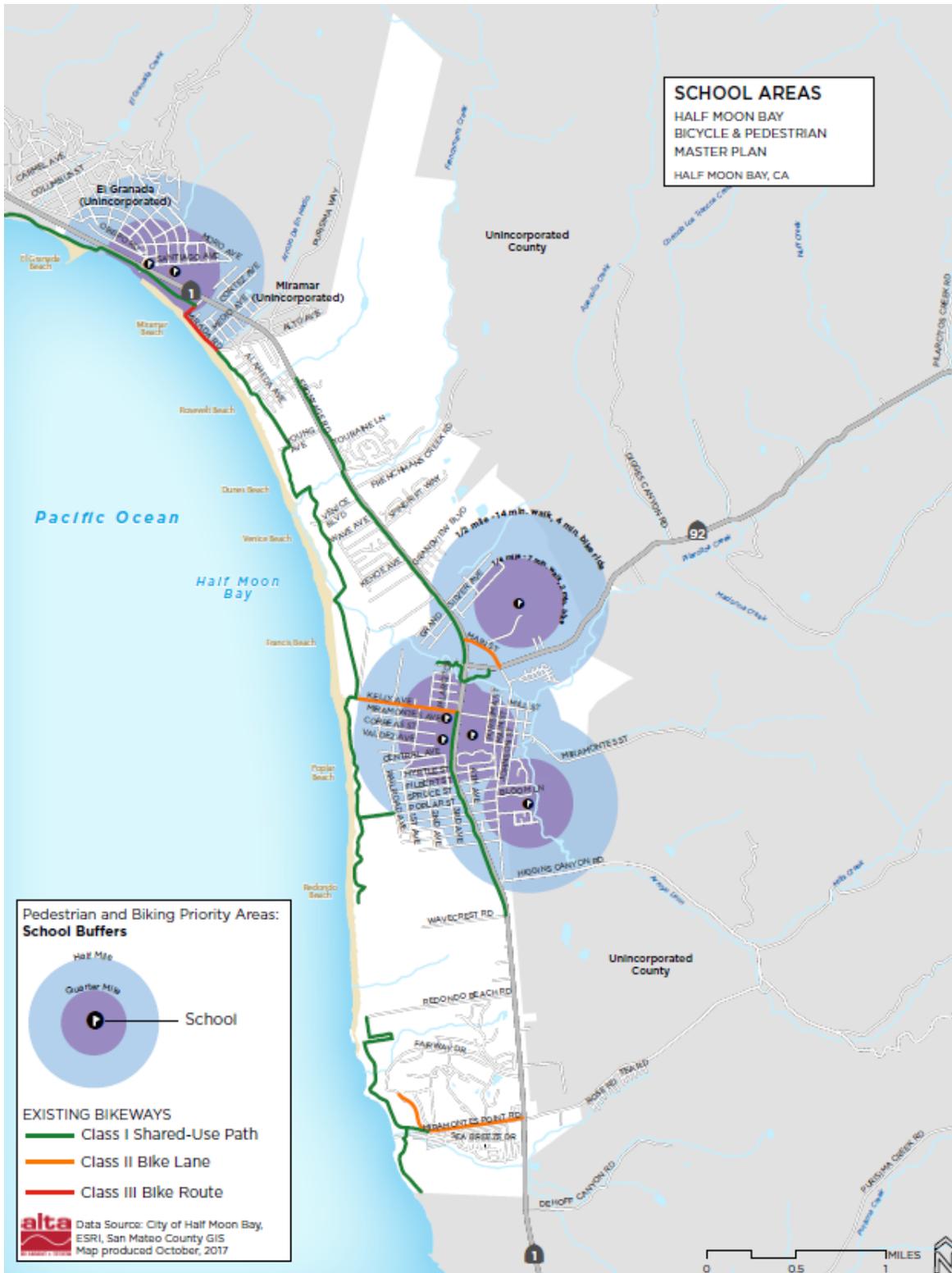


Figure 1-4: School Areas

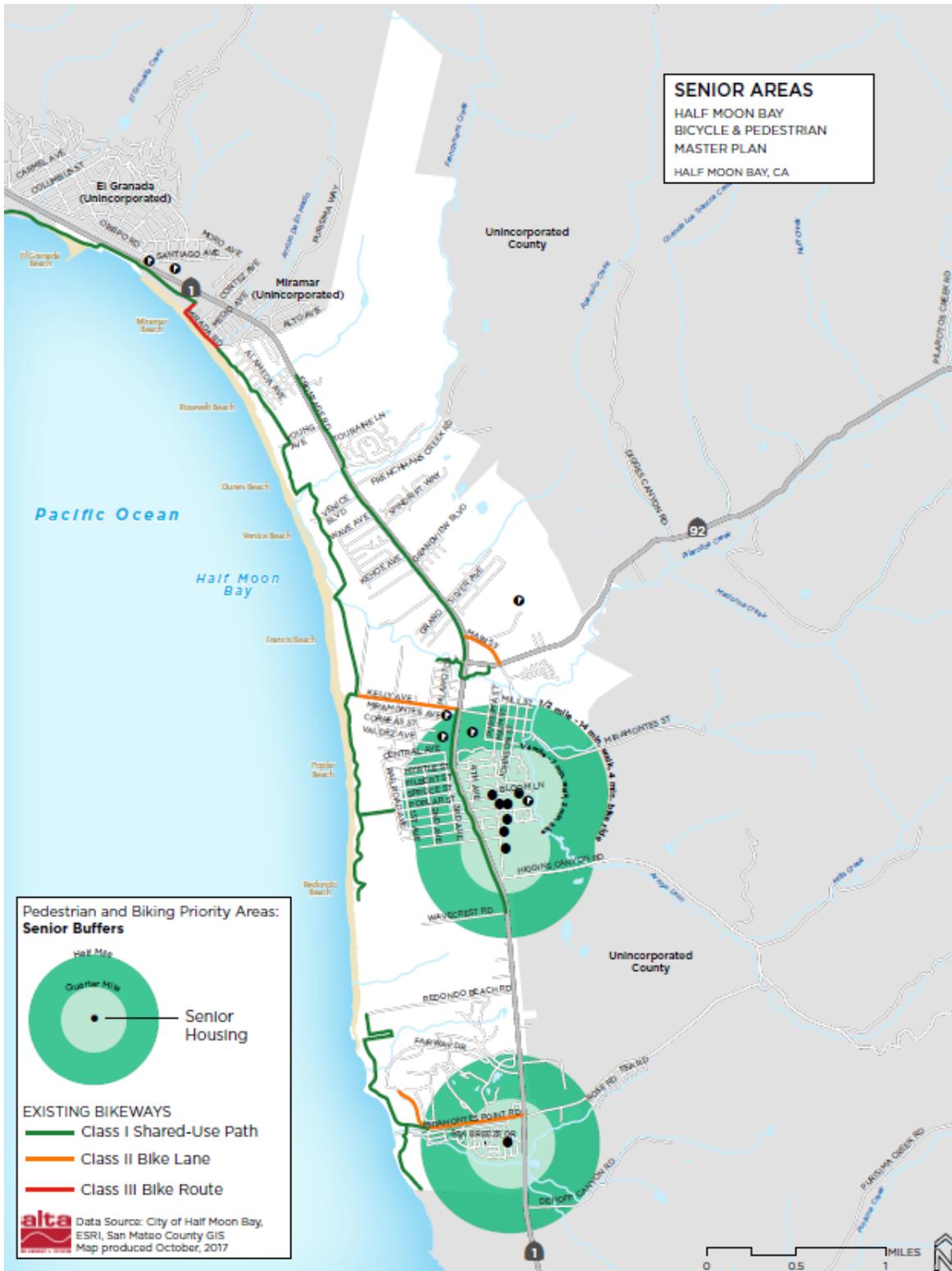


Figure 1-5: Senior Housing Areas

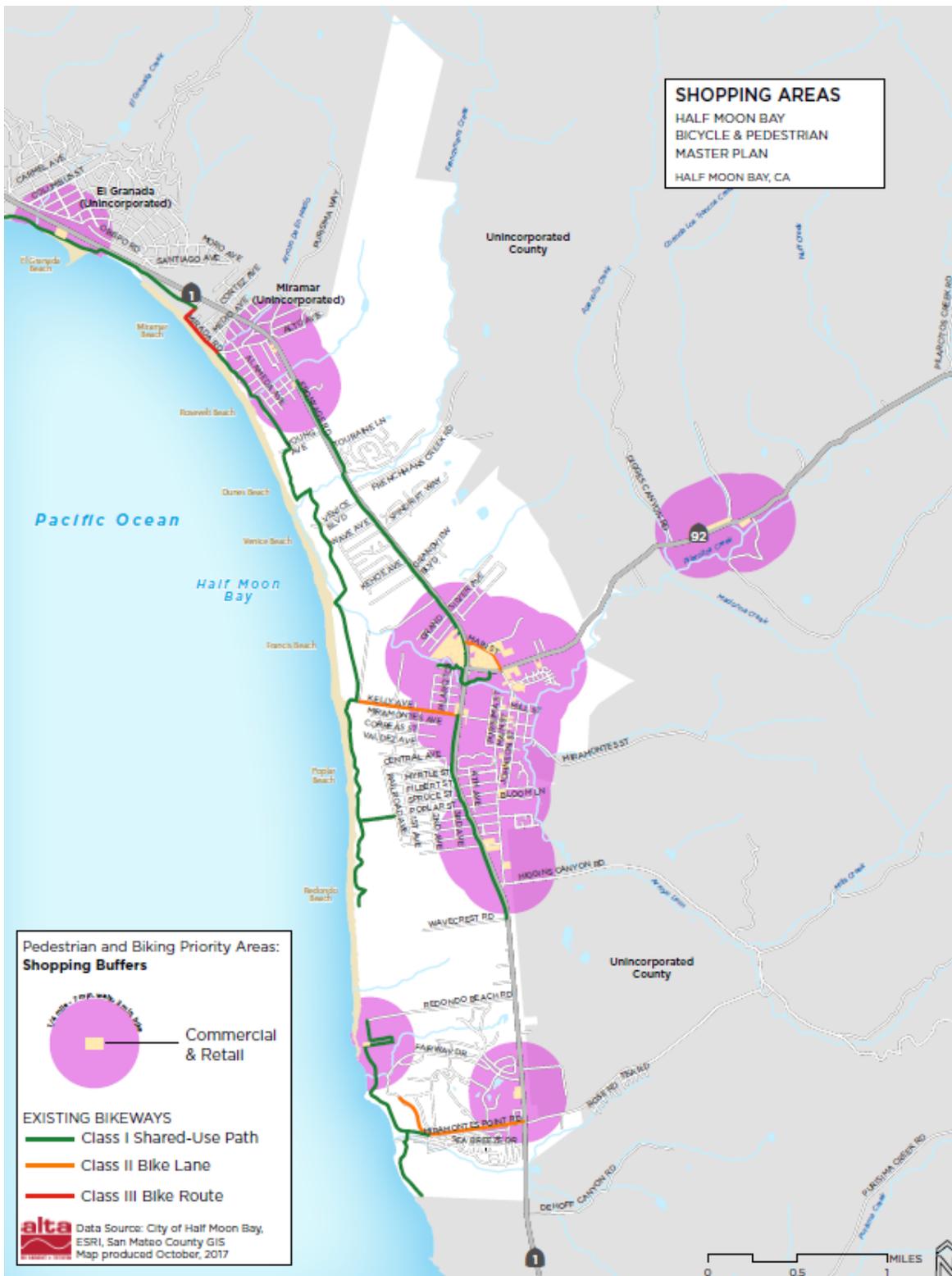


Figure 1-6: Shopping Areas

Demographics

The population of Half Moon Bay is 12,281, according to U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (ACS).



The median age of residents is 47 years old, higher than the county median of 39.5 and the state median of 36. **Table 1-1** shows the age breakdown percentage of Half Moon Bay residents compared to the county and state.

Table 1-1: Age Breakdown

Age Range	Half Moon Bay	San Mateo County	California
14 and under	15%	18%	20%
15-19	5%	5%	7%
20-34	14%	20%	22%
35-64	44%	42%	39%
65 and older	22%	15%	12%

Seventy-seven percent of households live in single-family homes, 15 percent in multi-family homes, and eight percent live in mobile homes or recreational vehicles (RVs).

The majority (67 percent) of Half Moon Bay residents identify as white/Caucasian, 26 percent as Hispanic, four percent from Asian descent, and two percent as Black (see **Figure 1-7**). This differs from San Mateo County as a whole, where only 40 percent of residents identify as white/Caucasian and there is a much higher population of Asian descent, as seen in **Figure 1-8**.

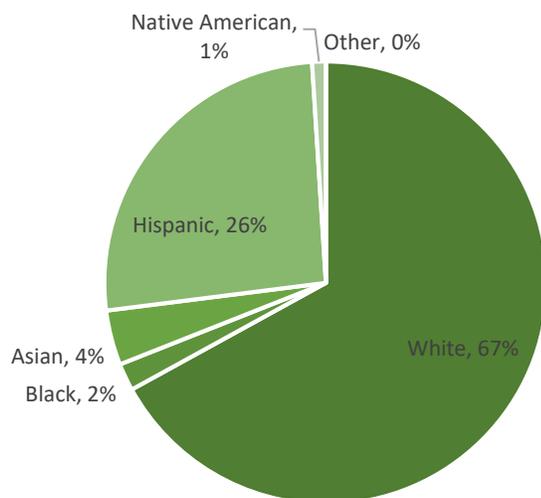


Figure 1-7: Ethnicity of Half Moon Bay Residents

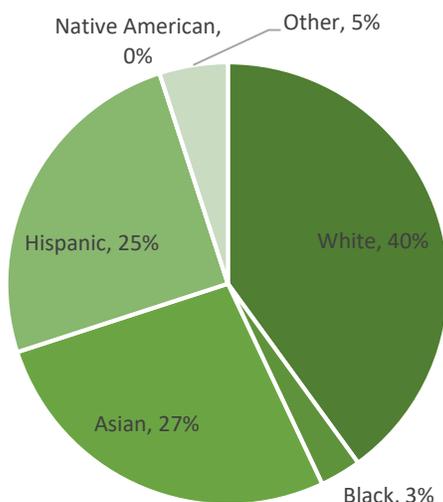


Figure 1-8: Ethnicity of San Mateo County Residents

English is the primary language spoken at home in 69 percent of Half Moon Bay households. Spanish is primarily spoken in 19 percent of Half Moon Bay households. Twelve percent of households speak another language as their primary language, including Indo-European or Asian/Pacific Islander languages; see **Figure 1-9**. English is the primary language spoken at home in 54 percent of households in San Mateo County, as shown in **Figure 1-10**.

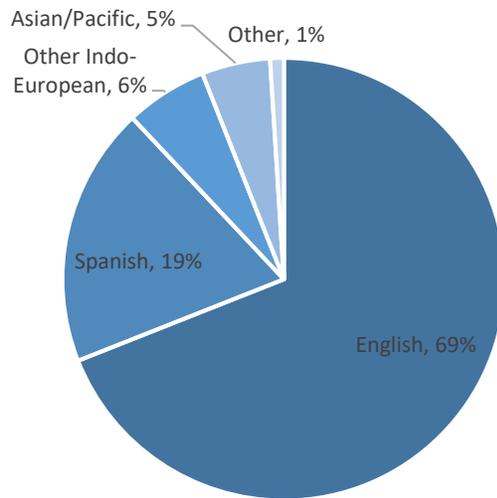


Figure 1-9: Primary Languages Spoken at Home in Half Moon Bay

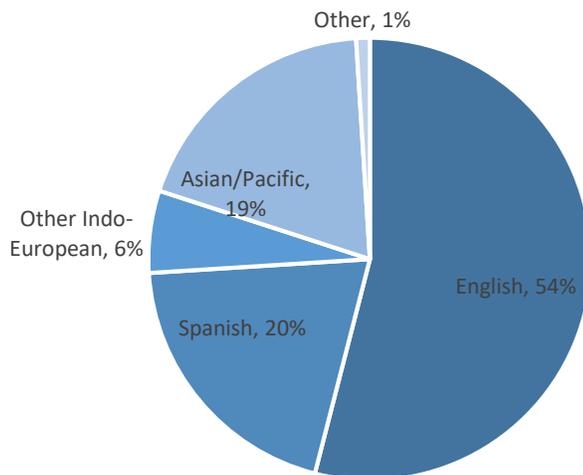


Figure 1-10: Primary Languages Spoken at Home in San Mateo County

Table 1-2 shows the 2016 ACS data on how Half Moon Bay, San Mateo County, and California residents travel to work. More Half Moon Bay residents drive to work (alone or as part of a carpool) and walk to work compared to the county or the state.

Table 1-2: Means of Transportation to Work

Means of Travel	Half Moon Bay	San Mateo County	California
Drive alone	72.6%	69.4%	73.5%
Carpool	14.9%	10.5%	10.6%
Public transportation	0.4%	10.1%	5.2%
Walk	3.2%	2.5%	2.7%
Bicycle	1.1%	1.3%	1.1%
Other/work from home	7.8%	6.2%	6.9%

Relationship to Other Plans

Local Coastal Program

The Local Coastal Program (LCP) consists of a local coastal land use plan (LUP); the subdivision ordinance; the zoning ordinance and zoning map; and other actions, which taken together implement the requirements of the California Coastal Act. At the time this BP Master Plan was developed, the City has been preparing a comprehensive update to the LCP.

The Draft LCP identifies the downtown core area as the area where future development should be concentrated to support a vibrant town center with a diverse mix of pedestrian-oriented businesses, shops, housing, and public spaces. Denser areas like the downtown often provide the greatest opportunity to increase walking and bicycling. To support a walkable downtown, the BP Master Plan analyzed development regulations to ensure both the public and private realm work to support a pedestrian-oriented environment.

Coastal Access and Recreation

The Coastal Access and Recreation chapter of the LCP creates a framework to protect and enhance public access to the shoreline. This chapter provides an overview of existing and planned bicycle and pedestrian coastal access, including gaps and areas of opportunities in the existing bicycle and pedestrian network.

The City’s existing multi-use trails – including the California Coastal Trail, Naomi Patridge Trail, and Pilarcitos Creek Trail – provide linkages that support coastal access for bicyclists and pedestrians. The Draft LCP envisions a more comprehensive bicycle and pedestrian network within the city that connects these trails, Downtown, and the beaches.

Highway 1 currently constrains pedestrian and bicycle mobility due to limited crossing opportunities, heavy traffic and/or high speeds, and lack of consistent pedestrian pathways along the Highway. Improving connections across and along Highway 1 will

provide greater access for low-income populations, agriculture workers, and transit riders who constitute a relatively large share of bicyclists and pedestrians in Half Moon Bay. The Draft LCP identifies opportunities for transforming Highway 1 into a 'Town Boulevard' to improve coastal access and circulation generally for visitors, workers and residents. Coastal access and the Town Boulevard concept are important considerations in the BP Master Plan.

Half Moon Bay General Plan

The General Plan is a visionary document required by California law. It presents the long-term development goals for the future of the jurisdiction and must include at least seven elements: Land Use, Transportation, Housing, Conservation, Noise, Open Space, and Safety. Half Moon Bay's General Plan incorporates Half Moon Bay's LUP as the General Plan Land Use Element.

Half Moon Bay's Circulation Element was updated in 2013. The adopted element focuses on three themes: multi-modal mobility, safety, and connectivity. A complete streets policy was also established with that update. The BP Master Plan is consistent with the 2013 Circulation Element. In particular, Goal 4 covers a broad range of supporting policies and implementing actions that pertain directly to components of this BP Master Plan:

Goal 4: Foster and Support Pedestrian and Bicycle Travel

The City will foster and support pedestrian and bicycle travel as healthy, environmentally sound methods to reduce vehicle trips and improve community character. Travel by walking and bicycling helps reduce single-occupancy vehicle traffic, minimizing environmental impacts, and improving personal health and recreational enjoyment.

Since the Circulation Element was updated, the City has been working on a comprehensive update to the General Plan in conjunction with the LCP update. Because the draft policies for the General Plan were recently crafted, the BP Master Plan will consider them as a starting point for the framework for the BP Master Plan. Two General Plan elements are especially relevant: Draft Circulation Element and Draft Healthy Community Element.

Circulation Element

The Draft Half Moon Bay Circulation Element was presented to the public in late 2016. It takes a Complete Streets approach to circulation to ensure adequate attention is given to all modes in transportation planning, design, funding, and implementation within the city.

Relevant policy areas within the Draft Circulation Element were used to guide the BP Master Plan as follows:

- Complete Streets
- Functional and Cohesive Transportation Network

- Pedestrian and Bicycle Travel
- Scenic Routes and Additional Circulation Modes
- Transportation Demand Management

Healthy Community Element

The Draft Healthy Community Element demonstrates Half Moon Bay’s commitment to promoting the health and well-being of all residents. The element is divided into two sections: Wellness and Parks and Recreation. The draft element addresses the following policy areas in supporting active living:

- Walk, Bike, and Transit Assessments and Audits
- Neighborhood Walkability
- Vision Zero¹
- Bicycle Linkages
- Trail Improvements and Connections
- Trail Development

The Half Moon Bay BP Master Plan will build on the policy direction developed for the Draft Circulation and Healthy Community Elements and recommend a series of programs aimed to make riding a bicycle and walking in Half Moon Bay safer.

A number of documents were reviewed and summarized to identify policies related to bicycling and walking in Half Moon Bay. The BP Master Plan does not develop a new set of policies for the city. Rather, it supports the existing policies set in the General Plan as well as the forthcoming draft LUP and General Plan updates. The documents reviewed include a mix of, state and regional sources as presented in **Table 1-3. Appendix A: Related Plans and Policies** contains additional details on each of these sources.

Table 1-3: Plans and Policies Reviewed in Appendix A

Plan	Year
Regional Plans	
San Mateo County Comprehensive Bike and Pedestrian Plan	2011
San Mateo Countywide Transportation Plan	2016
Plan Bay Area 2040	2017
San Mateo County Congestion Management Transportation Plan	2015
Regional Transportation Improvement Program	2016
Connect the Coastside (draft)	2016
Statewide Plans and Policies	
The California Transportation Plan 2040	2016

¹ Vision Zero is the idea that no loss of life on a roadway is acceptable and that all roadway collisions are preventable. Vision Zero is a traffic safety initiative to eliminate deaths and severe injuries on roadways through engineering and education.

Plan	Year
<i>Toward an Active California: California State Bicycle and Pedestrian Plan</i>	2017
Caltrans Strategic Management Plan	2015
California Complete Streets Policy	2008
Smart Mobility Framework	2010
Caltrans Highway Design Manual	N/A
California Manual on Uniform Traffic Control Devices	N/A
Main Street, California	2013
Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians	2010

Community Involvement in Development of the Master Plan

The BP master planning process included extensive public engagement activities, including:

- Bicycle and Pedestrian Advisory Committee (BPAC) meetings - The BPAC was created at the beginning of this planning process and will continue past the completion of the BP Master Plan to advise the City on bicycle and pedestrian needs and opportunities in Half Moon Bay going forward. The BPAC generally met monthly throughout the process.
- Project website - In coordination with the Parks Master Plan, the site HMBoutdoors.org was created to share information about both planning processes.
- Online survey - An online, map-based survey was created to solicit feedback on existing bicycling and walking conditions in Half Moon Bay and to identify potential improvements.
- Stakeholder interviews and meetings - Interviews and meetings were conducted with key stakeholders, including representatives of environmental and land trust groups, children and family groups, seniors, and the Moonridge community. The Moonridge community stakeholder meeting was conducted entirely in Spanish.
- Community workshops - Community workshops were held to solicit feedback on proposed bicycle and pedestrian improvement projects and on the draft BP Master Plan.
- Community Pop-ups - During National Night Out, City staff and members of the consultant team visited a number of communities hosting events to get the word out about the BP Master Plan and to solicit feedback on existing conditions. In August, the City hosted a booth at the Farmer's Market and set up a booth at Poplar Beach to solicit feedback on existing conditions.
- Bicycling/Walking Tour - The BPAC, community members, and City staff went on a bicycling/walking tour to visit the locations of potential projects to improve the bicycle and pedestrian networks in Half Moon Bay.

The following themes were identified as important issues to be emphasized for the BP Master Plan during public outreach and engagement:

- Provide better connectivity throughout Half Moon Bay, especially between downtown and the coast and between residential neighborhoods and downtown.
- Improve safety for bicyclists and pedestrians, especially on and crossing Highway 1.
- Improve wayfinding and sense of place on Highway 1 by creating a Town Boulevard.
- Improve maintenance of bicycle facilities (street sweeping, mowing/trimming vegetation on paths).
- Improve intersections with high bicycle and pedestrian use through strategies such as flashing beacons, high visibility crosswalks, bicycle detection, and others techniques.
- Provide transit improvements to reduce the dependence on the automobile, improve access to schools, and provide shuttle services to visitors to Half Moon Bay.
- Improve bicycle and pedestrian access to commercial areas as well as better bicycle parking.
- Improve safe routes to school and parks, including improving connectivity for the high school.

The images below were taken during some of the outreach events. For more detailed outreach information, see **Appendix B: Community Outreach**.





Chapter Summary

Due to the unique location and character of Half Moon Bay, including its limited opportunities for substantial transit investment, geographical and environmental constraints, and the significant number of tourists who visit by car, investing in a robust pedestrian and bicycling network improves transportation options for residents. These investments would also benefit visitors who view Half Moon Bay as a beautiful and active place to visit.

EXISTING CONDITIONS

CHAPTER

2



2. Existing Conditions

Existing Bicycle Network

The bicycle network includes several types of bikeways, bicycle parking, self-repair stations, signage, and related elements. These elements are described below with additional design detail included in the Bicycle and Pedestrian Design Guidelines.

Bikeway Treatments

The Caltrans Highway Design Manual (2016) defines four types of bikeways for implementation on streets in California. These are described briefly below and in more detail in **Chapter 3: Recommendations**.

Class I Shared Use Paths

Class I bikeways, also known as trails or shared-use paths, are off-street facilities dedicated exclusively to use by bicyclists and pedestrians. Half Moon Bay currently has 15.5 miles of Class I bikeways.

Class II Bicycle Lanes

Class II facilities are on-street bike lanes. There are currently 1.3 miles of Class II bicycle lanes in Half Moon Bay.

Bicycle lanes can also be enhanced with a painted buffer added to the side of the lane for a higher perception of safety or with green paint for higher visibility. Buffered bicycle lanes includes a painted buffer between the bike lane and an automobile travel lane and/or a parking lane. There are no buffered bicycle lanes in Half Moon Bay currently.

Class III Bicycle Routes

Class III bike routes are streets where the travel lane is shared by drivers and bicyclists. There are 0.8 miles of Class III bike routes in Half Moon Bay.

Bicycle boulevards (or neighborhood greenways) are a type of bicycle route that uses traffic calming, in addition to pavement markings and signage, to create a comfortable bikeway that also reduces speeds and, often, cut through traffic in residential neighborhoods. Half Moon Bay does not currently have any bicycle boulevards.

Class IV Separated Bikeways

Class IV separated bikeways, also known as cycle tracks or protected bike lanes, are on-street bike facilities that are separated from vehicle traffic by some sort of physical separation such as curbs, plant boxes, bollards, grade separation, or parked cars. Half Moon Bay does not currently have any Class IV facilities.

Figure 2-1 shows the current bicycle network for Half Moon Bay.



Figure 2-1: Existing Bicycle Network

Half Moon Bay's existing bicycle network provides excellent recreational opportunities with the California Coastal Trail and provides some north/south connections with the Naomi Patridge Trail, but the rest of the bicycle network is disjointed and does not provide safe, comfortable connections to key destinations such as downtown or to the schools.

Existing Pedestrian Network

The existing pedestrian network in Half Moon Bay consists of major connector streets with mostly complete sidewalks and residential streets with incomplete sidewalks or no sidewalks. Although a comprehensive sidewalk review was not conducted as part of the BP Master Plan, several roadways that provide key connections to the coast, downtown, schools, or transit were identified through the public engagement process as missing sidewalks or walkways or containing significant sidewalk gaps, including Poplar Street, Purissima Street, Kelly Avenue, and Miramontes Street. For low volume residential streets that are not an important part of the overall network, the lack of sidewalks may be acceptable and even desired by the community. For streets that are higher volume or provide a key connection within the overall network, the lack of sidewalks creates a barrier within the network.

Throughout Half Moon Bay there are obstructed sidewalks, sidewalks that are narrow, or areas with gaps in sidewalks. These issues with existing sidewalks create challenges for people in wheelchairs, for people with mobility constraints, or people pushing strollers. This indicates a lack of consistent and appropriate standards for sidewalk design.

Many neighborhoods in Half Moon Bay lack pedestrian connections to other neighborhoods or key destinations such as shopping centers, schools, and downtown. Because of this lack of connection, many residents have to use Highway 1 as their primary connection to key destinations.

Shopping centers in Half Moon Bay do not adequately accommodate pedestrians, even though every person who visits the shopping center is at some point a pedestrian. The shopping centers lack pedestrian connections through parking lots and the walkways in front of buildings are narrow.

This BP Master Plan is intended to address these deficiencies through specific project recommendations and pedestrian design guidelines.



Figure 2-2: Mailbox Blocking Sidewalk Access on Main Street

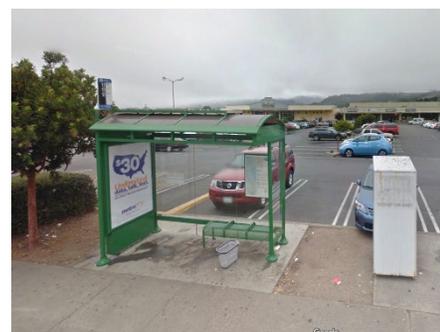


Figure 2-3: Parking Lot to Sidewalk Access is Limited

Connections to Adjacent Jurisdictions

While connectivity within Half Moon Bay is the main focus of this master plan, connections to regional networks and adjacent communities are also important; bicycle and pedestrian trips do not always end at the city limits.

Regional Bikeways in Half Moon Bay

There are several routes in the Half Moon Bay bikeway network designated as routes of county or regional significance. When considering improvements and additions to Half Moon Bay's bicycle network, ensuring connectivity with neighboring jurisdictions is an important consideration. Working with neighboring jurisdictions ensures that bike facilities do not stop at city limits and continue into the neighboring area. Improving these inter-jurisdictional connections can benefit commute, recreational, and utilitarian trips. **Appendix A: Related Plans and Policies** identifies projects in Half Moon Bay that were identified in countywide or regional plans.

Connections to Adjacent Communities

The Half Moon Bay bikeway network was designed, in part, to provide connection to bike facilities in adjacent communities. The Coastal Trail stretches north-south to neighboring communities. The BP Master Plan includes recommendations to expand the existing trail to better connect to the south. **Figure 2-4** shows these connections.

Additionally, the regional transit network that serves Half Moon Bay is used by school children and transportation-disadvantaged communities such as those who live in the Moonridge neighborhood, outside the Half Moon Bay City limits. **Figure 2-5** shows the current SamTrans routes that connect to surrounding jurisdictions.



Figure 2-4: Regional Bicycle Network

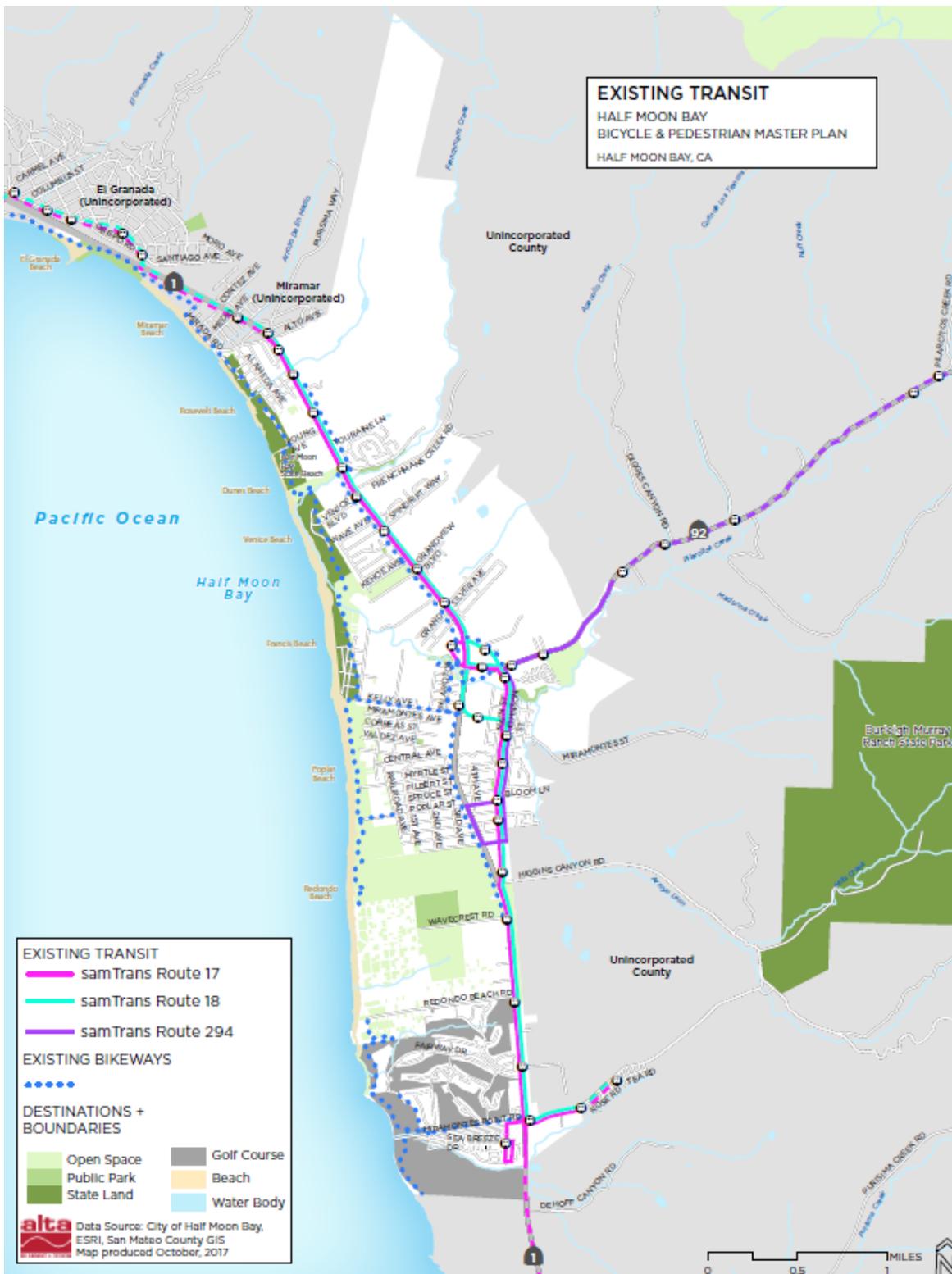


Figure 2-5: Transit Routes and Bus Stops in Half Moon Bay

Collision Analysis

Analysis was conducted on the bicycle- and pedestrian-related collisions in Half Moon Bay to identify trends and areas or corridors that should be targeted for safety improvements. Collision data was gathered from the Transportation Injury Mapping System (TIMS) developed by the Safe Transportation Research and Education Center at the University of California, Berkeley and supplemented by more recent information collected by the County Sheriff. TIMS provides geocoding of collisions with injuries and fatalities from the California Statewide Integrated Traffic Report System (SWITRS). The number of collisions reported to SWITRS is likely an underestimate of the actual number of collisions that take place because some parties do not report minor collisions to law enforcement, particularly collisions not resulting in injury or property damage.

The most recent available ten years of related crash data reveals:



1 in 5

**CRASHES
ARE BICYCLE
OR PEDESTRIAN
RELATED**

During 2006-2016
there were a total
of



**BICYCLE- OR
PEDESTRIAN-
RELATED CRASHES**

resulting in



71 injuries



4 fatalities

Figure 2-6: Collision Summary

Collisions were analyzed for the ten-year period between 2006 and 2016. Data for 2012 is not available from the Sheriff’s records and not included in this analysis. In that timeframe, there were 23 collisions that involved a pedestrian and 48 that involved a person riding a bicycle. **Table 2-1** shows the injuries and fatalities associated with these collisions. One collision involved four pedestrians and two separate collisions involved two bicyclists. There were three collisions with a pedestrian fatality and one with a bicycle fatality, all of which were on a state highway or crossing the state highway (the bicycle fatality was on Filbert Street at Highway 1).

Table 2-1: Collision Analysis – 2006 to 2016

Ped & Bike Involved Collisions	Pedestrian Injuries	Pedestrian Fatalities	Bicyclist Injuries	Bicyclist Fatalities
71	23	3	48	1

The majority of the collisions occurred on Highway 1 (19 involving a bicycle and seven involving a pedestrian) and Main Street (six involving a bicyclist and three involving a pedestrian), or centered near the downtown Half Moon Bay area. More specifically, the collisions near downtown took place on Kelly Avenue, Main Street, or Purisima Street. Understanding where collisions occur allows agencies to target improvements where they are needed most. Improving pedestrian and bicyclist safety can make current collision hotspots, especially in downtown, function more safely for pedestrians and bicyclists to visit and enjoy.

Figure 2-7 and **Figure 2-8** show the bicycle- and pedestrian-involved collisions during this ten-year time period. One bicycle collision occurred just outside Half Moon Bay and is shown in the map, but not included in the analysis above. **Appendix C: Detailed Needs Analysis** provides more information.



Figure 2-7: Bicycle-Involved Collisions. This figure includes accidents outside the City limits.



Figure 2-8: Pedestrian-Involved Collisions. This figure includes accidents outside the City limits.

Chapter Summary

Half Moon Bay's existing bicycle and pedestrian network has many gaps and opportunities for expansion and improvement. Based on the collision analysis, there are several locations considered unsafe for vulnerable road users where improvements should be made. Considering pedestrian and bicycle connections to nearby cities and jurisdictions provides opportunities for improved pedestrian and bicycle access between communities for both residents and visitors.

RECOMMENDATIONS

CHAPTER

3



3. Recommendations

Key Themes

Building off the feedback from community meetings, stakeholder meetings, and the Bicycle and Pedestrian Advisory Committee (BPAC), a number of themes emerged to help shape the recommendations for the Half Moon Bay BP Master Plan. These themes, shown in Error! Reference source not found., are reflected in the recommended projects and programs and helped shape the project prioritization process.

1. Highway 1, the primary north-south transportation corridor for Half Moon Bay, acts as a barrier for pedestrians and bicyclists and does not reflect the town's unique character. Recommendations for Highway 1 focus on:

- Providing parallel bicycle and pedestrian trails on each side of Highway 1 to improve the north-south connections for bicyclists and pedestrians
- Improving crossings of Highway 1 for bicyclists and pedestrians to improve east-west connections to key destinations, such as the coast and downtown
- Creating a 'Town Boulevard' with improved wayfinding, gateways, and placemaking

2. The coast is a major destination for residents and visitors to Half Moon Bay. Providing safe, comfortable access to the coast, the beach recreation areas, and the Coastal Trail

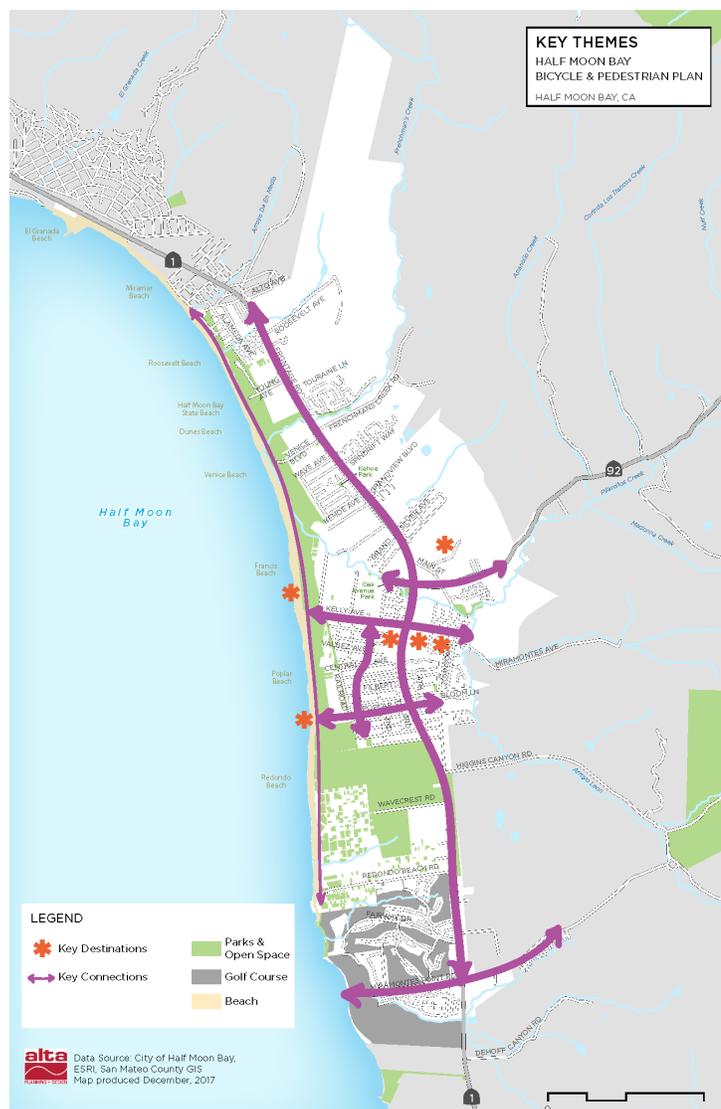


Figure 3-1: Key Themes for Plan Recommendations

is important for the bicycle and pedestrian network of Half Moon Bay. Recommendations for coastal access focus on:

- Studying improvements to key east-west streets that connect to the coast
- Improving and formalizing informal trails in select locations that connect to the Coastal Trail
- Improving the Coastal Trail, including closing gaps

3. The City is home to several vulnerable groups, including children, seniors, and transportation disadvantaged populations, who need safe and comfortable pedestrian and bicycle access to key destinations in Half Moon Bay. Recommendations for these groups focus on:

- Improving safe routes to school with improved bicycle connections for Half Moon Bay High School, Pilarcitos High School, Cunha Middle School, and Hatch and Seacrest Elementary Schools
- Creating a pedestrian priority zone to prioritize high quality sidewalk facilities surrounding schools, senior housing, and low-income housing

4. Residential neighborhoods are not well-connected internally, to each other, or to key destinations in Half Moon Bay. The Highway 1 corridor serves as the main bicycle and pedestrian connection for many neighborhoods. Residential access recommendations focus on:

- Improving bicycle and pedestrian circulation within neighborhoods through traffic calming, bike boulevards, and bike routes
- Creating neighborhood street design guidelines that allow for flexibility to respond to the unique character of each neighborhood while improving safety and connectivity
- Studying pedestrian only trails to better connect neighborhoods
- Improving subdivision standards to require pedestrian and bicycle connections between cul-de-sacs and subdivisions when feasible
- Providing parallel trails on either side of Highway 1 and high-visibility crossings of Highway 1 at several intersections

5. Downtown is a key destination with accessibility constraints at the Main Street Bridge and significant cut-through traffic on weekends and during special events. Recommendations to improve downtown connections include:

- Studying improvements to Main Street and parallel streets to better accommodate bicyclists and pedestrians
- Improving bicycle connectivity to downtown with improved intersections and bikeways

Project Recommendations

The following sections provide an overview of the projects recommended by the Half Moon Bay BP Master Plan. More detail about each type of facility can be found in the Design Guidelines. The full list of project recommendations can be found in **Appendix D: Project Recommendations**.

Pedestrian Recommendations

Pedestrian recommendations focus on improving pedestrian connections throughout Half Moon Bay, including improving pedestrian crossings, improving connections between destinations and neighborhoods, and providing design guidelines to facilitate consistent, comfortable pedestrian infrastructure over time. Many of the specific pedestrian recommendations in this master plan overlap with bicycle improvements in working to improve the overall active transportation network. There are a few pedestrian-only studies that include recommendations for exploring implementation of pedestrian-only trails where bicycle use may not be appropriate due to environmental or community concerns. **Figure 3-2** shows the specific pedestrian recommendations with many listed in this chapter. All are included in **Appendix D: Project Recommendations**.

Community character and the existing pedestrian environment varies throughout Half Moon Bay. This means that a unique, flexible approach is needed to improve the pedestrian network. Some neighborhoods do not have sidewalks and want to retain their rural character. Other neighborhoods were built with sidewalks, but have connectivity and access issues. Other areas are high demand pedestrian areas that should be a priority for sidewalk improvements and gap closures. Because of these variables, pedestrian zones are established with associated guidelines to facilitate the implementation of a complete and safe pedestrian network.

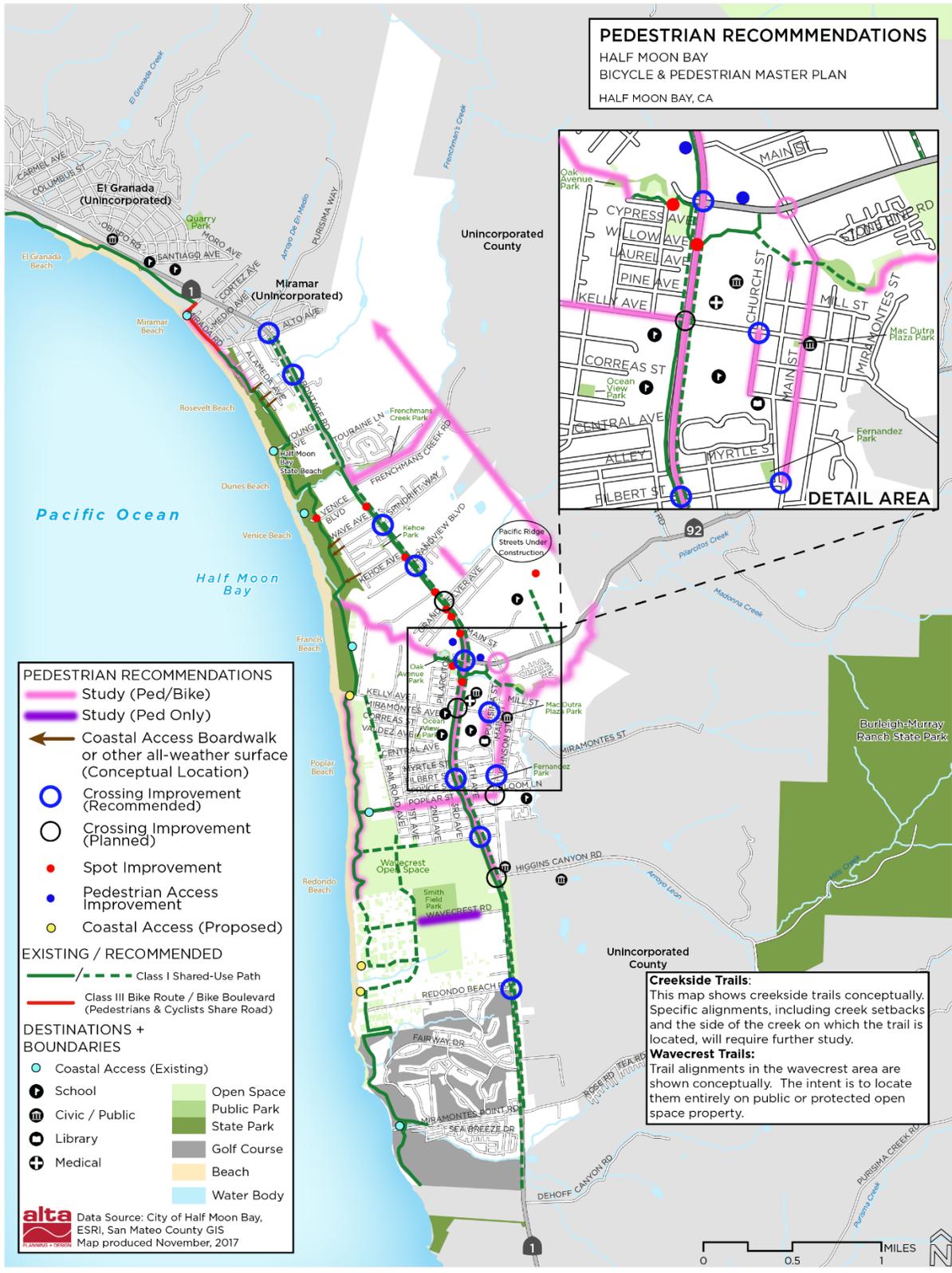


Figure 3-2: Pedestrian Recommendations

Pedestrian Zones

The City of Half Moon Bay, members of the public, and the Bicycle and Pedestrian Advisory Committee (BPAC) have identified Pedestrian Zones to create a framework for decision-making around pedestrian improvements in the City. These are presented in the Design Guidelines. These guidelines help create priorities for the highest quality pedestrian environments as well as provide flexibility and guidance for the residential neighborhoods in Half Moon Bay. **Figure 3-3** illustrates these zones.

Pedestrian Priority Zones

The Pedestrian Priority Zones are designated as areas in the City where high quality, connected pedestrian facilities should be provided. These areas provide pedestrian connections within downtown, to the schools within Half Moon Bay, and to a majority of the senior housing facilities in Half Moon Bay. The guidelines for these priority areas set minimum widths for sidewalks, prioritize closing gaps and removing obstacles in existing sidewalks, set guidelines for improved intersections and crossings, and generally promote improving the pedestrian environment.

Coastal Access Pedestrian Zones

The Coastal Access Pedestrian Zones are designated in areas that provide key pedestrian connections to the Coastal Trail and to the coast. These areas should accommodate pedestrians either through standard sidewalk widths or shared use pathways.

Neighborhood Pedestrian Zones

The Neighborhood Pedestrian Zones are split into three categories, depending on neighborhood context:

Sidewalk Zones - These include areas that currently have sidewalks, areas of new development, key network connections within a residential community, or other areas where sidewalks are desired. The guidelines provide minimum sidewalk width with recommendations for planting strips and general recommendations for crossings.

Sidepath Zones - These zones include areas that do not currently have sidewalks where the community wants a designated path without a curb and gutter, or the street provides a key network connection, but a sidewalk does not fit the character of the neighborhood. The guidelines provide minimum widths for the sidepath and design options.

Shared Zones - These include residential areas that currently do not have sidewalks, are not a priority network connection, and where the community determines that sidewalks are not needed. The priority in these areas is to incorporate traffic calming to slow vehicle speeds and to provide signage indicating that these are shared use streets for local traffic only.

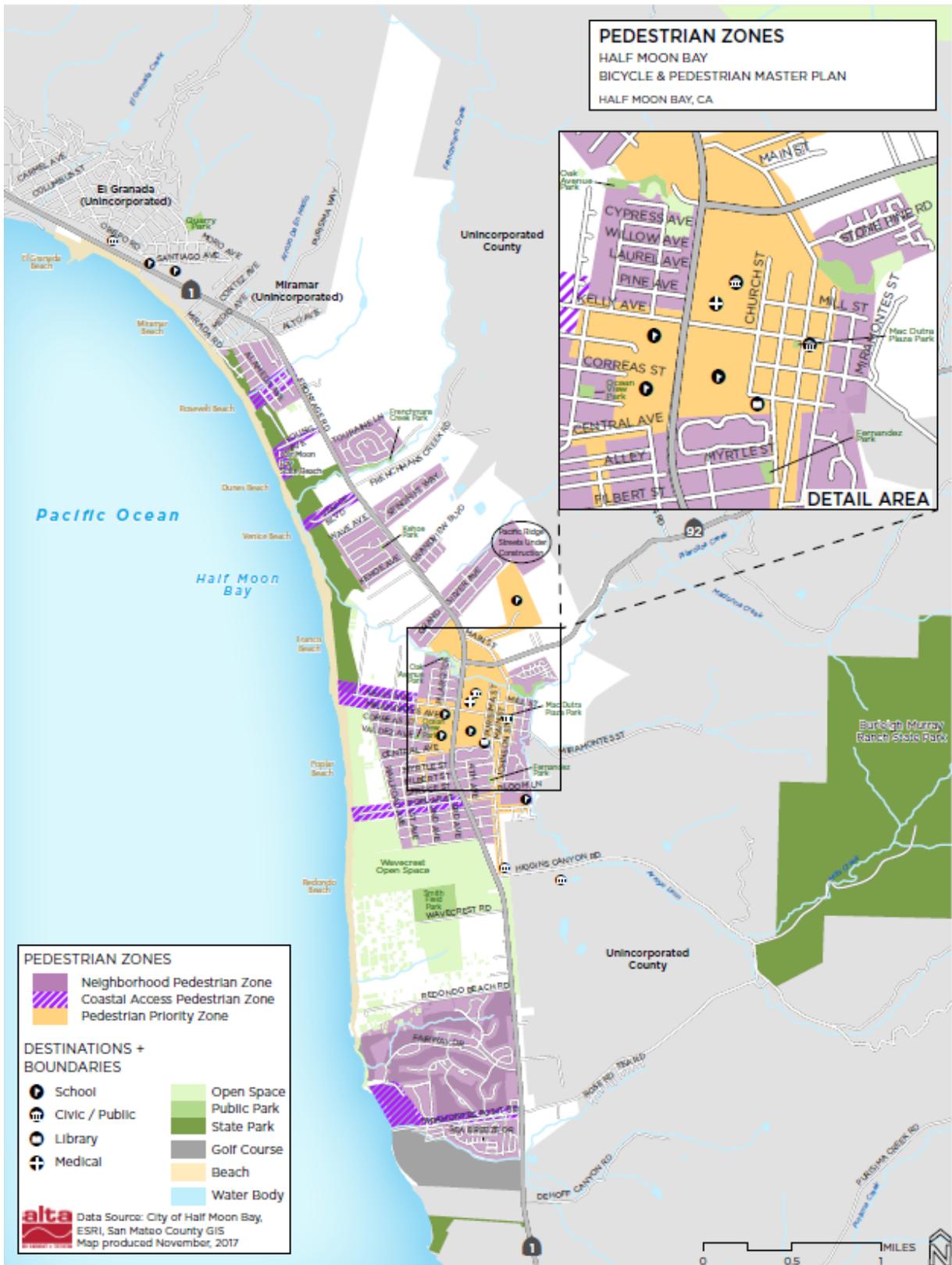


Figure 3-3: Pedestrian Zones

Traffic Calming

Traffic calming treatments at intersections and along roadways help slow down drivers as they travel through a neighborhood. Examples include curb extensions, traffic circles, speed bumps, or chicanes. These traffic calming techniques can be implemented in select neighborhoods of Half Moon Bay to improve the pedestrian environment, particularly in neighborhoods without sidewalks. Traffic calming techniques are also incorporated in the creation of Bicycle Boulevards. The images below show some of these treatments.

Curb extensions visually and physically narrow the roadway, creating shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings, and street trees. They may be implemented on downtown, neighborhood, and residential streets of all sizes.



Figure 3-6: Chicanes



Figure 3-4: Landscaped Curb Extension



Figure 3-7: Speed Hump



Figure 3-5: Traffic Circle

Study Corridors

The BP Master Plan recommends several studies for corridor improvements. Studies are necessary to assess feasibility and/or evaluate routes or design options before specific recommendations can be made, and are especially important for projects with limited available roadway width or environmental concerns, or for projects that require additional community engagement or would involve several jurisdictions. Studies for facilities near an Environmentally Sensitive Habitat Area (ESHA) would take into account Local Coastal Program and Zoning Code requirements in regard to biological assessment, permitted uses, setbacks and development standards, and all studies would consider compatibility with adjacent uses. Studies can help the City and the public understand potential trade-offs that may arise during implementation. An open and public process when considering potential changes is important for successful coordination and implementation.

The study recommendations in this master plan are split into Bicycle and Pedestrian Studies and Pedestrian-only Studies. The studies include street and trail projects that can help improve access and connectivity for Half Moon Bay’s active transportation network, but require additional study before specific improvement recommendations can be made. **Table 3-1** lists the pedestrian-only studies. Bicycle and Pedestrian Studies are listed in the respective section below.

Table 3-1: Pedestrian-Only Study Recommendations

Name	Cross Street A	Cross Street B	Mileage
Wavecrest Rd Study	1,000 ft W of Hwy 1	Coastal Trail	0.30

Wavecrest Road

Study a pedestrian-only path adjacent to Wavecrest Road between the Coastal Trail extension and approximately 1,000 feet west of Highway 1.

Community Identified Pedestrian Improvements

Although a comprehensive pedestrian-audit was not conducted as part of the BP Master Plan, several pedestrian-related projects were identified by members of the community during public outreach. Where possible, the City should implement these projects listed in **Table 3-2**.

Table 3-2: Community-Identified Pedestrian Projects

Project Location	Type	Notes
Miramontes Ave between Alsace Lorraine and Hatch Elementary	Sidewalk gap closure	No sidewalk on north side
Purissima St between Myrtle St and Filbert St	Sidewalk gap closure	No sidewalk southwest side
Hwy 1 at Miramontes Point Rd	Bus stop access	Improve sidewalk from Miramontes Point Rd south and north to the bus stops
Hwy 1 at Fairway Dr	Bus stop access	Improve pedestrian access to bus stop

Bicycle Recommendations

The recommended bikeway network is a backbone of primary routes; it is not meant to accommodate every bicycle trip in the City. Once completed, this network would create more direct routes that feel more comfortable and are functionally safer for the majority of those bicycling within Half Moon Bay. It takes into consideration the range of age, comfort, and skill level of those that choose to travel by bicycle.

The proposed bikeway network prioritizes infrastructure improvements where they will provide the greatest community benefit. Streets or trails selected for inclusion in the network are targeted for specific improvements, such as the installation of bicycle lanes or traffic calming, and should receive regular maintenance, such as sweeping and pavement repair, to keep these roadways in suitable bicycling condition.

It is important to recognize that, by law, bicyclists are allowed on all streets and roads (except certain access-controlled facilities like freeways) regardless of whether or not they are a part of the bikeway network. It is also important to recognize that some bicyclists will only use streets and roadways. As opportunities arise, all streets should be improved for safer and more comfortable bicycle travel, consistent with the guidelines provided in the Half Moon Bay Bicycle and Pedestrian Design Guidelines, MTC's Complete Streets Checklist, and best practices for bicycle accommodation.

The proposed bikeway network is illustrated in **Figure 3-8**. The proposed system includes a total of 17.4 miles of new bikeway facilities. Specific improvements will be defined during the design phase for each project following the standards set forth in the Half Moon Bay Bicycle and Pedestrian Design Guidelines. The location and design of all bicycle facilities will take into consideration compatibility with adjacent uses, and those proposed near creeks or other Environmentally Sensitive Habitat Areas (including creekside trails and trails in the Wavecrest area) will be guided by Local Coastal Program and Zoning Code requirements for biological assessment, permitted uses, setbacks, and design standards. In addition to the bicycle network, spot location improvements and bicycle parking improvements are recommended and discussed below.

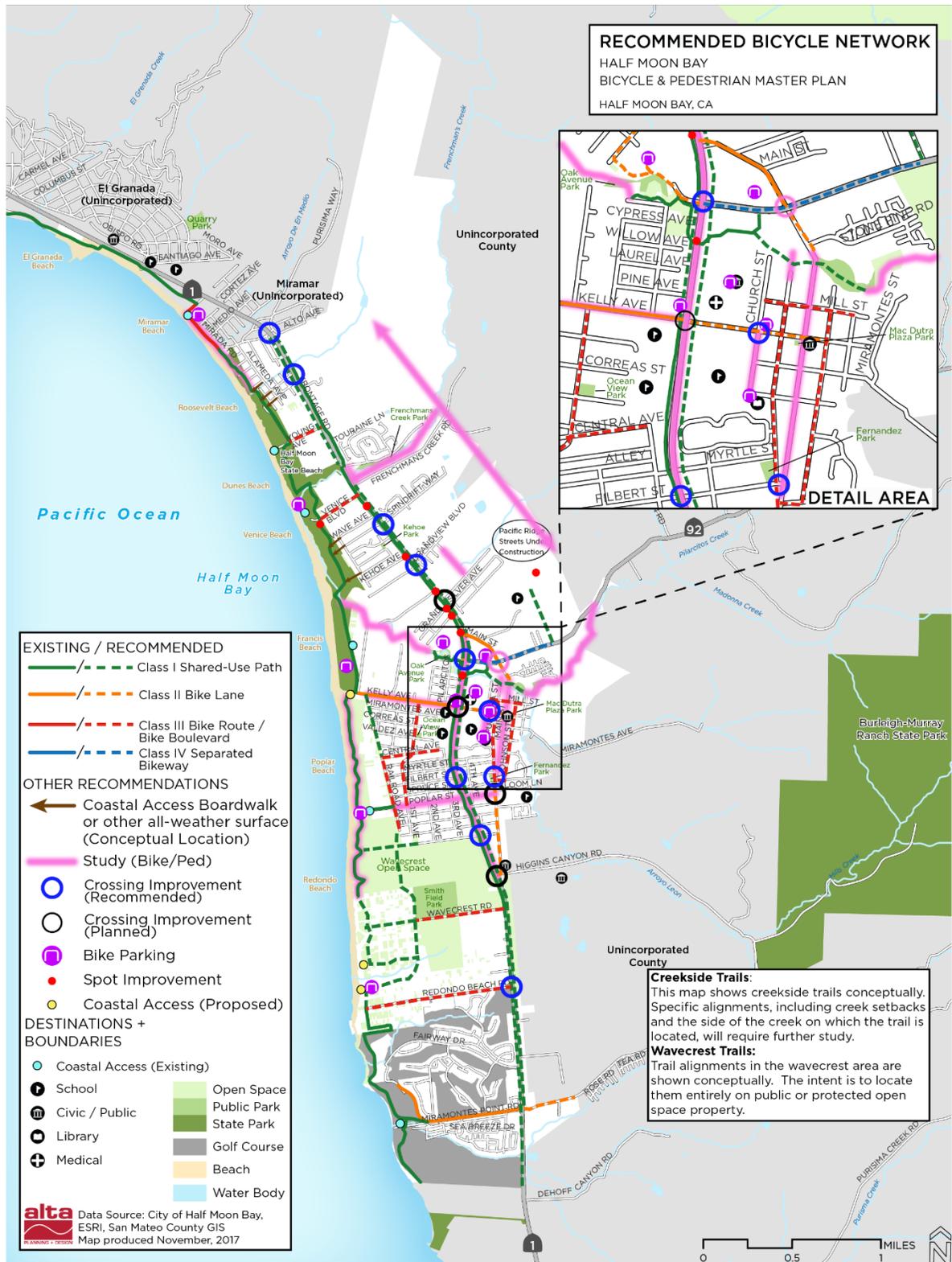


Figure 3-8: Recommended Bikeway Network

Table 3-3 shows the number of existing and proposed miles for each bikeway classification.

Table 3-3: Miles of Recommended Bikeways

Bicycle Facility Type	Existing Miles	Miles Recommended
Class I Shared-Use Path	15.5	10.2
Class II Bike Lane	1.3	1.7
Class II Buffered Bike Lane	0.0	0.2
Class III Bike Route	0.8	2.8
Class III Bicycle Boulevard	0.0	1.6
Class IV Separated Bikeway	0.0	0.5

Class I Shared-Use Path

Class I bikeways, also known as trails or shared-use paths, are off-street facilities dedicated exclusively for use by bicyclists and pedestrians. Trail alignments proximate to environmentally sensitive habitat areas and/or agricultural uses shall take into consideration the City’s policies for protecting habitat and agriculture, which are Coastal Act priorities.

Specific alignments for Creekside trails including creek setbacks and on which side of the creek the trail should be located on, will require further study. Creekside trail alignments will provide adequate setbacks of trails from: (1) riparian areas, wetlands, and other environmentally sensitive habitat areas, (2) adjacent residential uses, and (3) adjacent agricultural fields. Measures such as fencing, signage, grade separation, and/or provision for temporary closure of trails when agricultural chemicals must be used on adjacent fields should be considered in order to minimize conflicts between trail users and adjacent land uses.

The proposed Class I facilities, totaling 10.2 miles, are listed in Table 3-4.

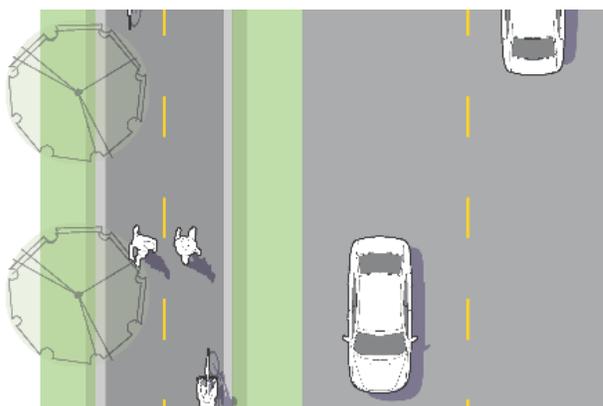


Figure 3-9: Rendering of Class I Shared-Use Path



Figure 3-10: The Coastal Trail is a Class I Shared-Use Path

Table 3-4

Table 3-4: Class I Bikeway Recommendations

Name	Cross Street A	Cross Street B	Mileage
Coastal Trail Extension	S end of Coastal Trail	Redondo Beach Rd	1.18
Coastal Trail to Wavecrest Rd Connection	Wavecrest Rd	Coastal Trail	0.20
Eastside Parallel Trail	Frenchmans Creek Rd	Miramontes Point Rd	3.78
Eastside Parallel Trail - North	Roosevelt Blvd	City limit	0.26
HMB High School Trail	Hwy 92	High School	0.32
Hwy 1/Naomi Patridge Gap Closure	Heskin Ave	Kelly Ave	0.26
Naomi Patridge Trail Extension - North	Ruisseau Francais Ave	City limit	0.84
Naomi Patridge Trail Extension - South	400 ft S of Wavecrest Rd	City limit	1.58
Pilarcitos Creek Trail	Naomi Patridge Trail	John L. Carter Memorial Park	0.25
Railroad Ave Trail	Kelly Ave	Central Ave	0.36
Railroad Ave Trail Extension	Grove St	Wavecrest Rd	0.54
Seymour St Coastal Trail Spur	Coastal Trail	Seymour St	0.32
Wavecrest Rd Coastal Trail Spur	Coastal Trail	Wavecrest Rd	0.29

Class II Bike Lanes

Class II facilities are on-street bike lanes. These can be a standard size (typically five feet), but can also be enhanced with a painted buffer added to the side of the lane or with green paint for higher visibility. There are 1.7 miles of proposed Class II facilities and 0.2 miles of Class II buffered facilities, as shown in **Table 3-5**.

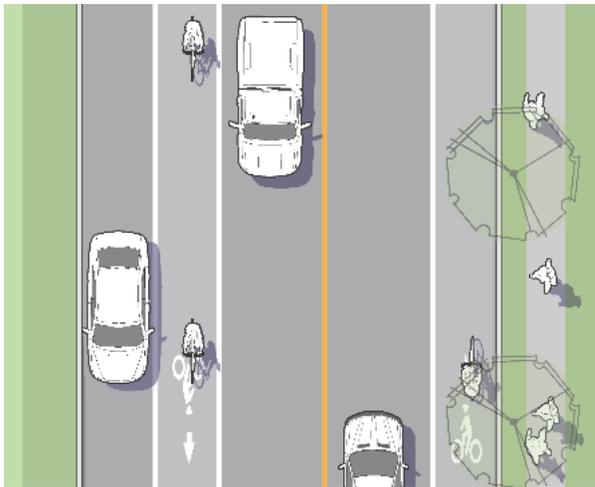


Figure 3-12: Rendering of Class II Bike Lanes



Figure 3-11: Class II Bike Lanes



Figure 3-13: Class II Buffered Bike Lanes

Table 3-5: Class II Bike Lane Recommendations

Name	Cross Street A	Cross Street B	Mileage
Kelly Ave Bike Lanes	Hwy 1	Johnston St	0.32
Main St Bike Lanes	Hwy 92	Main St Bridge	0.11
Main St Buffered Bike Lanes	Hwy 1	Hwy 92	0.24
Miramontes Point Rd Bike Lanes	Hwy 1	City limit	0.30
Heskin Ave Bike Lanes	Center	Hwy 1	0.44
South Main St Bike Lanes	Spruce St	Higgins Canyon Rd	0.52

Class III Bike Routes and Bicycle Boulevards

Class III bike routes are routes where the travel lane is shared by drivers and bicyclists. Class III routes are typically designated on roadways with low levels of motor vehicle traffic and speeds. Class III routes in California require a “Bike Route” sign and can include additional posted signage that say “Share the Lane,” or “Bikes May Use Full Lane” or on-pavement “shared lane” markings, or “sharrows.” There are 4.4 miles of proposed Class III facilities.

Bicycle boulevards are generally deemed as low-volume, low-speed streets that have been optimized for bicycle travel using treatments such as traffic calming and traffic reduction, wayfinding and pavement markings, and intersection crossing treatments. This Master Plan recommends 1.6 miles of bicycle boulevards, shown in **Table 3-6**.

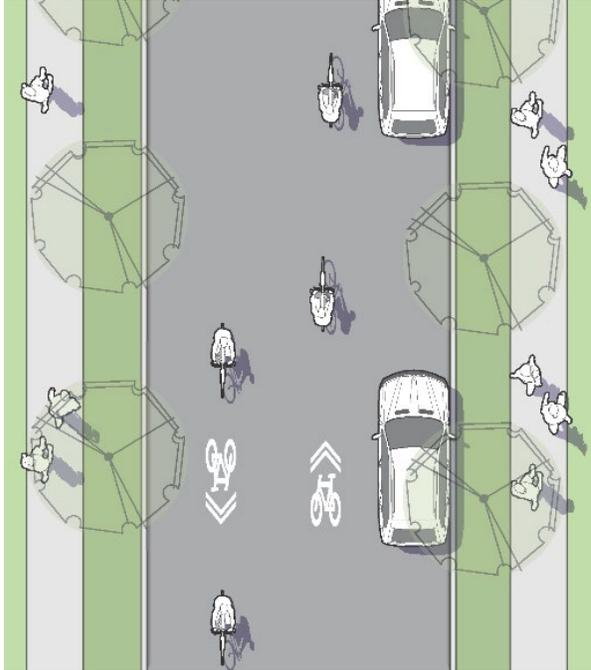


Figure 3-14: Rendering of a Class III Bike Route



Figure 3-15: Class III Bike Route



Figure 3-16: Class III Bicycle Boulevard

Table 3-6: Class III Recommendations

Name	Cross Street A	Cross Street B	Mileage
Alsace Lorraine/1st Street Bike Boulevard	Kelly Ave	Poplar St	0.61
Central Ave Bike Route	Railroad Ave	3rd Ave	0.34
Johnston St/Monte Vista Ln Bike Boulevard	Mill St	Main St	0.49
Mill St Bike Route	Church St	San Benito St	0.21
Purissima St Bike Boulevard	Mill St	Filbert St	0.47
Railroad Ave Bike Route	Central Ave	Poplar St	0.42
Redondo Beach Rd Bike Route	Coastal Trail	Hwy 1	0.83
Venice Blvd Bike Route	Venice Beach/ Coastal Trail	Hwy 1	0.31
Wavecrest Rd Bike Route	Hwy 1	End of Wavecrest Rd	0.50
Young Ave Bike Route	Coastal Trail	Hwy 1	0.20

Class IV Separated Bikeways

Class IV Separated Bikeways are typically on-street bike facilities that are physically separated from vehicle traffic by curbs, planter boxes, bollards, grade separation, parked cars, or other treatment. They can provide one-way or two-way travel on either side of the roadway. This master plan recommends 0.5 miles of Class IV bikeways, shown in **Table 3-7**.

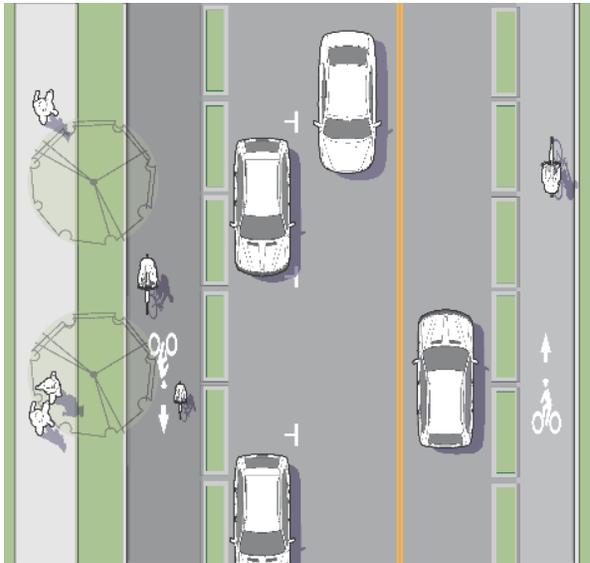


Figure 3-18: Rendering of a Class IV Separated Bikeway



Figure 3-17: Class IV Separated Bikeway

Table 3-7: Class IV Separated Bikeway Recommendations

Name	Cross Street A	Cross Street B	Mileage
Hwy 92 Separated Bikeway	Hwy 1	Main St	0.17
Hwy 92 Separate Bikeway	Main St	HMB High School Trail	0.34

End of Trip Facilities

Supporting amenities make bicycle travel more convenient and appealing as an everyday means of transport. Safe and convenient bicycle parking is the most critical end of trip facility. Bicycle self-repair stations provide riders with free and easy access to air pumps and tools to perform basic repairs and adjustments. Showers, lockers, and/or changing rooms make long commutes more convenient and allow for changing between cycling and work clothing. These amenities can remove barriers (both real and perceived) for existing and potential bicycle commuters. Giving people options to change/store clothes and clean up may make some people more inclined to commute by bike. However, much like bicycle parking, these facilities need to be located close to destinations.

Bicycle Shops

Bicycle shops in the community play an integral role in all aspects of cycling from fixing a quick flat to keeping resident's bicycles in proper riding condition. Bicycle shops can also offer rental bikes for visitors.

Bicycle Parking

Secure bike parking is a necessity for promoting bicycle use, especially for utilitarian trips. People will not cycle to shop, work, or school without a safe place to store their bicycle. Bicycle parking, in the form of bicycle racks, is available at public schools, parks and many other trip attractions. The type of bicycle parking provided at a destination should reflect the type of parking demand expected at the location, i.e. whether facilities are needed for short-term or long-term parking. For example, a shopping center will need short-term parking for shoppers as well as long-term parking for employees. Long-term bike parking should be considered for shopping centers, employment centers, multi-family developments, and other land uses as directed by the Zoning Code.



Figure 3-19: Bike Rack in Downtown Half Moon Bay

Short-term bicycle parking is a bicycle rack to which the bicycle frame and at least one wheel can be secured with a user-provided lock. This type of parking is appropriate for short-term parking at shopping areas, libraries, and other places where the typical parking duration is about two hours. Short-term bicycle parking is usually implemented using inverted U-racks or bicycle corrals. Bike racks should be placed in visible, illuminated locations, and should be within close proximity to a primary building entrance or other intended destination. In addition, bicycle racks (and the bicycles parked at the racks) should be located outside the typical pedestrian travel path and not conflict with parked cars or passengers entering/exiting parked vehicles.

Bike parking is recommended for installation at all city parks and at the following locations:

- San Mateo County Sheriff's Substation
- Highway 1 at North Main Street
- Highway 92 at North Main Street/Highway 1
- Kelly Ave at Church Street
- Kelly Ave at Highway 1
- Mirada Road at Coastal Trail
- Poplar Beach
- Redondo Beach Rd at Coastal Trail
- Half Moon Bay Library
- Half Moon Bay State Beach
- Venice Beach

Bike Share

Bike Share is a program designed for short-distance, point-to-point bicycle trips, providing users the opportunity to pick up and drop off a bicycle at any docking station within the system's service area. Newer systems are "dockless" where users find the nearest available bike using a smart phone app and then use the app to unlock and lock the bike. Bike share systems are available at all times, allowing for use outside normal business hours. Annual



Figure 3-20: Docking Bike Share System

memberships can be less expensive than purchasing a new bicycle and the user is not expected to perform maintenance. Several Bay Area cities currently use the Ford Go Bike system, a docking system that uses Clipper cards to unlock a bike. Clipper cards are already used on SamTrans buses and other regional transit systems.

Self-Repair/Fix-It Stations

Half Moon Bay currently has one bike self-repair station on the California Coastal Trail (at Poplar Street) and two stations on the Naomi Patridge Trail (at Seymour Street and Ruisseau Francias Avenue). These stations provide secured communal tools that allow riders to perform basic repairs and maintenance such as changing a tire, adjusting a seat, and using an air pump. Self-repair stations can be both outside on the sidewalk or in a park and located within a building. It is recommended that self-repair stations be located at regular intervals along the Coastal Trail.



Figure 3-21: Fix-it Station on the Coastal Trail

Bicycle and Pedestrian Recommendations

Many recommendations to improve the active transportation network in Half Moon Bay impact both bicycle and pedestrian travel, including corridor studies, crossing improvements, and spot improvements.

Recommended Studies

The BP Master Plan recommends several studies for corridor and spot improvements. The study recommendations are split into Bicycle and Pedestrian Studies and Pedestrian-only Studies. The 0.3 miles of Pedestrian-Only study corridors are listed above in **Table 3-1**. There are an additional 10.4 miles of study corridors for bicycles and pedestrians, as listed in **Table 3-8**. **Figure 3-22** shows these locations. It is important to acknowledge, as is the case for several other projects in the Bicycle and Pedestrian Master Plan, that there will need to be robust scientific understanding of the potential hazards and environmental impacts that could be associated with implementation of trails and other types of improvements identified as studies in this section.

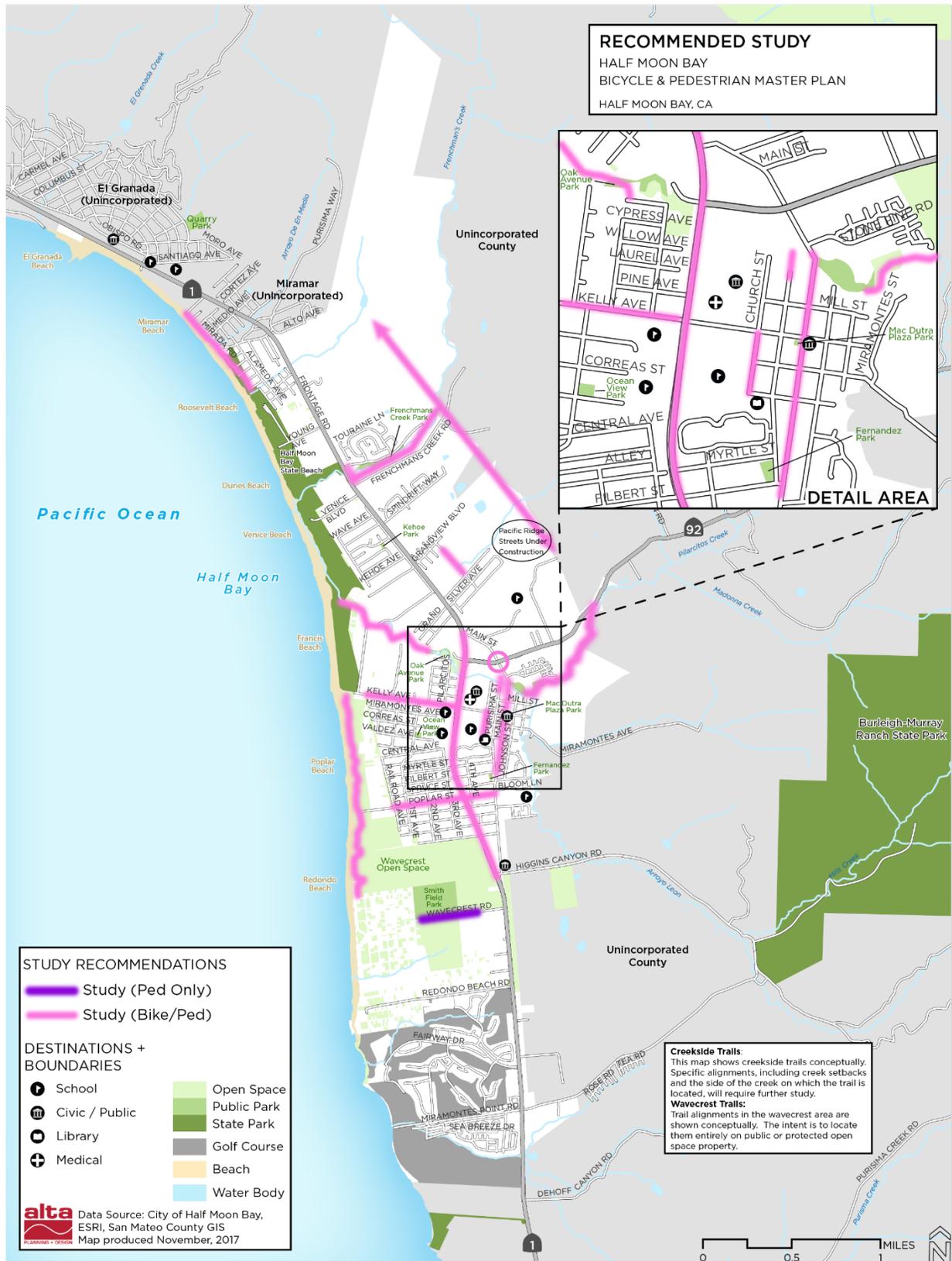


Figure 3-22: Recommended Studies

Table 3-8: Bicycle and Pedestrian Study Recommendations

Name	Cross Street A	Cross Street B	Mileage
Hwy 1 Study: Town Boulevard Concept	N Main St	S Main St	3.18
Pilarcitos Creek Trail	Coastal Trail	Oak Ave/Strawflower Shopping Center	0.74
Pilarcitos Creek Trail	John L. Carter Memorial Park	Hwy 92	0.80
Main St Complete Street Design Study	Main St Bridge	Spruce St	0.58
Church St Study	Kelly Ave	Correas St	0.13
Coastal Trail Signage and Realignment	N end of Coastal Trail (Mirada Rd)	Kelly Ave/Seymour St	1.58
Bridge Connection	Purissima St	Pilarcitos Creek	0.05
Eastside Parallel Trail Bridge	Frenchmans Creek Rd	Ruisseau Francais Ave	0.10
Kelly Ave Study	Coastal Trail	Hwy 1	0.52
Hwy 92/Main St Protected Intersection	Hwy 92	Main St	-
Mirada Rd Study	Magellan Ave	Medio Ave	0.19
Poplar St Improvements	Railroad Ave	Main St	0.57
Beachwood Path	Beachwood Path N	Beachwood Path S	0.17
Frenchmans Creek Trail	Hwy 1	3,000 ft E of Hwy 1	0.63
Vista Trail	Pacific Ridge	Roosevelt Ave	1.17

Highway 1 Study: ‘Town Boulevard’ Concept

The goal of the Highway 1 Study is to transform Highway 1 into a ‘Town Boulevard’. The Town Boulevard concept would change the look and feel of Highway 1 into a more “boulevard-style” roadway that is more pedestrian- and bicycle-friendly. It would prioritize the multi-modal circulation needs of the local community instead of a rural state highway intended to convey automobiles as efficiently as possible through the city. The objectives of the study are to:

- Prioritize safety improvements and provide safe crossings for all modes
- Improve placemaking and beautification with landscaping, gateways, and wayfinding



Figure 3-23: Green Infrastructure in a Roadway Center Median

The City will need to work with Caltrans to transform Highway 1 from a barrier into a community connector. Reducing lane widths, providing landscaping, and implementing other treatments described in this Plan and in the Caltrans *Main Street, California* guide may allow Caltrans to reduce the speed of vehicles traveling through Half Moon Bay and create a roadway that is safer to cross and travel along.



Figure 3-24: Trail Adjacent to a State Highway (credit: Sergio Ruiz)



Figure 3-25: Pedestrian Improvements on El Camino Real in Palo Alto (credit: Google)

Main Street Complete Street Design Study

Throughout the planning process, many ideas were presented to improve bicycle and pedestrian access for Main Street in downtown Half Moon Bay. A study is needed to determine the most appropriate design and proposal for Main Street, but some key objectives emerged from this planning process including:

- Improving safety and visibility of bicyclists on Main Street
- Reducing cut-through traffic using Main Street to avoid traffic on Highway 1 or Highway 92
- Improving the pedestrian environment with wider sidewalks and improved pedestrian amenities
- Improving bicycle and pedestrian access and safety on the Main Street Bridge

Church Street Study

Study a parking protected bike lane on the west side with standard Class II bike lane on the east side of Church Street between Kelly Avenue and Correas Street.

Coastal Trail Signage and Realignment

Install wayfinding, "share the trail" signage, and stripe a center line. Study realigning the trail east due to coastal erosion.

Pilarcitos Creek Bridge at Purissima Street

Study feasibility for a bicycle and pedestrian bridge to connect Purissima Street to Naomi Patridge Trail over Pilarcitos Creek.

Eastside Trail Bridge

Study feasibility of a bridge on the Eastside Parallel Trail crossing Frenchmans Creek.

Kelly Avenue

Study improved bicycle and pedestrian accommodation between the Coastal Trail and Highway 1 on Kelly Avenue.

Highway 92/Main Street Protected Intersection

Study the feasibility of converting this intersection to a protected intersection.

Mirada Road Study

Study feasibility of converting Mirada Road between Magellan Avenue and Medio Avenue to a one-way street. This road is under San Mateo County jurisdiction.

Poplar Street Improvements

Study bicycle and pedestrian accommodation between the Coastal Trail and Highway 1 on Poplar Street.

Pilarcitos Creek Trail Study

Study the feasibility of extending the Pilarcitos Creek Trail from Oak Avenue/Strawflower Shopping Center to the Coastal Trail and from John L. Carter Memorial Park to Hwy 92.

Beachwood Path

Study a bicycle and pedestrian path to provide access and passive recreation opportunities on the Beachwood property, generally between Terrace Ave and Grandview Blvd. The pathway materials and construction methods will be selected to address habitat, erosion, drainage, and other environmental conditions.

Frenchmans Creek Trail

Study the feasibility of a bicycle and pedestrian path adjacent to Frenchmans Creek.

Vista Trail

Study a bicycle and pedestrian path between Roosevelt Avenue and the Pacific Ridge neighborhood currently under development.

Crossing Improvements

This master plan includes several crossing improvements that would benefit both bicyclists and pedestrians (**Table 3-9**). They are organized by “planned” projects and “recommended” projects. Planned projects are currently being planned for installation by the City. Recommended crossing projects are new recommendations that will require further determination as to the best facility for the crossing as well as consultation with Caltrans. **Figure 3-26** maps these projects.

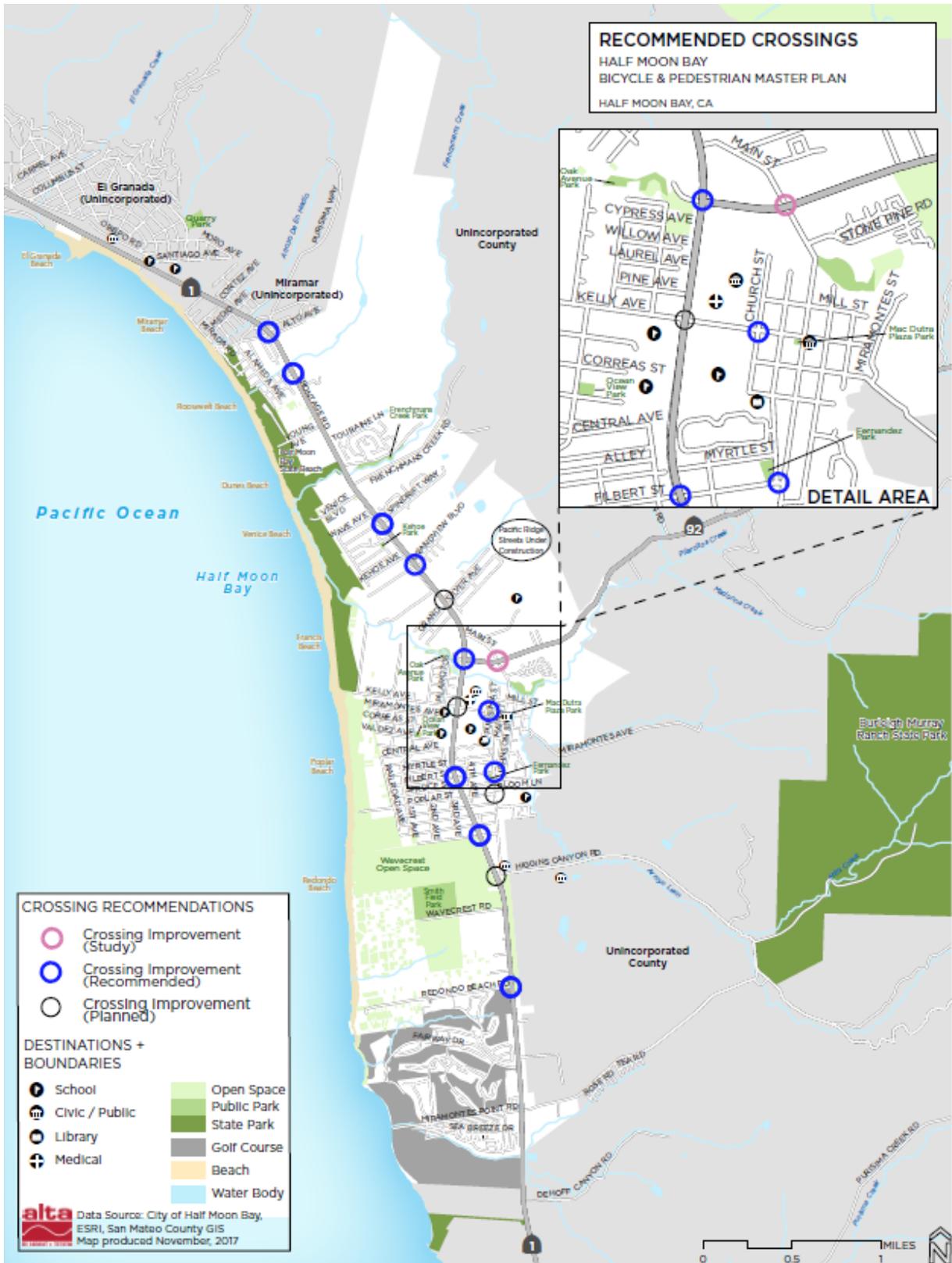


Figure 3-26: Crossing Recommendations

Table 3-9: Crossing Recommendations

Name	Cross Street A	Cross Street B	Notes
Kelly Avenue at Hwy 1 Crossing Improvements	Kelly Ave	Hwy 1	Planned: Install High Visibility Crosswalks and Lead Pedestrian Intervals, all legs Recommended: consider protected intersection
Higgins Canyon Rd at Hwy 1 Beacon	Higgins Canyon Rd	Hwy 1	Planned: Pedestrian Hybrid Beacon
Terrace Ave at Hwy 1 Beacon	Terrace Ave	Hwy 1	Planned: Pedestrian Hybrid Beacon
Poplar St at Main St Crossing Improvements	Poplar St	Main St	Planned: Reconfigure intersection to add ADA access and high visibility crosswalk Recommended: High visibility crosswalks; consider protected intersection to improve safe crossings for bike/ped
Hwy 92 at Hwy 1 Crossing Improvements	Hwy 92	Hwy 1	
Hwy 92/Main St Protected Intersection	Hwy 92	Main St	Study: Protected Intersection
Grandview Blvd & Hwy 1 Beacon	Grandview Blvd	Hwy 1	Recommended: Pedestrian Hybrid Beacon
Mirada Rd at Hwy 1 Beacon	Mirada Rd	Hwy 1	Recommended: Pedestrian Hybrid Beacon
Redondo Beach Rd at Hwy 1 Beacon	Redondo Beach Rd	Hwy 1	Recommended: Pedestrian Hybrid Beacon
Roosevelt Blvd at Hwy 1 Beacon	Roosevelt Blvd	Hwy 1	Recommended: Pedestrian Hybrid Beacon
Filbert St at Hwy 1 Beacon	Filbert St	Hwy 1	Recommended: Pedestrian Hybrid Beacon or Activated Flashing Beacon
Spindrift Way at Hwy 1 Beacon	Spindrift Wy	Hwy 1	Recommended: Pedestrian Hybrid Beacon; pave a connection between roadway and trail
Filbert St at Purissima St/Main St Crossing Improvements	Filbert St	Purissima St/Main St	Recommended: Raised intersection, high visibility crosswalks, bulbouts
Seymour St at Hwy 1 Beacon	Seymour St	Hwy 1	Recommended: Activated Flashing Beacon
Church St at Kelly Ave Crossing Improvements	Church St	Kelly Ave	Recommended: Traffic calming such as roundabout or curb extensions

Various types of crossing improvements are identified in the table for each location, including protected intersections and special crosswalk beacons, as described below.

Protected Intersection

Separated bikeways at intersections can be designed as a protected intersection—providing greater separation and protection for bicyclists and reducing the number of conflict points with motor traffic. Corner islands keep bicyclists to the right, placing them downstream of the cross street and allowing right-turning motorists to complete a turn before interacting with bicyclists. Bicycle crossings are placed next to, but separated from, pedestrian crossings and provide a clear path of travel for bicyclists through the intersection. Protected intersections can facilitate left turns for bicyclists by providing a waiting area to complete the crossing in two stages. Bicycle signals could be incorporated into the design of protected intersections.



Figure 3-27: Diagram of Protected Intersection



Figure 3-28: Protected Intersection

Pedestrian Hybrid Beacon

A pedestrian hybrid beacon (PHB), also known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. The lenses remain “dark” until a pedestrian pushes the call button to activate the beacon. The signal then initiates a yellow to red lighting sequence consisting of steady and flashing lights that alerts motorists to slow and come to a stop. The pedestrian signal then flashes a “walk” display until the pedestrian crosses and the beacon returns to “dark.” They are used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal (or where there are

concerns that a conventional signal will encourage additional motor vehicle traffic on the minor street). Hybrid beacons may also be used at mid-block crossing locations (e.g., trail crossings).

The hybrid beacon can significantly improve the operations of a bicycle route, particularly along bicycle boulevards and where trails cross roadways. Because of the low traffic volumes on these facilities, intersections with major roadways are often unsignalized, creating difficult and potentially unsafe crossing conditions for bicyclists. Hybrid beacons may be supplemented with a bike signal and signal detection for the minor street approaches to facilitate bicycle crossings.



Figure 3-29: Pedestrian Hybrid Beacon on El Camino Real in Santa Clara

Activated Flashing Beacon

Activated Flashing Beacons are user-actuated flashing lights that supplement warning signs at mid-block crosswalks. Flashing beacons, sometimes known as Rectangular Rapid Flashing Beacons, can be installed on either two-lane or multi-lane roadways. Beacons can be actuated manually using a push-button and may optionally also be activated passively through detection. Some cities have used flashing beacons for pedestrian and bicycle crossings.



Figure 3-30: Flashing Activated Beacon

Spot Improvements

Several of the existing facilities in Half Moon Bay would benefit from spot improvements to meet current best practices, better define the bikeway network, and improve its effectiveness, accessibility, and safety. Spot improvements include widening a bridge, improving lighting, opening gates for access, and installing raised crosswalks. Spot improvement projects are described in **Table 3-10** and shown in **Figure 3-31**.

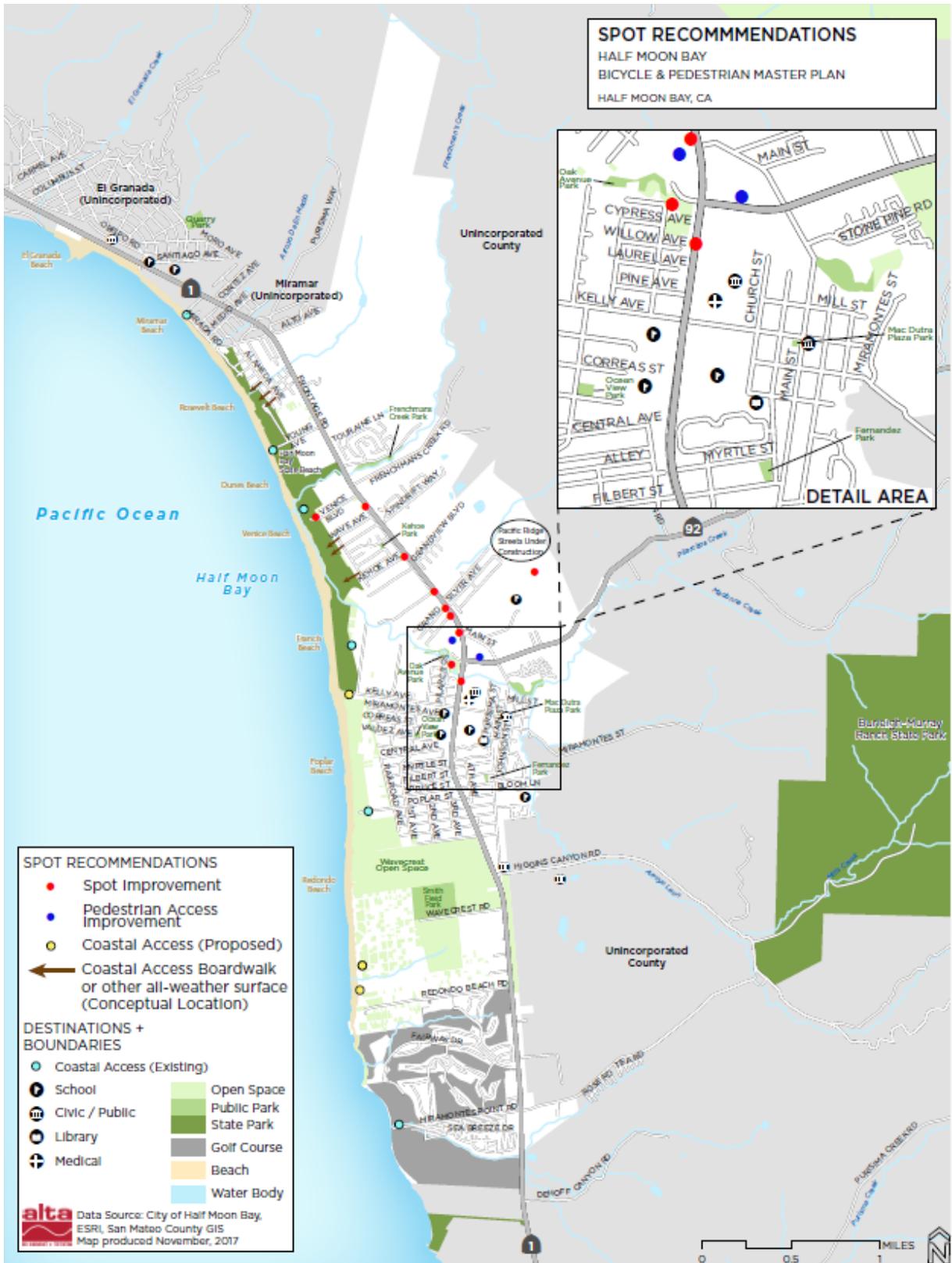


Figure 3-31: Recommended Bicycle and Pedestrian Spot Improvements

Table 3-10: Bicycle and Pedestrian Spot Improvement Recommendations

Name	Cross Street A	Cross Street B	Notes
Naomi Patridge Trail & Belleville Blvd Spot Improvements	Naomi Patridge Trail	Belleville Blvd	Install raised crosswalk; replace existing trail stop signs with yield signs
Naomi Patridge Trail & Grand Blvd Spot Improvements	Naomi Patridge Trail	Grand Blvd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs
Naomi Patridge Trail & Kehoe Ave Spot Improvements	Naomi Patridge Trail	Kehoe Ave	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs
Naomi Patridge Trail & N Frontage Rd Spot Improvements	Naomi Patridge Trail	N Frontage Rd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs
Naomi Patridge Trail & S Frontage Rd Spot Improvements	Naomi Patridge Trail	S Frontage Rd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs
Naomi Patridge Trail & Strawflower Shopping Center Spot Improvements	Naomi Patridge Trail	Strawflower Shopping Center	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs
Terminus Upper Terrace/High School Connection	Terminus Upper Terrace Ave	High School Grounds	Maintain an opening at Upper Terrace Avenue allowing access to the High School grounds; consider traffic calming to reduce potential speeding issues; work with School District to educate parents about safe behavior
Pilarcitos Creek Undercrossing at Hwy 1	Pilarcitos Creek	Hwy 1	Improve lighting, clean up vegetation and debris
Roosevelt Blvd & Coastal Trail Boardwalk	Roosevelt Blvd	Coastal Trail	Install all-weather access; alignments undetermined; boardwalks preferable but may consider other all-weather surfaces (location is conceptual)
Wave Ave and Other Coastal Trail Boardwalks	Wave Ave	Coastal Trail	Install all-weather access; alignments undetermined; boardwalks preferable but may consider other all-weather surfaces (location is conceptual)
Naomi Patridge Trail Bridge	Heskin Ave	Pilarcitos Ave	Add curb cut for bicycle access from bridge to Heskin Ave; widen bridge
Venice Blvd & Coastal Trail Signage and Crosswalk	Venice Blvd	Coastal Trail	Install stop or yield sign and high-visibility crosswalk on Venice Blvd at Coastal Trail crossing

Naomi Patridge Trail Spot Improvements

Many of the Naomi Patridge Trail crossings feel unsafe and uncomfortable for bicyclists and pedestrians as cars make quick turns off of Highway 1. Cars face the risk of being rear ended if they slow down and visibility of the trail users is poor in places. The project recommendation for the Naomi Patridge Trail between North Frontage Road and the Strawflower Shopping Center is to move the trail crossings west, away from Highway 1, toward the frontage road. Trail crossings would be parallel to the frontage road intersection. This provides room for cars to pull off Highway 1 and have room to yield to trail users. In addition, it is recommended that the crosswalk be raised and striped as a high visibility crosswalk. Raised crossings are traffic calming devices that raise the entire wheelbase of a vehicle to reduce its traffic speed and to improve visibility of pedestrians and bicyclists. It is also recommended that the trail stop signs be replaced with yield signs.



Figure 3-32: Example of a raised crosswalk at a trail crossing

Commercial Access

The commercial shopping centers on both sides of Highway 1 at Highway 92 provide poor pedestrian access to the stores within the shopping centers. Pedestrians have to navigate a sea of parking and are not provided a connected pedestrian walkway throughout the site. While this is private property and the City has limited ability to update the current conditions, the City can create development standards to require improved pedestrian access if these sites are redeveloped or if other commercial sites are developed in the future. Improving pedestrian access improves bicycle access as well because bicyclists can dismount and utilize the walkways as pedestrians. The City could consider standards that require that:

- All buildings have clear pedestrian access to the sidewalk, prioritizing access to transit stops.
- Developments include an integrated pedestrian circulation system that connects buildings and parking areas with the adjacent sidewalk system.
- Paved and physically separated walkways or sidewalks are provided through parking lots over a certain size, including landscaping and street trees to provide separation between the walkway and vehicular access and parking spaces.
- Crosswalks are provided when a walkway crosses a paved area accessible to vehicles. The crosswalk uses contrasting paving material that differentiates it from the parking lot.



Figure 3-33: Wide Walkways Make This Shopping Center More Pleasant for Pedestrians

The City can also pursue opportunities to work with the owners of the Strawflower Shopping Center and adjacent properties to provide a connection between Heskin Avenue and Belleville Boulevard.

Table 3-11: Pedestrian Access Recommendations

Name	Cross Street A	Cross Street B
New Leaf Ped Access	Hwy 92	Bus stop
Strawflower Shopping Center Ped Access	Main St	Hwy 1



Figure 3-34: Examples of Wide and Shaded Center Aisles in Parking Lots Provide Comfortable Access for Pedestrians

Coastal Access Boardwalks

All-weather access is recommended to connect Casa del Mar and Miramar neighborhood streets to the Coastal Trail. The exact alignments are undetermined at this point. Boardwalks are preferred, but other surfaces could be considered. Because the land area is owned by State Parks, coordination with that agency and others will be required to implement any of these connections. The pathway materials and construction methods will be selected in each case to address habitat, erosion, drainage, and use patterns.



Figure 3-35: Boardwalk Example

Wayfinding

A good bicycling and walking environment includes both supportive facilities and an easily navigable network. Wayfinding assists residents, tourists, and visitors in finding key community destinations. Signs may also include “distance to” information, which displays mileage to community destinations. The Design Guidelines provide more information about wayfinding. A city-wide wayfinding system can raise awareness and improve access for residents and visitors to community assets such as downtown, the Coastal Trail, and Naomi Patridge Trail.



*Figure 3-36: Existing Wayfinding in Half Moon Bay
Pedestrians*

Principles of Wayfinding

A wayfinding system plan should be legible and easy to navigate. Principles to guide design, placement, and destination include:

Connect Places: Effective wayfinding should enable locals and visitors to travel between destinations and discover new destinations and services.

Promote Active Travel: Wayfinding should encourage people to walk and bicycle by creating a clear, attractive system that is easy to navigate.

Maintain Motion: Wayfinding should be easy to understand while bicycling or walking.

Be Predictable: Wayfinding should be predictable and consistent, including consistent sign materials, dimensions, colors, forms, and placement.

Keep Information Simple: Information should be presented in a clear and logical form so that it is usable for the widest possible demographic.

Navigational Elements

The fundamental family of signs that provide cyclists with navigational information consists of decision, confirmation, and turn signs (**Figure 3-37**). **Figure 3-38** provides typical locations of signs. Decision signs (D) are located prior to an intersection of two routes. Turn signs (T) are located prior to turns. Confirmation signs (C) are located after the turn movement and periodically along routes for reassurance.

Signage Technical Guidance

A variety of standards and guidelines influence both the designs and placement of wayfinding elements in Half Moon Bay. The Manual of Traffic Control Devices (MUTCD) provides standards and guidelines for the design, size, and content of wayfinding signs.

However, many jurisdictions have implemented unique signs to enhance visibility while reinforcing local identity.

Decision Sign	Confirmation Sign	Turn Sign
<ul style="list-style-type: none"> • Clarify route options when more than one is available • Typically include a system brand • Up to 3 destinations • Distance in time or miles (based on 10 mph or 6 min per mile) • FHWA standard size for 3 destinations is 18" H x 30" W • Municipalities can modify, often 24" W x 30" or 36" H, and place bicycle symbol at top • Generally, 6" of vertical space per destination • Sign width not standardized by the CA MUTCD 	<ul style="list-style-type: none"> • Placed after turn movement or intersection to reassure the cyclist is on the correct route • Standard D11-1 series signs, system brand mark and route or pathway name may be included • Minimum size of 24"W x 18"H should be used for bike route signs, both on- and off-street 	<ul style="list-style-type: none"> • Clarify a specific route at changes in direction • Used when only one route option is available • Standard D1-1 series sign: system brand mark, route or pathway name, and/or a directional arrow may be included • A minimum height of 6" should be used for arrow plaque, width may vary with destination length • Standard turn arrows (M5 and M6 series) may be used to clarify movements

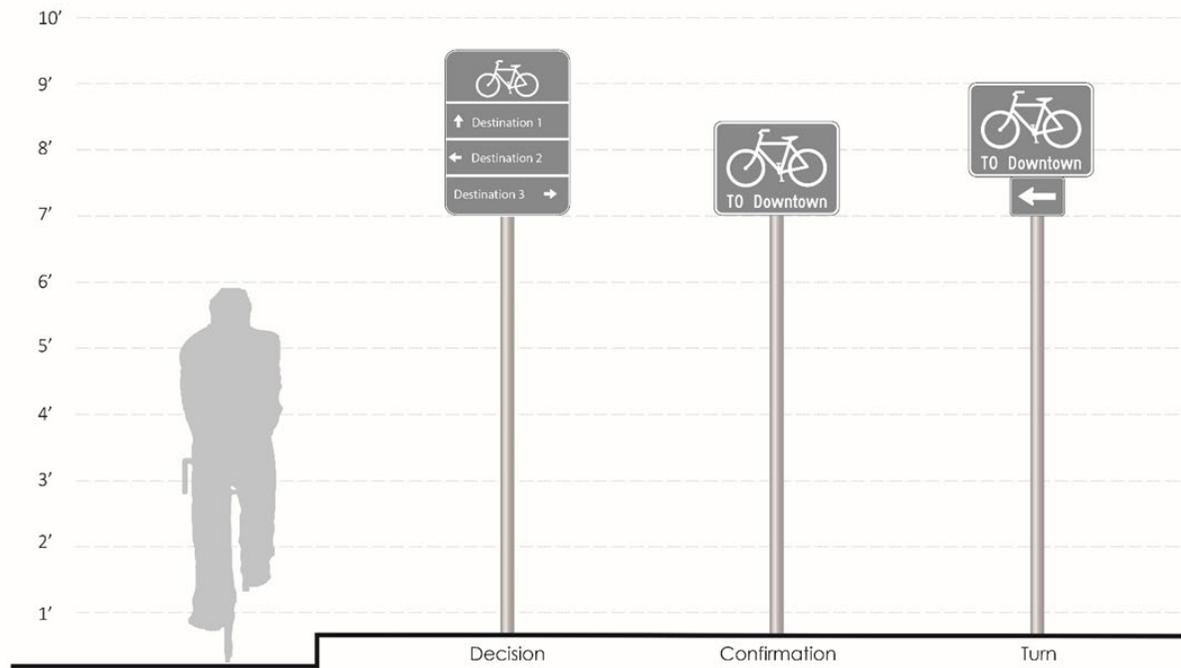


Figure 3-37: On-street wayfinding tools



Figure 3-38: Typical wayfinding locations

Bicycle Guide Signs

Both on-street and off-street bicycle facilities are required to follow the standards within the MUTCD. The State of California has adopted specific state standards for all traffic control devices called the CA MUTCD, which supersedes the MUTCD:

- D11-1: Bicycle Route Guide Sign
- D1-1b: Destination Supplemental Sign
- M7-1 through M7-7: Directional Arrow Supplemental Sign

The combination of standard signs with modifications allows for signage that is consistent throughout Half Moon Bay while branding the network.

Community Wayfinding

Community wayfinding signs allow for an expression of community identity, reflect local values and character, and may provide more information. California has not yet adopted MUTCD community wayfinding standards, but many communities use these. The proposed signage designs for the BP Master Plan include community wayfinding elements.

Other Wayfinding Elements

In addition to the core elements, several other wayfinding elements should be considered, including:

Distance and time - Adding distance in familiar units can be an effective encouragement tool for bicycling and walking. Cities sometimes include travel time.

Street name sign blades and sign toppers - Some cities have enhanced street name sign blades to provide additional recognition of bikeways and major pedestrian routes. For example, some cities use purple street signs to indicate bicycle boulevards.

Pavement markings - Directional pavement markings indicate confirmation of bicycle or pedestrian presence on a designated route and can indicate turns. Especially in urban settings, pavement markings can often be more visible and can help supplement or reinforce signage.

It is recommended Half Moon Bay develop a citywide wayfinding program that offers guidance to destinations including the beach, downtown, schools, trails, adjacent communities, landmarks, and civic buildings.

Trail Amenities

This Plan recommends several Class I Shared Use Paths as well as pedestrian-only trails due to environmental considerations. These recommendations are listed under the Class I Shared-Use Path and Study Corridors sections. For many of the projects, environmental studies should be completed and a more detailed design should be developed before the final alignment can be determined.

As a way to increase recreational opportunities in Half Moon Bay, these trails could incorporate recreational amenities such as benches, exercise equipment, play equipment, and fix-it stations adjacent to the trail.

Program Recommendations

In addition to project recommendations, there are a number of program recommendations that will improve the overall bicycle and pedestrian environment in Half Moon Bay. In order to change behavior and to get more people out of their cars using active transportation as an option, there needs to be a combination of infrastructure improvements and programs in place to educate and encourage active transportation. The following section presents recommended bicycle and pedestrian related programs. The recommendations are organized in five E's: education, encouragement, enforcement, evaluation, and equity.

Education programs are designed to improve safety and awareness. They can include programs that teach students how to safely cross the street, ride a bicycle, or teach drivers to expect pedestrians. They may also include brochures, posters, or other information that targets pedestrians or drivers.

Encouragement programs provide incentives and support to help people leave their car at home and try walking instead.

Enforcement programs enforce legal and respectful walking, bicycling, and driving. They include a variety of tactics, ranging from police enforcement to neighborhood signage campaigns.

Evaluation programs are an important component of any investment. They help measure success at meeting the goals of this plan and identify adjustments that may be necessary.

Equity programs aim to reduce the potential disparity within the bicycling and walking communities by ensuring each person, regardless of age, race, gender identity, or disability, has equal opportunities to walk or ride a bicycle.

Education

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

Student Bicycle and Pedestrian Traffic Safety Education

Student education programs are an essential component of bicycle and pedestrian education. Students are taught traffic safety skills that help them understand basic traffic laws and safety rules. It is recommended the City continue to support the existing

education efforts by the Cabrillo Unified School District and County Sheriff. Local private schools such as Seacrest School could be encouraged to adopt similar programs.

Adult Bicycle Riding

Most people do not receive any formal training on safe bicycling practices, the rules of the road, and bicycle handling skills. Bicycling skills classes can address this education gap and should also include information about basic bicycle mechanics and repairs. The Silicon Valley Bicycle Coalition offers bicycle skills classes taught by League of American Bicyclists certified instructors.

Bicycle Related Ticket Diversion Class

Diversion classes are offered to bicyclist offenders of certain traffic violations, such as running a stoplight. California Assembly Bill 209, signed by Governor Brown in September, 2015 allows for such programs for violations not committed by a driver of a motor vehicle. This program is a good way to educate bicyclists about rights and responsibilities. Similar programs exist throughout California.

City Website

Providing information about events, projects, and resources related to walking and bicycling on the City's website can empower residents to choose active transportation for their daily needs. This master plan recommends the City create and regularly update an active transportation webpage or coordinate with San Mateo County or another agency that currently supports this type of education.

Motorist Education Program

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

Encouragement

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

Media Campaign

Media campaigns enhance awareness of transportation related issues such as safety. They can be developed for print, social media, and video collateral for advertising on billboards, in newspapers, online, and on the radio. Campaign topics include the three-foot passing law and using shared-use paths.

Safe Routes to School Encouragement Activities

The Cabrillo Unified School District is an active participant in Half Moon Bay's planning efforts to improve its bicycle and pedestrian network. A staff member serves on the BPAC

and many of the programs listed below are currently underway. The City of Half Moon Bay should continue to support the School District in their Safe Routes to School endeavors.

Back-to-School Encouragement Marketing

Families set transportation habits during the first few weeks of the school year and are often not aware of the multiple transportation options and routes available to them. Many families will develop the habit of driving to school using the same route as everyone else, leading to congestion. A back-to-school encouragement marketing campaign can promote bus, carpool, walking and bicycling to school. The campaign can include suggested route maps, safety education materials, volunteer opportunities, event calendars, and traffic safety enforcement notices.

Walk to School Day

International Walk to School Day is typically held in October. Students and families are invited to walk or "roll" to school if a safe route is available to them. This event celebrates active transportation and encourages families and students to consider alternatives to driving single-family vehicles to and from school.

Bike to School Day

Bike to School Day is typically held in mid-May. Students and families are invited to bicycle, skateboard, scooter or walk to school if a safe route is available to them. This event celebrates bicycling and encourages families and students to consider alternatives to driving single-family vehicles to and from school.

Walking School Buses and Bike Trains

A Walking School Bus is an organized group of students who walk to school under the supervision of a parent/adult volunteer. Bike Trains are similar to Walking School Buses, with students bicycling together. Parent champions take turns walking or bicycling along a set route to and from school, collecting children from designated "stops" along the way.

Monthly Walk & Roll Days

Walk and Bike to School Days celebrate active transportation as a normal and fun way to travel to school. The most popular events of this type are International Walk to School Day (held in early October) and Bike to School Day (held in early May). Many communities have expanded on these once a year events and hold monthly or weekly events such as Walk and Roll the First Friday (of every month) or Walk and Roll Wednesdays (held every Wednesday).

Golden Sneaker Contest

In the Golden Sneaker Contest, classrooms compete to see which class has the highest rate of students walking, biking, carpooling, or taking public transportation to and from school. The class tracks how many students commute by these modes and calculates the percent of total trips by each mode. The winner of the contest receives a "golden sneaker" trophy, along with other incentive prizes. The contest can be expanded from classroom

competitions to intra-school competitions or district-wide competitions. Some schools hold celebrations for winning classrooms.



Figure 3-39: Students Participating in a Safe Routes to School Program

Bus Stop Upgrades

Many of the bus stops in Half Moon Bay lack adequate sidewalks, safe crossings, and are uncovered or without amenities such as benches or trash cans. The City should coordinate with SamTrans and the School District to work to improve bus stops and access to bus stops used by Half Moon Bay students. Because ridership is relatively low, Half Moon Bay's bus stops do not specifically qualify for bus stop or shelter improvements pursuant to SamTrans criteria, thus advocacy, grant funding, and other means are needed to implement these types of improvements.

Open Streets Events

Open Streets Events are programs that temporarily open streets to people by closing them to cars. Nearby communities like Palo Alto, San Jose, and San Francisco have implemented recurring open streets events and highlighted different neighborhoods of each city. Half Moon Bay can partner with neighboring cities and Caltrans for a more impactful event.

Bicycle Friendly Community

The League of American Bicyclists (LAB) recognizes communities who have put in significant effort toward bicycle-related projects and programs by awarding Bronze to Diamond certifications. Communities apply every four years with applications focusing on engineering feats, encouragement programs, enforcement policies, and evaluation and planning. The BPAC could support an application on behalf of the city.

Bicycle Friendly Businesses

The LAB also recognizes businesses who have worked to encourage a more welcoming atmosphere for bicycling employees, customers, and the community. Deserving businesses are recognized at the Bronze, Silver, Gold, and Platinum levels and all applicants receive feedback and assistance in becoming more welcoming to bicycling.

Chamber of Commerce

The City could invite the Chamber of Commerce to support bicycling in Half Moon Bay by emphasizing the bicycle culture and trail amenities in tourism efforts.

Bike to Shop Day

The Silicon Valley Bicycle Coalition (SVBC) helps organize an annual Bike to Shop Day during May is Bike Month. Local shop owners typically reward shoppers who arrive by bike through discounts and prizes. The BPAC can work with SVBC and local businesses owners to bring this event to Half Moon Bay.

Enforcement

Enforcement programs enforce legal and respectful use of the transportation network. These programs will help educate motorists, bicyclists, and pedestrians about the rules and responsibilities of the road.

Crossing Guard Program

The effectiveness of a crossing guard can be the deciding factor in a parent feeling comfortable enough to let their child walk or bicycle to school. Currently, adult crossing guards in the County are school staff and there are no crossing guards in Half Moon Bay.

The City should continue to support the School District to identify opportunities to develop a crossing guard program. The School District should work with the Sheriff's Office to identify locations for crossing guards.

Crosswalk Stings/Enforcement Campaigns

In a crosswalk sting operation, the Sherriff's Office targets drivers who fail to yield to pedestrians in a school crosswalk. A plain-clothes decoy police officer ventures into a crosswalk and motorists who do not yield are given a citation by a second officer stationed nearby. The Sherriff's Office or School District may alert the media to the crosswalk stings to increase public awareness of the crosswalk safety issue. Other common enforcement campaigns include targeting driver violations including speeding or talking/texting on cellphones.

It is recommended the City and School District work with the Sherriff's Office to conduct crosswalk stings and enforcement campaigns near schools and other key destinations for bicyclists and pedestrians.

Evaluation

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

Annual Collision Data Review

Reviewing bicycle and pedestrian related collisions and near-misses on an annual basis can help the City identify challenging intersections or corridors. This review should include an assessment of the existing infrastructure to determine whether improvements can be made to reduce the number of collisions in the community.

This master plan recommends the County and Sherriff's Office review bicycle and pedestrian related collision data on an annual basis to identify needed improvements.

Bicycle and Pedestrian Counts

Build off the count data that was collected as a part of this master plan to continue to do annual counts to establish trends over time. Participate in Countywide counts and perform City counts as possible.

Parent Surveys

Continue to gather school parent survey data as currently led by the School District. The National Center for Safe Routes to School provides a standard parent survey, collecting information on modes of travel, interest in walking or biking to school, and challenges to walking and bicycling to school. The information gathered from the parent surveys can help Half Moon Bay and School District provide programs that are attractive to parents. Parent surveys can also help measure parent attitudes and changes in attitude towards walking and biking to school.

Student Walking and Biking Counts

Student hand tallies are one way to count the number of students who walk, bicycle, take transit or carpool to school. The National Center for Safe Routes to School provides the standard tally form.

It is recommended the School District continue to conduct student tallies on an annual basis. Counts can also be held on annual walking or bicycling to school events. These are an excellent way to track the number of students who walk or bicycle to school over time. Grant applications will often require this information.



Figure 3-40: Student Tally

Equity

Equity is a lens through which the City and its partners should examine and evaluate all its efforts. Several equity-specific programs are described below.

Bike Kitchen/Bicycle Repair Co-Ops

Bike Kitchens and other bicycle repair cooperatives teach people of all ages and backgrounds how to repair bicycles. The shops provide all the tools and parts required to fix or build a bicycle and includes volunteer mechanics who give advice and answer questions. Fees can be day-use or through a membership. Memberships are typically offered through a sliding scale dollar amount or through volunteer hours.

Earn-a-Bike

Earn-a-Bike programs provide qualified participants the opportunity to earn a bike and/or bicycle supplies through various activities or volunteering. An example is to provide a free bicycle to a high school student who turns in their parking permits for a certain amount of time.

Bicycle Coalition Events and Resources

The Silicon Valley Bicycle Coalition and the San Francisco Bicycle Coalition organizes and supports bicycle-related events and resources aimed towards families, children, seniors, women, and people of color. Events include group rides, meetups, and workshops. The City can ask these organizations to host an event in Half Moon Bay.

Senior Strolls

Senior Strolls are organized walks aimed to help members of the senior community to be more active. The City could partner with the County Health Department, Senior Coastsiders, or another agency to develop walking routes and organize walks throughout Half Moon Bay.

Chapter Summary

The recommendations in this chapter focus on improving the overall pedestrian and bicycle network and programs that encourage walking and bicycling in Half Moon Bay. The individual projects together create connected, comfortable, and complete corridors and the programs encourage safe use of these facilities. The next chapter provides guidance on how to implement these recommendations, providing priorities for implementation and recommendations for funding sources.

IMPLEMENTATION

CHAPTER

4



4. Implementation

Implementation of the proposed bicycle and pedestrian programs and improvements described in the previous chapters of the Bicycle and Pedestrian Master Plan (BP Master Plan) will require funding from local, regional, state, and federal sources and coordination with multiple agencies both within and outside the City. To facilitate implementation efforts, this chapter presents the project prioritization methodology, cost estimates, maintenance information and costs, and a list of prioritized bicycle and pedestrian projects. At the conclusion of this section, funding and implementation strategies are described.

Prioritization

The proposed bikeway and pedestrian improvements, when fully implemented, will provide a comprehensive active transportation network for Half Moon Bay. Recognizing that there are limited financial resources that can be devoted to these projects, it is necessary to establish a system for prioritizing the improvements that can provide the most effective use of available funds, and help direct effective grant writing in the future. This prioritization process does not preclude the City from pursuing opportunities as they arise to implement other projects on the project recommendation list, but helps create a strategy for pursuing funding to implement the projects that will have the greatest impact on creating a safe, comfortable, and complete active transportation network.

Small-scale, easy-to-implement projects were removed from the list of projects to be prioritized. The remaining projects were evaluated using a qualitative approach, based on criteria established through the community engagement process. The benefit of a project was evaluated based on the project's impact on safety, connectivity, and equity. The feasibility of a project was evaluated based on the cost of the project and whether there were other feasibility constraints (**Table 4-1**). Projects were categorized as: high benefit, high feasibility; high benefit, low feasibility; low benefit, high feasibility; or, low benefit, low feasibility based on these criteria. These projects were presented to the Bicycle and Pedestrian Advisory Committee (BPAC) for review and approval and a final list of priority recommendations was established, with a focus on key network connections. (Note to the Reader: The BPAC's recommendations will be reviewed by the City Council who will ultimately determine which projects are prioritized. Any changes to these priority projects will be represented in the final document for City Council adoption.)

While high priority projects were identified, this does not mean that the remaining projects must wait until these high priority projects are implemented. If an opportunity arises to implement any of the proposed bikeway or pedestrian projects within the scope of another project, lower priority projects may advance more quickly.

Table 4-1: Qualitative Evaluation Criteria for Project Prioritization

Criteria	Score		
	High Benefit	Medium	Low Benefit
<u>Safety</u> - the project addresses safety concerns	Project improves a high stress facility (such as a highway or high traffic road) and/or creates a low stress facility (such as a trail or protected bikeway)	Project addresses a moderate stress facility and/or slows down vehicles or creates a moderately safe facility	Project addresses a low stress facility and/or creates a facility that does not provide separation from vehicles
<u>Connectivity</u>	Project closes a gap in the network or provides a new direct connection to a key destination	Project provides a new indirect connection to a key destination	Project does not provide a new connection to a key destination
<u>Equity</u> - Project serves vulnerable populations including children, seniors, or transportation disadvantaged populations	Project directly benefits a vulnerable population	Project indirectly benefits a vulnerable population	Project does not benefit a vulnerable population
Feasibility	High Feasibility	Medium	Low Feasibility
<u>Cost</u>	Low cost (less than \$50K)	Medium Cost (\$50K - \$199,999)	High cost (Over \$200K)
<u>Other Feasibility Constraints</u> (such as land acquisition, environmental constraints, Caltrans ROW)	Project has no known constraints	Project has one known constraint	Project has more than one constraint

After projects were evaluated based on the criteria and BPAC review, 11 were selected as the top priority for the BP Master Plan. These projects are listed in **Table 4-2** in no particular order and shown on **Figure 4-1**. The full list of projects can be found in **Appendix D: Project Recommendations**. (Note to the Reader: Top Priority Projects will be considered by City Council and may be revised for the final version of the plan). If a need is indicated through on-going maintenance and monitoring, the City may determine that some non-priority projects must be funded and implemented in advance of priority projects, especially in cases where habitat, erosion, drainage, and use patterns require near term intervention.

Table 4-2: Top Priority Projects

Name	Cross Street A	Cross Street B	Cost Estimate
Kelly Ave Bike Lanes	Hwy 1	Johnston St	\$24,000
Main St Bike Lanes	Hwy 92	Main St Bridge	\$8,300
Main St Buffered Bike Lanes	Hwy 1	Hwy 92	\$36,000
Miramontes Point Rd Bike Lanes	Hwy 1	City limit	\$22,500

Name	Cross Street A	Cross Street B	Cost Estimate
Alsace Lorraine/1st Street Bike Boulevard	Kelly Ave	Poplar St	\$61,000
Hwy 92 Separated Bikeway	Hwy 1	Main St	\$102,000
Eastside Parallel Trail	Frenchmans Creek Rd	Miramontes Point Rd	\$5,670,000
Church St at Kelly Ave Crossing Improvements	Church St	Kelly Ave	\$50,000
Upper Terrace/ High School Connection	Upper Terrace Ave	High School Grounds	\$36,000
Highway 92 at Highway 1 Crossing Improvement	Hwy 92	Hwy 1	\$12,000

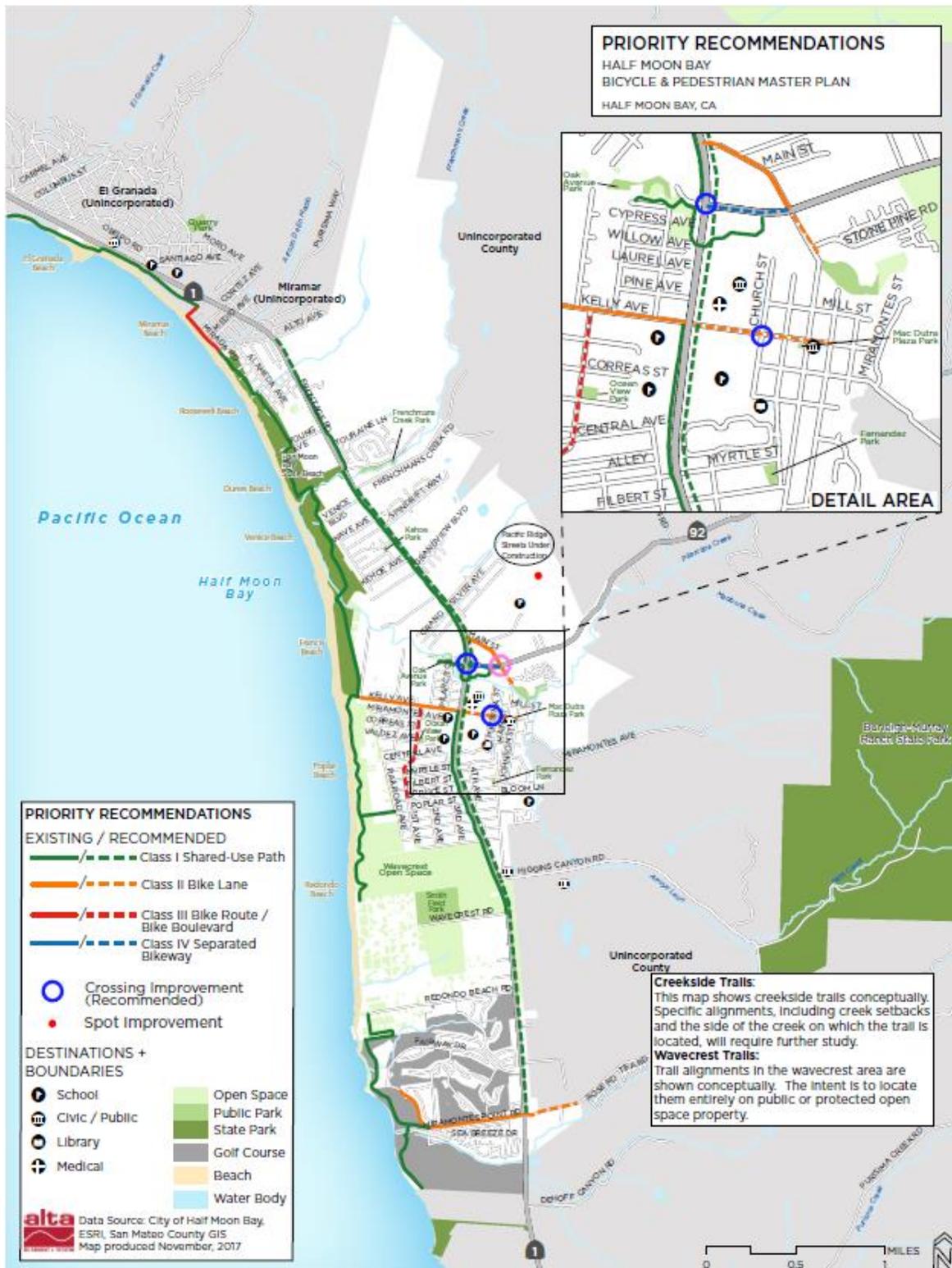


Figure 4-1: Priority Projects

Cost Estimates

These costs do not reflect the full range of options that could be considered for implementation. Some projects may cost more due to specific site conditions and other factors not known at this time. Other projects could be implemented using various treatments, including basic methods such as with paint, and therefore cost significantly less; but would not incorporate the types of infrastructure options (pavement, curbs, or landscaping, for example) included in these cost estimates. Some projects could be installed in phases using simple treatments initially with upgrades to more permanent infrastructure later as funding becomes available.

Table 4-3 provides a unit cost summary of the recommended improvements. These costs do not reflect the full range of options that could be considered for implementation. Some projects may cost more due to specific site conditions and other factors not known at this time. Other projects could be implemented using various treatments, including basic methods such as with paint, and therefore cost significantly less; but would not incorporate the types of infrastructure options (pavement, curbs, or landscaping, for example) included in these cost estimates. Some projects could be installed in phases using simple treatments initially with upgrades to more permanent infrastructure later as funding becomes available.

Table 4-3: Planning-Level Cost Estimates

Project Type	Cost	Unit	Notes
Class I Shared-Use Path	\$1,500,000	Mile	10' asphalt path, 2' shoulders, signage, minimal grading
Class II Bike Lane	\$75,000	Mile	Two sides of road
Class II Buffered Bike Lane	\$150,000	Mile	Two sides of road. Cost will vary depending on existing elements (drainage grate modifications, pavement overlay, etc.)
Class III Bike Route	\$15,000	Mile	
Class III Bike Boulevard	\$100,000	Mile	Cost will vary depending on improvements proposed
Class IV Separated Bikeway	\$600,000	Mile	Cost will vary depending on materials used for separation
Protected Intersection	\$650,000	Each	
High-Visibility Crosswalk	\$3,000	Crossing	
Pedestrian Hybrid Beacon (HAWK)	\$150,000	Crossing	
Activated Flashing Beacon	\$20,000	Crossing	
Signage	\$400	Each	Cost is lower if installed on an existing post
Sidewalk	\$200	Linear Foot	6' wide, includes curb and gutter
Pedestrian-Scale Lighting	\$5,000	Each	
Bike Parking	\$500	Each	
Raised Intersection	\$250,000	Each	Includes drainage, stamped asphalt within raised space

Project Type	Cost	Unit	Notes
Bicycle/Pedestrian Bridge	\$7,500	Linear Foot	10' wide, over creek
Pedestrian Access Improvement	\$30,000	Each	Through commercial areas

Priority projects will cost approximately \$7.1 million in 2018 dollars. Completing all of the recommendations would require up to approximately \$22 million, an investment of just about \$1.1 million per year over 20 years. Although a portion of the proposed system could be implemented as new development or re-paving occurs, a substantial portion of the total cost will rely on public funding. The funding strategy is discussed in the next section.

It is anticipated that construction of many facilities would be primarily funded by outside grant sources and partnerships with other agencies, with land acquisition costs contributing towards local match requirements.

Funding Strategy

There are a variety of potential funding sources including local, regional, state, and federal. The City should also take advantage of private contributions in developing the proposed system. This could include a variety of resources such as volunteer labor during construction or monetary donations towards specific improvements. The funding sources considered appropriate for Half Moon Bay are listed in **Table 4-4** and discussed in detail in **Appendix E: Funding Sources**.

Table 4-4: Funding Sources Detailed in Appendix E

Funding Source
Federal Funding Sources
TIGER (Transportation Investment Generating Economic Recovery)
Rivers, Trails and Conservation Assistance Program (RTCA)
State Funding Sources
Active Transportation Program (ATP)
Solutions for Congested Corridors Programs
Highway Safety Improvement Program (HSIP)
Sustainable Transportation Planning Grant Program (STP)
Office of Traffic Safety: National Safety Program 405(h) Nonmotorized Safety
Recreational Trails Program
Land & Water Conservation Fund (LWCF)
Regional Funding Sources
Bicycle Facilities Grant Program
Measure AA

Funding Source

One Bay Area Grant Program 2

Local Funding Sources

Measure A Pedestrian and Bicycle Program

New Development or Redevelopment

Assessment Districts

Impact Fees

Open Space District

Non-Traditional and Private Funding Sources

California Conservation Corps (CCC)

Rails to Trails Conservancy (RTC)

Grant and Foundation Opportunities

Adopt-A-Trail/Path Programs

Memorial Funds

Revenue-Producing Operations

Maintenance

Maintenance of the bicycle and pedestrian facilities in Half Moon Bay will be critical for the overall active transportation network. Maintenance of the trails in Half Moon Bay was identified as an important action for the City to emphasize within this master plan. The City should make every effort to choose materials that can last over a long period of time and would not require frequent repairs. Path maintenance includes cleaning gravel, sealing/resurfacing, and restriping asphalt paths, repairing bridges and other structures, cleaning the drainage system, removing trash, and maintaining vegetation. While this maintenance effort may be relatively low cost, the mix of jurisdictional responsibility (existing trails are owned by a variety of state, regional, local agencies, and land trusts) and limited budgets often means that these concerns are not addressed.

For purposes of estimating maintenance expenses for paved pathways, \$8,500 per mile per year is assumed based on information received for other similar facilities in California. This cost covers all expenses including labor, supplies, and amortized equipment costs. Tasks include trash removal, sweeping (with a mechanized sweeper), sign replacement/repair, pavement marking replacement, pavement sealing/resurfacing, and structural and drainage inspection. Underbrush and weeds should be trimmed or removed to maintain a clear pathway.

Sections with narrow widths or other clearance restrictions should be clearly marked. Pathways should be designed to accommodate City maintenance vehicles and emergency vehicles.

Maintenance for Class II bike lanes and Class III bike routes can generally be provided as part of regular roadway maintenance. Additional costs should be minimal because, in most locations, the roadway surface area to be maintained will be the same with or without bike lanes or routes. For estimating purposes, maintenance costs for Class II, Class III, and Class IV facilities would include:

- Class II at \$2,000/mile annually for sweeping, sign and stripe/pavement marking maintenance, and minor surface repairs. Buffered bike lanes may have modest additional maintenance costs due to the additional striping that needs to be maintained.
- Class III at \$1,000/mile annually for sweeping, signage maintenance, and minor surface repairs. Bicycle Boulevards may have additional costs, dependent on a street's specific treatments.
- Class IV facilities are priced similar to Class II facilities, but may require additional capital to maintain and clean. Depending on the type of separation provided, the City may need to purchase specialty (micro) street sweepers or investigate other cleaning/maintenance methods to accommodate the spatial limits of the bikeway. Separators can generally be designed specifically to accommodate existing street sweeping equipment

A regular maintenance program should keep bicycle and pedestrian facilities in good, usable condition. This program should include:

- Annual review of bicycle facilities to assess the condition and needed repair or replacement of signage, striping, pavement markings, City bike racks, and fix-it stations.
- Regular sweeping of on-street and off-street facilities no less than four times a year. Obstructions and potholes should be repaired as soon as possible after being reported.
- A pedestrian and bicycle facility improvement and maintenance log in the Public Works Department where all observed and recorded hazardous conditions are listed and scheduled for repair or replacement. This list would include all grates and railroad crossings that do not meet specific criteria.

The annual maintenance and operations budget would be established by the Public Works Department.

Small-Scale Projects

Table 4-5 lists and Figure 4-2 shows recommended small-scale projects that can be implemented within a short time frame, depending on funding. These projects were not included in the project prioritization process because they should be undertaken as part of the City's regular order of business, through the Capital Improvement Program (CIP), maintenance work orders, or other opportunities.

Table 4-5: Small-Scale Project Recommendations

Name	Cross Street A	Cross Street B	Notes
Bike Parking			
All city parks	-	-	At least 2 racks at each city-owned park
San Mateo County Sheriff's Substation	Cabrillo Highway	Kelly Ave	3 racks at sheriff's substation, next to the farmers market
Highway 1 at Main St	Hwy 1	Main St	At least 5 racks at stores
Highway 92 at Main St/Highway 1	Hwy 92	Main St/Hwy 1	At least 5 racks at stores
Kelly Ave at Church St	Kelly Ave	Church St	3 racks
Kelly Ave at Highway 1	Kelly Ave	Hwy 1	At least 3 racks near restaurants
Mirada Rd & Coastal Trail	Mirada Rd	Coastal Trail	4 racks
Poplar Beach	Poplar St	Poplar Beach	5 racks at Poplar Beach parking area
Redondo Beach Rd & Coastal Trail	Redondo Beach Rd	Coastal Trail	4 racks
Half Moon Bay Library	Correas St	Church St	5 racks; may already be planned
State Beach	2nd Ave	Francis State Beach	4 racks at State Beach parking area
Venice Beach	Venice Blvd	Venice Beach	4 racks at Venice Beach parking area
Crossing Improvements			
Correas St at Main St	Correas St	Main St	High visibility crosswalks
Balboa Blvd at Coastal Trail	Balboa Rd	Coastal Trail	High visibility crosswalk
Johnston St at Miramontes St	Johnston St	Miramontes St	High visibility crosswalks, all legs
Kelly Ave at Main St	Kelly Ave	Main St	High visibility crosswalks
Kelly Ave at Pilarcitos Ave	Kelly Ave	Pilarcitos Ave	High visibility crosswalks, all legs, consider flashing stop signs
Kelly Ave at Purissima St	Kelly Ave	Purissima St	High visibility crosswalks
Lewis Foster Dr at Main St	Lewis Foster Dr	Main St	High visibility crosswalks; consider pedestrian hybrid beacon or flashing beacon
Mill St at Main St	Mill St	Main St	High visibility crosswalks, curb extensions
Miramontes St at Main St	Miramontes St	Main St	High visibility crosswalks
Miramontes St at Church St	Miramontes St	Church St	Add new high visibility crosswalk on east leg

Name	Cross Street A	Cross Street B	Notes
Miramontes Point Rd at Highway 1	Miramontes Point Rd	Hwy 1	High visibility crosswalks; add new crosswalk on north leg
N Main St at Highway 1	Main St	Hwy 1	High visibility crosswalks, all legs; protected intersection
Poplar St at Highway 1	Poplar St	Hwy 1	High visibility crosswalks
Other Improvements			
Main St Bridge Signage	Main St	100 ft S of Stone Pine Rd	Short term: install signage to warn drivers of bikes/peds on bridge. 100 ft S of Stone Pine Rd
Main St Bridge Signage	Main St	300 ft S of Stone Pine Rd	Short term: install signage to warn drivers of bikes/peds on bridge. 300 ft S of Stone Pine Rd
Coastal Trail Center Stripe	N end of Coastal Trail (Mirada Rd)	Poplar Beach Parking Lot	Paint a center stripe along the Coastal Trail to better indicate directionality

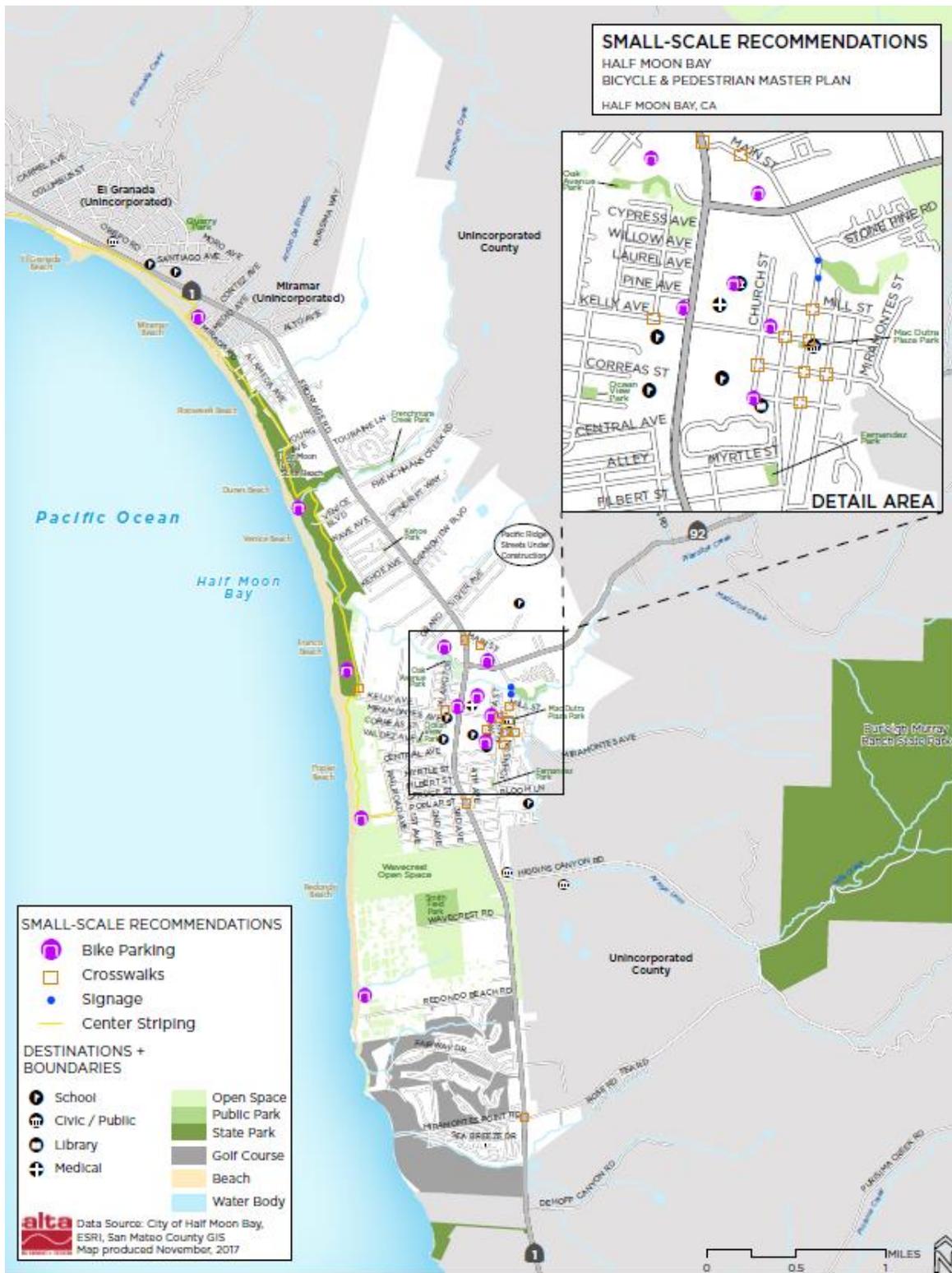


Figure 4-2: Small-Scale Project Recommendations

Implementation Strategy

This section outlines various implementation actions recommended to support the bicycle and pedestrian networks and to measure success of the bicycle and pedestrian program.

Bicycle/Pedestrian Program Coordination

Designate existing staff (Transportation Engineer or Planner) to coordinate with City and outside agency staff, and overall implementation of the Bicycle and Pedestrian Plan.

Bicycle and Pedestrian Advisory Committee (BPAC)

Maintain the BPAC as an on-going advocacy, review, and implementation team and as support for City staff in implementing the BP Master Plan. The BPAC should meet regularly and should be kept informed by City staff of all relevant projects/policies. Leverage regional bicycle coalitions like the Silicon Valley Bicycle Coalition (SVBC) and other active transportation organizations to help inform and provide expertise to the BPAC.

Master Plan Review

All traffic impact studies, street improvement projects, land use changes, and development projects should be routed through appropriate City staff (and the BPAC, if appropriate) to ensure that bikeway projects and pedestrian improvements are implemented, developer impact fees are identified (if applicable), and design guidelines presented in the BP Master Plan and the City's complete street policies are met. The review should also include an assessment of impacts to existing bicycle and pedestrian safety, access, and mobility and strategies to mitigate any impacts.

Monitoring

A monitoring program for implementation of the BP Master Plan should be put into place. The monitoring program may include the following activities:

- **Collision Monitoring:** Bicycle and pedestrian related collision data from the Sheriff's Department should be evaluated on an annual basis and tabulated to show patterns by location and collision type.
- **Funding Monitoring:** The City should coordinate with various funding agencies such as Metropolitan Transportation Commission, Bay Area Air Quality Management District, San Mateo County Transportation Authority, California Transportation Commission, and Caltrans to keep abreast of funding opportunities and to follow up on applications to ensure maximum success.
- **Operations Monitoring:** In cooperation with the Sheriff's Department, the City should identify needed enforcement along bike paths (issues of security, privacy, vandalism, and crime) as well as enforcement of traffic laws affecting bicyclists and pedestrians on city streets.

- Annual Bicycle and Pedestrian Counts: The San Mateo Office of Sustainability can be leveraged for ongoing bicycle and pedestrian counting efforts.

Maintenance

A regular maintenance program should keep bicycle and pedestrian facilities in good, usable condition. This program should include:

- Annual review of bicycle facilities to assess the condition and needed repair or replacement of signage, striping, pavement markings, City bike racks, and fix-it stations.
- Regular sweeping of on-street and off-street facilities no less than four times a year. Obstructions and potholes should be repaired as soon as possible after being reported.
- A pedestrian and bicycle facility improvement and maintenance log in the Public Works Department where all observed and recorded hazardous conditions are listed and scheduled for repair or replacement. This list would include all grates and railroad crossings that do not meet specific criteria.

The annual maintenance and operations budget would be established by the Public Works Department.

Coordination with Other Agencies

The lines of communication regarding issues affecting bicyclists and pedestrians should be established with other City and County Departments (Sherriff, Public Works, and Recreation and Human Services), county and regional agencies responsible for funding and implementation of the county/regional bikeway networks, the Cabrillo Unified School District (CUSD), local private schools, and adjacent communities to ensure that all opportunities for implementation of the BP Master Plan are utilized.

Outreach

Community members and interested parties should be kept apprised of successes and opportunities for bicycling and walking in Half Moon Bay. Some strategies include:

- Coordinate with and promote education and outreach events supported by other agencies including San Mateo County and CUSD, such as Bike to Work Day and Walk a Child to School Day.
- Update the City's website and newsletter on new or renovated facilities.
- Create and maintain a mailing list of organizations and individuals that will support events and efforts by the City to encourage bicycling and walking.
- Promote volunteer maintenance programs supporting work parties and providing technical and logistical assistance to the BPAC, bicycle or environmental advocacy groups, and other organizations interested in organizing such events. Bikeways may be "adopted" by local businesses or

clubs and maintained by them in exchange for community acknowledgment. This could be particularly helpful for maintenance of the Coastal Trail.

- Develop a bicycle parking program where the City supplies and installs bicycle racks on public right-of-way (ROW) at the request of adjacent business owners and residents.
- Create a bikeway identity by developing bikeway signage, brochures, maps, and other materials. A logo could help define bikeway routes as a cohesive system rather than a series of disconnected routes. Wayfinding, informational, and warning signs should conform to the California Manual on Uniform Traffic Control Devices (MUTCD) unless superseded by City guidelines.
- Serve as an example for walking and bicycling by developing City programs for employee incentives, secure and convenient bicycle parking (such as electronic lockers or a bike cage for employees), walking and bicycling events, and adopting walking and bicycling goals for employees and elected officials.

Chapter Summary

By understanding a project's priority and cost estimate, the City can find funding through the City's Capital Improvement Program and through grant funding. This ensures the projects and programs described in this master plan can be implemented quickly and efficiently. This chapter is meant to be updated over time as funding sources change, priority projects are implemented, studies are conducted, and other program elements are developed. This helps City staff monitor the implementation of the BP Master Plan recommendations over time, ensuring that implementation is as efficient as possible.

APPENDICES

APPENDICES
A-E



Table of Contents

Appendix A. Related Plans and Policies	A-1
Appendix B. Community Outreach and Engagement	B-1
Appendix C. Detailed Needs Analysis	C-1
Appendix D. Project Recommendations	D-1
Appendix E. Funding Sources	E-1

Appendix A. Related Plans and Policies

This appendix provides an overview of plans and policies that relate to the City of Half Moon Bay Bicycle and Pedestrian Master Plan (BP Master Plan).

County and Regional Plans and Policies

San Mateo County Comprehensive Bike and Pedestrian Plan (2011)

The San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) completed by the City/County Association of Governments of San Mateo County envisions bicycle and pedestrian networks countywide that will support safe, comfortable, and convenient travel for people who walk or ride a bicycle at all skill levels. The plan sets forth an integrated set of policies to support this vision. The plan also provides detailed maps and tables of proposed bikeway projects to assist local implementing agencies in constructing bikeways. The plan includes existing and proposed facilities within and connecting to Half Moon Bay.

The CBPP presents five goals and a series of policies aimed to develop an interconnected system of safe, convenient and universally accessible bicycle and pedestrian facilities, for both transportation and recreation. The goals are to have:

1. A comprehensive countywide system of facilities for bicyclists and pedestrians;
2. More people riding and walking for transportation and recreation;
3. Improved safety for bicyclists and pedestrians;
4. Complete streets and routine accommodation of bicyclists and pedestrians;
- and
5. Strong local support for non-motorized transportation.

The maps below show the existing and proposed bicycle network and the areas of focus for pedestrians for the coastal areas. Pedestrian focus areas are described as areas where jurisdictions may wish to consider land use and development policies that support pedestrian activity. Focus areas include the downtown and around Hatch Elementary School and Half Moon Bay High School. The CBPP breaks down potential improvements by type of focus area. For example, the Highway 1/Coastal Trail/Parallel Trail Improvements focus area states that improvements in this area will generally consist of new walking pathways along Highway 1 and new or enhanced crossing opportunities. The Major Barrier Crossings focus area states that, "As a first step, existing roadway crossings of major barriers should be upgraded to provide improved pedestrian access via wide sidewalks and other improvements. Grade-separated pedestrian and bicycle crossings may be considered where anticipated use will be high and no alternative at-grade option exists... Projects in this focus area will generally consist of pedestrian over- and undercrossings, improvements to at-grade arterial intersections, and pedestrian-related improvements to interchanges

associated with the following: Highway 1... Highway 92... [and] major creeks or waterways.”

Proposed bicycle improvements from the CBPP relevant to Half Moon Bay include a Class I path along Highway 1 and overcrossings at several locations across Highway 1.



Figure A-1: County of San Mateo Bicycle and Pedestrian Plan Existing and Proposed Bicycle Network



Figure A-2: County of San Mateo Bicycle and Pedestrian Plan Pedestrian Focus Areas for the Coastal Region

San Mateo Countywide Transportation Plan (2016)

This draft plan, developed by City/County Association of Governments of San Mateo County, is a long-range, comprehensive transportation planning document. It is intended to articulate clear transportation planning goals and objectives to promote consistency and compatibility among all transportation plans and programs within the county. The plan supports an integrated system-wide approach to transportation planning that gives proper consideration to the countywide transportation network as a whole, not just in its constituent parts. It does not contain any specific project recommendations for bicycle or pedestrian infrastructure, but does include a series of goals, policies, and objectives to help achieve a better bicycling and walking environment within the county.

Two goals directly address bicycle and pedestrian travel, although many others encourage the development of a multi-modal transportation system. The “Bicycles” goal is to, “Provide bicyclists viable travel choices and encourage use of healthy, active transportation through a safe, continuous, convenient and comprehensive cycling network that reduces reliance on the automobile for short trips.” The Pedestrian goal is to, “Promote safe, convenient, and attractive pedestrian travel that promotes healthy, active communities while reducing reliance on the automobile for short trips.”

Plan Bay Area (2017)

Plan Bay Area 2040 is the nine-county Bay Area’s Sustainable Communities Strategy, incorporating the Regional Transportation Plan, as required by Senate Bill (SB) 375. Adopted in 2017, Plan Bay Area was developed by ABAG, the Metropolitan Transportation Commission (MTC), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC) with local and regional partners. It is the Bay Area’s region-wide multi-modal transportation plan for addressing the future transportation needs of the Bay Area as determined by ABAG’s regional growth forecasts. To meet the goals of SB 375, Plan Bay Area directs more future development in areas that are or will be walkable, bikeable and close to high capacity transit.

San Mateo County Congestion Management Transportation Plan (2015)

State law requires that each county develop a Congestion Management Program (CMP) for congested roadways of regional significance to qualify for state transportation funds. CMPs must establish levels-of-service standards for roadways, set transit service standards, develop trip-reduction and travel demand management (TDM) programs, perform land-use impact analyses, formulate capital improvement programs, and monitor conformance in the County with the CMP. The most recent CMP for San Mateo County was adopted in 2015. The existing and any future updates of the CMP will reflect the status of Half Moon Bay’s Circulation Element policies and implementation.

The current CMP mainly touches on vehicles and their impacts on the county. However, it does include a measure to ensure that pedestrian and bicycle travel is being incorporated in new transportation improvement projects. It states, “This measure will be accomplished by considering pedestrian and bicycle facilities in the design for all transportation projects in the CMP’s Capital Improvement Program. If a new transportation improvement project does not incorporate pedestrian and bicycle travel, it must explain provide justification for such.” Additionally, the San Mateo County Transportation Demand Management Agency offers specific programs for bicycle travel such as helping to cover the costs of installing bicycle parking at a business and conducting free bicycle safety classes for employees.

Regional Transportation Improvement Program (2016)

The Regional Transportation Improvement Program (RTIP) is an implementation program for Plan Bay Area. It is federally mandated and defines the regionally significant transportation projects that are to be funded over the next four years in the Bay Area. The RTIP must include all projects that will receive federal funds and other projects deemed to be regionally significant even if no federal funds are required for their implementation. The projects programmed in the RTIP must be consistent with the RTP. MTC, in cooperation with County Congestion Management Agencies (CMA) and Caltrans, adopts the RTIP.

The Draft 2017 RTIP includes approximately 700 transportation projects and a total of approximately \$6.6 billion in committed federal, state, and local funding over the four-year period through fiscal year 2020. Projects relevant to Half Moon Bay include safety improvements and pedestrian crossings on Highway 1, shoulder widening along SR 92, safe routes to school in San Mateo County, and maintenance and improvements to SamTrans vehicles and facilities.

Connect the Coastside

Connect the Coastside is a Comprehensive Transportation Management Plan that evaluates the existing and future development potential of the Midcoast and Half Moon Bay by conducting a land use build-out analysis and an assessment of the current and future transportation system. It includes multi-modal transportation programs and improvements along Highway 1 and 92 to accommodate future transportation needs. The plan also includes land use strategies to reduce the impacts of future development. A draft evaluation of the preferred alternative was released in March 2016.

Figure A-3 shows Connect the Coastside’s proposed pedestrian crossing locations for the coastal area, including Half Moon Bay. Although these suggestions were taken into consideration when developing the project recommendations for the BP Master Plan, the Connect the Coastside improvement concepts for Half Moon Bay are advisory only. The City will determine the approach to implementing improvements for Highways 1 and 92 within the city limits.

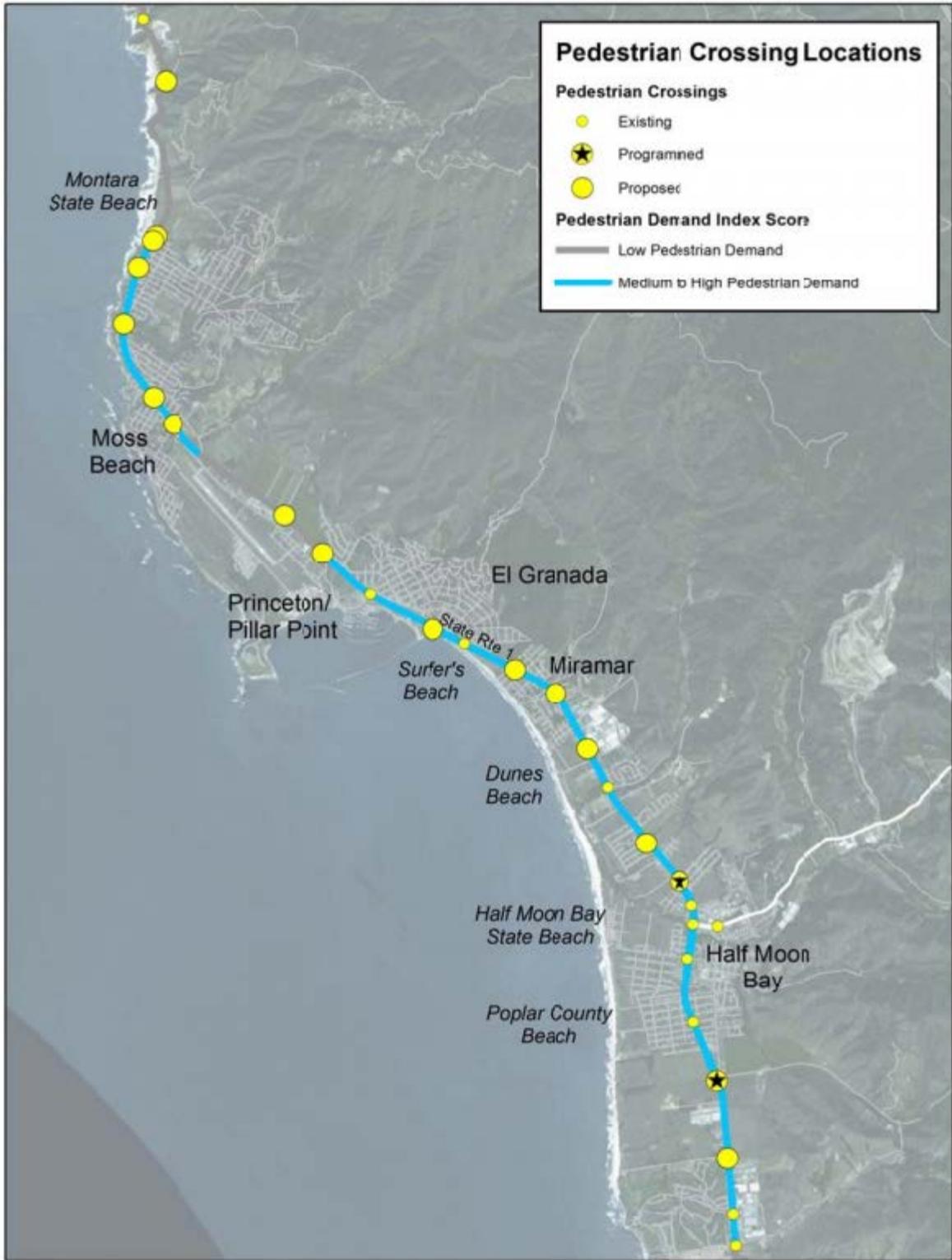


Figure A-3: Connect the Coastside Proposed Crossing Locations on Highway 1

Statewide Plans and Policies

There are several state-level plans and policies that guide the development of and provide requirements for the BP Master Plan. Plans include the California Transportation Plan 2040 and the California State Bicycle and Pedestrian Plan. Policies include the California Complete Streets Policy and the 2014 Design Flexibility in Multimodal Design Memorandum. The BP Master Plan will be compliant with each of these plans and policies.

- **The California Transportation Plan (CTP) 2040** – is the statewide, long-range transportation plan to meet future mobility needs and reduce greenhouse gas (GHG) emissions. It guides multimodal transportation investments and decisions by all levels of government, the private sector, and stakeholders.
- **California State Bicycle and Pedestrian Plan, *Toward an Active California*** – bicycle and pedestrian plan for the state. Mainly a policy document, it aims to align Caltrans policies and programs to create a framework to increase safe bicycling and walking in California.
- **Caltrans Strategic Management Plan (SMP)** – provides the strategic direction for Caltrans as an organization. The 2015-2020 SMP identified targets for doubling walking and tripling bicycling in California by 2020.
- **California Complete Streets Policy** – is the foundation of active transportation policy framework, requiring integration of Complete Streets principles in all agency activities since 2008. Caltrans monitors Complete Streets progress through the original *Complete Streets Implementation Action Plan* released in 2010 and the *Complete Streets Implementation Action Plan 2.0*, released in 2014.
- **Smart Mobility 2010: A Call to Action for the New Decade (Smart Mobility Framework)** – provides tools and resources to help state and local agencies create a more sustainable transportation system, with policies centered on public health and safety.
- **Caltrans Highway Design Manual (HDM)** – The Highway Design Manual is a living document, allowing addition of new infrastructure concepts, such as the December 2015 Design Information Bulletin that set design standards for Class IV Separated Bikeways. While the manual only explicitly applies to the state highway system, many local agencies refer to it as they design their own roads, bicycle facilities, and sidewalks. The complete streets version of the HDM released in 2012 was intended, in part, to make designers aware of bicycle treatments as they were investigating needs for motorized users.
- **California Manual on Uniform Traffic Control Devices (MUTCD)** – The MUTCD provides uniform standards and specifications for all official traffic

control devices in California, including the types of signs allowed. Another pertinent guide includes AB 819 (Bikeway Research, Experimentation, Testing, Evaluation, or Verification Related to Design Criteria), which outlines the procedures for when a bicycle project is planned on a State highway system or used federal funding.

- **Main Street, California: A Guide for Improving Community and Transportation Vitality** - This 2013 document is focused on the design of California State Highways that also serve as the “main street” of a community. The guide provides information from existing Caltrans manuals and policies, as well as national resources, to help communities improve multimodal access, livability and sustainability, while meeting appropriate engineering standards. The guide helps readers find information about standards and procedures described in the Caltrans HDM, the California MUTCD, and the Project Development Procedures Manual.
- **Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians** - The Complete Intersections Guide provides direction on implementing an important aspect of Caltrans’ Complete Streets policy, by identifying “actions that will improve safety and mobility for bicyclists and pedestrians at intersections and interchanges.” The Guide is intended primarily for Caltrans planners, engineers, and other highway designers working as generalists or specialists in advising, engineering, or designing for safe travel for all highway users at intersections and interchanges. The reference guide includes a disclaimer that it, “Does not constitute a standard, specification, or regulation. It is not intended to replace the existing [Caltrans] mandatory or advisory standards, nor the exercise of engineering judgment by licensed professionals.”

Appendix B. Community Outreach and Engagement

This appendix describes the types of public outreach conducted and summarizes the types of comments received during the Half Moon Bay Bicycle and Pedestrian Master Plan (BP Master Plan) process.

Community Outreach and Engagement Conducted

During the project, the project team conducted several types of outreach to encourage robust community input to inform the planning process. The following types of outreach were conducted:

- Creation of a Bicycle and Pedestrian Advisory Committee (BPAC)
- Project website
- Online survey
- Stakeholder interviews
- Community workshops
- National Night Out
- Farmer's market booth
- Poplar Beach booth
- Bicycling/Walking Tours

Summary of Key Comments

General Themes

- Provide better connectivity throughout Half Moon Bay, especially between downtown and the coast
- Improve safety for bicyclists and pedestrians, especially on and crossing Highway 1
- Improve wayfinding and sense of place on Highway 1 by creating a Town Boulevard
- Better maintenance of bicycle facilities (street sweeping and vegetation management)
- At intersections:
 - Like Activated Flashing Beacons
 - Like Lead Pedestrian Intervals
 - Need more high-visibility crosswalks
 - Need bicycle detection at traffic signals
 - Need to shorten crossing distances
- Transit
 - Needs shorter headways

- Needs to account for school start/end times
 - Needs to extend down Main Street to Sea Crest School
 - Consider a circulator shuttle service in town with park-and-ride lots
- Improve bicycle and pedestrian access to commercial areas as well as better bicycle parking
 - Coastside Clinic
 - Sheriff's Office
 - Library
 - Stores including:
 - New Leaf
 - Taqueria Tres Amigos
 - Safeway
- Improve safe routes to school, including for the high school
- Provide safe routes to parks
- Bicyclists ride on sidewalks because streets feel unsafe
 - Hazardous for pedestrians
- Need more traffic calming
- Need more benches or places to stop and sit
- Need bicycle safety classes in schools
- Need wayfinding
- Reconfigure downtown angled parking, consider:
 - Back-in angled parking
 - Parallel parking
 - Provide more parking near Mill Street
- Promote bike rentals and pedicabs to get people out of their cars when visiting. Provide parking lots so people can park once and then get around town by bike or walking

Specific Locations

The following locations within Half Moon Bay were specifically called out by members of the public as needing improvements. Some comments included areas outside Half Moon Bay and are not included as part of this summary. **Figure B-1** shows these locations. Yellow points and lines indicate pedestrian-focused concerns and green represent bicycle-focused concerns.

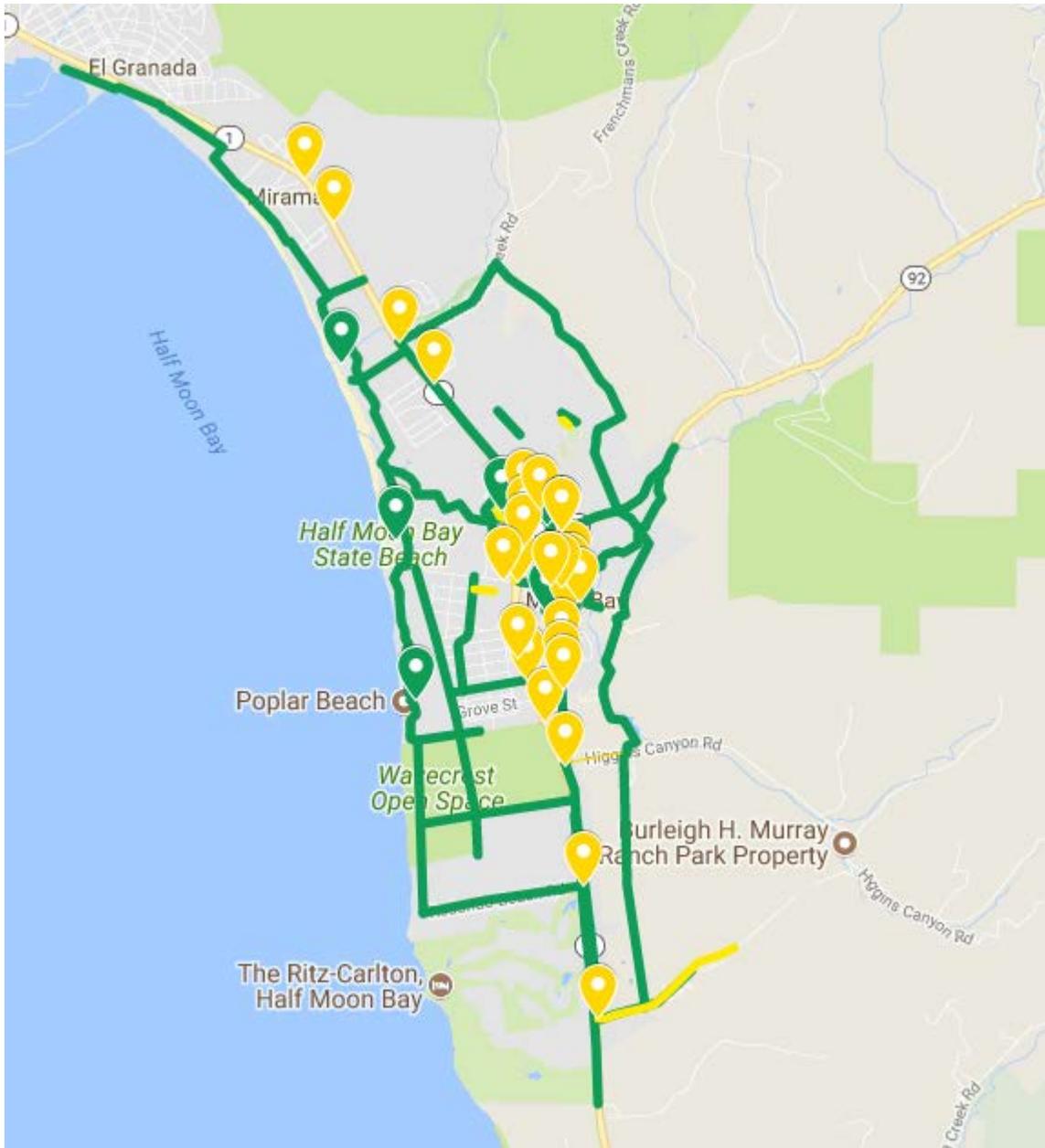


Figure B-1: Map of Problem Locations Specified by the Public Through the Online Survey

- Highway 1 crossing locations that people would like to see improved at:
 - Kelly Avenue - upgrade existing crossing
 - Roosevelt Boulevard - add crossing
 - Frenchman's Creek Road - add crossing
 - Mirada Road - add crossing
 - Spindrift Way - add crossing
 - Main Street - upgrade existing crossing
 - Highway 92 - upgrade existing crossing

- Poplar Street - upgrade existing crossing
 - Miramontes Point Road - upgrade existing crossing
 - Undercrossing by Pilarcitos Creek - upgrade existing crossing
 - Higgins Canyon Road - add crossing
 - Filbert Street - add crossing
 - Seymour Street - add crossing
- Along Highway 1
 - Extend the Naomi Patridge Trail along whole stretch of roadway
 - Add trail/separated bikeway on east side
 - Consider reducing the speed to improve safety
 - Create a sense of place - Improve wayfinding and provide gateways
- Highland Avenue - provide a bike and ped connection to High School
- Pilarcitos Avenue/Naomi Patridge Trail bridge between Pilarcitos Avenue and San Mateo Road is too narrow
- Highway 92 - lacks bicycle access
- Highway 92 at Main Street - shorten crossing distances
- Main Street Bridge - too narrow
- Main Street
 - Angled parking causes visibility issues (between drivers and bicyclists)
 - Narrow sidewalks
 - No bicycle facilities
 - More crosswalks south of Kelly Avenue
- Poplar Street - needs sidewalks
- Arnold Way/Main Street intersection
 - Need ADA curb ramps
 - Sidewalk obstructions
 - Better lighting
- Poplar Street/Main Street intersection
 - Need ADA ramps
 - Need wider sidewalk
 - Need High-visibility crosswalks
- Coastal Trail needs:
 - Signage (Share the Trail, and so on)
 - Wayfinding
 - Maintenance
 - Pavement along whole route
 - Close gaps
- Lack of trail on east side of town to connect to Moonridge
- Kelly Avenue - lack of bike facilities
- Church Street - lack of bike facilities
- Church Street/Kelly Avenue - drivers often do not follow rules of the road
- Main Street/Filbert Street/Purissima Street - awkward to navigate, only one crosswalk, and has lots of speeding
- Main Street/Lewis Foster Drive - unsafe for bikes/pedestrians

- Kelly Avenue/Pilarcitos Avenue – unsafe for bikes/pedestrians; drivers often do not follow rules of the road
- Miramontes Avenue – lack of sidewalk on north side
- Purissima Street – lack of sidewalk on west side
- Miramontes Point Road lacks lighting and bicycle access
- Need way to connect Safeway to Coastal Trail
- Railroad Avenue – road repair

Outreach and Engagement Methods

BPAC Establishment

The City of Half Moon Bay established a Bicycle and Pedestrian Advisory Committee (BPAC) to assist with the BP Master Plan and provide ongoing review and coordination on bicycle and pedestrian issues.

There are 10 members on the BPAC. It generally convenes the first Thursday of each month, as needed.

Project Website

The BP Master Plan website was combined with the Half Moon Bay Parks Mater Plan to provide coordinated information regarding these parallel planning processes. It includes sections for both master plans as well as a library, an FAQ section, and a community survey for the BP Master Plan. The website was available in both English and Spanish at www.hmboutdoors.com.

Online Survey

An online survey was developed and published through the project website. The survey received 422 map responses by 132 different users (based on IP addresses) with 115 additional “likes” on some of the responses.

Stakeholder Interviews and Meetings

The project team met with four different stakeholder groups to understand their primary concerns and identify locations within the existing bicycle and pedestrian networks that need improvement. **Table B-1** shows the groups and the dates the meetings took place. The number of attendees includes members of the project team.

Table B-1: Stakeholder Interviews

Stakeholder Group	Date of Meeting	No. of Attendees
Environmental Groups	June 27, 2017	9
Families/Children	August 1, 2017	6
Senior Community	August 24, 2017	5
Latino Community	August 30, 2017	17

Stakeholders from the Environmental group included representatives from Coastside Land Trust, Peninsula Open Space Trust, Sierra Club Loma Prieta Chapter, MidPen Regional Open Space District, and the Committee for Green Foothills. Stakeholders who attended the Families/Children group included representatives from Cabrillo Unified School District, and Sea Crest School. The stakeholders who attended for the Senior Community included a representative from Senior Coastsiders and a senior bicycle enthusiast. The Latino Community stakeholder meeting took place within the Moonridge Community and included both residents and staff who work for the community.



Community Workshops

The project team for the BP Master Plan held a joint community workshop with the project team for the Parks Master Plan on April 26, 2017. Attendees were asked to share locations where they have had issues walking or bicycling on a large map. They were also given stickers to indicate bicycle or pedestrian treatments they would like to see in Half Moon Bay.

A joint BPAC meeting/community workshop was held on November 2, 2017 to share draft recommendations and receive feedback. Over 21 people were in attendance. Community members provided valuable feedback on draft recommended projects and projects that were missing from the draft proposals.

An additional joint BPAC meeting/community workshop was held on February 8, 2017 to present the Draft Bicycle and Pedestrian Master Plan. Attendees were provided an overview of the contents for each chapter as well as a listing of edits that were already identified for the final draft of the BP Master Plan. Many comments were able to be accommodated, including adding cost estimates to the priority project table, extending project recommendations like the Eastside Parallel Trail, the Naomi Patridge Trail, and additional signage for the trails regarding courtesy and rights-of-way for trail users. Others, such as developing costs for program recommendations, were not able to be included due to the dynamic nature of the programs, which highly depend on the scope of each program.



National Night Out

On August 1, 2017, project team members went to four different National Night Out block parties to receive feedback on existing conditions, bicycle or pedestrian treatments community members' would like to see in Half Moon Bay, and to share information about the planning process. Most of the feedback encouraged extending the Coastal Trail and providing safer crossings of Highway 1.

Farmer's Market Booth

On August 26, 2017, project team members conducted outreach at a booth at the weekly Farmer's Market. Attendees were invited to identify on a large map locations where they have had issues walking or bicycling. Most of those who provided feedback lived or worked in Half Moon Bay or the surrounding areas.



Poplar Beach Booth

On August 26, 2017, project team members served refreshments and engaged with community members at a pop-up booth located between the parking lot and trail/beach access. Attendees were invited to identify on a large map locations where they have had issues walking or bicycling. Most of the feedback received was from people who lived outside Half Moon Bay who were visiting the beach for the day.



Bicycling/Walking Tour

The project team held a Bicycling Tour on September 30, 2017. The tour was attended by City staff, the consultant team, members of the BPAC, and a community member. While the tour was conducted by bicycle, both pedestrian and bicycle needs and improvements were discussed. The tour stopped at several locations with previously identified bicycle and pedestrian needs to discuss potential recommended improvements.



Appendix C. Detailed Needs Analysis

To better understand what is needed to improve Half Moon Bay's bicycle and pedestrian network to serve the people who live, work, and play in the City, a detailed needs analysis was performed. The analysis consists of a collision analysis, a demand analysis, and an activity generator walkshed/bikeshed analysis. The objective of the analysis is to better understand where safety issues and concerns are the greatest and then better understand where people would want to bike or walk if the network were improved. This analysis is then combined with the direct feedback from the community to provide a better picture of both existing conditions and where the greatest needs are for the pedestrian and bicycle networks.

Collision Analysis

Analysis was conducted on the bicycle- and pedestrian-related collisions in Half Moon Bay to identify trends and areas or corridors that should be targeted for safety improvements. Collision data was gathered from the Transportation Injury Mapping System (TIMS) developed by the Safe Transportation Research and Education Center at the University of California, Berkeley and supplemented by more recent information collected by the County Sheriff. TIMS provides geocoding of collisions with injuries and fatalities from the California Statewide Integrated Traffic Report System (SWITRS). The number of collisions reported to SWITRS is likely an underestimate of the actual number of collisions that take place because some parties do not report minor collisions to law enforcement, particularly collisions not resulting in injury or property damage.

Collisions were analyzed for the ten-year period between 2006 and 2016. Data for 2012 is not available from the Sheriff's records and not included in this analysis. In that timeframe, there were 23 collisions that involved a pedestrian and 48 that involved a person riding a bicycle. **Table C-1** shows the injuries and fatalities associated with these collisions. One collision involved four pedestrians and two separate collisions involved two bicyclists. There were three collisions with a pedestrian fatality and one with a bicycle fatality, all of which were on a state highway or crossing the state highway (the bicycle fatality was on Filbert Street at Highway 1).

Table C-1: Collision Analysis - 2006 to 2016

Ped & Bike Involved Collisions	Pedestrian Injuries	Pedestrian Fatalities	Bicyclist Injuries	Bicyclist Fatalities
71	23	3	48	1

As indicated in **Table C-2**, the number of collisions has ranged from 30 to 43 annually, except for 2012 (which shows no bicyclist- or pedestrian-involved collisions and one third as many total collisions and may have missing data). Pedestrian collisions ranged

from three to nine a year and bicyclists collisions from one to four (both excluding 2012).

Table C-2: Collisions, by Year

Year	Pedestrian Collisions	Bicyclist Collisions	Bicycle & Pedestrian Collisions	All Collisions
2006	7	1	8	41
2007	5	3	8	43
2008	3	1	4	38
2009	6	2	8	33
2010	3	1	4	28
2011	6	3	9	33
2012	*	*	*	10 ¹
2013	3	4	7	30
2014	9	3	12	37
2015	3	2	5	39
2016	3	3	6	37
Average	4.4	2.1	6.5	33.5
Average (excluding 2012)	4.8	2.3	7.1	35.9

The majority of the collisions occurred on Highway 1 (19 involving a bicycle and seven involving a pedestrian) and Main Street (six involving a bicyclist and three involving a pedestrian), or centered near the downtown Half Moon Bay area. More specifically, the collisions near downtown took place on Kelly Avenue, Main Street, or Purisima Street. Understanding where collisions occur allows agencies to target improvements where they are needed most. Improving pedestrian and bicyclist safety can make current collision hotspots, especially in downtown, function more safely for pedestrians and bicyclists to visit and enjoy.

Figure C-1 and **Figure C-2** show the bicycle- and pedestrian-involved collisions during this ten-year time period. One bicycle collision occurred just outside Half Moon Bay and is shown in the map, but not included in the analysis above.

¹ Some data for 2012 is missing.



Figure C-1: Bicycle-Involved Collisions



Figure C-2: Pedestrian-Involved Collisions

Demand Analysis

A Live-Work-Play analysis was conducted to indicate likely areas of demand for bicycling and walking. The component elements of this model include areas of residence, employment, recreational opportunities, commercial district, schools, and transit. Collectively, these are the key destinations people frequent and would be inclined to access by walking or bicycling given the opportunity. **Figure C-3** is a “heat map,” where a darker color indicates a higher level of intensity or demand.

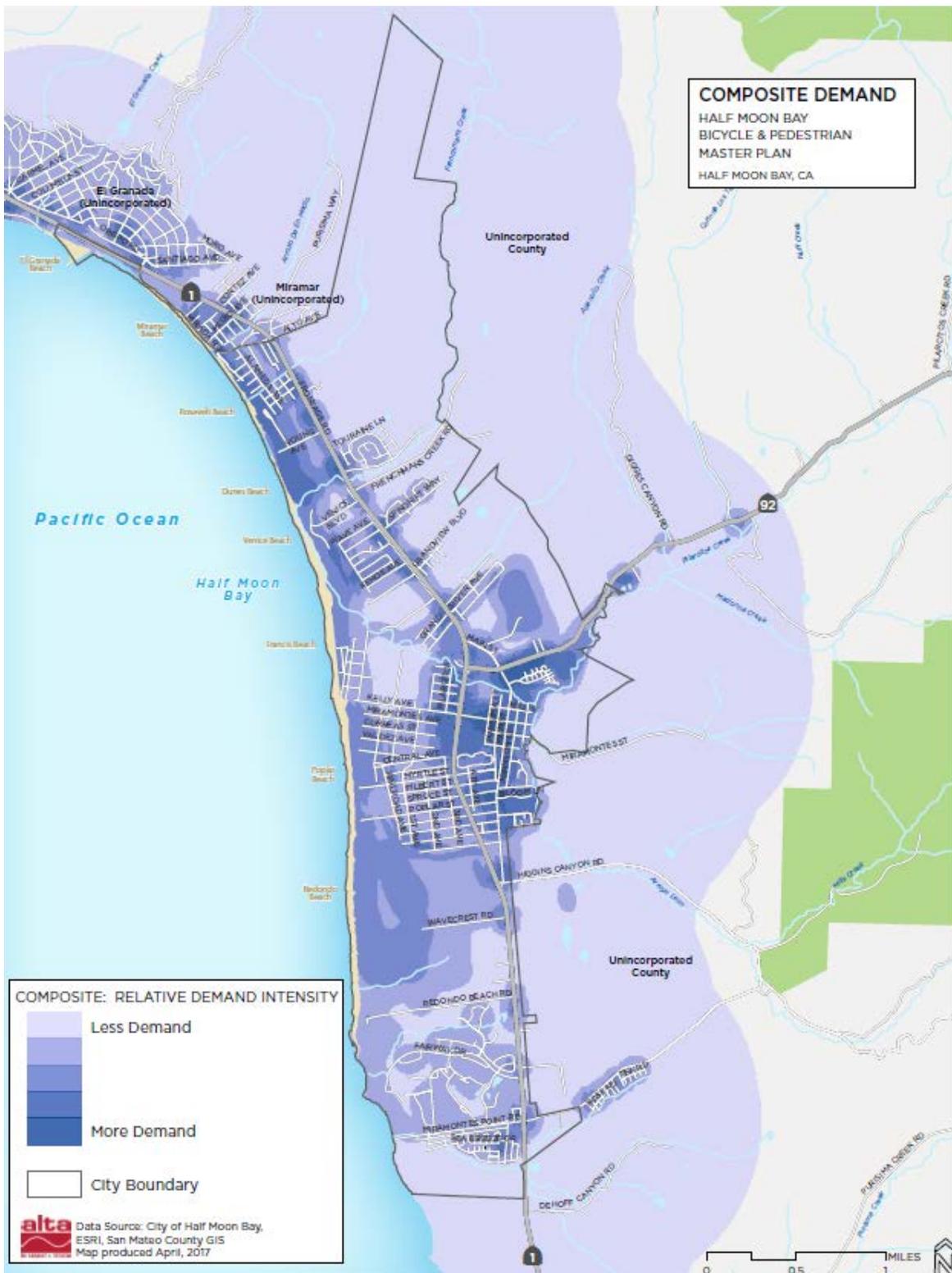


Figure C-3: Composite Demand Map

Walkshed and Bikeshed Analysis

A walkshed and bikeshed analysis was also prepared. **Figure C-4** to **Figure C-7** shows the destination centers and the typical distances people are willing to walk or bike to access those destinations. The buffer zones shown around each destination provide typical walking distances around each destination.

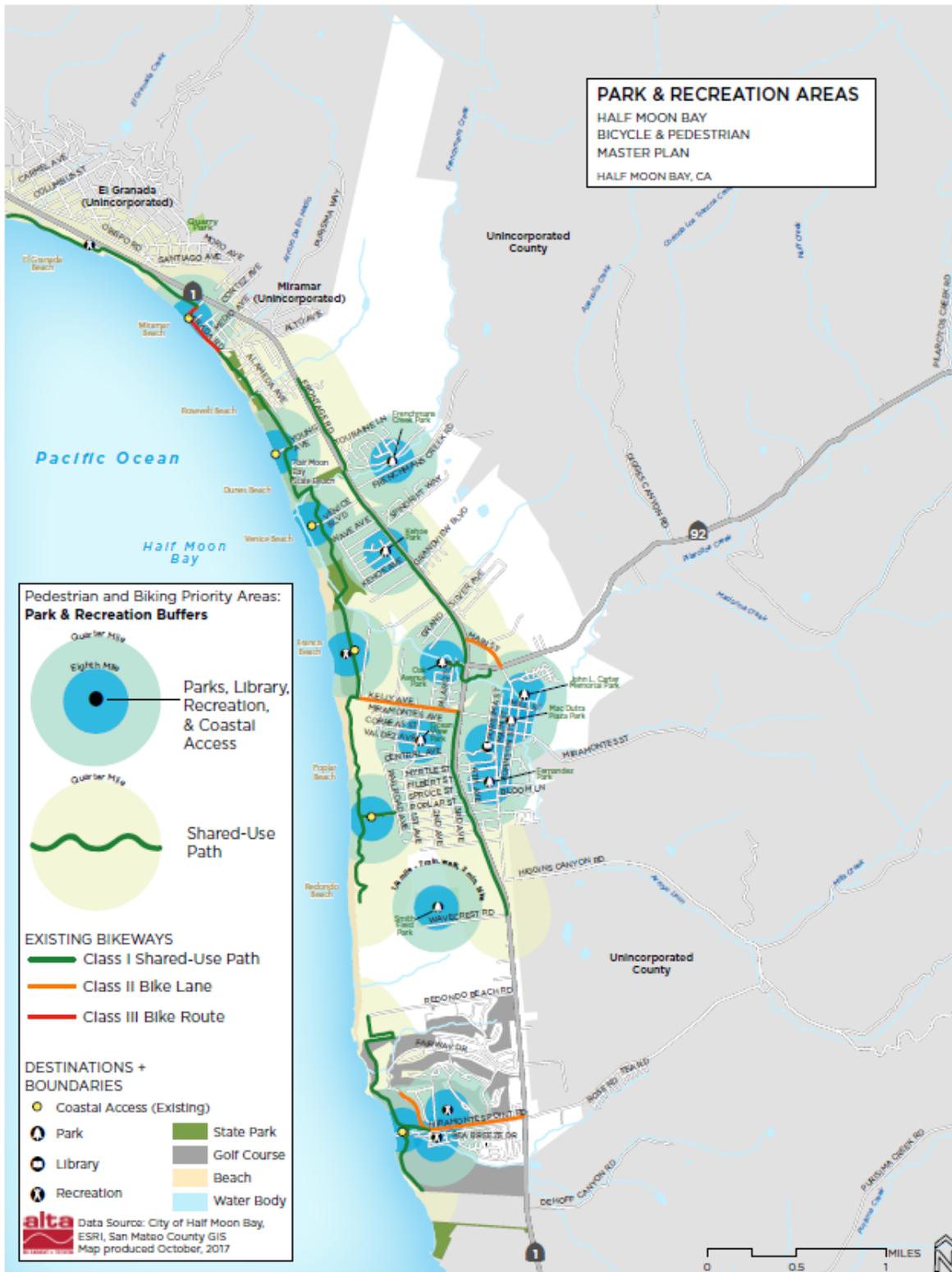


Figure C-4: Parks and Recreation Areas

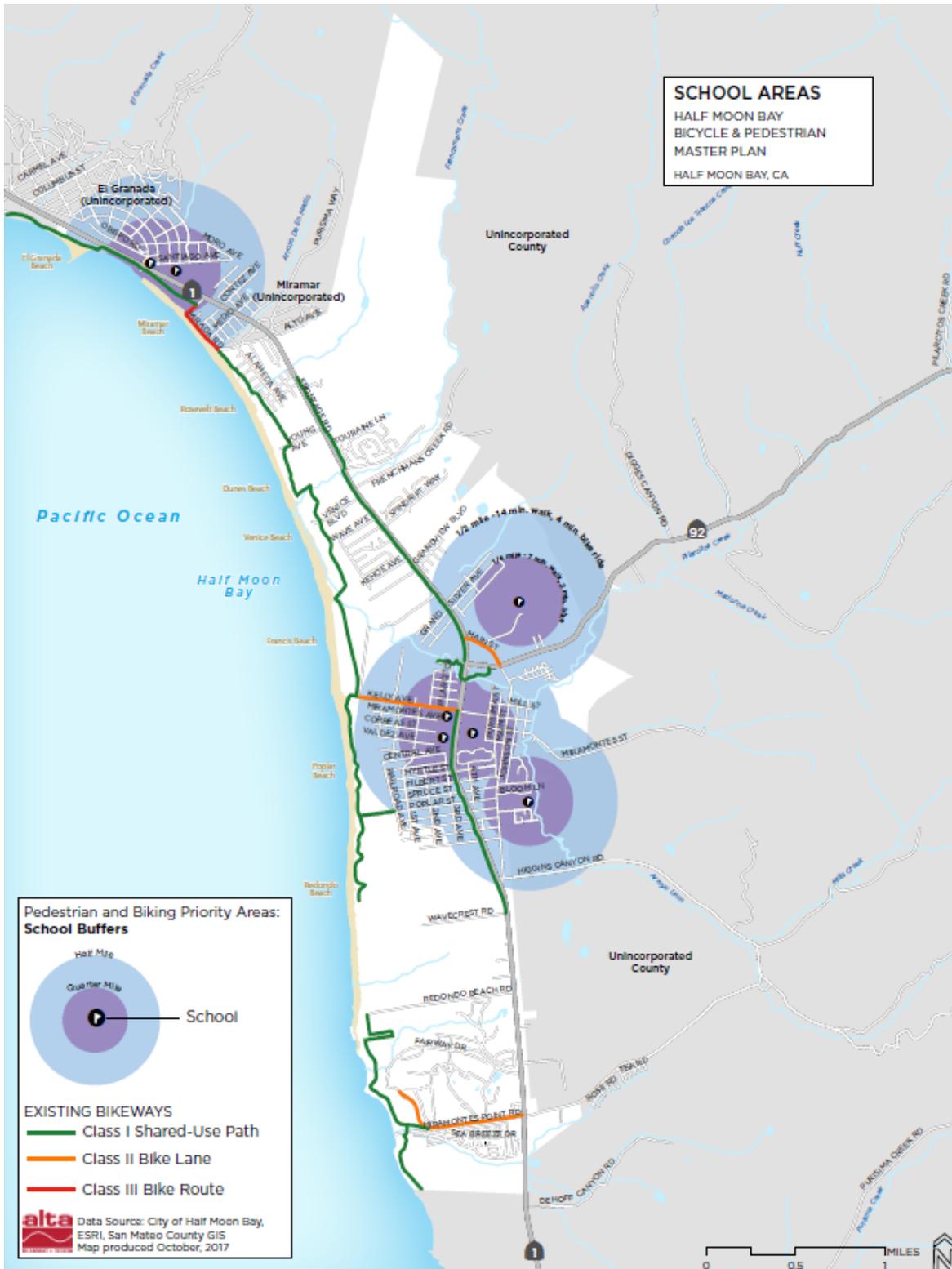


Figure C-5: School Areas

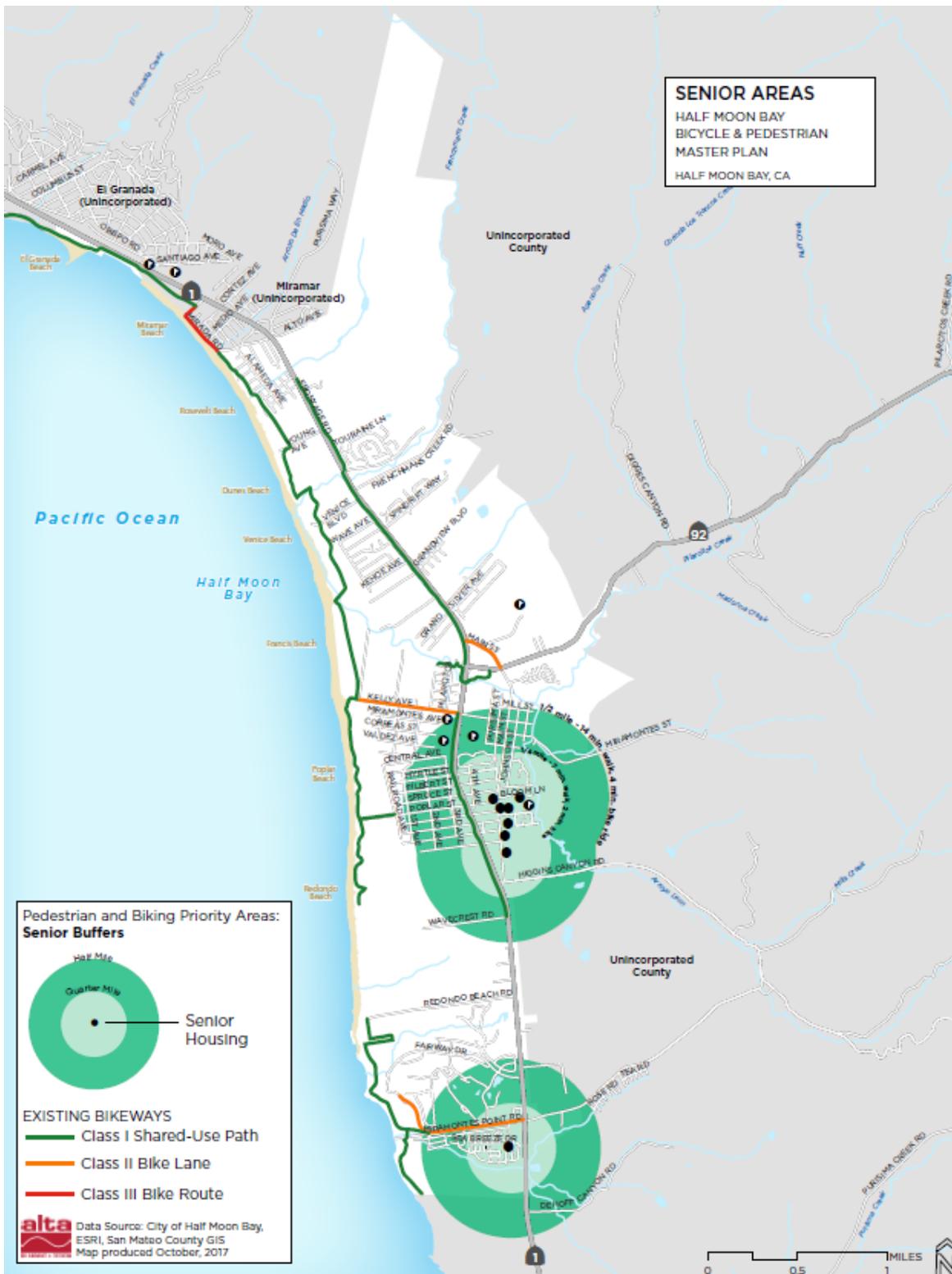


Figure C-6: Senior Housing Areas

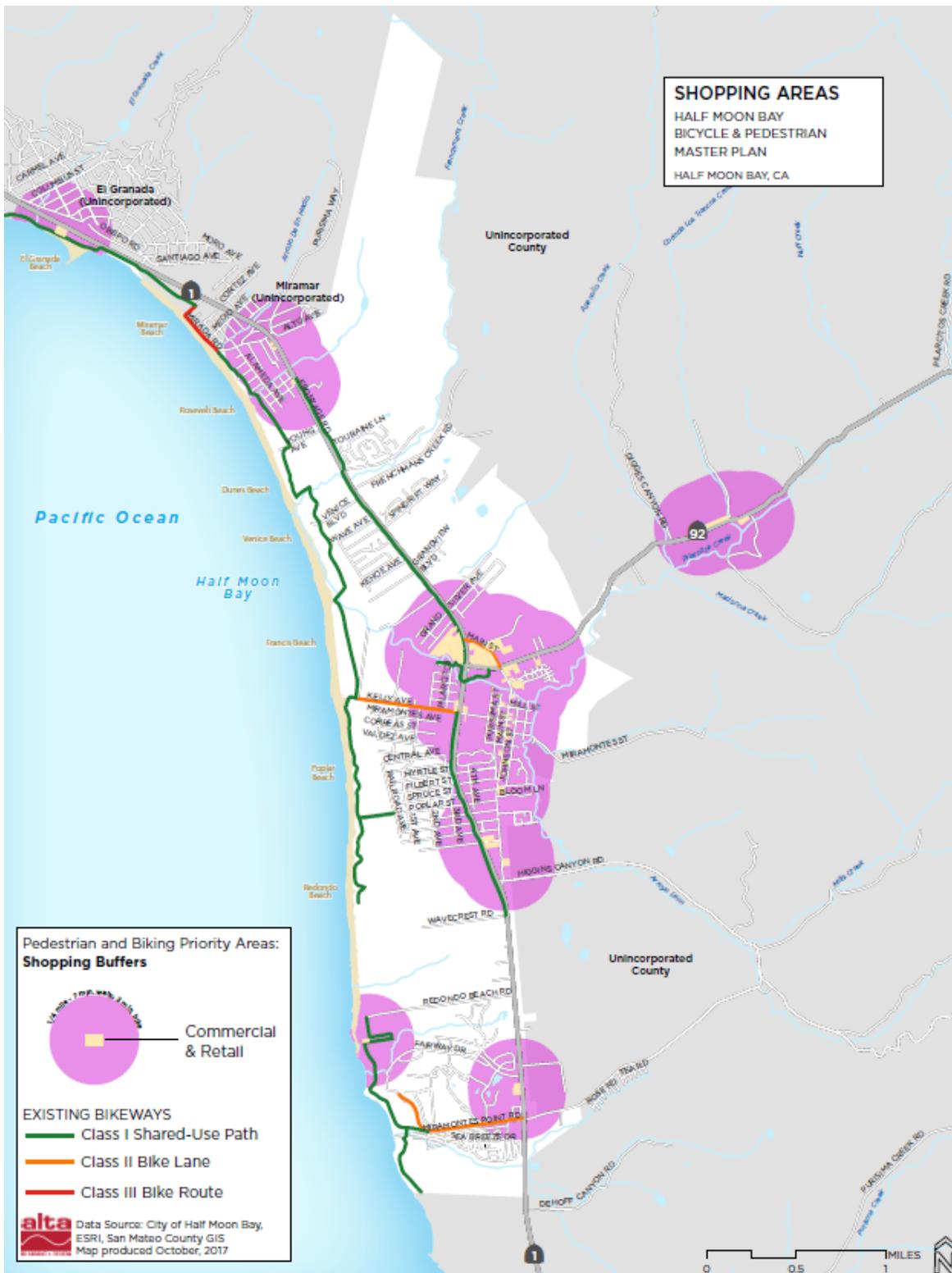


Figure C-7: Shopping Areas

Conclusion

This analysis helps inform where people would walk or bike if the pedestrian and bicycle network is made more safe, comfortable, and connected and therefore helps inform the recommendations for the Half Moon Bay Bicycle and Pedestrian Master Plan. It also helps inform the prioritization of projects within the overall recommended network based on greatest safety concern or serving vulnerable populations.

Appendix D. Project Recommendations

This appendix presents all project recommendations by type including planning-level cost estimates. These costs do not reflect the full range of options that could be considered for implementation. Some projects may cost more due to specific site conditions and other factors not known at this time. Other projects could be implemented using various treatments, including basic methods such as with paint, and therefore cost significantly less; but would not incorporate the types of infrastructure options (pavement, curbs, or landscaping, for example) included in these cost estimates. Some projects could be installed in phases using simple treatments initially with upgrades to more permanent infrastructure later as funding becomes available.

Bicycle Projects

Table D-1: Class I Shared-Use Path Recommendations

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Coastal Trail Extension	S end of Coastal Trail	Redondo Beach Rd	1.18	Gap closure, extend coastal trail	\$1,770,000
Coastal Trail to Wavecrest Rd Connection	Wavecrest Rd	Coastal Trail	0.20	Connect coastal trail to Wavecrest Rd	\$300,000
Eastside Parallel Trail	Frenchmans Creek Rd	Miramontes Point Rd	3.78		\$5,670,000
Eastside Parallel Trail - North	Roosevelt Blvd	City limit	0.26	Extend existing trail on east side of Hwy 1 to northern city limit	\$390,000
HMB High School Trail	Hwy 92	High School	0.32		\$480,000
Hwy 1/Naomi Patridge Gap Closure	Heskin Ave	Kelly Ave	0.26	Sidepath or shared-use path on W side of Hwy 1	\$390,000
Naomi Patridge Trail Extension - North	Rousseau Francais Ave	City limit	0.84	Extend existing Naomi Patridge Trail to northern city limit	\$1,260,000
Naomi Patridge Trail Extension - South	400 ft S of Wavecrest Rd	City limit	1.58	Extend existing Naomi Patridge Trail to southern city limit	\$2,370,000

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Pilarcitos Creek Trail	Naomi Patridge Trail	Hwy 92	1.05		\$1,575,000
Railroad Ave Trail	Kelly Ave	Central Ave	0.36		\$540,000
Railroad Ave Trail Extension	Grove St	Wavecrest Rd	0.54	Location TBD	\$810,000
Seymour St Coastal Trail Spur	Coastal Trail	Seymour St	0.32	Location TBD, study basin (possibly move to Magnolia or RR to protect endangered species)	\$480,000
Wavecrest Rd Coastal Trail Spur	Coastal Trail	Wavecrest Rd	0.29		\$435,000

Table D-2: Class II Bike Lane Recommendations

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Kelly Ave Bike Lanes	Hwy 1	Johnston St	0.32	Bike lanes (short term), separated bikeway (long term)	\$24,000
Main St Bike Lanes	Hwy 92	Main St Bridge	0.11		\$8,300
Main St Buffered Bike Lanes	Hwy 1	Hwy 92	0.24	add buffer to existing bike lanes	\$36,000
Miramontes Point Rd Bike Lanes	Hwy 1	City limit	0.30		\$22,500
Heskin Ave Bike Lanes	Strawflower Shopping Center	Hwy 1	0.44	Class II or III	\$33,000
South Main St Bike Lanes	Spruce St	Higgins Canyon Rd	0.52		\$39,000

Table D-3: Class III Bike Route and Bike Boulevard Recommendations

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Alsace Lorraine/1st Street Bike Boulevard	Kelly Ave	Poplar St	0.61		\$61,000
Central Ave Bike Route	Railroad Ave	3rd Ave	0.34		\$5,100

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Johnston St/Monte Vista Ln Bike Boulevard	Mill St	Main St	0.49	Consider bike boulevard alternate to Main St	\$49,000
Mill St Bike Route	Church St	San Benito St	0.21		\$3,200
Purissima St Bike Boulevard	Mill St	Filbert St	0.47	Consider bike boulevard concept as alternate to Main St	\$47,000
Railroad Ave Bike Route	Central Ave	Poplar St	0.42	Traffic calming	\$6,300
Redondo Beach Rd Bike Route	Coastal Trail	Hwy 1	0.83		\$12,500
Venice Blvd Bike Route	Venice Beach/Coastal Trail	Hwy 1	0.31		\$4,700
Wavecrest Rd Bike Route	Hwy 1	End of Wavecrest Rd	0.50		\$7,500
Young Ave Bike Route	Coastal Trail	Hwy 1	0.20		\$3,000

Table D-4: Class IV Separated Bikeway Recommendations

Name	Cross Street A	Cross Street B	Mileage	Notes	Cost Estimate
Hwy 92 Separated Bikeway	Hwy 1	Main St	0.17	Short-term	\$102,000
Hwy 92 Separated Bikeway	Main St	HMB High School Trail	0.34	Long-term once HMB High School Trail is completed. Study crossing at HMB High School Trail if facility is one-way on both sides of Hwy 92.	\$204,000

Pedestrian Projects

Table D-5: Crossing Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
Church St at Kelly Ave Crossing Improvements	Church St	Kelly Ave	Recommended: Traffic calming such as roundabout or curb extensions	\$50,000
Hwy 92/Main St Protected Intersection	Hwy 92	Main St	Study: Protected intersection, make gateway, wayfinding, tie into Hwy 1 Town Blvd concept	\$1,000,000
Poplar St at Main St Crossing Improvements	Poplar St	Main St	Planned: Reconfigure intersection to add ADA access and high visibility crosswalk	\$80,000
Filbert St at Purissima St/Main St Crossing Improvements	Filbert St	Purissima St/Main St	Recommended: Raised intersection, high visibility crosswalks, bulbouts	\$250,000
Hwy 92 at Hwy 1 Crossing Improvements	Hwy 92	Hwy 1	Recommended: High visibility crosswalks; consider protected intersection to improve safe crossings for bike/ped	\$12,000
Kelly Avenue at Hwy 1 Crossing Improvements	Kelly Ave	Hwy 1	Planned: Install High Visibility Crosswalks and Lead Pedestrian Intervals, all legs; consider protected intersection	\$18,000

Table D-6: Pedestrian Access Improvement Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
New Leaf Ped Access	Hwy 92	Bus stop	Improve pedestrian access to and through commercial area	\$30,000
Strawflower Shopping Center Ped Access	Main St	Hwy 1	Improve pedestrian access to and through commercial area	\$30,000

Table D-7: Crosswalk Recommendations

Name	Notes	Cost Estimate
Correas St at Main St Crossing Improvements	High visibility crosswalks	\$12,000
Balboa Rd at Coastal Trail	High visibility crosswalk	\$3,000
Johnston St at Miramontes Ave Crossing Improvements	High visibility crosswalks, all legs	\$12,000
Kelly Ave at Main St Crossing Improvements	High visibility crosswalks	\$12,000
Kelly Ave at Pilarcitos Ave Crossing Improvements	High visibility crosswalks, all legs, consider flashing stop signs	\$9,000
Kelly Ave at Purissima St Crossing Improvements	High visibility crosswalks	\$12,000
Lewis Foster Dr at Main St Crossing Improvements	High visibility crosswalks; consider pedestrian hybrid beacon or activated flashing beacon	\$6,000
Mill St at Main St Crossing Improvements	High visibility crosswalks, curb extensions	\$12,000
N Main St at Hwy 1 Crossing Improvements	High visibility crosswalks, all legs	\$12,000
Miramontes St at Main St Crossing Improvements	High visibility crosswalks	\$12,000
Miramontes St at Church St	Add new high visibility crosswalk on east leg	\$3,000
Miramontes Point Rd at Hwy 1 Crossing Improvements	High visibility crosswalks; add new crosswalk on north leg	\$12,000
Poplar St at Hwy 1 Crossing Improvements	High visibility crosswalks	\$12,000

Bicycle and Pedestrian Projects

Table D-8: Potential Locations for Coastal Access Boardwalks

Name	Cross Street A	Cross Street B	Cost Estimate
Beach Ave & Coastal Trail Boardwalk	Beach Ave	Coastal Trail	\$30,000
Roosevelt Blvd & Coastal Trail Boardwalk	Roosevelt Blvd	Coastal Trail	\$30,000
San Pablo Ave & Coastal Trail Boardwalk	San Pablo Ave	Coastal Trail	\$30,000
St John Ave & Coastal Trail Boardwalk	St John Ave	Coastal Trail	\$30,000
Washington Blvd & Coastal Trail Boardwalk	Washington Blvd	Coastal Trail	\$30,000
Wave Ave & Coastal Trail Boardwalk	Wave Ave	Coastal Trail	\$30,000

Table D-9: Pedestrian Hybrid Beacon Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
Grandview Blvd & Hwy 1 Beacon	Grandview Blvd	Hwy 1	Study: Pedestrian Hybrid Beacon	\$150,000
Higgins Canyon Rd at Hwy 1 Beacon	Higgins Canyon Rd	Hwy 1	Planned: Pedestrian Hybrid Beacon	\$150,000
Mirada Rd at Hwy 1 Beacon	Mirada Rd	Hwy 1	Study: Pedestrian Hybrid Beacon	\$150,000
Redondo Beach Rd at Hwy 1 Beacon	Redondo Beach Rd	Hwy 1	Study: Pedestrian Hybrid Beacon	\$150,000
Roosevelt Blvd at Hwy 1 Beacon	Roosevelt Blvd	Hwy 1	Study: Pedestrian Hybrid Beacon	\$150,000
Spindrift Way at Hwy 1 Beacon	Spindrift Wy	Hwy 1	Study: Pedestrian Hybrid Beacon; pave a connection between roadway and trail	\$170,000
Terrace Ave at Hwy 1 Beacon	Terrace Ave	Hwy 1	Planned: Pedestrian Hybrid Beacon	\$150,000

Table D-10: Activated Flashing Beacon Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
Filbert St at Hwy 1 Beacon	Filbert St	Hwy 1	Study: Pedestrian Hybrid Beacon or Activated Flashing Beacon	\$20,000
Seymour St at Hwy 1 Beacon	Seymour St	Hwy 1	Study: Activated Flashing Beacon	\$20,000

Table D-11: Signage Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
Main St Bridge Signage	Main St	100 ft S of Stone Pine Rd	Short term: install signage to warn drivers of bikes/peds on bridge. 100 ft S of Stone Pine Rd	\$400
Main St Bridge Signage	Main St	300 ft S of Stone Pine Rd	Short term: install signage to warn drivers of bikes/peds on bridge. 300 ft S of Stone Pine Rd	\$400

Table D-12: Spot Improvement Recommendations

Name	Cross Street A	Cross Street B	Notes	Cost Estimate
Naomi Patridge Trail & Belleville Blvd Spot Improvements	Naomi Patridge Trail	Belleville Blvd	Install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Naomi Patridge Trail & Grand Blvd Spot Improvements	Naomi Patridge Trail	Grand Blvd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Naomi Patridge Trail & Kehoe Ave Spot Improvements	Naomi Patridge Trail	Kehoe Ave	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Naomi Patridge Trail & N Frontage Rd Spot Improvements	Naomi Patridge Trail	N Frontage Rd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Naomi Patridge Trail & S Frontage Rd Spot Improvements	Naomi Patridge Trail	S Frontage Rd	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Naomi Patridge Trail & Strawflower Shopping Center Spot Improvements	Naomi Patridge Trail	Strawflower Shopping Center	Move crossing behind vehicle stop sign; install raised crosswalk; replace existing trail stop signs with yield signs	\$90,000
Terminus Upper Terrace/High School Connection	Terminus Upper Terrace Ave	High School Grounds	Maintain an opening at Upper Terrace Avenue allowing access to the High School grounds; consider traffic calming to reduce potential speeding issues	\$36,000
Pilarcitos Creek Undercrossing at Hwy 1	Pilarcitos Creek	Hwy 1	Improve lighting, clean up vegetation and debris	\$5,000
Naomi Patridge Trail Bridge	Heskin Ave	Pilarcitos Ave	Add curb cuts for bicycle access from bridge to Heskin Ave	\$10,000
Venice Blvd & Coastal Trail Signage and Crosswalk	Venice Blvd	Coastal Trail	Install stop or yield sign and high-visibility crosswalk on Venice Blvd at Coastal Trail crossing	\$400

Table D-13: Recommended Studies

Name	Cross Street A	Cross Street B	Mileage	Notes
Church St	Kelly Ave	Correas St	0.13	Parking protected bike lane on west side and standard Class II on east side
Pilarcitos Creek Trail	Coastal Trail	Oak Ave/ Strawflower Shopping Center	0.74	Location TBD
Pilarcitos Creek Trail	John L. Carter Memorial Park	Hwy 92	0.80	Bicycle and Pedestrian Study
Main St Complete Street Design	Main St Bridge	Spruce St	0.58	Study to improve bike/ped facilities
Coastal Trail Signage and Realignment	N end of Coastal Trail (Mirada Rd)	Kelly Ave/Seymour St	1.58	Install wayfinding and "share the trail" signage. Shift east due to coastal erosion.
Pilarcitos Creek Bridge at Purissima St	Purissima St	Pilarcitos Creek	0.05	Add bridge to connect Purissima St to Naomi Partridge Trail
Eastside Trail Bridge	Frenchmans Creek Rd	Ruisseau Francais Ave	0.10	Bridge on eastside trail crossing Frenchmans Creek
Hwy 1 Study: Town Boulevard Concept	N Main St	S Main St	3.18	Study to improve ped/bike accommodation (wayfinding, lighting, signals, gateways)
Kelly Ave	Coastal Trail	Hwy 1	0.52	Study bike/ped accommodation
Mirada Rd	Magellan Ave	Medio Ave	0.19	One way for better bike/ped accommodation. County Jurisdiction
Poplar St Improvements	Railroad Ave	Main St	0.57	Study improvements to improve bicycle and pedestrian accommodation
Beachwood Path	Beachwood Path N	Beachwood Path S	0.17	Bicycle and Pedestrian Study
Frenchmans Creek Trail	Hwy 1	3,000 ft E of Hwy 1	0.63	Bicycle and Pedestrian Study
Hwy 92/Main St Protected Intersection	Hwy 92	Main St	-	Protected intersection, make gateway, wayfinding, tie into Hwy 1 Town Blvd concept
Vista Trail	Pacific Ridge Neighborhood	Roosevelt Ave	1.71	Bicycle and Pedestrian Study
Wavecrest Rd	1,000 ft W of Hwy 1	Coastal Trail	0.30	Pedestrian-Only Study

Appendix E. Funding Sources

In order to facilitate the implementation of recommended projects as part of the Half Moon Bay Bicycle and Pedestrian Master Plan (BP Master Plan), a list of potential funding sources is provided below.

Federal Funding (Competitive Grants)

Rivers, Trails and Conservation Assistance Program (RTCA)

National Park Service (NPS)

RTCA, a community assistance arm of the NPS, provides technical assistance to a variety of agencies and organizations in designing trails and parks, conserving and improving access to rivers, protecting special places, and creating recreation opportunities. RTCA's funds can be used for developing plans, engaging the public, identifying other sources of funding, and more. This funding cannot be used for construction.

In the past, NPS has provided assistance for: planning (trail, park, open space, greenway, water trail, etc.); defining project vision and goals; assessing and engaging partners and stakeholders; taking inventory and mapping of community resources, setting priorities and consensus building; identifying funding sources; organizational development; and designing community outreach and participation strategies.

Minimum/Maximum Grant Amounts: N/A

Required Local Match: N/A

Website: <https://www.nps.gov/orgs/rtca/index.htm>

TIGER (Transportation Investment Generating Economic Recovery)

United States Department of Transportation (USDOT)

TIGER is a highly competitive, annual discretionary grant program that funds innovative, multimodal, and multi-jurisdictional transportation projects that are difficult to fund through traditional federal programs. Successful TIGER projects leverage resources, encourage partnership, catalyze investment and growth, fill a critical void in the transportation system or provide a substantial benefit to the nation, region or metropolitan area in which the project is located.

Eligible projects for TIGER Discretionary Grants are capital projects that include, but are not limited to: 1) highway or bridge projects eligible under title 23, United States Code (including bicycle and pedestrian related projects); 2) public transportation projects eligible under chapter 53 of title 49, United States Code; 3) passenger and

freight rail transportation projects; 4) port infrastructure investments (including inland port infrastructure); and 5) intermodal projects.

Minimum/Maximum Grant Amounts: \$5 Million/\$100 Million

Required Local Match: 20 percent

Website: <https://www.transportation.gov/tiger>

State Funding* (Competitive Grants)

Active Transportation Program (ATP)

California Transportation Commission (CTC)

The Active Transportation Program was created to encourage increased use of active modes of transportation, such as biking and walking. The ATP consolidates various transportation programs, including the federal Transportation Alternatives Program, state Bicycle Transportation Account, and federal and state Safe Routes to School Programs, into a single program. Program funding is segregated into three components and is distributed as follows:

1. 50 percent to the state for a statewide competitive program (25 percent of which must benefit disadvantaged communities)
2. 10 percent to small urban and rural regions with populations of 200,000 or less for the small urban and rural area competitive program (25 percent of which must benefit disadvantaged communities)
3. 40 percent to MPOs in urban areas with populations greater than 200,000 for the large urbanized area competitive program (25 percent of which must benefit disadvantaged communities)

Infrastructure Projects: SR2S that improve safety of children, Safe Routes to Transit, Bikeways and walkways (new, improved, hazard elimination, maintenance), Traffic control devices (new pedestrian signals, RRFBs, protected left turn movements, road diets, etc.), Secure bike parking, Bikes on transit; Recreational trails/trailheads, Park linkages to corridors, and Rails-to-trails. Non-Infrastructure: Educational Programs and other non-infrastructure projects that demonstrate effectiveness in increasing active transportation. SRTS Projects in accordance with Section 1404 of Public Law 109-59. Plans: ATP, Bike, Pedestrian, and SR2S

Minimum/Maximum Grant Amounts: \$250,000 minimum

Required Local Match: 11.47 percent

Website: <http://www.dot.ca.gov/hq/LocalPrograms/atp/>

Solutions for Congested Corridors Programs

California Transportation Commission (CTC)

Solutions for Congested Corridors Program (SCC) is funded by SB 1. Grant applications will be weighted based on the following criteria: 1) Safety 2) Congestion 3) Accessibility 4) Economic Development & Job Creation and Retention 5) Air

Quality & Greenhouse Gas Emissions 6) Efficient Land Use 7) Matching Funds 8) Project Deliverability 9) Collaboration.

Minimum/Maximum Grant Amounts: Varies

Required Local Match: Varies

Website: <http://catc.ca.gov/programs/sb1/sccp/>

Highway Safety Improvement Program (HSIP)

Caltrans

The FAST Act continues the HSIP program to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-state-owned public roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. Items on the inclusion list include: 1) Installation of vehicle-to-infrastructure communication equipment, 2) Pedestrian hybrid beacons, 3) Roadway improvements that provide separation between pedestrians and motor vehicles, including medians and pedestrian crossing islands, 4) Other physical infrastructure projects not specifically enumerated in the list of eligible projects.

Federal Agency: Federal Highway Administration

Minimum/Maximum Grant Amounts: \$100,000/\$10,000,000

Required Local Match: 10 percent

Website: <http://dot.ca.gov/hq/LocalPrograms/hsip.html>

Sustainable Transportation Planning Grant Program (STP)

Caltrans

The Sustainable Transportation Planning Grant Program was created to support the California Department of Transportation's (Caltrans') Mission: Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. The Grant program's overarching objectives were also identified to ensure consideration of these major efforts in transportation planning, including: sustainability, preservation, mobility, safety, innovation, economy, health, and equity. The Caltrans Division of Transportation Planning provides the following transportation planning grants: strategic partnerships, sustainable communities for MPOs & RTPAs, and sustainable communities for cities, counties, transit agencies, and tribal governments.

Strategic Partnerships:

Federal Agency: Federal Highway Administration

Minimum/Maximum Grant Amounts: \$100,000/\$500,000

Required Local Match: 11.47 percent or 20 percent dependent on grant

Website: <http://www.dot.ca.gov/hq/tpp/grants.html>

Sustainable Communities:

Federal Agency: Federal Transit Administration

Minimum/Maximum Grant Amounts: \$50,000/\$500,000

Required Local Match: 11.47 percent or 20 percent dependent on grant

Website: <http://www.dot.ca.gov/hq/tpp/grants.html>

Office of Traffic Safety: National Safety Program 405(h) Nonmotorized Safety

California State Transportation Agency

Under FAST Act Section 405 is the National Priority Safety Program, which provides grant funding to address selected national priorities for reducing highway deaths and injuries. 5 percent of Section 405 funds are earmarked for nonmotorized safety incentive grants. States can submit their Section 405 application on July 1 as part of the consolidated application process. Grant funds may only be used for: 1) Training law enforcement on state laws applicable to pedestrian and bicycle safety 2) Enforcement mobilizations and campaigns designed to enforce those state laws 3) Public education and awareness programs designed to inform motorists, pedestrians, and bicyclists of those laws.

Federal Agency: National Highway Traffic Safety Administration

Minimum/Maximum Grant Amounts: Varies

Required Local Match: 20 percent

Website: <http://www.ghsa.org/about/federal-grant-programs/405>

The Office of Traffic Safety also offers additional grants in a number of categories including Pedestrian and Bicycle Safety. The goals of the office and grant program both focus around reducing collisions, injuries, and fatalities for pedestrian and bicyclists in addition to increase bicycle helmet compliance for youth.

Minimum/Maximum Grant Amounts: Varies

Required Local Match: Varies

Website: http://www.ots.ca.gov/Grants/Pedestrian_and_Bicycle_Safety.asp

Recreational Trails Program

Department of Parks & Recreation

The RTP is a Federal-aid assistance program of the U.S. Department of Transportation's Federal Highway Administration (FHWA) to help the states provide and maintain recreational trails for both motorized and nonmotorized trail use. Eligible projects include: Trail maintenance and restoration, trailside and trailhead facilities, equipment for construction and maintenance, construction of new recreational trails, acquisition of trail corridors, assessment of trail conditions, safety and environmental education, and administration.

Federal Agency: Federal Highway Administration

Minimum/Maximum Grant Amounts: Varies

Required Local Match: 12 percent

Website: http://www.parks.ca.gov/?page_id=24324

Land & Water Conservation Fund (LWCF)

Department of Parks & Recreation

The LWCF program is administered by the NPS at the federal level and the California Department of Parks and Recreation at the state level. Funding sources include: Outer Continental Shelf mineral receipts, sales of federal surplus real property, federal recreation fees, and federal motorboat fuel taxes. Eligible Projects must meet certain priorities in the Statewide Comprehensive Outdoor Recreation Plan (SCORP). This plan is updated every five years to evaluate demand, supply, and priorities to protect existing and create new public outdoor recreation resources. At least one of the SCORP priorities must be met for NPS to approve a project. Projects addressing more than one priority will be more competitive.

Development projects must be used to increase outdoor recreational opportunities. Examples can include: athletic fields and courts, community gardens, non-motorized neighborhood and regional recreational trails, open space and natural areas, outdoor gyms, outdoor performing arts venues, picnic areas, play grounds tot lots, skate parks, and outdoor swimming pools and aquatic features.

Federal Agency: National Park Service

Minimum/Maximum Grant Amounts: Lowest acceptable amount/\$2,000,000

Required Local Match: 50 percent

Website: <https://www.nps.gov/subjects/lwcf/stateside.htm>

Regional Funding

Bicycle Facilities Grant Program

Bay Area Air Quality Management District

The goal of this program is to reduce air emissions from on-road motor vehicles and to improve air quality by helping residents and commuters mode-shift to cycling and walking as alternatives to driving for short distances and first-and last-mile trips. During the FYE 2017 Cycle up to \$5 million in funds were available for this competitive program.

Minimum/Maximum Grant Amounts: \$10,000 per project/\$1,500,000 per agency

Required Local Match: 10 percent

Website: <http://www.baagmd.gov/grant-funding/public-agencies/bikeways-roads-lanes-paths>

The Air District has additional grant programs that can provide funding for bicycle parking facilities.

Measure AA

Save the Bay Restoration Authority

During the 2016 election cycle, all nine Bay Area counties passed Measure AA, a \$12 per year parcel tax to protect San Francisco Bay for future generations by reducing trash, pollution and harmful toxins, improving water quality, restoring habitat for fish, birds and wildlife, protecting communities from floods, and increasing shoreline public access.

The purpose of the Shoreline Public Access Program funded under the Measure is to enhance the quality of life of Bay Area residents, including those with disabilities, through safer and improved public access, as part of and compatible with wildlife habitat restoration projects in and around the Bay: A) Construct new, repair existing and/or replace deteriorating public access trails, signs, and related facilities along the shoreline and manage these public access facilities and B) Provide interpretive materials and special outreach events about pollution prevention, wildlife habitat, public access, and flood protection, to protect the Bay's health and encourage community engagement.

Minimum/Maximum Grant Amounts: TBD

Required Local Match: TDB

Website: <http://sfbayrestore.org/sf-bay-restoration-authority-grants.php>

One Bay Area Grant Program 2

Metropolitan Transportation Commission (MTC)

One Bay Area integrated the region's federal transportation program with California's climate laws and the Sustainable Communities Strategy, by targeting funding to Priority Development Areas (PDAs), Priority Conservation Areas (PCAs), and Climate Initiatives while maintaining commitments to existing transportation priorities. Known as OBAG 2 for short, the second round of OBAG funding is projected to total roughly \$916 million to fund projects from 2017-18 through 2021-22. The OBAG 2 program is divided into a Regional Program, managed by MTC, and County Program, managed by the nine Bay Area Congestion Management Agencies (CMAs).

The County Program will provide over \$386 million over five years. Cities and counties can invest in: local street and road maintenance, streetscape enhancements, bicycle and pedestrian improvements, safe routes to school projects, priority conservation areas, and transportation planning. These funds are targeted to projects in PDAs to support efforts for focused growth. In the case of Half Moon Bay, these funds will be managed by San Mateo County Transportation Authority.

Minimum/Maximum Grant Amounts: TBD

Required Local Match: TDB

Website: http://www.alamedactc.org/app_pages/view/8495

**Federal dollars are often times distributed through state and regional agencies/programs. Federal policies may still apply.*

Measure A Pedestrian and Bicycle Program

San Mateo County Manager's Office

The goal of the Measure A Pedestrian and Bicycle Program is to fund specific projects that improve bicycling and walking accessibility and safety in San Mateo County, helping to encourage more residents to participate in active transportation.

Minimum/Maximum Grant Amounts: N/A/\$1,000,000

Required Local Match: 10 percent

Website:

http://www.smcta.com/Projects/Call_for_Projects/2017_Measure_A_Pedestrian_and_Bicycle_Program_Call_for_Projects.html

Local Funding

New Development or Redevelopment

Future new development and redevelopment projects including new roads, road widening and construction projects are one method of providing pedestrian improvements and bike lanes. To ensure that pedestrian and bicycle improvements are included in these projects, it is important that the review process includes an individual (designated bicycle coordinator) or group (BPAC) to monitor the review process.

Assessment Districts

Different types of assessment districts can be used to fund the construction and maintenance of bikeway facilities. Examples include Mello-Roos Community Facility Districts, Infrastructure Financing Districts (SB 308), Open Space Districts, or Lighting and Landscape Districts. These types of districts have specific requirements relating to the establishment and use of funds.

Impact Fees

Another potential local source of funding are developer impact fees, typically tied to trip generation and traffic impacts as a result of proposed projects. In San Leandro, this fee is called Development Fee for Street Improvements (DFSI). A developer may be required to help mitigate the overall impact of vehicular trips by paying DFSI.

Open Space District

Local Open Space Districts may float bonds that go to acquiring land or open space easements, which may also provide for some improvements to the local trail and bikeway system.

Non-Traditional and Private Funding

In the search for funding sources, it becomes increasingly necessary to 'think outside the box'. With the climate change and health benefits afforded by walking and

bicycling, there is an even greater opportunity to build partnerships with organizations and non-profits that have a similar interest in improving conditions for pedestrians and bicyclists. Teaming ventures with non-profit organizations will open up sources of private grant and foundation funding that is not open to a public agency.

California Conservation Corps (CCC)

The program provides emergency assistance and public service conservation work for government agencies and non-profit organizations. Both urban and rural projects are eligible and selected on the basis of environmental and natural resource benefits and on-the-job training opportunities.

Rails to Trails Conservancy (RTC)

The Conservancy assists rails-to-trails conversions through technical assistance, public education, advocacy, negotiations, legislation and regulatory action.

Grant and Foundation Opportunities

Private foundations provide excellent opportunities for funding specific capital projects or single event programs. Generally to qualify for these types of funds, a Bicycle Advisory Committee or established non-profit group acting in its behalf must exist. In general, private foundations are initially established for specific purposes, e.g. children and youth need, promotion of certain professional objectives, educational opportunities, the arts, and community development. An excellent source of information about foundations and their funding potential can be found in the Foundation Directory, available at many public libraries or on-line at www.fconline.fdncenter.org/. Several foundations to consider are:

- Compton Foundation, Inc.
- Nathan Cummings Foundation
- Ottinger Foundation
- REI Corporate Contribution Programs
- Surdna Foundation, Inc.
- Robert Wood Johnson Foundation
- Bikes Belong Coalition

Adopt-A-Trail/Path Programs

Modeled upon the Southern California program of highway maintenance contributions, this program would post signs to indicate which individual or group has contributed to the development, installation or maintenance of a particular bike facility. Trail construction can also be considered by school or civic groups as a year-long project. The City has a local adopt-a-park program that could be expanded to include trails.

Memorial Funds

These programs are advertised as potential donor projects to be funded via ongoing charitable contributions or funds left to a particular project through a will. Most memorial projects include the location of a memorial plaque at a location specific to the improvement or at a scenic vista point.

Revenue-Producing Operations

As part of the development of a trail or bike path, plans can specifically include the location of a revenue-producing operation adjacent to the proposed improvement. For example, bicycle rental/repair facilities, food and drink establishments, and bike storage facilities would be appropriate uses. The on-going lease revenues from these operations could then be used for trail/path maintenance.

