Plan Half Moon Bay



Existing Conditions, Trends, and Opportunities Assessment

Revised July 2014

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Revised July 2014

Prepared for
City of Half Moon Bay

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July 2014 Revisions to the Existing Conditions, Opportunities, and Trends Assessment

This report has been revised since its initial publication in June 2014 to include corrections, clarifications, and additional discussion on topics of substandard lots, Planned Unit Developments, roadways and trails, hazards, and drainage. These changes can be found on the following pages:

Chapter 2: 2-2

Chapter 3: 3-9, 3-10, 3-21, 3-48, 3-53, 3-54

Chapter 4: 4-11, 4-13, 4-22, 4-23, 4-25

Chapter 5: 5-17, 5-67, 5-75, 5-77, 5-83, 5-84

Chapter 9: 9-5, 9-6, 9-9

In addition, all figures have been revised to correct the following features:

- Beach Avenue
- Drainages and streams

Several comments were received on the June 2014 report that have not affected the contents of this report, but which have been noted as items to address in subsequent stages of the General Plan/LCP update process. Policy directions, including strategies for sensitive habitat and open space preservation and designations for sensitive areas, will be examined in greater detail as alternatives and General Plan policies are developed, and comments regarding these issues will be used to inform that process. Sea level rise impacts, including flooding and erosion hazards, will be examined as part of a separate forthcoming report, and will address the comments received on this subject. Although it is not within the scope of this report to provide information on specific parcels or development projects, comments regarding these have also been noted. All comments received by the City on the June 2014 report are included in Appendix A.

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Table of Contents

1 Introduction 1-1

1.1 Purpose 1-1

1.2 Regional Location and Project Boundaries 1-1

Regional Location 1-1

Planning Boundaries 1-2

1.3 Demographic Overview 1-2

1.4 Key Objectives and Community Issues 1-7

Key Objectives 1-7

Community Priorities 1-7

1.5 Report Organization 1-8

2 Key Planning Issues and Implications 2-1

2.1 Land Use Planning and Development 2-1

Physical Planning Issues 2-1

Planned Unit Development (PUD) Regulations 2-2

Growth Limit 2-2

Park Standards 2-3

Environmental and Resource Protection 2-3

Hazard Mitigation 2-3

2.2 Resource Protection 2-4

Sensitive Habitats 2-4

Water Resources 2-4

Aesthetics 2-5

Cultural 2-5

2.3 Circulation 2-5

Connectivity and Street Systems 2-6

Congestion 2-6

Public Transit 2-7

Coastal Access 2-7

Parking 2-7

2.4 Hazard Mitigation 2-8

3 Land Use and Urban Design 3-1

3.1 Existing Land Use 3-1
Land Use Pattern and Distribution 3-1

3.2 Urban Form 3-10
Overall City Form 3-10

3.3 Density 3-12

3.4 Regulatory Background 3-12
Half Moon Bay Local Coastal Program (LCP) 3-12
San Mateo County General Plan 3-31
San Mateo County Zoning Regulations 3-32
Half Moon Bay Downtown Specific Plan 3-32
Adjacent Area Plans and Regional Plans 3-33

3.5 Development Context 3-34
Population and Growth 3-34
Current Development Projects 3-36
Development Review 3-37

3.6 Opportunity Sites 3-42
Vacant 3-42
Underutilized 3-45
Existing Agriculture 3-47
Open Space 3-47
Planned Unit Developments 3-47
Paper Subdivisions 3-51
Substandard Lots 3-51

3.7 Key Planning Issues and Implications 3-53
Developable Land 3-53
Planned Unit Developments 3-53
Substandard Lots 3-54
Agricultural Conversion 3-54
Non-Residential Development 3-55
Neighborhood Connectivity 3-55
Coastal Act 3-56

4 Circulation, Parking, and Coastal Access 4-1

4.1 Half Moon Bay General Plan Circulation Element 4-1

4.2 Vehicular Circulation 4-1
Roadway System 4-2
Traffic Operations 4-5
Parallel Routes/Foothill Boulevard 4-6
Traffic Safety 4-8

Key Planning Issues and Implications 4-9

4.2 Pedestrian and Bicycle Circulation 4-10
San Mateo County Comprehensive Bicycle and Pedestrian Plan 4-10
Existing Bicycle and Pedestrian Facilities 4-10
Planned Bicycle and Pedestrian Facilities 4-13
Pedestrian and Bicycle Collisions 4-14
Key Planning Issues and Implications 4-17

4.3 Public Transit Network 4-18
Fixed Route Transit Service 4-18
Dial-A-Ride 4-18
Key Planning Issues and Implications 4-21

4.4 Coastal Access 4-21
California Coastal Trail 4-21
Coastal Access and Amenities 4-22
Key Planning Issues and Implications 4-25

4.5 Parking 4-25
On-Street Parking 4-25
Off-Street Parking 4-26
Key Planning Issues and Implications 4-27

4.6 2013 Half Moon Bay Circulation Element Improvements 4-28
Vehicle Circulation 4-28
Parking 4-30
Emergency Access 4-30
Scenic Routes 4-30
Bicycle and Pedestrian Improvements 4-33
Other Modes 4-34

5 Environmental Resources and Hazards 5-1

5.1 Biological Resources 5-1
Regional Setting 5-2
Regulatory Setting 5-3
Vegetative Habitat Types 5-15
Environmentally Sensitive Habitat Areas and Special-Status Species 5-28
Key Planning Issues and Implications 5-43
Summary 5-47

5.2 Hydrology and Water Quality 5-50
Regional Setting 5-51
Regulatory Setting 5-52
Resources and Hazards 5-60
Key Planning Issues and Implications 5-90
Summary 5-91

5.3 Geology, Soils, and Seismicity 5-92
Regional Setting 5-92

Regulatory Setting 5-93
Geologic and Soils Hazards 5-101
Key Planning Issues and Implications 5-125
Summary 5-125

6 Aesthetics 6-1

Aesthetics, Light and Glare 6-1

6.1 Regulatory Setting 6-2

6.2 Visual Setting 6-3
Visual Quality and Character 6-5
Critical Visual Resources 6-20

6.3 Key Planning Issues and Implications 6-30
Development and Visual Resources 6-30
Conversion of Land from Agriculture to Other Uses 6-31
New Dwelling Units and Growth 6-31
Traffic 6-31
Downtown Core 6-31
Future Development of Subdivisions 6-32
Jurisdictional Issues 6-32
Light and Glare 6-32

7 Cultural Resources 7-1

Records Search 7-1
Native American Consultation 7-2

7.1 Regional and Local Setting 7-2
Regional Setting 7-2
Local Setting 7-4

7.2 Policies and Regulations 7-4
Federal Policies and Regulations 7-4
State Policies and Regulations 7-5
Local Policies and Regulations 7-7
Other Relevant Regulations 7-9

7.3 Historic Resources 7-10
Cultural Resources Categories 7-10
Archaeological Resources 7-11
Historic Architecture/Built Environment Resources 7-11
Existing Resources 7-11
Potential Resources 7-34

7.4 Key Planning Issues and Implications 7-34
Summary 7-34

8 Parks, Recreation, and Public Services 8-1

8.1 Parks and Recreation 8-1
Existing Parks 8-1
Recreation Programs 8-5
School District Recreational Facilities 8-5
Golf Courses 8-5
Open Space 8-5
Trails 8-6
Standards and Definitions 8-6
Deficiencies, Planned Improvements, and Community Needs 8-7

8.2 Public Facilities and Services 8-9
Schools 8-9
Library 8-13
Community Centers 8-13
Police Services 8-13
Fire and Emergency Response Services 8-14
Medical Facilties 8-15
Solid Waste and Recycling 8-15
Hazardous Waste 8-16
Key Planning Issues and Implications 8-17

9 Infrastructure 9-1

9.1 Introduction 9-1

9.2 Water System 9-1
Existing Potable Water Infrastructure 9-1
Water Supply Assessment 9-2
Existing Recycled Water 9-2
Existing Potable Water Demand 9-3
Existing System Deficiencies 9-3
Potential Water System Improvements 9-3

9.3 Storm Drain System 9-4
Stormwater Regulations 9-4
Storm Drain Infrastructure and Pollutant Sources 9-5
Flood Hazard Zones 9-7

9.4 Sanitary Sewer System 9-11
Sanitary Sewer Background 9-11
Existing Sanitary Sewer Infrastructure 9-11
Existing Sewage Treatment Capacity 9-12
Existing System Deficiencies 9-12

9.5 Dry Utility System 9-15
Service Providers 9-15

9.6 Key Planning Issues and Implications 9-15
Water System Status 9-15

Storm Drain Status 9-15
Lack of Stormwater Treatment Facilities 9-16
Sanitary Sewer Limitations 9-16
Adequate Dry Utilities 9-16

10 Noise 10-1

10.1 Noise and Vibration Concepts 10-1
Terminology 10-1
Effects of Noise 10-2
Ground-borne Vibration 10-6

10.2 Regulatory Framework 10-8
Federal 10-8
State of California 10-9
City of Half Moon Bay 10-11

10.3 Existing Noise and Vibration Sources 10-11
Noise 10-11
Vibration 10-12

10.4 Noise Measurement Survey 10-13

10.5 Noise Exposure Maps 10-20

References R-1

Appendix A: Comments Received on June 2014 Report A-1

List of Figures and Charts

Figure 1-1: Regional Setting 1-3
Figure 1-2: Planning Area 1-5
Figure 3-1: Existing Land Use 3-3
Figure 3-2: Coastal Zone Permit and Appeals Jurisdiction 3-15
Figure 3-3: Existing General Plan 3-19
Figure 3-4: Existing Zoning 3-25
Figure 3-5: Recent and Current Development Projects 3-39
Figure 3-6: Opportunity Sites 3-43
Figure 3-7: Existing PUD 3-49
Figure 4-1: Roadway Network 4-3
Chart 4-1: Vehicle Crashes along Highway 1 (2008-2012) 4-8
Chart 4-2: Vehicle Crashes along State Route 92 (2008-2012) 4-9
Figure 4-2: Existing and Planned Bicycle Facilities 4-11
Figure 4-3: Pedestrian and Cyclist Collisions 4-15
Figure 4-4: Existing Fixed Route Transit Services 4-19
Figure 4-5: Coastal Access Points 4-23
Figure 4-6: 2013 Half Moon Bay Circulation Element Roadway Improvements 4-31
Figure 5-1: Habitats 5-17
Figure 5-2: Special-Status Plant Species 5-39

Figure 5-3: Special-Status Animals and Critical Habitat 5-41

Figure 5-9A: Soils 5-105

Figure 5-9B: Soils Detail (North) 5-107

Figure 5-9C: Soils Detail (Central) 5-109

Figure 5-9D: Soils Detail (South) 5-111

Figure 6-1: Primary View Corridors 6-21

Figure 6-2: Visual Resources 6-23

Figure 7-1: Historic Resources 7-13

Figure 8-1: Existing and Planned Parks and Recreation Resources 8-2

Figure 8-2: Existing and Planned Public Facilities 8-11

Figure 9-1: Existing Storm Drainage System 9-9

Figure 9-2: Existing Sanitary Sewer Service Providers 9-13

Figure 10-1 Typical Noise Levels in the Environment 10-5

Figure 10-2: Noise Measurement Locations 10-15

Chart 10-1: Noise Levels at Site LT-1 10-17

Chart 10-2: Noise Levels at Site LT-2 10-18

Chart 10-3: Noise Levels at Site LT-3 10-19

Figure 10-3: Existing Traffic Noise Contours for Major Roadways in Half Moon Bay 10-21

List of Tables

Table 1-1: Household Demographic Characteristics[1] 1-7

Table 3-1: Existing Land Use[1] 3-5

Table 3-2: Half Moon Bay LCP and San Mateo County General Plan Land Use Designations in the Planning Area 3-22

Table 3-3: Half Moon Bay and San Mateo County Zoning 3-23

Table 3-4: Single-Family Residential Zoning Districts – Selected Development Standards 3-27

Table 3-5: Two- and Multi-Family Residential Zoning Districts – Selected Development Standards 3-28

Table 3-6: Commercial Zoning District – Selected Development Standards 3-29

Table 3-7: Household Population Trends 2000-2014 3-35

Table 3-8: Half Moon Bay Population Trends 2000-2014 3-36

Table 3-9: Current Development Projects 3-37

Table 3-10: Vacant Sites by General Plan Land Use – Half Moon Bay 3-45

Table 3-11: Underutilized Sites by General Plan Land Use – Half Moon Bay 3-46

Table 3-12: Existing Agriculture Sites by General Plan Land Use 3-47

Table 3-13: Planned Unit Developments 3-48

Table 3-14: Substandard Vacant Lots 3-51

Table 3-15: Development Standards for Substandard and Severely Substandard Lots 3-52

Table 4-1: Peak Hour Intersection Level of Service 4-6

Table 4-2: Off-Street Parking Requirements 4-27

Table 5-1: CNDDB Listed Special-status Plant and Animal Species Occurrences within 5 miles of the Planning Area 5-35

Table 5-2: Habitats and Special-Status Species Constraints Summary 5-43

Table 5-3: Existing and Potential Beneficial Uses of Water Bodies in the San Francisco Bay Region 5-64

Table 5-4: Existing & Potential Beneficial Uses in Groundwater in Identified Basins 5-70

Table 5-5: Dams with the Potential to Inundate the Planning Area 5-89

Table 5-6: Soil Types within Planning Area 5-101

Table 7-1: Previously Identified Archaeological Resources within the Planning Area 7-15

Table 7-2: Previously Identified Built Environment Resources within the Planning Area 7-18

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area 7-28

Table 8-1: Parks and Recreation Facilities 8-2

Table 8-2: Park and Recreation Facilities Classification and Minimum Standards 8-6

Table 8-3: Park Land Deficiency 8-7

Table 8-4: Cabrillo Unified School District Schools and Enrollment 8-9

Table 8-5: Planning Area Solid Waste Generation by Land Use 8-16

Table 9-1: Facilities Included in the Citywide Drainage Ditch Maintenance Project 9-6

Table 10-1: Definition of Acoustical Terms Used in this Report 10-4

Table 10-2: Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels 10-7

Table 10-3: Typical Levels of Groundborne Vibration 10-8

Table 10-4: Summary of Short-Term Noise Measurement Data 10-20

1 Introduction

This report provides a baseline of existing conditions, trends, and opportunities in the Half Moon Bay Planning Area. It explores a range of issues that affect the city's long-range planning, including land use, circulation, environmental resources and hazards, recreation and public services, and infrastructure. Chapter 2 synthesizes findings from across these topics to identify a set of key issues that will inform the development of a new General Plan and Local Coastal Program for Half Moon Bay.

1.1 Purpose

The City of Half Moon Bay has initiated a multi-year collaborative process to update its General Plan, Local Coastal Program (LCP), and Zoning Ordinance. The current General Plan and LCP elements dated to the early 1990s, and no longer reflect current conditions or priorities. This project will help define a common vision for the future, and provide planning policies and regulations to effectively carry out that vision.

The City and a team of consultants are working closely with the community and decision makers to evaluate existing policies, carry forward effective ones, and develop new strategies to achieve community goals and regulatory requirements. A fully updated Plan will ensure that future development enhances community character and identity, provides a sound framework for economic growth, and protects coastal resources and public coastal access.

1.2 Regional Location and Project Boundaries

REGIONAL LOCATION

As shown in Figure 1-1, Half Moon Bay is situated along the San Mateo County coastline, approximately 23 miles south of downtown San Francisco and at the edge of the Bay Area region. It is connected to Pacifica and San Francisco to the north and Santa Cruz to the south by Highway 1, and connected to San Mateo, the Peninsula, and the East Bay by Highway 92.

Perched against a backdrop of the Pacific Coast, open bluffs and forested hills, Half Moon Bay has one of the most scenic settings in the Bay Area. One of the earliest settlements San Mateo County, Half Moon Bay has a thriving historic downtown and unique agricultural heritage. Half Moon Bay is also one of the most popular recreational destinations along the coast, thanks to its many trails, beaches, and parks. Its fully paved segment of the California Coastal Trail means that

pedestrians, bicyclists, and equestrians all have easy access to the shore. The area is notable for water sports, such as surfing and kayaking, as well as for its natural beauty and biodiversity.

PLANNING BOUNDARIES

The Planning Area comprises the city limits of Half Moon Bay, as well as some unincorporated land along the Highway 92 corridor east of the City, and land primarily used as nurseries located directly east of Highway 1 and north of Miramontes Point Road bordering the City's southeastern edge. These areas are included for consideration because their future land use characteristics will have a substantial effect on Half Moon Bay itself. Figure 1-2 shows the boundaries of the City of Half Moon Bay and the Planning Area. The Planning Area extends approximately six miles along the Pacific coast, and encompasses 4,267acres.

1.3 Demographic Overview

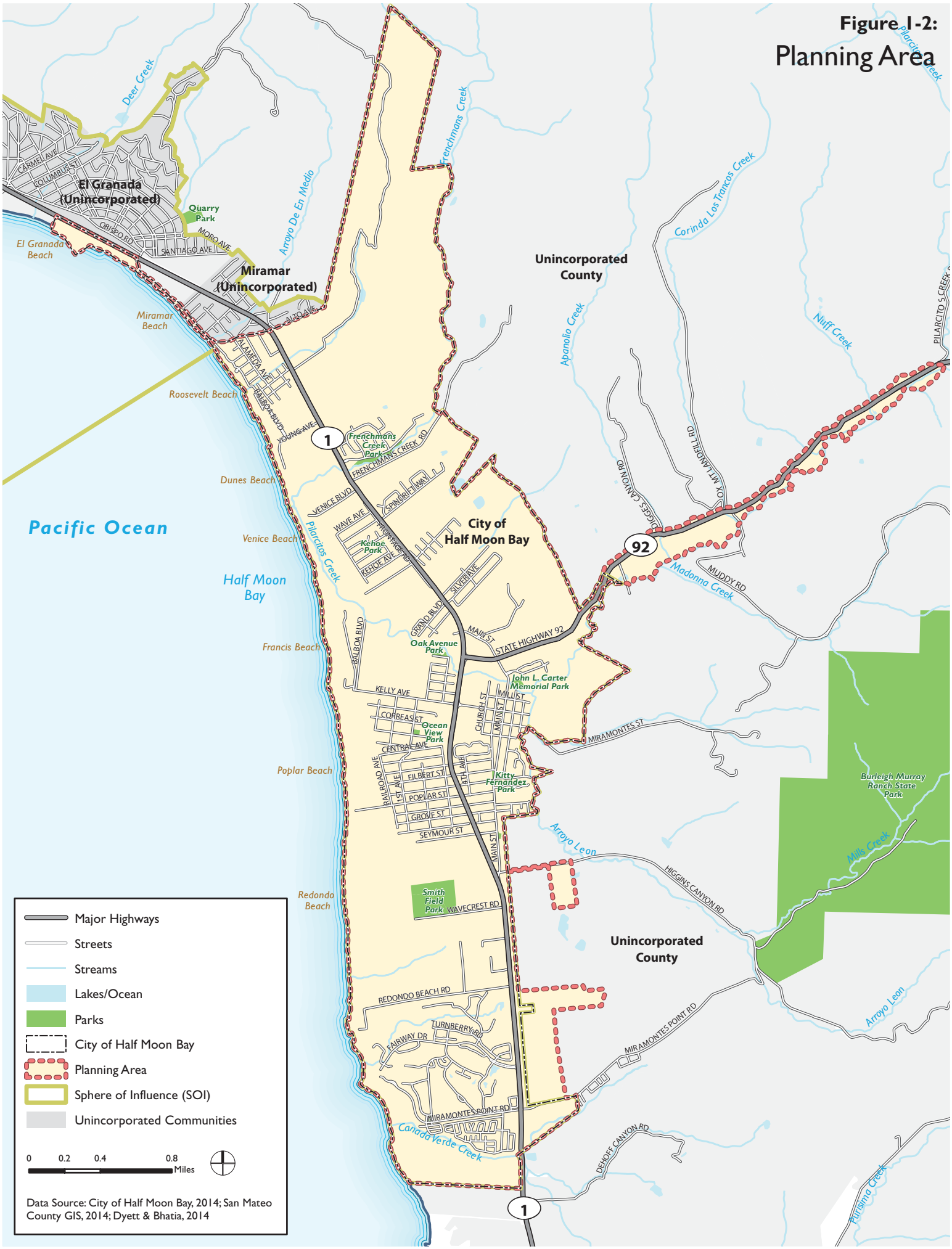
During the 1980s and 1990s, Half Moon Bay's population grew by 70 percent, or about 2.7 percent annually, making it one of the fastest-growing cities in San Mateo County. However, between 2000 and 2010, the city experienced population decline, largely due to substantial decline in institutionalized population. The city's population as of January 1, 2014 was 11,721, growing from the previous year by 1.1 percent, or about the same rate as the county overall, and by 0.9 percent annually since 2010. Measure D, passed by city voters in 1999, limits residential growth to 1 percent per year (1.5 percent downtown). The Association of Bay Area Governments projects that Half Moon Bay's population would increase at a slow pace in the coming decades, reaching 12,300 by 2035, or an increase of less than 600 from 2014.

The median age of Half Moon Bay residents has increased by nearly twice the rate as in San Mateo County overall between 1980 and 2010, and stands at 44, up from 32 in 1980 and above the median age of 40 for the County as a whole. Median household income in Half Moon Bay is about $90,000. However, the share of households with annual income in the $25,000 to $50,000 range is higher than that observed countywide, while the share earning $50,000 to $200,000 is lower. The city's population is approximately 62 percent non-Hispanic White, 32 percent Latino or Hispanic, and 4.3 percent Asian, with less than 1 percent each from other Census-identified categories.

Table 1-1 summarizes population trends and demographics in Half Moon Bay. The Half Moon Bay Economic and Real Estate Conditions and Trends report, provided separately, contains more detailed demographic information.


Figure 1-1:
Regional Setting
San Francisco
Candlestick Point State Recreational Area
Thornton State Beach
Daly City
San Bruno Mountain State Park
Brisbane
Mussel Rock Park
Colma
South San Francisco
280
1
Milagra Ridge
82
380
San Francisco Bay
Mori Point
Pacifica
35
San Bruno
San Francisco International Airport
Pacifica State Beach
Sweeney Ridge
Junipero Serra Park
Millbrae
San Andreas Lake
Pedro Point Headlands
280
Coyte Point County Park
101
Burlingame
San Pedro Valley Park
San Mateo
Gray Whale Cove SB
Montara State Beach
Hillsborough
Foster City
Pacific Ocean
Montara
San Francisco State Fish and Game Refuge
Point Montara Light Station
SAN MATEO
Moss Beach
Rancho Corral de Tierra
Lower Crystal Springs Reservoir
92
Princeton
Belmont
101
Fitzgerald Marine Reserve
Half Moon Bay Airport
El Granada
San Carlos
Pillar Point
Half Moon Bay
Upper Crystal Springs Reservoir
92
Half Moon Bay
Half Moon Bay State Beach
280
Palomar Park
Pulgas Ridge
Redwood City
Edgewood Park
1
Burleigh H. Murray Ranch State Park
Johnston Ranch
GGNRA
Purisma Creek Redwoods Open Space
Huddart Park
Woodside
Teague Hill Open Space
35
84
El Corte de Madera
Wunderlich County Park
Tunitas Creek Ranch Open Space
La Honda Creek Open Space
Freeways
Major Highways
BART
Caltrain
County Boundary Lines
City of Half Moon Bay
Half Moon Bay Planning Area
Urbanized Area
Protected Open Space
0 0.75 1.5 3 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Figure I-2:
Planning Area
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
City of Half Moon Bay
Unincorporated County
Pacific Ocean
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Apanolio Creek
Nuff Creek
Pilarcitos Creek
Madonna Creek
Arroyo Leon
Mills Creek
Canada Verde Creek
Burleigh Murray Ranch State Park
Quarry Park
Frenchmans Creek Park
Kehoe Park
Oak Avenue Park
John L. Carter Memorial Park
Ocean View Park
Kitty Fernandez Park
Smith Field Park
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
ALAMEDA AVE
PALMA AVE
YOSEMITE BLVD
YOUNG AVE
FRENCHMANS CREEK RD
VENICE BLVD
SPINDRIFT WAY
WAVE AVE
PRINCETON-BY-THE-SEA
KEHOE AVE
SILVER AVE
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
BALBOA BLVD
KELLY AVE
CORREAS ST
CENTRAL AVE
CHURCH ST
MAIN ST
MIRAMONTES ST
RAILROAD AVE
1ST AVE
FILBERT ST
4TH AVE
POPLAR ST
GROVE ST
SEYMOUR ST
WAVECREST RD
HIGGINS CANYON RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
DEHOFF CANYON RD
PURISIMA CREEK
BIGGES CANYON RD
MT LANDELL RD
MUDDY RD
1
92
Major Highways
Streets
Streams
Lakes/Ocean
Parks
City of Half Moon Bay
Planning Area
Sphere of Influence (SOI)
Unincorporated Communities
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Table 1-1: Household Demographic Characteristics[1]

Characteristic	*City of Half Moon Bay*	*San Mateo County*
Population	11,324	718,451
Households	4,256	257,369
Median Age	44	40
Median Household Income	$98,914	$87,751

Notes:
1. Population is from 2010 Census; other data is from 2008-2012 American Community Survey 5-Year Estimate.

Source: US Census Bureau, 2010, 2008-2012.

1.4 Key Objectives and Community Issues

KEY OBJECTIVES

In the years since the city adopted its current General Plan and LCP, many new opportunities and challenges have emerged. The updates will need to address issues spanning all aspects of life in the city, as well as stewardship of the coast.

These include, but are not limited to:

- Future residential development
- Balanced growth and economic development
- Planned Development zones
- Housing
- Circulation
- Coastal access, Complete Streets, and the land use-transportation connection
- Urban form
- Conservation
- Shoreline erosion and impacts from sea level rise
- Updating the Downtown Specific Plan

The General Plan and LCP must be crafted to ensure that they are clear and easy to use, and that they may be efficiently revised to incorporate future updates and amendments.

COMMUNITY PRIORITIES

The Plan Update will take place through a collaborative process that will give the community the opportunity to define a common vision for the future, and make deliberate choices to effectively carry out this vision. The Public Participation Program uses a multi-faceted approach with the goal of engaging a broad representation of the community's population and interests. Over the

course of the winter and spring of 2013-2014, the planning team held a range of outreach activities, including an interactive online forum; a community workshop; stakeholder interviews; "community conversations" conducted informally; and targeted outreach to underrepresented groups in the community. Key themes from these activities included the following:

- Maintain Half Moon Bay's unique character and small town feeling;
- Ensure that growth is limited;
- Support local businesses with a focus on downtown;
- Build local infrastructure that supports an active and engaged community, with a focus on youth and families;
- Preserve natural beauty and support access to outdoor recreation;
- Welcome visitors by focusing on local interests and assets; and
- Increase connectivity in the transportation system, and improve transit options.

These themes are described in more depth in the Community Vision Report, which details each outreach activity and synthesizes findings for the Plan Update.

1.5 Report Organization

This report provides a summary of existing conditions, trends, and opportunities related to land use, transportation, the environment, public facilities and infrastructure; it identifies key issues that will be addressed during the planning process. An analysis of market demand and economic factors is presented in a separate report.

This report is organized as follows:

- **Chapter 1: Introduction** includes an overview of the project, planning area, demographic characteristics; and key issues.
- **Chapter 2: Key Planning Issues and Implications** synthesizes the issues related to the range of topics covered in other chapters, and presents key issues for the Plan update to address.
- **Chapter 3: Land Use and Urban Design** analyzes land use, urban form, regulatory context, current development projects, potential opportunity sites, and development potential.
- **Chapter 4: Circulation** describes existing conditions related to streets, vehicular circulation, and parking, as well as bicycles, pedestrians, and public transit. Coastal access is also described.
- **Chapter 5: Environmental Resources and Hazards** analyzes existing conditions of key environmental topics: biological resources, hydrology and water quality, and geology, soils and seismicity.

- **Chapter 6: Visual Resources** presents the existing regulatory setting pertaining to visual resources, and the visual quality and character and critical visual resources in the Planning Area.
- **Chapter 7: Cultural Resources** describes the regional and local setting and the presence or potential presence of archaeological and historical resources.
- **Chapter 8: Parks, Recreation, and Public Services** describes parks and recreation facilities, schools, and public safety services in order to understand existing capacity and opportunities.
- **Chapter 9: Infrastructure** documents the water, storm drainage, and sanitary sewer systems in the Planning Area, and its gas, electricity, and telecommuniciations facilities.
- **Chapter 10: Noise** describes noise and vibration, and the regulatory framework governing these qualities of the urban environment; documents existing noise sources and estimates transportation-related noise levels.

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2 Key Planning Issues and Implications

The discussion in this chapter is based on the key issues identified in different chapters of this report, consolidated into the topics presented below. The issues will be addressed at varying stages in the General Plan Update–for example, several issues related to land use and circulation may be addressed during development of land use and policy alternatives, while issues related to noise standards or cultural resources may be addressed as detailed policy proposals are developed in the latter stages of the update process.

2.1 Land Use Planning and Development

Analysis of potential opportunity sites identified roughly 380 acres of vacant land in Half Moon Bay, as well as 690 acres of underutilized land. These lots are distributed throughout the city – most of the vacant land is concentrated in the paper subdivisions west of Highway 1, and much of the underutilized land is concentrated at the intersection of highways 1 and 92. A small number of vacant lots can be found downtown along Church and Main streets, with many more underutilized sites scattered throughout the downtown area.

However, not all of these sites are developable due to physical or regulatory constraints, or because of the presence of environmental resources or hazards. The General Plan Update offers an opportunity to review the location and nature of these constraints in order to formulate a land use strategy and any revisions to land use policies or designations to promote the development of desired uses where appropriate (such as in infill areas) while ensuring the preservation of important resources where they exist. It may be necessary to revise current policies in order to address potential impacts from future proposed development in areas where constraints exist (such as paper subdivisions where Environmentally Sensitive Habitat Areas [ESHAs] may be found) by considering appropriate allowable land uses in those areas, procedures for determining the extent of critical resources, and acceptable mitigation measures to allow development while promoting the conservation or restoration of sensitive resources.

PHYSICAL PLANNING ISSUES

Physical planning issues for land use and development include concerns related to substandard lot sizes and adequate infrastructure provision. Many of Half Moon Bay's subdivided lots are considered substandard or severely substandard, meaning that they do not meet requirements for minimum lot area or width; any development on these lots must meet specified design criteria before being permitted. Moreover, the dimensions of these lots may not easily accommodate

residential or other development consistent with the standards in the Zoning Ordinance. Further discussion on substandard lots may be found in Chapter ~~2~~ 3 of this report.

Infrastructure provision is a major physical and financial constraint on development in Half Moon Bay. In one aspect, the constraint arises from provisions in the Local Coastal Program (LCP) defining priority and non-priority land uses and limiting water and sewer connections available to non-priority uses. Another aspect of this constraint relates to the city's paper subdivisions: though lots in these areas have been recorded and sold, no roads or water and sewer conveyances have been installed to serve them. Property owners are unlikely to undertake the development of individual lots and bear the cost of providing the necessary infrastructure. New water connections are also quite expensive, costing approximately 4 to 55 percent more than equivalent connections in neighboring Montara Sanitary and Water District. Further description of Half Moon Bay's infrastructure system can be found in Chapter 9 of this report.

PLANNED UNIT DEVELOPMENT (PUD) REGULATIONS

Some of the most significant regulatory limitations on development in Half Moon Bay are policies and regulations surrounding PUD development. The majority of the city's vacant land is zoned PUD. However, the LCP requires comprehensive area-wide specific plans for each PUD before development can take place. This ~~a~~ requirement can be difficult to meet, given the fragmented ownerships, the lack of existing infrastructure, and the need to protect coastal resources and avoid hazards to the approval of the Coastal Commission that affect the remaining vacant PUD areas. Also, though zoning regulations for the Planned Development District allow for the full range of land uses provided for in the Land Use Plan (LUP) of the LCP by permit, there are no land uses that are allowed in this zone by right, other than existing uses, which may be non-conforming. The complex nature of the considerations affecting each site means that any potential developer would be making large investments of time and capital towards a planning process with an unpredictable outcome, ~~cumbersome and expensive requirement, with an unpredictable outcome. The large numbers of unique landowners in each PUD site mean that there is little that an individual property owner can do to develop a given lot. This results in uncertainty for potential developers, who~~ lacking guarantees that a specific plan will be approved at the end of the lengthy development process. Policies and regulations relevant to PUD development should be a focus of the General Plan Update, as constraints—such as potential ESHAs—may be present on these sites. Further discussion on PUDs can be found in Chapter ~~2~~ 3 of this report.

GROWTH LIMIT

Residential development in Half Moon Bay is regulated by Measure D, a growth control ordinance that limits residential development to accommodate a maximum population growth of 1 percent annually (1.5 percent for dwelling units in the Downtown Area). The city's recent growth has been below this limit, and projections for the next 20 years indicate average growth below this level; however, it is possible that this limit could constrain growth in high demand years. The number of new dwelling units approved in a given year is limited to the number of dwelling unit allocations adopted by City Council resolution in that year. Measure D and population growth trends are described further in Chapter ~~2~~ 3 of this report.

PARK STANDARDS

Half Moon Bay's current park standard is 8 acres per 1,000 people, which would require the development of an additional 69 acres of park land to serve the current population. This standard is not likely to be achieved and may not be appropriate given the recreational resource represented by the city's beaches. The standard also does not correlate with the City's Subdivision Regulations, which require dedication of park land at 4 acres per 1,000 residents, or the Quimby Act, which limits park land dedication to 3 acres per 1,000 residents or a higher amount matching existing parkland provision up to 5 acres per 1,000 residents. The General Plan Update is an opportunity to reassess the park standard and the roles played by both parks and beaches in providing for the city's recreational needs. It is also a chance to consider specific provisions for providing new park land as a part of future developments. Parks and recreation opportunities are discussed further in Chapter 8 of this report.

ENVIRONMENTAL AND RESOURCE PROTECTION

Biological and cultural resources are present in many parts of the Planning Area. In terms of biological resources, the presence of sensitive habitats, specifically ESHAs, affects project design, requires additional surveys and reviews, may require additional permitting from state agencies, and may require development of measures to avoid and/or minimize impacts to sensitive habitats and species. The LCP prohibits developments that would significantly impact sensitive habitat areas and limits the types of land uses allowed in such areas. Biological resources are discussed further in Chapter 5 of this report.

In accordance with the Coastal Act, the LCP requires mitigation measures to minimize impacts to archaeological resources. An archaeological report is required for projects located within any designated archaeological resource area or within 100 feet of any recorded archaeological site identified in the LUP. Cultural resources are discussed further in Chapter 7 of this report.

HAZARD MITIGATION

Review of pertinent materials has detailed the presence of potential hydrologic and geologic hazards within the Planning Area, as well as the potential for coastal hazards related to sea-level rise. Constraints associated with these hazards will influence future development efforts and may require measures to minimize impacts. Generally, areas of particular hazard including flood zones, tsunami inundation zones, and dam inundation areas are located along the coastline and the Planning Area's waterways, as well as areas with landslide and erosion potential. Geologic hazards are generally moderate to low within the Planning Area, though some areas of high landslide risk exist along the eastern edge of the city.

Some potential hazard types, such as flood and tsunami inundation zones, have been previously delineated and policies have been adopted that discourage or regulate development proximate to these areas. The LCP requires Geological Reports for areas in geologically hazardous areas as well as areas of coastal hazard, such as bluff edges, and where development may affect coastal and geologic stability, with mitigation measures implemented where necessary. The LCP also limits new development in areas where flooding due to tsunami or dam failure may occur, on bluff faces, and on bluff and cliff tops. Delineation of areas susceptible to sea-level rise is underway as

part of the General Plan Update process and is expected to be completed in the coming months. Hydrologic and geologic hazards are discussed further in Chapter 5 of this report.

2.2 Resource Protection

Analysis shows the presence of various natural and manmade resources—including biological, hydrological, aesthetic, agricultural, and cultural—in the Planning Area. These represent resources that are valued for their contributions to the area's coastal and community character and their roles in local ecological and hydrological systems, and many are protected under state and federal laws.

SENSITIVE HABITATS

Biological resources in the Planning Area include habitats that may be considered ESHAs by the California Coastal Commission, or sensitive habitats by the California Department of Fish and Wildlife (CDFW). These habitats—including sandy beaches, coastal dunes, sea cliffs, wetlands, riparian corridors, open water, coastal scrub, grasslands, eucalyptus groves—may support special status species, such as federal and state-listed species, species of special concern, and avian species protected by the Migratory Bird Treaty Act.

The presence of sensitive habitats and resources in the Planning Area provides opportunities for restoration, limited or improved public access for enjoyment of these areas by residents and tourists, and continued appreciation of popular areas such as beaches and coastal trails. Potential conflicts may arise between the conservation of these areas and other interests, such as providing coastal access and recreational opportunities along the coast, and developing vacant lots in that area. Thus, the General Plan Update process presents a crucial opportunity to define and delineate sensitive habitats (particularly ESHAs), establish a clear process for development proposed in potential ESHAs, incorporate protection and restoration measures for natural resources within both undeveloped and developed areas, continue to foster a sense of community ownership and responsibility related to sensitive habitats and protected species, and provide managed public access within areas possessing ecological importance. See Chapter 5 for more information on biological resources.

WATER RESOURCES

Several surface waters and groundwater basins in the Planning Area have previously been identified for their potential beneficial uses. However, hydrologic resources can be significantly influenced and impaired by existing, new, and re-development. New impervious surfaces from development projects increase stormwater flows, reduce groundwater recharge, increase pollutant discharge, increase erosion, and can result in hydro-modification that may further proliferate degradation. Out-of-date studies or lack of detailed studies lead to an information gap in understanding current conditions and potential constraints. The General Plan Update provides an opportunity to develop policies, standards, and design criteria to minimize potential impacts to hydrologic resources. See Chapter 5 for more information on hydrological resources.

Through thoughtful development, restoration opportunities, detailed study, and advanced planning, these resources and others within the Planning Area can provide continued and new opportunities for public enjoyment, municipal use, and biological/hydrologic integrity. Future planning and new development should implement applicable requirements to address discharge, drainage, and flooding issues; connect and improve stormwater infrastructure; and provide on-site infiltration.

AESTHETICS

The visual environment is an important component of the quality of life in the Planning Area, and is also an important factor in its visitor-based economy. Critical visual resources such as the Pacific Ocean, hillsides and ridgelines, agricultural fields, bluffs and shoreline, open spaces, historic properties, and pedestrian-scale urban design help to define the area's unique character.

Challenges related to visual resource preservation in the Planning Area are often a result of construction, land conversion, and traffic associated with local development and regional tourism. Addressing these will involve striking a balance between allowing development while preserving the integrity of the aesthetic qualities that make the region popular. Issues identified in the Aesthetics chapter include the design and placement of new residential development, development of Half Moon Bay's western subdivisions, the change in landscape caused by future conversion of agricultural land, traffic congestion, the type and appearance of future development downtown, alterations to views outside of the City's jurisdiction, and light pollution from future development.

Opportunities exist to maximize the visual experience for the community and its visitors. The General Plan Update should be attentive toward articulating a clear vision and prioritization for visual resource protection. Policies must anticipate future issues and establish clear, strong, defensible direction for decision makers and the community. See Chapter 7 for more information on visual resources.

CULTURAL

The Planning Area is considered to have high cultural resources sensitivity due to the presence of dozens of important archaeological and historical resources, such as prehistoric shell middens and lithic scatters, historic debris scatters, historic structural remnants, and historic architecture. The locations of these sites can be used to help guide land use classifications and potential overlays, and provide guidelines for further review of development projects in order to avoid significant negative impacts to both known and currently unknown cultural resources. See Chapter 6 for more discussion on cultural resources.

2.3 Circulation

Circulation plays a major role in the quality of life and development in the Planning Area, though the existing circulation system poses a number of challenges for the community. Circulation issues are discussed in Chapter 4 of this report.

CONNECTIVITY AND STREET SYSTEMS

Development has occurred in Half Moon Bay on a project-by-project basis over the years and has resulted in few functional parallel alternative routes to Highway 1 and SR 92; some parallel facilities exist along certain segments of Highway 1, generally south of Main Street, though there are none along SR 92. As a result, most trips by automobile or truck into, out of, within, or through Half Moon Bay must use Highway 1, SR 92, or both. This funneling of almost all vehicular traffic onto these two roads results in congestion on both facilities and many of the streets that cross them.

Due to the limited connectivity between many of the city's neighborhoods, residents often must follow circuitous routes that require them to drive or walk to Highway 1 or Highway 92 before they can access adjacent neighborhoods or one of the city's paved trails. Pedestrians and bicyclists often do not have separate facilities and must use portions of the roadways or their shoulders. Crossing of major facilities like Highway 1 and SR 92 can be challenging because of the small number of signalized intersections that provide pedestrians and bicyclists a break in the traffic. Creating a more comprehensive bicycle and pedestrian network within the city would improve the safety and convenience of traveling between neighborhoods and to major destinations.

While several proposals for alternative or parallel (to Highway 1) routes have been offered over the years, implementation has been constrained due to a variety of challenges. Acknowledging that the previously proposed connections may no longer be feasible, new attempts to develop parallel routes will need to consider a greater variety of strategies to provide incremental improvement in north-south mobility by multiple modes. These strategies may include new alignments for Foothill Boulevard, combinations of smaller alignments, and alignments that address the needs of different types of trips by allowing for pedestrian or bicycle travel. While opportunities are presented by undeveloped sites, the City will need to consider constraints such as landslide risks, areas of potential environmental sensitivity including wetlands and riparian habitat, existing and planned development, and project cost.

CONGESTION

The lack of alternative routes and transportation modes in the Planning Area contributes to the congestion problem by funneling traffic onto the highways and necessitating the use of motor vehicles for both short crosstown trips and regional travel. Congestion is one of the Planning Area's primary concerns, and affects connectivity between neighborhoods and local and regional destinations, safety, aesthetics, noise, and where or whether development is considered appropriate. On weekdays, congestion can be attributed to high commute traffic volumes, inadequate turn lanes, and lack of signal control at some key intersections. The highest volume of traffic occurs on weekends and during special events, when the roadway network—built to meet the average weekday needs of the city's residents—is overwhelmed. This congestion not only results in delay for residents and visitors, but also reduces access to the transportation system for residents. Vehicular traffic also has a significant impact on the views along scenic corridors and is the predominant source of noise in the Planning Area.

PUBLIC TRANSIT

Public transit in the Planning Area is limited, and the scheduling and headways make it difficult for riders to use public transportation as a primary mode of travel. Stops can also be isolated, located on high-traffic routes, and lacking in amenities such as benches, shelters, and trash cans. Transit may not be meeting the demands of the city's aging population, recreational visitors, or those requiring regional connections. Improving transit service and amenities is one potential method of addressing connectivity and congestion issues. Increasing transit headways on the weekend or providing additional service during major events, increasing frequency of weekday transit service with regional connections, and improving the comfort and visibility of transit stops could reduce automobile usage at peak traffic times and improve service for those who rely on public transit.

COASTAL ACCESS

Challenges to coastal access include a lack of clear wayfinding signage indicating access points to the coastline from Highway 1, lack of non-motorized connections across Highway 1, and lack of beach parking, and are closely related to general issues of congestion and connectivity. During high demand periods such as weekends, the lack of wayfinding signage causes additional congestion as cars search for access points and parking. There is an opportunity to improve wayfinding to direct vehicles to designated parking areas. Wayfinding can also direct pedestrians to designated access points, helping to prevent environmental damage and erosion from use of informal paths.

The lack of signalized intersections along Highway 1 make accessing recreational areas along the coast difficult for pedestrians and cyclists east of Highway 1 as well as cars driving northbound on Highway 1, which have to cross oncoming traffic. During peak periods, beachside parking facilities are often filled to capacity, resulting in spillover parking on residential streets. However, the lack of direct and safe bicycle access and crossings makes it difficult to access the shoreline via non-auto modes. The General Plan Update is an opportunity to upgrade pedestrian and bicycle connections and crossings to the coastline in order to increase connectivity for these modes and reduce the demand for parking on the coast.

PARKING

Peak demand periods for parking in Half Moon Bay include special events and weekends. During these times, it can be a challenge for visitors to find parking in popular destinations such as downtown Main Street and at the beaches. Some negative impacts are associated with peak parking periods, including the spill-over of visitor parking onto nearby residential streets, which can cause aesthetic and safety impacts, and affect quality of life for residents in those neighborhoods.

Findings from a 2011 parking survey found that while parking demand may increase on Main Street during peak hours, the remainder of the downtown area's parking supply is undertutilized. The City found that while parking on Main Street may approach capacity during peak demand periods, there is generally ample parking remaining on downtown side streets, and on Johnston and Purissima streets, which parallel Main Street. This suggests that while parking is not

necessarily lacking in Half Moon Bay, there are opportunities to improve connections between major points of interest and areas of parking supply, both in terms of directing drivers to available spaces and in terms of guiding visitors safely and comfortably their destinations once they have left their vehicles. Other approaches to parking programming that could improve the parking experience for residents, employees, and visitors would require assessing the needs (in terms parking duration or amenities) of different users in different parts of the city.

2.4 Hazard Mitigation

In an area where both hydrologic and geologic hazards are present, hazard avoidance and mitigation measures are essential to the long-term protection of lives and property. Hydrologic hazards include flood zones, coastal hazards (i.e., sea level rise, tsunami, wave runup) and localized flooding. Geologic hazards include areas subject to landslides and coastal erosion, as well as groundshaking from nearby faults. Liquefaction and soil erosion hazards exist in the Planning Area; risks of these range from moderate to low, with the exception of very high liquefaction risk in riparian corridors. Areas of particular hazard have been previously delineated and standards have been adopted that generally discourage development proximate to these areas. Further examination of coastal hazards, including coastal erosion and sea level rise, will be conducted as part of the General Plan Update. The update process provides an opportunity to make clear delineation of potential hazards and understand of existing resources in order to develop policies, standards, and design criteria that will help guide development and minimize the potential for exposure, upset, and damage. Hazards are discussed in Chapter 5 of this report.

3 Land Use and Urban Design

This chapter documents the existing land use, urban form, and regulatory context of the Planning Area, with a focus on the distributions of land use categories within Half Moon Bay. This analysis is intended to provide an understanding of the development opportunities and constraints in the city, including from the perspectives of regulatory compliance—particularly in terms of the California Coastal Act and the city's own land use policies and regulations—and local land use compatibility. It reviews the existing land use pattern; the character of existing development; the current Land Use Plan (LUP), Zoning Ordinance, and other relevant plans and initiatives; Half Moon Bay's development process; and current projects and opportunity sites. It also summarizes major land use issues identified during the analysis.

3.1 Existing Land Use

LAND USE PATTERN AND DISTRIBUTION

As shown in Figure 3-1, the Planning Area contains an alternating mix of urban and undeveloped or rural land uses clustered around highways 1 and 92. Throughout the area, agricultural, open space, and residential uses are the most dominant, though large tracts of land are given to nursery and greenhouse operations around the edges of the city and along Highway 92. The distribution of land uses differs between those found within Half Moon Bay and those found in the portion of the Planning Area outside of city limits. The majority of land in Half Moon Bay is dominated by an alternating pattern of agriculture, single-family residential, and open space, with a higher diversity of other uses found clustered near the city's downtown core. In the portion of the Planning Area outside of the city, nursery and greenhouse operations dominate, and agricultural and industrial uses make up larger percentages of the land than they do within the city. Chart 3-1 and Table 3-1 describe the distribution of land uses in the Planning Area, both inside and outside of city limits. Land uses were determined using spatial analysis and data from the San Mateo County Assessor.

Chart 3-1: Existing Land Use - Planning Area

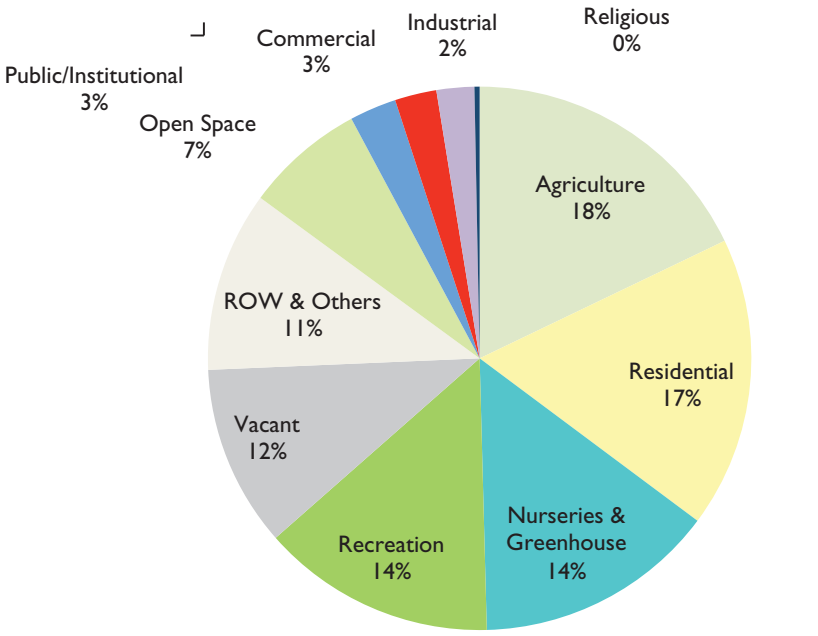
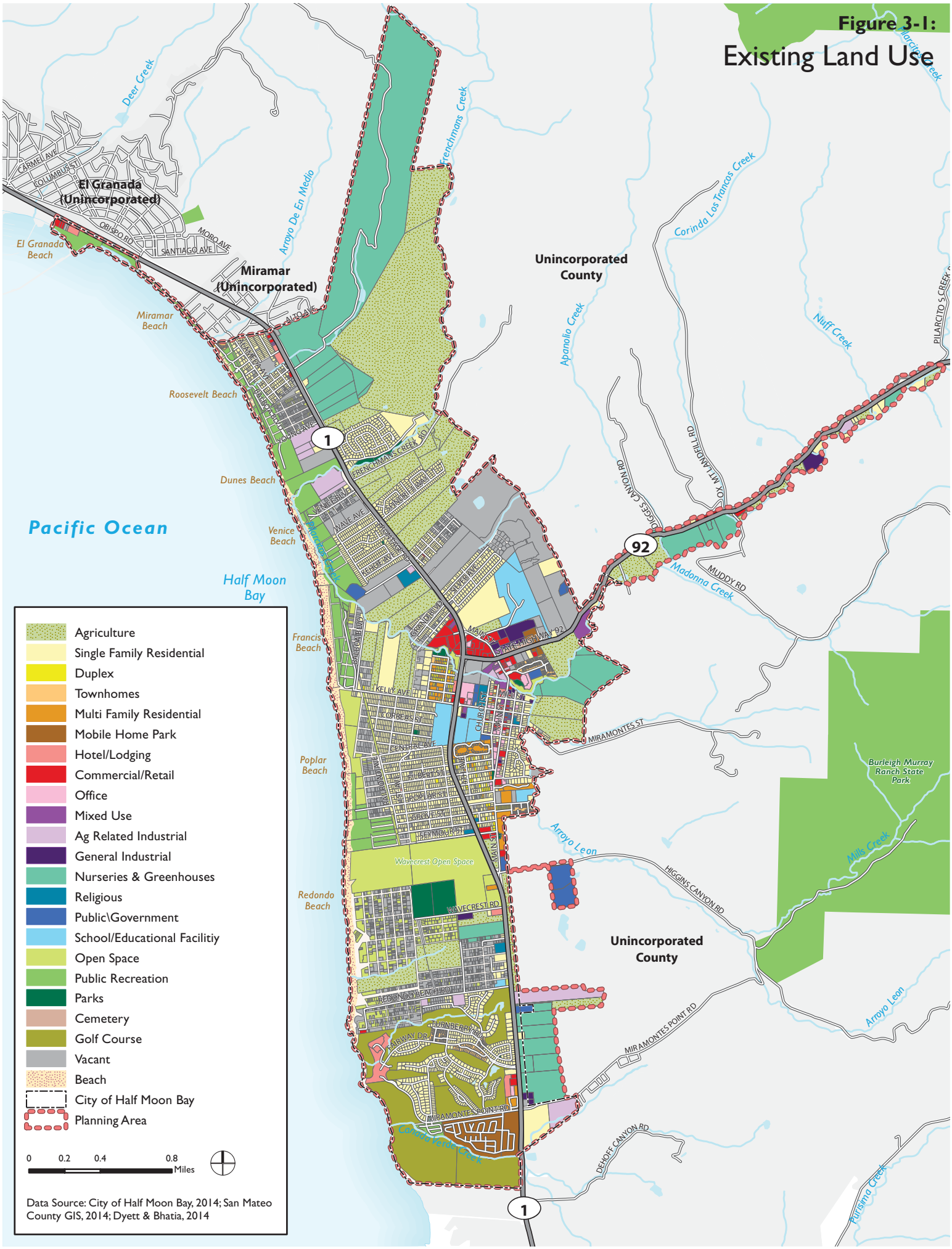


Figure 3-1:
Existing Land Use



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Table 3-1: Existing Land Use[1]

	Within City Limits			*Outside of City Limits*			*Planning Area Total*	
Land Use	*Acres*	*Percent of City*	*Percent of Planning Area*	*Acres*	*Percent of Area Outside City Limits*	*Percent of Planning Area*	*Acres*	*Percent of Planning Area*
Residential	724	18.2%	17.0%	15	5.2%	0.3%	739	17.3%
Single Family Residential	585	14.7%	13.7%	15	5.2%	0.3%	599	14.0%
Mobile Home Park	60	1.5%	1.4%	–	0.0%	0.0%	60	1.4%
Multi Family Residential	41	1.0%	1.0%	–	0.0%	0.0%	41	1.0%
Townhomes	26	0.6%	0.6%	–	0.0%	0.0%	26	0.6%
Duplex	13	0.3%	0.3%	–	0.0%	0.0%	13	0.3%
Commercial	103	2.6%	2.4%	3	1.2%	0.1%	106	2.5%
Commercial/ Retail	45	1.1%	1.1%	3	1.2%	0.1%	48	1.1%
Hotel/Lodging	24	0.6%	0.6%	–	0.0%	0.0%	24	0.6%
Office	18	0.4%	0.4%	–	0.0%	0.0%	18	0.4%
Mixed Use	16	0.4%	0.4%	–	0.0%	0.0%	16	0.4%
Industrial	65	1.6%	1.5%	31	11.0%	0.7%	96	2.2%
Ag Related Industrial	48	1.2%	1.1%	23	8.1%	0.5%	70	1.7%
General Industrial	17	0.4%	0.4%	8	2.9%	0.2%	25	0.6%
Public/Institutional	99	2.5%	2.3%	20	7.0%	0.5%	119	2.8%
Schools/Educati onal Facility	78	2.0%	1.8%		0.0%	0.0%	78	1.8%
Public/Govern ment	17	0.4%	0.4%	20	7.0%	0.5%	37	0.9%
Cemetery	4	0.1%	0.1%	–	0.0%	0.0%	4	0.1%
Recreation	585	14.7%	13.7%	–	0.0%	0.0%	585	13.7%
Beaches & Public Recreation	288	7.2%	6.8%	–	0.0%	0.0%	288	6.8%
Golf Course	259	6.5%	6.1%	–	0.0%	0.0%	259	6.1%
Parks	38	0.9%	0.9%	–	0.0%	0.0%	38	0.9%
Agriculture	703	17.6%	16.5%	60	21.7%	1.4%	763	17.9%
Nurseries & Greenhouse	507	12.7%	11.9%	107	38.3%	2.5%	614	14.4%
Vacant	498	12.5%	11.7%	21	7.6%	0.5%	519	12.2%

Table 3-1: Existing Land Use[1]

	Within City Limits			*Outside of City Limits*			*Planning Area Total*	
Land Use	*Acres*	*Percent of City*	*Percent of Planning Area*	*Acres*	*Percent of Area Outside City Limits*	*Percent of Planning Area*	*Acres*	*Percent of Planning Area*
Open Space	247	6.2%	5.8%	–	0.0%	0.0%	247	5.8%
Religious	13	0.3%	0.3%	–	0.0%	0.0%	13	0.3%
Subtotal	*3544*	*88.8%*	*83.1%*	*256*	*92.1%*	*6.0%*	*3800*	*89.1%*
ROW & Others	445	11.2%	10.4%	22	7.9%	0.5%	467	10.9%
Total	**3989**	**100.0%**	**93.5%**	**278**	**100.0%**	**6.5%**	**4267**	**100.0%**

Note:

1 Values may not sum due to rounding.

Source: Dyett & Bhatia, 2014.

Agriculture and Nurseries & Greenhouses

Agriculture represents the largest single land use in the Planning Area as a whole, covering 17.9 percent of the land. The dominant form of agricultural use is open field production, though on some large tracts, portions of the land may be left as open space. At 703 acres, agriculture is also the largest land use within Half Moon Bay, accounting for 17.6 percent of the city's land. Most of this agricultural land is located in the northern half of the city, particularly east of Highway 1, though some smaller tracts are also found in the Wavecrest Planned Unit Development (PUD) area. Outside of city limits, agriculture is the second-largest land use, covering 60 acres or 21.7 percent of non-city land in the Planning Area. These agricultural lands are split between the parcels lining Highway 92 and the southern point of the Planning Area. Throughout the Planning Area, agricultural tracts can be found adjacent to horticultural operations or vacant or open space lands, as well as, in many cases, more urban industrial or residential uses.

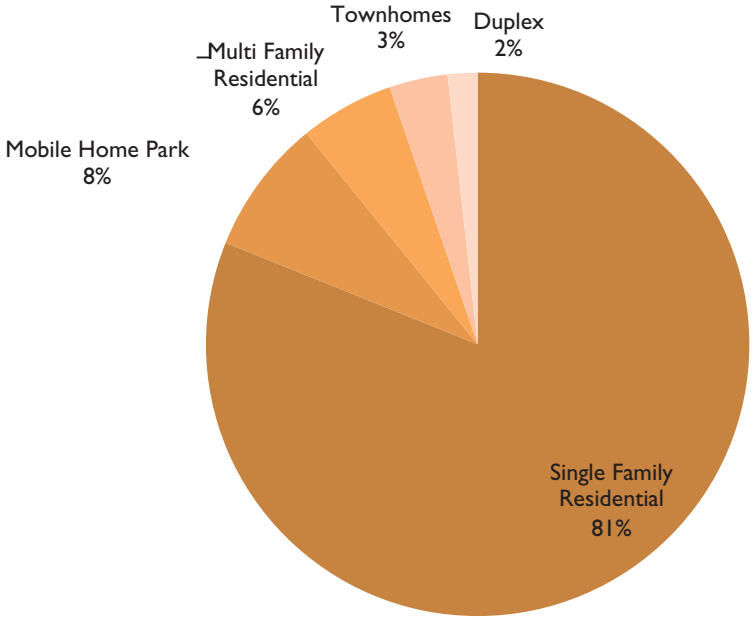
Nurseries and greenhouses represent the second-largest land use in the Planning Area, covering 14.4 percent of the land. These lands are characterized as clusters of adjacent parcels developed with nursery and greenhouse complexes though some larger parcels may also contain areas of open space. This land use type is located mainly at the edges of the city and along Highway 92. It constitutes 507 acres (12.7 percent) within the city, and 107 acres (38.3 percent) of the Planning Area outside of city limits. Nursery and greenhouse land uses typically border agricultural fields or industrial uses, and are separated from residential uses by roads or natural features.

Residential

Combined, residential land uses cover 17.3 percent of the Planning Area (excluding streets and other rights of way). The dominant residential land use is single-family residential, which makes up 81 percent of the Planning Area's residential land and 14 percent of all land. Multi-family

residential, townhomes, duplexes[1] and mobile home parks make up the remainder of residential uses, each covering 1 percent or less of the Planning Area. Chart 3-2 describes the composition of the Planning Area's residential uses.

Chart 3-2: Distribution of Existing Residential Uses



In Half Moon Bay, single-family residential uses cover 585 acres, or 14.7 percent of the city. These are found throughout the city, mainly in clustered subdivisions branching from Highway 1. North of Kelly Avenue, most single-family residential land exists in small pockets surrounded by agricultural fields, vacant land, and open space. Centrally, near Kelly Avenue, is a large cluster of single-family residential uses at Arleta Park, which is bordered by open spaces, vacant lands, and Highway 1. This is also where the downtown core is located, in which single-family residential development is interspersed with other residential uses as well as non-residential uses such as commercial, office, and institutional. South of the Wavecrest Open Space, some single-family parcels can be found among vacant and open space lands, though the majority of the single-family development in this area is located in the Ocean Colony subdivision built inside a golf course.

Many of the other residential uses within the city are centrally located, near the junction of highways 1 and 92. This includes a mix of duplex and multi-family uses in Pilarcitos Park north of Kelly Avenue, the Cypress Cove townhouse development off of Main Street, multi-family and duplex uses south of the downtown core, and the Hilltop Mobile Home Park on Highway 92.

[1] The California Department of Finance recognizes three housing types—single-family detached, single-family attached, multi-family— as well as mobile homes, and would classify a duplex as either single-family attached or multi-family depending on the structure's configuration. Due to the nature of the data received from the San Mateo County Assessor, the Planning Area's duplexes could not be classified in this way, and so are listed separately.

Non-single-family residential uses can also be found at the southern end of the city, including townhome developments in Ocean Colony, and the Canada Cove Mobile Home Park. Non-single-family uses are generally surrounded by other residential uses, vacant lands, or open space, though the Hilltop Mobile Home Park borders some industrial land uses.

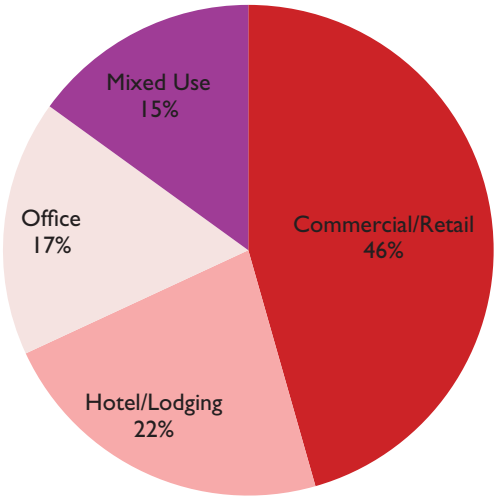
Outside of the Planning Area, the only residential land uses are single-family residential, and are located along Highway 1. These border industrial, agricultural, and nursery and greenhouse uses.

Commercial and Industrial

Commercial land includes uses such as commercial/retail, office, hotel/lodging, and mixed uses. Altogether, this category covers 2.5 percent of land in the Planning Area. The largest percentage of commercial land uses is composed of commercial/retail uses, at 46 percent of commercial uses and 1 percent of the Planning Area. The majority of commercial/retail uses are located near the junction of highways 1 and 92: in two shopping centers northwest and northeast of the intersection, in a commercial center off of Main Street, and throughout the downtown core. Office and mixed use lands are also concentrated in this area. Hotel and lodging uses are found in the northern and southern ends of the city, with the largest facility—the Ritz Carlton—sited within a golf course-centered residential community (Ocean Colony) located at the southern edge of the city. There is very little commercial land located outside of city limits – only three acres of commercial/retail land along Highway 92. Chart 3-3 shows the distribution of commercial uses in the Planning Area.

Industrial uses account for 2.2 percent of the Planning Area, and include general industrial and agriculture-related industrial uses. Uses within these categories are varied. The general industrial category includes such uses as warehouses, storage, food processing, light manufacturing, and a substation. Agriculture-related industrial uses include lumber yards, soil farming, and horse boarding. The larger industrial sites are located closer to the edges of the Planning Area: two horse-boarding sites are located at the northern end of the city, and soil farming and agricultural supply uses surround horticultural uses at the southern end. A number of the other agricultural sites line Highway 92 both inside and outside of city limits.

Chart 3-3: Distribution of Existing Commercial Uses



Public/Institutional and Religious

Public/Institutional uses include schools and educational facilities, public and government uses, and cemeteries, and account for 2.8 percent of the Planning Area. All public/institutional uses are located within city limits with the exception of the Johnson House historical site along Higgins Canyon Road. The largest share of these belongs to schools and educational facilities, located mostly in the center of the city. Other uses are also clustered near the center of the city, near the intersection of highways 1 and 92. Religious uses occupy 13 acres within the city on sites along Highway 1 and downtown.

Recreation~~,~~ and Open Space~~, and Vacant Land~~

Recreational uses include the city's beaches and public recreation areas, golf course, and parks. These cover 585 acres (13.7 percent) of the Planning Area, all of which are located within city limits. The majority of these uses are located to the west of Highway 1. The largest category, beaches and public recreation, makes up 49 percent of all recreational land uses in the Planning Area, and covers 288 acres along the coast. This includes the beaches that line most of the city's western edge, the open spaces of Half Moon Bay State Beach, and the open space surrounding the trails south of Poplar Beach. Golf course land is the second-largest category, at 47 percent of recreational land and 6.1 percent of the Planning Area, and is located entirely in the southern portion of the city, south of Redondo Beach Road. The golf course lands are arranged around the Ocean Colony residential development, and surround two sides of the Canada Cove Mobile Home Park. There are 38 acres of park uses within the city, most of which are mini-parks or neighborhood parks less than 5 acres in size. Smith Field, developed with baseball fields, is the city's largest park, covering 29 acres.

Open space constitutes 247 acres (5.8 percent) of land in the Planning Area. This category includes dedicated open space lands as well as vacant lots held as open space by conservation trusts. The Planning Area's open space lands are located within city limits, mostly to the west of Highway 1. There, open space land is found along the coast south of Kelly Avenue on lands not included in the state beach recreational area, and in the Wavecrest PUD. In the Wavecrest area, many parcels are held by conservation trusts. These open space lands are characterized by the large, contiguous Wavecrest Open Space lots north of Smith Field, and patches of smaller individual parcels to the south and west.

Vacant Land

Vacant land covers 519 acres (12.2 percent) of land in the Planning Area. Of this, 498 acres are in Half Moon Bay. Much of this land is composed of smaller parcels clustered among residential land uses, though there are a number of larger parcels east of Highway 1 and north of Highway 92. Concentrations of vacant land can be found at Surf Beach, at Venice Boulevard, west of Arleta Park, at Wavecrest, and north and east of Half Moon Bay High School.

3.2 Urban Form

OVERALL CITY FORM

Half Moon Bay occupies a ¾ to 1½-mile wide strip of land along the length of the Pacific Coast. It is characterized by discrete pockets of residential development extending to the east and west from the central spine of Highway 1, a downtown core of more diverse uses near the city's midpoint, and industrial-sized horticultural operations at the city's borders, all surrounded and interspersed with tracts of agricultural and open space lands. Highway 1 forms the eastern edge of the city in the south, and bisects the city into eastern and western halves along the rest of the community's length. Though it forms a barrier between the neighborhoods on either side, the highway is also the primary means of access to each individual neighborhood or development, and is the city's primary link to communities to the north and south. Highway 92 extends from its juncture with Highway 1 at the geographic center of the community eastward over the coastal foothills, connecting Half Moon Bay to inner Bay Area communities. The junction of highways 1 and 92 marks the location of most commercial uses in the city.

Edges

The city's edges are defined by natural features and subtle changes in development intensity. Half Moon Bay's western edge is delineated by the Pacific Ocean, and more specifically by the bluffs and beaches that characterize the coastline. Urban development on the western edge ends abruptly at the open space and recreational lands that up the city's segment of the Coastal Trail, creating an interface where residential development gives way to public trails, beaches, and views of the sea. The coastal foothills form the eastern edge, from the southern end of Main Street to the city's northern extents. Where Main Street merges into Highway 1 and to the southern end of the city, the eastern edge is defined by Highway 1.

The northern boundary is less obvious, as the unincorporated communities of El Granada and Miramar have similar characters and appearances from the highway as many of Half Moon Bay's subdivisions. The most marked change is the appearance of a large-scale horticultural operation just south of Miramar's residential and visitor-serving developments. Similarly, at the southern end, less intense development and vegetative screening mask the edge of the city's urban development. A sudden drop in the density of trees lining the highway and the opening up of expansive views are the primary signifiers of the southern edge.

Well-defined eastern and western edges endow Half Moon Bay with a freestanding identity. Meanwhile, the more subtle northern and southern edges enhance the city's visual connection with the rural identity of the Coastside.

Community Centers and Nodes

Half Moon Bay relies on its community facilities, public spaces, and commercial centers to act as local landmarks, provide local gathering places, and opportunities for shared activities. Community facilities include the city's three public schools, the Ted Adcock Senior/Community Center, and the Half Moon Bay Public Library, which provide space for public programming, sporting events, meetings, group activities, and passive use. Public spaces include local parks, though many of these are small and primarily serve the neighborhoods in which they are located. Ocean View Park is a neighborhood park that serves as a gathering place for the entire community due to the quality of amenities (such as play equipment and picnic facilities) located there. There are also larger public recreational sites of significance to the community as a whole; these are Smith Field—which provides opportunities to gather for organized sports—and the beach, particularly Half Moon Bay State Beach, due to its capacity for passive recreation, developed facilities, and regional importance. The city's most significant commercial center is the downtown area surrounding Main Street, where pedestrian amenities encourage concentrated use of public space by downtown employees, students, and visitors from the community and the region. This area is also the site of regionally important events such as the Pumpkin Festival and the Night of Lights.

Corridors and Connectivity

The main corridors through the city are the two highways. No other pathways offer the same degree of connectivity, either among the city's neighborhoods and activity centers or between the city and other regional destinations. Though the highways are auto-oriented, there are instances of parallel pathways and crossings for bicycles and pedestrians, however limited. Other significant corridors include Main Street, which is a multi-modal corridor through the commercial and civic center of downtown Half Moon Bay; Kelly Avenue, which provides the most defined link across Highway 1 and connects downtown, Cunha Middle School, and the large neighborhood of Arleta Park; and the Coastal Trail which provides pedestrian and bicycle access to the beaches and a number of western neighborhoods.

3.3 Density

Half Moon Bay has an overall residential density of about 6.1 dwelling units per acre of residential land, based on a total of 4,395 dwelling units in 2010.[2] Single-family housing averages about 5.8 units per acre[3], with lots averaging 9,100 square feet.[4] Multi-family and duplex housing averages about 9.4 and 7.0 units per acre, respectively, with mobile home units averaging about 7.1 units per acre.[5] For the city overall, population density in 2010 was about 1,817 persons per square mile, based on the city's overall area of 6.2 square miles.

For information on housing conditions, affordability, etc., please see documentation of the 2014 Housing Element Update.

3.4 Regulatory Background

HALF MOON BAY LOCAL COASTAL PROGRAM (LCP)

The Coastal Act and Local Coastal Programs

The California Coastal Act, passed in 1976, seeks to protect and enhance the unique characteristics and resources of the California coast for public, economic, and ecological benefit. It regulates land use and development within the California Coastal Zone, which generally extends from the State's seaward limit of jurisdiction to 1,000 yards inland of the mean high tide line; it may, however, extend farther in significant habitats or recreational areas and less in urbanized areas. Coastal Act policies are focused on the goals of protecting and enhancing the Coastal Zone's environment, conserving its resources, maximizing public access and recreational opportunities within the Coastal Zone in balance with conservation needs and private property rights, ensuring that coastal-dependent and coastal-related development is prioritized within the Coastal Zone, and ensuring that coordinated planning for mutually beneficial uses is taking place at the state and local levels.

With few exceptions, any new development taking place within the Coastal Zone must obtain a Coastal Development Permit (CDP) from the California Coastal Commission, or a local government with a certified Local Coastal Program (LCP). The Coastal Act provides that local governments may prepare LCPs that are consistent with and achieve the objectives of the Coastal Act. Once an LCP is certified by the Coastal Commission, the local government assumes responsibility for issuing CDPs for most development within its permitting jurisdiction.

An LCP consists of two components. The first is a land use plan that establishes a long range vision for the community and specifies the kinds, locations, and intensities of allowable land uses;

[2] U.S. Census Bureau, 2010 Census.

[3] U.S. Census Bureau, 2008-2012 American Community Survey.

[4] Based on 585 total residential acres and 2,790 existing single-family parcels.

[5] Dwelling unit counts based on U.S. Census Bureau, 2008-2012 American Community Survey. Acreage counts based on data from the San Mateo County Assessor, 2014 and GIS analysis.

applicable resource protection and development policies; and, where necessary, a listing of implementing actions to achieve the vision and implement the objectives of the Coastal Act. The second component is an implementation program, typically a set of zoning regulations, that details requirements for the development of individual properties.

Half Moon Bay Permitting and Appeals Jurisdictions

The City of Half Moon Bay is certified to grant CDPs for most development projects within city limits. However, portions of the Planning Area are subject to the permitting or appeals authority of the Coastal Commission based upon criteria established in the California Coastal Act. These lands are depicted in Figure 3-2. The Coastal Commission retains permitting authority over development occurring on tidelands, submerged lands, and public trust lands, as stated in Section 30519(b) of the Coastal Act. These lands are located along the coast and consist generally of lands lying below the Mean High Tide Line (MHTL). The Appeals Jurisdiction refers to lands in which action by the Planning Commission or City Council on a CDP may be appealed to the Coastal Commission. Section 30603 of the Coastal Act identifies these lands as those located:

- Between the sea and the first public road paralleling the sea OR within 300 feet of the inland extent of any beach or the MHTL of the sea where there is no beach, whichever is the greater distance;
- On tidelands, submerged lands, and public trust lands;
- Within 100 feet of any wetland, estuary, or stream;
- Within 300 feet of the top of the seaward face of any coastal bluff.

In Half Moon Bay, the inland border of the Appeals Jurisdiction is generally marked by Highway 1, except in some instances where the first public road is nearer to the sea. The city's many waterways are also included in this jurisdiction, as well as lands within a 100-foot buffer of those waterways. In total, the Appeals Jurisdiction covers about 2,007 acres of the Planning Area.

City of Half Moon Bay LCP Land Use Plan (1993)

Half Moon Bay's LCP consists of the Land Use Plan (LUP) and the city's Zoning Ordinance. The current LUP was adopted in 1993 and, as the entire city is located within the Coastal Zone, serves as the Land Use Element of the city's General Plan. It seeks to balance the social and economic needs of Half Moon Bay residents, the needs of the Midcoast region, and the mandates of the Coastal Act. The LUP approaches this task by framing Half Moon Bay as the appropriate urban center to provide for the Midcoast's residential, commercial, cultural, and other socio-economic needs, based on the city's status as the largest urban center in the region between Pacifica and Santa Cruz. The LUP identifies three issues of significance associated with this approach, which its policies attempt to address. They are:

1. Providing adequate sites for the development of housing to meet the city's share of existing and projected regional housing needs.

2. Concentrating development within the boundaries of the city in order to achieve the Coastal Act's conservation goals in the unincorporated areas of the San Mateo County coastside region.

3. Limiting future residential growth to 3 percent annually (this growth limit was amended to 1 percent annually in 1999 by Measure D).

Each chapter in the LUP contains resource protection and development policies intended to direct the kinds, locations, and intensity of land uses in Half Moon Bay in relation to issues of coastal access and recreation, environmentally sensitive habitats and water resources, hazards, archaeological and paleontological resources, visual resources, agriculture, development, and public works. The following sections summarize the land use issues and policies detailed in the LUP; LCP policies on individual resource topics are detailed more fully in later chapters of this report.

Coastal Access and Recreation

Policies in the Coastal Access and Recreation chapter are intended to resolve conflicts between recreational uses and other uses in the course of ensuring adequate and environmentally compatible public access to the coast, as well as to ensure adequate visitor-serving and recreational uses. The policies limit development near public access and recreational areas, and establish priority land uses for certain areas of the city, such as coastal-dependent and recreational uses on lands along the coast and visitor-serving uses in the downtown area.

Resource Protection and Enhancement

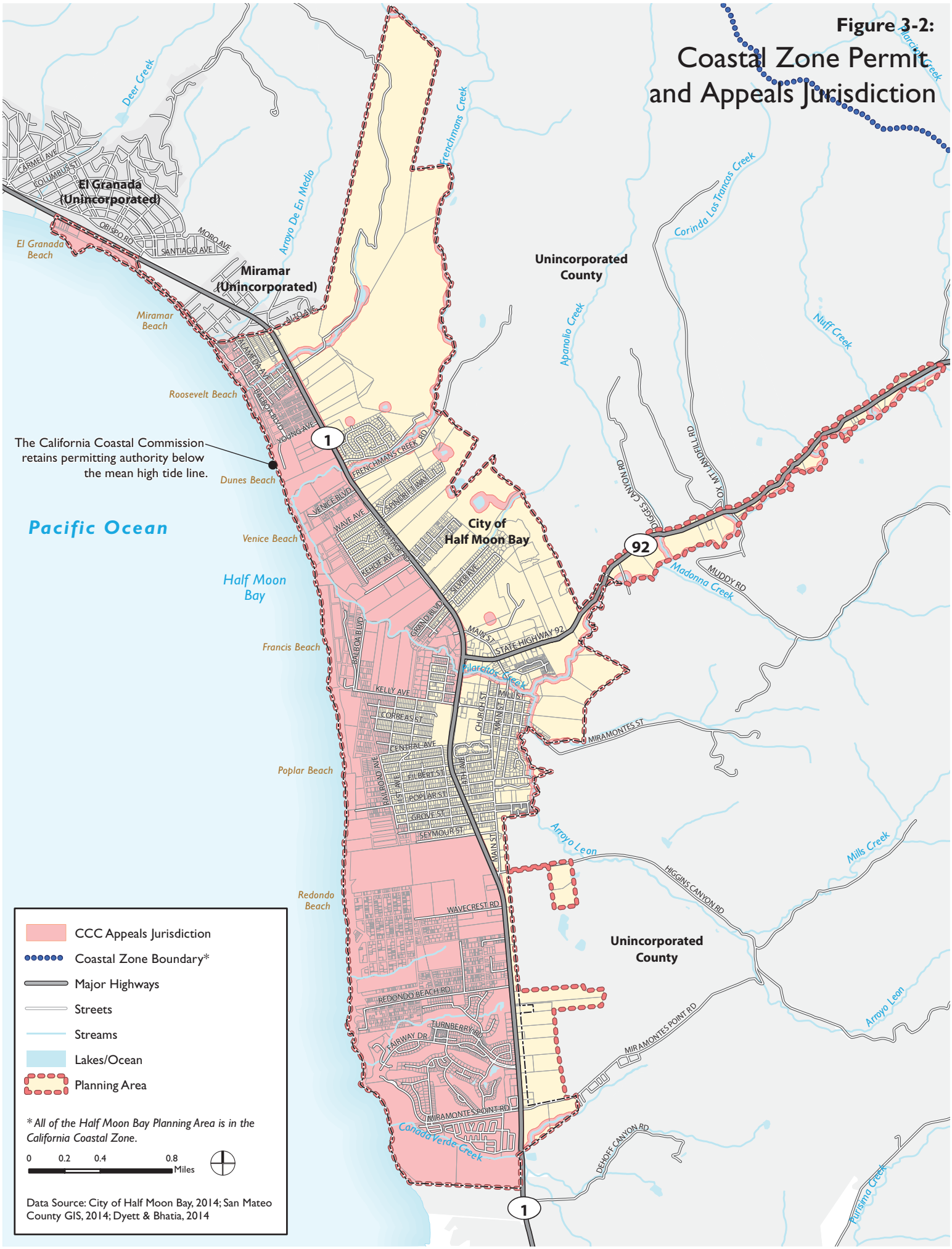
The Environmentally Sensitive Habitat Areas: Marine and Water Resources chapter includes policies seeking to reduce the impact of development on sensitive habitats, particularly riparian areas; sand dunes; sea cliffs; and habitats supporting rare, endangered, and unique species. These policies specify permitted uses in each of these habitats, and establish performance and development standards for permitted development. Generally, uses in sensitive habitat areas are limited to education and research, and some other low-impact activities.

Policies in the Archaeological and Paleontological Resources chapter impact development by limiting construction where these resources may be present.

The Visual Resources chapter contains policies that limit development in areas where new structures or increased activity may negatively impact public views. These policies also influence the provision and placement of infrastructure, such as utilities and roadways designated as scenic corridors. This chapter also establishes policies for siting, design, and landscaping of new development.

Hazards

Policies in the Hazards chapter seek to minimize risks to future development from flooding and geologic hazards such as cliff retreat, landslides, and tsunami. To this end, the policies limit development and activities in geologically sensitive or floodprone areas, both to reduce the exposure of people and structures to unsafe situations, and to preserve the integrity of potentially erodible landforms such as bluffs and cliffs.


Figure 3-2:
Coastal Zone Permit and Appeals Jurisdiction
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
City of Half Moon Bay
Unincorporated County
Pacific Ocean
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
The California Coastal Commission retains permitting authority below the mean high tide line.
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Apanolio Creek
Nuff Creek
Madonna Creek
Arroyo Leon
Mills Creek
Canada Verde Creek
Purisima Creek
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
ALAMEDA AVE
PALMA RD
BLVD
YOSEMITE AVE
YOUNG AVE
FRENCHMANS CREEK RD
SPANISH TOWN
VENICE BLVD
WAVE AVE
PRINCETON RD
REHOBE AVE
SILVER AVE
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
BALBOA BLVD
KELLY AVE
CORREAS ST
CENTRAL AVE
RAILROAD AVE
ALBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
CHURCH ST
MILL ST
MIRAMONTES ST
WAVECREST RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
HIGGINS CANYON RD
MUDDY RD
DEHOFF CANYON RD
BIGGES CANYON RD
MT LANDELL RD
1
92
CCC Appeals Jurisdiction
Coastal Zone Boundary*
Major Highways
Streets
Streams
Lakes/Ocean
Planning Area
* All of the Half Moon Bay Planning Area is in the California Coastal Zone.
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Agriculture

Studies conducted for the Agriculture chapter determined that the suitability of agricultural practice within the city had declined considerably. The chapter includes findings that the use of land within the city for food crop production was no longer feasible, and that the potential for expansion of existing greenhouse and nursery operations or the entry of new operators was limited. Based on these findings, the LUP's agricultural land use policies establish both an Urban/Rural Boundary and an agricultural phasing program. The boundary, which follows city limits, is intended to ensure that future urban development in the region is concentrated within Half Moon Bay, thus relieving development pressure on lands outside of the boundary that are better suited for agricultural use. The agricultural phasing program establishes policies for the Urban Reserve and Open Space Reserve land use designations, which encourage ongoing cultivation of designated lands for as long as possible until such a time that all other developable land within the city has been committed. The policies also recognize the economic and cultural significance of the city's greenhouses and nurseries, and seek to protect and encourage the long-term operation of these uses through the Floriculture/Horticulture land use designation.

Development

Policies in the Development chapter establish conditions for controlled buildout of the LUP. These policies include those that seek to ensure that adequate public services and utilities are available prior to the approval of new development. This chapter also contains the city's 3 percent residential growth limitation policy, which has since been replaced by Measure D. All conditions applying to specific Planned Development Districts are also detailed in this chapter, including specific development policies for 16 PUD sites (these and three additional sites are mapped in Figure 3-7):

- Surf Beach/Dunes Beach
- Venice Beach
- Arleta Park/Miramontes Terrace South
- Wavecrest
- Dykstra Ranch (now known as Ailanto or Pacific Ridge)
- Carter Hill
- Miramar Beach
- Guerrero Avenue
- Pilarcitos West Urban Reserve
- Matteucci
- Podesta/Silvera
- Andreotti (now known as Cypress Cove)
- Half Moon Bay Country Club.
- South Main Street/Cassinelli

- L.C. Smith Estate
- Nurserymen's Exchange (now known as Rocket Farms) and Adjacent Property

Public Works

Land use policies in the Public Works chapter pertain to the provision of water, sewer, and transportation infrastructure in relation to new development. The policies establish that one means of controlling development is to ensure that public works expansion take place in phases and not exceed the need anticipated for buildout of the LUP. The policies also designate priority uses for which water and sewer capacity is to be reserved. Transportation policies seek to ensure adequate roadway capacity for residential, commuter, and visitor traffic at buildout of the LUP.

Land Use Designations

The following are the land use designations defined in the LUP. Figure 3-3 shows the location of land use designations within the Planning Area, and Table 3-2 describes their distribution.

Low Density Residential (0.3 – 2.0 units per acre)

This designation provides for single-family residential development at relatively low overall densities. It is found in two areas in the northern portion of the city.

Medium Density Residential (2.1-8.0 units per acre)

This designation provides for single-family development with minimum lot sizes of 5,000 ti 20,000 square feet, and allows for detached and attached single-family dwellings and duplexes. Applied to areas that were already developed, and which had the potential for in-fill development at densities comparable to those already existing. Most of the city's residential subdivisions have this designation.

High Density Residential (8.1-25.0 units per acre)

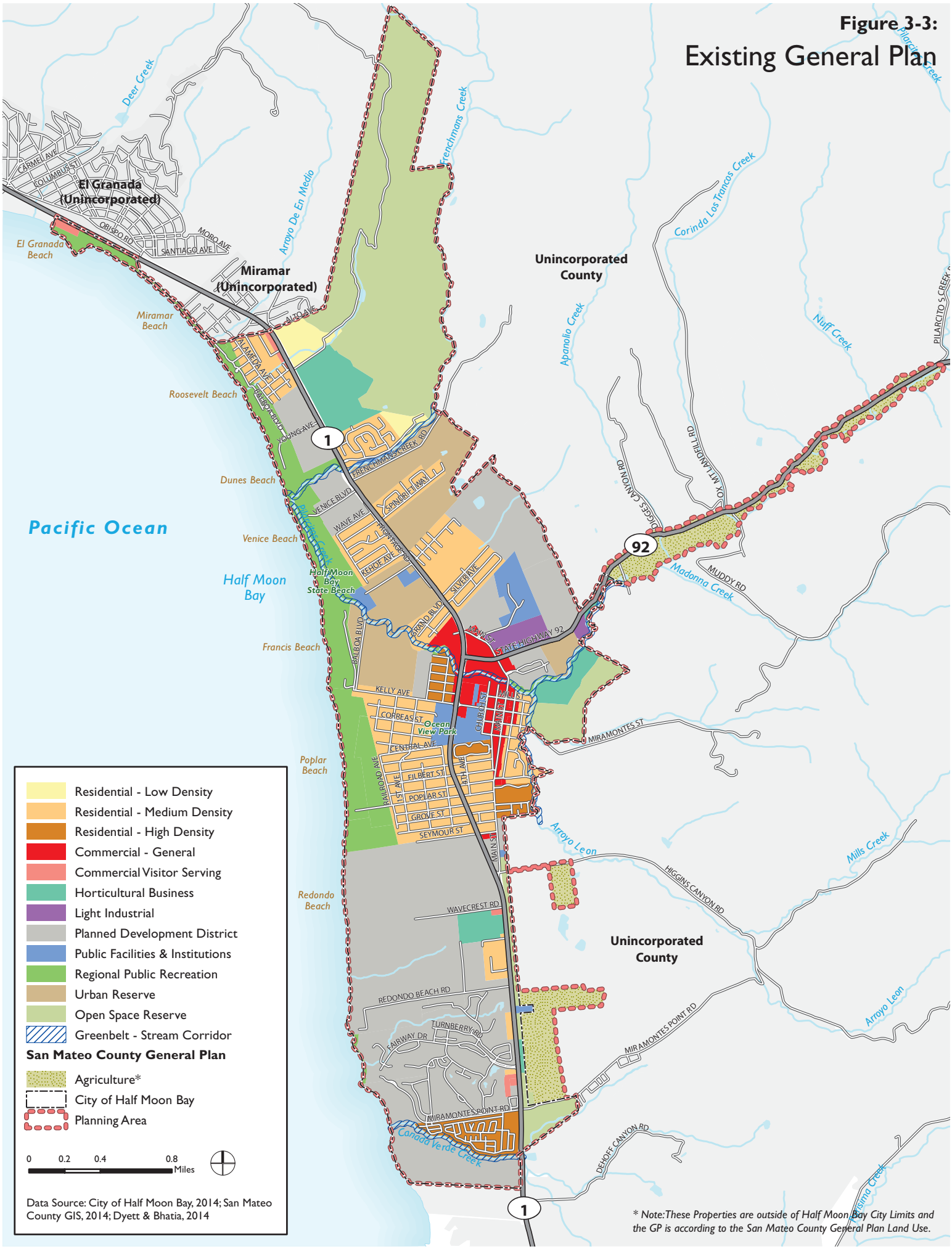
This designation applies to areas suitable for multi-family or high-density single-family development of densities as high as one dwelling unit for every 1,500 feet of lot area. It is found near the center of the city, close to the downtown area, as well as at the Canada Cove Mobile Home Park.

Commercial – General

These areas are suited for a variety of commercial activities, including downtown business uses and arterial commercial uses not restricted to visitor-serving facilities. Permitted uses include amenities for day-to-day needs, office, wholesale, and retail activities.

Figure 3-3:

Existing General Plan



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Commercial – Visitor Serving

This designates areas for commercial uses intended to serve the coastal recreation needs of visitors. Visitor-serving commercial areas are sited near coastal recreation areas, such as El Granada Beach, or along Highway 1. Uses may include visitor lodging, restaurants, bars, art galleries, equestrian supply, fishing and boating facilities, and other similar uses. This designation does not cover retail that is unrelated to coastal recreation, office, professional services, or service stations.

Horticultural Business

This designation permits field production, nurseries, and greenhouses, and is intended to support the city's floricultural industry. The LUP applies this designation to three main areas: in the north of the city, along Highway 1; along Pilarcitos Creek east of the downtown area; and in the Wavecrest PUD.

Light Industrial

This designation allows for uses such as wholesaling, distribution, heavy commercial manufacturing, repair, construction, and storage. It is limited to two areas along Highway 92.

Planned Development District

The Planned Development District designation was created to ensure the comprehensive planning for the development of the city's undeveloped subdivisions. The designation requires each Planned Development District to be planned as a unit, or PUD, with the inclusion of any possible residential uses, neighborhood recreational facilities, commercial recreation, and office or industrial uses determined prior to approval. For parcels of this designation, the maximum density of development is specified either in the LUP's development policies for specific PUDs or by the City at the time of development approval.

Public Facilities and Institutions

This designation provides for educational, governmental, and institutional uses, such as schools, public works and utilities yards and maintenance buildings, and hospitals.

Regional Public Recreation

The purpose of the Regional Public Recreation areas is to identify and preserve the publicly-owned beaches and associated uplands that should be maintained as State Beach by the California Department of Parks and Recreation. The LUP considers such areas the city's major coastal recreational resource.~~the city's beaches and associated uplands as a major coastal recreational resource. These lands are in public ownership, and the LUP identifies them as best maintained by the California Department of Parks and Recreation as a State Beach.~~ This designation can be found along the coast from the northern end of the city to the Wavecrest site.

Urban Reserve

This designation was created for lands in open field floricultural use not suited for greenhouse development, and which are clearly within the perimeter of existing urban development. The purpose of the designation is to enable the continuation of field agriculture uses for as long as economically feasible. Permitted uses are limited to open field agricultural uses and accessory buildings. Only at such a time as substantial development has already taken place in the city's non-reserved lands will Urban Reserve lands become available for urban development.

Open Space Reserve

This designation applies to agricultural and open land at the perimeter of existing developed areas, and prohibits the conversion of these lands to urban uses until such a time that all other land in the city suitable for development has been committed to other uses. Lands include hilly uplands with timber and open space resources, where future potential is limited to low-density development or recreational use.

Riparian Habitat

The LUP requires that riparian corridors be designated along all perennial and intermittent streams, lakes, and other bodies of fresh water in the Coastal Zone, and includes policies limiting development in these areas. The Riparian Habitat designation identifies three of these corridors for preservation and protection: the city's two perennial streams—Frenchmans Creek and Pilarcitos Creek—and Arroyo Canada Verde, an intermittent creek.

Table 3-2: Half Moon Bay LCP and San Mateo County General Plan Land Use Designations in the Planning Area

Land Use Designation	*Acres*	*Percent of City*	*Percent of Planning Area*
Inside City Limits (Half Moon Bay LCP)			
Reserve	1,090	28%	26%
Open Space Reserve	784	20%	19%
Urban Reserve	306	8%	7%
Residential	791	19%	18%
Residential - Low Density	48	1%	1%
Residential - Medium Density	618	16%	15%
Residential - High Density	125	3%	3%
Commercial	119	3%	3%
Commercial - General	105	3%	3%
Commercial - Visitor Serving	13	0%	0%
Planned Development District	1,246	32%	30%
Regional Public Recreation	352	9%	8%
Horticultural Business	150	4%	4%

Table 3-2: Half Moon Bay LCP and San Mateo County General Plan Land Use Designations in the Planning Area

Land Use Designation	*Acres*	*Percent of City*	*Percent of Planning Area*
Public Facilities & Institution	102	3%	2%
Light Industrial	33	1%	1%
Total in City	**4,120**	**106%**	**99%**
Outside City Limits (San Mateo County General Plan)			
Agriculture	280	N/A	7%
Total in Planning Area	**4,400**	**N/A**	**106%**

Source: Dyett & Bhatia, 2014.

City of Half Moon Bay Zoning Ordinance (Title 18 of the Municipal Code)

The Zoning Ordinance establishes the regulations and development criteria that implement the policies of the LUP. The main intents of the Ordinance include controlling the city's future growth; preventing excessive population densities and overcrowding; protecting the character and economic stability of all areas within the city; providing adequate light, air, privacy, and access to property; ensuring that demand not exceed capacity for public services; and conserving the city's architectural, historical, cultural, visual, and natural resources. The Ordinance establishes the city's zoning districts and their associated development standards, and specifies the administrative processes for the permitting of development within the city. The Ordinance also codifies Half Moon Bay's 1 percent annual growth limitation and the conditions for water and sewer allocation.

Zoning Districts

The following are the zoning districts defined in the Zoning Ordinance. Figure 3-4 shows the location of zoning districts within the Planning Area, and Table 3-3 describes their distribution.

Table 3-3: Half Moon Bay and San Mateo County Zoning

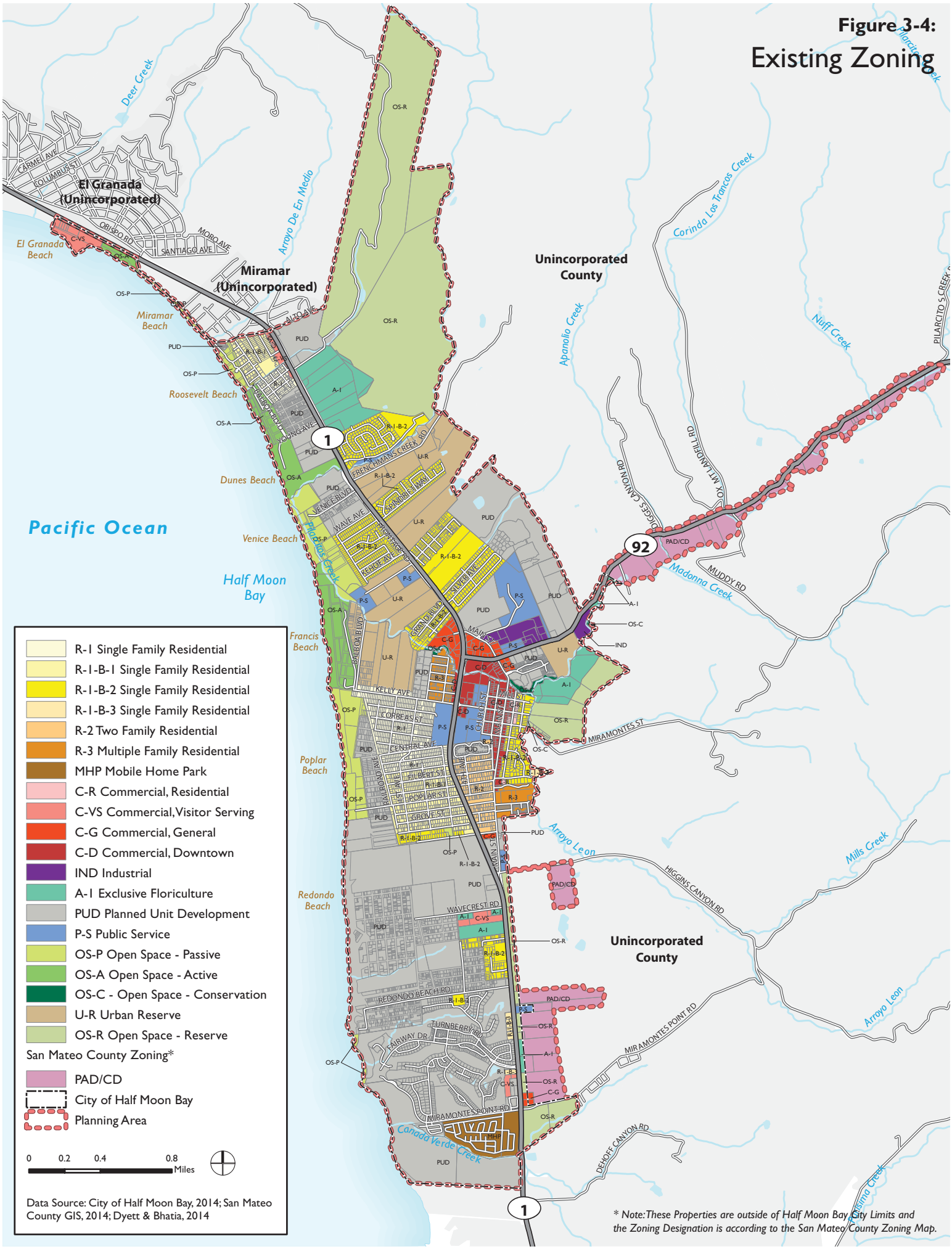
Zoning District	*Acres*	*Percent of City*	*Percent of Planning Area*
Inside City Limits			
Reserve	1,081	28%	26%
OS-R Open Space - Reserve	775	20%	19%
U-R Urban Reserve	306	8%	7%
Residential	690	18%	17%
R-1 Single Family Residential	122	3%	3%
R-1-B-1 Single Family Residential	121	3%	3%

Table 3-3: Half Moon Bay and San Mateo County Zoning

Zoning District	*Acres*	*Percent of City*	*Percent of Planning Area*
R-1-B-2 Single Family Residential	344	9%	8%
R-1-B-3 Single Family Residential	7	0%	0%
R-2 Two Family Residential	46	1%	1%
R-3 Multiple Family Residential	49	1%	1%
Open Space	272	7%	7%
OS-P Open Space - Passive	138	4%	3%
OS-A Open Space - Active	124	3%	3%
OS-C Open Space - Conservation	10	0%	0%
Commercial	138	4%	3%
C-D Commercial, Downtown	66	2%	2%
C-G Commercial, General	36	1%	1%
C-VS Commercial, Visitor-Serving	32	1%	1%
C-R Commercial, Residential	4	0%	0%
PUD - Planned Unit Development	1,367	35%	33%
A-1 Exclusive Floriculture	139	4%	3%
P-S Public Service	110	3%	3%
MHP Mobile Home Park	57	1%	1%
IND Industrial	30	1%	1%
Total in City	**2,267**	**58%**	**54%**
Outside City Limits			
PAD/CD	280	N/A	7%
Total in Planning Area	**2,547**	**N/A**	**61%**

Source: Dyett & Bhatia, 2014.

Figure 3-4: Existing Zoning



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Residential

The city has six residential zoning districts and one mobile home park zoning district. Table 3-4 describes the four single-family residential districts, and Table 3-5 describes the two- and multi-family residential districts.

Table 3-4: Single-Family Residential Zoning Districts – Selected Development Standards

District	*Description*	*Minimum Site Area (sq. ft.)*	*Minimum Setbacks*	*Maximum Building Height*[1]
R-1	Single-Family Residential	5,000	Front: 20' Side: 5' Street-facing Side: 20' Rear: 20'	20' (single-story) 28' (multi-story)
R-1-B1	Single-Family Residential	6,000	Front: 25' Side: 5' Street-facing Side: 20' Rear: 20'	20' (single-story) 28' (multi-story)
R-1-B2	Single-Family Residential	7,500	Front: 25' Side: 6' Street-facing Side: 20' Rear: 20'	20' (single-story) 28' (multi-story)
R-1-B3	Single-Family Residential	10,000	Front: 25' Side: 20 percent of width of lot, with 5' minimum on each side Rear: 20	20' (single-story) 28' (multi-story)

Note:

1 Single-story structures with height above 16 feet are required to follow procedures for height exceptions as set forth in Section 18.06.050.

Source: City of Half Moon Bay Zoning Ordinance, 2009.

Table 3-5: Two- and Multi-Family Residential Zoning Districts – Selected Development Standards

District	*Description*	*Minimum Site Area (sq. ft.)*	*Minimum Site Area per Unit (sq. ft.)*	*Minimum Setbacks*	*Maximum Building Height*[1]
R-2	Single-Family Residential	5,000	5,000	Front: 20' Side: 5' Street-facing Side: 20' Rear: 20'	20' (single-story) 28' (multi-story)
	Two-Family Residential (two dwellings)	5,000	2,700	Front: 20' Side: 5' Street-facing Side: 20' Rear: 20'	20' (single-story) 28' (multi-story)
R-3	Multi-family residential, allows two-family residential	5,000	1,500	Front: 20' Side: 5' Street-facing Side: 20' Rear: 20'	20' (single-story) 40' (multi-story)

Note:

1 Single-story structures with height above 16 feet are required to follow procedures for height exceptions as set forth in Section 18.06.050.

Source: City of Half Moon Bay Zoning Ordinance, 2009.

The Mobile Home Park (MHP) district establishes locations for the future expansion or development of mobile home parks and provides standards for density and common open space. The maximum density for a mobile home park is determined by dividing the net area of the site by 2,000 square feet of site area per mobile home dwelling. The minimum site area for any mobile home park is five acres, and the maximum is 20 acres. The district requires that 300 square feet of community open space for each mobile home be conveniently located for all residents.

Commercial

There are four commercial zoning districts in the city:

1. The Commercial – Downtown (C-D) district is intended to implement the provisions of the Downtown Specific Plan regarding historic patterns and pedestrian scale of development within the historic downtown area.

2. The Commercial – Residential (C-R) district is intended to provide a transition zone between active commercial districts and single-family residential areas, and limits development to residential, low-intensity office, and semi-public uses.

3. The Commercial – Visitor Serving (C-VS) district designates recreational commercial areas that serve the needs of visitors attracted to coastal recreation, and emphasizes access, coastal resources, and neighborhood character.

4. The Commercial – General district is intended for the development of retail, service, commercial, and professional office uses serving both residents and visitors.

Table 3-6 describes development standards for the commercial districts.

Table 3-6: Commercial Zoning District – Selected Development Standards

District	*Minimum Lot Size (sq. ft.)*	*Minimum Setbacks*	*Maximum Height*	*Maximum Floor Area Ratio*
C-R	5,000	Front: 20' Side: 5' Rear: 5'	28'	0.5
C-D	5,000	None except 5' from any adjoining residential parcel	36' and 3 stories	None specified
C-VS	10,000	Front: 20' Side: 10' Rear: 10' A minimum of 20' is required from any adjoining residential parcel.	28' and 2 stories	0.5
C-G	10,000	Front: 25' Side: 10' Rear: 10'	36' and 3 stories	None specified

Source: City of Half Moon Bay Zoning Ordinance, 2009.

Public and Quasi-Public

The Public and Quasi-Public (P-S) district permits fire stations, schools, libraries, churches, airports, hospitals, cemeteries, and parks. The minimum lot area must have an average width of 5,000 square feet. The district requires only a front yard setback of 20 feet, though a minimum of five feet is required on any site bordering an R district. The maximum height of buildings in this district is 50 feet or four stories.

Industrial

The Industrial (IND) district permits and conditionally permits a variety of uses, from manufacturing to storage, food processing, recreation, and animal care and kenneling. Uses are to be permitted based on the Planning Commission's finding that they would not emit objectionable levels of odor, dust, smoke, gas, noise, or vibration, and would not damage sensitive vegetation. The minimum building site is 10,000 square feet. There is no requirement for front or rear yard setbacks, and the minimum side yard setback is five feet; however, there is a minimum setback of 20 feet for any rear or side yard bordering an R district. The maximum height of buildings in this district is 40 feet.

Reserve

The Urban Reserve (U-R) and Open Space Reserve (OS-R) districts correspond to the land use designations described in the LUP. The regulations in the Zoning Ordinance are intended to

reserve these lands for future urban development, preventing premature development before adequate public services would be available to them, and to allow for the continued use of these lands for agriculture, horticulture, and floriculture, protecting them from the intrusion of incompatible activities. The regulations establish that lands in these districts are to be converted into PUD districts, but not until all other lands specified for development have been "substantially developed." At that time, Urban Reserve lands may be converted to urban uses, and Open Space Reserve lands may be converted for low-density urban development or recreational use.

Open Space

Half Moon Bay has three open space zoning districts. The Active Open Space (OS-A) district establishes lands for active recreational opportunities, and includes uses such as public beaches, parks, playgrounds, outdoor sports facilities, recreational vehicles parks, and supporting parking lots. The Passive Open Space (OS-P) district establishes areas for hiking, biking, equestrian trails, and supporting parking lots, with amenities limited to low-intensity facilities such as restrooms, benches, picnic tables, and trash receptacles. The Conservation Open Space (OS-C) district designates areas for the preservation of important riparian and wildlife habitat, and limits activities to pedestrian trails with amenities limited to trash receptacles and benches. Development standards within these districts emphasize the protection of coastal resources and recreational opportunities.

Agriculture

The Zoning Ordinance contains regulations for two different agricultural land use districts—A-1 and A-2—but A-1 is the only district actually found within the city. The A-1 district allows nurseries, greenhouses, and field flower cultivation, as well as accessory single-family dwellings. No more than four dwellings are allowed on each A-1 parcel, and the minimum building site area for is 0.5 acres for each dwelling unit. The minimum new lot size is 15 acres. The maximum building height in the A-1 district is 35 feet or 2.5 stories. Minimum depth is 50 feet for front yards, 20 feet for side yards, and 25 feet for rear yards. The A-2 district permits all agricultural uses with the exception of certain livestock uses, but does not apply anywhere in the city.

Planned Development

The Planned Development (PUD) district provides for a variety of land uses to be specified for each PUD area through comprehensive planned unit development plans. The minimum site area of a planned unit development is one acre. Proposed uses are evaluated for consistency with the LUP, and must be detailed in a planned unit development plan, also called a specific plan. In order to conform with the LUP, the entirety of each designated PUD site must be planned as a unit (LUP Policy 9-8). The plan must also include maps of the proposed land uses, topographic information, and the locations of coastal and cultural resources within 300 feet of the development; proposed development standards; proposed street and lot patterns; necessary circulation improvements; building elevations; the location and amount of open space ensuring that a minimum of 20 percent of the gross area is maintained as open space; preliminary landscape and grading plans; an Initial Study consistent with CEQA standards; schedule for development; application for subdivision; and a description of any proposed management

organization. The planned unit development plan is approved when incorporated into a use permit and adopted by resolution or ordinance by the City Council.

SAN MATEO COUNTY GENERAL PLAN

The 280 acres of the Planning Area located outside of Half Moon Bay city limits are covered by San Mateo County's General Plan, adopted in 1986, which establishes policies to guide County decision-makers in matters related to land use, development, and resource management.

The County General Plan contains three sets of land use policies to direct the distribution and intensity of future development in the county: the General Land Use Policies chapter establishes guidelines applicable to all land use decisions within the county, while the Urban and Rural Land Use chapters add more specificity for each of the two categories. County lands included in the Planning Area are considered Rural Lands, and are covered under the policies of the Rural Land Use chapter.

Goals and objectives in the General Land Use chapter support the designation of land uses to ensure efficient and cost-effective provision of public infrastructure and services, strengthen local economies, protect natural resources, ensure minimal energy demand and efficient consumption, minimize danger from hazards, manage the cost and efficiency of providing public services, and achieve the development of coherent land use patterns.

Rural Land Use policies seek to concentrate development in clusters to encourage the overall conservation of natural resources and open space. They define objectives for Rural Lands that focus on the protection and enhancement of resources in order to preserve biodiversity, efficiently manage resources, protect scenic quality, provide recreational opportunities, protect public health and safety, minimize environmental damage from development, and promote local employment opportunities.

Land Use Designations

All County lands included in the Planning Area fall under the Agriculture land use designation as shown in Figure 3-3. Distribution of this land use category is included in Table 3-2.

Agriculture

This designation applies to lands currently under agricultural cultivation or in use for the grazing of livestock, lands suitable for agriculture or which contain soils with agricultural capability (including prime agricultural land), or ancillary lands which may not be suitable for agriculture but which may be strategically located to protect agricultural lands from the encroachment of incompatible land uses. Other uses which may occur in this designation include open space compatible and low density residential uses.

SAN MATEO COUNTY ZONING REGULATIONS

Outside of Half Moon Bay city limits, the Planning Area is covered by the San Mateo County Zoning Regulations. The Zoning Regulations are the main regulatory tool used to implement the policies established in the County's General Plan. Its main purposes are to guide and control future growth and development within the county, protect the character and social and economic stability of the county, protect public health and safety, and prevent overcrowding and congestion through the regulation of land use and built structures. The Regulations consist of a zoning map, which defines the locations of each zoning district, and a zoning code that details the requirements for each district. The current edition of the Ordinance is updated through September 2012.

Zoning Districts

The Zoning Regulations establish 34 underlying districts, of which only one is found within the Planning Area. In addition to these are 42 combining districts that are applied in combination with the underlying districts and with one another to in order to provide additional regulation for specific localities. There is one combining district present within the Planning Area. Zoning districts are shown in Figure 3-4, and their distributions are included in Table 3-3.

Planned Agriculture District (PAD)

The PAD is an underlying district. It was designed for the purpose of preserving agricultural land for existing and potential agricultural cultivation, and minimizing conflicts between agricultural and non-agricultural land uses. The district seeks to establish boundaries and buffers between urban and rural areas, and sets criteria for the conversion of agricultural lands. It also regulates both the division of prime agricultural lands and the expansion of public services and facilities to minimize the negative impacts that these activities may have on the viability of agricultural operations.

The district allows a limited range of uses for prime and non-prime agricultural lands, and establishes a Planned Agricultural Permit system and permitting criteria to admit more urbanized uses. Allowable uses on prime agricultural lands are limited to those directly related to soil-dependent agricultural practices. Non-prime agricultural land allows a more expansive range of agricultural uses, including dairies and non-soil-dependent greenhouses and nurseries.

Coastal Development (CD)

The CD district is a combining district, and applies to the portions of the County's Coastal Zone. Projects within the CD district require Coastal Development Permit approval.

HALF MOON BAY DOWNTOWN SPECIFIC PLAN

The Downtown Specific Plan, adopted in 1995, contains objectives, policies, and programs to guide land use development within the plan area, address the area's key issues, and establish conditions for the development of five key underutilized parcels. The plan includes the following goals for the plan area:

- Expand the availability of parking.
- Ensure its continued visual attractiveness.
- Increase visitor awareness of businesses, community resources and events, and other attractions by creating identifiable gateways at key access points.
- Maintain and enhance landscaping
- Promote the installation of additional signs directing visitors to local stores, services, and sites of interest while avoiding the haphazard proliferation of signage.

The Specific Plan was designed to support the goals of the LUP with policies intended to improve access to recreational opportunities, cluster commercial uses in the city's commercial core, identify sensitive environmental resources, address the effect of development on visual resources, and address local and visitor traffic conflicts.

ADJACENT AREA PLANS AND REGIONAL PLANS

San Mateo County Midcoast LCP

San Mateo County's LCP was first certified in 1980, and covered the portion of the Coastal Zone located in unincorporated areas of the county. In 1999, the County initiated a project to comprehensively update the LCP for the Midcoast area, from the community of Montara south to El Granada. The intent behind the update was to review and revise land use policies for the Midcoast area in order improve their consistency with the Coastal Act and avoid future permit appeals, while developing a more current foundation of baseline information about the existing community. The process took place over the next seven years, and involved community workshops, the development of policy alternatives, and public hearings. The update accomplished a number of goals, including identifying constraints on existing public services, establishing criteria for siting new development, updating buildout information for the Midcoast, and supporting the enhancement of the Coastal Trail. The County submitted the updated LCP to the Coastal Commission in 2006 and was asked to make a number of modifications. The County submitted a revised version in 2011, which the Coastal Commission certified on August 8, 2012.

Plan Princeton

San Mateo County is preparing an update of the General Plan, Zoning Regulations, and Local Coastal Program for the greater Princeton area. The planning process, known as Plan Princeton, will take place over several phases involving research, community collaboration, the development of policy alternatives, and the drafting of updated land use policies and ordinances. Objectives of the project include establishing a community vision and crafting the appropriate implementation tools to achieve that vision. The County's recent Midcoast Local Coastal Program Update project

highlighted the need to re-evaluate land use policy for the Princeton area to address issues specific to its community and geographic setting. Recent development project appeals have also underscored the need to provide clear direction for property owners and residents, especially related to airport compatibility, site coverage limits, height and setback allowances, and shoreline protection. Other considerations relevant to the Princeton community include ensuring that development enhances community character and identity, supporting the working waterfront, providing benefits and amenities for residents, enhancing coastal access, and protecting coastal resources.

San Mateo County Harbor District Master Plan and Shoreline Projects

The San Mateo County Harbor District has jurisdiction over marine-related uses within the harbor. The Harbor District Master Plan identifies issues including beach erosion, and highlights the difficulties in trying to establish permanent beach features in this area. The Master Plan is an Urban Waterfront Restoration Plan, and includes objectives to improve the function of Harbor facilities, resolve conflicts among waterfront land uses, and increase opportunities for public enjoyment at the harbor. Some of the Master Plan's objectives involve amenities near or adjacent to the Planning Area, including Johnson Pier, Perched Beach, and the boat launch. The harbor as a whole is also one of the region's assets, acting as both a visual, recreational, and economic resource for nearby communities, including Half Moon Bay.

The Harbor District is also conducting the Surfer's Beach Shoreline Improvement Demonstration Project in partnership with the Army Corps of Engineers. The project seeks to address long-term erosion of the beach and determine the extent of the impact that the breakwater has on local sedimentation.

3.5 Development Context

POPULATION AND GROWTH

Growth Limit – Measure D

Residential development in Half Moon Bay is constrained by Measure D, a growth control ordinance adopted by voters in 1999 and approved by the Coastal Commission in 2009. Under Measure D, residential growth is limited to a maximum of 1 to 1.5 percent annually. At the time of adoption, the ordinance addressed concerns regarding the effect of accelerated growth on public services, infrastructure, and resources; traffic; jobs-housing balance; and community character. These concerns arose in response to findings that the city's residential population had grown 22 percent from 1992 to 1998, making it the fastest-growing jurisdiction in San Mateo County at the time.[6]The growth limits in Measure D replaced the city's previous 3 percent growth limit as established in 1991 by Measure A, and required the amendment of both the LUP and the Zoning Ordinance. The measure provides for the following.

[6] Measure D, Section 2.

- The number of dwelling units authorized by the City in one calendar year may not exceed the number of units that would result in population growth of 1 percent as calculated using average household size based on the most recent Census figures.
- The number of authorized dwelling units may be increased by 50 percent for dwelling units in the Downtown Area (defined as the Downtown Half Moon Bay Redevelopment Survey Area).
- Applications for new residential dwelling units in areas of the city located outside of the downtown area shall have priority for one-half of the units authorized under subsection A of this section. If fewer applications are received, the remainder of these units may be authorized in the downtown area.

Dwelling unit allocations are adopted each year by the City Council, and each proposed residential development must submit an application to be approved for an allocation. Once an allocation is granted, the applicant may proceed to the Coastal Development Permit application process.

Population Trends

Half Moon Bay has experienced a slow but consistent increase in household population along with overall population decline since 2000. The household population grew at an average annual rate of 0.3 percent between 2000 and 2010, and 0.9 percent between 2010 and 2014. The city's population declined by an overall 518 residents between 2000 and 2010, attributable to a sharp drop in group quarter population (from 848 in 2000 to 18 in 2010) over the same period. Household population is summarized in Table 3-7.

Table 3-7: Household Population Trends 2000-2014

	2000 (U.S. Census)	*2010 (U.S. Census)*	*Average Annual Change (2000-2010)*	*2014 (California DOF)*	*Average Annual Change (2010-2014)*
Household Population	10,994	11,306	0.3%	11,703	0.9%
Group Quarter Population	848	18	-32.0%	18	0.0%
Institutionalized	789	-		NA	
Non-institutionalized	59	18		NA	
Total	**11,842**	**11,324**	**-0.4%**	**11,721**	**0.9%**

Sources: U.S. Census Bureau, 2000 Census; U.S. Census Bureau, 2010 Census; State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2014.

Between 2000 and 2014, there has been a consistent increase in the number of housing units estimated within the city, with the exception of a small decline of three units in 2007. Average household size has also increased overall from 2.75 to 2.80 persons per household between 2000 and 2014, following a decline from 2.75 to 2.66 persons per household between 2000 and 2007. Between 2000 and 2010, the number of households reported in Half Moon Bay increased overall

by 145, or 3.6 percent, at an average annual rate of 0.4 percent.[7] Population and housing trends from 2000 to 2014 are summarized in Table 3-8.

In general, population and housing growth has been less than anticipated by the city's LCP. For comparison, Table 1.2 of the LUP projected from 8,135 to 8,299 housing units accommodating 21,772 to 22,161 residents in the year 2000. The U.S. Census estimate for 2000 was 4,114 housing units and 11,842 residents – nearly half of the LUP projection.

Table 3-8: Half Moon Bay Population Trends 2000-2014[1]

Year	*Population*	*Change in Population*	*Annual Growth Rate*	*Housing Units*	*Change in Housing Units*	*Average Household Size*
2000[2]	11,842	-	-	4,114	-	2.75
2001	11,779	-63	-0.5%	4,137	23	2.74
2002	11,722	-57	-0.5%	4,195	58	2.72
2003	11,659	-63	-0.5%	4,247	52	2.70
2004	11,552	-107	-0.9%	4,274	27	2.69
2005	11,629	77	0.7%	4,373	99	2.67
2006	11,493	-136	-1.2%	4,374	1	2.67
2007	11,408	-85	-0.7%	4,371	-3	2.66
2008	11,396	-12	-0.1%	4,377	6	2.69
2009	11,403	7	0.1%	4,394	17	2.71
2010[2]	11,324	-79	-0.7%	4,395	1	2.73
2011	11,373	49	0.4%	4,401	6	2.73
2012	11,449	76	0.7%	4,408	7	2.75
2013	11,593	144	1.3%	4,415	7	2.78
2014	11,721	128	1.1%	4,429	14	2.80

Notes:

1 Department of Finance estimates are determined by adding new construction and annexations and subtracting demolitions, accounting for units lost or gained in conversions, and adjusting for vacancy. Data for the estimates are provided by local jurisdictions and the U.S. Census. These estimates differ from the population projections presented in the December 3, 2013 City Council agenda report, which were based on building permits issued.

2 Estimates for 2000 and 2010 are sourced from the U.S. Census Bureau. The remaining estimates are sourced from the California Department of Finance, which also uses the U.S. Census data as benchmarks for 2000 and 2010.

Sources: State of California, Department of Finance, E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 2000-2010; State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2014; U.S. Census Bureau, 2000 Census; U.S. Census Bureau, 2010 Census.

[7] U.S. Census Bureau, 2010 Census; U.S. Census Bureau, 2000 Census.

CURRENT DEVELOPMENT PROJECTS

Of the nine active development projects in Half Moon Bay (identified as under review or approved but not yet constructed), seven are for the development of single-family residences. Of these, two are large-scale projects involving the development of existing PUDs. The 63-unit Pacific Ridge project will develop the PUD site identified in the LUP as Dykstra Ranch. The 32-unit Carnoustie project will fill in a PUD site between Wavecrest and Ocean Colony. Of the two non-single-family residential projects, one is the Half Moon Village multi-family senior development currently under construction on Main Street. The other involves the development of additional commercial and storage space at the James Ford auto dealership, as well as a proposed subdivision map that would create eight R-2 lots at Main Street and Seymour south of the downtown area. Table 3-9 details current development projects that are under review, approved, and under construction. These sites are shown in Figure 3-5.

Table 3-9: Current Development Projects

#	*Description*	*Land Use*	*Gross Acres*	*Non-Residential Sq. Ft.*	*FAR*	*Dwelling Units (DU)*	*DU/ Acre*
1	Single Family Residence - CDP Application	Single Family Residential	0.16	N/A	N/A	1	6.1
2	Single Family Residence - Environmental Review (pre-CDP)	Single Family Residential	0.12	N/A	N/A	1	8.7
3	James Ford: Auto sales, rental, and storage; R-2 subdivision map (8 lots)	Commercial; Residential	5.04	1,250 (sales/rental) 38,880 (storage)	0.2	N/A	N/A
4	Single Family Residence - Environmental Review	Single Family Residential	0.19	N/A	N/A	1	5.4
5	Single Family Residence - Environmental Review	Single Family Residential	0.19	N/A	N/A	1	5.4
6	Single Family Residence - CDP Application	Single Family Residential	0.10	N/A	N/A	1	10.3
7	Pacific Ridge: 63 Single Family Units Approved	Single Family Residential	114.10	N/A	N/A	63	0.6
8	Carnoustie: 32 Single Family Units Approved (15 constructed, 17 to be constructed)	Single Family Residential	6.66	N/A	N/A	32	4.8
9	Half Moon Village: 115 Multi-Family Units Approved (45 permitted and constructed, 70 to be permitted in 2014)	Multi-Family Residential	1.11	N/A	N/A	115	104.1

Source: City of Half Moon Bay, 2014.

DEVELOPMENT REVIEW

Development review takes place as part of the Coastal Development Permit process. Some developments may be subject to Environmental Review and/or Architectural and Site Design Review approvals before a CDP may be issued. Submission requirements, review procedures, and approval criteria are detailed in the Zoning Ordinance. The Community Development Director, Planning Commission, and/or City Council upon appeal would be responsible for action on development applications within the City's permitting jurisdiction, and would consider all findings of any required review processes in the decision.

Coastal Development Permits

The administration of Coastal Development Permits is established in Chapter 18.20 of the Half Moon Bay Zoning Ordinance. The Ordinance requires that development complies with the LCP, the growth management system (Measure D), the Zoning Ordinance, and the Coastal Act, and that the proposed development be provided with adequate services and infrastructure consistent with the LCP. A public hearing is required on any appealable development or where the development would require a hearing as part of any other necessary permit, review, or discretionary action. Approvals for relatively minor permits are made by the Community Development Director; appeals on the Community Development Director's decisions may be made to the Planning Commission, and appeals on the Planning Commission's decisions may be made to the City Council. The majority of the discretionary approvals are made by the Planning Commission; these decisions may be appealed to City Council, which would then make the final determination for projects located outside of the Coastal Commission appeals jurisdiction.

Environmental Review

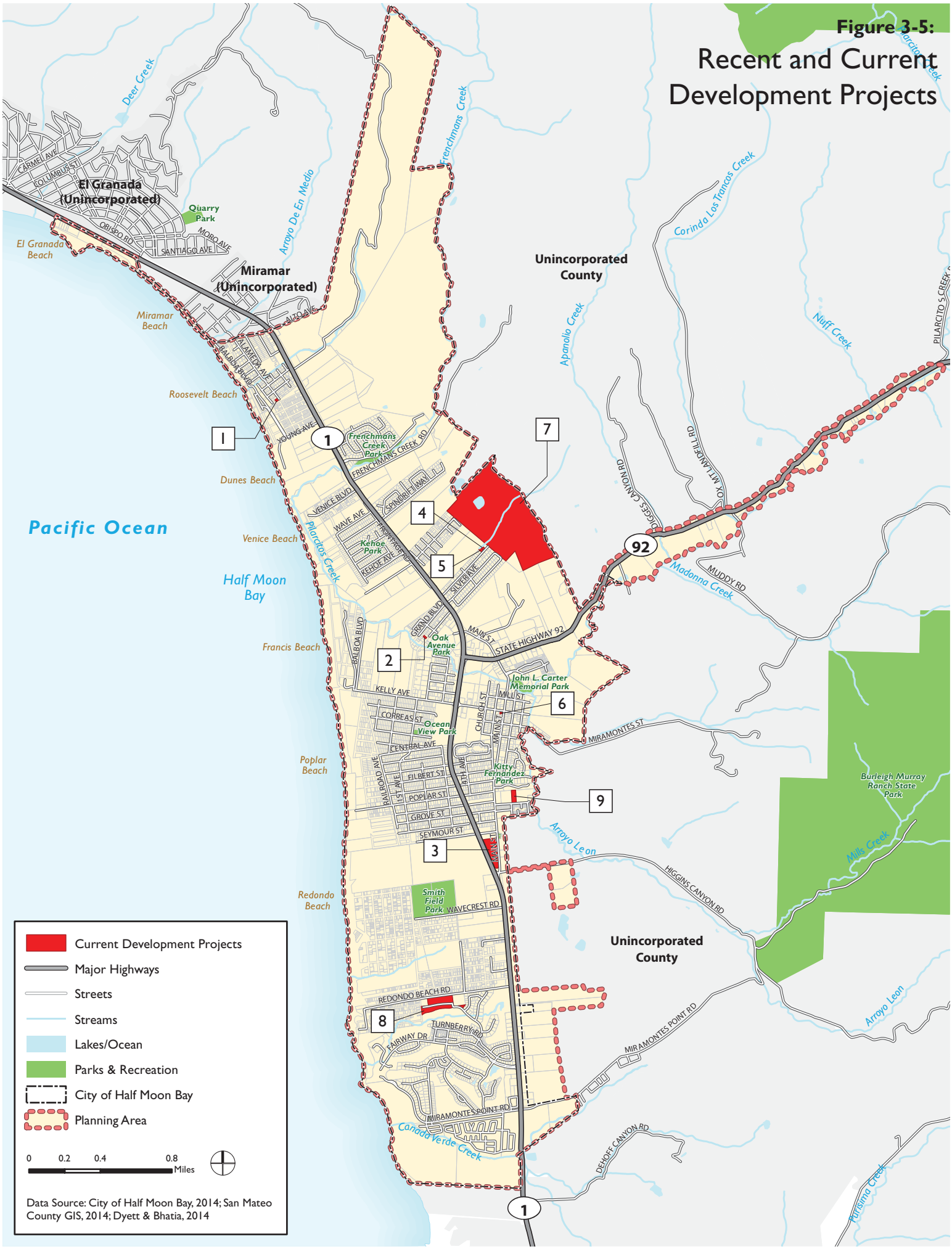
Environmental review may be triggered if a proposed development would have a potential impact on a coastal resource area or if it is subject to review under California Environmental Quality Act (CEQA) requirements.

Review for Coastal Resource Conservation

Coastal resource conservation standards are detailed in Chapter 18.38 of the Zoning Ordinance and define the conditions under which special environmental studies are required, as well as the necessary elements of each study. There are three types of special study which could potentially be required. Any necessary environmental reports must be submitted as part of the development application before development review may begin.

Biological Report

A biological report is required for projects located in or within 100 feet of any sensitive habitat area, riparian corridor, bluffs and sea cliff areas, or wetland. The report should contain a map of coastal resources, and a description of habitat requirements for rare, endangered, and unique species.


Figure 3-5:
Recent and Current Development Projects
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
Pacific Ocean
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Apanolio Creek
Nuff Creek
Pilarcitos Creek
Madonna Creek
Arroyo Leon
Mills Creek
Canada Verde Creek
Quarry Park
Frenchmans Creek Park
Kehoe Park
Oak Avenue Park
John L. Carter Memorial Park
Ocean View Park
Kitty Fernandez Park
Smith Field Park
Burleigh Murray Ranch State Park
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
ALAMEDA AVE
BALBOA BLVD
YOUNG AVE
FRENCHMANS CREEK RD
VENICE BLVD
SPINDRIFT WAY
WAVE AVE
KEHOE AVE
SILVER AVE
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
BALBOA BLVD
KELLY AVE
CORREAS ST
CENTRAL AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
RAILROAD AVE
1ST AVE
4TH AVE
CHURCH ST
MILL ST
MIRAMONTES ST
WAVECREST RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
HIGGINS CANYON RD
MUDDY RD
DEHOFF CANYON RD
BIGGES CANYON RD
CROX MTL LANDFILL RD
PILARCITO S CREEK
1
92
1
2
3
4
5
6
7
8
9
Current Development Projects
Major Highways
Streets
Streams
Lakes/Ocean
Parks & Recreation
City of Half Moon Bay
Planning Area
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Archaeological Report

An archaeological report is required for projects located within any designate archaeological resource area or within 100 feet of any recorded archaeological site identified in the LUP. The report should identify unique archaeological resources, propose mitigation measures, and include a monitoring and reporting program.

Geological Report

A geological report is required for shoreline structures, structures to be built within 100 feet of a bluff edge, sea walls or cliff-retaining structures, substantial alteration of waterways, and any development in geologically hazardous areas. The report should evaluate geologic hazards, propose mitigation measures, and analyses of bluff and cliff tops as appropriate.

CEQA Review

Any development deemed a non-categorically exempt "Project" by CEQA standards require an environmental assessment to determine the extent of any environmental impacts and whether or not those impacts are mitigated. Non-mitigated environmental impacts require an Environmental Impact Report (EIR) prior to Planning Commission action on the development application, before any decision on the CDP may take place. Projects with mitigated environmental impacts or with no impacts require a Mitigated Negative Declaration or Negative Declaration, respectively. A mitigation monitoring and reporting program is required of all projects prior to Planning Commission review of the development application.

Review Standards

Section 18.38.050 of the Zoning Ordinance lists standards for environmental evaluation of special studies and CEQA documents. The standards prohibit approval of a project if it would have significant adverse impacts on any coastal resource areas, and require that projects be sited and designed to prevent the degradation of sensitive habitats or biological productivity, or geologic stability. The standards also limit development in sensitive habitat areas and geologically hazardous areas. All projects must comply with the provisions of the city's LCP. Further discussion of the Planning Area's coastal resources may be found in Chapter 5 of this report.

Architectural Review and Site and Design Approval

The architectural review and site and design approval process is intended to ensure that development projects within Half Moon Bay comply with site specifications established in the Zoning Ordinance, and that development of the city's neighborhoods and commercial areas proceeds in a harmonious fashion. The process is described in Chapter 18.21 of the Zoning Ordinance. Review criteria address such issues as the compatibility of building materials, colors, and textures with adjacent development; the compatibility of height, bulk, and design with the surrounding environment; the safety and convenience of access to the site; and the appropriateness of landscaping design and elements. Architectural review and site and design approvals are made by the Planning Commission, with exempted projects referred to the Community Development Director for administrative review.

3.6 Opportunity Sites

This section identifies sites where new development may take place over the planning horizon. The strategic development of these sites would have the potential to improve the balance of residential options, services and amenities, employment opportunities, and other needs identified by the Half Moon Bay community. This section discusses opportunity sites in the following categories:

- Vacant Sites
- Underutilized Sites
- Existing Agriculture
- Open Space

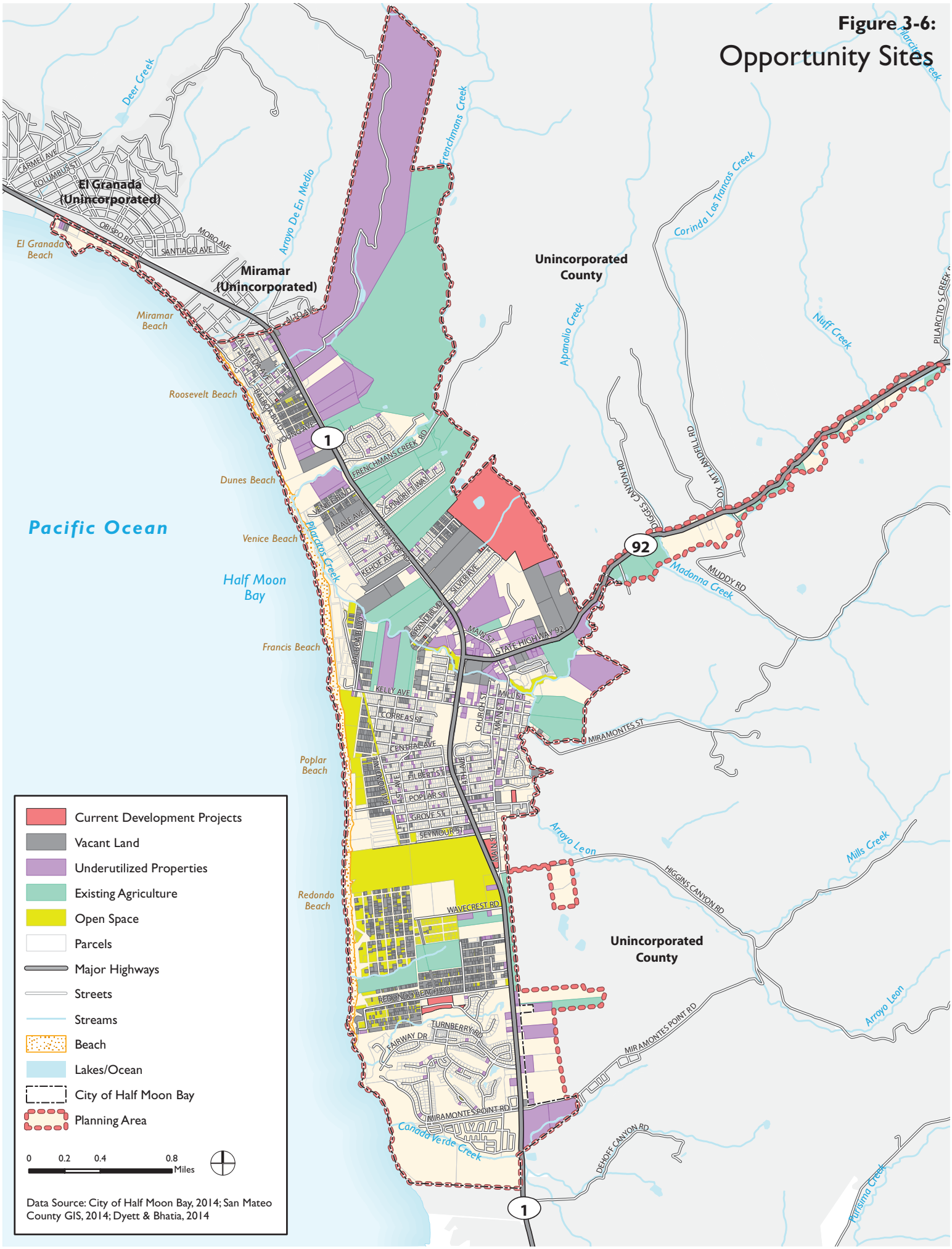
The categories are shown in Figure 3-6 and are discussed below. It is important to note that not all of the sites in this initial analysis may be appropriate for further development or experience development in the coming years. Some potential opportunity sites have constraints—such as the presence of environmentally sensitive habitat, geologic or other hazards, cultural or historic significance, or archeological or paleontological resources—that would preclude development. These and other constraints are discussed in later chapters of this report. As the General Plan Update process continues, these categories and sites will be refined against the context of relevant resource protection policies, local and regional economic conditions, and community's values.

Figure 3-6 shows the locations of opportunity site categories in the Planning Area.

VACANT

There are 1,540 vacant sites located throughout the Planning Area, covering 378 acres. Ninety-five percent of this acreage is located within city limits. Table 3-10 describes the distribution of vacant sites in Half Moon Bay by General Plan land use designation. The dominant land use designation for sites in this category is Planned Development District, which applies to 970 sites distributed over 205 acres. Most of the vacant sites with this designation are located in subdivided areas intended for medium-density residential development, including subdivided PUDs. There are, however, a number of larger vacant PUD sites east of Highway 1, north and east of Half Moon Bay High School that could be suitable for non-residential development. Vacant sites designated for commercial and light industrial uses are concentrated near the downtown area and the intersection of highways 1 and 92. Outside of city limits, there are 11 vacant sites covering 21.2 acres, all designated as Agriculture.

Figure 3-6:
Opportunity Sites



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Table 3-10: Vacant Sites by General Plan Land Use – Half Moon Bay

Land Use	*# of Sites*	*Percent of Sites in Category*	*Acres*
Commercial - General	14	1%	13.5
Commercial - Visitor Serving	11	1%	1.2
Horticultural Business	13	1%	1.4
Light Industrial	3	0%	3.6
Open Space Reserve	3	0%	1.0
Planned Development District	970	63%	204.7
Regional Public Recreation	148	10%	26.9
Residential - Low Density	1	0%	0.5
Residential - Medium Density	305	20%	85.2
Residential - Medium Density; Urban Reserve	1	0%	0.5
Residential - High Density	12	1%	3.0
Urban Reserve	58	4%	26.1
Public Facilities & Institution; Urban Reserve	1	0%	10.3
Total	**1540**	**100%**	**377.8**

Source: Dyett & Bhatia, 2014.

UNDERUTILIZED

Underutilized sites are defined here as sites on which the assessed land value is greater than the assessed value of existing permanent improvements on the land. These cover 321 of the sites in the Planning Area, over 713 acres. In general, these sites are located in the northern portion of the Planning Area and around the intersection of highways 1 and 92. The majority of the sites and acreage—96 percent of both—are located within city limits. Table 3-11 shows the distribution of underutilized sites in Half Moon Bay by General Plan land use designation.

In terms of individual sites, the dominant land use designation among underutilized sites is Medium Density Residential. This designation accounts for 152 sites—nearly half of all underutilized sites—and are distributed throughout each of the city's existing neighborhoods.

Commercial land use designations account for the next-highest share of individual sites. Commercial-General applies to 60 sites, about 30 acres, though one of the sites is also partially in the Planned Development District designation. This represents 28 percent of all Commercial-General sites in the Planning Area, all located in the downtown area and surrounding the intersection of the highways. Seven of the city's 26 Commercial-Visitor Serving sites are underutilized; these are located at each cluster of Commercial – Visitor Serving land at the northern and southern ends of the city.

The land use designation covering the largest area of underutilized sites is Open Space Reserve. Though it encompasses 367 acres, it comprises only seven individual sites. These are located at the eastern edges of the city, and are occupied by horticultural and greenhouse uses and open space.

Lands under this designation are reserved for agricultural and horticultural use until such a time as all other land in the city has been committed to development.

The most diverse cluster of underutilized sites occurs in the downtown area and near the highway intersections. In addition to the Commercial – General sites mentioned above, there are also eight Light Industrial sites (one is also partially located on Commercial designated land), one Public Facilities and Institutional site, four High Density Residential sites, and six Planned Development District sites in the vicinity.

Table 3-11: Underutilized Sites by General Plan Land Use – Half Moon Bay

Land Use	*# of sites*	*Percent of Sites in Category*	*Acres*
Commercial - General	59	19.2%	30.2
Commercial - Visitor Serving	7	2.3%	3.0
Horticultural Business	18	5.8%	65.1
Horticultural Business; Open Space Reserve	1	0.3%	28.0
Light Industrial	7	2.3%	15.6
Light Industrial; Commercial - General	1	0.3%	0.7
Light Industrial; Horticultural Business	1	0.3%	6.5
Open Space Reserve	7	2.3%	367.3
Planned Development District	37	12.0%	47.6
Planned Development District; Commercial - General	1	0.3%	29.6
Public Facilities & Institutional	1	0.3%	0.2
Regional Public Recreation	2	0.6%	1.6
Residential - Low Density	2	0.6%	5.1
Residential - Low Density; Open Space Reserve	1	0.3%	30.8
Residential - Medium Density	152	49.4%	31.2
Residential - Medium Density; Urban Reserve	2	0.6%	19.6
Residential - High Density	4	1.3%	0.6
Urban Reserve	5	1.6%	5.2
Total	**308**	**100%**	**687.8**

Source: Dyett & Bhatia, 2014.

EXISTING AGRICULTURE

Existing agricultural sites are generally designated for continued agricultural use, though there are some sites located in areas designated by the LCP for more urbanized uses. Of the 34 total existing agricultural sites, 27 are designated as Horticultural Business or as Urban or Open Space Reserve. Agricultural use on reserve sites are protected by the LCP's agricultural phasing policies, which limit or prohibit non-agricultural development in designated areas until the remainder of the city's land is committed to other uses. There are three additional sites that are partially located in both Urban Reserve and Medium Density Residential areas. The remaining four sites are designated Planned Development District and Commercial – General. Table 3-12 describes the distribution of existing agriculture sites and their designated land uses.

Table 3-12: Existing Agriculture Sites by General Plan Land Use

Land Use	*# of sites*	*Percent of Sites in Category*	*Acres*
Horticultural Business	5	14.7%	26.7
Horticultural Business; Open Space Reserve	1	2.9%	19.7
Open Space Reserve	7	20.6%	360.9
Planned Development District	3	8.8%	41.7
Planned Development District; Commercial - General	1	2.9%	5.3
Residential - Medium Density; Urban Reserve	3	8.8%	30.6
Urban Reserve	14	41.2%	212.5
Total	**34**	**100%**	**697.4**

Source: Dyett & Bhatia, 2014.

OPEN SPACE

There are an additional 247 acres of open space in the Planning Area. These are publicly owned open space and undeveloped land with a potential for future parks and recreational development, or other public recreational, educational, or conservation uses. The highest concentration of these lands is along the coast, including Wavecrest parcels near Smith Field, many of which are owned by land trusts, the City, and the County. Other open space lands within the city include the land surrounding the coastal trail at Poplar Beach and lands designated as open space by residential subdivisions. The development of recreational uses will depend largely on the environmental suitability of increasing public access and activity on these lands, as well as the ability to maintain additional public facilities. Strategic development, however, has the potential to improve the Planning Area's non-motorized trails network and green infrastructure.

PLANNED UNIT DEVELOPMENTS

There are 19 PUD sites in Half Moon Bay, as shown in Figure 3-7. A number of these have been developed or are otherwise committed, but the majority of them still retain a number of vacant or underutilized parcels. Table 3-13 shows the distribution of vacant and underutilized parcels, as well as the number of unique ownerships for any vacant parcels within each PUD. Parcels located

in a PUD site face a specific set of development challenges. As evidenced by Wavecrest, Venice Beach, and Surf/Dunes Beach, the number of unique owners of parcels with a given PUD site can be high. This can create complexities for the development of specific plans that would cover the entirety of each site, as owners may have difficulty reaching a consensus, and many owners may be unresponsive. Additionally, most of the PUDs are constrained by LUP policies that were designed to protect resources, control density, and provide for elements such as access and infrastructure. As the context of each PUD has changed since the policies were determined—whether in terms of partial development, ownership, surrounding land uses, anticipated growth, emerging hazards, habitat composition, or circulation priorities—the General Plan and LCP update process offers an opportunity to reevaluate the appropriateness of PUD-related policies, reiterating those with continued relevance and revising others to improve clarity or better reflect current conditions and standards. ~~most of these PUDs are constrained by development conditions posed in the LUP that were designed to protect resources and control density, but which may now be considered outdated.~~

Table 3-13: Planned Unit Developments[1]

PUD Name	*Acres*	*Number of Parcels*	*Number of Underutilized Parcels*	*Number of Vacant Parcels*	*Number of Owners (Vacant Parcels)[2]*
Amesport Landing	11	14	0	0	N/A
Andreotti (Cypress Cove)	23	145	6	2	2
Carnoustie	7	32	0	0	N/A
Carter Hill	56	10	2	4	2
Cassinelli & South Main Street	4	4	0	0	N/A
Dykstra Ranch (Pacific Ridge)[3]	114	26	0	0	N/A
Guerrero Ave	5	4	0	1	1
LC Smith	5	1	0	0	N/A
Matteucci	14	21	2	8	5
Miramar Beach	2	12	1	1	1
North Wavecrest	389	967	2	693	334
Nurserymen's Exchange & Adjacent Property	36	4	3	1	1
Ocean Colony	264	555	16	1	1
Pilarcitos West Urban Reserve[4]	29	72	4	56	40
Podesta	35	2	1	0	N/A
South Wavecrest	126	2	0	0	N/A
Surf Beach/Dunes Beach	45	174	6	148	412
Venice Beach	39	104	4	93	382
West of Railroad	30	150	0	137	802

Notes:

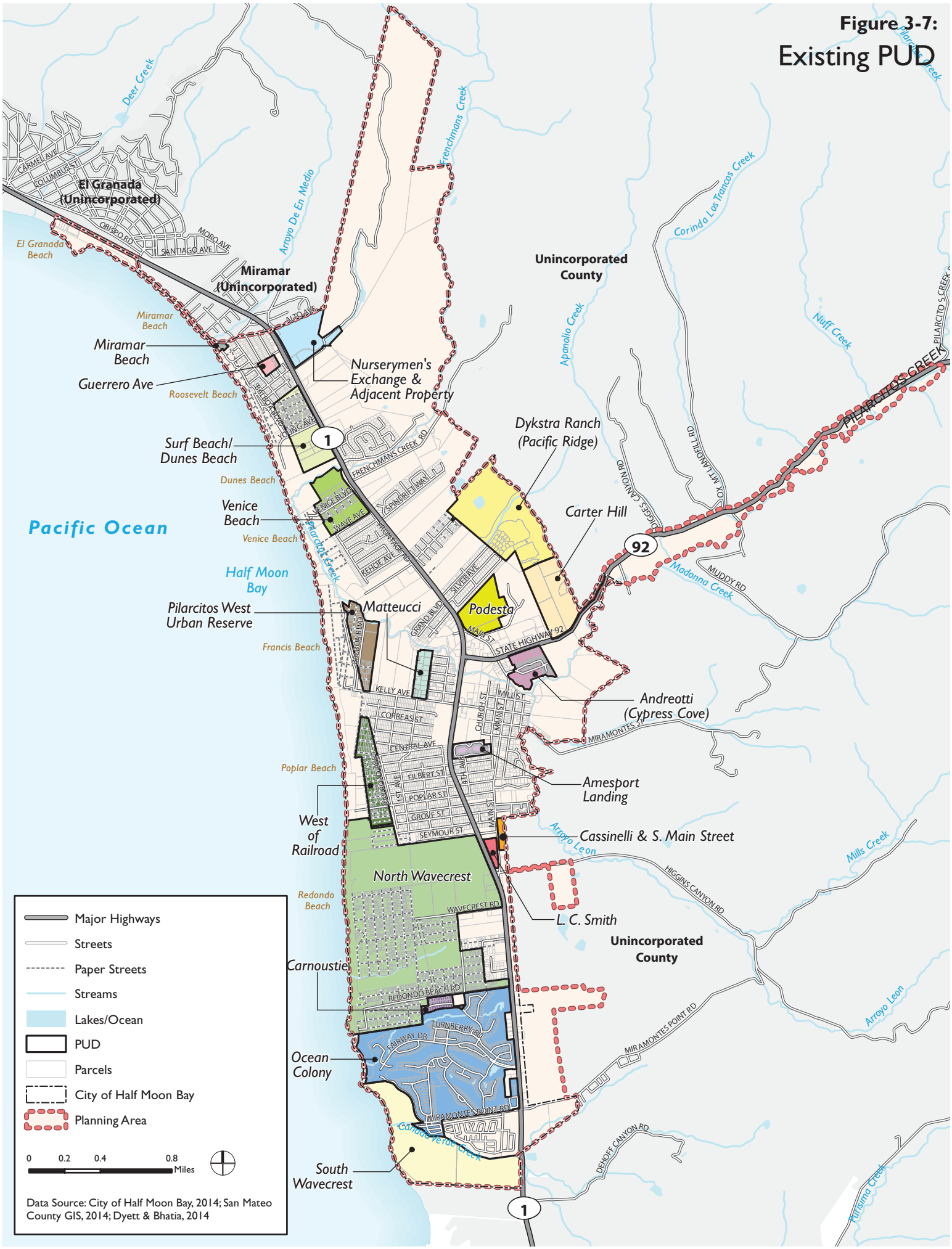
1 Rows shown in gray indicate PUDs where no opportunity sites are present.

2 This number may be higher than the actual number of unique owners due to variations in the transcription of owner names.

3 Though these parcels are currently vacant, development for this PUD has been approved.

4 Though zoned as PUD, these parcels have a LUP designation of Regional Public Recreation.

Source: San Mateo County Assessor's Office, 2014; City of Half Moon Bay, 2014; Dyett & Bhatia, 2014.


Figure 3-7:
Existing PUD
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
Pacific Ocean
Half Moon Bay
Miramar Beach
Guerrero Ave
Nursery men's Exchange & Adjacent Property
Surf Beach/ Dunes Beach
Dykstra Ranch (Pacific Ridge)
Venice Beach
Carter Hill
Pilarcitos West Urban Reserve
Matteucci
Podesta
Andreotti (Cypress Cove)
Amesport Landing
West of Railroad
Cassinelli & S. Main Street
North Wavecrest
L. C. Smith
Carnoustie
Ocean Colony
South Wavecrest
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Apanolio Creek
Nuff Creek
Pilarcitos Creek
Madonna Creek
Mills Creek
Arroyo Leon
Carmelo Creek
Purisima Creek
El Granada Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
YOUNG AVE
FRENCHMANS CREEK RD
SPINDRIFT WAY
VENICE BLVD
WAVE AVE
REHOE AVE
SILVER AVE
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
MUDDY RD
RIDGE CANYON RD
BOX MTL ANDELL RD
PILARCITOS CREEK
KELLY AVE
CORREAS ST
CHURCH ST
MAIN ST
MIRAMONTES ST
CENTRAL AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
8TH AVE
1ST AVE
WAVECREST RD
HIGGINS CANYON RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
DEHOFF CANYON RD
Major Highways
Streets
Paper Streets
Streams
Lakes/Ocean
PUD
Parcels
City of Half Moon Bay
Planning Area
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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PAPER SUBDIVISIONS

The majority of the city's subdivisions were made between 1905 and 1910, and while many of them have been fully or partially developed, there are still a number of paper subdivisions remaining where development has yet to take place. These subdivisions are evidenced on maps by paper streets that have not yet been built. These paper streets are shown in Figure 3-7. Some of these undeveloped subdivisions, including the West of Railroad PUD, are on lands designated for Regional Public Recreation and are now part of the city's coastal recreation network. The others are all located on PUD sites, specifically Wavecrest, Venice Beach, and Surf Beach/Dunes Beach.

The LUP identifies several challenges to the development of the remaining paper subdivisions. Among these are the fact that many of these lots are considered substandard and do not meet zoning requirements; the fact that fragmented ownership of lots within larger PUD sites means that the specific plans necessary to allow development may take a long time to materialize; the fact that the subdivisions lack water, sewer, and transportation infrastructure; and the fact that development on many of these lots would conflict with resource conservation policies of the Coastal Act and LUP.

SUBSTANDARD LOTS

One of the legacies of Half Moon Bay's early subdivision is the number of lots that do not meet the requirements for minimum lot area or width established in the Zoning Ordinance for the districts in which they are located. These are considered substandard lots, and in many cases they require that additional conditions be met for development. Of the city's vacant parcels, approximately 226 are substandard.[8] Of these, 83 would be considered severely substandard, meaning that they provide 55 percent or less of the required lot area or width required. Table 3-14 shows the distribution of these lots by residential district.

Table 3-14: Substandard Vacant Lots[1]

Zoning District	*Number of Substandard Lots[2]*	*Number of Severely Substandard Lots*	*Total Substandard Lots*
R-1	8	18	26
R-1-B1	24	6	30
R-1-B2	89	57	146
R-2	19	2	21
R-3	3	0	3
Total	**143**	**83**	**226**

Notes:

1 This count includes lots not meeting the requirement for minimum lot area in all residential districts.

2 Not including severely substandard lots.

Source: Dyett & Bhatia, 2014.

[8] This count includes lots not meeting the requirement for minimum lot area in all residential districts.

Development on substandard and severely substandard lots requires the approval of a use permit and compliance with the development standards shown in Table 3-15, though some exceptions are possible. The standards are intended to limit lot coverage and ensure adequate setbacks with respect to the smaller lot sizes.

Table 3-15: Development Standards for Substandard and Severely Substandard Lots

	Substandard Lots	*Severely Substandard Lots*
Lot Coverage	Proportionality Rule[1]	Single-story maximum lot coverage is equal to the maximum FAR. The maximum two-story lot coverage is 70 percent of the maximum FAR for two-story.[2]
Floor Area Ratio	Proportionality Rule.[1] Basements with floor area of 15 percent or less of the total calculated FAR, up to a maximum of 225 square feet, may be allowed subject to use permit.	A maximum of 200 square feet above the maximum calculated FAR. Maximum FAR is calculated as follows: the ratio of the actual lot area to the required lot area times 50 percent. Basements with floor area of 15 percent or less of the total calculated FAR, up to a maximum of 225 square feet, may be allowed subject to use permit.
Maximum Building Envelope[3]	Applicable	Applicable
Required Parking	Two spaces: one garage space with dimensional standards as set forth in Chapter 18.06, and one covered space not located in the front yard setback.	Two spaces: one garage space with dimensions as set forth in Chapter 18.06. One additional parking space, whether covered or not, and not located within the front yard setback.
Front Setback	Standard for the zone	Standard for the zone
Side Setback	Standard for the zone	A minimum of 8 feet combined, with a minimum of 3 feet on one side. On a side that contains less than a 4-foot setback, the structure must be separated by a minimum of 8 feet from any structure on the adjacent lot. Driveways to the rear garage structure must be a minimum of 10 feet. Rear garages can be a minimum of 3 feet from an interior side or rear property line.
Rear Setback	Standard for the zone	Standard for the zone
Street-facing Side Yard Setback	Standard for the zone	10' including garage
Height[4]	20’ (single-story) 28’ (two-story)	20’ (single-story) 28’ (two-story)

Table 3-15: Development Standards for Substandard and Severely Substandard Lots

	Substandard Lots	*Severely Substandard Lots*

Notes:

1 The Proportionality Rule requires that coverage and floor area is reduced by the ratio of the actual lot width or lot area to the required lot size in the zoning district in which the lot is found. The ratio shall be calculated for both the lot area and lot width, and the lesser ratio of the two shall be applied.

2 The 70 percent is calculated only on the living space for severely substandard lots, i.e., before adding the "maximum of 200 square feet" allowance.

3 The maximum building envelope under which all structures in residential zones must fit is defined as a height limitation of 28 feet overall for any portion of the structure, and a plane that begins at 10 feet above the side property lines and extends into the property at a 45-degree angle and16 feet above the front and rear setback line and extends into the property at a 60-degree angle.

4 Single-story structures with height above 16 feet are required to follow the procedures for exception to the height standards set forth in this chapter.

Source: City of Half Moon Bay Zoning Ordinance, Section 18.06.050, 2009.

3.7 Key Planning Issues and Implications

DEVELOPABLE LAND

The opportunity sites analysis identified roughly 378 acres of vacant land in Half Moon Bay, as well as 688 acres of underutilized land. However, not all of these sites are developable due to constraints associated with resource protection and hazard mitigation. The existing LCP's assessment of these constraints and their locations may not reflect conditions that have potentially changed since the 1990s. Subsequent chapters of this report map and describe resource and hazard constraints in the Planning Area; these analyses will be overlaid and synthesized in the Alternatives phase of the General Plan Update in order to identify areas of high resource sensitivity or hazard, along with areas where development may be encouraged.

~~DEVELOPMENT CHALLENGES: SUBSTANDARD LOTS AND PUDS~~

~~Half Moon Bay's unique development history has resulted in large areas of the city that are difficult to develop, including substandard lots in residential districts and the large subdivided PUDs west of Highway 1. Some of these issues stem from the manner in which land was subdivided in the early 1900s. Many of the subdivided lots could now be considered substandard or severely substandard, and may have difficulty accommodating residential or other development consistent with the Zoning Ordinance.~~

PLANNED UNIT DEVELOPMENTS

~~Meanwhile, t~~The majority—205 acres—of the city's vacant land is located in PUD sites, which face a number of practical and regulatory development barriers:

- Because PUDs require comprehensive specific plans for development, the large numbers of unique landowners in each PUD site means that there is little that an individual property owner can do to develop a given lot. Specific plan development requires

coordination among all of the properties in a given PUD in order to adequately address the provision of required infrastructure, open space, and any other conditions of development described in the LUP.

- The lack of roads and infrastructure in these areas is another barrier to developing individual parcels, as the cost of constructing the necessary infrastructure over such large areas can be costly. The 16 sites identified in the LCP are also subject to a number of development conditions established in LUP policies, which may no longer be reflective of current conditions on the sites.
- The vacant PUD areas are each subject to various combinations of constraints related to conservation of coastal resources (such as biological and scenic), the preservation of recreational and coastal access opportunities, and hazard avoidance, as required by the California Coastal Act and the LCP. These constraints would have a strong influence on the types and configurations of development that would ultimately be possible.
- Though zoning regulations for the Planned Development District allow for the full range of land uses provided for in the LUP by permit, there are no land uses that are allowed in this zone by right, aside from existing uses, which may be non-conforming. This results in uncertainty for potential developers, who lack guarantees that a specific plan will be approved at the end of the lengthy development process.

~~Though t~~The LCP policies and regulations regarding PUDs were intended to allow for flexibility in developing these areas, and were designed partially to address the issue of antiquated subdivisions and the existence of resource- and access-related constraints in these and adjacent areas. However, the uncertainty created by the current system actually discourages development. The General Plan Update ~~should~~ is an opportunity to revise land use policies and zoning regulations to introduce more certainty into the development process. The Update should also evaluate the conditions placed on individual PUD sites, and consider allowing certain uses by right to encourage the development of desirable land uses where they are most appropriate.

SUBSTANDARD LOTS

Half Moon Bay's unique development history has resulted in numerous substandard lots in residential districts. Though many substandard lots are developable through exemptions or through the issuance of a use permit, some may have difficulty accommodating residential or other development consistent with the Zoning Ordinance. There is an opportunity to discuss the range of uses or types of development that could be appropriate on substandard lots and propose policies or regulations to streamline the process for such forms of development.

AGRICULTURAL CONVERSION

The agricultural phasing policies of the LUP are intended to promote the ongoing use of existing agricultural land as well as the orderly conversion of that land once agricultural use is no longer feasible. However, the wording of the LUP policies and the regulations of the Zoning Ordinance may not be clear enough on when or how these lands are to be converted, which could potentially lead to piecemeal or haphazard development in those areas that has not been anticipated or planned for in terms of community needs, vision, or resource requirements. This is particularly a concern for the Urban Reserve land use category, reserved for future urban infill, and located

among existing residential development. In LUP policies and zoning regulations, urban development of Urban Reserve lands relies on the finding that "substantial development" has occurred in areas designated for development on the land use map. However, "substantial development" is not defined or quantified in either the LUP or Zoning Ordinance. The LUP and Zoning Ordinance do specify that no conversion may take place on lands subject to a Williamson Act contract until expiration of that contract, or within 10 years of the effective date of the LUP on non-Williamson Act lands. As the LUP was certified in 1993, the 10-year period has lapsed. Now that conversion of land is possible, it is important to consider the impacts that conversion may have on the city.

Policies and regulations provide for the conversion of reserve lands to the Planned Development District land use designation, which itself lends uncertainty to the process. Whereas densities, intensities, uses, and development standards are specified for other land use designations, Planned Development Districts specify these details in specific plans to be developed at a later date. This makes it difficult to predict the distribution of uses, population, or resource requirements that will eventually occupy these lands. Estimates of residential buildout that are necessary for public infrastructure and service provision are also difficult to make. These uncertainties are especially pronounced given the challenges surrounding PUD developments in the past.

Flexibility may be desirable when it comes to the conversion of reserve lands, as one potential outcome would be for agricultural use to continue on these parcels indefinitely, but developing a vision for these lands that complements the overall vision for development in the city could help ensure that any land conversions that are necessary will serve the community's interests.

NON-RESIDENTIAL DEVELOPMENT

The inventory of opportunity sites within the city indicates a lower supply of land available for non-residential development relative to residential development. In Half Moon Bay, where residential uses already make up the majority of the total area, non-residential development has become less common, with nearly all current development permit applications or new construction coming from residential projects. Even a number of undeveloped PUDs are already subdivided for residential use. While the community must address its housing needs, it should also consider whether there is an appropriate balance of residential and non-residential development, to allow for commercial and professional services and employment opportunities to support the population and local economy. An Economic and Real Estate Conditions and Trends analysis has been conducted as part of the General Plan Update and will be one of the tools used during the Alternatives phase to evaluate the community's demand for non-residential space and determine whether the appropriate land use designations exist to accommodate future needs.

NEIGHBORHOOD CONNECTIVITY

Many of Half Moon Bay's neighborhoods and community centers have limited connectivity to one another. This is particularly true for the northern neighborhoods to the east of Highway 1. Many of the city's neighborhoods rely on a single entry point in order to connect to Highway 1 and there are no alternative routes. Though some western neighborhoods benefit from the connectivity provided by the Coastal Trail and the Naomi Patridge Trail, these can be difficult to

access from east of Highway 1. Additionally, there is no parallel route for vehicles, meaning that all automobile traffic is directed onto Highway 1. This is significant in a city where residents rely on commercial centers within and outside of the city for retail and services, public recreational land is limited to the beaches and a small number of pocket parks not found in every subdivision, and schools and other public services are centrally located. Additionally, visitors to the city must use the highways for access as well. Connectivity challenges within the city raise questions as to how to improve the community's access to required goods and services, whether in terms of locating these land uses more conveniently or improving the roadway network. Further discussion of Half Moon Bay's circulation network can be found in Chapter 5 of this report.

COASTAL ACT

The existence of the Coastal Act means that coastal communities must work hard to maintain a balance between resource protection, recreation provision, and local cultural and economic development. Where the coast and its views, habitats, attractions, economic opportunities, and hazards have contributed so much to the city's identity, maintaining this identity can place many constraints on development. The influence of the Coastal Commission on permitting new development also adds a layer of complexity to the development process, introducing analyses and procedures not required in communities outside of the Coastal Zone. The hearings and appeals processes may also take longer to resolve, and increase the chances that a project will not be approved or will need to be altered from the applicant's original vision or intent.

The Coastal Act serves a very important role in preserving the unique character of the Coastside, but the overall result of coastal protection policies combined with Half Moon Bay's unique development challenges is a lengthy and uncertain permitting and approval process. One area where the City could improve this situation is by considering ways to clarify and streamline its own permitting requirements.

4 Circulation, Parking, and Coastal Access

This chapter provides a review of the current state of the City of Half Moon Bay's multi-modal transportation system by examining existing city policies, programs, and infrastructure related to public transportation, bicycle and pedestrian facilities, and parking. This chapter also explores current issues with respect to circulation, coastal access, and parking as well as areas of opportunity for improving upon the existing transportation network.

4.1 Half Moon Bay General Plan Circulation Element

Under State law, every city in California must prepare and adopt a General Plan describing the development and planning goals for the city, including a circulation element. The circulation element considers the mobility and access needs within a city with respect to all modes – automobiles, bicycles, pedestrians, and transit. An update of Half Moon Bay's 1992 Circulation Element was adopted in November 2013. The main focus of the update was the addition of improvements that were recommended in the Highway 1 Traffic Safety Study. The update also included proposed improvements for traffic flow on Main Street and State Route 92 as well as improvements for pedestrian, bicycle, and transit. As part of the overall General Plan Update, policies in the Circulation Element will be further refined and updated for consistency with the Land Use Element and to ensure that issues raised by the community as part of the General Plan Update are adequately addressed.

4.2 Vehicular Circulation

Vehicular travel remains the primary transportation choice within Half Moon Bay. The vehicular network for Half Moon Bay, illustrated in Figure 4-1, is rooted in the north-south connectivity provided by Cabrillo Highway (Highway 1), and the east-west connectivity provided by San Mateo Road (SR 92). Both backbone roadways are Caltrans controlled. Highway 1 and SR 92 provide regional connections to San Francisco (north), San Mateo (east) and Santa Cruz (south). Although designated as "Limited Access" facilities in Half Moon Bay's Circulation Element, the Caltrans facilities are constructed as arterial roadways, and continue to be managed by Caltrans, limiting potential changes desired by the City of Half Moon Bay. The City of Half Moon Bay can propose, fund and implement changes on the state routes, but only with Caltrans approval.

ROADWAY SYSTEM

The city's roadway network serves to connect land uses and facilitates movement of persons and goods to and from, within, and through the city. The city's hierarchy of roadways identifies roadways to accommodate traffic and goods movement at higher speeds, and roadways serving neighborhoods with smaller cross-sections and lower speeds. The functional classification system in the recently adopted Half Moon Bay General Plan Circulation Element includes the following, as illustrated in Figure 4-1.

Limited Access

Limited or controlled access highways serve inter-urban, statewide, and interstate travel. Planning of these facilities rests largely with agencies other than the City. Highway 1 and SR 92 are limited access roads in Half Moon Bay. Both are also designated as Truck Routes throughout the city. Past City policy required access to existing and future development in Half Moon Bay to be consolidated at designated signalized locations when possible.

Arterial

Arterial streets primarily serve intra-city travel, carrying traffic from collector streets to and from other parts of the city. Access to abutting property is subordinate to the primary function of moving traffic between residential neighborhoods and the downtown and commercial areas. Planning practice has been to minimize the number of direct access driveways on arterial streets. Main Street and Kelly Avenue are classified as Arterials within Half Moon Bay. The portion of Main Street north of SR 92 is also designated a Truck Route because of the importance of deliveries to the business in the downtown and south of the downtown.

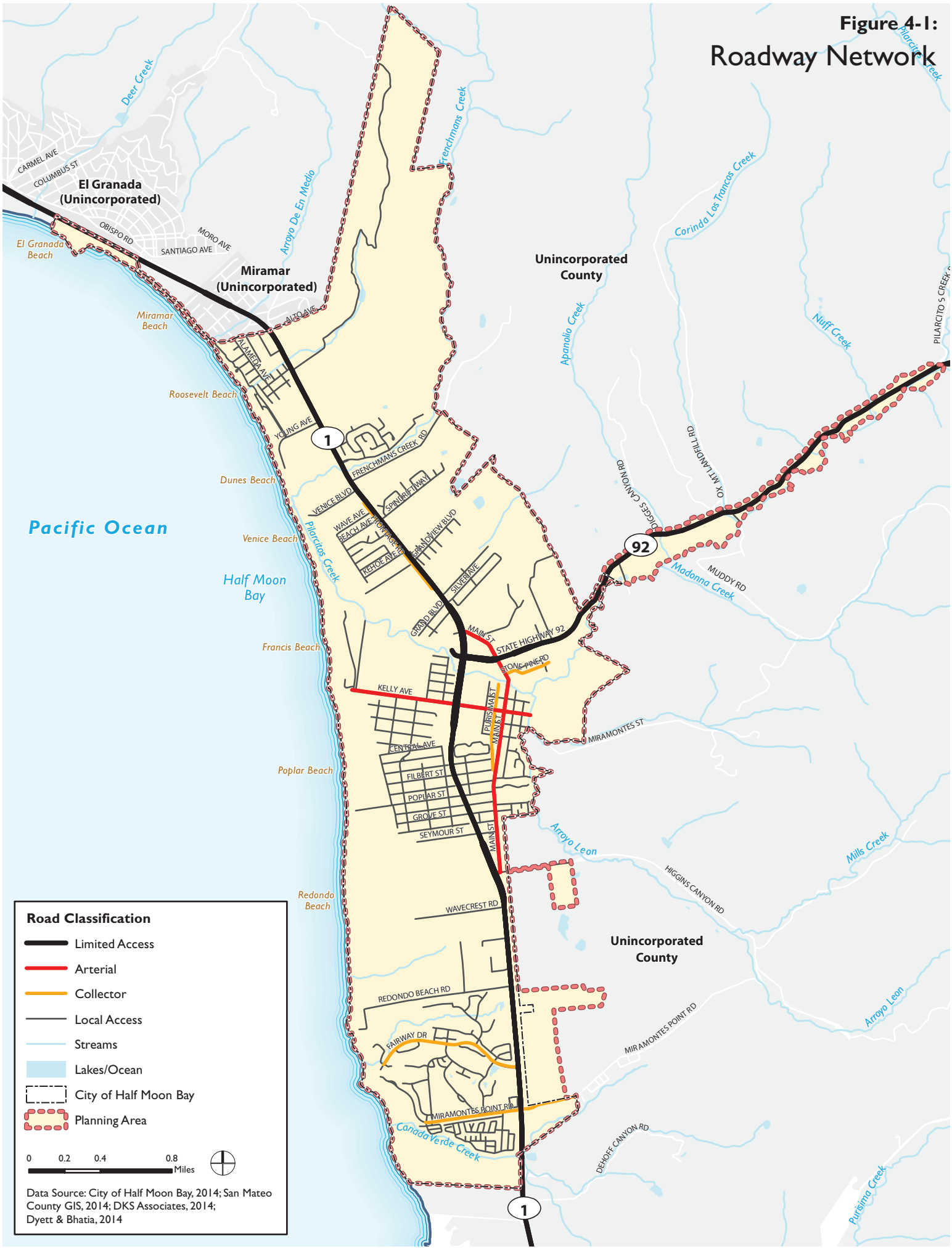
Collector

Collector streets directly or indirectly link local streets with arterials and are designed to primarily serve residential and recreational traffic. This traffic may include trips between adjacent neighborhoods, but collectors are not intended to handle cross-town traffic. Stone Pine Road, Purissima Street, Frontage Road, Fairway Drive, and Miramontes Point Road are classified as Collector streets. Typical design standards for new residential collector streets provide for two lanes (one travel lane in each direction) with parking allowed on both sides of the street and sidewalks on both sides of the street in a total right-of-way width of 60 feet.

Local Access

Local Access streets are intended to provide direct access to abutting land uses. Existing roads in Half Moon Bay not designated as Collector, Arterial or Limited Access will be classified as Local Access streets based on their current design and usage. Future roads, not included in one of the above categories, will be planned as Local Streets. Typical design standards for new Local Access streets are similar to Collector streets with respect to travel lanes, parking, and sidewalks; however, due to anticipated lower traffic volumes and speeds, they can be narrower and have a total right-of-way width of 50 feet.

Figure 4-1:
Roadway Network



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TRAFFIC OPERATIONS

Vehicle circulation concerns primarily relate to times of peak roadway use: the commute period and weekends, especially those with significant traffic for events. Estimates of level of service (LOS) for key intersections along Highway 1 and SR 92 are provided in Table 4-1 for average weekday and Saturday peak hour conditions based on counts taken in 2010.

Level of Service (LOS) analysis was conducted using the criteria described in the City/County Association of Governments (C/CAG) 2011 Congestion Management Program. LOS as defined in the Highway Capacity Manual (HCM) is a measure describing operating conditions within a traffic stream. It is generally described in terms such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The LOS evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance. LOS can range from "A" representing free-flow conditions, to "F" representing extremely long delays. LOS D is typically considered acceptable for a peak hour in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity. Table 4-1 shown peak hour intersection LOS in Half Moon Bay, based on traffic counts taken in 2010.

During the AM and PM peak hour, the only intersection to operate below the standard set by Half Moon is Main Street and SR 92, which operates at LOS F. During the weekend midday peak hour, the intersections of Main Street and SR 92, and Highway 1 and Terrace Avenue both operate at LOS F.

Policy 2-1 in the Circulation Element states, "The City will support Level-of-Service (LOS) C as the desired Level-of-Service on Highway 1 and SR 92, except during the peak commuting and recreational periods when LOS E will be considered the minimum acceptable standard." The City's LOS criteria are consistent with the Congestion Management Program (CMP) published by the C/CAG except for the intersection of SR 92 and Main Street for which C/CAG has defined a LOS standard of F. Additionally, the CMP does not include a LOS standard for weekend operations.

Table 4-1: Peak Hour Intersection Level of Service

No.	Intersection	Control	Existing					
			AM Peak Hour		PM Peak Hour		Sat MD Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS
1	Hwy 1 / Mirada Rd	TWSC	2.7	A	2.2	A	4.1	A
2	Hwy 1 / Roosevelt Blvd	TWSC	1.4	A	0.7	A	1.5	A
3	Hwy 1 / Young Ave	TWSC	5.9	A	0.2	A	2.0	A
4	Hwy 1 / Ruisseau Francais	Signalized	4.8	A	10.2	B	23.8	C
5	Hwy 1 / Frenchmans Creek Rd	TWSC	65.1	E	0.6	A	42.8	E
6	Hwy 1 / Venice Blvd	TWSC	2.9	A	0.4	A	41.9	E
7	Hwy 1 / Spindrift Wy	TWSC	2.0	A	0.9	A	3.1	A
8	Hwy 1 / Kehoe Ave	TWSC	0.8	A	0.6	A	1.0	A
9	Hwy 1 / Grandview Blvd	TWSC	6.5	A	1.8	A	5.3	A
10	Hwy 1 / Terrace Ave	TWSC	44.9	D	9.7	A	**77.1**	**F**
11	Hwy 1 / Grand Blvd	TWSC	0.7	A	0.5	A	0.5	A
12	Hwy 1 / Belleville Blvd	TWSC	0.3	A	0.3	A	0.2	A
13	Hwy 1 / N. Main St	Signalized	35.6	D	30.0	C	37.8	D
14	Hwy 1 / SR 92	Signalized	33.8	C	38.2	D	56.8	E
15	Hwy 1 / Kelly Ave	Signalized	29.5	C	31.6	C	39.4	D
16	Hwy 1 / Filbert St	TWSC	23.4	C	15.1	C	27.1	D
17	Hwy 1 / Poplar St	TWSC	5.1	A	2.5	A	3.4	A
18	Hwy 1 / Seymour St	TWSC	0.9	A	0.8	A	0.9	A
19	Hwy 1 / Higgins Canyon Rd	TWSC	1.5	A	2.1	A	2.4	A
20	Hwy 1 / Fairway Dr	Signalized	16.3	B	14.7	B	15.1	B
21	Hwy 1 / Miramontes Point Rd	Signalized	29.5	C	25.6	C	26.0	C
22	Main St / Lewis Foster Dr	TWSC	1.2	A	2.9	A	2.2	A
23	SR 92 / Main St	Signalized	**284.1**	**F**	**173.4**	**F**	**181.0**	**F**
24	Kelly St / Main St	AWSC	8.2	A	9.8	A	10.4	B

PARALLEL ROUTES/FOOTHILL BOULEVARD

Development has occurred in Half Moon Bay on a project-by-project basis over the years and has resulted in few functional parallel alternative routes to Highway 1 and SR 92; some parallel facilities exist along certain segments of Highway 1, generally south of Main Street, though there are none along SR 92. As a result, trips by automobile or truck into, out of, within, or through Half Moon Bay must use Highway 1, SR 92, or both for most trips. This funneling of almost all vehicu-

lar traffic onto these two roads results in congestion on both facilities and many of the streets that cross them.

The updated Half Moon Bay Circulation Element includes a policy regarding the City's interest in establishing routes parallel to Highway 1. Implementing Action 1-3 reads, "Parallel Traffic Routes: Identify and analyze opportunities to develop alternatives to Highway 1 north of Main Street for vehicular traffic." As a first step when project funding becomes available or as development in the corridor comes forth, a feasibility study will be needed to assess potential routes for bicycles, pedestrians, emergency access vehicles, and automobiles that allow for north-south movement without using Highway 1. One or more parallel routes may be assessed and the routes may be deemed suitable for different combinations of circulation modes (e.g., all modes including auto and transit, or only bicycle and pedestrian modes pursuant to a new multi-use trail that allows emergency vehicles). Plan lines will be prepared at a future time for these routes dependent upon development and other opportunities. Identification of any alternative routes will require significant public input, technical feasibility analysis, and environmental review.

Earlier transportation planning efforts in the 1990s identified several options that would have contributed to a parallel route network, but these may no longer be feasible due to a number of developments and development agreements that have taken place in subsequent years along the proposed routes, as well as to environmental considerations associated with sensitive habitats in the area. The largest piece of the parallel route network identified was "Foothill Boulevard," an arterial road that would have connected SR 92 at an extension of Stone Pine Road to Highway 1 at Young Avenue. Though a precise alignment was never established for the route, the plans generally assumed four connections to the city's eastern neighborhoods, at Frenchmans Creek Road, Spindrift Way, Grandview Boulevard, and a future Bayview Drive (to be located between Grandview Boulevard and Terrace Avenue). Additional proposed improvements included future segments for Golden Gate Drive to provide a continuous alternative from Highland Avenue to Spindrift Way, and for Pilarcitos Avenue to provide a continuous alternative from Grand Boulevard to Wave Avenue. A proposed an extension of Frontage Road on the west side of Highway 1 to include a missing segment between Terrace Avenue and Belleville Boulevard was also part of the proposed parallel network and is now being completed. This will create a continuous frontage road acting as a collector for the subdivisions on the west side of Highway 1 from Venice Boulevard to Belleview Boulevard, limiting the number of access points to Highway 1. A similar frontage road on the east side of Highway 1 was identified in the 2013 Circulation Element as a possible element of the network.

Though the current Circulation Element describes alternative parallel routes as a conceptually-defined improvement, it does not contain any specific references to the projects cited in previous plans. Acknowledging that the previously proposed connections may no longer be feasible, new attempts to develop parallel routes will need to consider a greater variety of strategies to provide incremental improvement in north-south mobility by multiple modes. These strategies may include new alignments for Foothill Boulevard, combinations of smaller alignments, and alignments that address the needs of different types of trips by allowing for pedestrian or bicycle travel. While opportunities are presented by undeveloped sites such as the Podesta or Carter Hill PUDs, the City will need to consider constraints such as landslide risks, areas of potential environmental

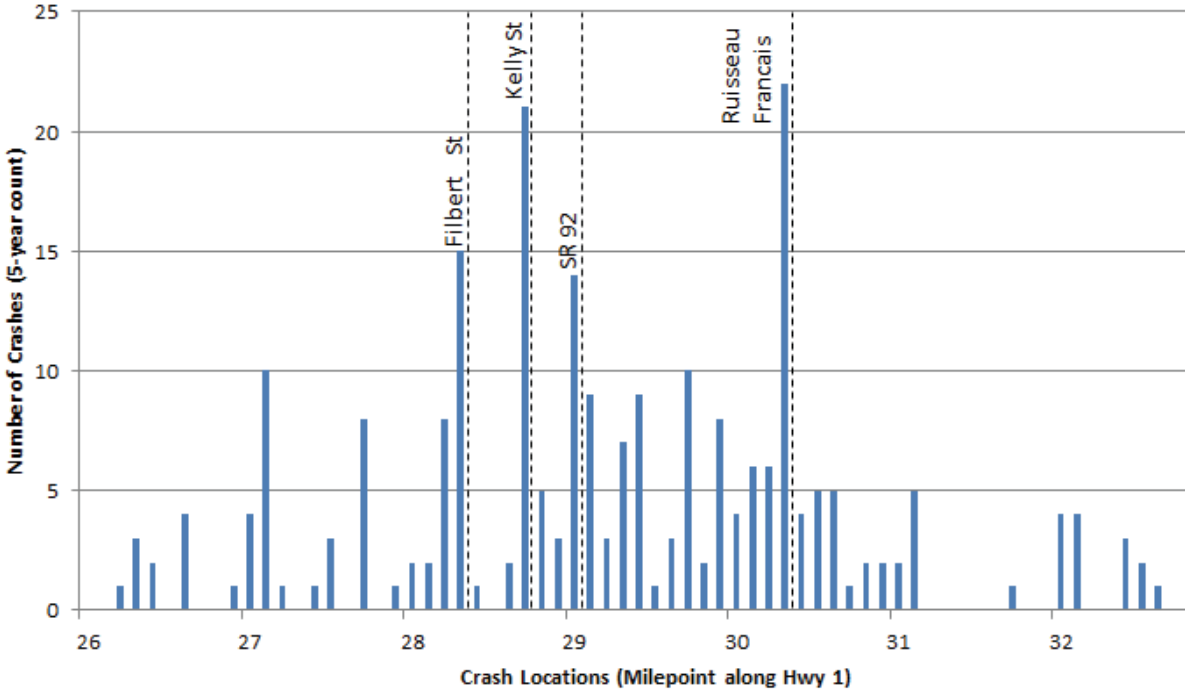
sensitivity including wetlands and riparian habitat, existing and planned development, and project cost.

TRAFFIC SAFETY

Crash data[1] were collected for locations along Highway 1 and SR 92 within the City of Half Moon Bay for a five-year period, 2008-2012. The location and count of crashes along Highway 1 is provided in Chart 4-1. There were a total of 245 crashes recorded along Highway 1 during this period. The highest concentration of crashes are within a segment adjacent to the downtown area of Half Moon Bay, and the four locations with the highest number of crashes are at the intersections of Highway 1 with Ruisseau Francais Avenue, Kelly Street, Filbert Street, and SR 92. The intersection of Highway 1 and Filbert Street is controlled with stop signs on Filbert Street. The other three intersections are signalized. There were 10 crashes involving a bicycle and two crashes involving a pedestrian along Highway 1 during the study period.

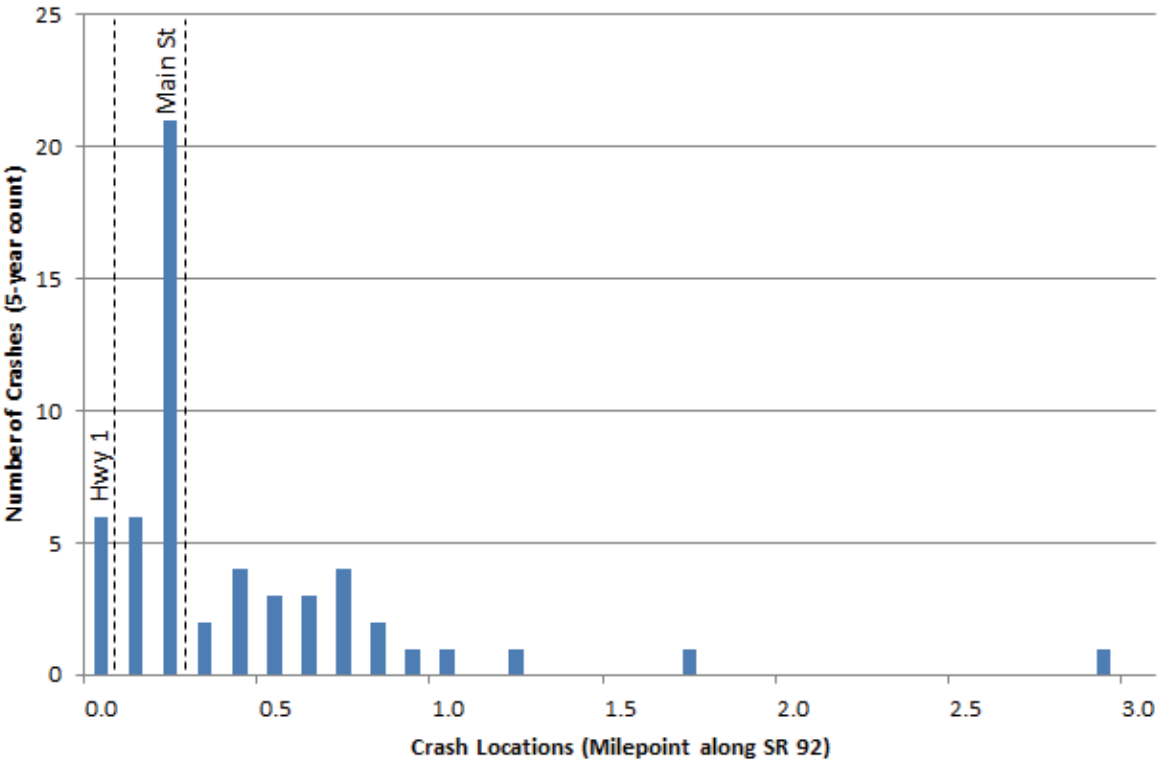
The location and count of crashes along SR 92 is provided in Chart 4-2. There were a total of 56 crashes recorded along SR 92 during this period. The highest concentrations of crashes are within the segment adjacent to downtown Half Moon Bay, and the two locations with the highest number of crashes were at the signalized intersections of SR 92 with Highway 1 and Main Street. There was one crash involving a bicycle and one crash involving a pedestrian along State Route 92 during the study period.

Chart 4-1: Vehicle Crashes along Highway 1 (2008-2012)



[1] Statewide Integrated Traffic Records System (SWITRS)

Chart 4-2: Vehicle Crashes along State Route 92 (2008-2012)



KEY PLANNING ISSUES AND IMPLICATIONS

The key issues for vehicular circulation primarily relate to the themes of congestion and connectivity but also address safety concerns for Highway 1.

- **Peak Hour Commute:** During weekday peak commute periods, congestion occurs at intersections along Highway 1 and SR 92. This is due to high commute traffic volumes, inadequate turn lanes, and lack of signal control at some key intersections. The congestion not only results in delay for residents and visitors, but also increases the collision rate and reduces access to the transportation system for residents.
- **Weekends and Special Events:** The high volume of traffic on weekends and during special events often overwhelms the roadway network that was built to meet the average weekday needs of the city's residents. Growth in regional travel and increasing popularity of the attractions and special events in Half Moon Bay have resulted in the highest levels of congestion being on weekends and during special events.
- **Alternative Routes:** Development has occurred in Half Moon Bay on a project-by-project basis over the years and has resulted in no functional parallel alternative routes to Highway 1 and SR 92. As a result, trips by automobile or truck into, out of, within or through Half Moon Bay must use Highway 1, SR 92, or both regardless of length of the trip. This funneling of almost all vehicular traffic onto these two roads results in congestion on both facilities and many of the streets that cross them.

- **Highway 1 and SR 92 Safety:** Safety is a concern in Half Moon Bay for travelers by all modes. Pedestrians and bicyclists often do not have separate facilities and must use portions of the roadways or their shoulders. Crossing of major facilities like Highway 1 and SR 92 can be challenging because of the separation of signalized intersections that provide pedestrians and bicyclists a break in the traffic. Bus stops on Highway 1 and SR 92 are isolated and often adjacent to high traffic volumes without any amenities and only a sign to identify the location. The only exception to this is a bus stop shelter for westbound SamTrans routes 17 and 294 on SR 92 between Highway 1 and Main Street.
- **Greener Vehicular Transportation:** Alternative fuel vehicles and super-compact cars are becoming increasingly popular and can be seen driving and parked throughout the city's commercial and residential areas. Various incentives, especially those established to achieve State of California mandated greenhouse gas reduction targets, have led to the development and sale of these vehicles throughout California. Flexibility is needed to support and encourage these forms of "greener vehicular transportation" for which technology and trends should be expected to change through the Circulation Element's planning horizon of 2035.

4.2 Pedestrian and Bicycle Circulation

This section provides an overview of existing and planned bicycle and pedestrian infrastructure within Half Moon Bay and identifies gaps and areas of opportunity in the existing bicycle and pedestrian network.

SAN MATEO COUNTY COMPREHENSIVE BICYCLE AND PEDESTRIAN PLAN

The San Mateo County Comprehensive Bicycle and Pedestrian Plan (CBPP) sets a vision that guides investments in countywide bicycle and pedestrian projects and brings attention to key pedestrian and bicyclist access barriers. The document serves as a tool for local agencies in identifying and prioritizing bicycle and pedestrian projects by providing a county-level perspective on competing investments.

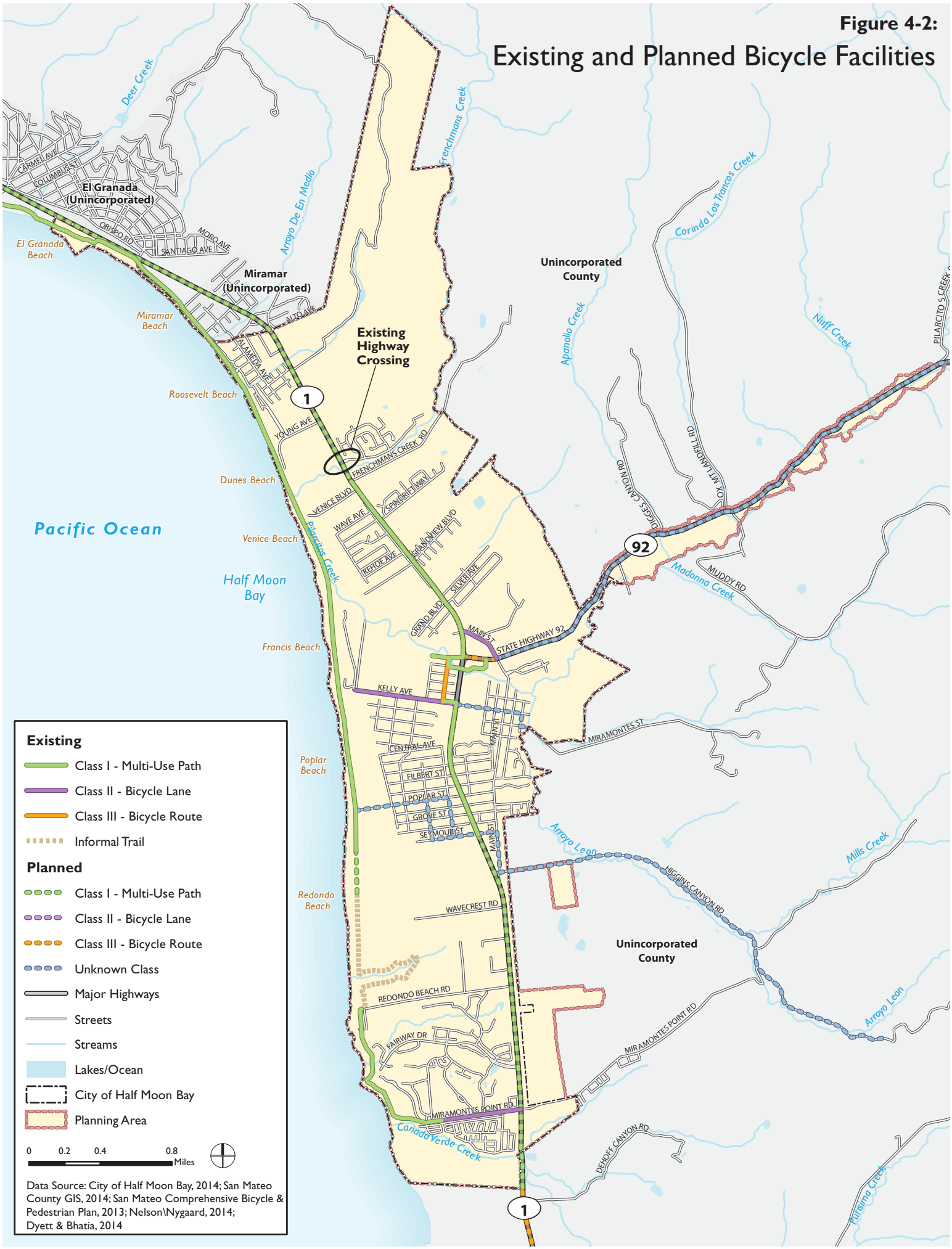
The 2011 CBPP is an update of a 2000 plan but adds a new pedestrian component and recommendations on wayfinding signage and bicycle parking locations. The CBPP identifies bikeway projects needed to complete the Countywide Bikeway Network (CBN). The CBN is derived from the network identified in the 2000 San Mateo County Comprehensive Bicycle Route Plan. While many of the projects listed in the 2000 Plan are included in the CBPP, the 2011 plan has been updated to reflect both projects that have been completed since 2000 and new needs that have been identified. Relevant projects are discussed below in the section titled Planned Bicycle and Pedestrian Facilities.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

A map of existing and planned bicycle facilitites is shown in Figure 4-2.

Figure 4-2:

Existing and Planned Bicycle Facilities



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; San Mateo Comprehensive Bicycle & Pedestrian Plan, 2013; Nelson\Nygaard, 2014; Dyett & Bhatia, 2014

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Pedestrian Facilities

Existing pedestrian facilities in Half Moon Bay include sidewalks along most roads in and around downtown. Outside of this area, however, many streets lack sidewalk facilities. Along Highway 1 pedestrians often walk along the roadway's paved shoulders due to the infrequency of safe crossings that would allow access to the trail along the highway's west side.

There are also several multi-use trails that serve both pedestrians and bicyclists in Half Moon Bay.

- The California Coastal Trail runs along the coastal bluffs from the northern boundary of Half Moon Bay to Seymour Creek, and from Redondo Beach Road to the city's southern limits.
- The Naomi Patridge Trail runs along Highway 1 from the Nurserymen's Exchange (north of downtown) to SR 92. A second segment begins at Kelly Avenue and runs south to Wavecrest Road. City officials have also awarded a construction contract to extend the trail farther north to Roosevelt Boulevard.
- The Pilarcitos Creek Trail functions as an undercrossing for Highway 1, serving bicyclists and pedestrians, south of SR 92.

Bicycle Facilities

Bicycle facilities are classified as follows:

- Class I: Multi-use, paved paths that are separated from vehicular traffic, and enable two-way travel for bicyclists and pedestrians.
- Class II: On-street striped and signed lanes for bicyclists.
- Class III: Shared right-of-way for bicyclists and motorists, with no dedicated space exclusively for bicyclists. Class III facilities have signage that identifies them as bike routes and may have "sharrows" – symbols on the pavement indicating that the roadway is to be shared with bicyclists.

In addition to multi-use Class I California Coastal Trail, Naomi Patridge Trail, and Pilarcitos Creek Trail, Class II bicycle lanes are present on Main Street from Highway 1 to SR 92, Kelly Avenue from Highway 1 to the intersection of the Half Moon Bay Coastal Trail and Balboa Boulevard, and Miramontes Point Road from Highway 1 to Pelican Point RV Park (see Figure 4-2).

PLANNED BICYCLE AND PEDESTRIAN FACILITIES

San Mateo Comprehensive Bicycle and Pedestrian Plan

The San Mateo CBPP identifies a number of priority areas for enhanced bicycle and pedestrian facilities, within or connecting to the City of Half Moon Bay.

Highway 1 Corridor

The Highway 1 corridor, which includes Highway 1, the Coastal Trail and the planned Parallel Trail, is proposed to serve as a countywide bicycle corridor. Highway 1 currently constrains pedestrian mobility due to limited crossing opportunities, heavy traffic, and inconsistent sidewalk widths or lack of sidewalks. Sidewalk improvements along this route have the potential to provide greater access for low-income populations, agricultural workers, and transit riders who constitute a relatively large share of bicyclists and pedestrians, as well as for coastal visitors.

The Parallel Trail is a planned bicycle and pedestrian facility that would run adjacent to Highway 1 and the Coastal Trail from Montara to Half Moon Bay and be made up of Class I and Class II bike facilities. The Parallel Trail would join and include existing segments of the Naomi Patridge Trail in Half Moon Bay.

Access improvements focused on improving pedestrian mobility with new pathways and more frequent crossings of Highway 1 are also identified as key elements for this corridor.

Highway 92

Highway 92 is identified as a key project corridor for bicycle and pedestrian facilities that would serve Half Moon Bay residents and employees. In particular, improvements along this roadway would facilitate access for low income communities, agricultural workers, and transit users that rely on bicycling for first- and last-mile purposes. Proposed improvements along this roadway include a Class I bicycle facility starting at the intersection of SR 92 and Highway 1, and terminating between Apanolio Creek and Corinda Los Trancos Creek, two miles to the east. Bicycle improvements beyond this segment of SR 92 have not yet been defined.

Connection between the California Coastal Trail and Higgins Canyon Road

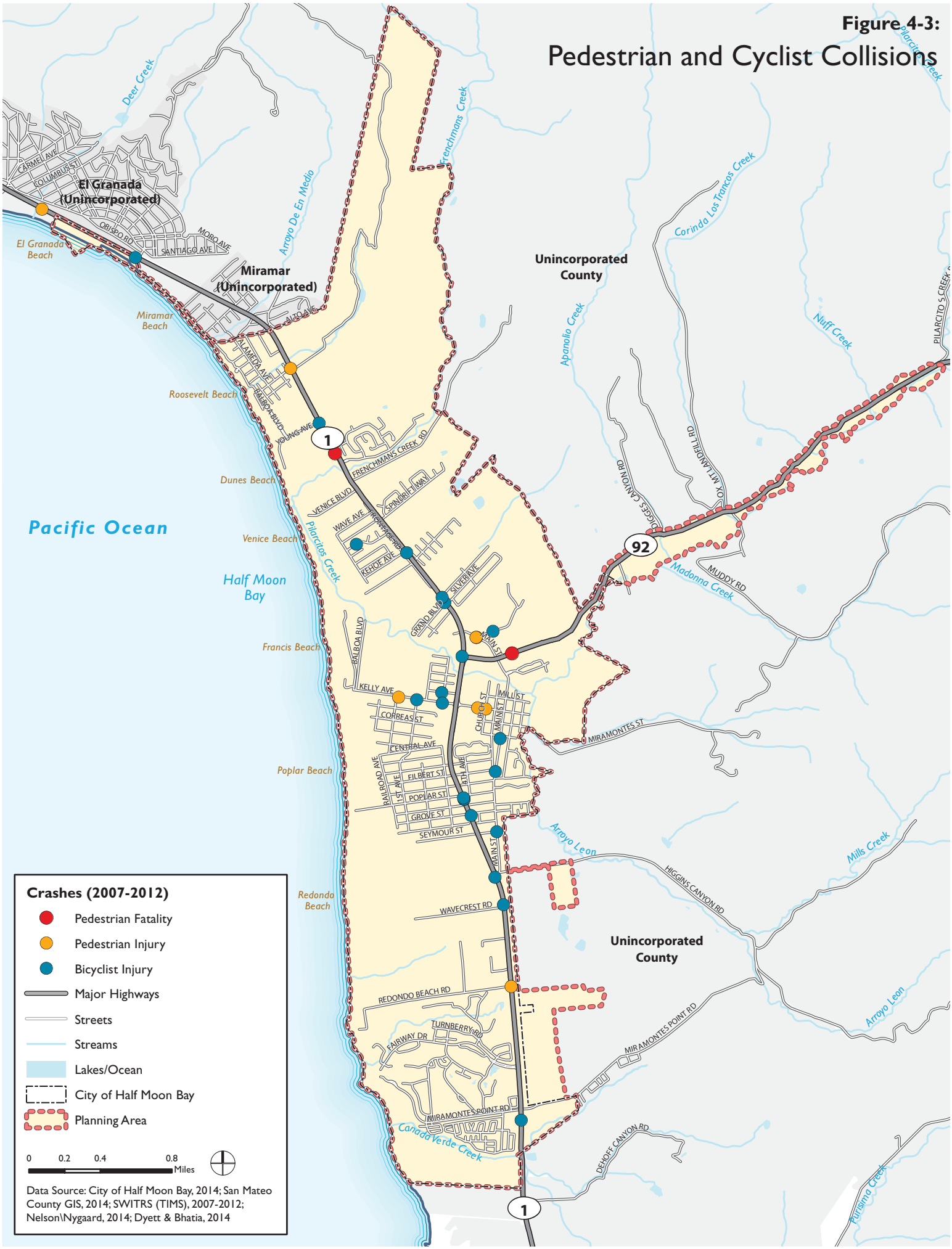
The CBPP also proposes creating a bicycle connection between the California Coastal Trail and Higgins Canyon Road. The type of bicycle facility is not defined in the plan but would start at the terminus of Poplar Street and the California Coastal Trail, and travel along Poplar Street until reaching 2nd or 3rd Avenue, where it would turn south to connect with Seymour Street. The facility would then turn left onto Seymour Street and cross Highway 1, where it would turn right onto Main Street, which connects to Higgins Canyon Road.

PEDESTRIAN AND BICYCLE COLLISIONS

Between the years of 2007 and 2012, there have been 32 collisions involving pedestrians or cyclists (Figure 4-3). Two of these collisions have resulted in pedestrian fatalities; one fatality occurred on Highway 1 between Venice Boulevard and Young Avenue, and the other occurred on SR 92 near Main Street. As shown in Figure 4-3, collisions involving pedestrians and cyclists are concentrated along Highway 1, Main Street, and Kelly Avenue.

Figure 4-3:

Pedestrian and Cyclist Collisions



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KEY PLANNING ISSUES AND IMPLICATIONS

Due to development patterns of the city, there is a lack of direct connectivity between residential neighborhoods in Half Moon Bay outside of the downtown area. Many neighborhoods were formerly agricultural fields along Highway 1. As these agricultural fields were later subdivided into neighborhoods, additional through streets providing a direct connection to adjacent neighborhoods were not constructed; thus Highway 1 still serves as the primary connecting roadway between different areas of the city for pedestrians and cyclists. Due to the lack of connectivity between neighborhoods, residents often must follow circuitous routes that require them to walk to Highway 1 or Highway 92 before they can access adjacent neighborhoods.

However, Highway 1 in its current design is not an ideal primary north-south connector for pedestrians and cyclists. The roadway currently lacks designated pedestrian facilities and access is limited by infrequent crossing opportunities, heavy traffic volumes, and high vehicle speeds. Many intersections have no stop controls or treatments to help pedestrians and bicyclists safely cross the highway. Highway traffic speeds combined with few visual cues or physical treatments to remind drivers to be aware of cross traffic also pose challenges, particularly at uncontrolled crossing locations. The lack of signalized intersections makes it difficult for pedestrians to easily and safely cross these major roadways without walking greater distances to reach a signalized intersection. Even where signalized intersections do exist, green lights are calibrated for vehicles, and do not allow sufficient crossing time for bicycles or pedestrians.

While the Coastal Trail provides a parallel route in the northern part of Half Moon Bay and serves as an alternative to Highway 1, it is difficult to reach from areas east of Highway 1 due to the lack of signalized crossings along Highway 1, and it may not be the most direct route for pedestrians. The planned Class I facility along Highway 1 will increase safety by creating a buffer between cars and pedestrians, and will provide more direct connections to destinations north and south of Half Moon Bay.

Because bicyclists share the road with motorists, signage, lane markings, and further visibility improvements are needed to ensure bicyclist safety. Moreover, the city lacks standards for bicycle parking, overlooking the needs of different bicycle trip types for facilities such as all-day secure parking areas, lockers, bike closets, and easy-to-use bicycle racks. The addition of bicycle parking at major destinations such as Dunes Beach, Venice Beach, and Poplar Beach can encourage cycling by providing cyclists with a more secure place to store their bikes. In addition, developing bicycle parking standards for new development will help ensure that adequate bicycle parking is provided at all new residential and commercial buildings.

There is also an opportunity to create a more comprehensive bicycle network within the city that provides connections between neighborhoods and to major destinations and attractions such as downtown, schools, shopping, beaches, and the Coastal Trail.

4.3 Public Transit Network

Existing transit service to Half Moon Bay is provided by the San Mateo County Transit District, which operates SamTrans, the regional bus service; and RediCoast, a paratransit service.

FIXED ROUTE TRANSIT SERVICE

This section describes existing fixed route transit services operating in Half Moon Bay. These routes are shown in Figure 4-4.

SamTrans Route 17

Route 17 is a coastal community bus that provides weekday service connecting Pacifica, Moss Beach, El Granada, Half Moon Bay, and Pescadero. The route travels along Highway 1, and uses Main Street and Kelly Avenue in downtown Half Moon Bay. On weekdays, Route 17 operates between 5:30 a.m. to 9:00 p.m. with headways ranging from 15 minutes to an hour. Weekend service runs from approximately 5:30 a.m. to 9:30 p.m., with headways of approximately two hours. Service to Pescadero is limited.

SamTrans Route 294

Route 294 is a regional service that connects Half Moon Bay with San Mateo Medical Center, Hillsdale Caltrain Station, Hillsdale Shopping Center, and the College of San Mateo, via SR 92, with a loop in downtown Half Moon Bay. It provides a vital link to the Hillsdale Caltrain station in San Mateo and the rest of the Bay Area. On weekdays, Route 294 operates from 6:00 a.m. until 9:00 p.m. with 60 minute headways. On the weekends, service runs from 5:30 a.m. to 9:30 p.m., with headways ranging from 90 minutes to 2 hours.

DIAL-A-RIDE

Limited, demand-responsive transit services are available inHalf Moon Bay under certain conditions for eligibility.

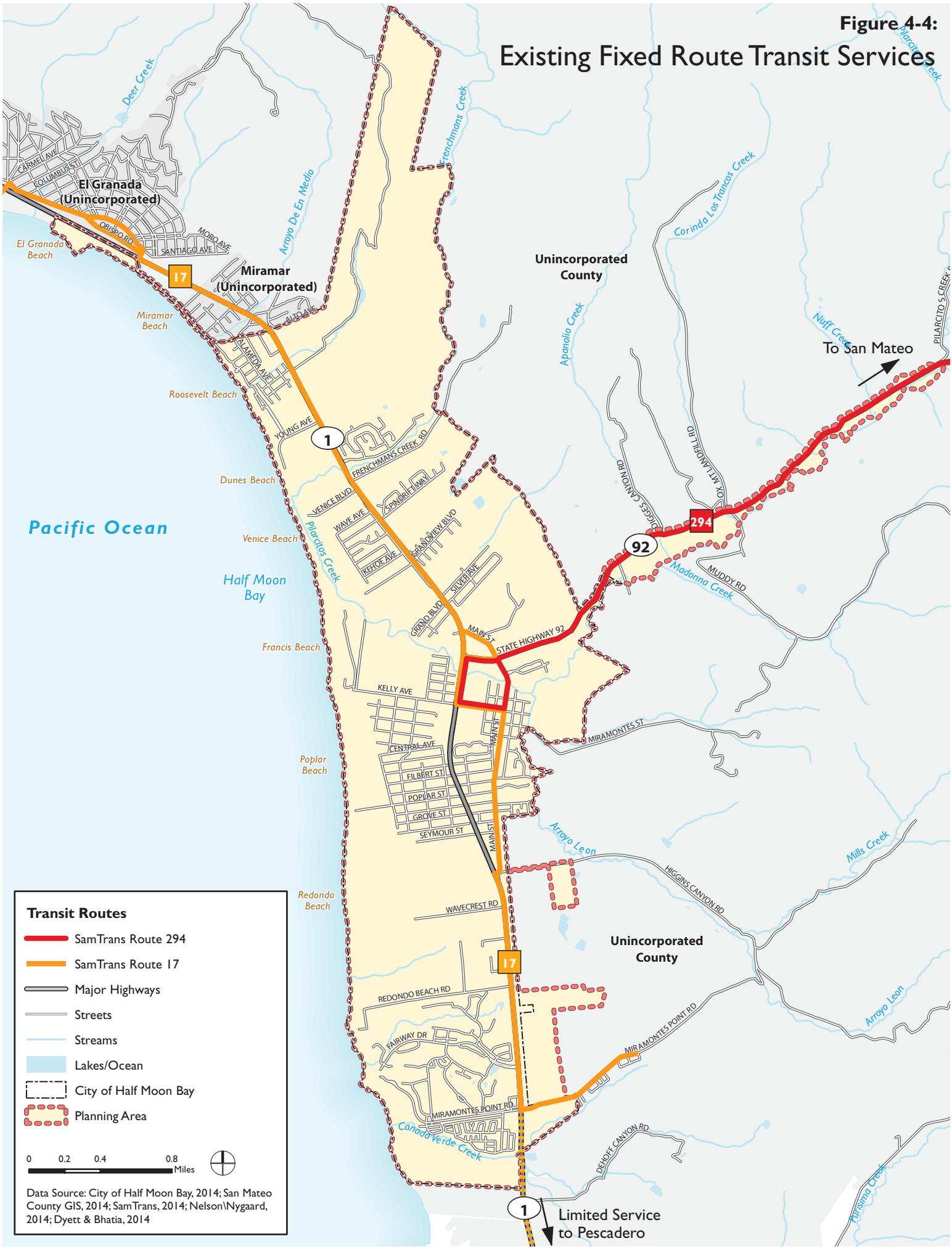
RediCoast

RediCoast is a paratransit service managed by the San Mateo County Transit District. The service is provided under the Americans with Disabilities Act of 1990 (ADA).

RediCoast provides curb-to-curb transportation for disabled citizens living between Devil's Slide and the border of Santa Cruz County, including Princeton, Moss Beach, El Granada, Half Moon Bay, and several other coastal communities. Travel outside of these areas is possible through arrangement with respective paratransit providers (e.g. Redi-Wheels for eastern San Mateo County, Outreach for Santa Clara County, etc.). RediCoast operates weekdays between 6:30 a.m. and 8:00 p.m., and weekends and holidays between 8:00 a.m. and 5:00 p.m. As of 2014, the cost for a one-way trip is $3.75.

Figure 4-4:

Existing Fixed Route Transit Services



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KEY PLANNING ISSUES AND IMPLICATIONS

Half Moon Bay is served by two bus routes, both of which have headways of 60 minutes or more during off peak hours and weekends. This schedule makes it difficult for riders to use public transportation as a primary mode of travel. The lack of more frequent service may become a growing concern, as the city's General Plan forecasts that seniors will increasingly make up a larger percentage of the city's population. With an increasingly aging population, expanded transit options will be needed to ensure access to stores, businesses, medical facilities, and social opportunities for this group as well as others.

In addition, current transit service provides limited connections between Half Moon Bay and the regional transit network including Caltrain and BART. Bus Route 294 provides access to Hillsdale Caltrain Station, however, this route only runs every 60 minutes on weekdays and the bus ride takes 30 minutes. More frequent weekday transit service that provides regional connections could encourage Half Moon Bay residents to choose public transit for their commute and provide seniors with increased access to services.

Another key gap in the existing transit network is the lack of convenient transit options for recreational visitors accessing beaches, marinas, and special events such as the Art and Pumpkin Festival. The increase in vehicular traffic generated by these events puts a strain on Highway 1 and Highway 92 during weekends, and impedes mobility of local residents. Increasing transit headways on the weekend or providing additional service during major events such as the Half Moon Bay Art and Pumpkin Festival would make public transit a more viable option and make transit attractive to a greater number of people, which in turn could help mitigate weekend traffic congestion on Highway 1 and SR 92.

Lastly, existing transit stops lack amenities such as benches, shelters, and trash cans. Improving bus stops by adding amenities such as benches and bus shelters will help create a more comfortable and pleasant waiting environment for transit riders.

4.4 Coastal Access

Half Moon Bay is situated along a beautiful stretch of the California coastline. The city's proximity to the coast provides residents and visitors with numerous opportunities to enjoy the coast and other recreational activities. The following section describes primary access points to the coast, the California Coastal Trail, and coastal recreational areas and facilities that support coastal access.

CALIFORNIA COASTAL TRAIL

The vision for the California Coastal Trail (CCT) is a continuous interconnected public trail system along the California coastline. It is designed to foster appreciation and stewardship of the scenic and natural resources of the coast and serves to implement aspects of Coastal Act policies that promote non-motorized transportation. The trail system is located on a variety of terrains, including the beach, bluff edge, hillsides providing scenic vantage points, and within the highway right-of-way. The trail takes many forms, including informal footpaths, paved sidewalks, and separated bicycle paths. When no alternative exists, it sometimes connects along the shoulder of the

road. While primarily for pedestrians, the CCT also accommodates bicyclists, wheelchair users, equestrians, and others as opportunities allow. The goals and objectives of the CCT are as follows:

- Provide a continuous walking and hiking trail as close to the ocean as possible;
- Provide maximum access for a variety of non-motorized uses by utilizing parallel trail segments where feasible;
- Maximize connections to existing and proposed local trail systems;
- Ensure that the trail has connections to trailheads, parking areas, transit stops, inland trail segments, and the like at reasonable intervals;
- Maximize ocean views and scenic coastal vistas; and,
- Provide an educational experience where feasible through interpretive programs, kiosks, and other facilities.

Existing portions of the California Coastal Trail run in a north-south direction west of Highway 1 in Half Moon Bay. The trail is currently a paved path along the coastal bluffs from Seymour Street to the northern city limits and beyond to Pillar Point Harbor in Princeton-by-the Sea (Figure 4-5). South of Seymour Street to Redondo Beach Road, there is a gap in the trail, though there are a number of informal dirt paths throughout this area. In 2014, the City approved the Wavecrest Coastal Trail Project, which will extend the Coastal Trail south through this area, adding 1,689 feet of formal public access across property owned by the Coastside Land Trust. Formalization of the Coastal Trail through this area will provide a safe route for visitors that directs traffic away from sensitive habitat areas.[2] Between Redondo Beach Road and the southern boundary of the city, the California Coastal Trail is a paved facility. Currently, the trail lacks signage to promote safe usage by pedestrians and cyclists, thus there is no indication of appropriate bicycle speed limits or other instructions regarding shared usage or right of way. ~~the Coastal Trail turns into an informal dirt path. In 2014, the City approved a portion of the Wavecrest trail project that will extend the paved segment of the trail south from Seymour to roughly the midpoint of the shoreline of the North Wavecrest PUD.~~

COASTAL ACCESS AND AMENITIES

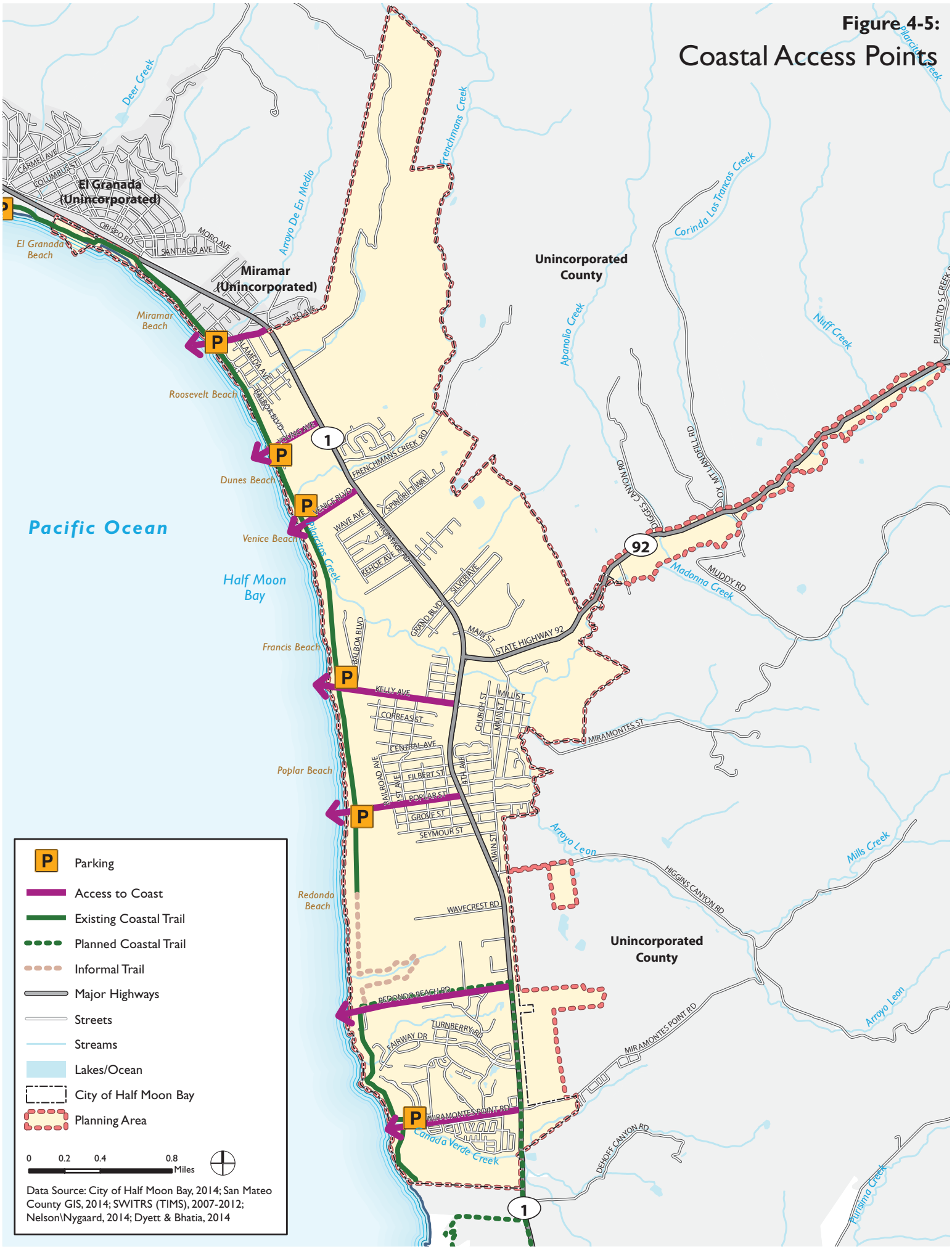
A number of streets and pathways provide a direct connection between Half Moon Bay neighborhoods and the coastline. From north to south, these are:

- Mirada Road
- Young Avenue
- Venice Boulevard
- Kelly Avenue
- Poplar Street
- Redondo Beach Road
- Miramontes Point Road

[2] Placeworks, 2014. Wavecrest Coastal Trail Project Public Review Draft Initial Study.

Figure 4-5:

Coastal Access Points



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWITRS (TIMS), 2007-2012; Nelson\Nygaard, 2014; Dyett & Bhatia, 2014

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Free public parking is provided at the end of Miranda Road, Young Avenue for Dunes Beach, Venice Boulevard for Venice Beach, Kelly Avenue for Francis Beach, and at Miramontes Point Road. Paid public parking is provided at the end of Poplar Street for Poplar Beach. ~~Poplar Street for Poplar Beach, Redondo Beach Road, and Miramontes Point Road.~~ On the weekends and during special events these lots often fill up. As a result beach users often park on residential streets.

Kelly Avenue provides the most direct beach connection from downtown, and the Half Moon Bay State Beach Visitor Center is located at its terminus. Half Moon Bay State Beach Park encompasses Venice Beach, Dunes Beach, and Francis Beach. Campsites and shower facilities are located at Francis Beach and Venice Beach.

KEY PLANNING ISSUES AND IMPLICATIONS

Currently, there is a lack of clear wayfinding signage indicating access points to the coastline from Highway 1. During high demand periods such as weekends, the lack of signage causes additional congestion as cars search for access points and parking. Additional wayfinding signage can help direct vehicles to designated parking areas and can also direct pedestrians to designated access points, helping to prevent environmental damage and erosion due to the use and creation of informal paths.

The lack of signalized intersections along Highway 1 make accessing recreational areas along the coast difficult for pedestrians and cyclists east of Highway 1 as well as cars driving northbound on Highway 1, which have to cross oncoming traffic. During peak periods, parking facilities are often filled to capacity, resulting in spillover parking on residential streets. However, the lack of direct and safe bicycle access and crossings makes it difficult to access the shoreline via non-auto modes. For example, Kelly Avenue connects downtown to the coast and Half Moon Bay State Beach Visitors Center, however, west of Highway 1 there are no sidewalks along this roadway.

Upgrading pedestrian and bicycle connections and crossings to the coastline can help increase the use of these modes which in turn can help relieve parking constraints and congestion during the peak demand periods. Protected crossings along Highway 1, and provision of sidewalks and designated bicycle facilities are a few types of improvements that can enhance access and increase pedestrian and cyclist safety.

4.5 Parking

The following section describes on- and off-street parking conditions in Half Moon Bay as well as parking requirements for new development.

ON-STREET PARKING

On-street parking is free throughout Half Moon Bay. There are no time restrictions with the exception of Main Street and its side streets, which have a two-hour time limit. Within downtown the majority of parking is provided on-street with both parallel and angled on-street spaces.

A downtown parking survey was conducted from May 2011 to June 2011 to determine the location and times of the highest parking occupancy rate. May and June represent months of peak demand in Half Moon Bay, particularly during weekends. The survey showed that during this time, the average parking occupancy level in downtown Half Moon Bay was 50 percent. The highest occupancy rate (close to 100 percent) was observed during the afternoon hours. The peak weekend occupancy rate lasted from late morning to early evening on Saturdays and Sundays. Streets parallel to Main Street in downtown had much lower parking occupancy rates in comparison to Main Street.

OFF-STREET PARKING

There are a number of private and public off-street parking facilities located in Half Moon Bay and near the coastline. Within downtown, public off-street parking lots are located near City Hall, the Ted Adock Community Center, and the Half Moon Bay Library. A few downtown businesses provide off-street parking for their patrons, but the majority of customer parking is provided on-street.

Private off-street parking facilities are provided near commercial development such as shopping centers outside of downtown, as well as at various industrial and agricultural businesses. Parking at Half Moon Bay schools is designed to accommodate pick-ups and drop-offs, and staff and student parking.

Public parking is provided at most vehicular access points to the coast including at the end of Mirada Road, Young Avenue for Dunes Beach, Venice Boulevard for Venice Beach, Kelly Avenue for Francis Beach, Poplar Street for Poplar Beach, Redondo Beach Road, and Miramontes Point Road for recreational users. The lots at Dunes, Francis, and Venice beaches are part of Half Moon Bay State Beach, and are managed by the State. The cost of parking in the State Beach lots is 10 dollars per vehicle.[3] The lots at Poplar and Redondo eaches are managed by the City of Half Moon Bay and San Mateo County. Cost of parking in the Poplar Beach lot is 2 dollars per hour or 10 dollars per day for vehicles less than 20 feet, and 3 dollars per hour or 15 dollars per day for horse trailers and vehicles longer than 20 feet.[4] Parking is free at Redondo Beach Road and Miramontes Point Road, though the lot at Redondo Beach is unpaved, and capacity at Miramontes Point Road is limited to 15 spaces.

On the weekends and during special events these lots often fill up, resulting in spillover parking on residential streets.

Off-Street Parking Requirements for New Development

Parking requirements for a selected range of land use types are listed below, per the City's zoning code

[3] California Department of Parks and Recreation, 2014.

[4] City of Half Moon Bay, 2014.

Table 4-2: Off-Street Parking Requirements

Land Use	*Number of Spaces Required*
Single-family	2 garage spaces per unit
Apartments	2 garage spaces per unit plus 1 guest space for each 5 units
Hotel	1 space for each room 1 space for each employee
Medical offices, banks	4 spaces per 1,000 sq. ft. for the first 10,000 sq. ft. 3.33 spaces per 1,000 sq. ft. for all area over 10,000 sq. ft.
Restaurants	1 space per 45 sq. ft. public service area plus 1 space per employee
Retail	4 spaces per 1,000 sq. ft. for first 10,000 sq. ft 3.33 spaces per 1,000 sq. ft. for buildings over 10,000 sq. ft.

KEY PLANNING ISSUES AND IMPLICATIONS

Currently, the provision of special event parking is considered the responsibility of the event promoter. Parking management for events is addressed as part of the city's special events permitting process. Parking demand increases during special events and on weekends. Provisions intended to help address such increases include allowing drivers to park along the shoulder of Highways 1 and 92 and in certain private parking facilities. However, despite these measures, it can be a challenge for visitors to locate available parking during special events.

At peak times, visitor parking spills over onto nearby residential streets. In order to accommodate this demand, promoters could work with the City to explore the feasibility of additional parking options, including opening up additional private parking facilities to the public to expand the parking supply. In addition, if parking spill-over is determined to be a problem, the City could consider restricting on-street parking over two hours in residential zones to residents with the implementation of a residential parking permit program.

In the downtown area, parking located in front of businesses is often used by employees and business owners, forcing customers to park farther away. The expansion of time limits to other streets in the downtown area could be used to encourage employees and business owners to park farther away from their stores, opening up more convenient parking for customers.

The City amended the Zoning Ordinance in 2013 to exempt uses in the Commercial – Downtown zoning district from requirements that would otherwise require the provision of additional parking to accompany any change in use, increase in floor area, or increase in the number of employees on a given site (see Section 18.36.020(b) of the Zoning Ordinance). The amendment was made based on findings that while parking demand may increase on Main Street during peak hours, the remainder of the downtown area's parking supply is undertutilized. The City found that while parking on Main Street may approach capacity during peak demand periods, there is generally ample parking remaining on downtown side streets, and on Johnston and Purissima streets, which parallel Main Street. This determination relied on the results of a 2011 downtown parking

survey that found that the full supply of 478 downtown parking spaces never reached 100-percent occupancy even during peak periods.

4.6 2013 Half Moon Bay Circulation Element Improvements

The 2013 Half Moon Bay Circulation Element includes several necessary infrastructure improvements. Most of the improvements from the previous Circulation Element were implemented, but some have not yet been completed. Many of these uncompleted improvements remain relevant for the updated Circulation Element and are therefore retained. Additional improvements were identified before and during the process of preparing the Circulation Element update and are included.

A description of each planned improvement is provided in this section. The planned improvements are described in the following categories:

- **Near-Term Improvements.** These are funded improvements that are currently or will be under construction in the near future as of the time the Circulation Element was prepared in 2013. These improvements also include projects that are waiting for a Coastal Development Permit.
- **Long-term Improvements.** These improvements are not funded at this time and will be pursued when funding becomes available.
- **Conceptually Defined Improvements.** Improvements that have been defined at a conceptual level to which the Element provides the over-arching policy guidance for implementation; however, the detailed design characteristics for these improvements are not established at this time. In some cases, future studies will be required.

The improvements outlined in this section are intended to accommodate the existing and future travel needs generated as the city approaches buildout based upon the existing General Plan and Local Coastl Program Land Use Plan. Ongoing monitoring studies will evaluate future needs as the land use patterns of the city evolve. It may not be necessary to implement all of the improvements identified. It may also be necessary to periodically amend the Circulation Element to include other improvements within the physical, practical, environmental, fiscal, and social constraints that are identified at the time implementation of any improvement is proposed. Adjustments to the Circulation Element are expected as part of the comprehensive General Plan update process now underway.

VEHICLE CIRCULATION

Planned roadway improvements identified in the 2013 Half Moon Bay Circulation Element are presented in Figure 4-6. These include specific near-term and long–term improvements as well as improvements that have only been defined conceptually at this time.

Near-Term Improvements

Funded Improvements for which a Coastal Development Permit is being pursued include the following:

- Highway 1 would be widened to two lanes in each direction at Terrace Avenue to connect to the existing two-lane sections south of Silver Avenue, the intersection would be signalized, and the existing frontage road on the west side of Highway 1 would be rerouted for Highway access at this intersection.
- The Highway 1/Higgins Canyon Road/Main Street intersection would be reconfigured for improved safety, and left turn lanes would be added on Highway 1 at Wavecrest Road.

Long-Term Improvements

Improvements not yet funded, to be pursued at a later date when funding becomes available include the following:

- Highway 1 would be widened to three lanes with a center two-way left turn lane south from Wavecrest Road to the existing four-lane section at Fairway Drive.
- Two-lane segments would generally be upgraded to three lanes consisting of a single through lane in each direction with shoulders on both sides and a continuous two-way left turn lane between intersections which would in turn become an exclusive left turn lane at signalized intersections. Separate right turn lanes would also be included at intersections experiencing significant right turn traffic volumes.
- Highway 1 would be widened to four lanes at all signalized intersections to minimize delay associated with the installation of signals.
- The intersection of Roosevelt Boulevard with Highway 1 would be reconfigured to incorporate Gate 3 of the Nurserymen's Exchange as a fourth leg and be signalized. The realigned Gate 3 would become the primary entrance to Nurserymen's' Exchange to facilitate traffic safety. Alternatively traffic signalization may be at another intersection in this vicinity depending upon land use changes and traffic signal warrant studies.
- The intersection at Young Avenue and Frenchmans Creek Road would be restricted to right-only turning movements onto Highway 1 stop-controlled from minor approaches.

Conceptually Defined Improvements

Improvements that have been defined at a conceptual level but for which detailed design characteristics for these improvements are not established at this time include the following:

- Alternative Parallel Routes for Highway 1 and other New Roads: Half Moon Bay's circulation system will consist of an interconnected network for all modes including emergency egress which provides redundancy, convenience, and safety in a neighborhood compatible context. New roads will also be implemented, along with new development as it comes forward, that could provide for parallel access or improved connectivity.

- Improvements on Main Street and SR 92 – Analysis of level of service (LOS) on Main Street and SR 92 indicated that additional improvements would be required on SR 92 at the intersection with Main Street to bring the intersection within the LOS standard of the city.

- The City is initiating preliminary planning to add adequate width to shoulders along both sides of Highway 92 up to the Pilarcitos Creek crossing, and left turn lanes at certain driveways.

PARKING

The updated Circulation Element calls for the City to review parking standards from time to time as conditions change in order to meet certain goals and needs or more generally to achieve balance or outcomes desired by the City compatible with the General Plan (e.g. ensure that parking standards do not hinder good development or appropriate use of vacant commercial space). Implementing actions include the review and updating of parking standards to support secure bicycle parking at new developments and to incentivize the use of transit and other alternative modes while also ensuring that parking supply matches the needs of the city's commercial areas. These measures would have the goal of providing efficient and safe parking environments while servicing the unique land use needs of the City of Half Moon Bay. Smart parking technology would aid in identifying shifting demands and capacities depending on the time of day and would aid in reducing the amount of circling vehicles looking for parking spaces.

Parking standards for a wide range of alternative-mode vehicle and user types including bicycles, transit, hybrid and electric vehicles, and motorcycles can be implemented as trends, technology, and other conditions change and emerge.

EMERGENCY ACCESS

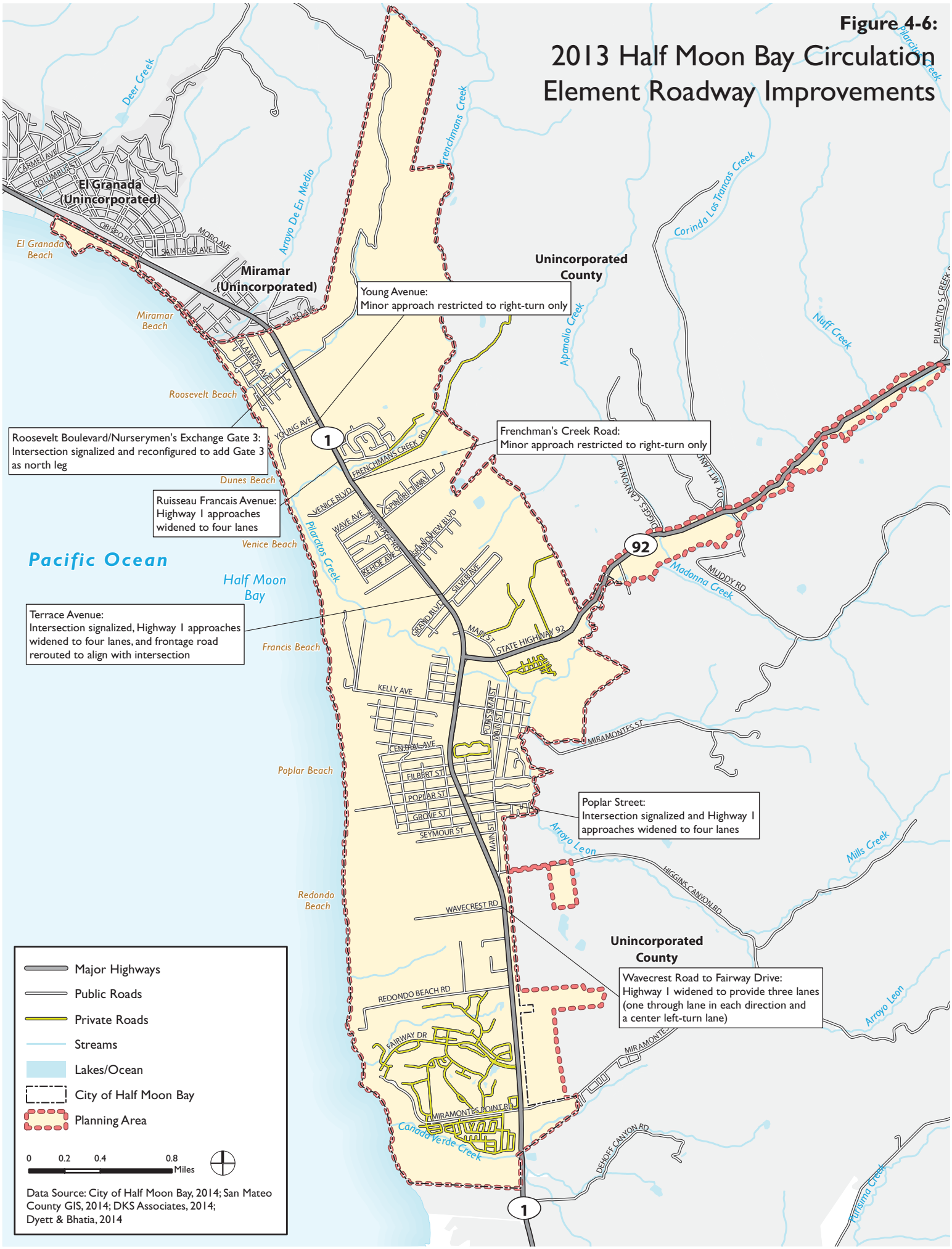
Following Circulation Element guidance, emergency access improvements for Half Moon Bay are to be developed by the City of Half Moon Bay in collaboration with Caltrans and first responder organizations including police, fire and emergency medical.

SCENIC ROUTES

The Circulation Element states that improvements of roads or other transportation facilities with scenic views should be made in collaboration with Caltrans, California State Parks, and the California Coastal Commission. The City should adopt guidelines that will protect the scenic quality of routes that provide access to the beaches and other scenic areas. The guidelines should help protect the sense of openness that is characteristic of Half Moon Bay, and maintain the views of the ocean. Circulation system improvements should be subordinate to the character of the visual resources of the area.

Figure 4-6:

2013 Half Moon Bay Circulation Element Roadway Improvements



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BICYCLE AND PEDESTRIAN IMPROVEMENTS

The 2013 Draft Circulation Element update identifies near- and long-term bicycle and pedestrian improvements.

Near-term Improvements

Near-term improvements are defined as projects that have received funding and a Coastal Development Permit, and include the following:

- Completion of the Class I multi-use trail that travels along Highway 1. The construction of the following segments would complete the trail:
    - Between Roosevelt Boulevard and Ruisseau Francais Avenue on the east side of Highway 1
- Traffic signal updates throughout Half Moon Bay including:
    - Pedestrian count-down indicators on all signalized crosswalks
    - Crosswalk signal crossing adjustments to accommodate slower walking speeds
    - Bicycle signal detector loops
    - Pedestrian refuge spaces on wide road crossings

Long-term Improvements

Planned long-term improvements are defined as those projects that have not yet been funded but will be pursued at a future date. These improvements include:

- Highway 1 multi-use trail extension north of Roosevelt Boulevard to Alta Way
- Highway 1 multi-use trail extension from Wavecrest Road to the south city limits

Conceptually Defined Improvements

Conceptually Defined Improvements are those project that have not yet been funded and have yet to be designed.

- **Bicycle/Pedestrian Crossings of Highway 1:** The 2013 Half Moon Bay Circulation Element Update proposes multiple, convenient, and safe crossings of Highway 1 for pedestrians and bicyclists. A variety of improvements could be made at various locations up and down the highway; e.g. additional signalized intersections with crosswalks; high visibility crosswalks; or pedestrian controlled crossing signals could all provide for bicycles and pedestrians to more readily cross Highway 1. The potential for under- or over-passes is likely limited. However, such facilities could also serve the intent of the Element. The number, location, and specific design of such crossing facilities are not known at this time. Any such crossing would be subject to Caltrans approval.
- **Bicycle/Pedestrian Way Connections:** Linkages for bicycle and pedestrian modes between existing and planned bicycle and pedestrian facilities will be identified and implemented after future study. For example, there are no defined connections between the coast-side multi-use trail and the multi-use trail that runs parallel to the west side of

Highway 1. One or more such linkages will be identified and the linkages may be incorporated into existing facilities, or developed as separate access routes, be they trails, lanes, paths, routes, sidewalks, etc. Pedestrian infrastructure typically includes shared use or pedestrian-only trails, bicycle and pedestrian bridges, sidewalks, and other public spaces. Some of the recommended pedestrian and bicycle trail connections and improvements are as follows:

- A new off-street multi-purpose trail serving neighborhoods and destinations east of Highway 1could provide a connection(s) between neighborhoods and schools east of Highway 1 including Half Moon Bay High School.
- Extension of the California Coastal Trail approximately 2,100-feet south of Seymour Creek to connect to Wavecrest Road.
- A multi-use trail connection between Main Street and the existing Pilarcitos Creek trail under Highway 1 along the on north side of creek to link with commercial areas downtown.
- Designate certain key roadways within developments as bike boulevards. The Circulation Element Update proposed these designations to provide possible connections between the California Coastal Trail and the end of Washington Boulevard.
- Designation of additional streets as Class III bike routes with sharrows to establish connections between the California Coastal Trail, the Naomi Patridge Trail (Highway 1 Trail) and Main Street.
- Designation of Main Street as a Class III bike route with sharrows.

Improvements to wayfinding and signage along all trails with trail map information and distances to travel to key destinations.

OTHER MODES

Future improvements for air and water transportation will, for the most part, involve facilities that are outside the control of the City of Half Moon Bay. The Circulation Element calls on the City to continue to collaborate with Half Moon Bay Airport Authority and San Mateo County on issues related to air travel. On issues related to water travel, the City should collaborate with the San Mateo County Harbor District and private operators of marinas. The City has more control over improvements to equestrian trails and other facilities in Half Moon Bay and should work collaboratively with local stable owners and equestrian enthusiasts on plans for improvement and maintenance of facilities.

5 Environmental Resources and Hazards

5.1 Biological Resources

This section discusses the presence of biological resources within the Half Moon Bay General Plan Update (GPU) Planning Area (Planning Area), and identifies potential natural resource constraints that may be present and require consideration in the event of future development or changes in existing land use associated with the proposed GPU. Where applicable, this chapter identifies recommended measures that could be incorporated into future project plans and implemented prior to and during proposed development. Existing biological conditions are discussed below, along with biological constraints and opportunities identified in the Planning Area.

Information gathered for this section was obtained through review of existing documents, use of existing digital data, and field surveys. Document and digital data review included information from federal, state, and local resource agencies and databases, including:

- National Wetlands Inventory (NWI)
- California Natural Diversity Database (CNDDB)
- Species lists from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and California Native Plant Society (CNPS)
- Aerial photography of the Planning Area in Google Earth

The following documents were among those reviewed in preparation of this section. A full list of references is included at the end of the report.

- City of Half Moon Bay, General Plan/Coastal Plan, 2000 Draft
- City of Half Moon Bay, Local Coastal Program Land Use Plan, 1993
- California Coastal Act

SWCA biologists Benjamin Hart and Kristen Outten conducted general habitat reconnaissance surveys throughout the Planning Area on January 30, 2014. Because the intent of this document is to provide a general assessment of biological constraints, extensive surveys for flora and fauna were not conducted. As a result, this report does not represent a complete inventory of the biological resources in the Planning Area. Additional site-specific surveys, including seasonally-timed botanical surveys, wildlife surveys, and detailed wetland delineations would be needed to develop an inclusive inventory of the Planning Area's resources, and to allow quantification of potential impacts to specific biological resources that may result from future development.

REGIONAL SETTING

The Planning Area contains a diverse mixture of plant communities and habitat types adapted to the coastal zone, topography and soils, and historical uses of the region. These habitats provide foraging, nesting, breeding, and shelter opportunities for numerous species that are considered rare, threatened, endangered, or of special concern to natural resources agencies such as the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). The Planning Area is generally bounded by the Santa Cruz Mountains along the eastern edge, the community of El Granada to the north, the Pacific Ocean to the west, and agricultural lands to the south. Numerous habitat types are present in the region that are unique to coastal areas along the Pacific Ocean, including some that are considered sensitive to the CDFW and California Coastal Commission (CCC)[1], or that have been designated by the USFWS as critical habitat for threatened or endangered species.

The northern portion of the Planning Area includes two arms that run to the northwest and northeast from the northern edge of the City of Half Moon Bay boundary. The northwestern arm is narrow and runs along a thin strip of sandy beach between Pillar Point Harbor and Miramar Beach approximately one mile to the south. The northeastern arm stretches into the coastal hills and covers a large area of relatively undeveloped central coastal scrub and Monterey pine forest bounded to the east by Frenchmans Creek. The width of the Planning Area expands south of these two arms, and includes sandy beach, sea cliffs, central dune scrub, and central coastal scrub along the western margin near the ocean, and a mix of agricultural, developed, central coastal scrub, and non-native grassland habitats inland from the coast. Interspersed within these habitats are pockets of eucalyptus forest, Monterey pine forest, Monterey cypress forest, and riparian corridors where coastal streams including Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek flow through the Planning Area to the Pacific Ocean. Isolated areas of coastal and valley freshwater marsh and vernal marsh are located within central coastal scrub and non-native grassland habitats east and west of Highway 1. Developed, ruderal, and landscaped areas are present throughout the Planning Area in the form of disturbed roadside areas, residential neighborhoods, agricultural operations, retail facilities, and golf courses (refer to Figure 5-1).

Occurrences of special-status plant and animal species recorded in the CNDDB are primarily located near riparian corridors along the creeks, and at wetlands located in central coastal scrub habitat, at stock ponds associated with agricultural and ranching operations, and near golf course ponds in the southern portion of the Planning Area. Nesting habitat for avian species protected by the Migratory Bird Treaty Act (MBTA) is present throughout the Planning Area.

The mild Mediterranean climate of the area and coastal influence produce summer temperatures averaging 52 to 66 degrees Fahrenheit (°F), winter temperatures averaging 42 to 60 °F, and annual precipitation averaging approximately 29 inches. Fog and onshore wind from the northwest are common throughout the year along the San Mateo coastline. A wide variety of soils is present in

[1] California Coastal Commission (CCC). 2013. LCP Update Guide Section 4. Environmentally Sensitive Habiats and Other Natural Resources.

the Planning Area, ranging from beach sand to clay loam, silt loam, and sandy loam. Most soils underlying the Planning Area are derived from alluvial sources.[2]

REGULATORY SETTING

Federal Policies and Regulations

Section 404 of the Clean Water Act of 1977

Pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), the U.S. Army Corps of Engineers (USACE) is responsible for the issuance of permits for the placement of dredged or fill material into "Waters of the U.S." As defined by USACE at 33 CFR 328.3(a)(parts 1-6), the following summarizes Waters of the U.S.:

> *Those waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; tributaries and impoundments to such waters; all interstate waters including interstate wetlands; and territorial seas.*

Waters of the U.S. are typically identified by the presence of an ordinary high water mark and connectivity to traditional navigable waters or other jurisdictional features. If a project would result in dredge or fill of USACE jurisdictional waters, the project would be subject to USACE review under Section 404 of the Clean Water Act. Based on Planning Area characteristics, Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, Canada Verde Creek, and all adjacent wetlands are likely to be waters of the United States. Activities resulting in dredge or fill of these features would be subject to Section 404 of the Clean Water Act, and may require a permit from the USACE.

Section 401 of the Clean Water Act of 1977

Section 401 of the Clean Water Act and its provisions ensure that federally permitted activities comply with the federal Clean Water Act and state water quality laws. Section 401 is implemented through a review process that is conducted by the Regional Water Quality Control Board (RWQCB), and is triggered by the Section 404 permitting process. The RWQCB, through the 401 process, certifies that a proposed project complies with applicable effluent limitations, water quality standards, and other conditions of California law. Evaluating the effects of the proposed project on both water quality and quantity falls under the jurisdiction of the RWQCB. Future development activities that have the potential to result in impacts to water quality and quantity would require 401 Water Quality Certification by the RWQCB.

Federal Endangered Species Act of 1973

The Federal Endangered Species Act (ESA) provides legislation to prevent 'take' of federally listed plant and animal species. Take, as defined in Section 3(19) of the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such

[2] U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). Soil Survey GIS Data. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

conduct." The USFWS and NOAA Fisheries are the agencies that are responsible for the management of federally listed species. USFWS and NOAA Fisheries also regulate activities conducted in federal critical habitat, which are geographic units designated as areas that support primary habitat constituent elements for listed species.

Take of federally listed species or critical habitat that could potentially result from the implementation of a project in the Planning Area would require the responsible agency or individual to formally consult with the USFWS or NOAA Fisheries to determine the extent of impact to the species or designated critical habitat. If, during consultation, the USFWS or NOAA Fisheries determines that impacts would likely occur, alternatives and measures to avoid or reduce impacts or to mitigate for unavoidable impacts must be identified. Typically, a Biological Assessment (BA) is prepared to identify federally listed species or critical habitat that may occur in the project area, potential impacts that may result from project implementation and avoidance and mitigation measures that would reduce potential impacts to less than significant levels. The USFWS and/or NOAA Fisheries then prepare a Biological Opinion (BO) that outlines the findings of their review and includes applicable recommendations for measures to be implemented during construction that would minimize potential impacts to federally listed species or critical habitat.

Migratory Bird Treaty Act of 1918

The MBTA protects all migratory birds, including their eggs, nests, and feathers, and was originally drafted to put an end to the commercial trade in bird feathers, popular in the latter part of the 1800s. The MBTA is enforced by the USFWS, and potential impacts to species protected under the MBTA are evaluated by the USFWS in consultation with other federal agencies. For projects conducted in the Planning Area that could impact nesting migratory bird species, predisturbance nesting bird surveys would be required to identify any active nests, and to establish nest avoidance buffers as appropriate to minimize potential impacts to nesting migratory birds.

State Policies and Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) ensures legal protection for plant and wildlife species listed as rare, threatened, or endangered. Section 2080 of the California Fish and Game Code prohibits 'take' of any species that the commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

CESA allows for take of state-listed species incidental to otherwise lawful development projects. Sections 2081(b) and (c) of the CESA allow the CDFW to issue an incidental take permit (ITP) for a State listed threatened and endangered species if the following criteria are met:

- The authorized take is incidental to an otherwise lawful activity
- The impacts of the authorized take are minimized and fully mitigated
- The measures required to minimize and fully mitigate the impacts of the authorized take are roughly proportional in extent to the impact of the taking on the species, maintain the

applicant's objectives to the greatest extent possible, and are capable of successful implementation

- Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures
- Issuance of the permit will not jeopardize the continued existence of a State-listed species

California Coastal Act

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes:

> *"Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals."*

The CCC must evaluate proposed impacts to wetlands. In Half Moon Bay, this is conducted by the City through the Local Coastal Program. For wetland delineations in the Coastal Zone, the CCC utilizes a single-parameter definition (in addition to the USACE three parameter methodology). Delineations performed using the CCC definition generally results in larger wetland areas than a corresponding USACE delineation of the same site, due to the difference in identifying criteria between methods. All creeks, drainages and freshwater wetlands observed in the Planning Area meet the CCC definition of wetland. Impacts to these features would be subject to review by the CCC and must conform to Coastal Act/Local Coastal Program requirements. Coastal Act policies relating to biological resources are provided below.

Section 30230. Marine resources; maintenance

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231. Biological productivity; water quality

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233. Diking, filling or dredging; continued movement of sediment and nutrients

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30235. Construction altering natural shoreline

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

Section 30236. Water supply and flood control

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Section 30240. Environmentally sensitive habitat areas; adjacent developments

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 1602 of the California Fish and Game Code

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the law requires any person, state or local government agency, or public utility proposing a project that may impact a river, stream, or lake to notify the CDFW before beginning the project. If the CDFW determines that the proposed project may adversely affect existing aquatic fish and wildlife resources, a Lake or Streambed Alteration Agreement is required. A Streambed Alteration Agreement lists the CDFW conditions of approval relative to the proposed project, and serves as an agreement between an applicant and

the CDFW for the performance of activities subject to this section. A Streambed Alteration Agreement from the CDFW would be required prior to any direct or indirect impact to streambeds, banks, channels or associated riparian resources in the Planning Area.

Other Sections of the California Fish and Game Code

"Fully Protected" species may not be taken or possessed without a permit from the Fish and Game Commission and/or the CDFW. Information on these species can be found within section 3511 (birds), section 4700 (mammals), section 5050 (reptiles and amphibians), and section 5515 (fish) of the Fish and Game Code.

Local Policies

City of Half Moon Bay Local Coastal Plan

The Coastal Act requires every city and county along the coast to prepare and adopt a Local Coastal Program (LCP) consistent with the Coastal Act for all areas within the Coastal Zone. One of the main goals of the Coastal Act is to protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and man-made resources. Because the entire city falls within the Coastal Zone, an LCP was adopted in 1993 that includes the following policies to protect natural resources:

3-1 Definition of Sensitive Habitats

a. Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and as those areas which meet one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tidelands and marshes, (4) coastal and offshore areas containing breeding and/or nesting sites and coastal areas used by migratory and resident water-associated birds for resting and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

   Such areas include riparian areas, wetlands, sand dunes, marine habitats, sea cliffs, and habitats supporting rare, endangered, and unique species.

3-2 Designation of Sensitive Habitats

a. Designate sensitive habitats as those, including but not limited, shown on the Habitat Areas and Water Resources Overlay.

3-3 Protection of Sensitive Habitats

a. Prohibit any land use or development which would have significant adverse impact on sensitive habitat areas.

b. Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the environmentally sensitive

habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats.

3-4 Permitted Uses in Sensitive Habitats

a. Permit only resource dependent or other uses which will not have a significant adverse impact in sensitive habitats.

b. In all sensitive habitats, require that all permitted uses comply with U.S. Fish and Wildlife and State Department of Fish and Game regulations.

3-5 Permit Conditions

a. Require all applicants to prepare a biologic report by a qualified professional selected jointly by the applicant and the City to be submitted prior to development review. The report will determine if significant impacts on the sensitive habitats may occur, and recommend the most feasible mitigation measures if impacts may occur.

The report shall consider both any identified sensitive habitats and areas adjacent. Recommended uses and intensities within the habitat area shall be dependent on such resources, and shall be sited and designed to prevent impacts which would significantly degrade areas adjacent to the habitats. The City and the applicant shall jointly develop an appropriate program to evaluate the adequacy of any mitigation measures imposed.

b. When applicable, require as a condition of permit approval the restoration of damaged habitat(s) when in the judgment of the Planning Director, restoration is partially or wholly feasible.

3-6 Allocation of Public Funds

a. In setting priorities for allocating limited local, State, or Federal public funds for preservation or restoration, use the following criteria: (1) biological and scientific significance of the habitat, (2) degree of endangerment from development or other activities, and (3) accessibility for educational and scientific uses and vulnerability to overuse.

Riparian Corridors

3-7 Definition of Riparian Corridors

a. Define riparian corridors by the "limit of riparian vegetation" (i.e., a line determined by the association of plant and animal species normally found near streams, lakes and other bodies of freshwater: red alder, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder). Such a corridor must contain at least a 50% cover of some combination of the plants listed.

3-8 Designation of Riparian Corridors

a. Establish riparian corridors for all perennial and intermittent streams and lakes and other bodies of freshwater in the Coastal Zone. Designate those corridors shown on the Habitat Areas and Water Resources Overlay and any other riparian area as

sensitive habitats requiring protection, except for manmade irrigation ponds over 2,500 sq. ft. surface area.

3-9 Permitted Uses in Riparian Corridors

a. Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

b. When no feasible or practicable alternative exists, permit the following uses: (1) stream-dependent aquaculture, provided that non-stream-dependent facilities locate outside of corridor, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, (3) bridges when supports are not in significant conflict with corridor resources, (4) pipelines and storm water runoff facilities, (5) improvement, repair or maintenance of roadways or road crossings, (6) agricultural uses, provided no existing riparian vegetation is removed, and no soil is allowed to enter stream channels.

3-10 Performance Standards in Riparian Corridors

a. Require development permitted in corridors to: (1) minimize removal of vegetation, (2) minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas, (3) minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas, (4) use only adapted native or non-invasive exotic plant species when replanting, (5) provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game, (6) minimize adverse effects of waste water discharges and entrainment, (7) prevent depletion of groundwater supplies and substantial interference with surface and subsurface waterflows, (8) encourage waste water reclamation, (9) maintain natural vegetation buffer areas that protect riparian habitats, and (10) minimize alteration of natural streams.

3-11 Establishment of Buffer Zones

a. On both sides of riparian corridors, from the "limit of riparian vegetation" extend buffer zones 50 feet outward for perennial streams and 30 feet outward for intermittent streams.

b. Where no riparian vegetation exists along both sides of riparian corridors, extend buffer zones 50 feet from the predictable high water point for perennial streams and 30 feet from the midpoint of intermittent streams.

c. Along lakes, ponds, and other wet areas, extend buffer zones 100 feet from the high water point except for man-made ponds and reservoirs used for agricultural purposes for which no buffer zone is designated.

3-12 Permitted Uses in Buffer Zones

a. Within buffer zones, permit only the following uses: (1) uses permitted in riparian corridors, (2) residential uses on existing legal building sites, set back 20 feet from the limit of riparian vegetation, only if no feasible alternative exists, and only if no other

building site on the parcel exists, (3) crop growing and grazing consistent with Policy 3-9, (4) timbering in "streamside corridors" as defined and controlled by State and County regulations for timber harvesting, and (5) no new parcels shall be created whose only building site is in the buffer area. except for parcels created in compliance with Policies 3-3, 3-4, and 3-5 if consistent with existing development in the area and if building sites are set back 20 feet from the limit of riparian vegetation or if no vegetation 20 feet from the bank edge of a perennial and 20 feet from the midpoint of an intermittent stream.

3-13 Performance Standards in Buffer Zone

a. Require uses permitted in buffer zones to: (1) minimize removal of vegetation, (2) conform to natural topography to minimize erosion potential, (3) make provisions (i.e., catch basins) to keep runoff and sedimentation from exceeding pre-development levels, (4) replant where appropriate with native and non-invasive exotics, (5) prevent discharge of toxic substances, such as fertilizers and pesticides, into the riparian corridor, (6) remove vegetation in or adjacent to man-made agricultural ponds if the life of the pond is endangered, (7) allow dredging in or adjacent to man-made ponds if the San Mateo County Resource Conservation District certified that siltation imperils continued use of the pond for agricultural water storage and supply.

Sand Dunes

3-14 Designation of Sand Dune Habitats

a. Designate all dune areas as protected sensitive habitats

3-15 Permitted Uses

a. In dune areas, permit only the following uses: (1) education and research, and (2) trails.

3-16 Development Standards

a. Prohibit any activity which alters the profile of an active dune or which results in the disturbance or removal of dune vegetation on active dunes.

b. Control pedestrian traffic in dune areas.

c. Prohibit all non-authorized motor vehicles from dune areas.

d. Post signs informing recreational users not to disturb dunes or their natural vegetation.

e. Where development is permitted, require re-vegetation with appropriate stabilizing species (preferably native) as a condition of permit approval.

f. Prohibit any direct removal or excavation of sand from active dunes.

g. Require development to locate only landward of the most seaward stabilized dune.

h. When no feasible or practical alternative exists, permit underground utilities.

3-17 Restoration of Dunes

a. Encourage projects by agencies and community groups to assist in the stabilization and restoration of dunes.

3-18 Public Acquisition

a. Encourage public acquisition of the dune habitat. (Known dunes are currently owned by the State.)

Sea Cliffs

3-19 Permitted Uses

a. Where nesting or roosting exists, permit only education and research activities.

b. Where nesting or roosting do not exist, permit only the following uses: (1) education and research, (2) limited foot paths, (3) limited recreational rock climbing, (4) road and underground utility construction where no feasible alternative exists, and (5) intake or outfall lines provided that the habitat is not threatened.

3-20 Development Standards

a. Restrict pedestrian traffic in bluff and cliff areas and on faces to a limited number of well-defined trails which avoid seabird nesting and roosting sites.

b. Post signs informing recreational users not to disturb natural vegetation or nesting and roosting sites.

Rare and Endangered Species

3-21 Designation of Habitats of Rare and Endangered Species

a. In the event the habitat of a rare and endangered species is found to exist within the City, revise the Habitat Areas and Water Resources Overlay to show the location of such habitat. Any habitat so designated shall be subject to Policies 3-22 through 3-31.

3-22 Permitted Uses

a. Permit only the following uses: (1) education and research, (2) hunting, fishing, pedestrian and equestrian trails that have no adverse impact on the species or its habitat, and (3) fish and wildlife management to restore damaged habitats and to protect and encourage the survival of rare and endangered species.

b. If the critical habitat has been identified by the Federal Office of Endangered Species, permit only those uses deemed compatible by the U.S. Fish and Wildlife Service in accordance with the provisions of the Endangered Species Act of 1973, as amended.

3-23 Permit Conditions

a. Require, prior to permit issuance, that a qualified biologist prepare a report which defines the requirements of rare and endangered organisms. At minimum, require the report to discuss: (1) animal food, water, nesting or denning sites and reproduction, predation and migration requirements, (2) plants' life histories and soils, climate and geographic requirements, (3) a map depicting the locations of plants or animals and/or their habitats, (4) any development must not impact the

functional capacity of the habitat, and (5) recommend mitigation if development is permitted within or adjacent to identified habitats.

3-24 Preservation of Critical Habitats

a. Require preservation of all habitats of rare and endangered species using the policies of this Plan and other implementing ordinances of the City.

3-25 San Francisco Garter Snake

a. Prevent any development where there is known to be a riparian or wetland location for the San Francisco garter snake with the following exception: (1) existing man-made impoundments smaller than 1/2-acre in surface, and (2) existing man-made impoundments greater than 1/2-acre in surface, providing mitigation measures are taken to prevent disruption of no more than one-half of the snake's known habitat in that location in accordance with recommendations from the State Department of Fish and Game.

b. Require developers to make sufficiently detailed analyses of any construction which could impair the potential or existing migration routes of the San Francisco garter snake. Such analyses will determine appropriate mitigation measures to be taken to provide for appropriate migration corridors.

3-26 San Francisco Tree Lupine Moth

a. Prevent the loss of any large populations (more than 100 plants in a 1/10 acre area) of tree lupine within 1 mile of the coastline.

3-27 Brackish Water Snail

a. Prevent any development which can have a deleterious effect on the California brackish water snail, including any dredging of its known or potential habitat.

b. Encourage the State Department of Parks and Recreation to manage their lands in such a manner as to enhance the habitat for the California brackish water snail.

3-28 Sea Otter

a. Encourage the appropriate agency to protect, monitor, and enhance sea otter habitats. In the development of mariculture facilities, encourage appropriate State and Federal agencies to seek measures to protect them from predation by the sea otter.

3-29 Globose Dune Beetle

a. Assess, monitor, and contain the spread of dune grass.

b. Provide roped-off trails for public access to the beach with the explanation of the dune beetle and its surrounding habitat.

3-30 Rare Plant Search

a. Encourage a continued search for any rare plants known to have occurred in San Mateo County Coastal Zone but not recently seen. Such search can be done by various persons or groups concerned with such matters.

3-31 Development Standards

a. Prevent any development on or within 50 feet of any rare plant population. When no feasible alternative exists, permit development if: (1) the site or a significant portion thereof is returned to a natural state to allow for the reestablishment of the plant, or (2) a new site is made available for the plant to inhabit.

Unique Species

3-32 Designation of Habitats of Unique Species

In the event the habitat of a unique species is found to exist within the City, revise the Habitat Areas and Water Resources Overlay to show the location of such habitat. Any habitat so designated shall be subject to policies 3-33 through 3-36.

3-33 Permitted Uses

Permit only the following uses: (1) education and research, (2) hunting, fishing, pedestrian and equestrian trails that have no adverse impact on the species or its habitat, and (3) fish and wildlife management to the degree specified by existing governmental regulations.

3-34 Permit Conditions

Require, as a condition of permit approval, that a qualified biologist prepare a report which defines the requirements of a unique organism. At minimum, require the report to discuss: (1) animal food, water, nesting or denning sites and reproduction, predation and migration requirements, and (2) plants' life histories and soils, climate and geographic requirements.

3-35 Preservation of Habitats

Require preservation of all rare and endangered species habitats using policies of this Plan and implementing ordinances of the City.

3-36 California Wild Strawberry

Require any development, within 1/2-mile of the coast to mitigate against the destruction of any California wild strawberry in one of the following ways:

1. Prevent any development, trampling, or other destructive activity which would destroy the plant, or
2. After determining specifically if the plants involved are of particular value, successfully transplant them or have them successfully transplanted to some other suitable site. Determination of the importance of the plants can only be made by a professional doing work in strawberry breeding.

Weedy, Undesirable Plants

3-37 Voluntary Cooperation

a. Encourage the voluntary cooperation of private landowners to remove from their lands the undesirable pampas grass, French, Scotch and over-invasive brooms. Similarly, encourage landowners to remove blue gum seedlings to prevent their spread.

3-38 Public Agency Requirements

a. Require public agencies, to the point feasible, to remove the undesirable pampas grass and French, Scotch, and other invasive brooms from their lands.

3-39 Sale Prevention

a. Encourage the voluntary cooperation of the retail nursery trade to prevent the sale of undesirable pampas grass and French, Scotch, and other invasive brooms in the County.

3-40 Weedy Thistle Eradication

a. Encourage farmers to eradicate weedy thistle, particularly from land adjacent to artichoke fields. Encourage the Agricultural Commissioner to support eradicative procedures in cooperation with the Farm Advisor, local farmers, the State Department of Beaches and Parks, Caltrans, and the State Department of Food and Agriculture.

VEGETATIVE HABITAT TYPES

Vegetation and habitat mapping for this section is based on review of aerial photography of the Planning Area and field verification during the reconnaissance surveys. Habitat descriptions are based on Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California*.[3] Habitats considered Environmentally Sensitive Habitat Areas (ESHAs) by the CCC and the City through the LCP (Policy 3-1) that are present in the Planning Area include: riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, coastal scrub communities, eucalyptus forest, grasslands, open water, coastal areas containing breeding and/or nesting sites used by migratory or resident water-associated birds, and habitats supporting rare, endangered, and unique species. Habitat types present in the Planning Area are discussed in the following paragraphs, and approximate habitat boundaries are shown on Figure 5-1, Habitat Map.

ESHA is defined by the Coastal Act as: "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Section 30107.5). Pursuant to the Coastal Act, ESHAs "shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas" (Section 30240). Based on guidance from the CCC, resource dependent development that may be allowed within ESHA includes hiking and educational trails, low impact camping, educational signage and kiosks, research, and restoration.[4]

[3] Holland, Robert. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Department of Fish and Game.

[4] California Coastal Commission, 2013. Local Coastal Program Update Guide.

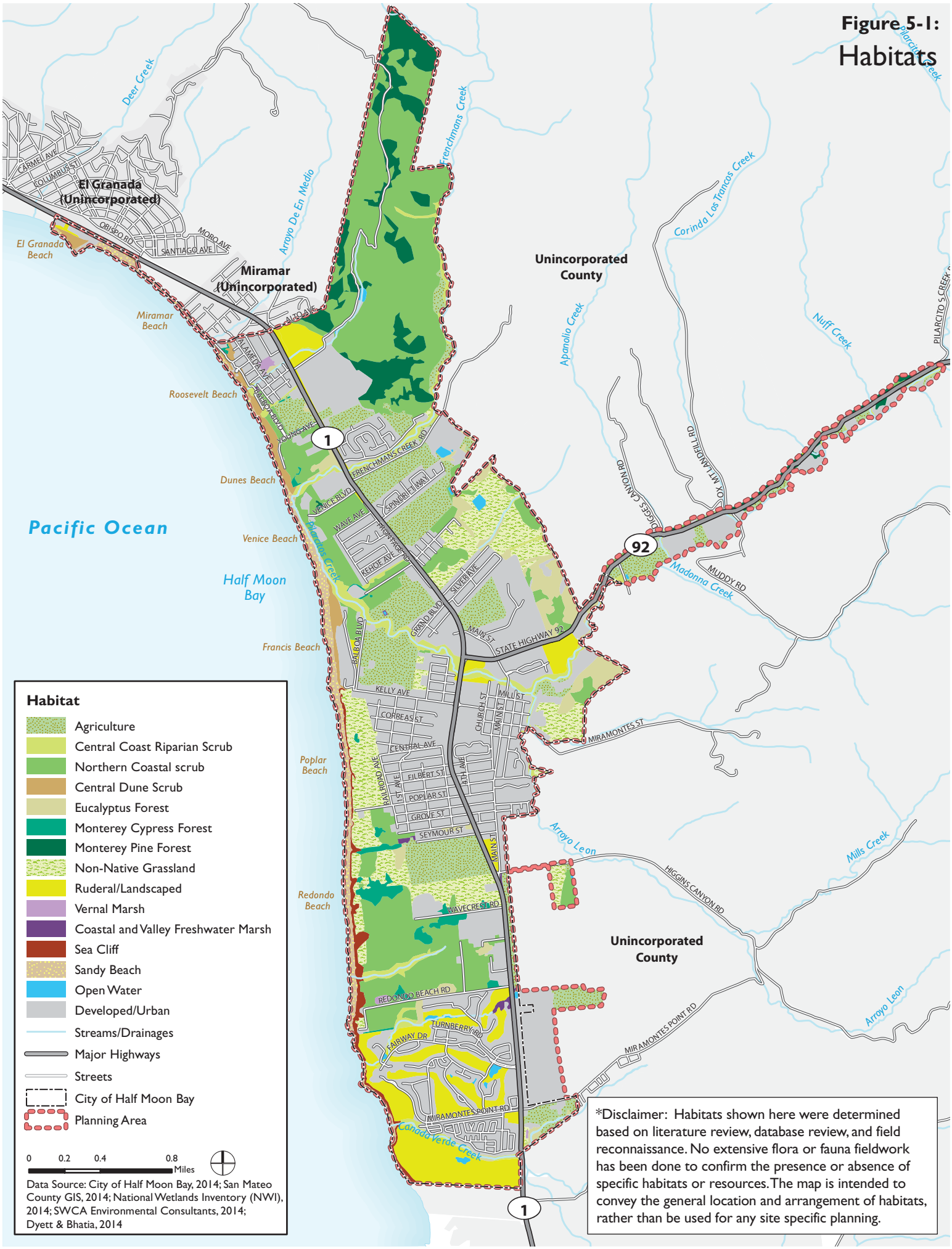
Development within habitats designated as ESHA under the current LCP is prohibited if the use or development would have an adverse impact on the ESHA. Development may be permitted, provided it is sited and designed to prevent impacts that could significantly degrade the ESHA, and all uses are required to be compatible with the maintenance of biologic productivity of the ESHA (LCP Policy 3-3). Permitted uses include resource-dependent or other uses that would not have a significant adverse impact in ESHAs (LCP Policy 3-4). During review of potential projects within or adjacent to ESHA, a biological report is required to determine if the project or use would result in a significant impact on the ESHA, and shall include mitigation addressing potential impacts. Proposed uses within an ESHA shall be dependent on the identified resource, and shall be sited and designed to prevent impacts that would significantly degrade ESHA-adjacent areas. Mitigation may include restoration (LCP Policy 3-5).

The current LCP defines permitted uses and performance/development standards, establishes buffer zones, and identifies permitted uses and performance standards within buffer zones for currently identified ESHAs including riparian corridors, sand dunes, and sea cliffs. Policies related to ESHAs defined by the presence of rare and endangered and unique species require revisions to the Habitat Areas and Water Resources Overlay, and identify permitted uses and permit conditions, buffers, and special conditions for noted species. The designation of an ESHA does not necessarily prohibit all potential uses or development; however, pursuant to the Coastal Act, the use must be resource dependent and shall not result in an adverse impact to the ESHA.

Agriculture

Cultivated irrigated and non-irrigated agricultural fields are present in the Planning Area. Crops observed at the time of the field survey include assorted flower and vegetable crops. Agricultural areas are regularly highly disturbed by discing or plowing soil and other field preparation, planting and raising crops, and harvest operations. The edges of cultivated fields tend to support ruderal vegetation along disturbed margins of farm roads and in fallow areas that are left unplanted. Wildlife observed in agricultural habitat within the Planning Area include white-tailed kite (*Elanus leucurus*), common snipe (*Gallinago gallinago*), northern harrier (Circus cyaneus), loggerhead shrike (*Lanius ludovicianus*), blue heron (*Ardea herodias*), great egret (*Ardea alba*), American kestrel (Falco sparverius), killdeer (*Charadrius vociferus*), European starling (*Sturnus vulgaris*), and Brewer's blackbird (*Euphagus cyanocephalus*). White-tailed kite is a State of California Fully Protected raptor species and northern harrier and loggerhead shrike are California Species of Special Concern (SSC). All of these species are protected by the MBTA.

Figure 5-1: Habitats



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Central Coast Riparian Scrub

Central coast riparian scrub communities typically occur adjacent to existing flowing stream channels, along seasonally-flooded arroyos, or in depressional areas located close to ground water. This community consists of dense thickets dominated by willows (*Salix* spp.). The understory of central coast riparian scrub can vary from sparse to dense and typically includes poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and a variety of introduced species. Central coast riparian scrub occurs in annual and perennial drainages in the Planning Area, including but not limited to Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek. Riparian scrub in the Planning Area is dominated by arroyo willow (*Salix lasiolepis*) and Sitka willow (*Salix sitchensis*), with common understory species including coyote brush (*Baccharis pilularis*), blackberry (*Rubus* spp.), and California sagebrush (*Artemisia californica*). Riparian scrub can support a wide diversity of wildlife due to the availability of important features such as nesting sites, close proximity to water, escape and thermal cover, food, and dispersal corridors. Common animal species that utilize riparian habitat include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginianus*), common garter snake (*Thamnophis sirtalis*) and various bird species. Special-status species known to utilize riparian scrub and to occur in the Planning Area and surrounding vicinity include California red-legged frog (*Rana draytonii*), central California coast steelhead (*Oncorhynchus mykiss*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*). Central coast riparian scrub is an ESHA, and this habitat is considered sensitive by the CDFW, and may be subject to the jurisdiction of the CDFW as waters of the State.

Northern (Franciscan) Coastal Scrub

Northern coastal scrub consists of dense low evergreen shrubs and herbs with scattered grassy openings. It occurs on windy, exposed sites with typically shallow, rocky soils from southern Oregon to Point Sur in Monterey County, California. Northern coastal scrub communities support shrubs that are usually 0.5 to 2 meters tall, typically characterized by species such as coyote brush, California sagebrush, buckwheat (*Eriogonum* spp.), and sage (*Salvia* spp.). In more exposed areas near the coast where winds are nearly constant and salt content is high, low-growing, often dwarf shrubs, herbaceous perennials, and annuals ranging from 5 to 50 centimeters (2 to 20 inches) tall are common. Vegetation in these areas is generally composed of native species such as coyote brush, lizard tail (*Eriophyllum staechadifolium*), poison oak, yellow bush lupine (*Lupinus arboreus*)blackberry, seaside daisy (*Erigeron glaucus*), wild strawberry (*Fragaria fresca*), and coast buckwheat (*Eriogonum latifolium*).

Northern coastal scrub habitat is present west of Highway 1 along coastal bluffs and in the northeast arm of the Planning Area in the coastal hills west of Frenchmans Creek, and commonly overlaps with non-native grassland habitat. Plants observed in northern coastal scrub in the Planning Area include wild strawberry, coyote brush, yarrow (*Achillea millefolium*), California sagebrush, jubata grass (*Cortaderia jubata)*, and coffeeberry (*Rhamnus californicus*). Wildlife observed in this habitat includes white-tailed kite, bushtit (*Psaltriparus minimus*), California towhee (*Pipilo crissalis*), black phoebe (Sayornis nigricans) and western fence lizard (Sceloporus occidentalis). Northern coastal scrub may provide habitat for Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*), suitable foraging and nesting habitat for numerous avian species protected by

the MBTA, and upland habitat for California red-legged frog. Therefore, where suitable habitat exists for these species, coastal scrub is considered an ESHA under the 1993 LCP.

Central Dune Scrub

Central dune scrub occurs along California's central coast in areas of sand accumulation, generally forming a dense coastal scrub community of shrubs, subshrubs, and herbs. Characteristic species of this community include coastal sagewort (*Artemisia pynocephala*), dune lupine (*Lupinus chamissonis*), common sandaster (*Corethrogyne filaginifolia*), dune ragwort (*Senecio blochmaniae*), and California goldenbrush (*Ericameria ericoides*).

Central dune scrub occurs in the Planning Area between Half Moon Bay State Beach and the mouth of Frenchmans Creek along the coastal sand dunes. Recent restoration efforts by California State Parks have restored this dune system from a non-native habitat dominated by ice plant (*Carpobrotus edulis*) and European beachgrass (*Ammophila arenaria*) to a predominantly native habitat. This dune system has the potential to support the federally threatened and SSC western snowy plover (*Charadrius alexandrines nivosus*), and supports populations of wild strawberry. Coastal dunes are considered an ESHA in the LCP.

Coastal and Valley Freshwater Marsh

Freshwater marsh is typically associated with natural and man-made ponds, intermittent and perennial creeks and drainages, wetlands, and roadside ditches within or surrounded by other plant communities. The dominant emergent plant species typically observed in freshwater marsh communities are bulrush (*Scirpus* spp.), broad-leaved cattail (*Typha latifolia*), and rushes (*Juncus* spp.).

In the Planning Area, freshwater marsh is located in roadside drainage ditches, agricultural ponds, Seymour Ditch retention basin, and man-made ponds at Half Moon Bay Golf Links (some of these features are too small to be shown on Figure 5-1 due to scale). Hydrophytic plant species observed in freshwater marsh habitat in the Planning Area include brown-headed rush (*J. phaeocephalus*), American bulrush (*Scirpus americanus*), water cress (*Rorippa nasturtium-aquaticum*), water speedwell (*Veronica anagallis aquaticum*), horsetail (*Equisetum telemateia*), Harding grass (*Phalaris aqautica*), bird's foot trefoil (*Lotus corniculatus*), tall flat-sedge (*Cyperus eragrostis*), common three-square (*Scirpus patens*), cinquefoil (*Potentilla anserina* ssp. *pacifica*), curly dock (*Rumex crispus*), and bur-reed (*Sparganium eurycarpum* ssp. *eurycarpum*). This habitat supports a variety of wildlife species, especially birds and amphibians, which utilize the emergent vegetation for cover. Special-status species such as California red-legged frog and San Francisco garter snake may utilize this habitat for foraging and cover. Coastal and valley freshwater marsh is considered an ESHA by the CCC, a sensitive habitat by CDFW, and may be subject to the jurisdiction of the USACE as waters of the U.S.

Developed / Urban

Developed / urban habitat is found in regularly and highly-disturbed areas, including areas that have been developed and/or include landscaping such as trees, shrubs, ornamental plants, and lawns. Vegetation density, canopy cover, and species composition will vary based on the structure and composition of the developed area. Vegetation may include native or exotic species, or a combination of both.

Developed / urban habitats are found throughout the Planning Area along and within business and residential communities and recreational areas, including Half Moon Bay Golf Links. Vegetation in these areas includes manicured lawns and ornamental trees and shrubs. These areas are not likely to support special-status species due to the high level of disturbance and human activity; however, they may support nesting birds covered under the MBTA.

Eucalyptus Forest

Eucalyptus forests consist of dense stands of non-native, invasive eucalyptus trees (*Eucalyptus globulus*), and are usually devoid of an understory with the exception of a few hardy grasses. Stands generally range from 30 to 55 meters (98 to 180 feet) high and are frequently found in cooler coastal areas and along stream courses.

In the Planning Area, eucalyptus forests commonly occur in monotypic stands with blue gum eucalyptus occurring as the dominant species. These stands were observed throughout the Planning Area and may provide roosting or nesting habitat for avian species protected under the MBTA, particularly for raptors. This community may also provide roosting opportunities monarch butterfly (*Danaus plexippus*), though no colonies of monarch butterfly were observed within the Planning Area. Where suitable habitat is present for special-status species, these areas may be considered ESHA under the LCP The stringy bark and leaf litter on the forest floor provides habitat for various small invertebrates, including alligator lizard (Elgaria multicarinata), gopher snake (*Pituophis melanoleucus*) and woodrat (Neotoma sp.).

Monterey Cypress Forest

Monterey cypress forest is dominated by Monterey cypress (*Cupressus macrocarpa*), with a relatively open understory of scattered dwarf shrubs and perennial herbs. Cypress stands generally form a closed canopy structure, with heights ranging from 10 to 20 meters (32 to 66 feet). Native stands of Monterey cypress are only found in two locations in Monterey County, but the species has been widely planted and naturalized throughout coastal California.

In the Planning Area, mixed Monterey cypress forest contains individuals that have been planted as windbreaks or ornamental trees, or have naturalized, and commonly includes intermixed blue gum eucalyptus and Monterey pine (*Pinus radiata*). This community provides nesting and roosting opportunities for various avian and bat species, and under certain conditions, monarch butterfly, though no colonies of monarch butterfly were observed within the Planning Area. Where suitable habitat is present, these areas may be considered ESHA under the LCP. Red-tailed hawks (*Buteo jamaicensis*), white-tailed kites, American kestrels, Cooper's hawk (Accipiter cooperii), and northern harriers were observed flying in the vicinity of Monterey cypress forest during the survey.

Monterey Pine Forest

Monterey pine forest is dominated by Monterey pine, with coast live oak (*Quercus agrifolia*) contributing to the canopy structure. The understory of the community is variable in both composition and density. Monterey pine has been classified as a unique species by the City. Three natural stands occur in California, the largest of which is near the Monterey Peninsula. Monterey pine has been planted widely as an ornamental and commercial species.

Monterey pine forest is found throughout the Planning Area as both a dense forest and as individual trees that do not form a closed canopy structure. All Monterey pines observed in the Planning Area are non-natural stands that were originally planted during urbanization of the area. Monterey pine trees in the Planning Area have the potential to support special-status nesting birds, and where suitable habitat is present, these areas may be considered ESHA under the LCP.

Non-native Grassland

Non-native annual grasslands are composed of a dense to sparse cover of annual grasses, and are typically occupied by numerous species of annual forbs, especially in years of favorable rainfall. Non-native annual grassland is often found on flat to gently rolling terrain with deep, fine-grained soils that are moist during the winter rainy season and dry during summer and fall. Native perennial grasses such as needlegrass (*Stipa* spp.) occur in some areas but are usually not dominant. Common elements include wild oats (*Avena barbata* and *A. fatua*), red brome (*Bromus madritensis* ssp. *rubens*), ripgut brome (*B. diandrus*), rescue grass (*B. catharticus* var. *catharticus*), storksbill (*Erodium botrys*), California poppy (*Eschscholtzia californica*), goldfields (*Lasthenia californica*), and rye grass (*Festuca perennis*).

Non-native grassland occurs along the coastal bluffs and throughout developed portions of the Planning Area, and commonly overlaps with central coastal scrub habitat. Common plant species observed include ripgut brome, wild oats, rattail fescue (*Vulpia myuros*), poison hemlock (*Conium maculatum*), Italian thistle (*Carduus pycnocephalus*), perennial mustard (*Hirschfeldia incana*), tocolote (*Centaurea melitensis*), horseweed (*Conyza canadensis*), and bristly ox-tongue (*Picris echioides*). This community provides foraging habitat for a variety of wildlife species. Raptors, such as red-tailed hawk, white-tailed kite, and American kestrel often forage in grasslands, while species such as western meadowlark (*Sturnella neglecta*) may use these areas for nesting. Small mammals such as mice (*Peromyscus* spp.), voles (*Microtus* spp.), and pocket gopher (*Thomomys* spp.) often forage or burrow in annual grasslands and provide a prey base for raptors. Reptiles commonly found within these areas include western fence lizard and gopher snake. Grassland may provide upland habitat for California red-legged frog, and where suitable habitat is present, may be considered ESHA under the LCP.

Open Water

Open water habitats include areas of standing or flowing water that lack emergent vegetation or a canopy cover, including ponds and the ocean. The Planning Area contains several man-made ponds typically used for agriculture that have been classified as open water habitat. These areas may provide aquatic habitat for wildlife, including California red-legged frog or San Francisco garter snake, and may be considered ESHA under the Coastal Act.

Ruderal / Landscaped

Ruderal / Landscaped habitats are characterized by a lack of vegetation or are dominated by non-native plant species that are hardy and able to out-compete native species in highly disturbed areas, or that are ornamental plantings. Ruderal / Landscaped habitats often occur along roadsides and fence lines, near developments, and in other areas experiencing severe surface disturbance.

Ruderal / Landscaped species observed in the Planning Area include brome grasses (*Bromus* spp.), Italian ryegrass (*Lolium multiflorum*), rattail fescue, slender oats (*Avena barbata*), burclover (*Medicago polymorpha*), radish (*Raphanus sativa*), black mustard (*Brassica nigra*), sweet fennel (*Foeniculum vulgare*), Italian thistle, rancher's fireweed (*Amsinckia menziesii* var. *intermedia*), yellow star-thistle (*Centaurea solstitialis*), burclover, spring vetch (*Vicia americana*), velvet grass (*Holcus lanatus*), sour clover (*Melilotus indica*), bristly ox-tongue, sheep-sorrel (*Rumex acetosella*), common plantain (*Plantago lanceolata*), bindweed (*Convolvulus arvensis*), short-pod mustard (*Hirschfeldia incana*), and numerous ornamental species. The wildlife habitat values provided by this community are dependent on the level of on-going disturbance and the type of plants present.

Sandy Beach

Sandy beach occurs on thin strips between the Pacific Ocean and the terrestrial environment. Wave activity and tidal changes generally deposit an excess of sand on the beaches during the summer months and remove sand from the beaches during the winter months. The ever-changing site conditions limit the number of organisms that are able to adapt to this environment. Wildlife found along sandy beaches typically includes shorebirds, seabirds, and occasionally marine mammals. Sandy habitats are usually devoid of vegetation due to shifting sands and trampling.

Sandy beach occurs along the western perimeter of the Planning Area where the land meets the Pacific Ocean. Species observed on sandy beaches in the Planning Area include gulls, long-billed curlew *(Numenius americanus),* and sanderling *(Calidris alba).* Sandy beaches in the Planning Area have the potential to support foraging, nesting, and wintering activities of the federally threatened and SSC western snowy plover, and therefore may be considered ESHA under the LCP.

Sea Cliff

Sea cliffs are steep faces along the coast that are subject to marine erosion. Sea cliffs are exposed to wind and waves and are largely devoid of vegetation in steep areas due to erosion. Species found in central coastal scrub may inhabit portions of sea cliffs where erosion is minimized by harder subsurface structure or where erosion has decreased the slope of the cliff, and where scrub species have established, such as where drainages or creeks flow to the ocean. These areas may provide refuge or nesting habitat for migratory and resident water-associated birds.

Sea cliffs occur along the majority of the coast line in the Planning Area, with sections of sand dunes or rip-rap interrupting their continuity. Sea cliffs are considered an ESHA in the LCP (Policy 3-1). In addition, by providing refuge to shoreline species, sea cliffs serve a role in the coastal ecosystem, and could be easily disturbed or degraded by human activities and development.

Vernal Marsh

Vernal marshes are composed of mostly low-growing annual herbs and taller perennials. Areas become flooded following winter rains but are either completely or nearly dry in the summer. This community is typically dominated by rushes (*Juncus* spp.), sedges (*Carex* ssp.), and bulrush (*scripus* spp.).

Vernal marsh is present in the Planning Area on the coastal bluffs between Redondo Beach Road and Kelly Avenue, and is present in some roadside ditches (based on findings from project-specific surveys). Hydrophytic plant species typically observed in vernal marsh habitat within the Planning Area include brown-headed rush, spreading rush (*J. patens*), dense sedge (*C. densa*), velvet grass, tall flat-sedge, common spikerush (*Eleocharis macrostachya*), blue-eyed grass (*Sisyrinchium bellum*), and curly dock. Vernal marsh is a considered an ESHA by the CCC and provides wetland characteristics under the CCC's single parameter definition. These areas have the potential to support nesting birds, California red-legged frog, and San Francisco garter snake.

VEGETATIVE HABITAT TYPES



Photo 5-1: Fallow agricultural field.



Photo 5-2: Central coast riparian scrub habitat along Pilarcitos Creek.



Photo 5-3: Central coastal scrub habitat.



Photo 5-4: Central dune scrub habitat.



Photo 5-5: Coastal and valley freshwater marsh habitat.



Photo 5-6: Developed/urban habitat at Smith Field.



Photo 5-7: Stand of eucalyptus forest in central coastal scrub.



Photo 5-8: Monterey cypress forest near the mouth of Canada Verde Creek.



Photo 5-9: Monterey pine forest on coastal hill ridges interspersed among central coastal scrub.



Photo 5-10: Non-native grassland habitat.



Photo 5-11: Open water habitat.



Photo 5-12: Ruderal / Landscaped habitat along road edges.



Photo 5-13: Sandy beach habitat.



Photo 5-14: Sea cliff habitat.



Photo 5-15: Vernal marsh habitat.

ENVIRONMENTALLY SENSITIVE HABITAT AREAS AND SPECIAL-STATUS SPECIES

Sensitive biological resources include ESHAs, sensitive habitats including jurisdictional wetlands and waters, and special-status plants and wildlife. Sensitive biological resources that currently exist or have been documented in the Planning Area are discussed below.

Environmentally Sensitive Habitat Areas

Habitats containing sensitive plant or animal species, or that are dominated by wetland / riparian plants or native grasses are regulated by the CCC as ESHAs as defined in the Coastal Act. The Coastal Act defines ESHAs as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

Unique plant habitats, rare and endangered plant and animal habitats, wetlands, coastal streams, rocky points, sea cliffs, intertidal areas, and kelp beds are typically considered ESHAs. Based on this definition, areas containing wild strawberry, riparian areas associated with Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek, all wetlands, sea cliffs, and CNDDB-listed sensitive natural communities that occur in the Planning Area may qualify as ESHAs. Habitats including coastal scrub, eucalyptus forest, Monterey cypress forest, Monterey pine forest, and grassland may be considered ESHA, depending on the results of project- and site-specific evaluations to determine whether the site supports special-status species or possesses unique ecological function.

Jurisdictional Wetlands and Waters

Perennial, ephemeral, and intermittent drainages with definable ordinary high water marks that support wetland hydrology and contain wetland vegetation and soils constitute waters of the U.S., and are subject to USACE and CDFW jurisdiction. Any adjacent wetland areas outside the defined channels are also likely jurisdictional waters of the U.S. Riparian areas adjacent to waters of the State may fall under the jurisdiction of CDFW.

Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek convey storm flows to the mean high tide line, support wetland or riparian vegetation, and contain surface water or saturated soils for some portion of a typical year. Wetlands are present in the Planning Area within vernal marsh and coastal and valley freshwater marsh habitats in ponds, within central coastal scrub, and adjacent to existing drainages. Based on these characteristics, these features are considered coastal wetlands and ESHAs under the Coastal Act, and impacts to these features are subject to review by the CCC and CDFW, and USACE. Activities that could potentially disturb these features may require a formal wetland delineation. Site-specific analysis would also consider wetland definitions provided in the city's LCP and Zoning Code.

Sensitive Natural Communities

The CDFW maintains a list that ranks natural communities by their rarity or threat. The CNDDB identifies these communities as sensitive natural communities and applies a Global and State ranking to them. Four sensitive natural communities including northern coastal salt marsh, northern maritime chaparral, serpentine bunchgrass, and valley needlegrass grassland have been recorded within 5 miles of the Planning Area. However, none of these habitat types are present within the Planning Area (refer to Figure 5-2).

Critical Habitat Designations

Critical habitat designations, as defined by the USFWS, are geographic units that support primary habitat constituent elements for federally listed species. Critical habitat for three federally listed species including the central California coast steelhead (*Oncorhynchus mykiss*), the California red-legged frog (*Rana draytonii*), and the western snowy plover has been designated within the Planning Area (refer to Figure 5-3). The presence of critical habitat may require additional biological surveys, development of specific avoidance and minimization measures, and consultation with the USFWS during planning and permitting of future development.

Central California Coast Steelhead

Critical habitat for the central California coast steelhead is within the Planning Area in Frenchmans Creek, Apanolio Creek, Pilarcitos Creek, and Arroyo Leon Creek, and is part of the critical habitat unit defined as San Mateo Hydrologic Unit 2202 (refer to Figure 5-3). Primary constituent elements of steelhead critical habitat include components that support one or more life stages, including:

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
- Freshwater rearing sites with:
    - Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
    - Water quality and forage supporting juvenile development; and
    - Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- Estuarine areas free of obstruction and excessive predation with:
    - Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater;

- Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and
- Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

California Red-legged Frog

Critical habitat for the California red-legged frog is present in the northern portion of the Planning Area west of Frenchmans Creek (refer to Figure 5-3), and is part of the critical habitat unit defined as SNM-1. The primary constituent elements of California red-legged frog critical habitat include:

- **Aquatic Breeding Habitat.** Standing bodies of fresh water (with salinities less than 4.5 parts per thousand), including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.
- **Aquatic Non-Breeding Habitat.** Freshwater pond and stream habitats that may not hold water long enough for the species to complete its aquatic life cycle but which provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult frogs. Other wetland habitats considered to meet these criteria include, but are not limited to: plunge pools within intermittent creeks, seeps, quiet water refugia within streams during high water flows, and springs of sufficient flow to withstand short-term dry periods.
- **Upland Habitat.** Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile (1.6 kilometers) in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetation types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for California red-legged frog. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, or riparian habitat. These upland features contribute to:
  - filling of aquatic, wetland, or riparian habitats;
  - maintaining suitable periods of pool inundation for larval frogs and their food sources; and,
  - providing non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.
- **Dispersal Habitat.** Accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within 1 mile (1.6 kilometers) of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats and altered habitats, such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. Dispersal habitat does not

include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes or reservoirs over 50 acres (20 hectares) in size, or other areas that do not contain those features identified in the primary constituent elements listed above that are essential to the conservation of the species.

Western Snowy Plover

Critical habitat for the western snowy plover is located along sandy beach and dune habitats between Dunes Beach and Francis State Beach, and is within critical habitat unit CA 16. Primary constituent elements of western snowy plover critical habitat include:

- Sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel bars, artificial salt ponds and adjoining levees, and dredge spoil sites, with:
    - Areas that are below heavily vegetated areas or developed areas and above the daily high tides;
    - Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, subject to inundation but not constantly under water, that support small invertebrates, such as crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods, that are essential food sources;
    - Surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates that supports and attracts small invertebrates described in the primary constituent element for shoreline habitat above for food, and provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults; and
    - Minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individual and population growth and for normal behavior



Photo 5-16: Riparian habitat, an ESHA as defined by the CCC, along Pilarcitos Creek.



Photo 5-17: Pilarcitos Creek exhibits a defined bed and bank, oridnary high water marks, and riparian habitat and falls under the jurisdiction of the USACE, CDFW, and the CCC.



Photo 5-18: Western snowy plover critical habitat.

Special-Status Species

The documented presence of special-status species are shown on Figures 5-2 and 5-3. The locations shown on the figures are based on available information from the CNDDB, which includes data from biologist-submitted forms and GIS data based on the information provided on the forms. These forms provide varying specificity regarding the documented occurrence, which affects the certainty of the estimated range of the species within the reviewed quadrangle. Figure 5-3 identifies the location of these documented occurrences; however, the map does not identify the only locations where special-status species may occur. When required, habitat evaluations and species surveys prepared for specific projects would provide additional information for use by the city and CDFW.

Special-Status Plant Species

The CNDDB record search identified 33 sensitive plant species that have known occurrences within 5 miles of the Planning Area. Known species occurrences as mapped by the CNDDB are shown on Figure 5-2, and a complete list of CNDDB-recorded species is included in Table 5-1. The only species recorded in the CNDDB within the Planning Area is the Choris's popcorn flower, a CNPS Rank 1B.2 species (rare, threatened, or endangered in California and elsewhere) that occurs in coastal scrub habitat between the Pacific Ocean and Highway 1.

Special-Status Animal Species

The CNDDB records search identified 12 special-status wildlife species that have known occurrences within 5 miles of the Planning Area. Recorded species occurrences as mapped by the CNDDB are shown on Figure 5-3, and a complete list of CNDDB species is included in Table 5-1 below.

The federally listed central California coast steelhead, California red-legged frog, and San Francisco garter snake have existing CNDDB records in the Planning Area. Upland and dispersal habitat for California red-legged frog and San Francisco garter snake would be identified through preparation of Site Assessments and, potentially, protocol surveys for the California red-legged frog; therefore, this designation is not shown on Figure 5-3. Pursuant to the Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog,[5] the first required step is a Site Assessment, which identifies the current or historic range for the species, previously documented occurrences within one mile of the project site, description of habitats onsite and within one mile of the project site, and completion of required data forms for review by USFWS. Based on the Site Assessment, protocol field surveys for this species may be required. These efforts would determine, pursuant to USFWS review and approval, the presence or absence of California red-legged frog, and identification of aquatic and upland habitat. Similar methods would be used to perform a Site Assessment for San Francisco garter snake; however, no USFWS protocol field surveys for this species exist at this time.

[5] U.S. Fish and Wildlife Service, 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog.

While CNDDB records do not exist within the Planning Area, the federally threatened western snowy plover is known to occur and critical habitat has been designated in the Planning Area as described above. California Species of Special Concern including American badger (*Taxidea taxus*), loggerhead shrike, saltmarsh common yellowthroat, San Francisco dusky-footed woodrat, and western pond turtle have recorded occurrences in the CNDDB within the Planning Area or have potential to occur based on existing habitats in the vicinity. Additionally, wetland, forested, scrub, and grassland habitats of the Planning Area are likely to provide foraging and nesting opportunities for numerous bird species subject to protection under the MBTA.

Table 5-1: CNDDB Listed Special-status Plant and Animal Species Occurrences within 5 miles of the Planning Area[6]

Scientific Name	*Common Name*	*Number of Occurrences Listed*	*Federal Listing Status*	*State / CDFW Status[7]*	*State Rank*	*Rare Plant Ranking*
Fauna						
Callophrys mossii bayensis	San Bruno elfin butterfly	4	Endangered	None	S1	n/a
Danaus plexippus	monarch butterfly	6	None	None	S3	n/a
Emys marmorata	western pond turtle	8	None	SSC	S3	n/a
Euphydryas editha bayensis	Bay checkerspot butterfly	2	Threatened	None	S1	n/a
Falco peregrinus anatum	American peregrine falcon	1	Delisted	FP	S2	n/a
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	7	None	SSC	S2	n/a
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	2	None	SSC	S2S3	n/a
Oncorhynchus mykiss irideus	steelhead - central California coast DPS	4	Threatened	None	S2	n/a
Plebejus icarioides missionensis	Mission blue butterfly	1	Endangered	None	S1	n/a
Rana draytonii	California red-legged frog	36	Threatened	SSC	S2S3	n/a
Taxidea taxus	American badger	1	None	SSC	S4	n/a
Thamnophis sirtalis tetrataenia	San Francisco garter snake	20	Endangered	Endangered, FP	S2	n/a
Flora						
Acanthomintha duttonii	San Mateo thorn-mint	2	Endangered	Endangered	S1	1B.1
Allium peninsulare var. *franciscanum*	Franciscan onion	3	None	None	S2.2	1B.2
Amsinckia lunaris	bent-flowered fiddleneck	2	Threatened	None	S2	1B.2

[6] California Natural Diversity Data Base (CNDDB). 2014. California Department of Fish and Game. Sacramento, California.

[7] California Department of Fish and Wildlife (CDFW). 2011. Special Animals List. Department of Fish and Game, Wildlife and Habitat Data Analysis Branch.

Table 5-1: CNDDB Listed Special-status Plant and Animal Species Occurrences within 5 miles of the Planning Area[6]

Scientific Name	*Common Name*	*Number of Occurrences Listed*	*Federal Listing Status*	*State / CDFW Status[7]*	*State Rank*	*Rare Plant Ranking*
Arctostaphylos andersonii	Anderson's manzanita	1	None	None	S2	1B.2
Arctostaphylos montaraensis	Montara manzanita	3	None	None	S2.2	1B.2
Arctostaphylos regismontana	Kings Mountain manzanita	3	None	None	S2.2	1B.2
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	3	None	None	S2.2	1B.2
Chorizanthe cuspidata var. *cuspidata*	San Francisco Bay spineflower	1	None	None	S2.2	1B.2
Cirsium andrewsii	Franciscan thistle	1	None	None	S2.2	1B.2
Cirsium fontinale var. *fontinale*	Crystal Springs fountain thistle	1	Endangered	Endangered	S1	1B.2
Collinsia multicolor	San Francisco collinsia	3	None	None	S2.2	1B.2
Dirca occidentalis	western leatherwood	6	None	None	S2S3	1B.2
Eriophyllum latilobum	San Mateo woolly sunflower	2	Endangered	Endangered	S1	1B.1
Fritillaria biflora var. *ineziana*	Hillsborough chocolate lily	2	None	None	S1	1B.1
Fritillaria liliacea	fragrant fritillary	4	None	None	S2	1B.2
Grindelia hirsutula var. *maritima*	San Francisco gumplant	1	None	None	S1	3.2
Hesperolinon congestum	Marin western flax	5	Threatened	Threatened	S2	1B.1
Horkelia cuneata var. *sericea*	Kellogg's horkelia	1	None	None	S2?	1B.1
Leptosiphon croceus	coast yellow leptosiphon	1	None	None	S1	1B.1
Leptosiphon rosaceus	rose leptosiphon	2	None	None	S1	1B.1
Lessingia arachnoidea	Crystal Springs lessingia	6	None	None	S1	1B.2
Malacothamnus aboriginum	Indian Valley bush-mallow	1	None	None	S2	1B.2
Malacothamnus arcuatus	arcuate bush-mallow	1	None	None	S2.2	1B.2
Malacothamnus davidsonii	Davidson's bush-mallow	1	None	None	S2	1B.2

Table 5-1: CNDDB Listed Special-status Plant and Animal Species Occurrences within 5 miles of the Planning Area[6]

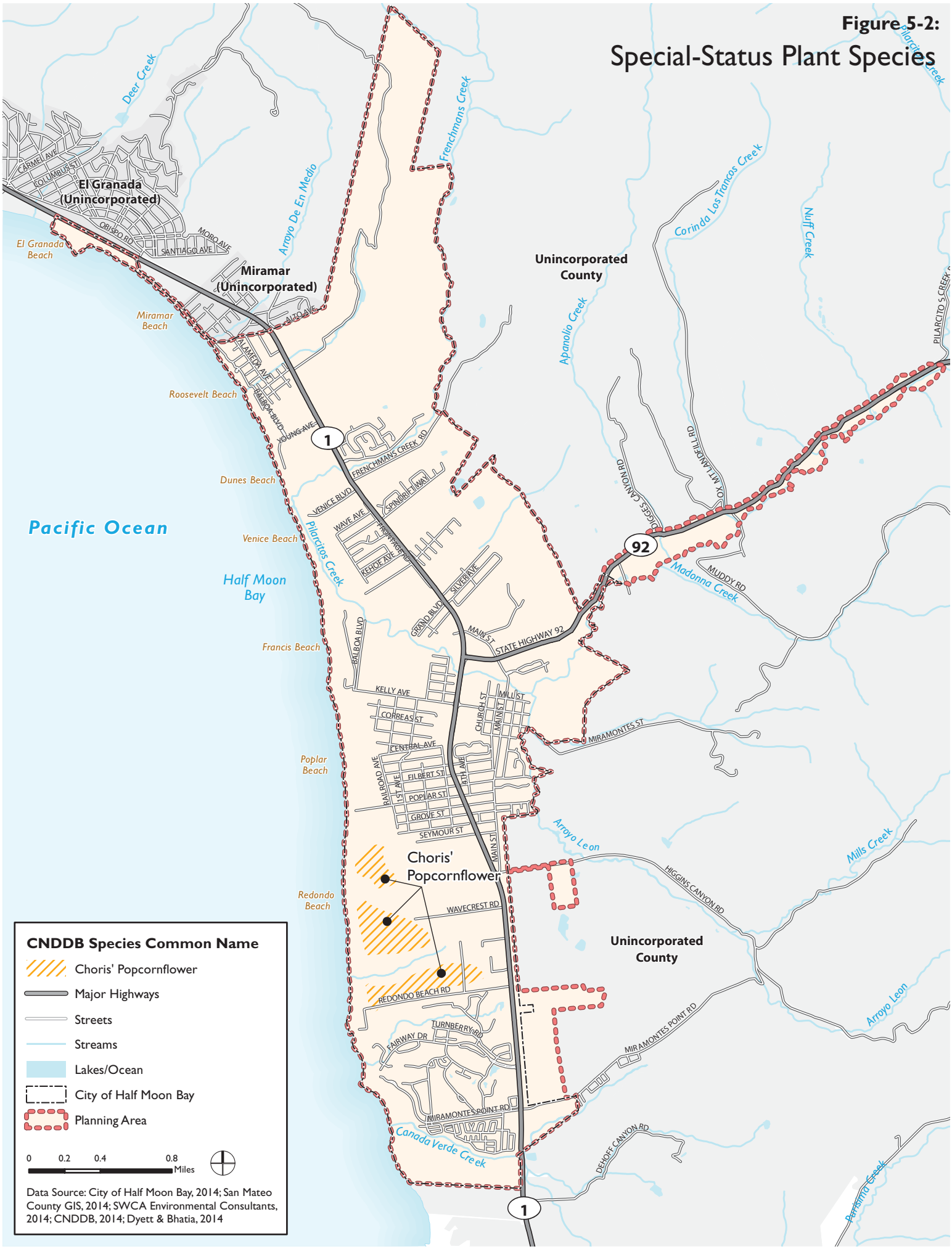
Scientific Name	*Common Name*	*Number of Occurrences Listed*	*Federal Listing Status*	*State / CDFW Status[7]*	*State Rank*	*Rare Plant Ranking*
Malacothamnus hallii	Hall's bush-mallow	1	None	None	S2	1B.2
Monolopia gracilens	woodland woollythreads	1	None	None	S2S2	1B.2
Pentachaeta bellidiflora	white-rayed pentachaeta	2	Endangered	Endangered	S2	1B.1
Plagiobothrys chorisianus var. *chorisianus*	Choris' popcornflower	2	None	None	S2.2	1B.2
Polemonium carneum	Oregon polemonium	1	None	None	S1	2.2
Potentilla hickmanii	Hickman's cinquefoil	2	Endangered	Endangered	S1	1B.1
Silene verecunda ssp. *verecunda*	San Francisco campion	1	None	None	S2.2	1B.2
Triphysaria floribunda	San Francisco owl's clover	1	None	None	S2.2	1B.2
CDFW Sensitive Natural Communities						
n/a	Northern Coastal Salt Marsh	1	None	None	S3.2	
n/a	Northern Maritime Chaparral	2	None	None	S1.2	
n/a	Serpentine Bunchgrass	3	None	None		
n/a	Valley Needlegrass Grassland	1	None	None		

California Department of Fish and Wildlife:
SSC= California Species of Special Concern
FP- Fully Protected

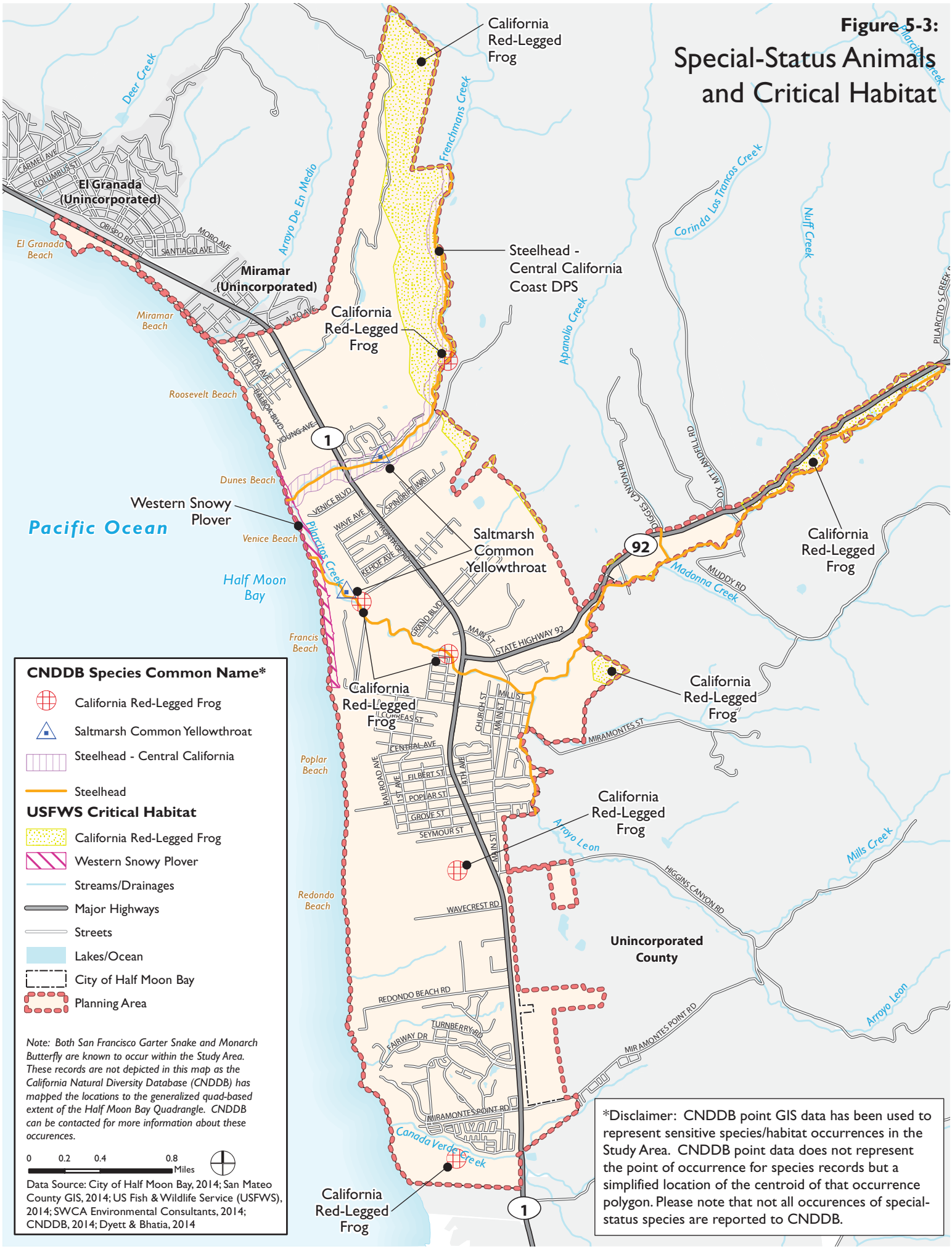
California Native Plant Society Rare Plant Ranking Key
List 1B = rare, threatened, or endangered in California and elsewhere.
List 2 = rare, threatened, or endangered in California, but more common elsewhere.
Threat Code:
.1 = Seriously endangered I California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% occurrences threatened)
.3 = Not very endangered I California (<20% of occurrences threatened or no current threats known)

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Figure 5-2:
Special-Status Plant Species



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Figure 5-3:
Special-Status Animals and Critical Habitat
California Red-Legged Frog
Steelhead - Central California Coast DPS
Western Snowy Plover
Saltmarsh Common Yellowthroat
Pacific Ocean
Half Moon Bay
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Nuff Creek
Apanolio Creek
Madonna Creek
Arroyo Leon
Mills Creek
Canada Verde Creek
Pilarcito S Creek
Pilarcitos Creek
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
ALAMEDA AVE
CABRILLO HWY
YOUNG AVE
VENICE BLVD
WAVE AVE
REFUGIO AVE
SPINDRIFT WAY
FRENCHMANS CREEK
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
CORREAS ST
CENTRAL AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
RAILROAD AVE
1ST AVE
4TH AVE
CHURCH ST
MILL ST
MIRAMONTES ST
HIGGINS CANYON RD
WAVECREST RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
DENNISTON CREEK
HIGGINS CANYON RD
OX MT LANDELL RD
MUDDY RD
1
92
CNDDB Species Common Name*
California Red-Legged Frog
Saltmarsh Common Yellowthroat
Steelhead - Central California
Steelhead
USFWS Critical Habitat
California Red-Legged Frog
Western Snowy Plover
Streams/Drainages
Major Highways
Streets
Lakes/Ocean
City of Half Moon Bay
Planning Area
Note: Both San Francisco Garter Snake and Monarch Butterfly are known to occur within the Study Area. These records are not depicted in this map as the California Natural Diversity Database (CNDDB) has mapped the locations to the generalized quad-based extent of the Half Moon Bay Quadrangle. CNDDB can be contacted for more information about these occurences.
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; US Fish & Wildlife Service (USFWS), 2014; SWCA Environmental Consultants, 2014; CNDDB, 2014; Dyett & Bhatia, 2014
*Disclaimer: CNDDB point GIS data has been used to represent sensitive species/habitat occurrences in the Study Area. CNDDB point data does not represent the point of occurrence for species records but a simplified location of the centroid of that occurrence polygon. Please note that not all occurences of special-status species are reported to CNDDB.

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KEY PLANNING ISSUES AND IMPLICATIONS

This analysis has identified a variety of biological constraints in the Planning Area. These constraints will affect project design and may require development of measures to avoid and/or minimize impacts to sensitive habitat and species. This could affect project timeframes, schedules, and costs because of the time required to conduct the appropriate environmental surveys and reviews, to obtain required permits, to conduct pre-construction surveys, to implement avoidance and minimization measures, and to schedule construction to meet required seasonal restrictions (e.g., breeding season for birds or California red-legged frog).

In turn, the presence of sensitive habitats and resources in the Planning Area provide opportunities for restoration, limited or improved public access for enjoyment of these areas by residents and tourists, and continued appreciation of popular areas such as beaches and coastal trails. Table 5-2 provides a summary of general biological constraints, based on habitat types, their jurisdictional status, and potential special-status species associations.

Policies from the City of Half Moon Bay LCP (1993) discussed above would be applicable to the sensitive habitats and species present with the Planning Area. Additionally, site-specific policies or planning recommendations may need to be developed or incorporated into the General Plan Update as noted below.

Table 5-2: Habitats and Special-Status Species Constraints Summary

Habitat Type	*General Constraints*	*Potential Special-status Species Associations*
Agriculture	• Provides foraging habitat for migratory birds and raptors	• Migratory birds/raptors
Central Coast Riparian Scrub	• Considered Wetlands / Waters of the U.S. and State • Regulated by USFWS, CDFW, and CCC • Contains critical habitat for central California coast steelhead • Provides upland shelter for California red-legged frog • Provides aquatic species habitat • May be frequented by migratory songbirds • Agency permits required • Central coast riparian scrub is considered ESHA under the LCP	• California red-legged frog • Central California coast steelhead • Saltmarsh common yellowthroat • San Francisco garter snake • San Francisco dusky-footed woodrat • Migratory birds/raptors

Table 5-2: Habitats and Special-Status Species Constraints Summary

Habitat Type	*General Constraints*	*Potential Special-status Species Associations*
Central Dune Scrub	• Contains critical habitat for western snowy plover • Fragile and susceptible to damage by widespread public access • Contains populations of wild strawberry • Central dune scrub is considered ESHA under the LCP	• Western snowy plover • Migratory birds/raptors • Wild strawberry
Coastal and Valley Freshwater Marsh	• Considered Wetlands / Waters of the U.S. and State • Regulated by USFWS, CDFW, and CCC • Provides aquatic species habitat • Provides foraging habitat for migratory birds • Agency permits required • Coastal and valley freshwater marsh is considered ESHA under the LCP	• California red-legged frog • Northern harrier • Saltmarsh common yellowthroat • San Francisco garter snake • San Francisco dusky-footed woodrat • Western pond turtle • Migratory birds/raptors
Developed/ Urban	• Trees and shrubs may support roosting or nesting migratory birds and raptors • Trees and structures may support roosting or breeding bats	• Migratory birds/raptors • Bats
Forest (Includes eucalyptus, Monterey cypress, and Monterey pine)	• Trees may support roosting or nesting special-status or migratory birds and raptors, and bats • May support monarch butterfly colonies • Where suitable habitat for rare or endangered species is present, forest habitats may be considered ESHA under the LCP	• Migratory birds/raptors • Bats • Monarch butterfly • San Francisco dusky-footed woodrat

Table 5-2: Habitats and Special-Status Species Constraints Summary

Habitat Type	*General Constraints*	*Potential Special-status Species Associations*
Central Coastal Scrub	• Potential for sensitive plant species • Provides foraging and nesting opportunities for special-status and migratory birds and raptors • Contains populations of wild strawberry • Contains population of Choris's popcorn flower • Where suitable habitat for rare or endangered species is present, central coastal scrub may be considered ESHA under the LCP	• White-tailed kite • Northern harrier • Loggerhead shrike • Migratory birds/raptors • Wild strawberry • Choris's popcorn flower
Non-native Annual Grassland	• Provides foraging habitat for migratory birds and raptors • Contains population of Choris's popcorn flower • Where suitable habitat for rare or endangered species is present, grassland may be considered ESHA under the LCP	• Loggerhead shrike • Migratory birds/raptors • Choris's popcorn flower
Open Water	• Provides foraging and aquatic habitat for special-status species • May be regulated by CDFW and CCC • Open water is considered ESHA under the LCP	• California red-legged frog • San Francisco garter snake • Migratory birds
Ruderal / Landscaped	• Trees and shrubs may support roosting or nesting migratory birds and raptors	• Migratory birds/raptors
Sandy Beach/Dunes	• Contains critical habitat for western snowy plover • May support foraging sea birds or marine mammals • Sandy beach is considered ESHA under the LCP	• Western snowy plover • Marine mammals (e.g., seals) • Migratory sea birds

Table 5-2: Habitats and Special-Status Species Constraints Summary

Habitat Type	*General Constraints*	*Potential Special-status Species Associations*
Sea Cliff	• May support foraging or roosting migratory birds or raptors • Sea cliff is considered ESHA under the LCP	• Migratory birds/raptors
Vernal Marsh	• Considered Wetlands / Waters of the U.S. • Regulated by USFWS and CCC • Provides aquatic species habitat • Provides foraging habitat for migratory birds • Agency permits required • Vernal marsh is considered ESHA under the LCP	• California red-legged frog • Northern harrier • White-tailed kite • Migratory birds/raptors

Species associations are based on presence of suitable habitat and known occurrences listed in the CNDDB. Many other species, including migratory birds have potential to occur in the Planning Area on a periodic basis.

City of Half Moon Bay Draft General Plan and Coastal Plan

A Draft General Plan and Coastal Plan (Draft General Plan) was prepared by the City of Half Moon Bay in 2000 to incorporate and update many of the policies outlined in the 1993 LCP that are designed to protect and enhance natural resources that are unique to the Coastal Zone in Half Moon Bay. However, the Draft General Plan was never adopted, and so policies outlined in that draft document were never implemented. Some of the goals of the Draft General Plan included:

- protection, restoration, and maintenance of the natural resources (including marine, coastal, open space, and stream resources);
- protection, restoration, and enhancement of important biological habitats and their associated plant, wildlife, and fish species;
- protection, restoration, and enhancement of sensitive habitats;
- protection, restoration, and enhancement of sensitive and special status species known and found to occur throughout the City of Half Moon Bay;
- protection, restoration, and enhancement of coastal resource buffer zones; and,
- conducting surveys and avoiding impacts from noxious weeds.

Many of these goals are likely to be applicable and relevant for consideration during any future General Plan development.

General Development In and Near Sensitive Habitat

Location of new development in previously-disturbed areas or those with low biological habitat value could minimize the potential for biological impacts, and could significantly reduce survey and permit requirements and any associated avoidance or mitigation costs. Development in undeveloped areas will have increased potential for biological impacts and associated avoidance and mitigation costs, and potential for significant additional time constraints due to biological survey and permit requirements.

Riparian, Wetland, and Open Water Habitats

Riparian habitats are present in Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek. Wetlands are present in the Planning Area in coastal and valley freshwater marsh and vernal marsh habitats, predominantly between the Pacific Ocean and Highway 1. Open water habitat is present in agricultural stock ponds throughout the Planning Area. Riparian, wetland, and open water habitats provide suitable aquatic habitat for special-status species including California red-legged frog and San Francisco garter snake, and provide foraging and aquatic stopover habitat for migratory birds protected by the MBTA. Riparian areas provide nesting and foraging opportunities for special-status avian species and a wide range of terrestrial species, provide shade over creeks to keep water cool for steelhead, and provide upland refuge and foraging opportunities for California red-legged frog and San Francisco garter snake. Development in or near these habitat types will require consideration of avoidance buffers, and may require increased time and cost associated with required surveys, agency consultations, and permitting efforts.

Eucalyptus, Monterey Cypress, and Monterey Pine Forest

Stands of eucalyptus, Monterey cypress, and Monterey pine forest exist throughout the Planning Area that provide foraging, roosting, and nesting opportunities for numerous avian and bat species. Eucalyptus groves may also provide roosting opportunities for monarch butterfly. Some of these forest areas are considered ESHA, and may require avoidance buffers for nesting birds, or additional time and cost associated with surveys prior to development and permitting.

Developed Areas

Residential, commercial, and agricultural development is present throughout the Planning Area. These developed areas have limited habitat value due to regular levels of human activity, though trees in the area may provide nesting opportunities for avian species or roosting opportunities for bat species.

SUMMARY

The Planning Area consists of a mix of developed and undeveloped habitats. Undeveloped areas include habitats that are considered ESHAs by the CCC or sensitive habitats by the CDFW, including sandy beach, coastal dunes, sea cliffs, wetlands, riparian corridors, open water, coastal scrub, grasslands, eucalyptus groves, and areas that support wild strawberry. Many of these habitats support foraging, roosting, nesting, and breeding opportunities for federal and state-listed species, species of special concern, and avian species protected by the MBTA. Development in these areas would require focused biological studies, consideration of potential biological impacts,

and development of appropriate avoidance and minimization measures and mitigation during environmental review. Development projects in these areas will face a variety of time and scheduling constraints, including permit issuance timeframes from agencies such as USACE, USFWS, RWQCB, CCC, and CDFW, specific construction windows required to minimize impacts to special-status species, and seasonal survey requirements for special-status species. Biological monitoring may also be required for work in ESHAs.

ESHA designations are recommended for riparian corridors, wetlands, marshes, and associated central coast riparian scrub habitat within Arroyo de en Medio, Frenchmans Creek, Apanolio Creek, Corinda Los Trancos Creek, Nuff Creek, Pilarcitos Creek, Arroyo Leon, and Canada Verde Creek. In addition to ecological function, these creeks and associated wetlands provide habitat for special-status species including California red-legged frog, central California coast steelhead, San Francisco garter snake, San Francisco dusky-footed woodrat, and saltmarsh common yellowthroat. Critical habitat for the central California coast steelhead is in Frenchmans Creek, Apanolio Creek, Pilarcitos Creek, and Arroyo Leon Creek. Critical habitat for the California red-legged frog is present in the northern portion of the Planning Area west of Frenchmans Creek. Vernal marsh is present on the coastal bluffs between Redondo Beach Road and Kelly Avenue, and is also present in certain roadside ditches. Vernal marsh is a considered an ESHA by the CCC and provides wetland characteristics under the CCC's single parameter definition. These areas have the potential to support nesting birds, California red-legged frog, and San Francisco garter snake. Policies are recommended to include avoidance of riparian and wetland habitats, unless permitted as a resource-dependent use, and contingent on site specific evaluation of the resource and the proposed development. Buffers are recommended, dependent on the surrounding area (natural versus urbanized), and reasonable effectiveness to protect the ecological function of the habitat.

In the Planning Area, freshwater marsh is located in roadside drainage ditches, agricultural ponds, Seymour Ditch retention basin, and man-made ponds at Half Moon Bay Golf Links. Special-status species such as California red-legged frog, western pond turtle, and San Francisco garter snake may utilize this habitat for foraging and cover. Coastal and valley freshwater marsh is considered an ESHA by the CCC. In some cases, such as within roadside drainage ditches and ponds, further site specific evaluation is recommended when considering potential development in these habitat areas, including a habitat assessment and ESHA evaluation, and identification of potential impacts and mitigation measures.

Open water habitats include man-made ponds, which may provide aquatic habitat for wildlife, including California red-legged frog or San Francisco garter snake. Open water habitat also includes the Pacific Ocean, which is considered under "Marine Environment" policies in the CCC. Further site specific evaluation is recommended when considering potential development in these habitat areas, including a habitat assessment and ESHA evaluation, and identification of potential impacts and mitigation measures.

Additional native habitats in the Planning Area have the potential to be designated ESHA because they are known to support rare, endangered, or unique species; these habitats include central coast scrub, central dune scrub, sandy beach, and sea cliffs. Critical habitat for the western snowy plover is located along sandy beach and dune habitats between Dunes Beach and Francis State Beach. The Choris's popcorn flower, a CNPS Rank 1B.2 species (rare, threatened, or endangered

in California and elsewhere) occurs in coastal scrub habitat between the Pacific Ocean and Highway 1. Central coastal scrub habitat is present west of Highway 1 along coastal bluffs and in the northeast arm of the Planning Area in the coastal hills west of Frenchmans Creek. Central coastal scrub may provide habitat for Choris' popcorn flower, suitable foraging and nesting habitat for numerous avian species protected by the MBTA, and upland habitat for California red-legged frog. Central dune scrub occurs in the Planning Area between Half Moon Bay State Beach and the mouth of Frenchmans Creek along the coastal sand dunes. This dune system has the potential to support the federally threatened and SSC western snowy plover, and supports populations of wild strawberry. Sandy beach occurs along the western perimeter of the Planning Area where the land meets the Pacific Ocean. Sandy beaches have the potential to support foraging, nesting, and wintering activities of the federally threatened and SSC western snowy plover. Sea cliffs occur along the majority of the coast line in the Planning Area, with sections of sand dunes or rip-rap interrupting their continuity. Sea cliffs provide refuge to shoreline species, serve a role in the coastal ecosystem, and could be easily disturbed or degraded by human activities and development. ESHA development standards are recommended for these habitat types, including a site-specific evaluation to determine which portions of the site should be avoided to protect identified resources, and to identify potential impacts, mitigation measures, and restoration opportunities.

Other non-native or naturalized vegetation in the Planning Area may provide habitat for special status species, and would require site-specific evaluation at the time of development to determine if specific areas meet the standards to qualify as ESHA. These habitats include mixed Monterey cypress forest, eucalyptus forest, Monterey pine forest, and non-native grassland. Forests and stands or rows of trees provide habitat for roosting or nesting avian and bat species, and under certain conditions, Monarch butterfly. Non-native grassland occurs along the coastal bluffs and throughout developed portions of the Planning Area, and commonly overlaps with central coastal scrub habitat. This community provides foraging habitat for a variety of wildlife species including avian species, reptiles, and rodents. Grassland may provide upland habitat for California red-legged frog.

Preparation of the General Plan Update presents opportunities to define and delineate ESHAs, identify areas that may be ESHA (depending on site-specific evaluation conducted as part of Coastal Development Permit review for individual projects), incorporate protection and restoration measures for natural resources within both undeveloped and developed areas, continue to foster a sense of community ownership and responsibility related to sensitive habitats and protected species, and provide managed public access within areas possessing ecological importance.

5.2 Hydrology and Water Quality

This section discusses the presence of hydrologic and water quality resources within the Planning Area including watersheds, surface waters, groundwater, and drainage patterns and identifies potential resource constraints that may require consideration in the event of future development or changes in existing land use associated with the proposed General Plan Update. Hydrologic issues and hazards such as flooding, coastal hazards, and stormwater drainage are described, with specific hazards outlined for particular areas of concern. This section provides context in the form of local and regional regulations and policy guidance relating to hydrology or water quality. Where applicable, this section identifies data gaps and recommended measures that could be incorporated into future project plans and implemented prior to and during proposed development. Information gathered for this section was obtained through review of existing documents, use of existing digital data, and field surveys. SWCA staff contacted or reviewed websites of pertinent agencies with jurisdiction over hydrology and water quality, including:

- San Mateo Countywide Water Pollution Prevention Program
- State Water Resources Quality Control Board (SWRCB)
- San Francisco Bay Regional Water Quality Control Board (RWQCB)
- United States Geological Survey (USGS)
- California Emergency Management Agency
- California Department of Water Resources (DWR)
- Federal Emergency Management Agency (FEMA)
- Association of Bay Area Governments (ABAG)

The following documents were among those reviewed in preparation of this section. A full list of references is included at the end of the report.

- City of Half Moon Bay, General Plan/Coastal Plan, 2000 Draft
- City of Half Moon Bay, Local Coastal Program Land Use Plan, 1993
- Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region
- California Coastal Act

SWCA staff conducted general field surveys throughout the Planning Area in January 2014. The intent of this document is to provide a general assessment of hydrologic and water quality resources and constraints; therefore, sampling, measurements, and testing were not conducted. As a result, this report does not represent a complete inventory of existing hydrologic resources and water quality in the Planning Area. Additional efforts (topographic surveys, baseline and project water quality sampling, hydrologic monitoring and modeling, etc.) would be needed to develop an inclusive analysis of the Planning Area's resources, and to allow quantification of potential impacts to specific hydrologic resources that may result from future development.

GIS data provided by FEMA, USGS, San Mateo County, Bay Area Aquatic Resource Inventory, and other relevant entities/agencies was reviewed to provide the most recent information regarding the type and extent of mapped hydrologic and water quality resources and hazards. The GIS data provided is the primary source of information for maps provided in this section. GIS data was supplemented by review of aerial photography (Google Earth) and site visits/photo reconnaissance performed by SWCA staff.

REGIONAL SETTING

The Planning Area is located along California's central coast approximately 22 miles south of the inlet to San Francisco Bay. The Planning Area is bound on the east by the Santa Cruz Mountains and on the west by the Pacific Ocean. These major features mediate hydrologic processes within the Planning Area as all surface and subsurface flow is toward the west. Pillar Point located just north of the Planning Area extends into the Pacific and establishes the northern boundary of a partially enclosed bay, Half Moon Bay, which forms the Planning Area's western boundary.

The Planning Area is crossed by a number of creeks, streams, and lesser drainage features that discharge directly or indirectly to the ocean. Surface water features are highly seasonal, especially in the lesser drainages. More than 90 percent of annual runoff in the region occurs during the winter rainy season (October and April); as a result many streams go dry during the middle or late summer.[8] Average annual rainfall, as measured according to water year (October 1 – September 30), from 1939-2002 in the vicinity of the Planning Area was 26.40 inches with the highest monthly average occurring in January.[9]

The Planning Area is located with the SWRCB San Francisco Bay Hydrologic Region. The majority of groundwater within the region is stored in alluvial aquifers. The Planning Area is almost entirely underlain by an alluvial aquifer referred to as the Half Moon Bay Terrace groundwater basin (basin). A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers. The basin supplies limited water for domestic and municipal uses (golf courses). Smaller freshwater aquifers within the region, such as the Half Moon Bay terrace basin, are generally characterized as relatively thin with most municipal and irrigation wells at an average depth of 100-to-200 feet and yielding less than 500 gallons per minute (gpm).[10] Groundwater in the Planning Area flows from east to west discharging into the ocean.

The City operates and maintains a storm drainage system consisting of storm drains, municipal separate storm sewers, drainage ditches and swales, and other conveyance features. Stormwater is generally conveyed via the system to various surface waters or outfalls along the coastal bluffs that discharge to the ocean.

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[8] California Regional Water Quality Control Board (RWQCB), 2013, San Francisco Bay Region, Water Quality Control Plan (Basin Plan), July 2013. Accessed online at http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml.

[9] Todd Engineers. 2003. Lower Pilarcitos Creek Groundwater Basin Study. Coastside County Water District, Half Moon Bay, California. June 2003.

[10] Department of Water Resources, 2003, Chapter 7, California Groundwater Update San Francisco Bay Hydrologic Region, Bulletin 118, 2003.

Detailed description of existing hydrologic resources, water quality, and associated hazards is provided in the subsequent sections.

REGULATORY SETTING

Federal Policies and Regulations

Federal Emergency Management Agency

FEMA has primary authority for preparation, response, and mitigation of natural hazards, including coastal and inland floods. FEMA provides financial and technical support to local agencies in the drafting and implementation of hazard mitigation plans.

The National Flood Insurance Act of 1968 establishes the National Flood Insurance Program (NFIP), which insures private company flood insurance by the federal government. The NFIP relies on the national mapping system known as the Flood Insurance Rate Map (FIRM), which denotes special hazard areas associated with 100 and 500 year flood events. Lower rates are provided through the program for communities that encourage mitigation of flood hazards.

Federal Clean Water Act

The Clean Water Act (CWA) is the primary legislation that addresses water quality and pollution. The CWA chiefly addresses the quality of surface waters; while groundwater contamination is addressed by other legislation, including the Resource Conservation and Recovery Act (RCRA). Section 402 of the CWA established a permit system, the Nation Pollutant Discharge Elimination System (NPDES), to regulate point sources of discharge into navigable water of the United States. The United States Environmental Protection Agency (USEPA) is the primary authority to implement NPDES although the CWA authorizes states to implement the system in lieu of the USEPA. The CWA is implemented on a state and local level primarily by the California Regional Water Quality Control Boards (RWQCB). The NPDES program mostly deals with point source control, current focus and regulation is shifting to non-point source pollution control under the authority of the RWQCB.

The CWA under Section 404 regulates the placement of dredged or fill material into "waters of the U.S " and under Section 401 CWA ensures that federally permitted activities comply with the federal Clean Water Act and state water quality laws. These regulations are discussed further in Section 6.1 of this report.

State Policies and Regulations

California Coastal Act

The Coastal Act governs the decisions made by the California Coastal Commission (CCC) regarding issues such as shoreline public access and recreation, terrestrial and marine habitat protection, water quality, and development within the California Coastal Zone. Development within the Coastal Zone requires a Coastal Development Permit from the CCC or from a local government with a CCC-certified local coastal program (LCP). The Coastal Act provides specific standards to achieve its goals including to protect, maintain, and where feasible, enhance and restore

the overall quality of the coastal environment and its natural and artificial resources. Coastal Act policies relating to hydrology or water quality are provided below. Additional policies specific to biological resources that may include provisions for hydrology or water quality are included in Section 6.1.

Section 30231 Biological productivity; water quality:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233 Diking, filling or dredging; continued movement of sediment and nutrients:

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities. (b) Dredging and spoils disposal shall be planned and carried out to avoid significant disrup-

tion to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30235 Construction altering natural shoreline:

Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

Section 30236 Water supply and flood control:

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Section 30253 Minimization of adverse impacts:

New development shall do all of the following:

(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

Section 30255 Priority of coastal-dependent developments:

Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7) provides guidance for the protection of water quality and beneficial uses of water throughout the state and along with the Federal Clean Water Act, provides the overarching legislation governing the SWRCB and RWQCB. The Act requires that each regional board adopt a water quality control plan (basin plan) for their region. Pursuant to Porter-Cologne, these basin plans become part of the California Water Plan, when such plans have been reported to the Legislature (Section 13141, California Water Code).

In 1972, amendments to the Porter-Cologne Act gave California the authority and ability to operate the federal NPDES permits program. Before a permit may be issued, Section 401 of the Clean Water Act requires that the RWQCB certify that the discharge will comply with applicable water quality standards. In addition, under Porter-Cologne, the RWQCB may also issue waste discharge requirements, that set conditions on the discharge of a waste. These requirements must be consistent with the water quality control plan for the body of water that receives the waste discharge, as well as protect the beneficial uses of those receiving waters.

The RWQCB also implements Section 402 of the federal Clean Water Act, which allows the State to issue a single discharge permit for stormwater runoff for the purposes of both state and federal law.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB and the regional water boards, under the umbrella of the California Environmental Protection Agency, are responsible for protecting California's water resources. The SWRCB's role in protecting water quality includes setting statewide policy, coordinating and supporting the Regional Water Board efforts, and reviewing petitions contesting regional water board actions. The SWRCB is also solely responsible for allocating surface water rights.

The Planning Area is located within the jurisdiction of the San Francisco Regional Water Quality Control Board (SFRWQCB). In addition to Section 401 and 402 (NPDES) of the CWA the State and SFRWQCB guide and regulate water quality in the vicinity of the Planning Area through the following policies or plans:

- The California Ocean Plan includes standards for discharge of pollutants to ocean waters and outlines water quality objective for the protection of marine species and public health concerns. The plan is not applicable to enclosed bays and estuaries or inland waters; however Half Moon Bay does not meet the definition of enclosed bay and is subject to the plan requirement.
- The Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) sets provisions regulating the thermal aspects of waste discharged to the ocean.
- The Water Quality Control Plan (or Basin Plan) for the San Francisco Bay Basin (amended through July 2013) includes beneficial uses for waters as well as standards for water quality and outlines a program for control of pollution, including non-point sources which contribute to erosion. The plan includes identification of waters not meeting their beneficial uses. Such "impaired" waters are listed under the CWA Section 303(d) and are required to have Total Maximum Daily Load (TMDL) established. TMDLs quantify the amount of a specific pollutant a water body can tolerate and meet applicable standards.

NPDES enforcement within the Planning Area is performed under a multi-jurisdictional approval discussed further within the "Local Policies and Regulations" below.

State of California Office of Emergency Services

More often, natural hazards are being addressed on a statewide basis to increase the potential for and success of interagency and regional response. The State of California Office of Emergency Services has released the 2013 draft of the State of California Multi-Hazard Mitigation Plan, also known as the State Hazard Mitigation Plan (SHMP). The SHMP outlines present and planned activities to address natural hazards. The adoption of the SHMP qualifies the State of California for federal funds in the event of a disaster. The SHMP provides goals and strategies which address minimization of risks associated with natural hazards and response to disaster situations. The SHMP [p 86] notes that the primary sources of losses in the State of California are fire and flooding. Fire is the most frequent source of disaster, and flooding is the second most frequent.[11]

Local Policies and Regulations

One of the most effective tools for the management of natural resources and the avoidance of risk from natural hazards is the implementation of policies and standards in local land use plans. The City of Half Moon Bay provides guidance for the identification, assessment, protection, avoidance or mitigation of hydrologic and water quality resources and/or hazards through the City General Plan, Local Coastal Program (LCP) Land Use Plan, and Zoning Code. Other regional plans or programs may provide additional guidance or planning resources to supplement or assist the City.

[11] State of California State Hazard Mitigation Plan, 2013 Draft. Accessed online at http://hazardmitigation.calema.ca.gov/plan/state_multi-hazard_mitigation_plan_shmp.

City of Half Moon Bay General Plan

The City of Half Moon Bay Safety Element (1991) includes policies related to hydrology including tsunami, seiche, inundation from dam failure, and flood hazard.

Tsunamis and Seiches: Includes policies requiring the development and maintenance of a Tsunami Warning Plan, and policies to avoid placement of critical facilities within the tsunami hazard zone.

Dam Failure: Includes policies requiring the development and maintenance of a dam inundation warning plan, and development of land uses consistent with the Zoning Ordinance.

Flood Hazards: Includes policies consistent with the Municipal Code, and that require delineation of natural hazards including FEMA flood data and dam failure inundation mapping, public disclosure of flood hazards, abatement of flood hazards, avoid placement of critical facilities within flood zones, retainment of natural flood plains, elevation of proposed structures above the flood hazard elevation, and require identification of mitigation on and off-site when necessary.

City of Half Moon Bay Local Coastal Program (LCP) Land Use Plan

The entire city is within the California Coastal Zone, and the city's LCP has been developed in compliance with the Coastal Act and is guided by the city's LCP Land Use Plan. The LCP Land Use Plan provides policies and programs that address conformity with the Coastal Act, along with other land use goals. Policies specific to planned development districts or area specific policies are generally not included below as it is assumed these policies are generally consistent with other applicable policies of the LCP Land Use Plan as related to hydrology or water quality resources or hazards. Many of the policies within the LCP Land Use Plan address broad resource or hazard topics that may include aspects or influence hydrology or water quality resources and hazards.

Policies and programs in this document specifically related to hydrology and water quality include, but are not limited to the following:

Policy 4-6: Applications for grading and building permits and applications for subdivisions shall be reviewed for adjacency to, threats from, and impacts on geologic hazards arising from seismic events, tsunami run-up, landslides, flooding, or other geologic hazards such as expansive soils and subsidence areas. In areas of known geologic hazards, as indicated on the Geologic Hazards Map [as shown in the LCP], a geologic report shall be required. Mitigation measures shall be required where necessary.

Policy 4-7: In areas of flooding due to tsunamis or dam failure, no new development shall be permitted unless the applicant or subsequent study demonstrates that the hazard no longer exists or has been or will be reduced or eliminated by improvements which are consistent with the policies of this Plan and that the development will not contribute to flood hazards or require the expenditure of public funds for flood control works. Where not otherwise indicated, the flood hazard zone shall be considered to be a zone defined by the measured distance of 100 feet from the centerline of the creek to both sides of the creek. Non-structural agricultural uses,

trails, roads, and parking lots shall be permitted, provided that such uses shall not be permitted within the area of stream corridor. (See Policies in Section 3 on Protection of Sensitive Habitats)

Policy 4-8: No new permitted development shall cause or contribute to flood hazards.

Policy 4-9: All development shall be designed and constructed to prevent increases in runoff that would erode natural drainage courses. Flows from graded areas shall be kept to an absolute minimum, not exceeding the normal rate of erosion and runoff from that of the undeveloped land. Storm water outfalls, gutters, and conduit discharge shall be dissipated.

Zoning and Other Ordinances

The Development Code, Zoning Ordinance, and similar tools provide specific standards which regulate the development of land uses, structures, and infrastructure within the community. These Codes and Ordinances are required to be consistent with the General Plan. The city's Municipal Code is continually updated, most recently in March 2014. Chapters specific to zoning districts are generally not included below as it is assumed the standards therein are generally consistent with other applicable standards of the Municipal Code as related to hydrology or water quality resources or hazards. Many standards addressing development, sewer facilities, water supply, erosion, or biological resources may directly or indirectly affect hydrology or water quality and are discussed in the appropriate sections of this report. Those standards that specifically address hydrology and water quality resources and associated hazards are embodied in the following Chapters of the Municipal Code:

Chapter 13.15 Stormwater Management and Discharge Control

The intent of this chapter is to protect and enhance the water quality of watercourses, water bodies and wetlands in a manner pursuant to and consistent with the Clean Water Act and includes guidelines for the discharge of pollutants, reducing pollutants in stormwater, controlling illicit discharge, and watercourse protection.

Chapter 14.04.020(D) Building Standards: Building code

Requires that no grading shall occur and no fill material shall be placed within 100 feet of the edge of the low flow channel in a flood plain area. Minor grading or filling may be allowed in a flood plan area for agricultural purposes if in the opinion of the City Engineer the grading or fill material will not adversely affect the drainage in the flood plain area.

Chapter 14.34 Flood Damage Prevention

The intent of this chapter to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions and includes guidelines for development that may be affected by or influence flood hazards.

Chapter 17.40 Subdivisions: Design Standards

Sections 17.40.105, 17.40.110, 17.40.125, and 17.40.130 include design standards for storm drainage and inundation management.

Chapter 18.38 Coastal Resource Conservation Standards

The intent of this chapter is to establish coastal resource conservation standards and includes definition of, permitted uses within, buffers, and development standards for various coastal resource areas including but not limited to marine habitats, riparian areas, riparian corridors, and wetlands. The chapter includes standards for the preparation of biological, archeological, and geological reports. The chapter also includes specific sections 18.38.120 and 18.38.121 addressing water quality protection for development on exceptional lots and of mobile home parks respectively.

San Mateo Countywide Water Pollution Prevention Program (SMCWPPP)

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) was established in 1990 for the purpose of reducing stormwater pollution in receiving waters (San Francisco Bay and Pacific Ocean). The County of San Mateo partnered with each incorporated city and town, including the City, to prepare a Stormwater Management Plan to comply with the NPDES Permit Program. A Municipal Regional Permit (MRP) (Order No. R2-2009-0074, NPDES Permit No. CAS612008) issued for the jurisdictions outlines the State's requirements for water quality and stormwater runoff as they apply to municipal agencies, development projects, construction or industrial sites, and illegal/illicit connections. The permit includes requirements for public education, future planning, and water quality monitoring.[12]

Several amendments to the SMCWPPP have occurred since original approval in 1995. Per Provision C.3 stormwater control measures are required during construction and operational phases of certain proposed developments. Specific project thresholds (project size, project type, impervious cover) may also trigger the need for the installation and maintenance of stormwater treatment systems and implementation of Low Impact Development (LID) techniques. A Hydromodification Plan (HMP) has also been prepared as part of the SMCWPPP that includes requirements to reduce impacts from erosion and water quality degradation by managing project runoff stormwater discharge rates.

[12] San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), 2014, Accessed 1/24/2014 at http://www.flowstobay.org/about.

Association of Bay Area Governments Local Hazard Mitigation Plan

ABAG prepared a Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP). The City adopted the plan with minor adaptations in a local annex as the city's LHMP. The plan and annex provide an assessment of hazards including but not limited to flooding, tsunami, dam failure, and climate change and include goals and objectives to maintain and enhance a disaster-resistant region by reducing the potential for loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery when they occur. The City identified specific objectives to reduce the number of public and private buildings within the city that are vulnerable to the effects of earthquakes, flood, and wildfires.

RESOURCES AND HAZARDS

Surface Water Resources

Surface waters in the region provide a variety of beneficial uses ranging from drinking and irrigation and supply for agricultural uses and livestock grazing to supporting wildlife resources, providing recreational opportunities, or mitigating disasters from flood storage. Surface water resources within the Planning Area are detailed below.

Watersheds

San Mateo County includes four hydrologic basins and approximately 34 watersheds draining to the Pacific Ocean or San Francisco Bay. The Planning Area is located entirely within the California Interagency Watershed (Calwater) mapped San Mateo Coastal Hydrologic Area (HA). The HA is divided into smaller sub-basins or hydrologic units and the Planning Area overlays portions of three Hydrologic Sub-Areas (HAS) and four Planning Watersheds (PWS), respectively. The four PWS within the Planning Area are Denniston Creek, Pilarcitos Creek, Mills Creek, and Purisima Creek. These PWS have been further divided into additional sub-basins by several localized studies that[13,14,15] identify15 sub-basin areas within the Planning Area (Figure 5-4).

Watersheds within the Planning Area have generally been found to contain a low percentage of imperviousness and a high percentage of unmodified creek channels (e.g. not channelized, culverted, concrete lined, or otherwise modified) compared to the Bay Area region, especially the more developed portions of the eastern San Francisco peninsula.[16] Despite these positive metrics development in the greater Bay Area and Planning Area has resulted in numerous instances of stream "incising", reducing the amount flood flows to surrounding floodplains and creating a positive feedback mechanism for further degradation. Stream channel incising, typically observed as the lowering or widening of the stream channel, is generally the result of excessive erosion. Although erosion is a natural stream process, this process can become problematic when the hy-

[13] SMCWPPP, 2002, Characterization of Imperviousness and Creek Channel Modification for Seventeen Watersheds in San Mateo County, January, 1 2002.

[14] SMCWPPP, 2007, San Mateo County Watershed Data in a GIS, July 16, 2007.

[15] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.

[16] SMCWPPP, 2002, Characterization of Imperviousness and Creek Channel Modification for Seventeen Watersheds in San Mateo County, January, 1 2002.

drogeomophic balance (e.g. discharge and sediment load) of a system is out of equilibrium, posing serious structural or ecological issues as well as the potential for damaging or endangering infrastructure or human life. Most commonly, excessive stream incising is found to be attributed to alteration in the upstream watershed through landscape change, modification of hydrologic patterns, stream channelization or straightening, and the introduction of greater discharges in relation to sediment loads. The degree and type of erosion/incising that may occur will depend on numerous factors including but not limited to the soils, sediment, and geology present; stream gradient and morphology characteristics; watershed land use and hydrology characteristics; and other anthropogenic stressors or modifications present. Stream incising once initiated is a difficult process to combat and often results in further degradation of the stream channel through further erosion, increased bank undercutting facilitating bank failure and collapse, or other morphological changes.[17]

There has been no comprehensive study or assessment of hydrologic conditions within the Study Area. However, localized studies, observations, or informal analysis have identified several occurrences of stream incision or other degradation or hydromodification. It is also likely that land use changes within the Planning Area, such as the conversion of natural lands for agricultural or other anthropogenic uses, have resulted in the modification of natural hydrologic processes of several of the surface waters present, through increased runoff from impervious surfaces, greater stormwater discharge, or modification of channel geomorphology. Instances of stream channel incision and associated stream bank erosion have been observed within Kehoe ditch as evidenced by the undermining and eventual collapse of stream bank vegetation as well as within Seymour ditch near Seymour Bridge as evidenced by substantial stream incision, stream bank erosion, and the undermining of the bride infrastructure (see Photo 5-19). Observations within the Pilarcitos watershed also found evidence of channel incision in many of the surface waters.[18]

[17] California Regional Water Quality Control Board (CRWQCB), 2003, A primer on Stream and River Protection For the Regulator and Program Manager, Technical Reference Circular W.D. 02-#1, San Francisco Bay Region, California Regional Water Quality Control Board, April 2003.

[18] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.



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Photo 5-19: Severe incising and stream bank erosion is evident at Seymour Bridge.

Major Creeks and Drainages

There are three perennial or near perennial (in most years) surface waters within the Planning Area; Frenchmans Creek, Pilarcitos Creek, and Arroyo Leon Creek. Arroyo de en Medio and Cañada Verde are intermittent surface waters that typically have consistent flow during the wet season (Figure 5-4). These features are characterized by narrow high gradient erosive headwaters and tributaries originating in the Santa Cruz Mountains transitioning to wider, lower gradient, depositional waters as they approach the ocean. Flows are primarily driven by precipitation and typi-

cally follow an annual pattern consistent with winter rains and summer drought. In dry years summer flows may be limited to shallow subsurface flow with the features appearing to be dry.

Three USGS stream gauge stations are located in the Planning Area along Frenchmans Creek, Pilarcitos Creek, and Arroyo Leon Creek. Only the Pilarcitos Creek station located near Half Moon Bay has a substantial dataset. This gauge has been in operation since July 1, 1966. Data from the gauge over this period indicates that flows peak in February and March near 20 cubic feet per section (cfs) dropping to below two cfs from June to mid-November.[19] Flow rates also demonstrated a range of peak variability reacting to storm events, with extreme events resulting in over 4,500 cfs. Based on review of the smaller datasets from the Arroyo Leon and Frenchmans Creek stations, flows at these locations typically follow similar hydrologic patterns with lower overall discharge rates.[20] The SFRWQCB Basin Plan has identified several existing uses for these surface waters (Table 5-3).

[19] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.

[20] United States Geological Survey, National Water Information System: Mapper data for Site Numbers 11162635 and 372744122253201. Accessed 1/28/2014 at http://maps.waterdata.usgs.gov/mapper/index.html.

Table 5-3: Existing and Potential Beneficial Uses of Water Bodies in the San Francisco Bay Region

Waterbody	Human Consumptive Uses							Aquatic Life Uses								Wildlife Uses	Recreational Uses		
	AGR	MUN	FRSH	GWR	IND	PRO	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
Arroyo de en Medio									E						E	E	E	E	
Frenchmans Creek	E								E			E	E	E	E	E	E	E	
Pilarcitos Creek	E	E							E			E	E	E	E	E	E	E	
Arroyo Leon Creek									E						E	E	E	E	

Note:

Existing beneficial use (E), agricultural supply (AGR), municipal and domestic supply (MUN), freshwater replenishment (FRESH), groundwater recharge (GWR), industrial service supply (IND), industrial process supply (PRO), commercial and sport fishing (COMM), shellfish harvesting (SHELL), cold freshwater habitat (COLD), estuarine habitat (EST), marine habitat (MAR), fish migration (MIGR), preservation of rare and endangered species (RARE), fish spawning (SPWN), warm freshwater habitat (WARM), wildlife habitat (WILD),water contact recreation (REC-1), noncontact water recreation (REC-2), navigation (NAV).

Source: California Regional Water Quality Control Board (RWQCB), 2013, San Francisco Bay Region, Water Quality Control Plan (Basin Plan), July 2013. Accessed online at http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml.



Photo 5-20: Perennial portion of Pilarcitos creek

Minor Creeks and Drainages

Several lesser natural and man-made creeks and drainages are located throughout the Planning Area (Figure 5-4). These features are typically characterized by intermittent flows resulting primarily from storm events with little or no base flow present for much of the year. Most

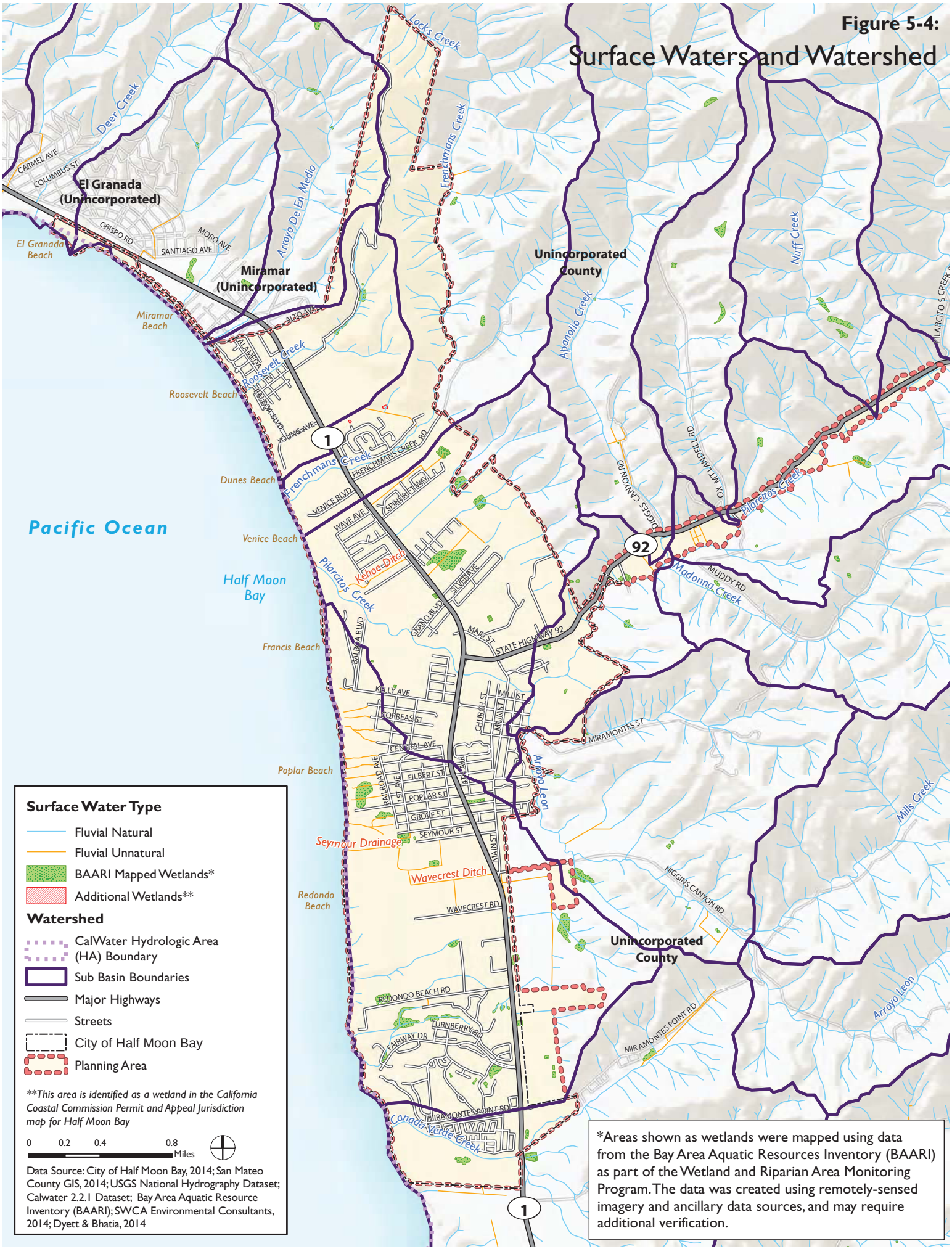
of these features have limited flow lengths and small localized watershed areas. These features typically drain either directly or through various conveyances (pipes, ditches, culverts) to the larger drainage features described above, are isolated and lack additional surficial connection, or are located in close proximity to the ocean and discharge directly to beach areas.

Several of the minor drainage features are depicted as intermittent blue line streams on USGS topographic mapping and have assumed local names generally associated with the nearest or adjacent roadway. These features include but are not limited to Roosevelt Drainage, Pullman Ditch, Kehoe Ditch, Wavecrest Ditch, and Seymour Drainage. These features generally do not support as diverse resources and uses as the larger drainages but contribute to flora and fauna habitat, groundwater recharge, stormwater and local flood management. Several of these features, particularly the man-made ditches (Kehoe, Pullman, and Wavecrest), are subject to potential erosion and flood hazards.



Photo 5-21: Intermittent portion of Roosevelt Drainage following precipitation

Figure 5-4:
Surface Waters and Watershed



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Ground Water Resources

Groundwater is an important element of the hydrology of the region. Groundwater can supply water for drinking, irrigation, and industrial processing and service, and may influence surface water hydrology through inflow or discharge. The Planning Area is almost entirely underlain by the Half Moon Bay Terrace groundwater basin (Figure 5-5). The basin occupies a total area of approximately 9,150 acres along the California coast from Matins Beach north to Montara, approximately 3,546 acres of which is located within the Planning Area. The basin supplies limited water for domestic and municipal uses with the most significant withdrawal from the Ocean Colony Partners Balboa well field used to irrigate two golf courses in the area. The basin is made up of several smaller sub-basins. Several localized studies completed within the region[21,22] identify 4 sub-basins areas, El Granada sub-basin, Arroyo de en Medio sub-basin, Frenchmans Creek sub-basin, and Lower Pilarcitos Creek sub-basin within the Planning Area.

The aquifers of these sub-basins are generally composed of shallow, unconfined and semi-confined, marine terrace and alluvial deposits, underlain by the Purisima formation with overlying fine-grained alluvial deposits. The overlying alluvial deposits can create an impermeable cap over the marine terrace aquifers resulting in confined groundwater conditions. The aquifers are generally bound on the east by bedrock and on the west by the Pacific Ocean. Groundwater flows are from east to west, toward the Pacific Ocean, and can be significant. Ocean discharge accounted for 77 percent of outflow in the Lower Pilarcitos Creek sub-basin.[23] This outflow to the ocean results in large seasonal changes in groundwater levels as well as a dynamic fresh-salt water interface. Although saltwater intrusion in existing wells has not been documented, greater withdrawal, less recharge, and/or drought will move this interface inland. The aquifer in the Lower Pilarcitos Creek sub-basin has less than 40 feet of saturated thickness (typically beginning 40-80 feet below ground surface) and is known to fluctuate by 10-20 feet based on seasonal variation. This variability in such a relatively thin aquifer, typical of this portion of the coast, may affect groundwater source reliability and yield, especially during drought when recharge is reduced.

Rainfall recharge and subsurface inflow from drainages are the primary contributors to inflow in the Planning Area. Stream recharge has been indicated as the primary contributor to recharge especially in the El Granada, Arroyo de en Medio, and Frenchmans Creek sub-basins. Overall, aquifers in the Planning Area have groundwater surplus during wet years but may have a deficit in dry or prolonged drought periods, though these variations appear to be in long-term balance and can likely support moderate increases in water extraction. Such in-

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[21] Woyshner, M., Hecht, B., Parke, J., Baggett, T. 2010. Midcoast Groundwater Study Phase III, San Mateo County, California, Balance Hydrologics, Inc. June 4, 2010.

[22] Todd Engineers. 2003. Lower Pilarcitos Creek Groundwater Basin Study. Coastside County Water District, Half Moon Bay, California. June 2003.

[23] Todd Engineers. 2003. Lower Pilarcitos Creek Groundwater Basin Study. Coastside County Water District, Half Moon Bay, California. June 2003.

creases will require additional study and monitoring, especially in dry years when the risk of salt water intrusion is heightened.[24]

Long-term monitoring and expanded and more reliable data are required to understand groundwater resources within each sub-basin. Factors that influence stream base flow such as stormwater runoff, erosion, and hydrologic modification from existing and new development will require continued analysis and regulation through local, state, and federal programs.

The SFRWQCB Basin Plan has identified several existing uses for the Half Moon Bay terrace groundwater basin (Table 5-4).

Table 5-4: Existing & Potential Beneficial Uses in Groundwater in Identified Basins

Groundwater Basin	*MUN*	*PROC*	*IND*	*AGR*	*FRESH*
Half Moon Bay Terrace	E	P	P	E	-

E= Existing beneficial use; P = Potential beneficial uses.

MUN = Municipal and domestic water supply.

PROC = Industrial process water supply.

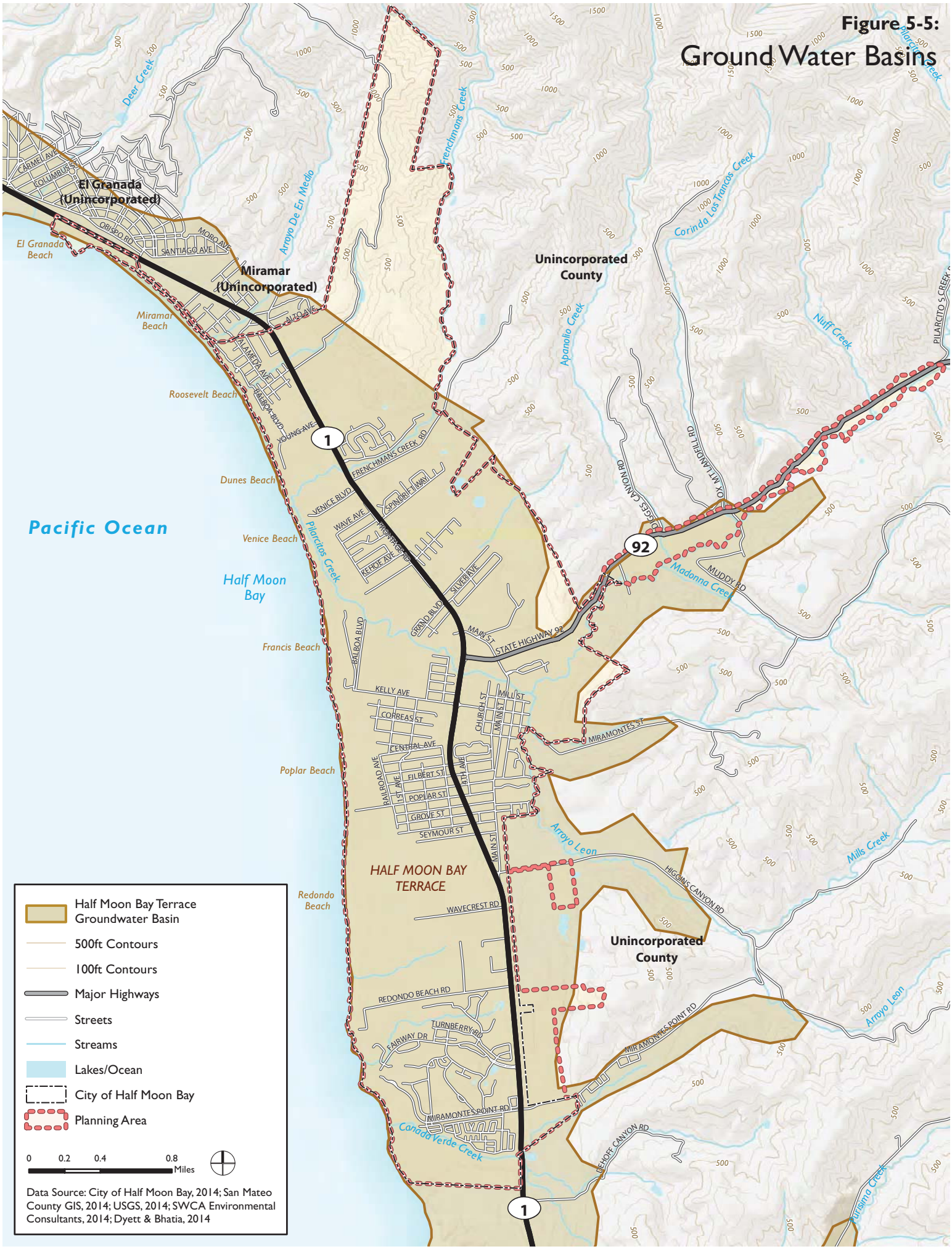
IND = Industrial service water supply.

AGR = Agricultural water supply.

FRESH = Freshwater replenishment to surface water; designation will be determined at a later date; for the interim, a site-by-site determination will be made.

Source: California Regional Water Quality Control Board (RWQCB), 2013, San Francisco Bay Region, Water Quality Control Plan (Basin Plan), July 2013. Accessed online at http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml.

[24] Woyshner, M., Hecht, B., Parke, J., Baggett, T. 2010. Midcoast Groundwater Study Phase III, San Mateo County, California, Balance Hydrologics, Inc. June 4, 2010.


Figure 5-5:
Ground Water Basins
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
HALF MOON BAY TERRACE
Pacific Ocean
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
Deer Creek
Arroyo De En Medio
Frenchmans Creek
Corinda Los Trancos Creek
Apanolio Creek
Nuff Creek
Pilarcitos Creek
Madonna Creek
Arroyo Leon
Mills Creek
Canada Verde Creek
Purisima Creek
CARMEL AVE
COLUMBUS ST
OBISPO RD
SANTIAGO AVE
MORO AVE
ALTO AVE
ALAMEDA AVE
CABRILLO HWY
YOUNG AVE
FRENCHMANS CREEK RD
VENICE BLVD
SPINDRIFT WAY
WAVE AVE
REHOBE AVE
SILVER AVE
GRAND BLVD
BALBOA BLVD
MAIN ST
STATE HIGHWAY 92
KELLY AVE
CORREAS ST
CENTRAL AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
CHURCH ST
MILL ST
MIRAMONTES ST
RAILROAD AVE
1ST AVE
8TH AVE
WAVECREST RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
HIGGINS CANYON RD
MUDDY RD
OX MT LANDELL RD
DEHOFF CANYON RD
1
92
Half Moon Bay Terrace Groundwater Basin
500ft Contours
100ft Contours
Major Highways
Streets
Streams
Lakes/Ocean
City of Half Moon Bay
Planning Area
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; USGS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Water Quality

Water quality is a key factor in maintaining the beneficial uses of hydrologic resources. Water quality degradation not only endangers public health and welfare but can have substantial negative effects on flora and fauna including threatened or endangered species. Sources contributing to water quality degradation include erosion from construction or hydromodification (alteration of the natural flow of water through a landscape), pollutants and nutrients present in stormwater runoff, wastewater discharge, sedimentation from excess erosion, thermal modification, and pollutant spills or contamination from historic or active facilities.

Surface Water Quality

Surface waters in the Planning Area are dynamic, responding rapidly to storm runoff. Water quality is substantially influenced by runoff and the materials transported therein. Urban runoff has been found to contribute significant quantities of total suspended solids, heavy metals, petroleum hydrocarbons, and other pollutants to the waters of the region.[25] The impact of these pollutants is variable. Nutrients from fertilizer, agricultural operation, sewerage, and sediments can result in toxic algal blooms and anoxic (low dissolved oxygen) conditions. Suspended sediments and other solids bind to and transport harmful or toxic pollutants and nutrients, are harmful to freshwater fish, and can cause sedimentation, facilitating further habitat degradation and hydromodification. Metals (cadmium, copper, lead, and zinc), petroleum hydrocarbons, and other toxic contaminants (pesticides, herbicides) washed off from impervious surfaces and developed areas may produce toxic responses in aquatic life or human health risks. Pathogens (total coliform and Escherichia coli [*E. coli*]) from fecal waste, wastewater, and septic systems can cause disease and other health concerns.[26]

Considerable water quality monitoring has occurred within Pilarcitos Creek due to concerns about downstream conditions at Venice Beach. Sampling results indicate that Pilarcitos Creek consistently has high fecal coliform counts relative to similar coastal streams.[27] Similar high fecal coliform counts have been observed along several beaches in the northern portion of the Planning Area near Pillar Point Harbor requiring the San Mateo County Department of Environmental Health to post warnings for potential health hazards.[28] Venice Beach and Pillar Point Harbor are both listed on the SWRCB 303(d) list as impaired by coliform bacteria. The 303(d) list prepared pursuant to Chapter 7. Section 303(d) of the federal Clean Water Act requires states to identify water bodies that are not attaining water quality standards and to establish Total Maximum Daily Loads (TMDLs) for pollutants causing the impairment (non-attainment of water quality standards). TMDLs for Venice Beach and Pillar Point Harbor are planned to be completed by 2019. To

[25] California Regional Water Quality Control Board (RWQCB), 2013, San Francisco Bay Region, Water Quality Control Plan (Basin Plan), July 2013. Accessed online at http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml.

[26] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.

[27] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.

[28] San Mateo Resource Conservation District (SMRCD), 2007. Identification of Sources of Fecal Pollution Impacting Pillar Point Harbor, Pillar Point Harbor Project Description, October 29, 2007.

date, though much speculation has been made, the primary sources for fecal pollution in the area are unclear and additional study is needed and currently planned.

In addition to fecal pollution, high levels of zinc and copper (2003-2005) and nutrients (2005) have been recorded in Pilarcitos Creek. It is speculated that the elevated trace metals may be attributed to the BFI Ox Mountain Sanitary Landfill located just east of the Planning Area, though additional study is required to confirm sources.[29]

Additional analysis is needed to better understand surface water quality sources and fates within the Planning Area. Surface water quality monitoring and pollutant reduction will continue to be addressed through local, state, and federal programs such as the SMCWPPP. Surface water contamination from anthropogenic sources will continue to be regulated through federal, state, and local authorities with clean-up typically enacted by the party responsible or liable for the source.

Groundwater Quality

Groundwater quality in the region is variable depending on well location, depth, and development (age and use of well). Typically groundwater in the region is considered to be of good quality with mineral, chemical, and physical constituents meeting domestic water quality standards.[30] However, groundwater along the coast and within the Planning Area is consistently hard and studies have shown the potential for elevated levels of total dissolved solids, iron, and manganese.[31] Due to the proximity to the ocean, saltwater intrusion is a potential concern especially if groundwater withdrawals increase. Groundwater can be impacted by a variety of historic or ongoing anthropogenic activities including industrial and agricultural chemical spills, underground and above ground tank and sump leaks, landfill leachate, septic tank failures, and chemical seepage via shallow drainage wells and abandoned wells. Toxic pollutants commonly found in groundwater range from solvents (including volatile organic compounds [VOCs] and semi-volatile organic compounds [SVOCs]), petroleum hydrocarbons, heavy metals, or a combination of these pollutants.[32]

The California Department of Toxic Substances Control (DTSC) and SWRCB track and identify sites with known or potential contamination and sites that may impact groundwater, respectively.[33,34] The DTSC has identified four sites within the Planning Area that have known or potential

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[29] Phillip William and Associates (PWA), 2008, Pilarcitos Integrated Watershed Management Plan, October 24, 2008.

[30] San Mateo County General Plan, Chapter 1–Vegetative, Water, Fish, and Wildlife Resources and Chapter 15-Natural Hazards, 1985.

[31] Todd Engineers. 2003. Lower Pilarcitos Creek Groundwater Basin Study. Coastside County Water District, Half Moon Bay, California. June 2003.

[32] California Regional Water Quality Control Board (RWQCB), 2013, San Francisco Bay Region, Water Quality Control Plan (Basin Plan), July 2013. Accessed online at http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml.

[33] State Water Resources Control Board (SWRCB), 2014, GeoTracker data. Accessed 2/3/2014 at http://geotracker.waterboards.ca.gov/.

[34] Department of Toxic Substances Control (DTSC), 2014, EnviroStor data. Accessed 2/3/2014 at http://www.envirostor.dtsc.ca.gov/public/.

contamination. No current management is proposed at these sites, three of which have concluded that no further action is necessary, and one site (Half Moon Bay Rad L-82 [J09CA0821]) is identified as needing evaluation. The SWRCB has identified 35 sites within the Planning Area that may impact groundwater and require clean-up. 32 of these sites are Leaking Underground Storage Tank (LUST) sites, of which only two are still active, the other 30 LUST sites having met clean-up criteria. The two active LUST sites include a private residence and a Caltrans Maintenance facility. Of the three other SWRCB clean-up sites in the Planning Area, one site is identified as completed, one site is inactive, and one site is under assessment.

The Half Moon Bay Landfill, a closed Class III landfill owned by San Mateo County, is located on approximately 14 acres along Railroad Avenue between Metzgar and Seymour streets. The landfill accepted primarily inert material, yard waste, and residential waste from 1962 to 1976, and was capped in 1978. The marine terrace on which the landfill is located is subject to erosion from wave action, and a portion of landfill waste was exposed in the early 1990s. The eroded area was repaired by the County through regrading and the installation of a concrete block and steel chain mat.[35] The site has been inspected regularly by the County as part of a gas monitoring program.[36] The landfill is not listed as a Superfund or State Response Site, and according to the Wavecrest Coastal Trail CEQA documentation, is thus not considered a potential hazard.[37]Several other sites with known or potential contamination or that may impact groundwater are located in the vicinity of the Planning Area, including the BFI Ox Mountain Sanitary Landfill located to the east. The landfill actively treats leachate water through a filtration system. Figure 5-6 shows known contaminated sites in the Planning Area.

Groundwater testing in several wells in the lower Pilarcitos Creek groundwater basin did not identify anthropogenic chemicals in any of the tests. Installation of new wells within the Planning Area will require assessment and permitting prior to operation. Groundwater contamination from anthropogenic sources will continue to be regulated through federal, state, and local authorities with clean-up typically enacted by the party responsible or liable for the source.

[35] County of San Mateo Department of Public Works, 2010. Request for Proposals for Environmental Consulting Services for Conducting Groundwater and Landfill Gas Monitoring at the Closed Half Moon Bay and Pescadero Landfills.

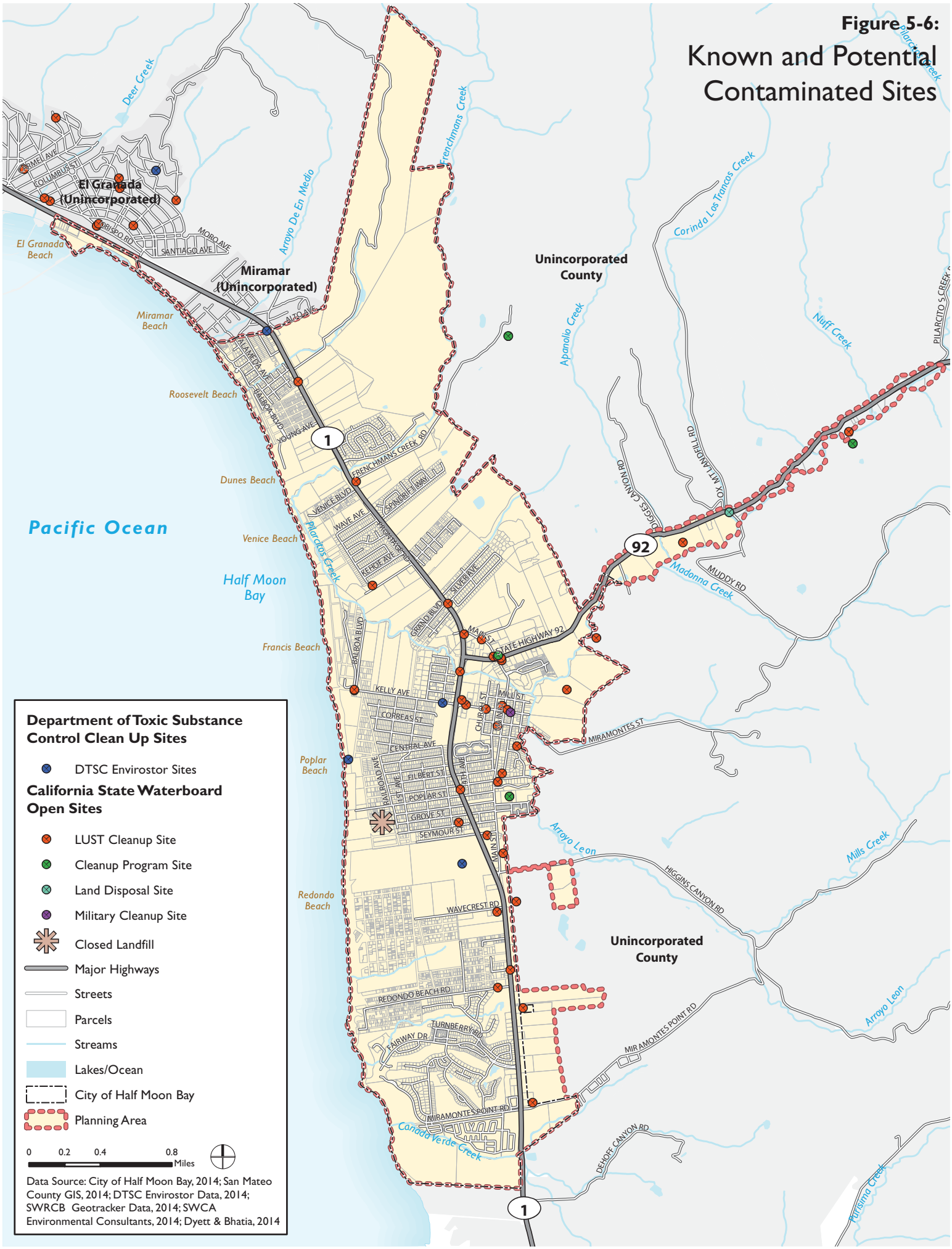
[36] CalRecycle Solid Waste Information System (SWIS). Accessed 7/14/2014 at http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0165/Detail/.

[37] Placeworks, 2014. Wavecrest Coastal Trail Project Public Review Draft Initial Study.



Photo 5-22: Horse trail across Pilarcitos Creek a potential contributor of erosion and water quality degradation

Figure 5-6:
Known and Potential Contaminated Sites



Department of Toxic Substance Control Clean Up Sites

- DTSC Envirostor Sites

California State Waterboard Open Sites

- LUST Cleanup Site
- Cleanup Program Site
- Land Disposal Site
- Military Cleanup Site
- Closed Landfill
- Major Highways
- Streets
- Parcels
- Streams
- Lakes/Ocean
- City of Half Moon Bay
- Planning Area

0 0.2 0.4 0.8 Miles

Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; DTSC Envirostor Data, 2014; SWRCB Geotracker Data, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Flood Hazards

Flood hazards in the Planning Area are typically associated with storms or other events resulting in coastal flooding from waves or tsunamis. Several creaks and drainages pass through the city and are also subject to fluvial flooding. Fluvial flooding can be exacerbated by coastal flooding as wave run-up reduces discharge capacity and increase flood extents. The federal Flood Insurance Study (FIS) for the Planning Area does not discuss fluvial flooding associated with the creeks or drainages.[38] The FIS identifies flooding from the Pacific Ocean as the main flood hazard especially in conjunction with the natural instability of the shoreline putting coastal facilities and development at risk.

Flood hazards have been mapped for the Planning Area pursuant to the FEMA FIRM; these flood zones are shown on Figure 5-7.[39] Specific hazard zones and other flooding hazards are outlined below.

Flood Hazard Zones

Several portions of the Planning Area are mapped within flood hazard zones. The entirety of the coast typically landward to the nearest coastal bluff or just inland is within a coastal high hazard area. The two coastal flood designations are Zone V (coastal areas subject to the 100-year flood with additional hazards associated with storm-induced waves; no Base Flood Elevations determined) and Zone VE (coastal areas subject to the 100-year flood with additional hazards associated with storm-induced waves; Base Flood Elevations determined). The portion of the coast within the Zone VE is located from Magellan Avenue to Guerrero Avenue adjacent to Miramar Beach with Base Flood Elevation (BFE) 30 as the referenced to the North American Vertical Datum of 1988 (NAVD 88). A special flood hazard area, Zone AE (100-year flood; with BFE determined), is mapped adjacent to these areas with a BFE of 30 (NAVD 88). Immediately landward of Zone V from Magellan Avenue to the northern Planning Area boundary and from Guerrero Avenue south to Kelly Avenue a portion of the Planning Area is mapped as Zone D (areas in which flood hazards are undetermined, but possible).

In additional to coastal high hazard area, a special flood hazard area (Zone A, 100-year flood; no BFE determined) is mapped along the entirety of Frenchmans Creek and along portions of Arroyo Leon Creek and Pilarcitos Creek in the eastern portion of the Planning Area. In 2013, a Letter of Map Amendment (LOMA) was granted to exclude a structure at 814 Miramontes Street

[38] FEMA, 2012, Flood Insurance Study (FIS), San Mateo County, California and Incorporated Areas, October 16, 2012. Accessed at https://msc.fema.gov/webapp/wcs/stores/servlet/StoreCatalogDisplay?storeId=10001&catalogId=10001&langId=-1&userType=G.

[39] Federal Emergency Management Agency (FEMA), 2012, Flood Insurance Rate Map (FIRM), San Mateo County, California and Incorporated Areas, Panels 138E, 140E, 145E, 151E, 255E, 260E, 265E, 270E. October 16, 2012. Accessed at https://msc.fema.gov/webapp/wcs/stores/servlet/StoreCatalogDisplay?storeId=10001&catalogId=10001&langId=-1&userType=G.

from the 100-year flood. The LOMA identified the 100-year flood elevation in the vicinity of the structure along Arroyo Leon Creek to be at elevation 60.9 (NAVD 88).[40]

Existing state and local regulations generally guide development within the 100-year flood hazard zone. Planning for areas proximate to identified flood hazard zones should identify opportunities to increase site performance and reduce contributions to flood hazards. The city has participated in the NFIP since 1986 and adopted a floodplain management program into the local ordinance in 2002.



Photo 5-23: Flooding Adjacent to Pilarcitos Creek

Localized Flooding

Urban development and impervious surfaces typically increase the frequency of small and moderate peak flow events. Such hydromodification can result in degradation of natural and man-made

[40] FEMA, 2013, Letter of Map Amendment Determination Document (Removal), Case No. 13-09-1702A, May 21, 2013.

features from incision and erosion.[41] Development in connection with modification of natural drainage patterns often contributes to localized flooding where existing features (natural or man-made) are not sized, designed, or maintained in a manner sufficient to handle storm flow quantities.

The city's storm drainage system typically conveys run-off to various natural or man-made drainage features. Much of this drainage system consists of a network of man-made ditches or swales originally constructed prior to 1948 (earliest imagery available for review) or by the mid-1950s as roadside or agricultural drainage features. The primary function of these drainage features is to convey run-off from the east side of Highway 1 through culverts to the network of ditches and swales located along the coastal terrace and eventually to the ocean. Between the 1960s and 1980 large portions of agricultural lands in the Planning Area were developed as residential with much of the Planning Area resembling current conditions in the late 1990's.[42] Much of the drainage infrastructure has not been updated and many features are not suitable for current development flows, resulting in localized flooding that damages or threatens property and infrastructure. Lack of maintenance of existing drainage infrastructure can also result in localized flooding as culverts are blocked or sediment or debris accumulates reducing capacity.

Areas within the Planning Area where previous events or studies have identified localized flooding as a concern include, but are not limited to, the Casa del Mar neighborhood near Kehoe Ditch, Miramar neighborhood near Roosevelt Drainage, and Grandview and Newport Terrace subdivisions. Many of the studies are outdated or limited to small portions of the Planning Area. Additional analysis is required to document the existing drainage infrastructure within the Planning Area and identify deficiencies, hazards, and potential improvements.

[41] SMCWPPP, 2004, Assessment of Sediment Management Practices in Six High Priority Watersheds in San Mateo County, August 2004.

[42] Nationwide Environmental Title Research (NETR) 2014, Historic Aerials by NETR. Accessed 2/3/2014 at http://historicaerials.com/.



Photo 5-24: Flooding in the Miramar neighborhood adjacent to Roosevelt Drainage

Tsunami

Tsunamis are large waves cause by seismic or landslide events in the ocean floor. Tsunamis can result from off-shore earthquakes near the Planning Area coastline or from far distant events. Although tsunamis are more typically generated by subduction faults (Washington and Alaska) local tsunamis may result from strike-slip faults along the San Andreas fault running along the

coast of the San Francisco Peninsula.[43] In general, tsunamis along the west coast of the Unites States and the Planning Area, in particular, are considered to be rare. Most of the recorded tsunami events in the vicinity of the Planning Area have been small with many possibly misinterpreted from other wave-related phenomena such as storm-generated waves or seiches.[44]

Despite the relative rarity of tsunami events, even small tsunami events have the potential to result in coastal flooding. In 1859, a tsunami resulted in 4.6-meter wave heights near the Planning Area and teletsunamis (tsunamis originating from sources more than 620 miles away) in 1946, 1960, and 1964 resulted in minor damage along the coastline. Recent tsunami events in Japan and Thailand have increased awareness of the potential for damage associated with such events. The Pacific Tsunami Warning System based in Hawaii monitors wave activity and generates tsunami warnings when seismic events of sufficient magnitude occur. The USGS, National Oceanic and Atmospheric Administration (NOAA), California Geological Survey, and others, are currently working to develop a Pacific Basin Tsunami Scenario. This effort would model inundation patterns, currents and shoreline damage patterns to determine impacts of a Pacific Tsunami event.

The Association of Bay Area Governments (ABAG) in partnership with the City of Half Moon Bay has adopted a Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) that includes hazard mapping and a tsunami evacuation planning map identifying a potential worst case scenario, aggregated from all potential sources of tsunamis, measuring the highest potential wave height from any tsunami event along the coast. This mapping included ground truth surveys to incorporate features that may impede inundation, and is shown on Figure 5-8.

Tsunami risk within the Planning Area is mapped along the entirety of the Half Moon Bay shoreline typically ranging inland only as far as the large bluffs (over 30 feet in elevation in most areas) along the coastline. Areas subject to greater risk are located along Pilarcitos Creek where inundation ranges approximately 3,000 linear feet inland from the coast, adjacent to Naples Beach ranging inland approximately 1,300 linear feet, and adjacent to Miramar Beach, Vallejo Beach, and El Granada Beach. These areas include residential, commercial, and recreational developed land uses, as well as the Sewer Authority Mid-Coastside wastewater treatment facility and one City-owned bridge. Overall, the LHMP found that less than 20 percent of the city's population~~, one City-owned bridge,~~ and no critical infrastructure are ~~located within the inundation zone~~exposed to this hazard.[45]

Mitigation of tsunami risk consists mainly of improved early warning systems, and sufficient evacuation routes and information, rather than restrictions on development. In 2005 the City installed two tsunami sirens within the city limits and updated its evacuation plan. The City has also obtained its tsunami ready certification from NOAA.

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[43] Association of Bay Area Governments (ABAG), 2010, Taming Natural Disasters, Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area, Publication Number: P09001EQK.

[44] Lander, J.F., Lockridge, P.A., and Kozuch, M.J., 1993, Tsunamis Affecting the West Coast of the United States 1806-1992: National Geophysical Data Center Key to Geophysical Record Documentation No. 29, NOAA, NESDIS, NGDC, 242 p.

[45] City of Half Moon Bay (HMB), 2011, Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan, Taming Natural Disasters, April 15, 2011.

In 2012 the Silicon Valley Community Foundation (SVCF), a regional philanthropic organization devoted to improving the quality of life in San Mateo County and beyond, commissioned a report to assess community disaster preparedness including how recommendations from a 2006 San Mateo County Civil Grand Jury report have been addressed. The report recommended several actions to address tsunami preparedness within San Mateo County including an annual disaster preparedness day, improved education and outreach on disaster preparedness protocol including Spanish language communication improvements, funding for supplies and emergency equipment, standardizing emergency response team training, and hiring an emergency preparedness coordinator.[46]

Dam Inundation

Dams can be damaged resulting in possible dam failure from several natural or man-made hazards such as large storms, earthquakes, slope failures, design flaws, and erosion. Dam failure is important for many reasons but critically can result in substantial inundation of downstream areas endangering public health, safety, and property as well as loss of water storage for significant time periods. There are no records of dam failure within the Bay Area.[47] Dam inundation mapping typically occurred during the 1970s. Such mapping represents a best estimate and is typically based on if the dam was full during failure, does not account for potential run-off from storms or other contributing factors, and does not indicate inundation depths. Similar to tsunami mapping, dam failure mapping is generally for evacuation planning and risk assessment or future safety upgrades or planning.[48]

Two dams located in the vicinity have the capacity to endanger lives and property within the Planning Area in the event of failure; Johnston Dam and Pilarcitos Dam (Table 5-5). Johnston Dam is relatively small and no inundation area data is available. As shown on Figure 5-8, inundation from Pilarcitos Dam could be substantial with areas adjacent to the creek experiencing inundation from 200-600 feet in width covering an area of approximately 247 acres within the Planning Area (approximately 176 acres of urban land)[49] as well as portions of Highway 92 and the SAM wastewater treatment facility.[50] The Pilarcitos Dam is not shown in Figure 5-8 because the dam is located outside of the study area and bounds of the map.

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[46] Silicon Valley Community Foundation (SVCF), 2012. San Mateo County Coastside Tsunami-Preparedness Assessment Report, August, 2012.

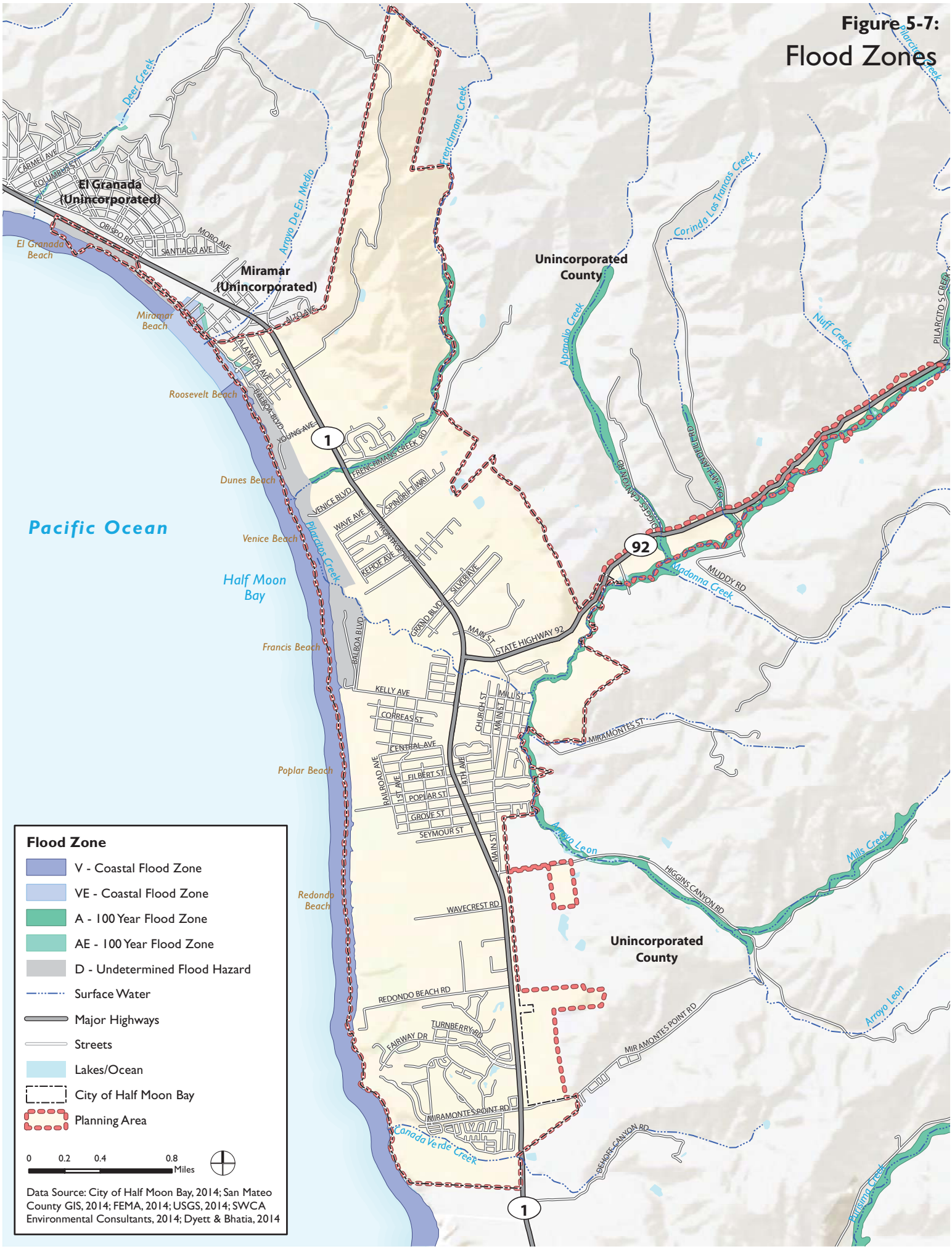
[47] Association of Bay Area Governments (ABAG), 2010, Taming Natural Disasters, Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area, Publication Number: P09001EQK.

[48] Association of Bay Area Governments (ABAG), 2010, Taming Natural Disasters, Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area, Publication Number: P09001EQK.

[49] ABAG, 2014b Land Use and Infrastructure in Hazard Areas Data, Accessed 1/24/2014 at http://quake.abag.ca.gov/mitigation/landuse/.

[50] ABAG, 2014b Land Use and Infrastructure in Hazard Areas Data, Accessed 1/24/2014 at http://quake.abag.ca.gov/mitigation/landuse/.

Figure 5-7:
Flood Zones

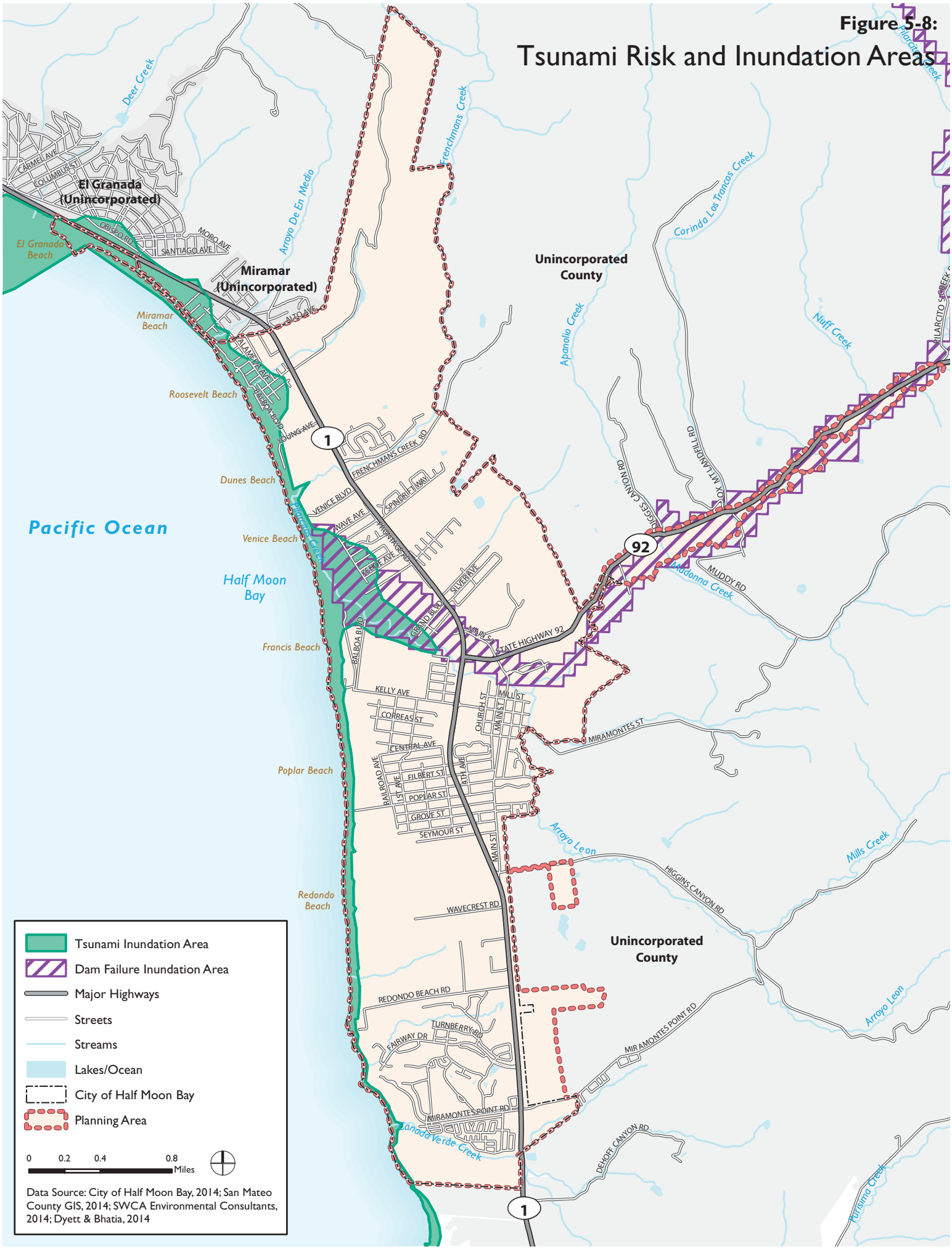


Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; FEMA, 2014; USGS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Figure 5-8:

Tsunami Risk and Inundation Areas



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Table 5-5: Dams with the Potential to Inundate the Planning Area

Dam	*Dam Height (feet)*[1]	*Dam Capacity (acre-feet)*[1]	*Inundation Area within Planning Area (acres)*[2]	*Total Size of Population Affected by Inundation Area*[1,3]
Johnston	27	30	N/A	100
Pilarcitos	103	3100	247	300

1. Source: San Mateo County General Plan, Chapter 15 Natural Hazards, 1985.
2. Source: ABAG, 2014b. Includes 176 acres of urban land and 72 acres of non-urban land.
3. Based on 1983 population and build-out data.

Climate Change and Sea Level Rise

Climate change is generally expected to increase the frequency and severity of certain hazards, including flooding and wave damage. The adopted LHMP and associated mapping identifies that sea level rise in the Planning Area is primarily contained to areas along the coast resulting in more instances of shallow coastal flooding. Overall socioeconomic vulnerability to sea level rise of the Planning Area is low.[51] Climate change has not been directly linked to any specific disaster events. Sea level rise will be an ongoing issue for the Planning Area, and the City and surrounding jurisdictions are working at both the state and local level to reduce emissions generally thought to contribute to climate change, while planning communities to anticipate risks related to sea-level rise and other hydrologic hazards. Sea level rise estimates have been adopted by ABAG, and are currently under consideration by the California Coastal Commission.[52]

Stormwater Management

As discussed in this section, the City operates and maintains a storm drainage system. Stormwater is generally conveyed via the system to various surface waters or outfalls along the coastal bluffs that discharge to the ocean. Stormwater has been found to contribute various pollutants to the waters of the region. The City Department of Public Works conducts various maintenance activities to reduce pollutant loads (street sweeping, cleaning catch basins and storm lines, and removing material from drainage channels). The City as well as new development within the Planning Area must also comply with the requirements of the SMCWPPP. Details regarding stormwater management are included in this chapter, as well as within Chapter 9.3 of this report.

Atypical Conditions

There is anecdotal evidence of non-conforming uses and atypical waste or water disposal conditions in the Planning Area, including inadequate hydrocarbon filters, storage of potentially hazardous materials, and discharge of pollutants into the city drainage system.

[51] ABAG, 2014, Sea Level Rise and Coastal Flooding Impacts Map, Accessed 1/24/2014 at http://www.csc.noaa.gov/slr/viewer/#.

[52] California Coastal Commission, 2013. Public Review Draft Sea Level Rise Policy Guidance.



Photo 5-25: Storm drain inlet and drainage ditch

KEY PLANNING ISSUES AND IMPLICATIONS

Review of pertinent materials has detailed the presence and extent of hydrologic and water quality resources and hazards within the Planning Area. Constraints associated with these resources and hazards will influence future development efforts and may require measures to minimize impacts. Generally, areas of particular hazard including flood zones, tsunami inundation zones, and dam inundation areas have been previously delineated and standards or policies have been adopted that discourage or regulate development proximate to these areas. Similarly, existing state, regional, and local standards or policies that address water quality issues or natural resources have an inherent influence on hydrologic resources in the Planning Area through development standards, design criteria, and/or permitting requirements.

Many of the resources identified in this section can not only be seen as constraints, but also be viewed for their potential to provide opportunities to the Planning Area. Several surface waters and groundwater basins in the Planning Area have previously been identified for their potential beneficial uses. Through thoughtful development, restoration opportunities, detailed study, and advanced planning these resources and others within the Planning Area can provide continued and new chances for public enjoyment, municipal use, and biological/hydrologic integrity. Future planning and new development should implement applicable requirements to address drainage and flooding issues, connect and improve stormwater infrastructure, as well as on-site infiltration.

Plans should address ongoing issues with illegal land uses and illicit discharges and associated impacts to stormwater. Policies should reflect recent documents, including recommendations identified in the *San Mateo County Coastside Tsunami-Preparedness Assessment Report* (August 2012) and the requirements of the SMCWPPP and recommendations in the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan (2010) and CCC Sea-Level Rise Policy Guidance (when adopted). Additional, site-specific policies or planning recommendations may need to be developed or incorporated into the GPU.

Hydrology and Water Quality

Hydrologic resources can be significantly influenced and impaired by existing, new, and re-development. New impervious surfaces from development projects increase stormwater flows, reduce groundwater recharge, increase pollutant discharge, increase erosion, and can result in hydromodification that may further proliferate degradation. Out of date studies or lack of detailed studies present an information gap in understanding current conditions and potential constraints. Development planning provides an opportunity to develop policies, standards, and design criteria to minimize potential impacts to hydrologic resources.

Development In and Near Flooding or Inundation Hazards

Hydrologic hazards including flood zones and coastal hazards (i.e., sea level rise, tsunami, wave runup) and localized flooding limit development or result in the need for stormwater management and control. Development planning provides an opportunity to develop policies, standards, and design criteria to limit future development in areas subject to natural hydrologic hazards.

SUMMARY

Hydrologic resources and hazards in the Planning Area present both opportunities and constraints to future planning efforts. The topics covered in this section are parts of dynamic systems and development within the Planning Area will influence the extent, functions, and values associated. New development of the Planning Area will require compliance with existing regulations, discussed in this Section, related to hydrologic and coastal hazards. These existing regulations will generally dictate the design, location, scheduling, cost and other planning considerations for new development projects. Clear delineation of potential hazards and understanding of existing resources as part of the planning update will help guide development and minimize the potential for exposure, upset, and damage.

5.3 Geology, Soils, and Seismicity

Natural hazards discussed in this section include geologic hazards such as bluff retreat, landslide, erosion and subsidence; and seismic hazards such as faulting, groundshaking, and liquefaction. This section provides context in the form of local and regional regulations and policy guidance. General conditions are described for the Planning Area, with specific hazards outlined for particular areas of concern. Figures 5-9A through 5-12 depict constraints identified in the analysis.

SWCA staff contacted or reviewed websites of pertinent agencies with jurisdiction over natural hazards and their causes, including:

- United States Geological Survey (USGS)
- United States Department of Agriculture, Natural Resources Conservation Service (NRCS)
- California Emergency Management Agency
- California Department of Conservation (DoC)

The following documents were among those reviewed in preparation of this section. A full list of references is included at the end of the report.

- City of Half Moon Bay, General Plan/Coastal Plan, 2000 Draft
- City of Half Moon Bay, Local Coastal Program Land Use Plan, 1993
- California Coastal Act

GIS data provided by San Mateo County, USGS, and the DoC was reviewed to provide the most recent information regarding the type and extent of mapped natural hazards. The GIS data provided is the primary source of information for maps provided in this section, and was supplemented by review of aerial photography (Google Earth) and site visits/photo reconnaissance performed by SWCA staff on January 30, 2014.

It is recognized that earthquakes may create tsunamis that have potential to create coastal flooding and damn failure hazards. Tsunamis and their associated hazards are discussed in detail within Section 6.2 Hydrology and Water Quality.

REGIONAL SETTING

The City of Half Moon Bay is primarily underlain by a broad, gently sloping marine terrace consisting of poorly consolidated shallow marine sands, silts, and gravels resting on top of an ancient wavecut bedrock platform.[53] Elevations within the Planning Area range from a high of approximately 1,100 feet above mean sea level in the hills on the northeastern end of the Planning Area, to sea level along the shore. Much of the development within the Planning Area occurs at elevations between approximately 40-80 feet above mean sea level. The Planning Area generally slopes

[53] City of Half Moon Bay General Plan/Coastal Plan, Draft 2000

downward in a westerly direction towards Half Moon Bay. Prominent geologic features include hills east of Frenchmans Creek and associated creek basin, Pilarcitos Creek, Arroyo Leon, and the shoreline including the steep cliffs at and around Miramontes Point.

The Planning Area is underlain by a wide variety of soils, ranging from beach sand to clay loam, silt loam and sandy loam. Most soils are derived from alluvial sources. The geology of the Planning Area is defined to a large extent by the sea, the fault, and wetlands and waterways. The following paragraphs outline geologic hazards and identify particular concerns for future development.

REGULATORY SETTING

Federal Policies and Regulations

United States Geological Survey

USGS, in coordination with the California Geological Survey, provides up-to-date maps denoting seismic zones and associated motion information to inform the development of engineering requirements for structures.

State Policies and Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The State of California enacted the Alquist-Priolo Act in 1972 (amended to date) to assist cities and counties in the regulation of land uses in areas proximate to active earthquake faults. The State Mining and Geology Board established Special Study Zones in which land uses are regulated with this act. The act requires preparation of a geological investigation before approving development within a Special Study Zone, which typically straddle known or suspected fault traces. It is generally assumed that areas within 50 feet of an active fault are underlain by active branches of a fault, unless proven otherwise. Within the Planning Area, there are no Alquist-Priolo Special Study Zones.

California Building and Fire Code

The building and fire codes in force in the State of California provide substantive protection of structures from natural hazards through engineering standards and technologies. Building and fire codes are implemented at the local level through project review and enforcement actions, and include measures designed to reduce damage from hazards such as groundshaking and fire. The California Building Standards Code (CBSC) includes earthquake protection provisions from the 2012 International Building Code. The most recent building code is the 2013 California Building Code, which will be in effect after 2014. Current codes include language guiding seismic retrofits, and increasing fire resistance in structures. The Department of Housing and Community Development retains primary authority for code regulations for mobile homes.

California Coastal Act

The Coastal Act provides specific standards for the consideration and approval of alterations to the natural shoreline, including revetments, seawalls, and similar methods employed to reduce bluff and shoreline erosion [Section 30235]. In general, the Coastal Act, and the California Coastal Commission (CCC), discourage alteration to the natural shoreline unless it is "required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply." Specific sections of the Coastal Act related to geology, soils, and seismicity include:

Section 30235: Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Section 30253: New development shall: (1) minimize risks to life and property in areas of high geologic, flood, and fire hazard; (2) assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

Local Policies and Regulations

One of the most effective tools for avoidance of risk is the implementation of hazard avoidance and mitigation policies and standards in local land use plans. The City provides guidance for the identification, assessment, avoidance or mitigation of natural hazards through the General Plan, Local Coastal Program (LCP) Land Use Plan, and Municipal Code.

City of Half Moon Bay General Plan

Cities and counties in the state of California must adopt General Plans which regulate physical development. Natural hazards are addressed most commonly in the Health and Safety Element of the General Plan, but may be addressed in other elements of the General Plan as well. The 1991 General Plan policies related to geology, soils, and seismicity include:

Ground Failure/Earthquake

1. Continue to adopt updated editions of the Uniform Building Code, published by the International Congress of Building Officials.
2. Continue enforcement of Ordinance No. 13-89 establishing a seismic hazard identification program for unreinforced masonry buildings.
3. Continue ensuring that other appropriate State regulations regarding the identification and mitigation of seismic hazards are implemented.
4. Continue to require that adequate soils, geologic, and structural evaluation reports are prepared when deemed appropriate by the Building Official. All reports submitted to the

City for review shall be prepared by registered soils engineers, engineering geologists, and/or structural engineers.

5. Require that measures identified in any soils, geologic geotechnic, and/or any structural reports to adequately mitigate liquefaction be imposed as conditions of project approval.
6. Promote and encourage additional seismic investigations within the City by Federal State and local agencies and organizations.
7. The City Grading Ordinance should specifically address identified areas with seismic hazards.
8. Geologic reports, building plans, and environmental impact reports prepared for major construction projects (i.e., all critical facilities or uses with large human occupancies in recognized or suspected hazard areas) shall be prepare by registered engineering geologists and structural engineers and review by the City Engineer.
9. Land use designations should be appropriate in areas that are subject to and/or have the potential to be subject to seismic hazards and shall be consistent with Title 18 of the Half Moon Bay Municipal Code (Zoning Ordinance).
10. In the event of a major earthquake the City shall be prepared to implement procedures in accordance with the Half Moon Bay Multi-Hazard Functional Plan and in accordance with procedures established by the San Mateo Area Office of Emergency Services.
11. The City of Half Moon Bay should actively promote an educational program regarding seismic safety.

Soil Stability

1. Ensure that all appropriate City and State regulations regarding the identification and mitigation of geologic hazards are implemented.
2. Continue to require that adequate soils, geologic, and structural evaluation reports are prepared when deemed appropriate by the Building Official. All such reports submitted to the City for review shall be prepared by registered soils engineers, engineering geologists and/or structural engineers.
3. Require that measures identified in any soils, geologic, geotechnic, and/or any structural reports to adequately mitigate hazards to be imposed as conditions of project approval, to the extent feasible.
4. Promote and encourage additional geologic investigations within the City by Federal, State and local agencies and organizations.
5. The City Grading Ordinance should specifically address activities within or in close proximity to identified areas with geologic hazards.
6. Geologic reports, building plans, and environmental impact reports prepared for major construction projects (i.e. all critical facilities or uses with large human occupancies in recognized or suspected hazard areas) shall be prepared by registered engineering geologists and structural engineers and reviewed by the City Engineer.
7. Soils and geologic reports for hillside construction shall be prepared for all new development in areas exceeding 20 percent slope and reviewed for adequacy by appropriate City staff or consultants selected by the City at the applicant's expense.
8. Whenever there is a substantial landslide or significant damage to a foundation or structure occurs as a result of a seismic event, the City should require a detailed study of the

geologic materials, foundations, or structures involved to be prepared for any future event.

9. New critical facilities, structures involving high occupancies, and public facilities should not be sited in areas of high damage susceptibility. Where such location is deemed essential to the public welfare, these structures will be sited, designed and constructed with due consideration of the potential for damage due to ground deformation, seismically triggered subsidence, and landslide.

City of Half Moon Bay Local Coastal Program (LCP) Land Use Plan

The entire city is within the California Coastal Zone, and the City's LCP Land Use Plan (1993) provides policies and programs which address conformity with the Coastal Act, along with other land use goals. Policies and programs in this document related to geology, soils, and seismicity include, but are not limited to the following:

Policy 2-2: For all new development along the Shoreline Trail alignment shown on the Access Improvements Map, granting of lateral easements to allow for continuous public access along the shoreline shall be mandatory unless publicly owned blufftop land suitable for trail development intervenes between the development and the bluff edge. All beach seaward of the base of the bluff shall be dedicated. At a minimum, the dedicated easement shall have a width sufficient to allow an adequate trail and to protect the privacy of any residential structures built near the accessway. Lateral trails along the bluff edge shall be set back at least 10 feet and native vegetation shall be established between the trail and the edge to stabilize the bluff top.

Policy 2-13: Close the northern end of Mirada Road where it intersects with Highway 1 to eliminate blufftop parking and resulting blufftop erosion. The trail as shown on the Access Improvements Map shall not be prohibited and if parking is provided to the adjacent unincorporated area an improved public pedestrian access (ramp or stairs to the beach) would be appropriate.

Policy 2-20: Locate parking facilities so that beach access is not across dunes, where possible, and use wooden walkways where access across the dunes is required from the new parking facilities; post signs to discourage random passage to the beach.

Policy 2-28: Encourage public ownership or easements between the bluff edge and the Miramontes Point Road extension to the extent necessary to assure lateral coastal access, protection of the blufftops, siting of the new parking and vista area, and construction of the extension of Miramontes Point Road.

Policy 3-17: Restoration of Dunes

(a) Encourage projects by agencies and community groups to assist in the stabilization and restoration of dunes.

Policy 4-1: Seawalls and cliff-retaining structures shall not be permitted unless the City determines they are necessary for preservation of existing structures, and has de-

termined that there are no other less environmentally damaging alternatives for protection of existing development. If such structures are permitted, they shall be designed to preserve the maximum amount of existing beach, to ensure lateral access along the shoreline, and to assure that all existing endangered development within the area of the improvement is protected as a part of the project; such structures shall not be designed so as to encompass an area larger than that necessary to protect existing structures. An applicant for such a structure shall include a geologic report indicating that the structure will succeed in stabilizing that portion of the shoreline which is subject to severe erosion and will not aggravate erosion in other shoreline areas.

Policy 4-2: [See Section 30235 Coastal Act of 1976]

Policy 4-3: Development permitted shall comply with the following controls and regulations:

(a) The area of demonstration of stability includes the base, face, and top of all bluffs and cliffs. The extent of the bluff top considered should include the area between the face of the bluff and a line described on the bluff top by the intersection of a plane inclined a 20 degree angle from the horizontal passing through the toe of the bluff or cliff, or 50 feet inland from the edge of the cliff or bluff, whichever is greater.

(b) Permit bluff and cliff top development only if design and setback provisions are adequate to assure stability and structural integrity for the expected economic life span of the development (at least 50 years) and if the development (including storm runoff, foot traffic, grading, irrigation, and septic tanks) will neither create nor contribute significantly to erosion problems or geologic instability of the site or surrounding area. Prohibit development on bluff faces except for stairways for public access to the beach.

(c) Prohibit land divisions or new structures identified in areas described in A and B above that would require the need for bluff protection work.

(d) Require the submittal of a site stability evaluation report for an area of stability demonstration prepared by a soils engineer or a certified engineering geologist, as appropriate, acting within their areas of expertise, based on an on-site evaluation. [See City of HMB Land Use Plan for report requirements]

Policy 4-4: In the absence of a determination supported by a site-specific survey by a qualified geologist and biologist to the contrary, within 100 feet from the bluff or foredune edge, drought-tolerant coastal vegetation capable of enhancing bluff and dune stability shall be installed and maintained as a part of any new development. Grading as may be required to establish proper drainage, to install minor improvement (e.g. trails) and to restore eroded areas and to provide permitted accessways shall direct water runoff away from the edge of the bluff or be handled in a manner so as to prevent damage to the bluff by surface and percolating water.

Policy 4-5: No development shall be permitted on the bluff face, except for engineered accessways to provide public beach access. Drainage pipes shall be allowed only where no other less environmentally damaging drain system is feasible and the drain pipes are designed and placed to minimize impacts to the bluff face, toe, and beach. Drainage devices extending over the bluff face shall not be permitted if water can be directed away from the bluff face.

Policy 4-6: Applications for grading and building permits and applications for subdivisions shall be reviewed for adjacency to, threats from, and impacts on geologic hazards arising from seismic events, tsunami run-up, landslides, flooding, or other geologic hazards such as expansive soils and subsidence areas. In areas of known geologic hazards, as indicated on the Geologic Hazards Map, a geologic report shall be required. Mitigation measures shall be required where necessary.

Policy 4-7: In areas of flooding due to tsunamis or dam failure, no new development shall be permitted unless the applicant or subsequent study demonstrates that the hazard no longer exists or has been or will be reduced or eliminated by improvements which are consistent with the policies of this Plan and that the development will not contribute to flood hazards or require the expenditure of public funds for flood control works. Where not otherwise indicated, the flood hazard zone shall be considered to be a zone defined by the measured distance of 100 feet from the centerline of the creek to both sides of the creek. Non-structural agricultural uses, trails, roads, and parking lots shall be permitted, provided that such uses shall not be permitted within the area of stream corridor. (See Policies in Section 3 [of the Draft Plan] on Protection of Sensitive Habitats)

Policy 4-9: All development shall be designed and constructed to prevent increases in runoff that would erode natural drainage courses. Flows from graded areas shall be kept to an absolute minimum, not exceeding the normal rate of erosion and runoff from that of the undeveloped land. Storm water outfalls, gutters, and conduit discharge shall be dissipated.

Section 9.3.6 Wavecrest Restoration Project Proposed Development Conditions

c. Suitable landscaping, fencing, or other means shall be used to ensure that direct pedestrian access to the bluff edge is controlled and limited in accordance with accessways to the beach and protection of the bluff face from erosion.

e. At least 30% of the site shall be retained in open space for public and commercial recreational use and sited and designed to protect view corridors from Highway 1 and the ocean, to provide buffers between primary coastal access routes and residential development, to absorb groundwater so as to retard cliff erosion, and to protect habitat areas.

l. Provision shall be made to ensure that irrigation of open space for park, recreational, and general open space purposes shall, to the extent feasible, maximize the use of reclaimed water and measures such as retention in basins, grading, revegetation, and drainage improvements shall be taken to prevent destabilizing effects on the coastal bluffs.

Section 9.3.7 Dykstra Ranch Proposed Development Conditions

d. Existing major drainage courses shall be dedicated, after suitable landscaping, to protect against erosion and to provide for passive recreational use.

a. Apartments and single-family attached housing shall be located on slopes of less than 15%, and shall involve as little grading and filling as is feasible.

Section 9.3.7 Carter Hill Proposed Development Conditions

e. No residential development of the site shall precede completion of site grading and installation of all drainage improvements necessary to prevent erosion of the site or lands up and down slope. In addition, the developer shall agree to participate in an assessment district for Foothill Boulevard.

Policy 10-14: If new or increased well production is proposed to increase supply, the City shall require that:

Base the safe yield and pumping restriction on studies conducted by a person agreed-upon by the City and the applicant which shall (1) prior to the granting of the permit, examine the geologic and hydrologic conditions of the site to determine a preliminary safe yield which will not adversely affect a water-dependent sensitive habitat; (2) during the first year, monitor the impact of the well on groundwater and surface water levels and quality and plant species and animals of water-dependent sensitive habitats to determine if the preliminary safe yield adequately protects the sensitive habitats and what measures should be taken if and when adverse effects occur.

Zoning and Other Ordinances

General Plans, Area Plans, and other similar planning documents typically outline policies and programs which provide guidance for development. The Development Code, Zoning Ordinance, and similar tools provide specific standards which regulate the development of land uses, structures, and infrastructure within the community. These Codes and Ordinance are required to be consistent with the General Plan. The City Municipal Code is continually updated, most recently in July 2012. Standards which address geology, soils, seismicity and associated hazards are embodied in the following Chapters of the Municipal Code, which are summarized below:

Chapter 14.36 Seismic Hazard Identification Program for Unreinforced Masonry Buildings

Intent to promote public safety by identifying those buildings in the city of Half Moon Bay which exhibit structural deficiencies in their capacities for earthquake resistance, and by determining the severity and extent of those deficiencies in relation to their potential for causing injury or loss of life.

Chapter 17.42 Subdivisions: Improvement Standards

Silt basins or other forms of erosion control are listed as potential subdivider improvements

Chapter 17.42 Subdivisions: Preliminary Soils Report

Requires the subdivider to file with the planning department a preliminary soils and/or geologic report, prepared by a certified geotechnical engineer.

Chapter 17.62 Condominiums: Requirements for Conversion

Requires report by a licensed soils engineer on any known soil and geological conditions regarding soil deposits, rock formations, faults, groundwater and landslides in the vicinity of the project and a statement regarding any known evidence of soils problems relating to the structures

Chapter 18.22 Use Permits

Outlines requirements for quarries and topsoil sites to control erosion and prevent the accumulation of storm waters or natural seepage

Chapter 18.37 Visual Resource Protection Standards

Prohibits grading that significantly alters natural terrain and places slope limits and contour boundaries for the Dykstra Ranch, Carter Hill and Nurserymen's Exchange planned unit development areas

Chapter 18.38 Coastal Resource Conservation Standards

- Defines bluffs, cliffs sea-cliffs and sand dunes as Sensitive Habitat Areas
- Outlines restrictions for development on bluff tops and bluff faces
- States that a geological report is required for shoreline structures, for any structure to be built within one hundred feet of the bluff edge, any sea wall or cliff-retaining structure, and projects which involve substantial alteration of waterways, and for any development in areas of known geologic hazards, including but not limited to those indicated on the LUP geologic hazards map or in any area known to contain expansive soils or to be subject to subsidence.
- Geological report contents are to include an evaluation of the proposed development's adjacency to, threats from, and impacts on geologic hazards arising from seismic events, and from any other hazardous event or situation potentially affecting the particular parcel(s) on which the development is proposed, e.g., flooding, tsunami run-up, landslides, or other geologic conditions such as expansive soils and subsidence areas. The evaluation shall recommend mitigation measures to ensure the elimination or reduction of identified hazards, including, as appropriate to location or project specifics, measures to minimize

erosion problems during and after construction and to ensure that development will not contribute to flood hazards.

Chapter 18.40 Local Coastal Program Public Access

Outlines bluff top public access development including a condition to include a mechanism that will cause the access way to be adjusted inland as the bluff edge recedes due to natural erosion.

GEOLOGIC AND SOILS HAZARDS

Soils

Soils in the Planning Area belong to a variety of soil series, most of which are derived from alluvium. Soils in the Planning Area are derived from shale, quartz, and marine deposits. Most soils in the Planning Area are well- to moderately well-drained. Table 5-6 outlines the soil types that are found within the Planning Area.

Table 5-6: Soil Types within Planning Area

Soil Map Unit Symbol	*Soil Description*	*Erosion Risk*[1]
BcA	Botella clay loam, nearly level	Low
BcB	Botella clay loam, gently sloping	Low
BeC2	Botella loam, sloping, eroded	Low
Cf	Coastal beaches	Low
ClE2	Colma loam, steep, eroded	Moderate
CmD2	Colma sandy loam, moderately steep, eroded	Low
CmF3	Colma sandy loam, steep and very steep, severely eroded	Low
DcA	Denison clay loam, nearly level	Low
DdA	Denison clay loam, nearly level, imperfectly drained	Low
DeA	Denison coarse sandy loam, nearly level	Low
DmA	Denison loam, nearly level	Moderate
DmB	Denison loam, gently sloping	Moderate
DmC	Denison loam, sloping	Moderate
FaA	Farallone loam, nearly level	Moderate
FaB	Farallone loam, gently sloping	Moderate
FcA	Farallone coarse sandy loam, nearly level	Low
FcB	Farallone coarse sandy loam, gently sloping	Low
FcC2	Farallone coarse sandy loam, sloping, eroded	Low
FcD2	Farallone coarse sandy loam, moderately steep, eroded	Low

Table 5-6: Soil Types within Planning Area

Soil Map Unit Symbol	*Soil Description*	*Erosion Risk*[1]
FsB	Farallone coarse sandy loam, over coarse sands, gently sloping, seeped	Low
FyB	Farallone loamy coarse sand, gently sloping	Low
FyC2	Farallone loamy coarse sand, sloping, eroded	Low
GlE2	Gazos-Lobitos silt loams, steep, eroded	Moderate
GlF	Gazos-Lobitos silt loams, very steep	Moderate
GoF3	Gazos and Lobitos soils, steep and very steep, severely eroded	Moderate
GP	Gravel pits	Low
Gu	Gullied land (alluvial soil material)	No Data
Gv	Gullied land (gazos-lobitos soil material)	No Data
Gw	Gullied land (tierra and watsonville soil materials)	No Data
LlC2	Lobitos loam, sloping, eroded	Moderate
LlD2	Lobitos loam, moderately steep, eroded	Moderate
Ma	Mixed alluvial land	Low
MmC2	Miramar coarse sandy loam, sloping, eroded	Low
MmD2	Miramar coarse sandy loam, moderately steep, eroded	Low
MmE2	Miramar coarse sandy loam, steep, eroded	Low
MmE3	Miramar coarse sandy loam, steep, severely eroded	Low
MmF2	Miramar coarse sandy loam, very steep, eroded	Low
NOTCOM	Mapping not complete	No Data
Rb	Rough broken land	No Data
SaD2	Santa Lucia loam, moderately steep, eroded	Moderate
SaE2	Santa Lucia loam, steep, eroded	Moderate
SaF2	Santa Lucia loam, very steep, eroded	Moderate
SaF3	Santa Lucia loam, steep and very steep, severely eroded	Moderate
Sd	Stabilized dune land	Low
SkA	Soquel loam, nearly level	Moderate
SkB	Soquel loam, gently sloping	Moderate
SkC2	Soquel loam, sloping, eroded	Moderate
SmA	Soquel loam, nearly level, imperfectly drained	Moderate
Ta	Terrace escarpments	No Data
TcC2	Tierra clay loam, sloping, eroded	Moderate

Table 5-6: Soil Types within Planning Area

Soil Map Unit Symbol	*Soil Description*	*Erosion Risk*[1]
TcD2	Tierra clay loam, moderately steep, eroded	Moderate
TeB	Tierra loam, gently sloping	Moderate
TeC2	Tierra loam, sloping, eroded	Moderate
TeD2	Tierra loam, moderately steep, eroded	Moderate
TeD3	Tierra loam, moderately steep, severely eroded	Moderate
TeE2	Tierra loam, steep, eroded	Moderate
TeE3	Tierra loam, steep, severely eroded	Moderate
TuB	Tunitas clay loam, gently sloping	Low
TwA	Tunitas clay loam, nearly level, imperfectly drained	Low
TwB	Tunitas clay loam, gently sloping, imperfectly drained	Low
TxB	Tunitas loam, gently sloping	Moderate
WaA	Watsonville clay loam, nearly level	Low
WmA	Watsonville loam, nearly level	Moderate
WmB	Watsonville loam, gently sloping	Moderate
WmB2	Watsonville loam, gently sloping, eroded	Moderate
WmC2	Watsonville loam, sloping, eroded	Moderate
WmC3	Watsonville loam, sloping, severely eroded	Moderate
WmD2	Watsonville loam, moderately steep, eroded	Moderate
WnA	Watsonville loam, nearly level, poorly drained	Moderate
WsB	Watsonville sandy loam, gently sloping	Low
WsB2	Watsonville sandy loam, gently sloping, eroded	Low
WsC2	Watsonville sandy loam, sloping, eroded	Low

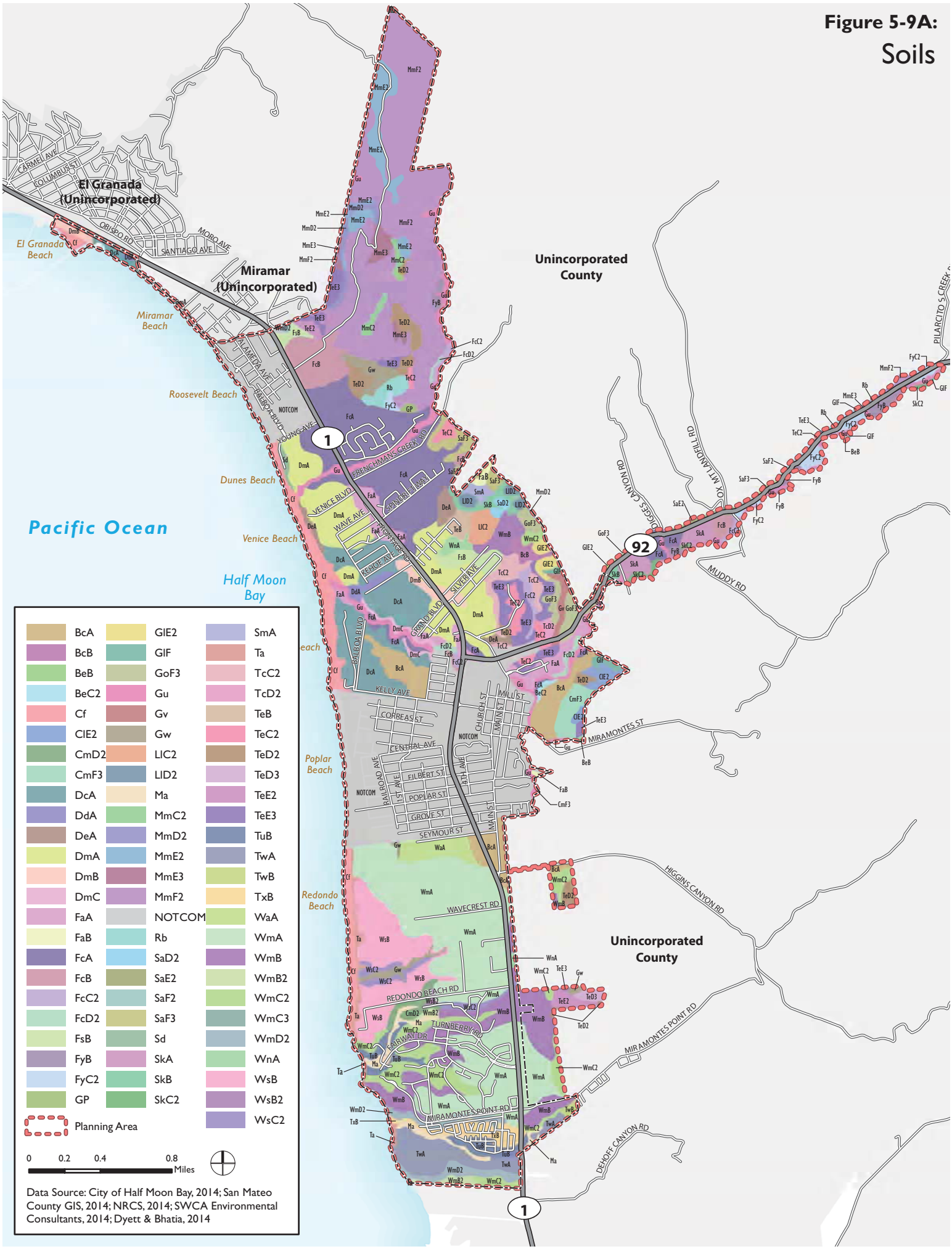
Note:

1 Erosion Risk based off of K-Factor for each soil type: Low = 0-0.25; Moderate = 0.25-0.45; High >0.45; No Data = No K-Factor data in NRCS Report Source: NRCS Web Soil Survey January 2014

Source: NRCS Web Soil Survey January 2014

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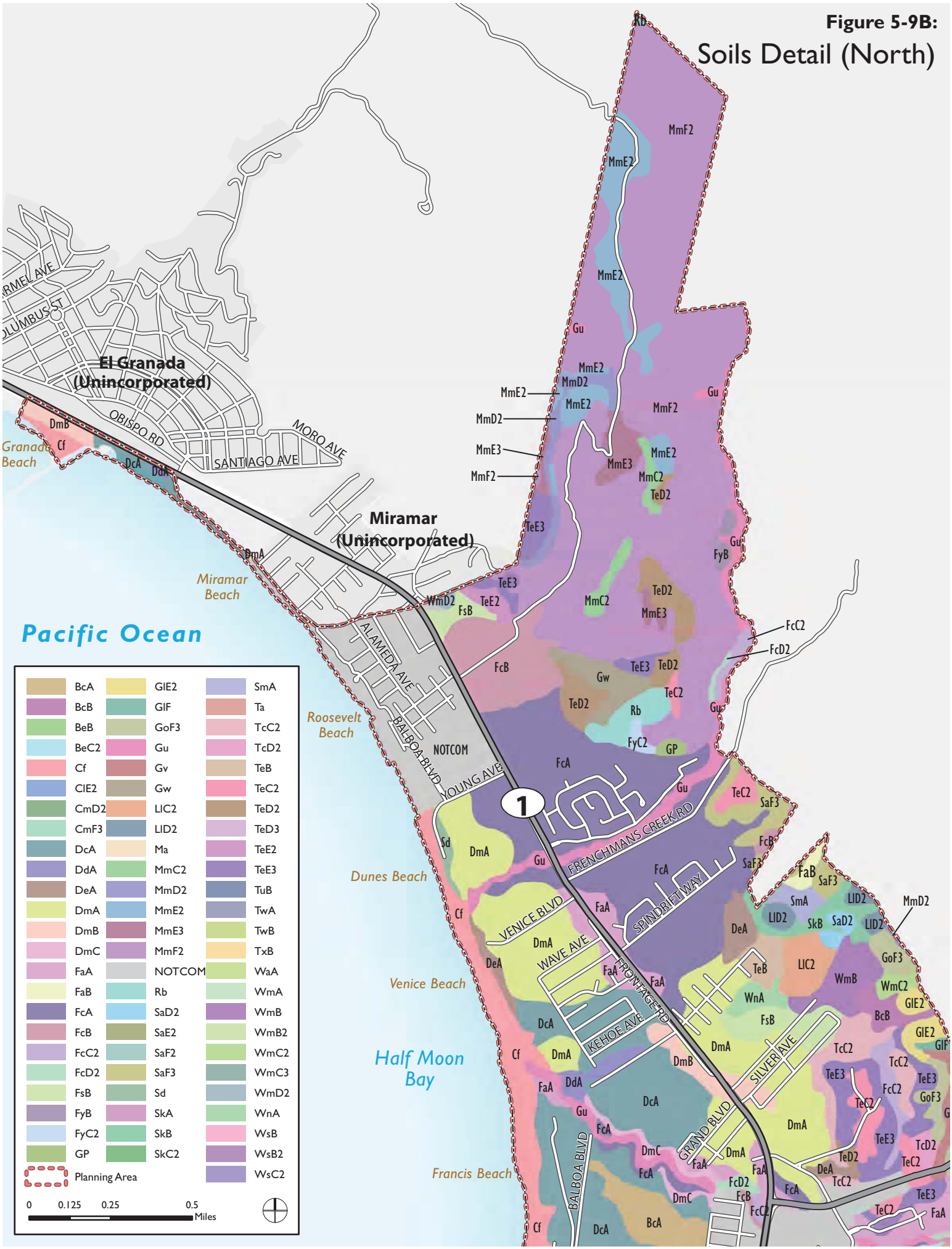
Figure 5-9A: Soils



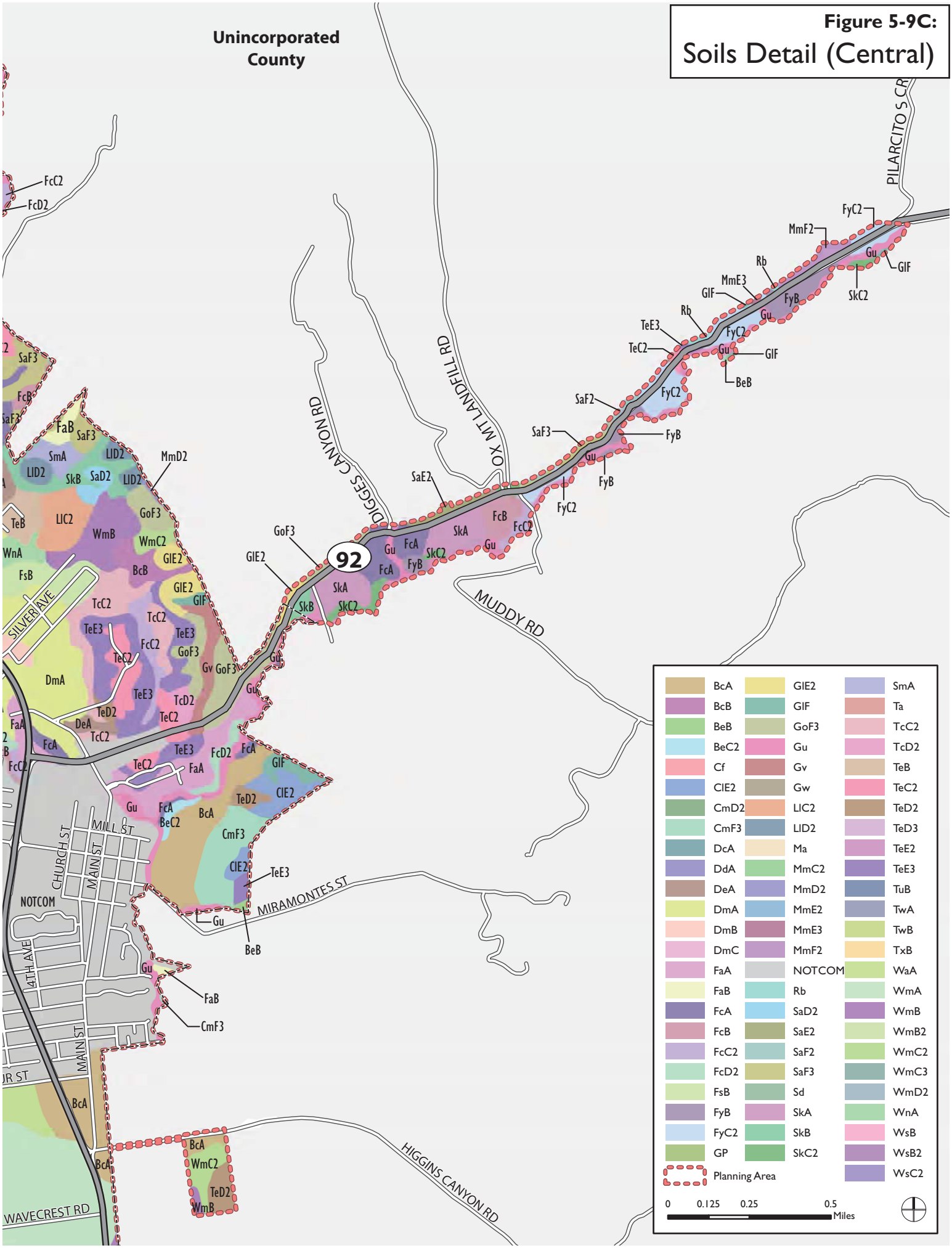
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Figure 5-9B:

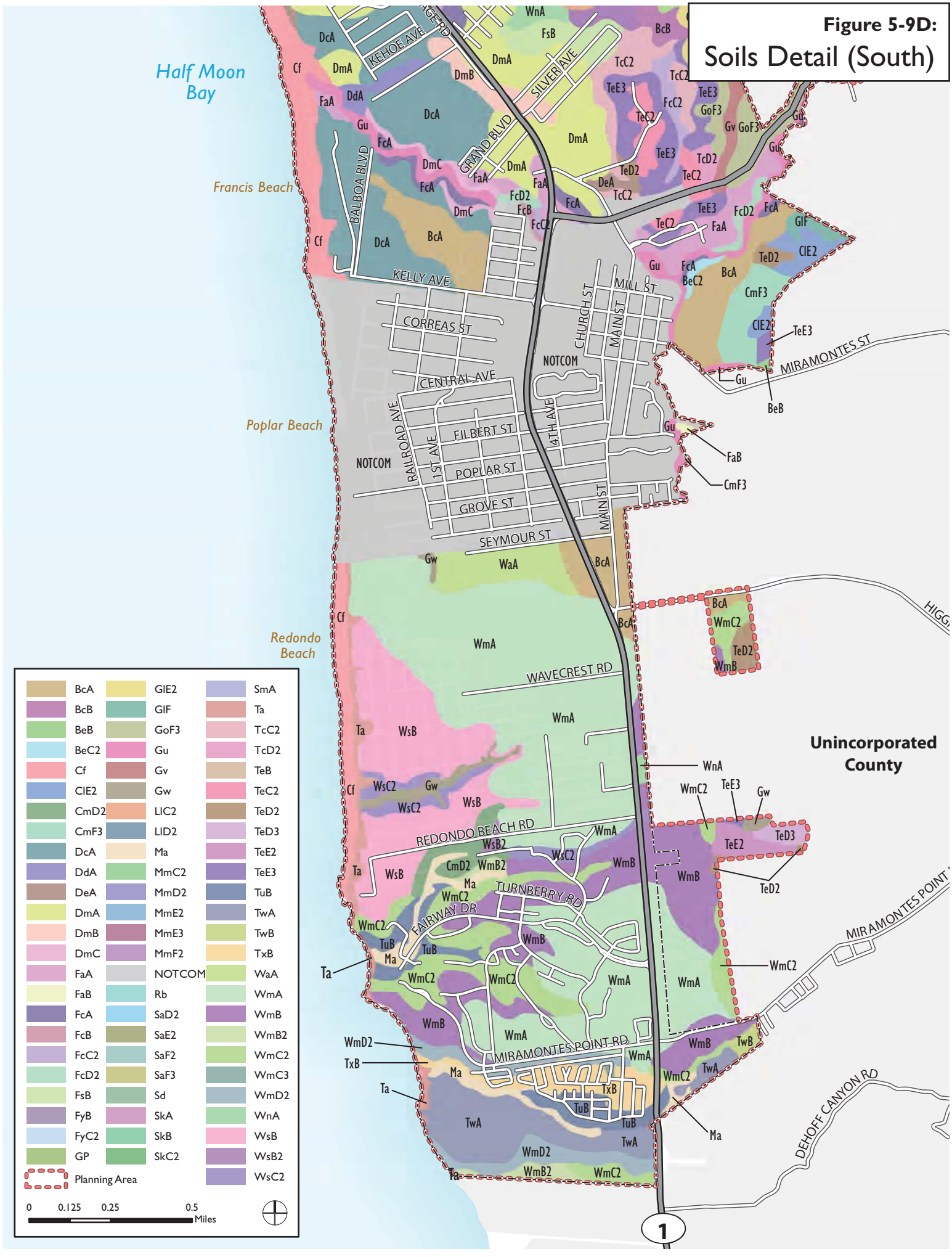
Soils Detail (North)



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Figure 5-9C:
Soils Detail (Central)
Unincorporated County
DIGGES CANYON RD
LANDFILL RD
PILARCITO S CR
MUDDY RD
SILVER AVE
MILL ST
CHURCH ST
MAIN ST
4TH AVE
NOTCOM
MIRAMONTES ST
HIGGINS CANYON RD
WAVECREST RD
92
BcA
BcB
BeB
BeC2
Cf
ClE2
CmD2
CmF3
DcA
DdA
DeA
DmA
DmB
DmC
FaA
FaB
FcA
FcB
FcC2
FcD2
FsB
FyB
FyC2
GP
GlE2
GlF
GoF3
Gu
Gv
Gw
LIC2
LID2
Ma
MmC2
MmD2
MmE2
MmE3
MmF2
NOTCOM
Rb
SaD2
SaE2
SaF2
SaF3
Sd
SkA
SkB
SkC2
SmA
Ta
TcC2
TcD2
TeB
TeC2
TeD2
TeD3
TeE2
TeE3
TuB
TwA
TwB
TxB
WaA
WmA
WmB
WmB2
WmC2
WmC3
WmD2
WnA
WsB
WsB2
WsC2
Planning Area
0
0.125
0.25
0.5
Miles

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Figure 5-9D:
Soils Detail (South)
Half Moon Bay
Francis Beach
Poplar Beach
Redondo Beach
Unincorporated County
KEHOE AVE
SILVER AVE
GRAND BLVD
BALBOA BLVD
KELLY AVE
CORREAS ST
CENTRAL AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
MILL ST
CHURCH ST
MAIN ST
4TH AVE
1ST AVE
RAILROAD AVE
NOTCOM
MIRAMONTES ST
WAVECREST RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
DEHOFF CANYON RD
1
BcA
BcB
BeB
BeC2
Cf
ClE2
CmD2
CmF3
DcA
DdA
DeA
DmA
DmB
DmC
FaA
FaB
FcA
FcB
FcC2
FcD2
FsB
FyB
FyC2
GP
GlE2
GlF
GoF3
Gu
Gv
Gw
LIC2
LID2
Ma
MmC2
MmD2
MmE2
MmE3
MmF2
NOTCOM
Rb
SaD2
SaE2
SaF2
SaF3
Sd
SkA
SkB
SkC2
SmA
Ta
TcC2
TcD2
TeB
TeC2
TeD2
TeD3
TeE2
TeE3
TuB
TwA
TwB
TxB
WaA
WmA
WmB
WmB2
WmC2
WmC3
WmD2
WnA
WsB
WsB2
WsC2
Planning Area
0 0.125 0.25 0.5 Miles

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Erosion and Sedimentation

Erosion is a natural process by which wind and water move across soils and break down existing features and structures. Human alteration of the natural environment can accelerate the pace of erosion, and/or create unnatural patterns of erosion. Accelerated erosion can cause instability in geologic structures, and water quality concerns in receiving waters. Erosion can be created through point sources, such as utility and industrial discharge points and mining and agricultural operations, or through non-point sources, such as impervious surfaces (paving and developed land uses), unpaved roads, and unsound grading or construction practices. In the example shown below (Photo 5-26), erosion appears to be caused by natural processes, yet the location of nearby man-made structures (e.g. coastal trail, nearby golf course) are likely to be affected as the cliff continues to recede.



Photo 5-26: View looking north at the natural cliff erosion occurring at the mouth of Cañada Creek, southern section of the Planning Area.

A majority of the Planning Area consists of a gently sloping marine terrace, containing waterways and wetlands. The western edges of the Planning Area consist of coastal bluffs, and sandy shoreline. The northeastern section of the Planning Area contains steep hills with erosion potential. There are different sources of and risks related to erosion along the coast and within the interior of the Planning Area. Along the coast, sources of erosion are related to waves acting upon the steep bluff features. In the interior of the Planning Area, sources of erosion include surface runoff and land management or development. Soils are generally considered to have low to moderate erosion potential (refer to Table 5-6 and Figure 5-10). Evidence of substantive erosion has been documented along the shoreline, including bluff erosion along much of the southern shoreline of the Planning Area. A Shoreline Erosion and Protection report will be completed as part of the General Plan Update and will go into greater detail regarding shoreline erosion within the Planning Area.

Subsidence

Subsidence occurs where water, gas, or other material is removed from intergranular spaces, resulting in compaction of soils. In extreme circumstances, this phenomenon can cause severe lowering of the soil surface, damaging overlying structures and causing risks to life. Subsidence is most common in areas underlain by loose, compressible clay rich soils, where water or oil is withdrawn in excessive amounts. Subsidence may also occur within landfill areas, as the underlying materials compact over time. The potential for subsidence in the Planning Area is considered low.

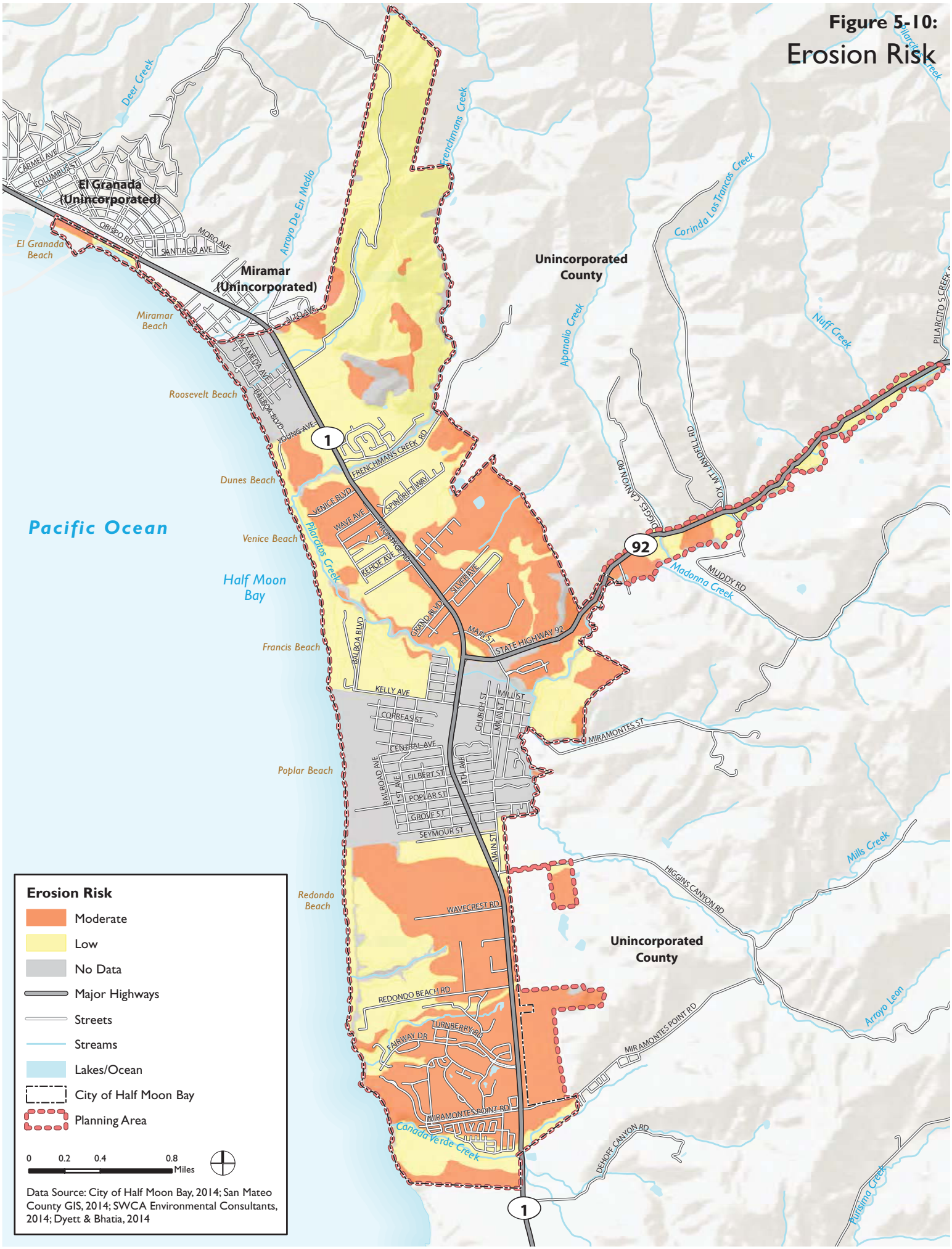
Soil Expansion

The shrink-swell potential of soils, or expansion potential, denotes the amount the volume of a particular soil type will respond to presence or lack of moisture. Expansion and contraction of soils over time can damage slabs, foundations, and structures if the site is not properly prepared, or if the slab or structure is not designed to withstand or accommodate such forces. Methods to address expansive soils include over-excavation and replacement or amendment of fill materials, moistening of fill materials, and special specifications for concrete materials and reinforcement. The expansion potential of soils underlying the Planning Area varies, but is generally considered very low to high, depending on the clay content. Soil expansion and shrink-swell is typically addressed though preparation of site-specific soil engineering reports and compliance with the Uniform Building Code.

Landslides

The Planning Area is mapped with localized landslide hazards in the following areas: hills rising out of the Frenchmans Creek valley; hills north and south of Highway 92 along the eastern edge of the Planning Area; and hills east of the Rice Trucking Soil farm in the southern portion of the Planning Area (see Figure 5-11). In addition to hill slope, the potential for landslides is also influenced by soil moisture content, vegetative cover, and the physical characteristics of the underlying geologic formations. Landslide potential is generally considered low for much of the Planning Area, except in those portions of the planning area adjacent to hillsides, coastal bluffs, and shorelines (see Figure 5-11). Mitigation of landslide risk is achieved through proper evaluation of underlying site conditions, structural components, and avoidance of active landslide areas.

Figure 5-10:
Erosion Risk



Erosion Risk

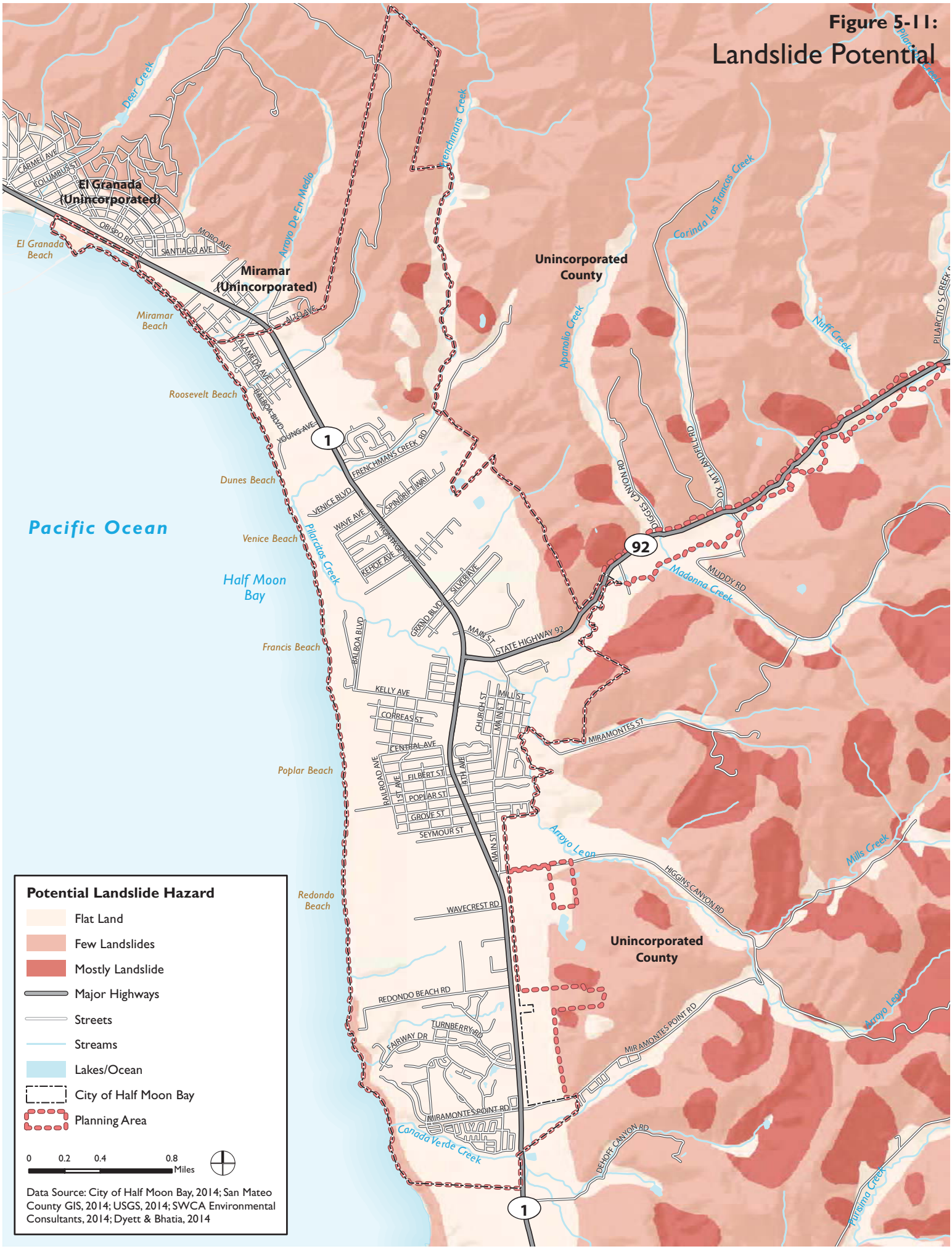
- Moderate
- Low
- No Data
- Major Highways
- Streets
- Streams
- Lakes/Ocean
- City of Half Moon Bay
- Planning Area

0 0.2 0.4 0.8 Miles

Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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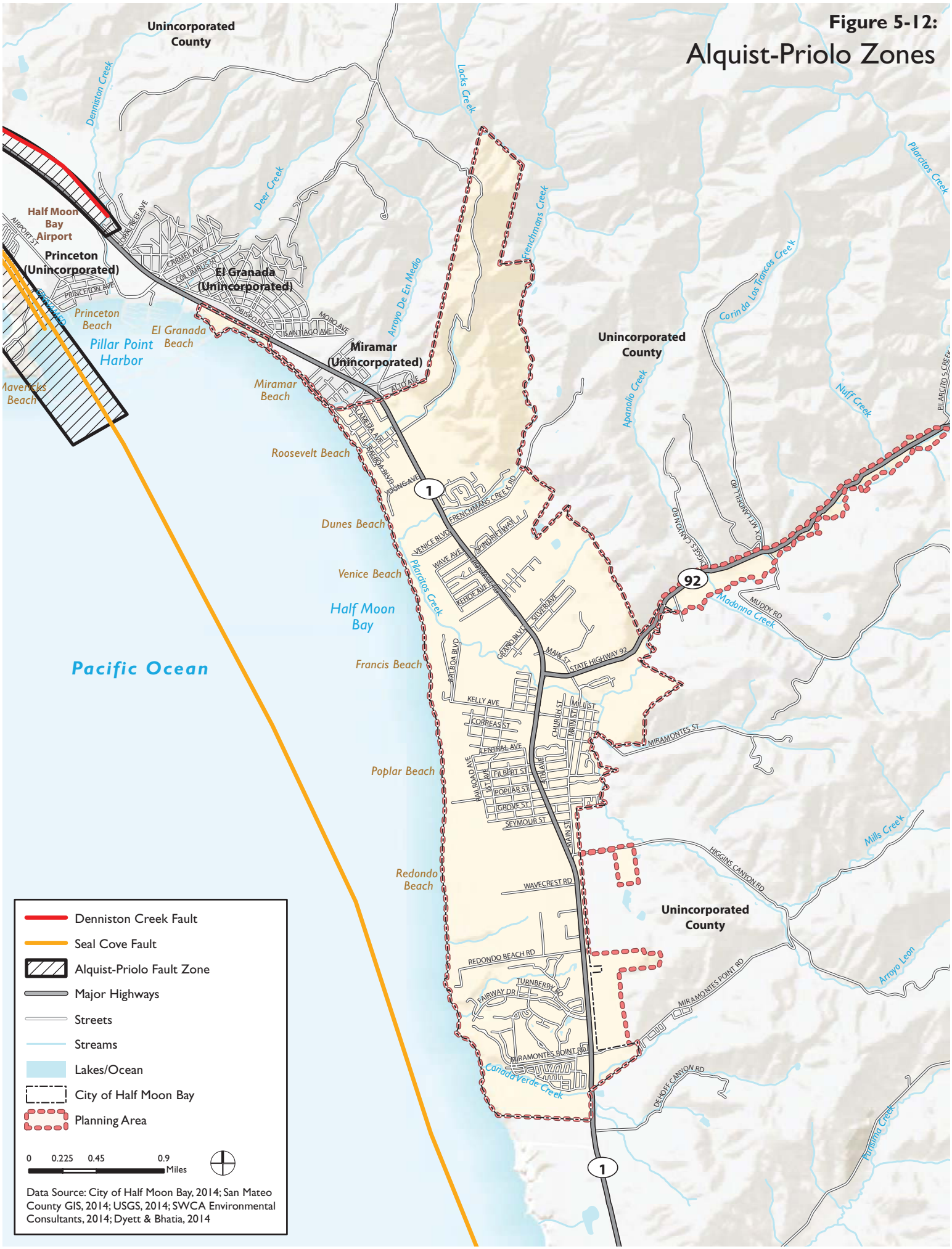
Figure 5-11:
Landslide Potential



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; USGS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Figure 5-12: Alquist-Priolo Zones



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; USGS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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Seismic Hazards

There are several significant faults that could be the source of a seismic event in the Planning Area (see Figure 5-12). The extent of the effect depends in part on the source fault. The San Andreas Fault system is considered the most likely source of a major earthquake event in California's future. The San Gregorio Fault and smaller faults including Denniston Creek and Sand Cove (shown on Figure 5-12) that are part of this system are mapped Alquist-Priolo Special Studies Zones and are considered active. The southern end of the Planning Area is within 0.5 miles of the San Gregorio Fault. Not much is understood about this fault system, since little of the fault is exposed onshore. However, it is considered active, with a potential earthquake moment magnitude of 7 or greater. Specific hazards associated with seismic events and features are discussed below.

Naturally-Occurring Asbestos

Certain soil types, including soils associated with the Franciscan mélange, contain a naturally-occurring form of asbestos, than can be dangerous when released into the environment. Soils underlying the Planning Area are not considered sources of naturally-occurring asbestos.

Groundshaking

Groundshaking potential throughout the Planning Area is mapped as very strong to violent (based on a major event along the San Andreas Fault).[54] An event of sufficient magnitude would damage even strong, modern buildings in the area. Groundshaking associated with an event along the San Andreas or San Gregorio Fault systems would likewise have severe effects in the Planning Area.

Mitigation of groundshaking hazards have been largely addressed through improvements in portions of the applicable building codes that address structural requirements. Groundshaking can also be amplified in certain soil conditions; requirements for geotechnical study in areas of high risk ensure structures are designed to withstand the design seismic event to the extent practical. No measures can completely relieve life and property from risks associated with groundshaking.

Ground Failure

Settlement

Seismic settlement is the displacement of surface geologic structures associated with a seismic event. Settlement can cause unexpected changes in grade, interrupt utilities, and damage structures. The potential for seismic settlement has not been mapped for the Planning Area; however, considering the alluvial nature of most soils within the Planning Area, there is potential for seismic settlement. Slope failure is addressed below.

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[54] California Seismic Safety Commission, California Geological Survey, Governor's Office of Emergency Services, and United States Geological Survey. 2003. Earthquake Shaking Potential for California, California Seismic Safety Commission Publication No. 03-02. Accessed January 16, 2014 Located at: http://www.seismic.ca.gov/pub/intensitymaps/sfbay_county_print.pdf.

Rupture

Areas overlying active faults are among those areas at risk of rupture during a seismic event. There are no known faults that go through the Planning Area and therefore rupture is considered to be a low risk hazard.

Liquefaction

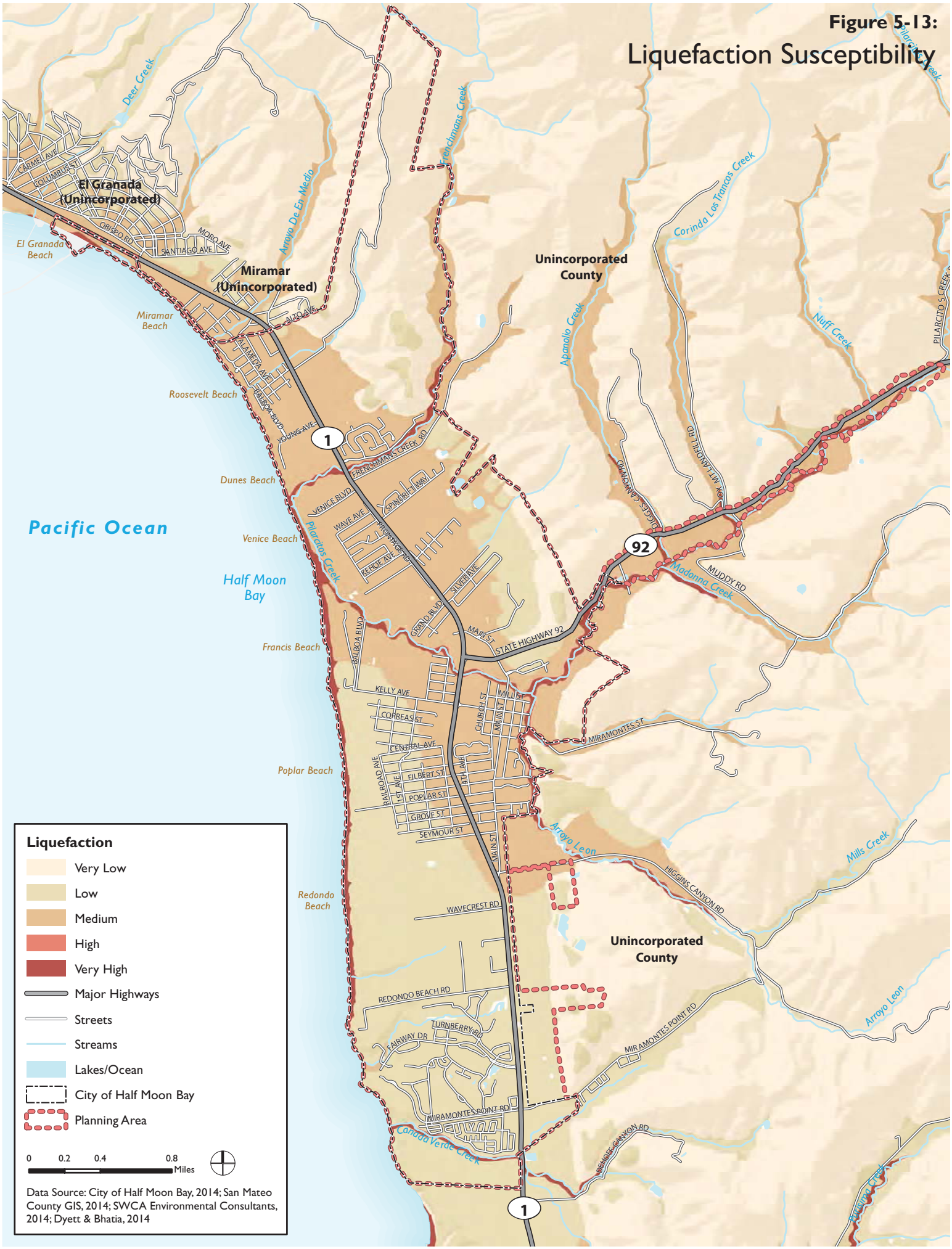
Liquefaction is the condition by which saturated soils lose cohesion during seismic events and settle, lose stability or amplify the effects of groundshaking. Liquefaction is most associated with alluvium and other young soil types with high sand content. The potential for liquefaction in the Planning Area is mapped as low to very high, depending on location (see Figure 5-13). Areas of very high hazard exist along the shoreline sand beaches within the Planning Area. Areas of high hazard include the areas surrounding the Frenchman's Creek, Pilarcitos Creek, and Arroyo Leon watersheds. Areas of low to moderate hazard comprise of most of the Planning Area.

Slope Failure

Seismic events can cause landslides, failure of slopes, and exacerbation of existing slope instability. The Planning Area is generally gently sloping, except for the northeastern section of the Planning Area and areas along the shoreline bordered by bluffs and revetments. New development in bluff and shoreline areas is required to observe setbacks outlined in the City LCP, Municipal Code, and General Plan. Additional protections and siting considerations may be warranted to address additional risks of slope instability associated with seismic events.

Figure 5-13:

Liquefaction Susceptibility



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014

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KEY PLANNING ISSUES AND IMPLICATIONS

Review of pertinent maps, documents, and photo reconnaissance confirmed the presence of several geologic and other natural hazard constraints to future development within the Planning Area. However, it should be noted that areas of particular hazard have been previously delineated and standards have been adopted that generally discourage development proximate to these areas. Should avoidance be deemed infeasible during the planning update, adequate policies and standards will need to be incorporated to ensure risk is reduced to the extent feasible.

Geologic hazards present within the Planning Area pose some constraints to development. These hazards can largely be addressed by compliance with existing building codes and regulations, though there is an opportunity to address areas subject to erosion and slope failure through implementation of additional standards, particularly along bluffs and shorelines.

SUMMARY

Further development of the Planning Area would require compliance with existing regulations related to natural geologic, seismic, hydrologic, and coastal hazards. Clear delineation of potential hazard zones and overlays as part of the planning update will help guide development and minimize the potential for exposure, upset, and damage.

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6 Aesthetics

AESTHETICS, LIGHT AND GLARE

This chapter defines existing visual attributes and identifies aesthetic opportunities and potential challenges associated with the Planning Area. The information provided in this study is intended to be used as an important first step toward understanding and managing the existing and potential visual resources of Half Moon Bay, through implementation of the General Plan, Local Coastal Plan (LCP), and associated documents. Defining the visual issues and knowing the basis for their value helps support economic vitality while at the same time affords the greatest protection of scenic resources.

This chapter offers information useful for the evaluation of current planning documents and policies. The analysis also provides a reference for consideration of future goals and policies based on expected visual perception and values. As General Plan and LCP updates are developed, this information can be the foundation for a more focused look at the specific value of visual resources relative to proposed uses. Ultimately, subsequent analysis based on this report can guide project-specific design in addition to long-range planning decisions.

The findings of this study are based on field visits conducted over several days and nights. The Planning Area includes the Half Moon Bay city limits and some unincorporated land adjacent to the city. In addition, the surrounding region was reviewed to gain a better understanding of the visual context of the Planning Area. Planning documents and studies were referenced in order gain an understanding of currently defined visual resources as well as community aesthetic values.

Extensive visual resource inventories were conducted both on foot and from vehicles, in all areas of the Planning Area. The primary purpose of the field reviews was to identify the relationship between the visual environment and the viewing opportunities experienced by the community and its visitors. Conditions were observed, photographed, and recorded on maps and field notes.

Based on California Environmental Quality Act (CEQA) and California Coastal Act guidelines, particular attention was given to public viewpoints. Because of the extensive network of public trails, parks, and beaches, combined with the convergence of two state highways, the Planning Area has a great many potential public vantage points. In addition, local roadways offer substantial viewing opportunities.

6.1 Regulatory Setting

The City of Half Moon Bay is located within the Coastal Zone boundary and, accordingly, is governed primarily by the policies and ordinances found in its General Plan and integrated LCP. The regulatory environment is guided by the various elements and ordinances found in the following documents:

- Local Coastal Program Land Use Plan (1993) – City of Half Moon Bay
- General Plan Park and Recreation Element (1995)- City of Half Moon Bay
- Downtown Specific Plan (1995) - City of Half Moon Bay
- Title 18 Zoning Ordinance (1996)– City of Half Moon Bay
- Municipal Code (2012) - City of Half Moon Bay

Because of the many broad vistas and expansive viewsheds, a number of the quality visual resources enjoyed throughout the Planning Area are located outside of the jurisdictional boundaries of the city. These surrounding areas are generally subject to San Mateo County visual policy and regulations. County policies, although not the subject of this study, can have a direct influence on the visual quality of the city. In addition, these regional policies provide an indication of overall public sensitivity regarding visual quality.

City of Half Moon Bay Local Coastal Program (1993)

This section provides an overview of key LCP Land Use Plan policies relevant to visual resources.

Coastal Access and Recreation

Policies in this section address coastal access and recreation issues for specific areas of the city. Policies 2-17, 2-19, and 2-23 address the Half Moon State Beach and County Acquisition Area, requiring visual screening, landscaping, and other measures as part of facility improvements at the site.

Hazards

Policies 4-1 through 4-5 address the permitting of seawalls and other cliff-retaining structures. Such structures may have an impact on the scenic quality of the city's coastline and bluff areas.

Visual Resources

This section discusses planning issues related to the city's scenic resources, covering issue areas such as upland slopes; roadside views, city pattern, and scenic highways; protection of significant structures and historic areas; and design guidelines for new development. The LCP identifies the Half Moon Bay's eastern hillsides as a major attribute of the city's visual setting, identifies the need to protect quality views as seen from Highway 1, acknowledges the need for stronger efforts to preserve historic resources, and acknowledges the lack of and need for specific design guidelines for new development. Policies in this section address the Highway 1 scenic corridor,

the placement of utilities, the design of beachside parking facilities and recreational structures, design review for new development, development on upland slopes, and ocean view blockage.

Development

This chapter establishes conditions for future development in Half Moon Bay. Policies relevant to visual resource protection include Policy 9-7, which addresses development density, and development conditions for the city's PUDs, such as the condition on the Guerrero Avenue Site that would require structures to be sited so as to minimize the interruption of views from Highway 1 to the ocean.

Half Moon Bay Downtown Specific Plan - 1995

The Downtown Specific Plan adequately addresses the majority of critical aesthetic and visual resource issues associated with downtown Half Moon Bay.

City of Half Moon Bay General Plan – Park and Recreation Element - 1995

The Park and Recreation Element provides policy and direction for the planning, protection, and development of recreational resources throughout the city. Inherent in these policies are often goals which are complimentary to the values expressed in the General Plan's Visual Resource section. Review of the Park and Recreation Element suggests that in order to further strengthen the mutual benefit of a healthy visual environment consideration should be given to the following recommendations:

Chapter V. Opportunities for New Parks

This chapter addresses the opportunities for acquisition and development of new park and recreation facilities.

Objective 3.4 Utilize ordinances and easements to ensure that significant natural resources are protected during development.

City of Half Moon Bay Zoning Ordinance (Title 18 of the Municipal Code)

The Zoning Ordinance includes development standards that serve to implement General Plan visual policies. Accordingly, Zoning Ordinance standards should be examined as part of subsequent General Plan policy review. Chapter 18.37 of the Ordinance specifically addresses Visual Resource Protection Standards.

6.2 Visual Setting

The City of Half Moon Bay is within the coastal region of western San Mateo County, and is the largest community in the area. Highway 92 is the main east-west corridor in the region, connecting Half Moon Bay and the coast areas to the urban centers of eastern San Mateo County and the San Francisco Bay. Highway 1 (sometimes referred to as the Cabrillo Highway) is the primary coastal access route in the state, running from San Diego to the Oregon border and

beyond. Highway 1 is designated as an Official State Scenic Highway beginning at the southern city limits and continuing south. Highway 92 and Highway 1 intersect near the city center.

Half Moon Bay and the surrounding area are considered to have a high degree of visual quality, based on the area's proximity to the ocean, memorable landforms, undeveloped hillsides, open space, and agricultural fields.

The coastal communities of Princeton, El Granada, Moss Beach, and Montara are north of the city along the highway. Pacifica is located approximately 15 miles to the north. Pillar Point Harbor, immediately north of the city, is the largest protected harbor between Monterey and the San Francisco Bay. The surrounding region is largely rural, and agricultural and maritime-related uses are seen throughout the area. Although scattered farmhouses and ranches are visible in the landscape, the communities in the region are relatively compact and distinct, separated primarily by open space and agriculture. In part because of the region's proximity to the highly-populated San Francisco Bay Area, tourism plays an important part in the regional economy. Accordingly, visitor-oriented uses are commonly seen in the area, especially along Highway 1 and in the coastal communities. Coastal access points are plentiful in the region and are easily found. Scattered commercial-retail development is also present along the highway in this area.

The region includes portions of the coastal foothills to the east, which generally flatten out onto terraces near the coast. Along the coastline the landform is widely varied and includes steep cliffs and bluffs facing the ocean's edge as well as broad, flat beaches and coves. Natural vegetation of the region includes oaks, pines, redwood, and cypress trees in the hills, and large stands of sycamore and willows that follow the creeks and drainages on their way to the ocean. Large eucalyptus trees have also established themselves throughout the region and are part of the visual landscape. Coastal wetlands and marshes are part of the vegetative interface between land and the sea.

The city is located on the plain between the coastal foothills and the Pacific Ocean. The city is approximately 6.5 square miles in size, and extends approximately six miles north and south along the coastline. The city occupies the area from the ocean to an average of approximately one mile inland. The northeast corner of the city limits reach inland approximately two miles along Frenchmans Creek into the canyon. Since the city is situated on the coastal plain, the overall landform is generally flat, with a gradual rise in elevation from west to east, as the city limits approach the coastal foothills. The hills rise up to the east and provide a visual backdrop for the majority of the city.

Several creeks descend from the foothills and traverse the coastal plain on their way to the ocean. Pilarcitos Creek is joined by its tributaries just east of the town, providing a natural character-defining riparian corridor along the eastern and northern parts of the downtown area on its way to the shore. Frenchmans Creek crosses the northern, less developed part of the city and is noticeable as a well-vegetated corridor as it flows from the foothill canyons to the coastal bluffs.

The weather of the region is largely influenced by its proximity to the Pacific Ocean. As a result, coastal fog is often part of the visual ambiance, especially in the early summer months. Coastal fog also can have an effect on the extent of available views throughout much of the region.

VISUAL QUALITY AND CHARACTER

The existing visual quality of the Planning Area is a product of a number of aesthetic attributes and factors. The visual character of Half Moon Bay combined with scenic vistas within and surrounding the city results in a generally high-quality viewing experience. Although the viewing circumstances are unique for each specific viewpoint, review of the Planning Area reveals the emergence of certain common visual conditions. These commonalities may be based on physical location, proximity, exposure, viewer activity and expectations, and other factors. Accordingly, to understand the aggregate quality and character of Half Moon Bay, this study first analyzes the following areas, organized by common viewer experience. Both positive and negative attributes are identified.



Photo 6-1: Looking out over Half Moon Bay toward the Pacific Ocean.

Downtown

Overall, the downtown area enjoys a fairly high degree of visual quality. The combination of its walkable scale, historic and older-appearing buildings, hillside views, nearby creek corridors, and ocean glimpses presents a varied and quality visual character. The downtown area includes a combination of commercial, residential, and civic buildings, mostly less than three stories in height. A variety of architectural styles can be seen in the downtown area, including Craftsman, Mission, Spanish Colonial Revival, and California Bungalow. Some newer commercial developments tend toward Cape Cod and Mediterranean revival styles.

A few pocket parks are located throughout the downtown area. Street trees and architectural light standards line Main Street and a portion of the downtown core. Development along the southern portion of Main Street is generally less dense, and includes a greater percentage of residences and residential buildings converted for office use. The downtown area is surrounded mostly by residential neighborhoods, with community and civic buildings seen primarily along Kelly Street. North of Stone Pine Road, the community presents a somewhat more generic visual character, and, although a few residences line the street, seems to have a greater visual connection with the development along Highway 92 rather than with the charm of Main Street to the south.

The downtown core is generally defined as the area along and near Main Street, and serves as the civic and commercial center of town. The downtown core has a mostly pedestrian-scale appearance, resulting from the predominance of one- and two-story buildings, windowed storefronts, two-lane streets with sidewalks, street trees, ornamental street lights, and other amenities. The three small parks found in the downtown area increase public viewing opportunities, and various wall murals indicate an interest in the aesthetic environment.

The historic and older buildings provide visual interest for the town, and also make a visual connection to the cultural heritage of the past. Pilarcitos Creek and its tributaries pass along the eastern and northern side of the downtown area, and are noticeable by their healthy riparian vegetation. The Main Street bridge over Pilarcitos Creek serves as a primary gateway and character-defining feature. Built in 1900, the scale of the bridge, along with its railings and pilasters is a local visual resource. The inland hills provide another visual connection to the natural setting, and also offer a scenic backdrop for much of the downtown area. Just north of the downtown area, a utility substation is highly visible adjacent to Main Street. This facility interferes with views of the hills and creates an appearance of visual clutter. Otherwise, views north of the downtown area tend to open up and reveal greater visual access to the hills and the Pacific Ocean.

Positive visual attributes and conditions associated with the downtown area viewing experience include: the Main Street bridge; views of the hillsides and ridgelines of the coastal mountains; blue-water ocean views; riparian corridors of Pilarcitos Creek and its tributaries; historic buildings and older non-historic buildings; parks; and pedestrian-scale buildings and streetscapes. Negative visual attributes and conditions associated with the downtown area viewing experience include: overhead utilities; generic architectural styles associated with newer buildings; tall "cobra" style street and highway lights; and the electrical utility substation. Photos 6-2 through 6-7 illustrate the visual characteristics of the downtown area.



Photo 6-2: Looking north along Main Street.



Photo 6-3: Historic buildings mixed with other uses.



Photo 6-4: Hillsides frame the downtown setting.



Photo 6-5:View of Main Street north of the Main Street bridge.



Photo 6-6: Looking south toward the Main Street bridge.



Photo 6-7: Murals in downtown area add visual interest.

Highway Corridors

Highways 1 and 92 pass through the city, intersecting just northwest of the downtown area. These two highways are the primary access points to and through Half Moon Bay, and as a result provide many travelers with their first visual impressions of the city. Highway 1 is mostly a two-lane facility, and occasional traffic signals, left-turn lanes, merge lanes, and driveways are part of the highway environment. There are also bicycle lanes along the roadside. During the busy tourist months, slow-moving traffic and cars lining portions Highway 1 contribute to the overall visual setting. Local planning studies identify two community gateways along Highway 1. A northern gateway is identified where Highway 1 intersects with Highway 92, and a southern gateway is located at the merge point with Main Street. Highway 92 is a curvilinear roadway which serves as the eastern gateway to town, and views of the coast and community open up as the roadway winds down from the hills. The Highway 92 intersection with Main Street is identified as a community gateway. These intersections are shown in Photos 6-8 through 6-10.

Highway 1

Highway 1 is the primary north-south transportation route through the Planning Area. As a result, a large share of the visual impression of the city is experienced from this corridor. Highway 1 provides a fairly comprehensive overview of the city and surrounding area's visual character and scenic resources. Views at the city perimeter along Highway 1 include agricultural uses and open space, mixed with residential neighborhoods and a few roadside businesses.

Approaching the central part of the city along Highway 1, development becomes denser and commercial uses are more prevalent. Because the downtown district is located a few blocks inland it is not readily visible from Highway 1. Historic properties such as the Johnson House can be seen in the distance, set among the open fields. Throughout the length of Highway 1 in the Planning Area, the inland foothills are a prominent visual element. Not only do the adjacent hills reveal the natural and historic character, they also serve as a compositional framework for the visual landscape of the area. Views of the Pacific Ocean equally define the area's aesthetic quality. Views of the ocean and the harbor are most noticeable along the northernmost section of Highway 1, where the roadway veers close to the shore. At several locations along the highway, undeveloped land west of the highway allows blue-water vistas. The abundance of ocean, harbor, hillside, and agricultural views combine for a moderately high level of visual quality as seen from Highway 1 in the Planning Area.

Visually detracting elements include Highway 1 itself, including traffic, signage and related features; commercial development that is visually inconsistent with the area's rural, historic or maritime character; and overhead utilities.

Positive visual attributes and conditions associated with the Highway 1 corridor viewing experience include: views of the coastal mountain hillsides and ridgelines; agricultural fields, operations, and greenhouses; blue-water ocean views; riparian corridors; historic buildings; Pillar Point Harbor and Marina; and Pillar Point. Negative visual attributes and conditions associated with the Highway 1 corridor viewing experience include: vehicular traffic; the scale of the Highway 1/92 and Highway 1/Main Street intersections; overhead utilities and the substation; signage; and generic and corporate architectural styles associated with newer buildings. Photos 6-11 through 6-15 illustrate the visual characteristics of Highway 1.

Highway 92

Highway 92 serves as the eastern gateway to the Planning Area. As the highway winds down from the hills, the curving alignment and groves of mature roadside trees just east of town tend to limit longer-range views. Continuing west however, the highway straightens out, revealing a vista of Half Moon Bay and the ocean beyond. This spatial dynamic along westbound Highway 92 contributes to a sense of arrival to the community. The somewhat elevated position of the highway allows for a better overview of the downtown area than exists while travelling Highway 1.

East of the city, the farms and agriculture-oriented roadside businesses help set the stage for the historically rural visual character of the area. Closer to the center of town and Highway 1, commercial development lines the highway and becomes more obvious. Much of this development does little to enhance the aesthetic appeal or reinforce the positive historic and scenic attributes of the city.

Positive visual attributes and conditions associated with the Highway 92 corridor viewing experience include: coastal mountain hillsides and ridgelines; agricultural fields, operations, and greenhouses; blue-water ocean views; riparian corridors; mature roadside trees; the historic cemetery; and panoramic views approaching downtown. Negative visual attributes and conditions associated with the Highway 92 corridor viewing experience include: overhead utilities and substation; vehicular traffic; signage; and generic and corporate architectural styles associated with some newer buildings. Photos 6-16 through 6-18 illustrate the visual characteristics of Highway 92.



Photo 6-8:The Highway 1/Highway 92 intersection serves as a northern gateway to the downtown area.



Photo 6-9:The Highway 1/southern Main Street intersection serves as a southern gateway to the downtown area.



Photo 6-10:The Highway 92/Main Street intersection serves as gateway to the downtown core.



Photo 6-11: Views along Highway 1, approaching the city from the south.The Historic Johnson House can be seen on the right.



Photo 6-12: Views of the Pacific Ocean from southbound Highway 1.



Photo 6-13: Pillar Point Harbor and Marina seen from northbound Highway 1.



Photo 6-14: Typical view of Highway 1. A multi-use path parallels the highway at this location.



Photo 6-15: Roadside trees add visual interest along parts of Highway 1.



Photo 6-16: Approaching the city from the east on Highway 92.



Photo 6-17: Distant ocean views are seen as Highway 92 descends into the city.



Photo 6-18: View of Highway 92 between Main Street and Highway 1.

Residential Neighborhoods

A number of residential areas are found throughout the Planning Area. As mentioned previously, residential areas generally surround the downtown core, becoming somewhat less dense as they transition to the more rural outskirts. The greatest concentration of residential development is found in the mid-southern portion of the city, generally between Kelly Avenue and Seymour Street. South of Seymour Street, residential neighborhoods are primarily west of Highway 1.

Most of these neighborhoods are well-established and have mature landscaping. Although single-family residential subdivisions comprise much of the area, they are intermixed with other types of development such as nurseries, mobile home and recreational vehicle parks, a hotel, a golf course, and larger-lot residences. Several of the primary east-west oriented streets through these neighborhoods provide direct access from Highway 1 to public beaches and bluff trails. North of the downtown area, residential neighborhoods are found both east and west of Highway 1. These developments are more distinctly identifiable as seen from Highway 1, and tend to be separated from one another by open fields and natural features. These neighborhoods are almost exclusively single-family houses. Some of the neighborhoods west of Highway 1 allow for direct public access to coastal parking lots and recreation. The character and visual quality of these residential neighborhoods varies with their age, architecture, landscaping, street layout, and other factors. Most seem to be walkable, relatively compact neighborhoods with street trees and on-street parking. A common visual characteristic is that most all of the residential areas have some sort of views to the inland hillsides. In addition, glimpses of the ocean are often available where streets create an open view corridor to the west.

Positive visual attributes and conditions generally associated with the residential neighborhood viewing experience include: views of coastal mountain hillsides and ridgelines; views of agricultural fields and operations; ocean views; riparian corridors; mature roadside trees; and views of the bluffs, beaches, harbor, and Pillar Point from certain areas. Negative visual attributes and conditions generally associated with the residential neighborhood viewing experience include overhead utilities and view blockage of surrounding coastal resources. Photos 6-19 through 6-12 illustrate the visual characteristics of the residential neighborhoods.

Local Streets

Local roadways in the downtown area as well as throughout the various neighborhoods are generally laid out as informal grid patterns with one axis perpendicular to Highway 1. Local roadways are the primary access routes to the ocean and recreational areas.

Because of the grid layouts, many of the east-west oriented streets provide view corridors to the ocean as well as the inland hills. Local streets also serve as public viewpoints to the surrounding areas. They link the community with much of the surrounding rural areas as well as bring visitors in closer connection with the residential areas and local amenities.

Most of the local streets are two-lane roads. The visual character of these roads depends largely on the adjacent land use. While streets serving residences and businesses typically include curbs, gutters and sidewalks, other local roadways may be rural in character with unpaved shoulders, lined by fields or open space. In many instances large mature trees can be seen along local streets and roads, helping create an established visual character for the community.

Positive visual attributes and conditions generally associated with the local roadway viewing experience include: increased visual access to scenic resources; creation of view corridors; generally residential scale; views of coastal mountain hillsides and ridgelines; views of agricultural fields and operations; ocean views; mature roadside trees; and riparian corridors. Negative visual attributes and conditions generally associated with the local roadway viewing experience include overhead utilities, vehicular traffic, and signage. Photos 6-22 through 6-25 show the visual characteristics of local streets.

Agriculture and Maritime Uses

Agricultural heritage and character is evident by the fields, greenhouses, nurseries, and open space seen throughout the Planning Area. This is particularly noticeable in the southern portion of the city along Highway 1 where greenhouses and nursery operations line the roadway, and along Highway 92 where floriculture and other agricultural-oriented retail business greet the highway traveler. As seen from these highways, as well as from local roadways and other public viewing areas, greenhouses and agricultural fields often add to the compositional aspect of the views and increase the overall visual quality.

The maritime and fishing industries contribute greatly to the visual character of the Planning Area. The Half Moon Bay city limits encompass the southernmost portion of the Pillar Point Harbor frontage, and include dramatic views of the Harbor, Pillar Point, and Pillar Point Ridge to the northeast. Views of these natural landforms and working harbor are memorable, and have a substantial positive effect on visual quality.

Positive visual attributes and conditions generally associated with public views of agricultural and maritime uses include: primary visual character-defining qualities; visual connections to local and regional history; generally maintained scenic views beyond them; and compositional harmony to the viewshed. Negative visual attributes and conditions generally associated with public views of agricultural and maritime uses include overhead utilities and increased traffic and parked cars (marina area). Photos 6-26 through 6-28 illustrate visual characteristics of agriculture and maritime uses.

RESIDENTIAL NEIGHBORHOODS



Photo 6-19: An established neighborhood near the downtown area along Filbert Street.



Photo 6-20: A well-landscaped neighborhood in the northern portion of the city along Spindrift Way.



Photo 6-21: A neighborhood on the western side of Highway 1 along Poplar Avenue.

LOCAL STREETS



Photo 6-22: Local streets can provide visual corridors to the ocean.



Photo 6-23: This local street allows increased visual access to the hills as seen from Highway 1.



Photo 6-24: This local street shows a number of suburban characteristics.



Photo 6-25: Several local roadways maintain a generally rural appearance.

AGRICULTURE AND MARITIME USES



Photo 6-26: Greenhouses along Highway 1.



Photo 6-27: Agricultural operations seen along Highway 92 at the outskirts of town.



Photo 6-28: Pillar Point Harbor and Marina seen in the distance.

Coastal Bluffs and Beaches

The Planning Area is defined on its western edge by approximately 6 miles of sandy beaches, coastal bluffs, and coves, the majority of which are easily accessible to the public. Because of the crescent-shaped curve of the coastline, views from these beachfront areas often include sweeping panoramas from Pillar Point to the Santa Cruz Mountains. Looking east from these areas, the coastal foothills can be seen rising up as a scenic backdrop to the city. Several city streets provide direct access to these areas, sometimes leading all the way to the bluff tops themselves. High quality views are readily available from the bluffs and beaches.

The bluffs and beaches themselves are scenic coastal resources, and, in addition, vistas of the surrounding areas abound. Generally the bluffs are moderate in height, and informal paths create access down to the sand. Because of the proximity to scenic elements and the recreational nature inherent in the activities, the bluffs and beaches create viewing experiences with potentially long durations and high levels of awareness.

From several bluff top locations, inland views include the nearest residential development to the east. Some of these neighborhoods are in close proximity to the bluff, separated only by a fronting street. In other instances the nearest neighborhood is set back considerably, allowing unhindered views of the eastern hills and ridgelines.

Positive visual attributes and conditions generally associated with the coastal bluffs and beaches viewing experience include: views of the coastal hillsides and ridgelines, agricultural fields and operations, the ocean, the harbor, and Pillar Point; the bluffs themselves; sandy beaches and the shoreline; and riparian corridors. Negative visual attributes and conditions generally associated with the coastal bluffs and beaches viewing experience include: views of development encroaching into open space; view blockage of surrounding coastal resources; and views of recreational vehicles at certain locations. Photos 6-29 through 6-32 depict the visual characteristics of coastal bluffs and beaches in the Planning Area.

Recreational Areas

Recreational opportunities are plentiful. Much of the beachfront is part of Half Moon Bay State Beach, and, accordingly, is designed to accommodate a variety of recreational uses. Formal parking areas are located at designated areas up and down the coast, providing access to picnic areas, camping, hiking, and water activities.

An extensive multi-use trail generally follows the bluff top throughout much of the city limits, State Beach, and beyond. Separated bicycle trails are also seen along portions of Highway 1. Several city parks are found in and near residential neighborhoods.

The Half Moon Bay Golf Links are located at the southern end of town, between Highway 1 and the coast. Smith Field, a popular public sports park is situated near the bluff top in the southern part of town. These recreational viewpoints generally allow for increased exposure to the surrounding visual environment, and in many instances recreational enjoyment is enhanced by the views. Photos 6-33 through 6-37 depict the visual characteristics of recreational areas in the Planning Area.

Many of these recreational areas provide scenic value themselves in terms of open space, topography, and native vegetation or other landscaping. Recreational vehicles and campers are allowed at certain locations. In some instances, these uses are highly visible and affect the visual quality of the setting.

Positive visual attributes and conditions generally associated with the viewing experience from recreational areas include: views of the coastal hillsides and ridgelines, agricultural fields and operations, ocean, harbor, and Pillar Point; bluffs, sandy beaches, and shoreline; riparian corridors; and increased visual access to scenic resources. Negative visual attributes and conditions generally associated with the viewing experience from recreational areas include: views of development encroaching into open space; view blockage of surrounding coastal resources; and, views of recreational vehicles at certain locations.

COASTAL BLUFFS AND BEACHES



Photo 6-29: The bluffs are readily accessible along much of the coastline.



Photo 6-30: Beaches provide superior viewing opportunities.



Photo 6-31: Sweeping panoramas are available from most bluff tops.



Photo 6-32: Bluffs and beaches provide views to inland resources as well as development.

RECREATIONAL AREAS



Photo 6-33: Designated parking areas offer access to the beach.



Photo 6-34: Half Moon Bay State Beach supports a variety of public uses.



Photo 6-35: Multi-use trails expand recreational and viewing opportunities up and down the coastline.



Photo 6-36: Carter Park near the downtown area.



Photo 6-37: Smith Field Park.

CRITICAL VISUAL RESOURCES

The availability of views to visual resources in and around the Planning Area is varied and dependent on a number of factors such as topography, intervening development and vegetation, viewing distance and duration, and atmospheric conditions. From many viewpoints, multiple visual resources can be seen at the same time. This report analyzes the general quality views as experienced from public viewpoints, areas and corridors. These important viewing areas are shown in Figure 6-1. The visual resources which contribute most to the overall scenic quality are listed below and included in Figure 6-2. Although these visual resources often overlap and are experienced in the context of one another, they can be defined and assessed individually in terms of their intrinsic values.

Hillsides and Ridgelines

As seen from the majority of the Planning Area, the coastal foothills to the east and Pillar Ridge to the northwest create a scenic backdrop that contributes greatly to the overall visual quality. These mostly undeveloped hillsides and ridgelines underscore the rural and natural character seen in the Planning Area and throughout much of the surroundings. These hillside visual resources provide context and visually frame many of the other scenic resources in the area. (See Photo 6-38).

Agricultural Fields and Operations

Views of agricultural lands and open space in and around the Planning Area are valuable contributors to visual character and scenic quality. Greenhouses, farming operations, and fields visible from many parts of the community help to define the Planning Area as having a rural history. The generally pastoral qualities of the surrounding open space and agricultural lands have an inherent scenic benefit which increases the city's visual quality. (See Photo 6-39).

Pacific Ocean

Views of the Pacific Ocean are a fundamental character-defining visual element for the Planning Area as well as for the California coastline. Although not visible from all locations within the Planning Area, where it can be seen it substantially adds to the visual interest and quality of the view. (See Photo 6-40).

Pillar Point Harbor and Marina

The harbor area provides an iconic visual definition for much of the Planning Area and the surrounding region. The harbor marina is a visual resource in terms of its direct scenic imagery as well as its contribution to the visual character of the area. The Harbor and marina are primary visual elements at the northern limits of Half Moon Bay and serve as a de facto visual gateway to the city. (See Photo 6-41).

Figure 6-1:
Primary View Corridors



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWCA, 2014; Dyett & Bhatia, 2014

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Figure 6-2: Visual Resources



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Dyett & Bhatia, 2014

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Pillar Point Landform

Similar to the inland hills, Pillar Point provides a scenic backdrop to much of the Planning Area. In addition, Pillar Point creates a unique landform as it juts out from the coastline to form the westernmost block of land defining the viewshed. Because of its visual prominence Pillar Point retains certain landmark characteristics. The scenic and memorable qualities of this dramatic landform make Pillar Point a visual resource for the Planning Area and the region. (See Photo 6-42).

Riparian Corridors

Several creeks flow down from the hills to the ocean, passing through the city and the surrounding area. The riparian forests generally associated with these creeks often bring nature closer to public viewpoints. In addition to providing local landmarks and place-identifiers, riparian corridors often serve to visually frame the surrounding scenic viewsheds. (See Photo 6-43).

Sandy Beaches and Shoreline

Where visible, the sandy beaches and shoreline are primary contributors to the visual composition of the coastal setting. Views of the beaches and shore are mostly visible from locations along the westernmost portion of the Planning Area. As viewed from greater distances, the shoreline is seen as part of the overall geographic landform. From closer perspectives, where beach-related activity is more noticeable, the overall visual quality of the beach remains high since these activities contribute to a classic visual image of the California coast. (See Photo 6-44).

Bluffs

The bluffs are a unique coastal landform that extends along the majority of the Planning Area's western edge. These moderate–sized cliffs and ravines are a visual reminder of the dynamic forces of nature at work at the interface of land and sea. The bluffs also offer elevated viewing opportunities of the coastline, as well as of much of the inland hills. (See Photo 6-45).

Historic Buildings and Properties

Several historic buildings and properties are located within the Planning Area. These historic features contribute to the visual quality of the area in a number of ways. They are generally unique in terms of their design style, they establish a tangible connection to the area's past, and they are icons of the visual character valued by the community. Within the downtown area of Half Moon Bay, the Methodist Episcopal Church, the William Adam Simmonds House, and other locally important properties all are easily accessible and are important visual resources. The James Johnston House and the Robert Mills Dairy Barn can be seen at the city's outskirts, offering a historic visual context to the landscape. The Pilarcitos and Oddfellows cemeteries at the edge of the city center are also visually important connections to the past. (See Photo 6-46).

Main Street Bridge

The age of the Main Street bridge is evident in its narrow scale as well as its architectural and engineering design. Built in 1900, the bridge is a visual resource in terms of its aged character, its proximity to the downtown core, and its prominence on Main Street at a primary gateway to the city. (See Photo 6-47).

Downtown Core

Much of the visual quality of the downtown area is a result of the scale and of its buildings and streets, the close layout of the central retail zone along Main Street, and the human-scale amenities at the sidewalk and storefront level. These characteristics, combined with the historic character, hillside views, and proximity to the creek are primary contributors to the scenic quality of the downtown area. (See Photo 6-48).

Parks

Parks in the Planning Area include small parks and plazas in and near downtown, passive areas along creeks, and active recreation areas such as Smith Field Park and the State Beach uses along the shore. These parks have a variety of individual characteristics and provide scenic value in different ways. They all, however, are aesthetically pleasing areas, which adds to the overall visual quality of the setting. They also create increased opportunities and exposure for the public enjoyment of the surrounding visual environment. (See Photo 6-49).

Mature Roadside Trees

Large mature trees can be seen from many locations throughout the Planning Area. Many of these trees, whether individually or in groupings, can be seen against the skyline in the distance. Trees of large stature located along roadsides can create a sense of spatial definition, along with a general increase in vegetative character. These visual attributes combine to make many of the large roadside trees visual resources. (See Photo 6-50).

Significant Stands of Vegetation

Large stands of vegetation are seen throughout the Planning Area. The vegetative patterns of the hillsides, canyons and creeks, upland terraces, and bluff tops all contribute to the underlying visual character of the area. Similar to historic buildings, healthy stands of vegetation connect the viewer to the story of the land and the community. (See Photo 6-51).



Photo 6-38: Coastal hillsides provide a scenic backdrop for the city.



Photo 6-39: Agricultural operations help define the visual character of the city.



Photo 6-40: Sweeping high-quality views of the Pacific Ocean as seen from Highway 1.



Photo 6-41: Pillar Point Harbor and Marina are memorable visual resources along the coast.



Photo 6-42: The landform of Pillar Point can be seen for miles.



Photo 6-43: The Pilarcitos Creek riparian corridor brings a natural visual character to the downtown area.



Photo 6-44: The beach and shoreline offer high-quality visual enjoyment.



Photo 6-45: The dramatic character of the Coasal bluffs.



Photo 6-46: The Methodist Episcopal Church, located downtown, is listed on the National Register of Historic Places.



Photo 6-47: Looking north to the Main Street bridge.



Photo 6-48: The downtown core along Main Street.



Photo 6-49: Frenchmans Creek Park in the northern part of town.



Photo 6-50: Mature roadside trees can have distinctive skyline characteristics.



Photo 6-51: Patterns of vegetation help define the character of this scenic view.

6.3 Key Planning Issues and Implications

Review of the existing visual environment as reflected in the implementation of the 1993 Local Coastal Program shows a general effectiveness in preserving defined coastal resources. The overall high visual quality evident throughout much of the Planning Area is a testament to the many positive results of past and current planning policy. Analysis of the LCP and General Plan also reveals several issues that may be considered the underlying challenges facing protection of the aesthetic values currently expressed by the community. Some but not all of these issues are formally recognized in the LCP and General Plan, and related documents. A few of these basic issues are summarized below in order to prompt further discussion regarding the fundamental concerns facing the city's visual health now and into the future.

DEVELOPMENT AND VISUAL RESOURCES

The city's visual environment is an important component of the quality of life of its residents. It is also an important factor to visitors, which is critical to the health of the local economy. The visual quality throughout much of the Planning Area is high, attributable in part to the past and present visual policies of the city. The area is also greatly influenced by the policies of surrounding jurisdictions. Because of the Planning Area's accessibility as a popular tourist destination, challenges present themselves in terms of allowing development while at the same time not degrading the very aesthetic qualities that make it popular and uniquely distinguishable.

Review of the city's visual conditions shows promise for accommodating future development while protecting visual resources and maximizing aesthetic potential. Because of the inherent benefit associated with the city's close proximity to numerous visual resources, opportunities exist to maximize the visual experience for the community and its visitors. These include opportunities for policies to improve protection of critical visual resources such as:

- The Pacific Ocean
- Surrounding hillsides and ridgelines
- Agricultural fields and operations
- Pillar Point Harbor and Marina
- Pillar Point
- Sandy beaches, bluffs, and shoreline
- Creeks and riparian corridors
- Historic buildings, structures, and properties
- Pedestrian-scale buildings and streetscapes
- Parks and recreation areas
- Mature roadside trees
- Significant stands of vegetation.

CONVERSION OF LAND FROM AGRICULTURE TO OTHER USES

The 1993 LCP states that an expected decline of economic viability of agricultural land and operations in Half Moon Bay would over time increase land conversion to non-agricultural uses. This fundamental issue is one of the most important factors in determining the future visual quality and character of Half Moon Bay and its surroundings. The farm fields in and around Half Moon Bay are major contributors to the city's visual character and quality. Conversion to non-agricultural, higher density uses would likely cause a noticeable urbanization of the visual environment and reduce existing public sightlines to visual resources.

NEW DWELLING UNITS AND GROWTH

The 1993 LCP presents the entire City of Half Moon Bay as an urban area suitable for residential, commercial, and industrial development, and states that the City should permit and encourage development of as many new dwelling units as allowable under policy. This approach speaks to the value of well-developed, comprehensive visual resource policies and enforcement. The value of scenic resources and visual character is recognized throughout the LCP and General Plan, as well as within Coastal Act policy. Existing LCP Basic Findings should be revisited and consideration should be given to further defining the term "urban" as it relates to the associated aesthetic implications, and reconciling the term with achieving the visual protection goals and policies cited elsewhere in the Plan.

TRAFFIC

As traffic volumes and demand increase on Highway 1 and Highway 92, resultant capacity, operational, and safety improvements will have an effect on the visual scale and character of the corridors and community. As the primary routes to and from the Bay Area, the need for modifications to the existing highways will continue. The range of possible improvements could include new turn lanes, intersection modifications, new intersections, shoulder widening, acceleration and deceleration lanes, and other elements. Roadside modifications could involve items such as new lighting, signage, barriers, grading, and tree removal.

Highway 1 is an important public vantage point in terms of ocean views. Highways 1 and 92 serve as the unofficial "main streets" of Half Moon Bay by virtue of their traffic volumes and visual exposure in the city. Although within State jurisdiction and subject to state and federal standards, the appearance of these routes and their interface with the city greatly affects local mobility, development, and the perceived image of the community. Measures should be considered which take a pro-active approach to shaping the visual character of these highway corridors, as well as their potential effect on visual resources in and surrounding the city.

DOWNTOWN CORE

New development and redevelopment in the downtown core has the potential to greatly affect the visual character, public perception, and economic vitality of the city. The type and appearance of future development of the downtown area is a critical factor in maintaining and expanding the city's aesthetic appeal. New development and redevelopment that are inconsistent with the existing positive characteristics in terms of scale, design style, and layout can reduce community cohesion and dilute the area's sense of place. The 1993 LCP includes many policies and ordinances that address this issue and serve to preserve the visual quality of the downtown area.

In addition, subsequent studies have been developed which provide a comprehensive vision for the future of downtown.

FUTURE DEVELOPMENT OF SUBDIVISIONS

Future development of subdivisions may have an adverse effect on scenic views from the beach and bluff top recreation areas. The current LCP includes policies which support the protection of scenic vistas and visual resources, and it details development conditions for specific Planned Unit Developments that may address visual resources along bluff tops, sandy beaches, the coastline, and the ocean. Future development of subdivisions may need to consider impacts on the sightlines between the inland hillsides and the beaches and bluffs of the coast.

JURISDICTIONAL ISSUES

Many of the high-quality views seen from the city include broad panoramas of visual resources located outside of the City's jurisdiction. Scenic vistas such Pillar Point, Pillar Ridge, the majority of the Harbor and Marina, and the upper portions of the coastal hillside are within San Mateo County. Land use decisions, project development approval, and other actions related to those areas could have indirect effects on the visual setting of Half Moon Bay.

LIGHT AND GLARE

Although the overall extent of nighttime light and glare throughout the Planning Area is moderately low at this time, the increased development anticipated by the LCP may result in future levels of unacceptable light pollution. Review of the LCP Land Use Plan and Municipal Code show few policies and ordinances relating to night lighting. Appropriate lighting design can be effective in minimizing potential impacts associated with light trespass, ambient glow, glare, and other nuisances.

7 Cultural Resources

This chapter discusses existing cultural resources within the Half Moon Bay General Plan Update Planning Area, and identifies potential cultural resources constraints in the event of future development or changes in existing land use associated with the proposed Update. The chapter is based upon existing information gathered and analyzed by SWCA. SWCA conducted a cultural resources records search, preliminary archival and literature review, and initial Native American scoping to assess the sensitivity of the Planning Area for cultural resources. It should be noted that changes to the overall Planning Area occurred subsequently to receipt of the records search results. As such, a small portion of the overall Planning Area (along State Route 92) is not covered by the records search.

RECORDS SEARCH

SWCA cultural resources specialist Leroy Laurie requested a cultural resources records search for the Planning Area on January 17, 2014, from the California Historical Resources Information System Northwest Information Center (NWIC), located at Sonoma State University. The NWIC responded on February 4, 2014. Portions of the records search that contain archaeologically sensitive material are not available for public release. The NWIC consulted the following sources of information, along with official maps and records:

- National Register of Historic Places – Listed Properties (2012)
- California Register of Historical Resources (2013)
- California Inventory of Historical Resources (1976)
- California State Historical Landmarks (1996 and updates)
- California Points of Historical Interest (1992 and updates)
- Office of Historic Preservation Historic Property Directory and Determinations of Eligibility (2012)
- Archaeological Determinations of Eligibility (2012)
- Shipwreck Inventory List and Data Sheets (2014)
- Caltrans Historic Bridge Inventory (2014)

These records were reviewed to (1) identify cultural resources within the Planning Area, and (2) to assess what additional cultural resources studies may be required for future development within the Planning Area.

NATIVE AMERICAN CONSULTATION

SWCA contacted the California Native American Heritage Commission (NAHC) by facsimile on January 13, 2014, requesting a review of the Sacred Lands File. The NAHC responded on January 15, 2014, indicating that the search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the Planning Area. The NAHC provided a list of nine Native American contacts that may have additional information about the Planning Area. SWCA mailed a letter requesting information concerning cultural resources in the area to each of these contacts on February 21, 2014. *No responses have been received to date.*

7.1 Regional and Local Setting

REGIONAL SETTING

Ethnography

The Planning Area is in a region historically occupied by the tribelets of the Costanoan linguistic group.[1] Descendants of Costanoan speakers prefer to be called by the name of the tribelet from which they are descended. When their heritage is mixed or the specifics have been lost over generations, they prefer the use of a native term, Ohlone, rather than the European-imposed term Costanoan ("coastal dwellers").[2] The rich resources of the ocean, bays, valleys, and mountains in the region provided Ohlone-speaking peoples with food and all their material needs.[3] The primary food staple was the acorn, supplemented by a great variety of animal and plant resources.

Prehistory

The Planning Area lies in what generally is described as the San Francisco Bay Region, which is one of eight arbitrary organizational divisions of the state.[4] This archaeological region includes all of today's San Mateo and Marin Counties, and western, northern, or southern portions of Alameda, Contra Costa, Napa, Santa Clara, Santa Cruz, Solano, and Sonoma Counties bordering the Bay Area.[5] The prehistory of this region is divided into six periods: Early Holocene (Lower Archaic, cal 8000-3500 B.C), Early period (Middle Archaic, 3500 to 500 cal B.C.), Lower Middle period (Initial Upper Archaic, 500 cal B.C. to cal A.D. 430), Upper Middle period (Late Upper

[1] Levy, Richard 1978. Costanoan. In California, edited by R. F. Heizer, pp.485–495. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

[2] Margolin, Malcolm 1978. The Ohlone Way: Indian Life in the San Francisco-Monterey Bay Area. San Francisco: Heyday Books.

[3] Levy, Richard 1978. Costanoan. In California, edited by R. F. Heizer, pp.485–495. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C. 491-492.

[4] Moratto, Michael 1984. California Archaeology. New York: Academic Press.

[5] Moratto, Michael 1984. California Archaeology. New York: Academic Press.

Archaic, cal A.D. 430 to 1050), Initial Late Period (Lower Emergent, cal A.D. 1050 to 1550), and Terminal Late Period (cal A.D. 1550 to 1776).[6]

History

The Post-Contact history for the state of California generally is divided into three periods: the Spanish period (1769–1822), the Mexican period (1822–1848), and the American period (1848–present). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769, the beginning of Spanish settlement in California occurred in 1769 with a settlement at San Diego and the first (Mission San Diego de Alcalá) of 21 missions established from 1769 to 1823. Word of Mexican victory after a decade of revolt against the Spanish crown reached California in 1822, marking the beginning of the Mexican period. This period was marked by an extensive era of land grants, most of which were in the interior of the state, and by exploration by American fur trappers west of the Sierra Nevada Mountains.

With the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, California became a territory of the United States. The discovery of gold in 1848 at Sutter's Mill near Sacramento and the resulting Gold Rush influenced the history of the state and the nation. The rush of tens of thousands of people to the goldfields also had a devastating impact on the lives of indigenous Californians, with the introduction and concentration of diseases, the loss of land and territory (including traditional hunting and gathering locales), violence, malnutrition, and starvation. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869.

The Miramontez family established Rancho San Benito on the southern bank of the arroyo in about 1841. They built an adobe residence in present-day Half Moon Bay, which was said to have remained standing into the 1900s (Hoover et al. 2000).[7] The community was originally called San Benito and later "Spanishtown," in part because of the influence of its founding Hispanic families. It was first platted in 1863. By the mid-late 1800s, stores, churches, and at least one saloon had been built (Hoover et al. 2000).[8] The area was remote compared to other population centers; agriculture was the main source of local commerce. In the History of San Mateo County, California, Half Moon Bay was described as "one of the finest agricultural districts of [the] county, located upon what was formerly one of the largest and prettiest streams of the county".[9] The developing port was renamed in honor of the bay's unique form in 1874 and a United States

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[6] Milliken, Randall, Richard T. Fitzgerald, Mark G. Hylkema, Randy Groza, Tom Origer, David G. Bieling, Alan Leventhal, Randy S. Wiberg, Andrew Gottsfield, Donna Gillette, Viviana Bellifemine, Eric Strother, Robert Cartier, and David A. Fredrickson. 2007. Punctuated Culture Change in the San Francisco Bay Area. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 101, 114-118. Altamira Press, Lanham, Maryland.

[7] Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe 2002. Historic Spots in California. 5th ed. Rev. by D. E. Kyle. Stanford, Calif.: Stanford University Press.

[8] Hoover, Mildred B., Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe 2002. Historic Spots in California. 5th ed. Rev. by D. E. Kyle. Stanford, Calif.: Stanford University Press.

[9] Alley B. F. 1883. History of San Mateo County, California. San Francisco: B. F. Alley, 1883: 239.

Post Office was established (as "Halfmoon" Bay). By 1905, the spelling was revised to the current three-word combination of Half Moon Bay.

The turn of the twentieth century brought limited growth to the small town. In 1905, a group of wealthy San Francisco-based investors undertook building a new railroad that would connect San Francisco to Santa Cruz, following the Pacific coastline. The 40-linear-mile Ocean Shore Railroad, as it was known, was bitterly opposed by some residents of Half Moon Bay, who are said to have plowed over the newly built sidewalks that were intended to accommodate the expected tourist trade.[10] It was an excursion line as well as a freight corridor, which facilitated movement of local farmers' goods as well as lumber. The 1906 San Francisco earthquake brought the small rail line extreme financial hardship, but it was nonetheless completed by 1908. Despite successful bond sales to stay financially solvent, the new rail line went into in receivership in 1910. The strained rail line was abandoned a decade later. The City of Half Moon Bay was incorporated in 1959.

LOCAL SETTING

The discussion and summary of local resources (refer to Section 7.3) is based on the results of the cultural resources records search, which identified 61 previously documented cultural resources (10 archaeological sites, 46 built environment resources, and five that contain both elements) within the Planning Area (Tables 7-1 and 7-2). The records search also revealed that 78 previously conducted cultural resources studies have been conducted within the Planning Area. Sensitive archaeological information is not for public dissemination.

7.2 Policies and Regulations

FEDERAL POLICIES AND REGULATIONS

National Historic Preservation Act and Section 106

Significant archaeological and built environment resources are protected by the National Historic Preservation Act (NHPA). Section 106 of the NHPA states that if a federal agency is involved in a proposed project through initiation, funding, and/or issuance of permits, the agency is required to consult with the State Historic Preservation Officer (SHPO). The SHPO reviews the survey reports associated with the resource finding, and may request further study and/or preparation of a mitigation and monitoring plan. When a cultural resource is reported to the SHPO, the resource may be listed in the National Register. The National Register is an inventory of the United States' historic resources and is maintained by the National Park Service. The inventory includes buildings, structures, objects, sites, districts, and archeological resources.

Cultural resources are considered during federal undertakings chiefly under Section 106 of the NHPA of 1966 (as amended) through one of its implementing regulations, 36 Code of Federal Regulations (CFR) 800 (Protection of Historic Properties), as well as the National Environmental Policy Act (NEPA). Properties of traditional religious and cultural importance to Native

[10] Drury, Wells, and Aubrey Drury 1913 Authentic Description of Routes of Travel and Points of Interest in California. Berkeley, Calif.: Western Guidebook Company: 65 and 99.

Americans are considered under Section 101(d)(6)(A) of NHPA. Other federal laws include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act (AIRFA) of 1978, the Archaeological Resources Protection Act (ARPA) of 1979, and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1989, among others.

Section 106 of NHPA (16 United States Code [USC] 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings (36 CFR 800.1). Under Section 106, the significance of any adversely affected cultural resource is assessed and mitigation measures are proposed to reduce any impacts to an acceptable level. Significant cultural resources are those resources that are listed on, or are eligible for listing on the NRHP per the criteria listed at 36 CFR 60.4 (ACHP 2000) below.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

(a) Are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) Are associated with the lives of persons significant in our past; or

(c) Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or,

(d) Have yielded, or may be likely to yield, information important in prehistory or history.

STATE POLICIES AND REGULATIONS

California Environmental Quality Act

The California Environmental Quality Act (CEQA) (Public Resources Code [PRC] 21000 et seq.) requires consideration of a project's impacts on significant paleontological, historical, and archaeological resources. Significant impacts on such resources are to be avoided or mitigated to less than significant levels.

If the project may cause damage to a significant resource, the project may have a significant effect on the environment. Section 15064.5 of CEQA pertains to the determination of the significance of impacts to archaeological resources that may be adversely affected by project development in Section 15126.4(b). Achieving CEQA compliance with regard to treatment of impacts to significant cultural resources requires that a mitigation plan be developed for the resource(s). Preservation in place is the preferred manner of mitigating impacts to archaeological resources. Section 5097.9 of the California Public Resources Code stipulates that it is contrary to the free expression and exercise of Native American religion to interfere with or cause severe irreparable damage to any Native American cemetery, place of worship, religious or ceremonial site, or sacred

shrine. Section 30244 of the California Coastal Act states: "Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required."

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources. Sections 21083.2 and 21084.1 of the Statutes of CEQA, PRC Section 5024.1, and Section 15064.5 of the Guidelines were used as the guidelines for the cultural resources study (Governor's Office of Planning and Research 1998). PRC Section 5024.1 requires that any properties that can be expected to be directly or indirectly affected by a proposed project be evaluated for California Register of Historical Resources (CRHR) eligibility. The purpose of the register is to maintain listings of the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term "historical resources" includes a resource listed in, or determined to be eligible for listing in, the CRHR, a resource included in a local register of historical resources, and any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5[a] of the Guidelines). The criteria for listing properties in the CRHR were expressly developed in accordance with previously established criteria developed for listing in the NRHP.

According to PRC Section 5024.1(c)(1–4), a resource may be considered historically significant if it retains integrity and meets at least one of the following criteria. A property may be listed in the CRHR if the resource:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(2) Is associated with the lives of persons important in our past;

(3) Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Resources that neither meet any of these criteria for listing on the CRHR nor qualify as a "unique archaeological resource" under CEQA PRC Section 21083.2 are viewed as not significant. Under CEQA, "A non-unique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC Section 21083.2[h]).

Impacts that adversely alter the significance of a resource listed on or eligible for listing on the CRHR are considered a significant effect on the environment. Impacts to historical resources from the proposed project are thus considered significant if the project physically destroys or damages all or part of a resource, changes the character of the use of the resource or physical feature within the setting of the resource which contribute to its significance or introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource.

Senate Bill 18

State planning law requires cities and counties to consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Places. Senate Bill 18 (Chapter 905, Statutes of 2004) requires cities and counties to contact, and consult with California Native American tribes prior to amending or adopting any general plan or specific plan, or designating land as open space.

For purposes of consultation with tribes, as required by Government Code Sections 65352.3 and 65562.5, the NAHC maintains a list of California Native American Tribes with whom local governments must consult. The NAHC's "California Tribal Consultation List" provides the name, address, and contact name for of each of these tribes; and telephone, fax and email information if available. The tribal contact list is developed and maintained by the NAHC, under authority granted in Government Code Sections 65092, 65352, and 65352.3. Prior to initiating consultation with a Tribe, the city/county must contact the NAHC for a list of Tribes to consult with.

LOCAL POLICIES AND REGULATIONS

City of Half Moon Bay Local Coastal Program (Chapter 6 Archaeological and Paleontological Resources)

This antiquated section from 1993, based on background information from 1979, outlines policies relating to the protection and identification of Archaeological and Paleontological Resources. It discusses the overall heightened sensitivity of the Half Moon Bay region and provides policies that include archaeological study prior to issuance of a grading permit for certain projects, archaeological survey for projects of one acre or more within archaeologically sensitive zones, archaeological survey of municipal improvement projects, and general protection of archaeological resources where feasible.

The section also notes that no known paleontological resources of significance occur within Half Moon Bay.

Later amendments to his section are still not yet adopted, but add that Native American consultation be conducted to assist in the identification of cultural resources.

City of Half Moon Bay Municipal Code

Title 18 (Zoning) of the City of Half Moon Bay Municipal Code contains the several provisions regarding the identification, treatment and protection of archaeological and historical resources.

18.38 Coastal Resources Protection

18.38.040 Archaeological report.

A. When Required. The applicant shall have prepared, by a qualified archeologist an archaeological report for any development project located within any designated archaeological resource area, where a recorded archaeological site identified in local coastal program land use plan Figure 6.1 is located on or within one hundred feet of the project site, and for any public projects as defined in Section 18.38.095B located within the mapped areas.

B. Report Contents. In addition to meeting the report requirements listed in this title, the archaeological report shall contain the following components:

1. Identification of Unique Archaeological Resources. In that portion of any development of one acre or more, as indicated on the land use plan map, which is also within an area designated on the map of potential archaeological resources, an archaeological survey of the project site shall be undertaken as a part of the preparation of a specific plan for development. The archaeological report shall describe the findings of the survey, conducted by a qualified professional. The report shall:

    a. Evaluate whether unique archaeological resources are present or are likely to be present on the project site;

    b. Consider the impacts of the development proposed; and

    c. Recommend mitigation measures.

2. Mitigation Measures. All feasible mitigation measures shall be incorporated in any specific plan or development plan prior to the issuance of a permit for development. Mitigation measures may include, but are not limited to:

    a. Site sampling or salvage;

b. Limiting the timing or location of construction activities to avoid existing or potential resources; and

c. Covering the site with fill.

3. Monitoring and Reporting Program. The monitoring and reporting program shall ensure that where unique archaeological resources are present, the development conditions imposed are adequately being carried out and that significant impacts on the archaeological resources have not occurred. (1996 zoning code (part)).

18.39 Historic Resources Preservation

18.39.005 Intent and purpose.

A. Provide incentives to property owners desiring to participate in a program for the protection, preservation, enhancement, and perpetuation of those buildings, structures and areas of historic, architectural and engineering significance which contribute to the cultural heritage of the city.

B. Encourage conservation and preservation of historic buildings, structures, sites, objects and districts with the need to set standards for and implement other elements of the city's plans, policies, and programs.

C. Establish policies and procedures to meet the requirements for the city to qualify as a certified local government as defined in the National Historic Preservation Act of 1966. (1996 zoning code (part)).

OTHER RELEVANT REGULATIONS

The Abandoned Shipwreck Act (Pub.L. 100-298; 43 U.S.C. 2101-2106) was signed into law in 1988. Under the Act, the U.S. Government asserted title to three categories of abandoned shipwrecks: abandoned shipwrecks embedded in a State's submerged lands; abandoned shipwrecks embedded in coralline formations protected by a State on its submerged lands; and abandoned shipwrecks located on a State's submerged lands and included in or determined eligible for inclusion in the NRHP.

7.3 Historic Resources

CULTURAL RESOURCES CATEGORIES

According to NPS Bulletin 15 How to Apply National Register Eligibility Criteria[11], there are five property categories eligible for listing in the NRHP. They are classified as buildings, structures, objects, sites, or districts, and are described as follows:

Building. A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

Structure. The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter. If a structure has lost its historic configuration or pattern of organization through deterioration or demolition, it is usually considered a "ruin" and is categorized as a site. Examples of structures include bridges, aircraft, irrigation systems, railroad grade and lighthouses.

Object. The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment. Examples of objects include fountains, sculptures, monuments and boundary markers.

Site. A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure. A site can possess associative significance or information potential or both, and can be significant under any or all of the four criteria. Examples of sites include battlefields, habitation sites, rock carvings and natural features having cultural significance.

Districts. A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. A district derives its importance from being a unified entity, even though it is often composed of a wide variety of resources. The identity of a district results from the interrelationship of its resources, which can convey a visual sense of the overall historic environment or be an arrangement of historically or functionally related properties. For example, a district can reflect one principal activity, such as a mill or a ranch, or it can encompass several interrelated activities, such as an area that includes industrial, residential, or commercial buildings, sites, structures, or objects. A district can also be a grouping of archeological sites related primarily by their common components; these types of districts often will not visually represent a specific historic

[11] 2002 National Park Service Bulletin 15: How to Apply the National Register Criteria for Evaluation. Available at: http://www.nps.gov/nr/publications/bulletins/nrb15/. Accessed December 1, 2010.

environment. Examples of districts include college campuses, residential areas, farms/ranches with larger acreages, canal systems, and industrial complexes.

ARCHAEOLOGICAL RESOURCES

Prehistoric examples of the types of archaeological sites that are known to exist within the Planning Area and vicinity include:

- Shell middens and shell mounds are characterized by concentrations of marine shells that were harvested and processed for consumption.
- Lithic debris and tool scatters are characterized by the presence of tool stone manufacturing waste flakes, core fragments, and formed flaked stone tools such as projectile points, knives, and scrapers.
- Habitation sites are characterized by long-term, extended use, with various activity areas, which may include evidence of food processing, tool manufacturing, and ceremonial events.
- Temporary campsites are generally limited use sites may contain evidence of food manufacturing or tool production.
- Historic examples of the types of archaeological sites that are known to exist within the Planning Area include ranching, dairy, and whaling facilities structures and remnants.

HISTORIC ARCHITECTURE/BUILT ENVIRONMENT RESOURCES

The terms "historic architecture" and "built environment" resource are often used interchangeably. For the purposes of this study, these types of resources will be referred to as Built Environment resources. These types of resources include standing buildings and structures, roads, fences, water conveyance features, and bridges, which are greater than fifty years in age.

EXISTING RESOURCES

Identified Cultural Resources

The records search revealed that 61 previously identified cultural resources are within the Planning Area. In the following tables, each resource is first identified by the NWIC assigned Primary # designation (P-41-), and is followed by its trinomial (CA-SMA-), if one has been assigned. Given the antiquity of some of the documentation, and given that multiple resource numbers/names have been assigned to the same resource, a table listing each resource's multiple designations is provided below (Table 7-1 and 7-2). Resources listed in bold font contain both archaeological and built environment components and are listed in both Tables 7-1 and 7-2.

Archaeological Sites

Of the 66 previously documented cultural resources identified by the NWIC within the Planning Area, 15 have an archaeological component. These resources include prehistoric shell middens and lithic scatters, historic debris scatters, and historic structural remnants (Table 7-1).

Built Environment Resources

Of the 66 identified cultural resources within the Planning Area by the NWIC, 51 are classified, at least partially, as built environment resources. These built environment resources are shown in Figure 7-1. It should be noted herein, however, that the Office of Historic Preservation's Historic Property Data (HPD) file (April 5, 2012) provided with the NWIC records search results contains approximately 150 listed properties within the Half Moon Bay's city limits (a majority of the Planning Area). SWCA contacted the NWIC on February 26, 2014 to discuss this discrepancy. NWIC staff indicated that while these properties are listed in the HPD, there is no supporting documentation or map references in their files. This data gap is problematic for cultural resources research as it is unclear as to the extent of previous documentation that exists for the extensive number of built environment resources present within the Planning Area. Although the condition or even the presence of these additional resources cannot be confirmed at this time due to a lack of supporting documentation at the NWIC, a list of all properties determined or recommended eligible for listing in either local, state, or federal registers and all those determined to require additional evaluation is provided in Table 7-3. In addition, the City maintains a *List of Main Street Properties*, which is updated by the City as new information is received.

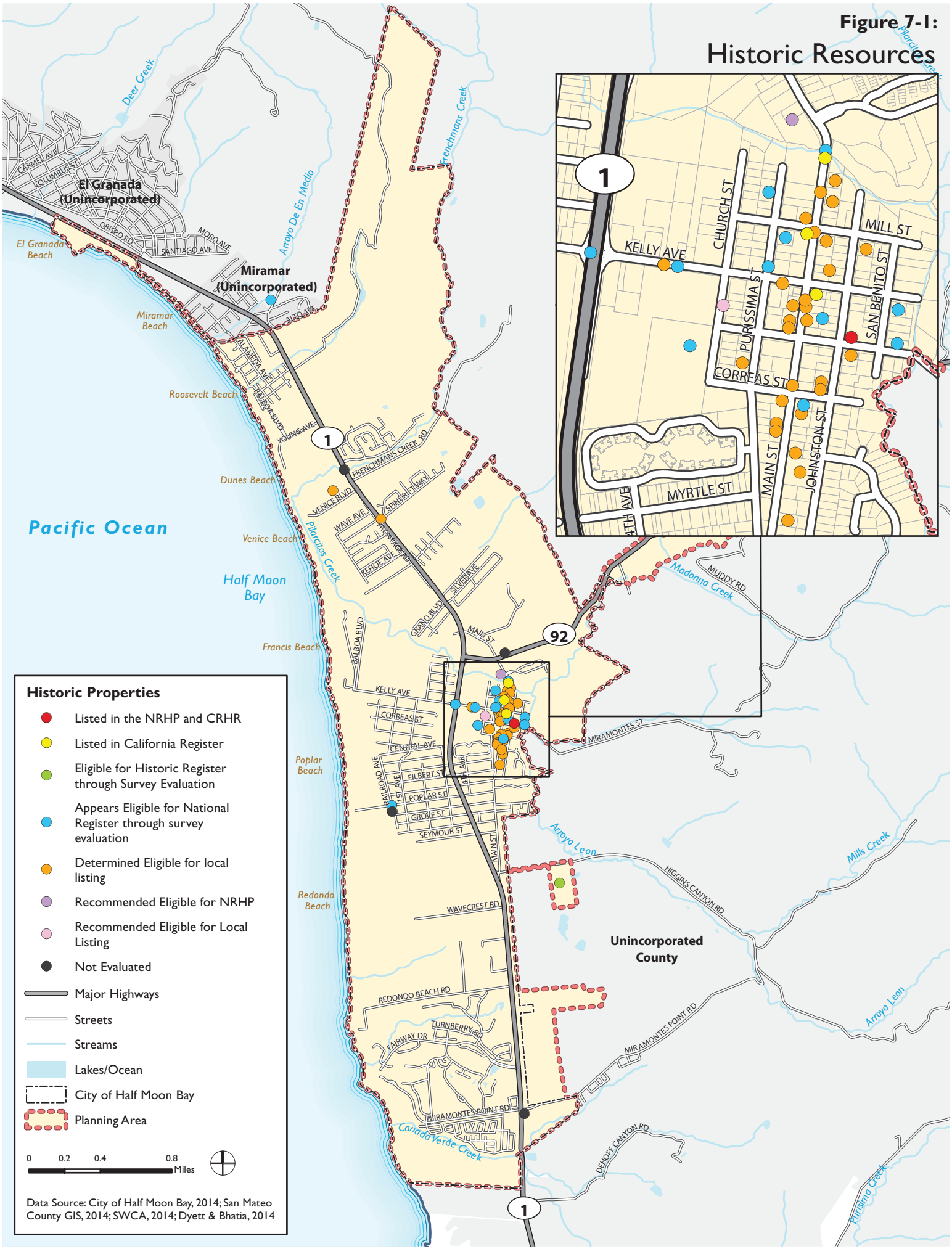
Other Potential Built Environment Resources

Given the historical development and importance of the region, it can be assumed that many of the historic-era (i.e. greater than 50 years) buildings and structures within the Planning Area may in fact be considered historical resources or historic properties. As evidenced by the HPD file, approximately 100 additional historic properties, albeit without supporting documentation on file with the NWIC, are within the Planning Area. While the majority of these listed properties has been determined ineligible for listing in the NRHP and other registers, others have been recommended eligible and some have been determined eligible (refer to Table 7-3).

Shipwrecks

Although the Planning Area does not include adjacent offshore waters, it should be noted that Half Moon Bay and the vicinity has an extended and fairly well documented maritime history. Several known shipwrecks are located offshore in the general vicinity of the Planning Area.

Figure 7-1:
Historic Resources



Historic Properties

- Listed in the NRHP and CRHR
- Listed in California Register
- Eligible for Historic Register through Survey Evaluation
- Appears Eligible for National Register through survey evaluation
- Determined Eligible for local listing
- Recommended Eligible for NRHP
- Recommended Eligible for Local Listing
- Not Evaluated
- Major Highways
- Streets
- Streams
- Lakes/Ocean
- City of Half Moon Bay
- Planning Area

0 0.2 0.4 0.8 Miles

Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; SWCA, 2014; Dyett & Bhatia, 2014

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Table 7-1: Previously Identified Archaeological Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-0000084	CA-SMA-81	N/A	Prehistoric Shell and Lithic Midden; Bowl mortars, pestles, chert and obsidian points present.	Not Evaluated	Partially disturbed by previous agricultural activities of Mormon Temple.
P-41-000112	CA-SMA-110	N/A	Prehistoric Shell and Lithic Midden; Pestles, charmstones and projectile points present.	Not Evaluated	Partially disturbed from previous agricultural activities and a house built on site in the early 1900's.
P-41-000140	CA-SMA-138	N/A	Prehistoric Shell and Lithic Midden; Few lithics present, mostly shell and highly disturbed.	Not Evaluated	80% disturbed from previous road construction and agricultural activities.
P-41-000141	CA-SMA-139	N/A	Prehistoric Shell and Lithic Midden; Various groundstone and chert artifacts present and a high concentration of shell.	Not Evaluated	60-70% intact; Partially disturbed by previous road construction and agricultural activities.
P-41-000143	CA-SMA-141	N/A	Prehistoric Shell Midden; No lithics observed in previous surveys.	Not Evaluated	Partially disturbed from previous agricultural activities.
P-41-000144	CA-SMA-142	N/A	Prehistoric Shell Midden; Largely disturbed and 80% destroyed. *Mytilus californiianus* noted in site.	Not Evaluated	80-90% destroyed by parking lot and road construction.

Table 7-1: Previously Identified Archaeological Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000145	CA-SMA-143	N/A	Prehistoric Shell Midden. Largely disturbed and destroyed by bulldozing and dumping. *Mytilus californianus* and *Haliotis rufrescens* noted in site.	Not Evaluated	Highly disturbed from use as a dumpsite and bulldozing.
P-41-000146	CA-SMA-144/H	N/A	Prehistoric Lithic Scatter and Historic Residence. Historic house was built circa 1860-1880. Prehistoric material limited to light chert scatter and several shell fragments.	Not Evaluated	Prehistoric Lithic scatter overlain by historic trash and artifacts. Architecture of building ranges from 19th century stucco to Mission-Revival style.
P-41-000164	**CA-SMA-164/H**	**N/A**	**Historic Farm House; Built in late 1850's to early 1860's.**	**Not Evaluated**	**Historic Dairy Farm House. No other information.**
P-41-000190	**CA-SMA-190H**	**N/A**	**Historic cemetery established in 1875. I.O.O.F. Cemetery.**	**Not Evaluated**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**

Table 7-1: Previously Identified Archaeological Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000191 (also P-41-000570)	**CA-SMA-191H**	**Pilarcitos Livery Stable**	**Historic house and stable. Pablo Vasquez house and Livery Stable. Circa 1869. Also known as Pilarcitos Livery Stable. Typical Greek style of the time.**	**Not Evaluated**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**
P-41-000193	**CA-SMA-193H**	**N/A**	**Historic structures associated with the original depot and train route.**	**Not Evaluated**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**
P-41-000208 (also P-41-000556)	**CA-SMA-208H**	**Methodist Episcopal Church**	**Historic Methodist Episcopal Church circa 1872. Victorian Gothic Revival Style.**	**Recommended Eligible for NRHP**	**Information derived from 1980 NRHP nomination form.**
P-41-000427	CA-SMA-295	Canada Verde Site	Prehistoric Lithic Scatter; ground stone, chert and quartzite debitage and various chert tools present.	Not Evaluated	Partially disturbed by previous agricultural activities, bluff erosion and road work.

Table 7-1: Previously Identified Archaeological Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000429	CA-SMA-340	Nerham Site	Prehistoric Lithic Scatter; ground stone, chert debitage, obsidian flakes, and tools present. Very little shell and bone. Highly disturbed from 100+ years of agricultural activities.	Not Evaluated	Residential home was built on the site in 1993. Disturbed from previous agricultural activities.

Note:

1 Resources listed in bold font contain both archaeological and built environment components and are listed in both Tables 7-1 and 7-2.

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000164	**CA-SMA-164/H**	**N/A**	**Historic Farm House; Built in late 1850's to early 1860's.**	**Not Evaluated**	**Historic Dairy Farm House.**
P-41-000190	**CA-SMA-190H**	**N/A**	**Historic cemetery established in 1875. I.O.O.F. Cemetery.**	**Not Evaluated**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**
P-41-000191 (also P-41-000570)	**CA-SMA-191H**	**Pilarcitos Livery Stable**	**Historic house and stable. Pablo Vasquez house and Livery Stable. Circa 1869. Also known as Pliarcitos Livery Stable. Typical Greek style of the time.**	**Recommended Eligible for NRHP**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**
P-41-000193	**CA-SMA-193H**	**N/A**	**Historic structures associated with the original depot and train route.**	**Not Evaluated**	**Information derived from "An Archaeological and Historical Reconnaissance from a portion of San Mateo County" published in1970.**

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000206 (also P-41-000556	**CA-SMA-208H**	**Methodist Episcopal Church**	**Historic Methodist Episcopal Church circa 1872. Victorian Gothic Revival Style.**	**Listed in the NRHP and CRHR**	**Information derived from NRHP nomination from 1980.**
P-41-000627	N/A	Bridge #35-35	Historic Bridge; Built in 1912 it has 4 spans and is constructed of concrete.	Not Evaluated	Located at Highway 1 and Frenchmans Creek Pedestrian Crossing.
P-41-002010	N/A	Burger King	Commercial Building; Less than 50 years old in 1998.	Determined Ineligible for NRHP/CRHR	30 N. Cabrillo Highway Half Moon Bay, CA 94019
P-41-002011	N/A	N/A	Commercial Building; Less than 50 years old in 1998. Used as a commercial strip mall.	Determined Ineligible for NRHP/CRHR	40 N. Cabrillo Highway Half Moon Bay, CA 94019
P-41-002012	N/A	Strawflower Village	Commercial Building; Less than 50 years old in 1998. Used as a commercial strip mall.	Determined Ineligible for NRHP/CRHR	50-80 N. Cabrillo Highway Half Moon Bay, CA 94019
P-41-002013	N/A	McDonald's	Commercial Building; Less than 50 years old in 1998. Built in 1982 as McDonalds.	Determined Ineligible for NRHP/CRHR	100 N. Cabrillo Highway Half Moon Bay, CA 94019
P-41-002014	N/A	N/A	Historic Building; Craftsman style home built in 1913. Relatively Intact with modifications made in the 1950's.	Determined Ineligible for NRHP/CRHR	75 Main Street Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002015	N/A	N/A	Historic Building; National style home with Neoclassical elements. Build in 1910 and modified in the 1950's. Residential home with associated barn and small farm structures.	Determined Ineligible for NRHP/CRHR	95 Main Street Half Moon Bay, CA 94019
P-41-002016	N/A	Chevron	Commercial Building; 1 story commercial building. Less than 50 years old in 1998. Old Chevron building was demolished and replaced by new building in 1998.	Determined Ineligible for NRHP/CRHR	375 Main Street Half Moon Bay, CA 94019
P-41-002017	N/A	Wells Fargo Bank	Commercial Building; Built in 1973. 1 story commercial building. Modern style with stucco and asbestos roofing.	Determined Ineligible for NRHP/CRHR	132 San Mateo Road Half Moon Bay, CA 94019
P-41-002018	N/A	Beacon Gas Station	Commercial Building; Modern service station with garage structure with pump area. Built in 1971.	Determined Ineligible for NRHP/CRHR	120 San Mateo Road Half Moon Bay, CA 94019
P-41-002019	N/A	Pilarcitos Square	Commercial Building; One 7 Eleven built in 1980 and a Caffino franchise structure built in 1995. Property formerly used as a Texaco service station.	Determined Ineligible for NRHP/CRHR	196 San Mateo Road Half Moon Bay, CA 94019
P-41-002020	N/A	Pilarcitos Square	Commercial Building; One 7 Eleven built in 1980 and a Caffino franchise structure built in 1995. Property formerly used as a Texaco service station.	Determined Ineligible for NRHP/CRHR	198 San Mateo Road Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002021	N/A	Half Moon Bay Shopping Center	Commercial Building; 2 1-story commercial buildings built in 1971 and 1973. Parking lot.	Determined Ineligible for NRHP/CRHR	150-180 San Mateo Road Half Moon Bay, CA 94019
P-41-002022	N/A	N/A	Commercial Building; Less than 50 years old in 1997. Used as a commercial strip mall.	Determined Ineligible for NRHP/CRHR	101 Main Street Half Moon Bay, CA 94019
P-41-002023	N/A	Ocean Shore Company and Half Moon Bay Machine	Commercial Building; Built in 1997. Used as a commercial strip mall.	Determined Ineligible for NRHP/CRHR	111 and 117 Main Street Half Moon Bay, CA 94019
P-41-002024	N/A	PG&E Substation/Half Moon Bay Gas and Electric	Modern Utility; Built in 1953 and modified up until 1998.	Determined Ineligible for NRHP/CRHR	175 Main Street Half Moon Bay, CA 94019
P-41-002025	N/A	Pilarcitos Square	Commercial Buildings; Built in 1980 and 1982.	Determined Ineligible for NRHP/CRHR	210 San Mateo Road Half Moon Bay, CA 94019
P-41-002026	N/A	Olympian Service Station	Commercial Buildings; Built in 1980 it consists of a cashiers building and 3 gas pump islands.	Determined Ineligible for NRHP/CRHR	200 San Mateo Road Half Moon Bay, CA 94019
P-41-002027	N/A	Hilltop Mobile Home Park	Modern Mobile Home Park; Built in 1967-1971.	Determined Ineligible for NRHP/CRHR	250 San Mateo Road Half Moon Bay, CA 94019
P-41-002028	N/A	N/A	Modern Farm Structure; Vernacular farm structure with pins and gates. Built at unknown date post 1952.	Determined Ineligible for NRHP/CRHR	San Mateo Road (north side) Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002029	N/A	N/A	Historical Building; Modern Ranch Style home built in 1937.	Determined Ineligible for NRHP/CRHR	312 San Mateo Road Half Moon Bay, CA 94019
P-41-002031	N/A	N/A	Residential Home and Farm structures; Modern Ranch Style home built in 1976. Associated sheds, barn and garage.	Determined Ineligible for NRHP/CRHR	651 San Mateo Road Half Moon Bay, CA 94019
P-41-002032	N/A	Firewood Farms	Commercial Buildings; Built in the 1960's. 2 commercial buildings and a shed.	Determined Ineligible for NRHP/CRHR	551 San Mateo Road Half Moon Bay, CA 94019
P-41-002033	N/A	Spanishtown Shops	Commercial Buildings; built in 1967 for commercial use. Colonial Revival Style architecture.	Determined Ineligible for NRHP/CRHR	551 San Mateo Road Half Moon Bay, CA 94019
P-41-002034	N/A	Spanishtown Shops	Commercial Buildings; built in 1968 for commercial and residential use. Colonial Revival Style architecture.	Determined Ineligible for NRHP/CRHR	525 San Mateo Road Half Moon Bay, CA 94019
P-41-002035	N/A	Spanishtown Shops	Commercial Buildings; built in 1969 for commercial and residential use. Colonial Revival Style architecture.	Determined Ineligible for NRHP/CRHR	527 San Mateo Road Half Moon Bay, CA 94019
P-41-002036	N/A	Spanishtown Shops	Residential Building; built in the early 1900's for residential use. Colonial Revival Style architecture.	Determined Ineligible for NRHP/CRHR	501 San Mateo Road Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002037	N/A	N/A	Modern Residential Building and Farm Structures; Built in 1960 modern ranch style architecture home. Associated farm structures and 2 warehouses.	Determined Ineligible for NRHP/CRHR	San Mateo Road (Half Moon Bay, CA 94019
P-41-002039	N/A	Hilltop Grocery	Historic and Modern Commercial Building; The main building was built in 1925 in Craftsman style architecture. The integrity of the structure was compromised by modifications since original construction. The other structures were built in the 1950's.	Determined Ineligible for NRHP/CRHR	251 San Mateo Road Half Moon Bay, CA 94019
P-41-002040	N/A	Hilltop Mobile Home Park	Historic Building; Residential home built in 1910. National Style Architecture with Italian elements. Architectural integrity compromised by later modifications and construction of a mobile home park in the 1970's.	Determined Ineligible for NRHP/CRHR	249 San Mateo Road Half Moon Bay, CA 94019
P-41-002041	N/A	Alves Petroleum	Commercial Building; built in 1998.	Determined Ineligible for NRHP/CRHR	245 San Mateo Road Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002042	N/A	N/A	Historic Building; Built in 1925 in Craftsman Style with eclectic Spanish elements. Associated barn structure and animal shelter structures.	Determined Ineligible for NRHP/CRHR	239 San Mateo Road Half Moon Bay, CA 94019
P-41-002043	N/A	Curly and Red's Body and Paint Shop	Commercial Building; built in 1963.	Determined Ineligible for NRHP/CRHR	215 San Mateo Road Half Moon Bay, CA 94019
P-41-002044	N/A	N/A	Commercial Building: built in 1996.	Determined Ineligible for NRHP/CRHR	213 San Mateo Road Half Moon Bay, CA 94019
P-41-002045	N/A	El Perico Mexican Restaurant	Historic Commercial Building; built in 1925.	Determined Ineligible for NRHP/CRHR	211 San Mateo Road Half Moon Bay, CA 94019
P-41-002046	N/A	Shell Service Station	Commercial Building; Modern service station and associated pump islands and car wash structure. Built in 1972	Determined Ineligible for NRHP/CRHR	201 San Mateo Road Half Moon Bay, CA 94019
P-41-002047	N/A	First American Title Insurance Company	Historic Building; Built in 1925 in Craftsman Style Architecture. Modified in the 1950's and later. Used Commercially since 1960's.	Determined Ineligible for NRHP/CRHR	225 Main Street Half Moon Bay, CA 94019
P-41-002048	N/A	La Obsession Hair Studio	Commercial Building; Built in 1960 in Twentieth Century Vernacular Style Architecture.	Determined Ineligible for NRHP/CRHR	235 Main Street Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002049	N/A	Harmonies Salon	Historic Building; Built in 1890's with Late Nineteenth Century Vernacular Architectural Style and National Style with eclectic Spanish elements. Associated with Cunha, a local Portuguese family who came to the area from the Azores in the 1880's. Commercial use since the 1970's.	Determined Ineligible for NRHP/CRHR	245 Main Street Half Moon Bay, CA 94019
P-41-002050	N/A	N/A	Historic Building; Single home residence built in 1930 with Spanish eclectic-style architecture. Built for William Cunha and his family. Property associated with Cunha, a local Portuguese family who came to the area from the Azores in the 1880's.	Determined Ineligible for NRHP/CRHR	255 Main Street Half Moon Bay, CA 94019
P-41-002051	N/A	Procopio's Fashions	Historic Building; Multi Family Property built in 1957 with Spanish eclectic style architecture. 2 homes built for Frank Cunha and his family. Property associated with Cunha, a local Portuguese family who came to the area from the Azores in the 1880's.	Determined Ineligible for NRHP/CRHR	220 Main Street Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002052	N/A	Procopio's Fashions	Historic Building; Multi Family Property built in 1937 with Spanish eclectic style architecture. 2 homes built for Frank Cunha and his family. Property associated with John Cunha, a local Portuguese family who came to the area from the Azores in the 1880's.	Determined Ineligible for NRHP/CRHR	224 Main Street Half Moon Bay, CA 94019
P-41-002053	N/A	RE/MAX Arrow Realty, Inc.	Historic Building; Built in 1937 with Spanish eclectic style architecture. 2 homes built for Frank Cunha and his family. This was the smaller rental home. Property associated with John Cunha, a local Portuguese family who came to the area from the Azores in the 1880's.	Determined Ineligible for NRHP/CRHR	210 Main Street Half Moon Bay, CA 94019
P-41-002054	N/A	Flying Fish Grill/Half Moon Bay Fish Market	Commercial Building; Market/restaurant	Determined Ineligible for NRHP/CRHR	99 San Mateo Road Half Moon Bay, CA 94019
P-41-002055	N/A	Car Wash	Commercial Building; Built in 1967. 1 2-story office car wash structure and a 1-story structure.	Determined Ineligible for NRHP/CRHR	240 Main Street Half Moon Bay, CA 94019
P-41-002056	N/A	Car Wash	Commercial Building; Built in 1967. 1 2-story office car wash structure and a 1-story structure.	Determined Ineligible for NRHP/CRHR	244 Main Street Half Moon Bay, CA 94019

Table 7-2: Previously Identified Built Environment Resources within the Planning Area[1]

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-002057	N/A	Coldwell Banker	Commercial Building; 2 buildings built in 1998.	Determined Ineligible for NRHP/CRHR	248 Main Street Half Moon Bay, CA 94019
P-41-002058	N/A	N/A	Historic Building; Built in 1925 with Craftsman style architecture. 2 homes built by John Cunha. Modifications and additions made after 1950. Property associated with John Cunha, a local Portuguese family who came to the area from the Azores in the 1880's.	Determined Ineligible for NRHP/CRHR	265 Main Street Half Moon Bay, CA 94019
P-41-002180	N/A	James Ford Dealership/Half Moon Bay Ford Dealership	Commercial Building; Built in 1960's in Modernist style architecture. Many modifications made since original construction.	Determined Ineligible for NRHP/CRHR	100 Seymour Street Half Moon Bay, CA 94019
P-41-002220	N/A	Half Moon Bay Water Tanks/Coastside County Water District Storage Facility.	Water Tanks and Utility Structure; Built in 1950's. Storage facility building and industrial steel water storage tanks.	Determined Ineligible for NRHP/CRHR	200 Lewis Foster Drive Half Moon Bay, CA 94019

Note:

1 Resources listed in bold font contain both archaeological and built environment components and are listed in both Tables 7-1 and 7-2.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000555	N/A	James Johnston House/White House	Historic Building	Eligible for listing in National or State Historic Registers through survey evaluation	Higgins Purissima Rd.
P-41-000556	N/A	Methodist-Episcopal Church/ Community Church	Historic Building	Listed in the National Register by Keeper. Listed in California Register.	777 Miramonte St.
P-41-000557	N/A			Recommended Eligible for local listing	517 Church St.
P-41-000558	N/A	John Francis House	Historic Building	Determined Eligible for local listing	403 Johnson St.
P-41-000559	N/A	Dr. William Brookes Office	Historic Building	Determined Eligible for local listing	601 Johnson St.
P-41-000562	N/A			Determined Eligible for local listing	640 Johnson St.
P-41-000563	N/A			Determined Eligible for local listing	642 Johnson St.
P-41-000564	N/A	Ben Cunha House, Alves House	Historic Building	Appears Eligible for National Register through survey evaluation	520 Kelly Ave.
P-41-000565	N/A	Funeral Parlor	Historic Building	Appears Eligible for National Register through survey evaluation	645 Kelly Ave.
P-41-000566	N/A	Occidental Hotel Annex	Historic Building	Determined Eligible for local listing	648 Kelly Ave.
P-41-000567	N/A	Half Moon Bay Review Building	Historic Building	Determined Eligible for local listing	714 Kelly Ave.
P-41-000569	N/A	Bailey's Bakery	Historic Building	Determined Eligible for local listing	900 Kelly Ave.
P-41-000570	N/A	Pablos Vasquez House, Pilarcitos House	Historic Building	Appears Eligible for National Register through survey evaluation	270 Main St.
P-41-000571	N/A			Determined Eligible for local listing	315 Main St.
P-41-000572	N/A	Zabella House, Daneri House	Historic Building	Determined Eligible for local listing	324 Main St.
P-41-000573	N/A	The Eureka, Half Moon Bay Fuel	Historic Building	Determined Eligible for local listing	331 Main St.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000574	N/A	Mosconi Hotel, San Benito House	Historic Building	Determined Eligible for local listing	356 Main St.
P-41-000575	N/A	Half Moon Bay Inn	Historic Building	Determined Eligible for local listing	401 Main St.
P-41-000576	N/A	Francis Building	Historic Building	Determined Eligible for local listing	402 Main St.
P-41-000577	N/A	Debenedetti, Joseph, Block	Historic Building	Automatically listed in the California Register. Recommended for listing by the SHRC	400 Main St.
P-41-000578	N/A	Eagles Nest	Historic Building	Determined Eligible for local listing	433 Main St.
P-41-000579	N/A			Determined Eligible for local listing	521 Main St.
P-41-000580	N/A	Half Moon Bay IOOF Hall / Odd Fellows	Historic Building	Determined Eligible for local listing	522 Main St.
P-41-000581	N/A	Angelo Boitanos General Merchandise Store	Historic Building	Appears Eligible for National Register through survey evaluation	527 Main St.
P-41-000582	N/A			Determined Eligible for local listing	535 Main St.
P-41-000583	N/A	John W. Gilcrest House	Historic Building	Determined Eligible for local listing	538 Main St.
P-41-000584	N/A	Bank of Half Moon Bay	Historic Building	Listed in the California Register. Determined Eligible for National Register by a consensus through section 106.	501 Main St.
P-41-000585	N/A	Half Moon Bay Bakery	Historic Building	Determined Eligible for local listing	514 Main St.
P-41-000586	N/A	Fred Cambell House	Historic Building	Determined Eligible for local listing	643 Main St.
P-41-000587	N/A	Joseph W. Debendetti, Frank Bernard House	Historic Building	Determined Eligible for local listing	711 Main St.
P-41-000588	N/A	Ides Hall	Historic Building	Determined Eligible for local listing	745 Main St.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000589	N/A	George Gilcrest House, Rufus H. Hat	Historic Building	Determined Eligible for local listing	775 Main St.
P-41-000590	N/A	Dr. Charles Morgan House	Historic Building	Determined Eligible for local listing	700 Main St.
P-41-000591	N/A		Historic Building	Appears Eligible for National Register through survey evaluation	703 Main St.
P-41-000592	N/A		Historic Building	Determined Eligible for local listing	724 Main St.
P-41-000593	N/A	William Azevado House	Historic Building	Determined Eligible for local listing	730 Main St.
P-41-000594	N/A	Mary Helhena House	Historic Building	Determined Eligible for local listing	731 Main St.
P-41-000595	N/A	Main Street Bridge	Historic Bridge	Appears Eligible for National Register through survey evaluation	Main St.
P-41-000596	N/A	Westinghouse Barn, Pacific Gas & Electric	Historic Building	Determined Eligible for local listing	655 Miramonte St.
P-41-000597	N/A	Manuel F. Cunha School	Historic Building	Appears Eligible for National Register through survey evaluation	Kelly Ave.
P-41-000599	N/A	Ocean Shore Railroad Company Depot	Historic Building,	Appears Eligible for National Register through survey evaluation	Poplar St.
P-41-000600	N/A		Historic Building	Appears Eligible for National Register through survey evaluation	340 Purissima St.
P-41-000601	N/A	Giannini House, Sealion Lewis House	Historic Building	Appears Eligible for National Register through survey evaluation	415 Purissima St.
P-41-000602	N/A	Ed Campbell House	Historic Building	Appears Eligible for National Register through survey evaluation	456 Purissima St.
P-41-000603	N/A	Frank Bernardo House	Historic Building	Determined Eligible for local listing	630 Purissima St
P-41-000604	N/A	Ignace Family House, Bailey House	Historic Building	Appears Eligible for National Register through survey evaluation	505 San Benito St.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000605	N/A		Historic Building	Appears Eligible for National Register through survey evaluation	523 San Benito St.
P-41-000607	N/A			Recommended Eligible for local listing	SR 92
P-41-000609	N/A	Pease House	Historic Building	Appears Eligible for National Register through survey evaluation	Pilarcitos Rd.
P-41-000610	N/A			Recommended Eligible for local listing	245 Half Moon Bay Rd.
P-41-000611	N/A	Spanish Town		Recommended Eligible for local listing	SR 92
P-41-000612	N/A			Recommended Eligible for local listing	FrenchmansCreek Rd.
P-41-000613	N/A	Podesta & Sons Nursery	Historic Building	Determined Eligible for local listing	Cabrillo Highway
P-41-000614	N/A			Recommended Eligible for local listing	Venice Blvd.
P-41-000615	N/A			Determined Eligible for local listing	1820 N. Cabrillo SR
P-41-000617	N/A			Determined Eligible for local listing	1501 N. Cabrillo SR
P-41-000618	N/A		Historic Building	Appears Eligible for National Register through survey evaluation	501 Purissima Wy.
P-41-000619	N/A		Historic Building	Determined Eligible for local listing	Purissima Wy.
P-41-000620	N/A	Brown House	Historic Building	Appears Eligible for National Register through survey evaluation	Purissima Wy.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-000622	N/A			Determined Eligible for local listing	Higgins Purissima Rd.
P-41-000623	N/A			Determined Eligible for local listing	Higgins Purissima Rd
P-41-000624	N/A			Determined Eligible for local listing	Higgins Purissima Rd.
P-41-000627	N/A	Bridge #35-35	Historic Bridge; Built in 1912 it has 4 spans and is constructed of concrete.	Not Evaluated	Located at Highway 1 and Frenchmans Creek Pedestrian Crossing.
P-41-001411	N/A	Robert Mills Dairy Barn, Burleigh	Historic Barn, Building	Listed in National Registry by Keeper. Listed in the California Register.	0 Higgins Purissima Rd.
P-41-001413	N/A	Robert Mills House	Redwood framed house	Listed in the California Register. Contributor to a district or multiple resource property listed in National Registry by the keeper.	0 Higgins Purissima
P-41-001414	N/A		Sandstone Retaining Walls	Listed in the California Register. Contributor to a district or multiple resource property listed in National Registry by the keeper.	Higgins Purissima Rd.
P-41-001415	N/A		Covered Culvert	Listed in the California Register. Contributor to a district or multiple resource property listed in National Registry by the keeper.	Higgins Purissima Rd.

Table 7-3: Historic Properties Determined Eligible and/or Requiring Further Evaluation within the Planning Area

Primary #	*Trinomial*	*Other Designation*	*Resource Type*	*NRHP/CRHR Status*	*Notes*
P-41-001416	N/A		Arched Bridge	Listed in the California Register. Contributor to a district or multiple resource property listed in National Registry by the keeper.	Higgins Purissima Rd.
P-41-001417	N/A		Hillside Setting	Listed in the California Register. Contributor to a district or multiple resource property listed in National Registry by the keeper.	Higgins Purissima Rd.
P-41-001449	N/A	Robert Mills Dairy Barn	Historic Barn	Listed in National Registry by Keeper. Listed in the California Register.	0 Higgins Purissima Rd.
P-41-001829	N/A	Bridge #35-25 / Half Moon Bay Bridge	Historic Bridge	Listed in California Register. Determined Eligible for National Register by a consensus through Section 106 process.	Main St.

POTENTIAL RESOURCES

The background research reveals that the Planning Area is of high sensitivity for the presence of archaeological and built environment resources. The Half Moon Bay region has a long, documented prehistory and history. It was and is an important piece of the development of Central California and the protection and identification of its known and unknown cultural resources is of utmost importance for future planning needs.

7.4 Key Planning Issues and Implications

The results of the NWIC records search revealed the presence of 61 previously identified cultural resources, and that contained supporting documentation within their files, within the Planning Area. The Historic Property Data file revealed approximately 100 additional historic properties within the city limits of Half Moon Bay. These include commercial, residential, and industrial buildings and structures. While supporting documentation is not on file with the NWIC for the vast majority of these additionally identified resources, several are recommended eligible for or are listed in the National Register of Historic Places. In addition, several are considered locally significant (Table 7-3). As evidenced by the large data gap of available resource documentation on file with the NWIC, the need for a citywide inventory of known cultural resources is paramount for future considerations.

The proposed General Plan Update by itself will not result in direct or indirect impacts to any known cultural resources. However, future development or changes in existing land use, as a result of the implementation of the proposed update do have the potential to result in impacts to cultural resources. The Planning Area is considered to have high cultural resources sensitivity due to the presence of dozens of important archaeological and historical resources. In the future, if avoidance is not feasible, in order to minimize and/or mitigate potential impacts to any of the identified cultural resources in this document, additional study may be necessary. In all cases, the preferred method to mitigate impacts to significant cultural resources is avoidance. Implementation of the Update allows the City to review the location of documented cultural resource sites and initiate consultation with Native American tribal representatives. Updated General Plan policies should be consistent with, or directly reference the codes identified in Municipal Code Section 18.38 Cultural Resources Protection and Municipal Code Section 18.38 Cultural Resources Protection.

SUMMARY

Further development of the Planning Area may result in significant impacts to known and currently unknown archaeological and historical resources. The records search prepared for this report provides useful background information indicating the high cultural sensitivity of the area and mapped boundaries of known sites and built environments. This information is intended to help guide land use classifications, potential overlays, and provide guidelines for further review of development projects.

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8 Parks, Recreation, and Public Services

8.1 Parks and Recreation

Parks play an important role in sustaining and improving quality of life, and provide opportunities for social interaction and physical activity, contact with the ocean and other natural features, and visual relief in the urban environment. Parks and open space can also provide environmental benefits where they include natural vegetation, restored creeks, or wildlife corridors between larger open spaces systems. Existing parks and recreation facilities, planned improvements, City standards and goals, and challenges and opportunities are presented in this chapter.

EXISTING PARKS

Currently there are nine city parks in Half Moon Bay, totaling approximately 21 acres, as shown in Table 8-1 and Figure 8-1. By far the largest of the city's parks is Smith Field, which features five sports fields, including the Coastside's only lighted sports field; horseshoe pits; and a dog park. Smith Field's approximately 13 acres of facilities compose under half of the 29-acre City-owned property; the remainder of the property is undeveloped open space.

Frenchmans Creek Park provides amenities along a preserved riparian corridor in the northern part of the city. Carter Memorial Park is a grassy amphitheater-style park overlooking Pilarcitos Creek, while Mac Dutra and Kitty Fernandez Parks are small plazas in the center and at the edge of Downtown, respectively. Mini parks provide tot lots or play structures in other neighborhoods. Ocean View Park is considered a neighborhood park, and has amenities such as play equipment and picnic facilities that make it a popular destination for community members throughout the city; it is the city's most-used neighborhood park.

Half Moon Bay extends over six miles along the Pacific Ocean. The coast is generally characterized by bluff-backed sandy beaches, with bluffs rising from about two to 80 feet in height, with higher bluffs in the south. About three-quarters (4.5 miles) of the coastline is in public ownership, including nearly the entire coastline from El Granada (Surfers' Beach) to Kelly Avenue (Francis Beach, a part of Half Moon Bay State Beach), as well as Poplar Beach. As Table 8-1 shows, California State Parks and Beaches owns and manages most of this land, with smaller amounts managed by the City and County. Half Moon Bay's beaches and bluffs support a variety of recreational uses including swimming, walking, jogging, fishing, clamming, and horseback riding, as well as passive enjoyment. The California Coastal Trail currently extends along most of the coastline, with a gap between Seymour Street and Redondo Beach.

Table 8-1: Parks and Recreation Facilities

Park or Recreation Facility	*Owner*	*Facilities / Amenities*	*Acreage*
Parks			
Carter Park	City	Amphitheater	0.96
Kitty Fernandez Park	City	Gazebo	0.4
Frenchmans Creek Park	City	Tot lot	4.2
Kehoe Park	City	Tot lot	0.15
Mac Dutra Park	City	Information kiosk; picnic tables; public restrooms	0.09
Oak Avenue Park	City	Tot lot; picnic tables; public restrooms	0.87
Ocean View Park	City	Play structure; picnic tables; BBQ area; public restrooms	0.62
Pilarcitos Creek Park	City	Trail	1.1
Smith Field[1]	City	5 baseball fields; dog park; horseshoe pits; picnic tables; snack bar; restrooms; parking	13.2
Privately-Owned, Publicly-Accessible Parks[2]	Various	Tot lot (Main Street Park)	0.96
Subtotal			*22.6*
Beaches and Recreation Areas			
Half Moon Bay State Beach (Roosevelt, Dunes, Venice, and Francis Beaches)	State	Camping; public restrooms; fee parking lots at 4 access points.	187.1
Miramar Beach-Surfers' Beach	City, County, Harbor District	None	13.4
Poplar Beach	City, County	Public restrooms; fee parking lot	55
Redondo Beach		Parking area (unpaved)	22.8
Pelican Point RV Park	Private	RV camping	5.7
Pillar Point RV Park	Harbor District	RV camping	4.09
Subtotal			*288*
Open Space			
Undeveloped Park Land[1]	City	None	16.1
Other Open Space[3]	Various	None	308
Subtotal			*324*
Total			**635**

Note:

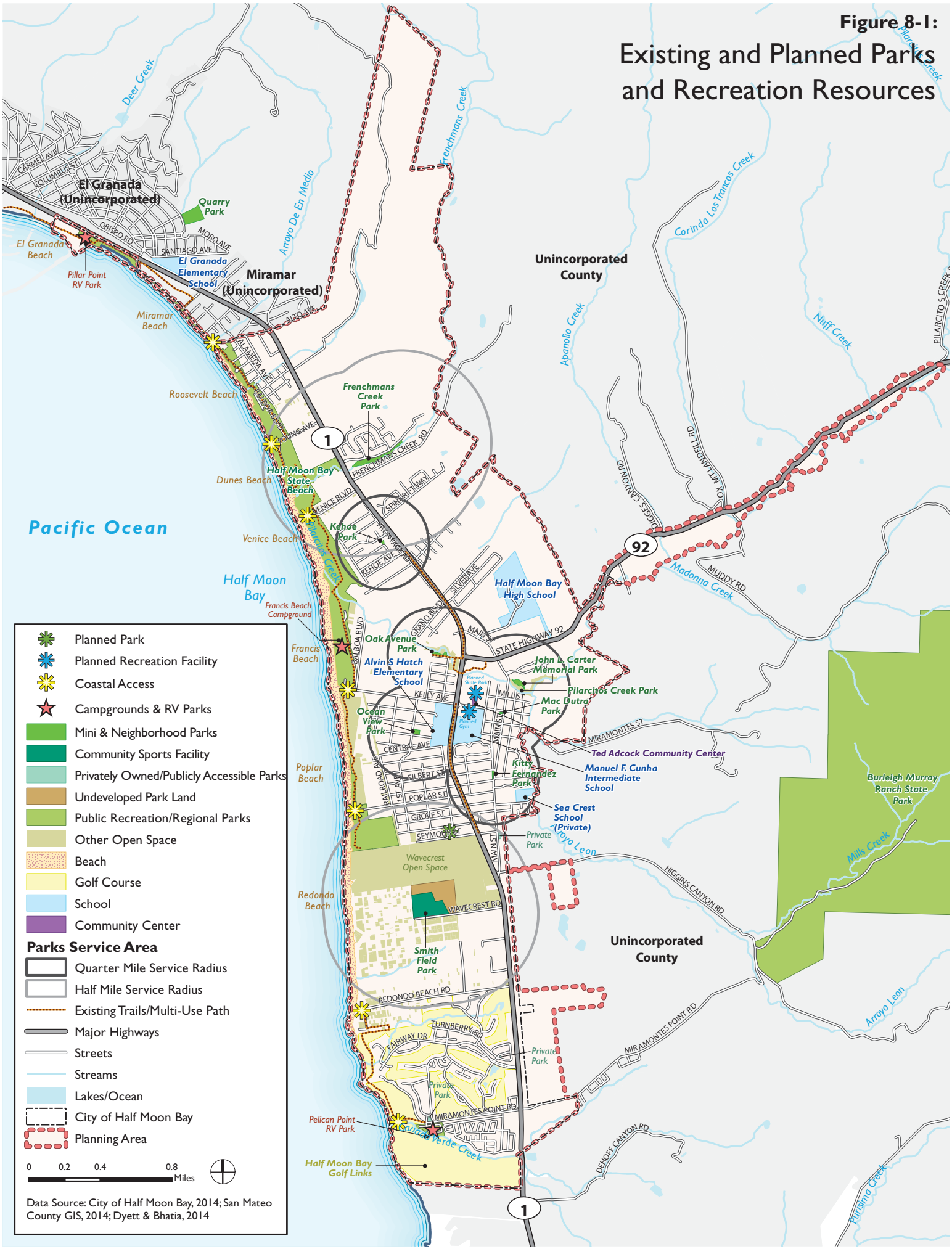
1 Smith Field property is 29.3 acres, including 13.2 acres of developed park land and 16.1 acres of undeveloped open space.

2 Includes mini-parks on Main Street, Spyglass Lane, and Trace Lane.

3 Includes open space owned by City of Half Moon Bay, County of San Mateo, Coastside County Water District, Sewer Authority Mid Coastside, Coastside Lane Trust, Half Moon Bay Open Space Trust, and Peninsula Open Space Trust.

Source: City of Half Moon Bay, 2014; Dyett & Bhatia, 2014.

Figure 8-1:
Existing and Planned Parks and Recreation Resources



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RECREATION PROGRAMS

Half Moon Bay Little League has an agreement with the City to use and maintain all five athletic fields at Smith Field. The lighted field is open to the public at all times except during events. Under the updated Sports Facility Use and Allocation Policy (March 2014), other fields will also be open to the public with a field usage permit.

Beginning in 2009, Half Moon Bay's recreation program has been run by the City of San Carlos, under a contract with the City of Half Moon Bay. This arrangement ends in July 2014. Coastside Boys and Girls Club will take on recreation responsibilities for Half Moon Bay, and has received funding for recreational staff, while Peninsula Family YMCA will operate summer camp programs and other ancillary recreation programs. Classes take place at the Ted Adcock Community Center and the Historic Train Depot, serving both residents of Half Moon Bay and unincorporated neighboring communities; in recognition of this, San Mateo County provides annual payments to the City of Half Moon Bay to support community center operations.

Coastside Boys and Girls Club currently runs recreational and after-school enrichment programs on some school properties.

SCHOOL DISTRICT RECREATIONAL FACILITIES

Aside from Smith Field, most active recreation facilities used by Half Moon Bay residents are owned and maintained by the Cabrillo Unified School District. These include the track, soccer fields, and basketball courts at Cunha Middle School, and the general-purpose playfields at Hatch Elementary, as well as fields at El Granada Elementary School north of the city. The outdoor pool at Half Moon Bay High School is the only public pool on the Coastside, and is used by swimming clubs and youth teams. These facilities are also shown on Figure 8-1. However, because school facilities are designed and operated for use primarily by students, they are not counted in determining whether the City meets its park land standards.

GOLF COURSES

The private Half Moon Bay Golf Links spreads across the southern end of the city west of Highway 1, with two 18-hole courses offering some of the most scenic and well-known golf facilities in the country. The Golf Links also includes a 4-acre practice facility, bocce ball court, rental and sales shops, and restaurant. The Ritz-Carlton Hotel is located directly adjacent to the golf courses.

OPEN SPACE

There are 247 acres of preserved open space within city limits. This acreage is owned and managed by public and non-profit entities, including the Peninsula Open Space Trust (128 acres), the Coastside Land Trust (71 acres), and the City of Half Moon Bay (42 acres). Open space is concentrated on a large property at Wavecrest, and numerous small parcels in the undeveloped subdivisions west and south of Smith Field. Other significant open space areas are located along the coastal bluffs, creating a complete open space connection between the public park land at Half Moon Bay State Beach and at Poplar Beach (see Figure 8-1).

TRAILS

Several multi-use trails serve pedestrians and bicyclists in Half Moon Bay. The California Coastal Trail runs along the coastal bluffs from the northern boundary of Half Moon Bay to Seymour Creek. The Naomi Patridge Trail runs along the west side of Highway 1 from the Nurserymen's Exchange (north of downtown) to Highway 92. A second segment begins at Kelly Avenue and runs south to Seymour Street. City officials have also completed a design plan to extend the trail farther north to Roosevelt Boulevard and to the south to Wavecrest Road. The Pilarcitos Creek Trail functions as an undercrossing for Highway 1, serving bicyclists and pedestrians, south of Highway 92. Trails and proposed improvements are discussed in more detail in Chapter 4: Circulation.

STANDARDS AND DEFINITIONS

Park acreage distribution standards are used to set goals and measure attainment of those goals, and as guidelines for prioritizing land acquisition and setting developer fees. The current General Plan establishes a standard of 8 acres of park land per 1,000 residents, including 5 acres of neighborhood park land and 3 acres of community park land. These standards were seen as appropriate for the Half Moon Bay context: somewhat higher than typical for built-out cities, but lower than some neighboring coastal communities. However, the City's Subdivision Regulations (Section 17.48.035: Amount of land to be dedicated or fee in lieu thereof) requires the amount of land required to be dedicated by a subdivider to be four acres 1,000 population. Half Moon Bay's parkland standards and definitions of park types are shown in Table 8-2.

Table 8-2: Park and Recreation Facilities Classification and Minimum Standards

Park Type	*Acres/1000 Pop.*	*Size (acres)*	*Service Area*
Mini-Park	No standard[1]	1/4 to 1	1/4-mile radius
Neighborhood Park	3 acres/1000	4 to 12	1/2-mile radius
Community Park	5 acres/1000	20 to 50	City
Regional Park	No standard	100+	Bay Area
Special Facility	No standard	Varies	City
Linear Park	No standard	Sufficient width to protect resource and provide maximum use	City
Conservancy/Open Space Area	No standard	Sufficient to protect the resource	City
Urban Forestry Program	No standard	Not applicable	City

Note:

1 Mini parks are included in neighborhood park standards.

Source: City of Half Moon Bay General Plan, 1990, 1995.

DEFICIENCIES, PLANNED IMPROVEMENTS, AND COMMUNITY NEEDS

Park Land Deficiencies

Based on current park land distribution standards and the city's population in 2010, Half Moon Bay has an existing park land deficiency of 69.0 acres, including 25.6 acres of neighborhood and mini park land and 43.4 acres of community park land (see Table 8-3). In addition, much of the city is outside the standard service area for a mini park and/or a neighborhood park (see Figure 8-1).

Table 8-3: Park Land Deficiency

Park Type	*Acres*	*Acres/1000 Residents*[1]	*Acres Needed to Meet Standard*[2]	*Existing Parks Deficiency*
Neighborhood and Mini Parks[3]	8.4	0.74	34.0	25.6
Community Parks	13.2	1.17	56.6	43.4
Total	**21.6**	**1.91**	**90.6**	**69.0**

Notes:

1 Resident population is calculated as 11,324, from the 2010 US Census.

2 Current acreage standards of 3 acres/1000 for neighborhood parks and 5 acres/1000 for community parks are used.

3 Privately-owned parks are not counted.

Source: City of Half Moon Bay, 2013; Dyett & Bhatia, 2014, US Census, 2010.

Existing General Plan Priorities

The current General Plan identifies opportunity areas for park land, based on the following:

- Natural Features: wetlands, riparian areas, significant vegetation areas, beaches and coastal bluffs;
- Planning Designations: Open Space Reserve, Commercial Recreation, and Greenbelt – Stream Corridor;
- Land Use and Zoning: Greenbelt; Private-Undeveloped; Private-Development Pending; and County of San Mateo land.

Since the Plan was drafted, Pilarcitos Creek Park and Carter Park have been created along the creek corridor, and substantial open space areas have been preserved, in particular along the coastal bluffs.

Existing Plan policies also call for locating neighborhood parks in the North Wavecrest and South Wavecrest areas, in anticipation of development there, and to help serve the existing needs of the Ocean Colony neighborhood. Development has not taken place in the Wavecrest area; however, a significant amount of land there has since been preserved as open space.



Ocean View Park is the city's most-used neighborhood park.



A pocket park included in recent development south of downown helps meet local park needs. Half Moon Bay has less than 2 acres of city park land per 1,000 residents.



About three-quarters of Half Moon Bay's coastline is in public ownership, much of it included in Half Moon Bay State Beach.



Track, soccer fields and basketball courts at Cunha Middle School are used by the community.



In addition to Half Moon Bay High School, CUSD has four elementary schools, one intermediate school, one alternative high school, and an Adult Education program.



The Ted Adcock Community Center hosts arts and recreation classes and public meetings.

Planned Improvements and Community Needs

Currently, the City identifies one future park, on a site donated to the City as part of approval of the Magnolia Park subdivision. The park site is located between Magnolia and Seymour Streets and between 2nd and 3rd Avenues.

Boys and Girls Club and Cabrillo Unified School District (CUSD) plan to develop a 24,000-square foot gymnasium across Kelly Avenue from the Ted Adcock Community Center. The new gym will be available for City recreational programming. A new skate park is also planned adjacent to the Ted Adcock Community Center. These projects are shown as planned recreational facilities in Figure 8-1.

During the Plan update process, community members spoke positively about the City's acquisition and development of athletic facilities at Smith Field. Community members expressed a desire for the City to devote more resources to public and recreational spaces, as well as provide more recreation services, while also recognizing budget limitations.

8.2 Public Facilities and Services

SCHOOLS

K-12 Schools

Cabrillo Unified School District (CUSD) provides public education in the City of Half Moon Bay and a larger 135-square-mile territory that includes the neighboring communities of Montara, Moss Beach, El Granada, and Miramar. The District has four elementary schools, one intermediate school, one high school, one alternative high school, and an Adult Education program. According to CUSD, the Adult Education program is currently being shifted to the community colleges. As shown in Figure 8-2 and Table 8-4, the District Office, high school, intermediate school, special programs, and one of the elementary schools are in the Planning Area.

Altogether, the District had a total enrollment of 3,334 students in 2012-13. The student population is diverse, with slightly over half of students identified as non-White or Latino. One third of students are eligible for free or reduced-price meals. According to District projections, enrollment is expected to be stable, with no expected growth in student population in the near future.

Table 8-4: Cabrillo Unified School District Schools and Enrollment

School Name	*Serves Planning Area?*	*Enrollment, 2012-13*	*Capacity*	*Available Capacity*
Elementary Schools (K-5)				
Alvin Hatch	Yes	606	650	44
El Granada	Yes	512	580	68

Farallone View		378	500	122
Kings Mountain		75	75	0
Subtotal, Elementary		*1,571*	*1,805*	*234*
Middle School (6-8)				
Manuel F. Cunha Intermediate	Yes	733	900	167
Subtotal, Middle		*733*	*900*	*167*
High School (9-12)				
Half Moon Bay High	Yes	965	1,200	235
Subtotal, High		*965*	*1,200*	*235*
Special Programs				
Pilarcitos Alternative High[1]	Yes	40	40	0
Adult Education[2]	Yes	25	50	25
Subtotal, Special Programs		*65*	*90*	*25*
Total		**3,334**	**3,995**	**661**

Notes:

1 Continuation program.

2 Adult education programs to be phased out to community colleges by the 2015-16 school year.

Source: Cabrillo Unified School District, 2014; Dyett & Bhatia, 2014.

Deficiencies and Planned Improvements

As shown in Table 8-4, CUSD schools have adequate classroom space to serve students. However, school facilities require modernization. In 2013 WLC Architects, Inc. assessed each of the district's sites. WLC Architects Inc. estimated that approximately $91 million is needed to modernize the district's schools. The majority (68 percent) of the need was for elementary schools, which were found to be in need of comprehensive modernizations.[1]

CUSD owns two pieces of undeveloped land. One is an assemblage of 115 separate subdivision lots in the Wavecrest area; the other is a 10.4 acre parcel adjacent to the Princeton community, north of the Planning Area. Nothing is planned for these sites.

District representatives note that the popular English-Spanish immersion program housed at Hatch Elementary struggles to meet demand in its current space. In addition, some parts of Half Moon Bay are not well-served by schools; students from the far southeast part of Half Moon Bay are currently bused to attend school in Montara.

[1] Cabrillo Unified School District, 2013 Facilities Master Plan, accessed at http://www.cabrillousdmasterplan.com

Figure 8-2: Existing and Planned Public Facilities



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Community Colleges

Three community colleges make up the San Mateo County College District: Cañada College in Redwood City, College of San Mateo in San Mateo, and Skyline College in San Bruno. Cañada College currently serves approximately 6,300 students. College of San Mateo and Skyline College each serve approximately 10,000 students.

LIBRARY

San Mateo County Library's Half Moon Bay Branch Library serves residents in the Planning Area. The library is the only branch on the San Mateo County Coastside south of Pacifica. The 7,825-square foot library has a collection of 70,000 materials and a staff of 10. It includes seating areas, public computers, a storytime space, and meeting rooms with a seating capacity of 50, as well as a parking lot with 38 stalls.

The San Mateo County Library offers an array of library services including books, periodicals, newspapers, and information in multiple languages, as well as access to computers and the Internet, online databases, music, videos, business resources, and educational research. The Library also offers programs for children, teens, and adults, and outreach services in settings such as schools, low-income clinics and shelters. Educational programming includes homework help assistance, computer training, and literacy services for children, families and adults. During the 2012-13 Fiscal Year more than 180,000 people visited the Half Moon Bay Library and more than 25,000 participated in library sponsored programs.

Deficiencies and Planned Improvements

At 0.27 square feet per resident in its service area, Half Moon Bay branch falls short of the system-wide average and recommended standards. According to Library representatives, the library does not meet current service needs, or respond to future needs on the Coastside. A partnership composed of the Library, the County, the City of Half Moon Bay, and the Friends of the Half Moon Bay Library, is working on a proposed new facility that would be built at the current library site.

COMMUNITY CENTERS

The Ted Adcock Community Center at 535 Kelly Avenue features meeting rooms that are used for public meetings as well as a wide range of arts and recreation classes. Senior Coastsiders has provided programs for seniors at the Adcock Community Center since the late 1970s. Beginning in summer 2014, senior programs will move to the new campus on Main Street and Arnold Way, being developed in partnership with Adult Day Health and Lesley Gardens. Finally, the City-owned Historic Train Depot, outside city limits at 110 Higgins Canyon Road, is available for rental for classes, workshops or private meetings. See Figure 8-2.

POLICE SERVICES

The San Mateo County Sheriff's Office provides law enforcement in Half Moon Bay. The Sheriff's Office Patrol Bureau provides general law enforcement services to unincorporated areas

throughout the County in addition to full police services to various cities, including the City of Half Moon Bay.

The Coastside Patrol Bureau is staffed with 18 deputy sheriffs, four Sergeants, and five additional sworn officers, operating out of two substations. The North Coast Substation, in Moss Beach, is the largest law enforcement facility on the San Mateo County coast and is responsible for law enforcement activities in the unincorporated Coastside. The Half Moon Bay Substation, at 537 Kelly Avenue, is the primary responder within the City of Half Moon Bay. It is staffed by six deputies; two of these may be called off to cover beats outside the city. Six deputies and one sergeant are on duty on the coast during each shift, and all are available to serve as needed. Deputies are assisted during the weekend summer months with traffic and bicycle units.

Service Standards

The San Mateo County Sheriff's Office does not maintain service ratio standards. The response time standard is under four minutes; the Sheriff's Office reports that average response time for the 11 emergency incidents in March 2014 was two minutes, 53 seconds, well under the standard.

Deficiencies and Planned Improvements

No major obstacles were reported to meeting response time standards. Existing facilities and services are considered adequate to maintain a sufficient level of service.

FIRE AND EMERGENCY RESPONSE SERVICES

The Coastside Fire Protection District (CFPD) provides fire protection services in the Planning Area, neighboring communities and surrounding unincorporated areas, a territory covering approximately 50 square miles along the San Mateo County coast and a population of approximately 30,000. CFPD is staffed with 20 paid firefighter positions and 23 volunteer firefighter positions, at three stations.

As shown on Figure 8-2, most of the Planning Area falls into the primary service area of Station 40, at 1191 Main Street; the northernmost part of the city is served by Station 41, at 531 Obispo Road in El Granada. District Headquarters is collocated with Station 40. All stations are staffed with one fire captain and two fire apparatus engineers, one of which is a paramedic to provide advanced life support services. Each station is equipped with two fire engines (at Station 41, one of fire engines is a ladder truck). In addition to traditional fire service, CFPD also provides advanced life support, cliff rescue, water rescue, confined space rescue, and vehicle and residential lock-out assistance.

Service Standards

CFPD maintains minimum or target response time standards for fire and emergency service calls. For urban areas, the standard is seven minutes, for rural areas it is 12 minutes, and for remote areas it is 22 minutes. It is unclear if CFPD is currently meeting response time standards, as data on average response time for fire and emergency calls were not available.

ISO Rating

Fire districts are rated by the ISO Public Protection Classification (PPC) program. The program uses the Fire Suppression Rating Schedule (FSRS), which comprises a long list of elements a community may use to fight fires effectively. Each element is given a point score. Using the point scores and various formulas, ISO derives a PPC rating. On a scale of 1 (exemplary fire protection) to 10 (not meeting minimum criteria) CFPD scored a 4.

Deficiencies and Planned Improvements

According to CFPD, existing facilities are adequate to maintain a sufficient level of service for future population growth within and near the Planning Area.

MEDICAL FACILTIES

San Mateo Medical Center's Coastside Clinic is located at 225 South Cabrillo Highway in downtown Half Moon Bay. The Clinic provides a range of health care services, including primary care; pediatrics; family planning; women's health; OB/GYN; nutrition; mental health and behavioral health rehabilitation; sexually transmitted disease screening and therapy; and WIC (Women, Infants and Children). There is also a dental clinic. The Medical Center's main campus, in San Mateo, includes the hospital, administrative offices, long-term care, and outpatient clinics.

Seton Coastside Hospital is located north of the Planning Area in Moss Beach. The hospital provides medical and nursing care, with 116 inpatient beds and the only 24-hour standby Emergency Department between Daly City and Santa Cruz.

SOLID WASTE AND RECYCLING

Allied Waste Services is Half Moon Bay's franchised hauler, providing residential curbside collection of recyclables and greenwaste (yard waste), and commercial collection for recyclables. The majority of the city's solid waste is directed to the Corinda Los Trancos Sanitary Landfill (known as Ox Mountain), which is a Class III disposal facility located at 12310 San Mateo Road (Highway 92) in the vicinity of the Planning Area. As of July 2013, engineering estimates provided by the landfill operator, Republic Services, indicated that the facility's remaining disposal capacity was approximately 26.5 years. Based on the current rate of all disposal at this site from all jurisdictions, the facility's projected closure date is estimated to occur in 2038. Table 8-5 summarizes the amount of solid waste generated within the Planning Area by land use.

Currently there is no food waste collection for residents or businesses, and all greenwaste collected by Allied Waste is hauled to Ox Mountain Landfill for use as landfill cover. Additionally, self-hauled greenwaste hauled to Ox Mountain Landfill from businesses and residents in Half Moon Bay is also applied as landfill cover. The City receives diversion credit for this material being used as landfill cover, but as this material is not composted and diverted from the landfill, it effectively contributes to landfill lifespan reduction. Landfill lifespan would be increased if the currently separated greenwaste materials were composted, and further increased if the composting program included the collection of food waste, which currently composes a significant percentage of collected residential and commercial solid waste. These compostable materials are shown in Table 8-5 to indicate a known amount of collected material that could be composted and diverted from the landfill to extend landfill lifespan.

Table 8-5: Planning Area Solid Waste Generation by Land Use

Land Use	*Solid Waste (tons/year 2013)*	*Recycling (tons/year 2013)*	*Compostable Material (tons/year 2013)*
Residential	2,401[1]	1,370[1]	1,628[2]
Commercial	8,990[3]	1,609[4]	80[2]
Industrial	NA	NA	NA
Other: Self Haul	4,381[5]	NA	2,534[6]
Other: Biosolids	2,026[7]	NA	NA
Other: Ox Mountain Diversion	NA	1,653[8]	NA
Total	**17,789[9]**	**4,632**	**4,242**

Notes:

1 Includes residential curbside collection by the City's franchised hauler. Solid waste was hauled to Ox Mountain Landfill for disposal and recyclable materials were hauled to Republic's recycling operation.

2 Includes collection of greenwaste by the City's franchised hauler and hauled to Ox Mountain Landfill. No food waste is collected as part of this collection program.

3 Includes commercial solid waste collected via the franchised hauler's collection service and its debris box company as well as solid waste collected from other debris box companies and hauled to Ox Mountain Landfill.

4 Includes commercial recycling collected via the franchised hauler's collection service and its debris box company.

5 Includes solid waste "self-hauled" by residents and businesses to Ox Mountain Landfill.

6 Includes greenwaste generated by residents and businesses and self-hauled to Ox Mountain Landfill.

7 Includes biosolid material attributed to the City of Half Moon Bay generated by the Sewer Authority Mid-Coastside sewage treatment facility and hauled to Ox Mountain for disposal.

8 Includes construction & demolition debris recycling and diversion programs associated mainly with direct application of materials to the landfill, effectively resulting in landfill lifespan reduction.

9 Disposal tonnage does not include materials generated within the planning area but disposed of at facilities outside of the planning area.

Source: Allied Waste Services, 2013; Republic Services, 2013; CSG Consultants, 2014.

HAZARDOUS WASTE

San Mateo County established the Household Hazardous Waste (HHW) Program in response to solid waste diversion goals mandated by AB 939. The HHW Program mission statement is to educate residents and conditionally-exempt small quantity generators regarding household or business-related hazardous waste, and to provide safe opportunities for reducing, reusing, recycling, and/or disposal of their hazardous wastes. The County and all 20 cities in the county agreed to develop a regional HHW Element.

Hazardous Waste Programs in place include:

- Primary Permanent HHW Collection Facility - The primary permanent facility at Tower Road in San Mateo is currently operating with weekly collections as a full-service, centrally located collection facility owned and operated by the County.
- Satellite HHW Collections - Currently, two satellite HHW collection facilities are open for monthly collections at the solid waste facilities: Blue Line Transfer Station in South San Francisco, and Recology of the Coast in Pacifica. A third satellite is planned for Redwood City.
- Temporary HHW Collections - Currently, annual temporary collections rotate in Half Moon Bay, Redwood City, Menlo Park, Daly City, La Honda, and Portola Valley.
- Very Small Quantity Generator Program - Collections are currently held for qualified Very Small Quantity Generators twice a month at the Tower Road Facility.
- Product Reuse/Give-Away Program - All collected materials received via collections are assessed for reuse, per the Program's Re-use QA/QC Guidelines. All reusable materials are diverted to the Give-Away Program Warehouse, which is open to the public twice a month, for free pick-up of the materials.
- Latex Paint Recycling Program - Currently, four latex paint drop-offs are located at solid waste facilities: Blue Line Transfer Station in South San Francisco, Recology of the Coast in Pacifica, Recology San Bruno in San Bruno, and South Bay Recycling/Recology San Mateo County in San Carlos. All latex non-reusable latex paint is sent for recycling to Visions Recycling, Inc.

KEY PLANNING ISSUES AND IMPLICATIONS

Appropriate Park Land Standards

The current park land acreage standard of 8 acres per 1,000 people would require the development of 69 acres of new park land simply to serve current residents. This is not likely to be achieved, and may not be an appropriate standard, particularly given the fact that the beaches and bluffs are a valuable recreational resource. In addition, because "opportunity sites" are interspersed with existing subdivisions, new parks created as part of new development can serve both current and future residents.

Open Space and Trails

Many of the parcels in the Wavecrest area have been purchased by open space trusts. Consolidated open space ownership in this area could clarify open space land holdings and facilitate the completion of the Coastal Trail through Half Moon Bay. A land swap for land less valuable as open space could help achieve multiple community goals.

Public Facilities and Services

Half Moon Bay can look forward to the completion of a new senior center on Main Street and a new community gym on Kelly Avenue, as well as promising arrangements with the Coastside

Boys & Girls Club and YMCA. In the longer term, a new library and school facility improvements are in the planning stages. Solid waste services and facilities are expected to adequately meet the needs of the Planning Area through the planning period, though opportunities exist to improve waste diversion from the Ox Mountain Landfill through programming for the city's greenwaste and food waste.

9 Infrastructure

9.1 Introduction

This chapter documents the existing utility infrastructure throughout the City of Half Moon Bay. It provides context for examining development opportunities and constraints consistent with the current General Plan, Local Coastal Program (LCP), and Land Use Plan (LUP). The information presented in this report will be used in developing goals, updating policies and implementing actions in the General Plan Update.

The project will focus on the area within the City of Half Moon Bay city limits. The City of Half Moon Bay is located along the Pacific Coast approximately 28 miles south of San Francisco in San Mateo County.

The primary focus of this report is on the water, storm drain, and sanitary sewer facilities that serve the city. General information regarding dry utilities, including electric, gas, and telecommunications, has been included for informational purposes only. This report does not include architecture, landscaping, circulation, public access, traffic, etc.

9.2 Water System

EXISTING POTABLE WATER INFRASTRUCTURE

The water distribution system is owned and operated by Coastside County Water District (CCWD), which also serves part of the unincorporated area of San Mateo County, including Princeton-by-the-Sea, Miramar, and El Granada. CCWD's water supply sources include Pilarcitos Lake, Upper Crystal Springs Reservoir, Pilarcitos Well Field, and Denniston Creek. The primary water supply is purchased from the SFPUC (Pilarcitos Lake and Upper Crystal Springs Reservoir), and other supplies (about 28 percent) are Infiltration Well water from the District's Pilarcitos well field and surface water and groundwater from the District's Denniston Project. Water is delivered to the system through one of two treatment plants: the Denniston Water Treatment Plant near Half Moon Bay Airport and the Nunes Water Treatment Plant in Half Moon Bay. The water distribution system consists of 11 treated water storage tanks, which have a combined storage capacity of 8.1 million gallons, and over 100 miles of transmission and distribution pipelines.[1] Development within the city requires a water service connection in order to receive water.

[1] Coastside County Water District website, "Distribution", 2013.

CCWD's current FY 2013-2014 Rate and Fee Schedule indicates new service connections ranging from 5/8" to 4" at $15,169 to $455,069[2]. This ranges from approximately 4 percent to 55 percent more expensive than equivalent connection sizes in neighboring Montara Sanitary and Water District.

WATER SUPPLY ASSESSMENT

Senate Bill 610 (SB 610) and Senate Bill 221(SB 221) were established in order to ensure local authorities adequately addressed water availability prior to approval of larger new development projects. Under SB 610 and SB 221, a Water Supply Assessment (WSA) may be needed if development consists of an increase in water usage equivalent to any of the following:

1. A proposed residential development of more than 500 dwelling units.

2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

4. A proposed hotel or motel, or both, having more than 500 rooms.

5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

6. A mixed-use project that includes one or more of the projects specified in this subdivision.

7. A project that would demand an amount of water equivalent to, or greater than, the amount required by a 500 dwelling unit project.

EXISTING RECYCLED WATER

There is currently no recycled water system that serves the City of Half Moon Bay. The nearest potential recycled water producer is the Sewer Authority Mid-Coastside (SAM) Treatment Plant, which is located in the City of Half Moon Bay west of Highway 1 between Frenchmans Creek and Pilarcitos Creek. However, in order to produce recycled water, it would need costly infrastructure improvements to upgrade from secondary to tertiary treatment. CCWD has shown interest in reaching an agreement with SAM to produce and distribute recycled water, but does not have a current recycled water master plan at this time.[3]

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[2] Coastside County Water District, "Rate and Fee Schedule," July 1, 2013.

[3] West Yost Associates, "Coastside County Water District 2010 Urban Water Management Plan Update", June 2011.

EXISTING POTABLE WATER DEMAND

Coastside County Water District's baseline per capita water use in 2010 was 128 gallons per capita per day (gpcd) according to the 2010 Urban Water Management Plan. In order to comply with the Water conservation Act of 2009, CCWD's target per capita water use is 120 gpcd by 2020. The District's water demand in 2010 was approximately 2,265 acre-feet per year (afy) and is projected to reach 3,149 afy by 2035.

The District plans to meet the 2035 water demand projection with 730 AFY from Denniston Creek, 150 AFY from Pilarcitos well field, and 2,269 AFY from the SFPUC. The District is currently entitled to purchase approximately 2,455 afy from the SFPUC. This entitlement will not be increased before 2018, and because availability of additional water from SFPUC after 2018 is uncertain, the District assumes for planning purposes that this supply will not be increased. If CCWD were to purchase its remaining volume of water from SFPUC to supply the City of Half Moon Bay, there would be approximately 916 AFY of additional water supply available through 2035.

EXISTING SYSTEM DEFICIENCIES

In April 2011 Coastside County Water District adopted a Water Shortage Contingency Plan providing a response plan in the event of prolonged drought, water supply shortages or emergency outages. During normal year comparison CCWD's water supplies are adequate to meet projected demands. CCWD currently has an ongoing pipeline replacement program to replace sections of old and damaged pipelines with new ductile iron pipelines to reduce leaks and minimize losses throughout the system.[4]

POTENTIAL WATER SYSTEM IMPROVEMENTS

CCWD has several options to reduce existing water use through conservation and to increase water supply sources. These include, but are not limited to the following:

- Implementation of Best Management Practices (residential water surveys, plumbing retrofit, system water audits, etc.), high efficiency toilet rebate programs, lawn replacement programs and residential audits.
- Groundwater studies for the Midcoast area to identify the groundwater yield that may be safely taken. This study could eventually lead to the development of a Groundwater Management Plan (GWMP).
- The District may consider seawater desalination as a long-term option for water supply. However, at this time the District has concluded that water desalination would not be cost-effective.
- New well fields, well field improvements, creek diversion structures, pump stations, pipelines, and expansions to water treatment plants.

[4] West Yost Associates, "Coastside County Water District 2010 Urban Water Management Plan Update", June 2011.

9.3 Storm Drain System

STORMWATER REGULATIONS

The City of Half Moon Bay accepts unpolluted stormwater discharge into its maintained streets, storm drains, and drainage channels. The following storm drainage system analysis documents capacity within existing storm drainage facilities serving the city and supplemental facilities that might be necessary to support any increased levels of development that might result from changes to policies, codes, and regulations related to the General Plan Update.

Stormwater discharge in Half Moon Bay is regulated by the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (MRP), issued by the Regional Water Quality Control Board (RWQCB). The current MRP was adopted in 2009 and covers stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara counties, as well as the cities of Fairfield, Suisun City, and Vallejo. NPDES, a provision of the Federal Clean Water Act, requires that each new development project resulting in new or replaced impervious surfaces greater than 10,000 square feet (or 5,000 sf for uncovered parking) prepare a Stormwater Management Plan (SWMP) and one acre or larger also prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWMP presents measures for long-term reduction of stormwater pollutants leaving the site. The SWPPP is a document that outlines plans to control storm water pollution during construction.

All new and redevelopment projects within the City of Half Moon Bay that contain storm drain improvements require the following approvals by the City:

- Hydrological review
- Hydraulic design

All new and redevelopment projects must also comply with the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), which requires post construction stormwater controls under Provision C.3 of the Municipal Regional stormwater NPDES permit. The following items will need to be prepared for and require approval from the listed party.

- Regional Water Quality Control Board (RWQCB):
    - Notice of Intent (NOI)
    - Storm Water Pollution Prevention Plan (SWPPP)
        - Description of erosion and sediment control measures and BMPs
        - Plan of erosion and sediment control measures
- City of Half Moon Bay:
    - Stormwater Management Plan (SWMP)

In addition, any new developments in the City of Half Moon Bay shall meet typical coastal requirements, which include, but are not limited to:

- Preventing the flow of liquid building materials and wastes onto impervious surfaces and into storm drains and waterways.
- Reduce the amount of impervious surface areas, and use permeable pavement where feasible.
- Provide for ongoing operation and maintenance of installed stormwater treatment measures.
- Development of parking lots shall incorporate BMPs to minimize runoff of oil, grease, car battery acid, coolant, gasoline, sediments, trash, and other pollutants to receiving waters.

The entire City of Half Moon Bay is located in an area susceptible to hydromodification, in which increased impervious surfaces due to new developments and/or redevelopments results in increased stormwater runoff and higher flow, subsequently increasing erosion potential in receiving streams, creeks, etc. Therefore, projects that create and/or replace one acre or more of impervious surface and increase impervious surface over pre-project conditions must incorporate hydromodification management measures. Potential hydromodification management measures include maximizing infiltration to reduce detention requirements and flow duration controls that control stormwater release.

STORM DRAIN INFRASTRUCTURE AND POLLUTANT SOURCES

Storm drainage is conveyed through the city's creeks and drainages, as shown in Figure 9-1. The City of Half Moon Bay has initiated a Citywide Drainage Ditch Maintenance Project to implement the Lake or Stream Alteration Agreement (Notification No. 1600-2012-0173-R3) between the City and the California Department of Fish and Wildlife allowing the City to perform routine maintenance on 15 separate drainage facilities. These City-maintained facilities are summarized in Table 9-1 and shown in Figure 9-1. Maintenance activities for these facilities include but are not limited to sediment removal, vegetation management, bank stabilization or repair, in-kind culvert replacement, and removal of non-native vegetation. Not all activities are performed at every location.[5]

The Citywide Drainage Ditch Maintenance Project does not include every drainage facility in Half Moon Bay. For example, the City does not conduct routine maintenance on any part of Pilarcitos or Frenchmans creeks, though in cases of emergency—such as after a destructive flood—it would be allowed to clear debris under an emergency permit. Those facilities included in the project are located on easements or along rights-of-way.

Drainage facilities that are not served by a maintenance program may experience negative environmental impacts that could affect the Planning Area at large. Lack of maintenance has been known to lead to sediment deposition, overgrowth of vegetation, the accumulation of litter and other debris, and deterioration of the facility that may cause or contribute to flooding, erosion,

[5] City of Half Moon Bay, 2013. Final Draft Initial Study and Mitigated Negative Declaration, Citywide Drainage Ditch Maintenance Project.

infrastructure deterioration, and public safety hazards both locally and in adjacent areas. Stormwater-related hazards are also discussed in Chapter 5: Environmental Resources and Hazards.

Table 9-1: Facilities Included in the Citywide Drainage Ditch Maintenance Project

Facility Name	*Location Description*	*Feature Description*[1]
Roosevelt Drainage	Alameda Avenue to the Coastside Trail	Natural perennial drainage
Kehoe Ditch Drainage	Highway 1 to the Coastside Trail	Natural/modified intermittent drainage
Kelly Drainage	South side of Kelly Avenue, Railroad Avenue ROW to the Coastside Trail	Man-made ephemeral swale
Miramontes Drainage	Railroad Avenue to the Coastside Trail	Man-made ephemeral ditch
Central Drainage	Railroad Avenue to the Coastside Trail	Man-made ephemeral swale
Myrtle Street Bubble-Up	Railroad Avenue to the Coastside Trail	Man-made intermittent ditch
Seymour Drainage	South side of Seymour Avenue, Highway 1 to the Coastside Trail	Man-made ephemeral ditch/swale
Redondo Beach Road	Both sides of Redondo Beach Road, Railroad Avenue ROW to Coastside Trail	Series of man-made ephemeral ditches, swales, and roadside depressions
Railroad Avenue	West side of Railroad Avenue, Spruce Street to Poplar Street	Man-made ephemeral swale
Poplar Street	Both sides of Poplar Street, Railroad Avenue to the Coastside Trail	Man-made intermittent ditch
Railroad Avenue	West side of Railroad Avenue, Metzger Street to Grove Street	Man-made ephemeral swale
Grove Street	South side of Grove Street, west of First Street to Railroad Avenue	Man-made ephemeral swale
Magnolia Street	Highway 1 to First Avenue	Man-made ephemeral swale
Wavecrest Road	North side of Wavecrest Road, Highway 1 to Smith Field	Man-made intermittent ditch
Redondo Beach Road	Both sides of Redondo Beach Road, Railroad Avenue ROW to the Coastside Trail	Series of man-made ephemeral ditches, swales, and roadside depressions

Notes:

1. Definitions for terms in Feature Description column:
   Perennial features typically flow for most of the year.
   Intermittent features flow or are wetted relatively consistently for a portion of the year.
   Ephemeral features typically only flow or are wetted for a short period of time following rains.
   Drainages have natural bed and bank characteristics and are not man-made.
   Ditches are man-made features not vegetated throughout that have a defined bed and bank.
   Swales are man-made features generally lacking a defined bed and bank that are often vegetated throughout.

Source: Final Draft Initial Study and Mitigated Negative Declaration, Citywide Drainage Ditch Maintenance Project, City of Half Moon Bay, 2013.

The City has not comprehensively analyzed the capacity of its storm drain infrastructure. As part of the development process, development projects are typically required to perform studies to determine potential impacts of the development on storm drainage, and undertake any subsequently required mitigation measures. Mitigation may include on-site detention or percolation, or participation in a larger stormwater management program.

The City currently manages ditches to optimize flow capacity and monitors watershed areas, updating the City's drainage master plan as needed. Allowing for increased vegetation growth and/or installation of check dams within ditches would trap trash and sediments, preventing them from flowing downstream to the Ocean. Capture of sediments may lead to increased future maintenance costs associated with clearing sediment. Stormwater treatment areas are typically sized to accommodate a 10-year frequency storm of a 2-hour duration (0.6 inches of rainfall per hour).

Potential stormwater pollutant sources include but are not limited to loading docks, food service areas, refuse areas, outdoor processes and storage facilities, and vehicle cleaning areas also used for repair or maintenance, fuel dispensing, and equipment washing. New stormwater treatment measures would help to reduce pollutants in stormwater and/or erosive flows. Existing ditches and outfalls could be considered for potential future stormwater treatment and trash removal options. Improvements would include establishing a better defined ditch with greater volume and replanting with suitable vegetation.

FLOOD HAZARD ZONES

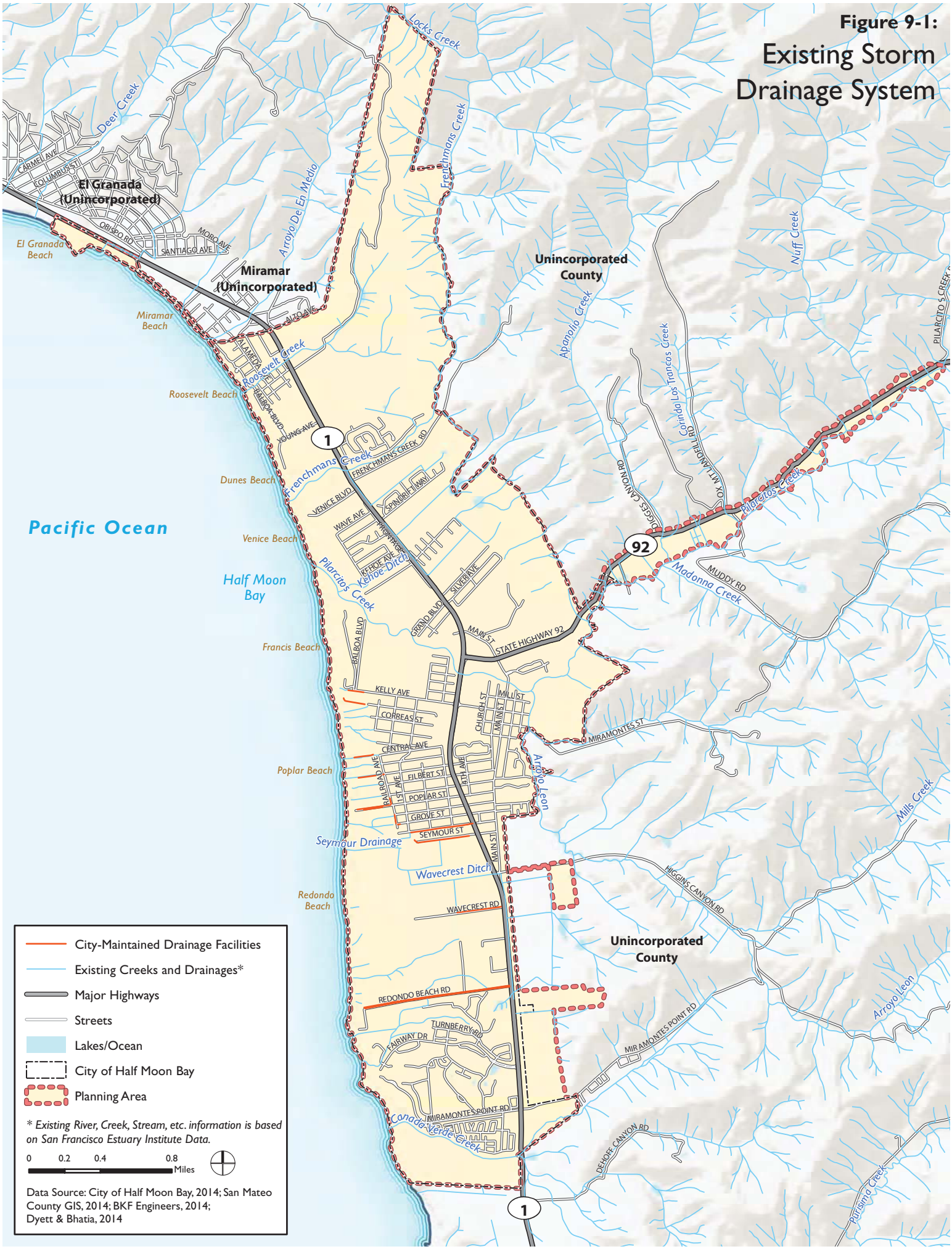
Portions of the City of Half Moon Bay are located within FEMA Flood Hazard Zones A, AE, V, VE, and X.[6] The Flood Hazard Zones that are subject to flooding by the 1 percent annual chance flood (100-year storm event) are listed below. See Chapter 5 for more detail on the locations of these zones.

- Zone A, no Base Flood Elevations determined – Areas adjacent to Pilarcitos Creek and Frenchmans Creek.
- Zone AE, Base Flood Elevations determined – Areas west of Alameda Ave.
- Zone V, Coast flood zone with velocity hazard (wave action); no Base Flood Elevations determined – Areas adjacent to the ocean along entire coastal city limit (except coastal area between Magellan Ave and Guerrero Ave.
- Zone VE, Coast flood zone with velocity hazard (wave action); Base Flood Elevations determined – Areas adjacent to the ocean between Magellan Ave and Guerrero Ave.

In addition to the flood hazards listed above, localized ponding areas were observed and appear to be as a result of where settlement has created depressed areas with no release point or where sediment deposition has created a barrier to flow. Though studies have not determined whether or not the city's storm drains are adequately sized, such ponding may suggest that portions of the

[6] "Flood Insurance Rate Map (FIRM) 06081C0255E, 06081C0260E, 06081C0265E and 06081C0270E", October 2012.

storm drain system may need enhanced maintenance, modifications, or improvements. To increase the existing storm drain system capacity, general retrofits would include upsizing existing storm drain pipes, adding storm drain lines parallel to existing ditches, and reconstructing ditches to increase capacity.


Figure 9-1:
Existing Storm Drainage System
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
Pacific Ocean
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Poplar Beach
Francis Beach
Redondo Beach
Deer Creek
Locks Creek
Frenchmans Creek
Arroyo De En Medio
Nuff Creek
Apanolio Creek
Corinda Los Trancos Creek
Pilarcitos Creek
Roosevelt Creek
Frenchmans Creek
Kehoe Ditch
Pilarcitos Creek
Madonna Creek
Arroyo Leon
Mills Creek
Seymour Drainage
Wavecrest Ditch
Conada Verde Creek
Purisima Creek
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
ALTO AVE
ALAMEDA
PRINCETON BLVD
YOUNG AVE
FRENCHMAN'S CREEK RD
VENICE BLVD
WAVE AVE
SPINDRIFT WAY
PRINCETON RD
KEHOE AVE
SILVER AVE
GRAND BLVD
BALBOA BLVD
MAIN ST
STATE HIGHWAY 92
KELLY AVE
CORREAS ST
CHURCH ST
MAIN ST
MILL ST
MIRAMONTES ST
CENTRAL AVE
RAILROAD AVE
1ST AVE
FILBERT ST
4TH AVE
POPLAR ST
GROVE ST
SEYMOUR ST
MAIN ST
WAVECREST RD
HIGGINS CANYON RD
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
MIRAMONTES POINT RD
DEHOFF CANYON RD
HIGGINS CANYON RD
CORINDA LOS TRANCOS RD
MUDDY RD
1
92
1
City-Maintained Drainage Facilities
Existing Creeks and Drainages*
Major Highways
Streets
Lakes/Ocean
City of Half Moon Bay
Planning Area
* Existing River, Creek, Stream, etc. information is based on San Francisco Estuary Institute Data.
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; BKF Engineers, 2014; Dyett & Bhatia, 2014

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9.4 Sanitary Sewer System

SANITARY SEWER BACKGROUND

Sanitary sewer service is provided by the City of Half Moon Bay and Granada Sanitary District (GSD) for transporting sewage flows and Sewer Authority Mid-Coastside (SAM) for treating and disposing the sewage. Service provider jurisdictions are shown in Figure 9-2. The following sanitary sewer system analysis documents flow capacity within the existing sanitary sewer facilities serving the project site and supplemental facilities necessary to support the proposed development.

This sewer system analysis describes the impact of future development throughout Half Moon Bay on the city's and GSD's sewer systems. The analysis describes existing capacity and a range of improvements likely to be required should the General Plan Update and related changes to codes and regulations result in higher levels of development.

Sewer Authority Mid-Coastside is a public agency providing wastewater treatment services to Montara Water and Sanitary District, Granada Sanitary District and Half Moon Bay under a joint powers agreement. Each member agency of SAM is allotted maximum capacity rights for Peak Wet Weather Flow (PWWF), Average Dry Weather Flow (ADWF), Biochemical Oxygen Demand and Suspended Solids. These allocations correspond to the sewer treatment capacity available at the SAM plant. Each SAM member agency is responsible to provide a sewage collection system of adequate capacity to utilize the treatment capacity available at the SAM plant.

Sewage Generation Rates/Fees

The analysis of sewer system conditions and potential improvements relies on different sewage generation rates since both the City of Half Moon Bay and Granada Sanitary District have jurisdiction over different portions of the city. Thus, sewer system analysis will use HMB rates for the sections within the City's jurisdiction and GSD rates for the sections within GSD's jurisdiction.

All three member agencies charge sewer connection fees based on anticipated use of the capacity available at the SAM treatment plant and each agency's sewer collection system (pipes and pump stations).

EXISTING SANITARY SEWER INFRASTRUCTURE

The City of Half Moon Bay's existing sanitary sewer system consists of approximately 37 miles of sewer mains, approximately 3,100 laterals, and three lift stations.[7] Granada Sanitary District's existing sanitary sewer system includes approximately 33 miles of sewer line and approximately 1,500 feet of force main running along Highway 1.[8]

[7] City of Half Moon Bay Public Works, "Sewer System Study", March 2010.

[8] Sewer Authority Mid-Coastside, "Sewer System Management Plan", 2008.

The Sewer Authority Mid-Coastside owns and operates an 8-mile stretch of transmission main, also known as the Intertie Pipeline System (IPS). Four main lift stations are used to connect to the three member agencies' sewer distribution systems to the SAM Treatment Plant. Approximately 1.8-miles of the IPS are gravity mains, while the remaining portion is force main.

EXISTING SEWAGE TREATMENT CAPACITY

The wastewater treatment plant's current capacity is 4.0 MGD in ADWF. The 2008 Sewer System Management Plan indicates the treatment plant's current ADWF is 1.7 MGD. Biochemical Oxygen Demand (BOD) and Suspended Solids are the parameters used to evaluate the treatment capacity required at the SAM treatment plant. For any development project proposed in the City of Half Moon Bay, the average daily flow would be based on the net increase produced by the site redevelopment and adjusted for BOD and suspended solids.

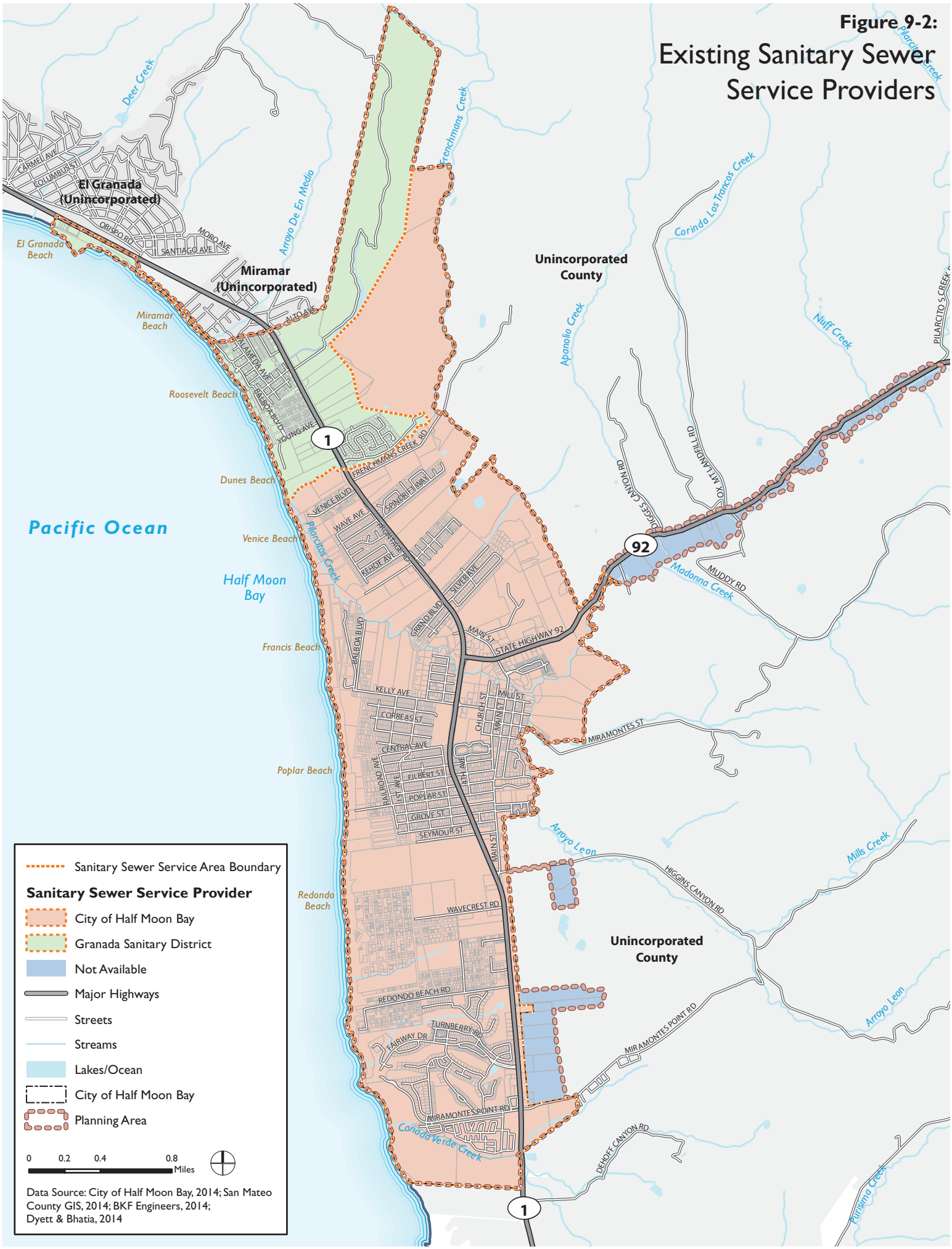
EXISTING SYSTEM DEFICIENCIES

SAM, the City of Half Moon Bay, and the Granada Sanitary District have an ongoing capacity management program to address hydraulic capacity issues within their district limits. The Intertie Pipeline System that conveys wastewater from Granada Sanitary District to the SAM Treatment Plant has had capacity issues, including surcharge in some manholes, during heavy rain periods in the past.

The City of Half Moon Bay sewer collection system generally has adequate capacity to serve current levels of flow. The City has initiated a sewer system study to identify existing system deficiencies and prioritize improvements necessary to accommodate peak period flows. The City has also completed a tv/video inspection of the 37 miles of sewer mains to help identify locations causing capacity issues due to deteriorated pipes/joints, sags, blockages and tree roots. Sewer main improvements/rehabilitation, flow monitoring, lift station upgrades, and map updates are all items in the FY 2014/15 Capital Improvement Program budget.

The Granada Sanitary District has performed a sanitary sewer monitoring program that identified inflow and infiltration at locations in the District's collection system. Part of the proposed mitigation measures for these locations include better mapping of the District's collection system followed by field verification of the locations and elevations to identify capacity issues.

Figure 9-2: Existing Sanitary Sewer Service Providers



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9.5 Dry Utility System

SERVICE PROVIDERS

Existing dry utilities including electric, gas, and telecommunication are located within the City of Half Moon Bay. Service for these dry utilities is provided by different companies and the distribution systems consist of both overhead and underground utility lines. The dry utility service providers consist of various companies and are as follows:

Electric

The electrical power distribution system within the City of Half Moon Bay is owned and operated by Pacific Gas & Electric Company (PG&E). This electrical power grid consists of both overhead and underground electrical lines located predominantly in the public street rights-of-way and easements.

Gas

The natural gas distribution system within the City of Half Moon Bay is also owned and operated by PG&E and consists of a pipe network which lies predominantly beneath the traveled roadway in the public street rights-of-way.

Telecommunication

The telecommunication distribution system within the City of Half Moon Bay provides various services such as telephone service, cable TV, etc. The service providers include Comcast, AT&T, etc.

9.6 Key Planning Issues and Implications

WATER SYSTEM STATUS

The Planning Area is served by an existing water distribution system provided by the Coastside County Water District. However, the current potable water system contains older conveyance pipes and lacks sufficient emergency storage facilities. Portions of the existing CCWD water distribution system consist of old and damaged pipelines. CCWD has a replacement program for the existing water mains to be replaced with new ductile iron pipelines to reduce leaks and minimize losses throughout the system. Currently, there is no recycled water system in the City of Half Moon Bay. The closest existing point of connection is the Sewer Authority Mid-Coastside (SAM) Treatment Plant, which is approximately one mile north of Highway 92 along Highway 1.

STORM DRAIN STATUS

The city is served by a storm drain system of reinforced concrete pipe storm drain lines. In addition, there are several improved streets with gutters, swales, and ditches which provide

overland conveyance facilities for stormwater flows. Portions of Half Moon Bay are located within FEMA Flood Hazard Zones A, AE V and VE and are subject to flooding during a 100-year storm event, and localized ponding occurs in several locations. The existing system could be improved by increasing system capacity through measures such as upsizing existing storm drain pipes, adding storm drain lines parallel to existing ditches, and reconstructing ditches to increase capacity. Ditches and swales could also be improved to filter sediment and debris from stormwater flows.

LACK OF STORMWATER TREATMENT FACILITIES

The National Pollutant Discharge Elimination System (NPDES), a provision of the Federal Clean Water Act, requires that each new development project resulting in new or replaced impervious surfaces greater than 10,000 square feet (or 5,000 sf for uncovered parking) prepare a Stormwater Management Plan (SWMP) and one acre or larger also prepare a Storm Water Pollution Prevention Plan (SWPPP). The SWMP presents measures for long-term reduction of stormwater pollutants leaving the site. The SWPPP is a document that outlines plans to control storm water pollution during construction. Due to the age of many current developments in the City of Half Moon Bay, very few sites have implemented stormwater treatment on-site. In addition, projects must comply with the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), which requires post construction stormwater controls under Provision C.3 of the Municipal Regional stormwater NPDES permit.

SANITARY SEWER LIMITATIONS

An existing sanitary sewer distribution system maintained by the City of Half Moon Bay, Granada Sanitary District and Sewer Authority Mid-Coastside that includes both major trunk lines and smaller feeder lines. The City-maintained system was recently inspected to identify deteriorated pipes/joints, sags, blockages and tree roots that may be impacting capacity. Sewer main improvements/rehabilitation, flow monitoring, lift station upgrades, and map updates are all items in the FY 2014/15 Capital Improvement Program budget. The Granada Sanitary District has identified inflow and infiltration at locations in its system, and has proposed mitigation through better mapping of the District's collection system followed by field verification of the locations and elevations to identify capacity issues.

ADEQUATE DRY UTILITIES

Existing dry utilities including electric, gas and telecommunications are located within the City of Half Moon Bay. Service for dry utilities are provided by different companies and the distribution systems consist of both overhead and underground utility lines. It is assumed that the current facilities are sufficient to serve the city and that these private utility providers will upgrade their facilities as needed to accommodate all future developments. The dry utility service providers within the city consist of: electric – Pacific Gas & Electric (mostly overhead, with some underground lines); gas – Pacific Gas & Electric (underground piping); and telecommunication – Comcast and AT&T.

10 Noise

This chapter provides background information relating to noise and vibration in Half Moon Bay. A brief summary of noise and vibration concepts is presented to assist the reader in understanding the discussion. The regulatory framework governing noise standards and the preparation of noise elements is provided. Existing conditions were documented through a noise monitoring survey completed by Illingworth & Rodkin for the General Plan update.

10.1 Noise and Vibration Concepts

TERMINOLOGY

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 10-1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Figure 10-1. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night— because excessive noise interferes with the ability to sleep—24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level, CNEL, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The Day/Night Average Sound Level, L_{dn} or DNL, is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

EFFECTS OF NOISE

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior noise standards for residential dwellings are commonly set at 45 dBA DNL/CNEL by jurisdictions in California. Typically, the standard for maximum steady traffic noise level during the daytime is about equal to the DNL/CNEL, and the standard for nighttime levels is 10 dBA lower. The standards are designed for sleep and speech protection, and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA DNL/CNEL with open windows, and 65-70 dBA DNL/CNEL if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of

development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows with Sound Transmission Class (STC) ratings greater than 30 STC.

Annoyance

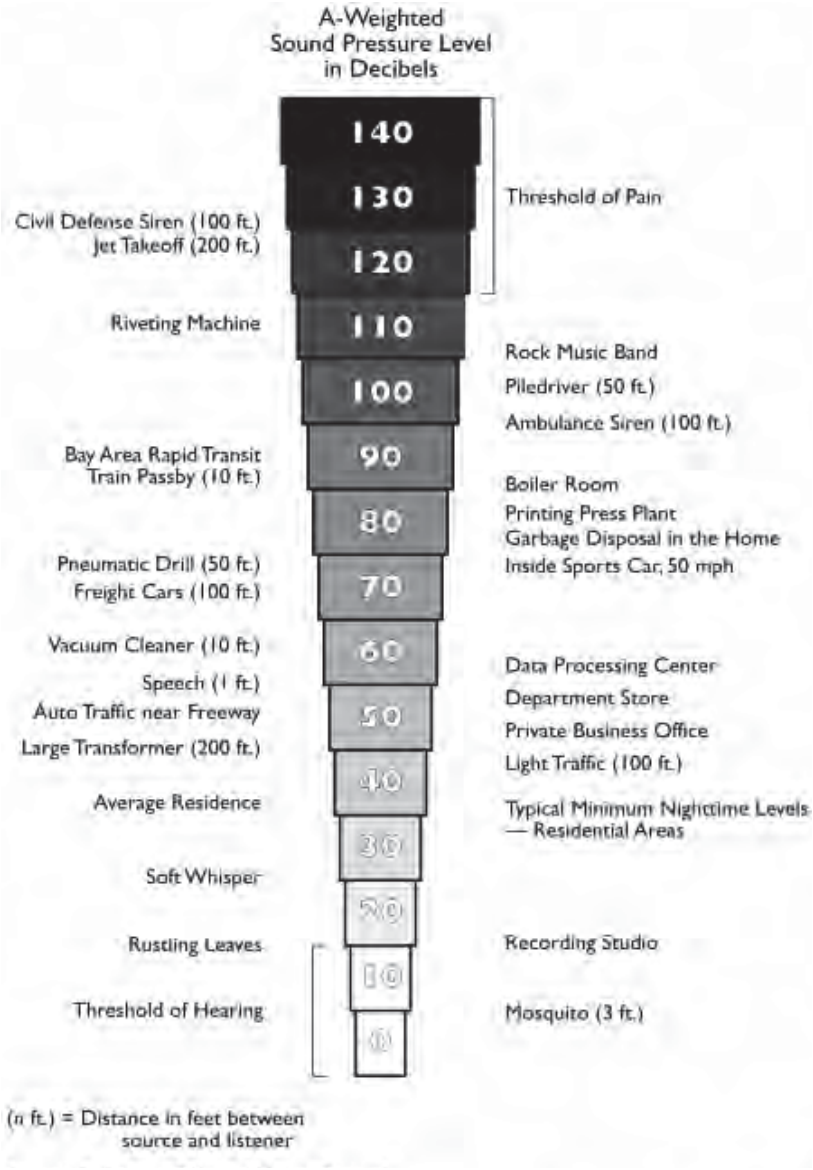
Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio, and television; house vibrations; and interference with sleep and rest. The DNL as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 55 dBA DNL. At a DNL of about 60 dBA, approximately 2 percent of the population is highly annoyed. When the DNL increases to 70 dBA, the percentage of the population highly annoyed increases to about 12 percent of the population. Therefore, there is an increase in annoyance due to ground vehicle noise of about 1 percent per dBA between a DNL of 60-70 dBA. Between a DNL of 70-80 dBA, each decibel increase increases the percentage of the population highly annoyed by about 2 percent. People appear to respond more adversely to aircraft noise. When the DNL due to aircraft noise is 60 dBA, approximately 10 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 2 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase in aircraft noise results in about a 3 percent increase in the percentage of the population highly annoyed.

Table 10-1: Definition of Acoustical Terms Used in this Report

Term	*Definition*
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Figure 10-1 Typical Noise Levels in the Environment



GROUND-BORNE VIBRATION

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal, usually measured in decibels referenced to 1 micro-in/sec and reported in VdB. PPV and VdB vibration velocity amplitudes are used to evaluate human response to vibration.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

In Half Moon Bay, sources of ground-borne vibration include construction activities, heavy trucks, and buses.

Construction Vibration

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction-related ground-borne vibration levels. Because of the impulsive nature of such activities, the peak particle velocity descriptor (PPV) has been used routinely to measure and assess ground-borne vibration, and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of .008 to 0.012 in/sec, PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to a building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity (e.g., impact pile driving) occurs immediately adjacent to the structure.

Table 10-2 displays continuous vibration impacts on human annoyance and on buildings. As discussed previously, annoyance is a subjective measure and vibrations may be found to be annoying at much lower levels than those shown, depending on the level of activity or the

sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Table 10-2: Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	*Human Reaction*	*Effect on Buildings*
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, September 2013.

Vibration from Heavy Trucks and Buses

People's response to ground vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels. The reference velocity is 1 x 10-6 in/sec RMS, which equals 0 VdB, and 1 in/sec equals 120 VdB.

Ground-borne vibration levels from heavy trucks and buses are not normally perceptible, especially if roadway surfaces are smooth. Buses and trucks typically generate ground-borne vibration levels of about 63 VdB at a distance of 25 feet when traveling at a speed of 30 mph. Higher vibration levels can occur when buses or trucks travel at higher rates of speed or when the pavement is in poor condition. Vibration levels below 65 VdB are below the threshold for human perception.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams, and foot traffic. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. Table 10-3 illustrates some common sources of vibration and the association to human perception or the potential for structural damage.

Table 10-3: Typical Levels of Groundborne Vibration

Human/Structural Response	*Velocity Level, VdB*	*Typical Events (50-foot setback)*
Threshold, minor cosmetic damage	100	Blasting, pile driving, vibratory compaction equipment
		Heavy tracked vehicles (Bulldozers, cranes, drill rigs)
Difficulty with tasks such as reading a video or computer screen	90	Commuter rail, upper range
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, occasional events		Commuter rail, typical Bus or truck over bump or on rough roads
Residential annoyance, frequent events	70	Rapid transit, typical
Approximate human threshold of perception to vibration		Buses, trucks and heavy street traffic
	60	Background vibration in residential settings in the absence of activity
Lower limit for equipment ultra-sensitive to vibration	50	

Source: Transit Noise and Vibration Impact Assessment, US Department of Transportation Federal Transit Administration, May 2006.

10.2 Regulatory Framework

The State of California and the City of Half Moon Bay establish regulatory criteria in the form of guidelines, regulations, and policies that are designed to limit noise exposure at noise sensitive land uses. Federal and State Agencies, Appendix G of the State CEQA Guidelines, the City of Half Moon Bay General Plan, and the City of Half Moon Bay Municipal Code present the following:

FEDERAL

Department of Housing and Urban Development (HUD)

HUD environmental criteria and standards are presented in Title 24 of the Code of Federal Regulations (CFR) Part 51. New residential construction qualifying for HUD financing proposed in high noise areas (exceeding 65 dBA DNL) must incorporate noise attenuation features to maintain acceptable interior noise levels. A goal of 45 dBA DNL is set forth for interior noise levels, and attenuation requirements are geared toward achieving that goal. It is assumed that with

standard construction any building will provide sufficient attenuation to achieve an interior level of 45 dBA DNL or less if the exterior level is 65 dBA DNL or less. Approvals in a "normally unacceptable noise zone" (exceeding 65 decibels but not exceeding 75 decibels) require a minimum of 5 decibels additional noise attenuation for buildings if the day-night average is greater than 65 decibels but does not exceed 70 decibels, or minimum of 10 decibels of additional noise attenuation if the day-night average is greater than 70 decibels but does not exceed 75 decibels.

Federal Highway Administration (FHWA)

Proposed federal or federal-aid highway construction projects at a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes require an assessment of noise and consideration of noise abatement per Title 23 of the Code of Federal Regulations, Part 772 (23 CFR Part 772), Procedures for Abatement of Highway Traffic Noise and Construction Noise. FHWA has adopted noise abatement criteria (NAC) for sensitive receivers such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals when "worst-hour" noise levels approach or exceed 67 dBA L_{eq}. Caltrans has further defined approaching the NAC to be 1 dBA below the NAC for noise sensitive receivers identified as Category B activity areas (e.g., 66 dBA L_{eq} is considered approaching the NAC).[1]

STATE OF CALIFORNIA

California Administrative Code Section 65302(f)

California Government Code Section 65302(f) requires that all General Plans include a Noise Element to address noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.
- Commercial, general aviation, heliport, and military airport operations, aircraft flyovers, jet engine tests stands, and all other ground facilities and maintenance functions related to airport operation.
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other stationary ground noise sources identified by local agencies as contributing to the community noise environment.

[1] Traffic Noise Analysis Protocol, Caltrans Division of Environmental Analysis, May, 2011.

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (DNL). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified above.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the State's noise insulation standards.

California Noise Insulation Standards

The State of California established minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings in 1974, and these requirements were implemented through the 2010 California Building Code (Chapter 12, Appendix Section 1207.11). The noise limit was a maximum interior noise level of 45 dBA DNL. Where exterior noise levels exceed 60 dBA DNL, a report was required to be submitted with the building plans describing the noise control measures incorporated into the design of a project to meet the noise limit. The 2014 California Building Code deleted these requirements.

Division of Aeronautic Noise Standards

Title 21 of the California Code of Regulations[2] sets forth the State's airport noise standards. In the findings described in Section 5006, the standard states the following: "A level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep, and community reaction." Based on this finding, the airport noise standard as defined in Section 5012 is set at a CNEL of 65 dB.

California Department of Transportation (Caltrans) – Construction Vibration

Caltrans recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards. A conservative vibration limit of 0.25 to 0.30 in/sec PPV has been used for older buildings that are found to be structurally sound, but cosmetic damage to plaster ceilings or walls is a major concern. For historic buildings or buildings that are documented to be structurally weakened, a conservative limit of 0.08 in/sec PPV is often used to provide the highest level of protection. All of these limits have been used successfully and compliance to these limits has not been known to result in appreciable structural damage. All

[2] California Code of Regulations Airport Noise Standards, Title 21, Public Works Division 2.5, Division of Aeronautics (Department of Transportation), Chapter 6 Noise Standards, Article 1.General.

vibration limits referred to herein apply on the ground level and take into account the response of structural elements (i.e. walls and floors) to ground-borne excitation.

CITY OF HALF MOON BAY

1991 Noise Element of the General Plan

The City of Half Moon Bay's 1991 Noise Element establishes exterior and interior noise levels for noise-sensitive developments affected by transportation-related noise sources. For single-family residential land uses, the City limits interior noise levels to 40 dBA CNEL and exterior noise levels to 60 dBA CNEL. The City limits interior noise levels within institutional land uses including hospitals or school classrooms to 45 dBA CNEL and exterior noise levels to 65 dBA CNEL.

The Noise Element states that the City shall not approve projects that do not comply with the adopted standards, and includes policies addressing a variety of topics, including the need for noise attenuation should Highway 1 be widened, to another policy that states, "The City shall consider the special nature of the Spanish Town commercial area in its land use deliberations. Efforts to maintain low levels of noise in this area should be continued. Continued use of roadway configurations that maintain a slow speed through the area will be most effective in maintaining low levels of noise."

City of Half Moon Bay Municipal Code

The city's Municipal Code contains quantitative noise limits for noise sources within the City of Half Moon Bay based on the land use of the property receiving the noise. Construction hours are limited to between 7:00 a.m. and 6:00 p.m., Monday through Friday, to between 8:00 a.m. and 6:00 p.m. on Saturdays, and to between 10:00 a.m. and 6:00 p.m. on Sundays and holidays (Ord. 14.40.010). The Municipal Code also addresses "unreasonably disturbing noises", general development standards (commercial land use); industrial noise; and noise standards specific to Dykstra Ranch.

10.3 Existing Noise and Vibration Sources

Residential land uses are the predominant land use type in the city, and are considered noise-sensitive land uses. Other noise-sensitive uses include schools, parks, and churches.

NOISE

Ground Transportation-Related Noise Sources

The predominant noise source in Half Moon Bay is motor vehicles. Vehicular traffic on Highway 1 (SR 1) and Highway 92 (SR 92) is the most significant noise source in the city. Highway 1 runs along the central part of the city from north to south. Highway 92 runs through the central eastern portion of the city. Major local roadways include Main Street and Kelly Avenue; vehicle traffic on these roadways is also a source of noise.

Aircraft Noise Sources

The Half Moon Bay Airport is located to the north of the city, in an unincorporated area. There are no private airstrips in the vicinity of the city. The entire Planning Area is outside of any airport protection zones, and the 60 CNEL noise contour from aircraft operations is located well outside Half Moon Bay as well (Half Moon Bay Airport Land Use Compatibility Plan, C/CAG, 2012). While the entire city may be exposed to intermittent airport-related noise from aircraft passing overhead, aircraft noise would generally be lower in level than construction or traffic related noise.

Stationary Noise Sources

No significant sources of commercial or industrial noise were observed in the city. Noise sources that affect sensitive receptors within the community would include commercial land uses or those normally associated with and/or secondary to residential development. These include rooftop and loading dock equipment, entertainment venues, nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-throughs, air conditioning units, swimming pool pumps, school playgrounds, athletic and music events, and public parks.

Temporary Noise Sources

Construction is a temporary source of noise for residences and businesses located near construction sites. Construction noise can be significant for short periods of time at any particular location as a result of public improvement projects, private development projects, remodeling, etc. The highest construction noise levels are normally generated during grading and excavation, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy construction periods. Some construction techniques, such as impact pile driving, can generate very high levels of noise (105 dBA L_{max} at 50 feet) that are difficult to control. Construction activities can elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more.

VIBRATION

Transportation-Related Vibration Sources

No fixed railroad lines pass through Half Moon Bay. Transportation-related ground vibration would only occur in Half Moon Bay from heavy truck pass-bys on Highway 1, Highway 92, and occasionally on other major local roadways. The resulting vibration levels at the nearest receivers are normally below the threshold of perception.

Temporary Vibration Sources

Construction activities such as demolition, site preparation work, excavation, and foundation work can generate ground-borne vibration at land uses adjoining construction sites. Impact pile driving has the potential of generating the highest ground vibration levels and is of primary

concern to structural damage. Other project construction activities, such as caisson drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) can generate substantial vibration levels in the immediate vicinity.

10.4 Noise Measurement Survey

A noise measurement survey was completed to establish existing noise levels in the City of Half Moon Bay. There were several purposes for the noise measurements. Long-term measurements made hour by hour over a period of 24 hours or more provide information on how noise levels vary throughout the day and night. A series of attended short-term measurements were also made, allowing the person attending the measurements to identify the noise sources and note the level of noise associated with these identifiable events. This assists in quantitatively and qualitatively characterizing the noise environments along the major roadways, and also in the quieter areas of the city.

The State Office of Planning and Research Guidelines related to the preparation of the Noise Element of the General Plan mandate that noise exposure levels be prepared in terms of the day/night average sound level (DNL) or the community noise equivalent level (CNEL). Both of these descriptors were described previously and represent the 24-hour average noise level with weighting periods for the daytime (DNL) or the daytime and evening (CNEL). CNEL is used in this report to characterize the 24-hour average noise exposure level. It is also important to know how noise levels vary within each hour of the day and night. For this purpose, standard acoustical descriptors were measured and reported. These standard statistical descriptors are the L_{max}, the L_{10}, the L_{50}, and the L_{90}. The L_{max} noise level is the highest noise level during the interval and the L_{10}, L_{50}, and L_{90} represent sound levels exceeded 10 percent, 50 percent (the median level), and 90 percent of the time interval (representing the background noise levels). The L_{50} corresponds to the noise limit in the Noise Ordinance. The hourly equivalent sound level (L_{eq}), the basis for the day/night average noise levels, was measured and reported for each hour as well.

Existing noise conditions were documented through an ambient noise monitoring survey completed in April and May 2013. The noise monitoring survey included three long-term (24-hour durations) noise measurements to quantify the daily trend in noise levels at representative receptor locations, and eight short-term noise measurements (10 minute durations), which documented noise levels in areas of interest during specific time periods. Noise measurement locations are shown on Figure 10-2. During the noise survey, weather conditions were moderate in terms of temperature and wind. The noise survey was conducted with Larson Davis Laboratories Type 820 precision sound level meters. Instrumentation was calibrated at the beginning of the noise survey and post calibrated at the end of the survey. No calibration corrections were necessary. During the survey, the microphones were fitted with windscreens.

Noise measurement location LT-1 was selected near Highway 1 at the intersection of Poplar Street and 4th Avenue to quantify ambient noise levels at sensitive residential receivers located adjacent to Highway 1. The noise measurement was performed from 11:00 AM on April 30, 2013 to 11:00 AM on May 1, 2013. Hourly average noise levels ranged from 61 to 68 dBA L_{eq} during the day, from 58 to 62 dBA L_{eq} in the evening, and from 50 to 68 dBA L_{eq} at night. The Community Noise

Equivalent Level measured at this site was 67 dBA. Chart 10-1 summarizes noise data collected at this site.

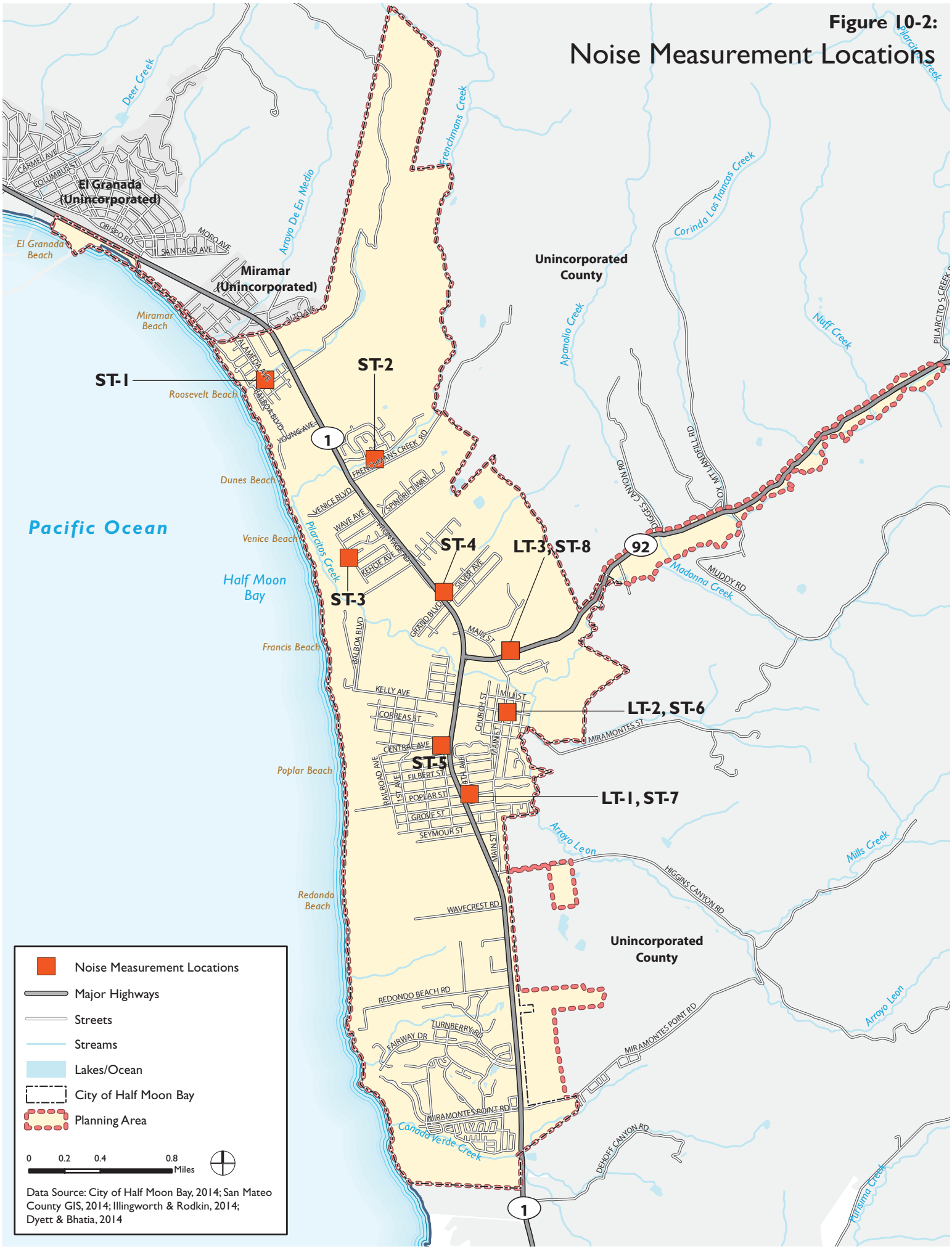
Location LT-2 was near the intersection of Main Street and Kelly Avenue in downtown Half Moon Bay. The noise measurement was performed from 11:00 AM on April 30, 2013 to 11:00 AM on May 1, 2013 to quantify existing ambient noise levels near the downtown area of the city. Hourly average noise levels ranged from 60 to 64 dBA L_{eq} during the day, from 53 to 63 dBA L_{eq} in the evening, and from 53 to 68 dBA L_{eq} at night. The Community Noise Equivalent Level measured at this site was 67 dBA. These data are summarized in Chart 10-2.

Noise measurement LT-3 was located approximately 32 yards from the centerline of Highway 92. This site was selected to quantify ambient noise levels near Highway 92. The noise measurement was performed from 11:00 AM on April 30, 2013 to 11:00 AM on May 1, 2013 as summarized in Chart 10-3. Hourly average noise levels ranged from 63 to 65 dBA L_{eq} during the day, from 60 to 63 dBA L_{eq} in the evening, and from 58 to 66 dBA L_{eq} at night. The Community Noise Equivalent Level measured at this site was 69 dBA.

Short-term noise measurements were made at eight locations during the noise monitoring survey. Data collected during these measurements are summarized in Table 10-4.

Figure 10-2:

Noise Measurement Locations



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Chart 10-1: Noise Levels at Site LT-1

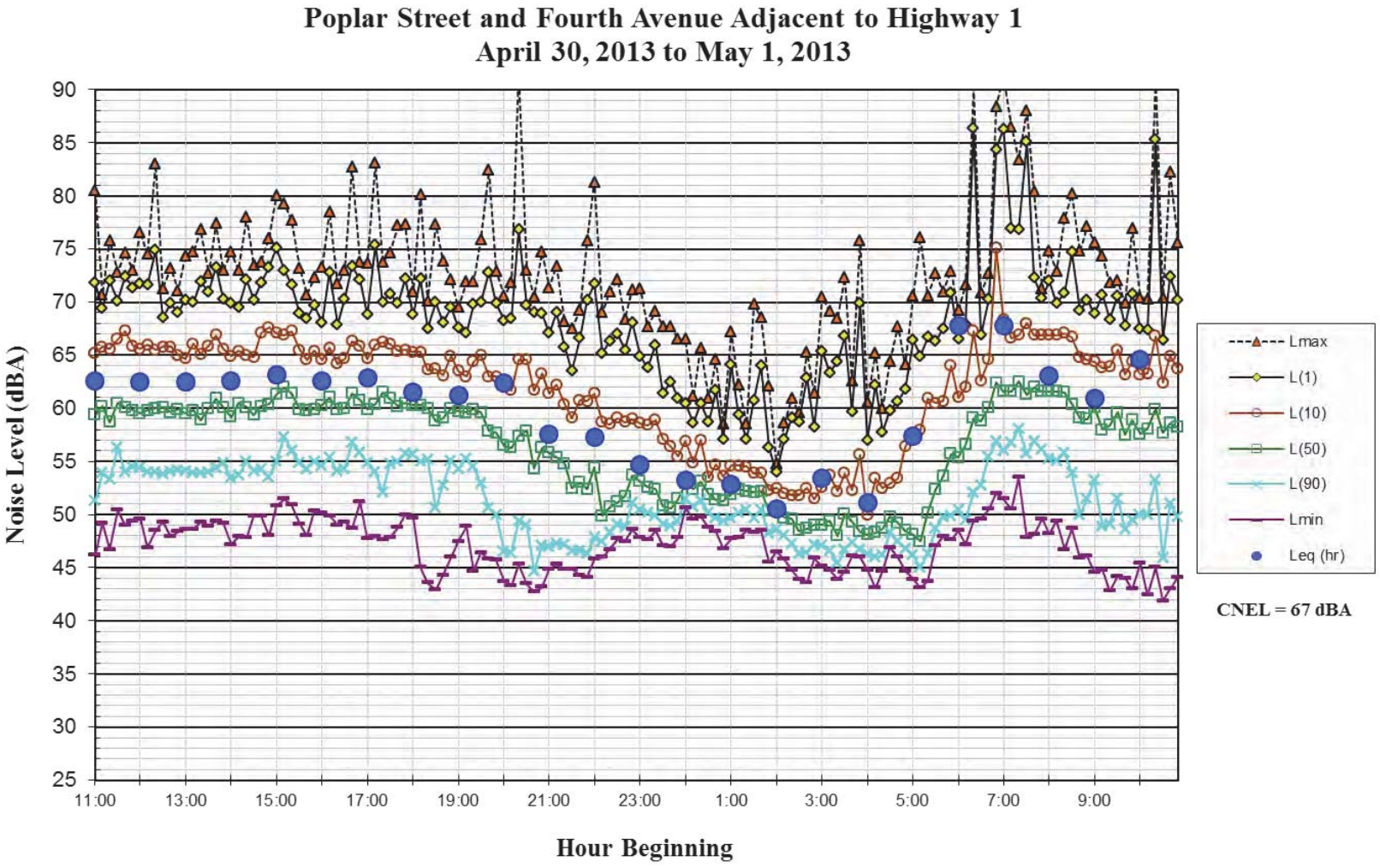


Chart 10-2: Noise Levels at Site LT-2

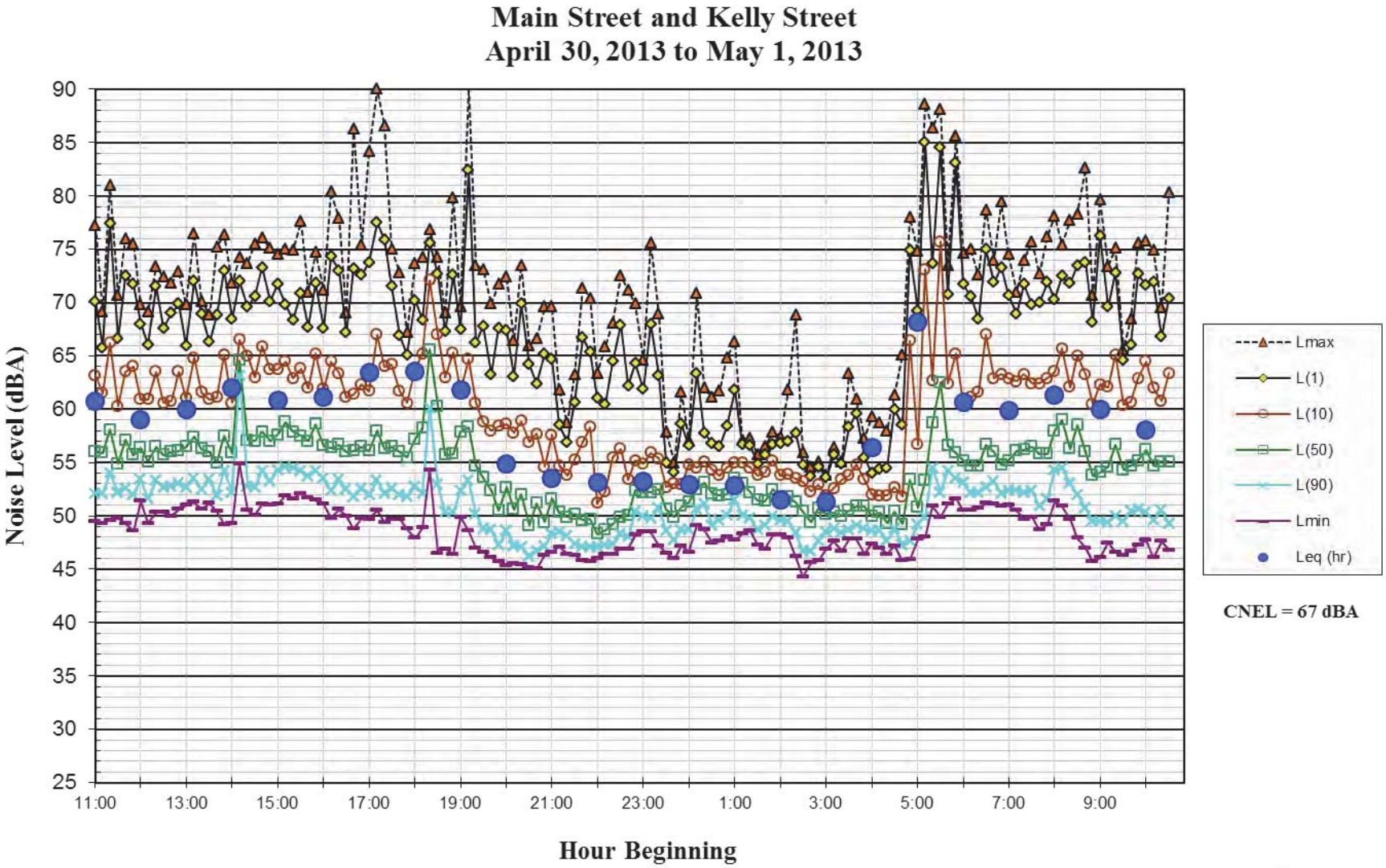


Chart 10-3: Noise Levels at Site LT-3

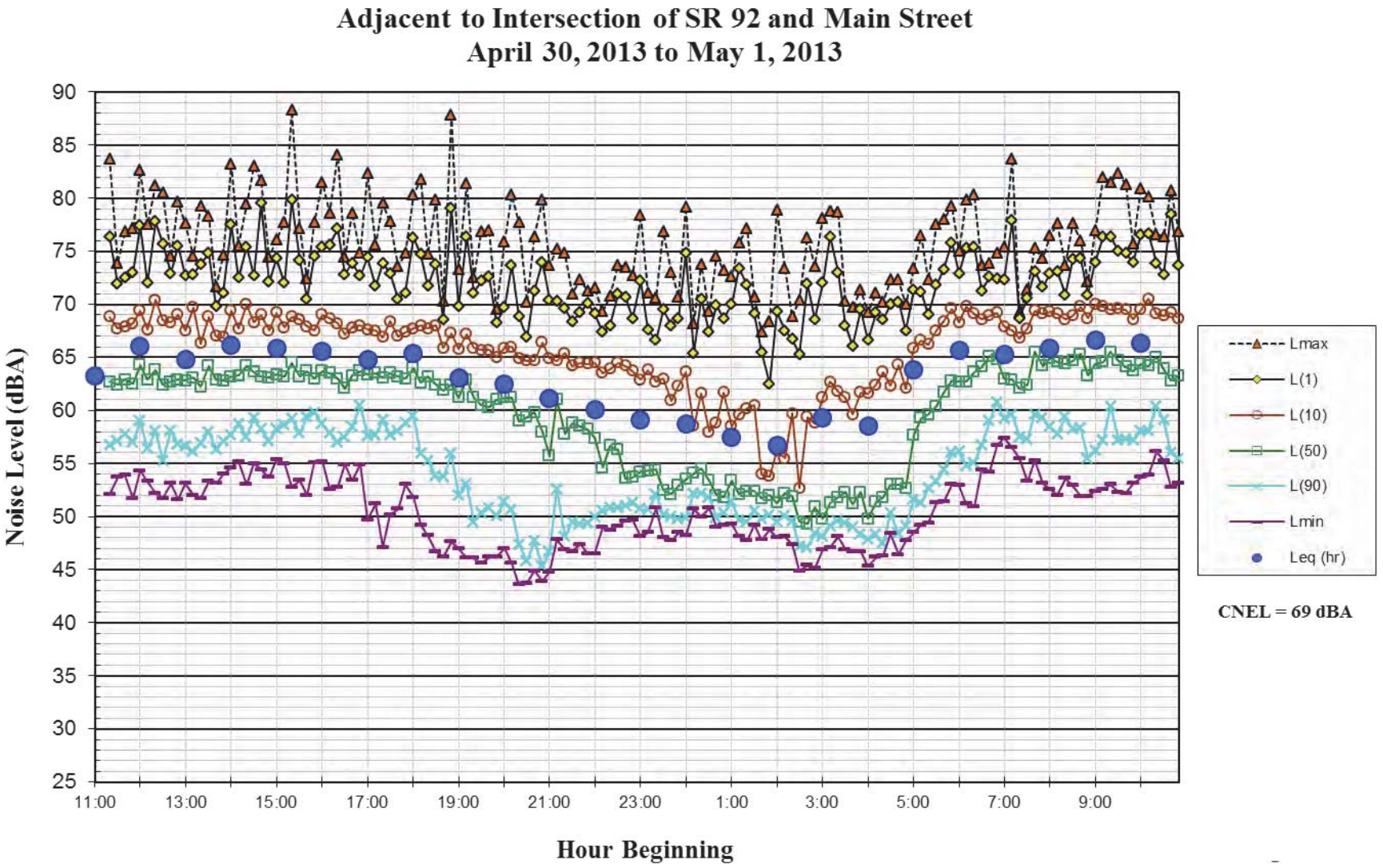


Table 10-4: Summary of Short-Term Noise Measurement Data

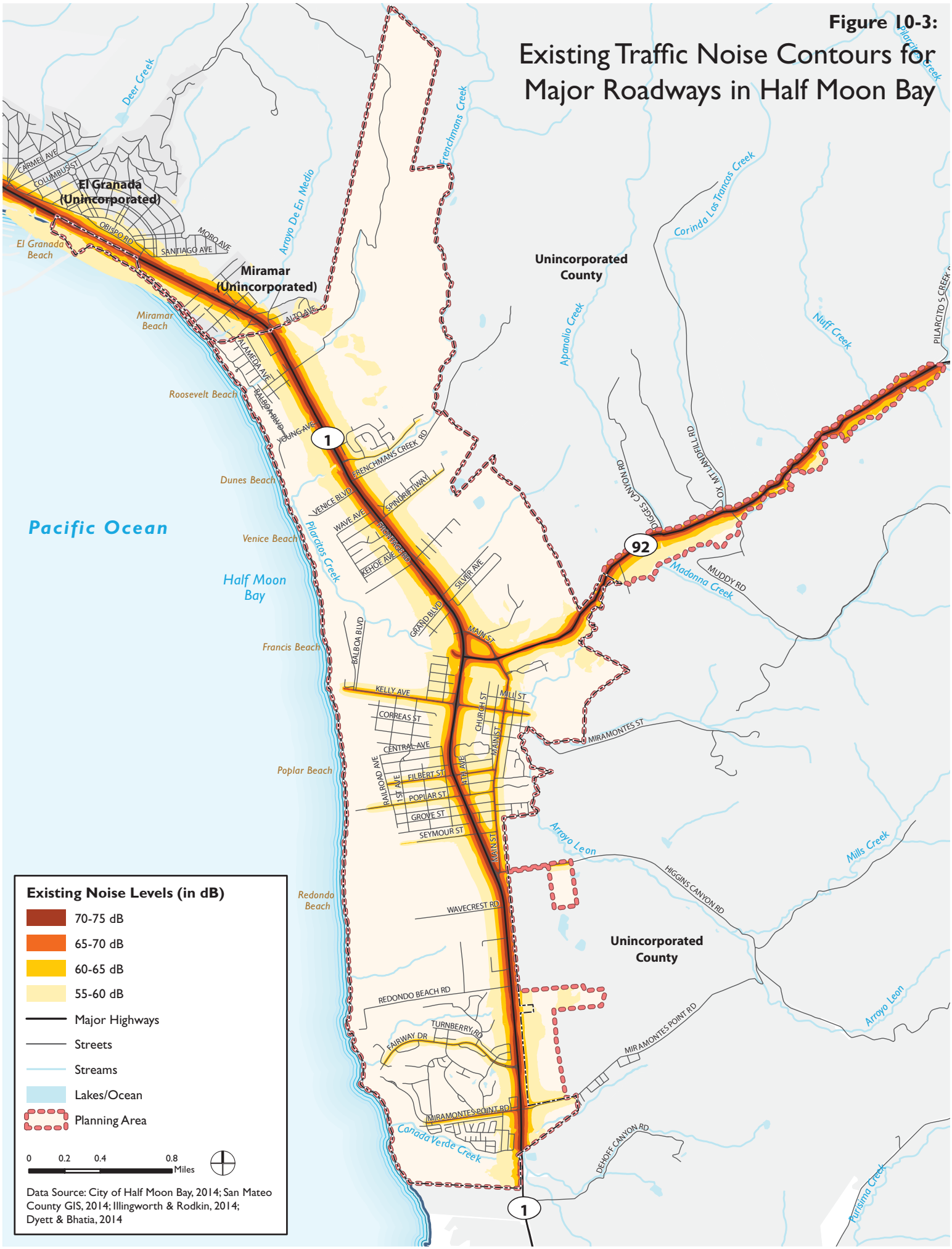
Location	*Date/Time*	*A-Weighted Noise Level (dBA)*				
		L_{eq}	L_{01}	L_{10}	L_{50}	L_{90}
ST-1: Front of 2907 Alameda Avenue.	04/30/13 12:00 PM	53	64	55	48	46
ST-2: Children's play area of Frenchmans Creek Park.	04/30/13 1:00 PM	53	59	54	53	51
ST-3: Front of 848 Pilarcitos Avenue, near entrance to beach trails.	04/30/13 1:30PM	50	58	50	49	48
ST-4: Front of 502 Terrace Avenue, ~40 yards from the centerline of Highway 1.	04/30/13 2:00 PM	69	77	72	68	62
ST-5: Southern field of Alvin Hatch Elementary School, also adjacent to residence at 601 Third Avenue, ~100 yards from Highway 1.	04/30/13 2:40 PM	52	59	55	51	49
ST-6: Intersection of Main Street and Kelly Avenue.	05/01/13 10:20 AM	57	69	60	54	50
ST-7: Intersection of Poplar Street and Fourth Avenue, ~65 yards from the centerline of Highway 1.	05/01/13 10:50 AM	60	71	62	55	47
ST-8: Adjacent to Highway 92, near the intersection of Highway 92 and Main Street ~32 yards from the centerline of Highway 92.	05/01/13 11:20 AM	64	72	68	61	55

10.5 Noise Exposure Maps

SoundPLAN Version V7.3, a three-dimensional ray-tracing computer program, was used to calculate traffic noise levels along major roadways in Half Moon Bay. The noise map prepared based on existing conditions is shown on Figure 10-3. Calculations account for the source of noise, the frequency spectra of the noise source, and the topography of the area. Existing peak hour traffic volume data and travel speeds were also input into the model. The predicted noise levels were then compared to measured noise levels for calibration purposes and adjustments were made as necessary to create an accurate model of CNEL noise conditions.

Figure 10-3:

Existing Traffic Noise Contours for Major Roadways in Half Moon Bay



Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; Illingworth & Rodkin, 2014; Dyett & Bhatia, 2014

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Appendix A: Comments Received on June 2014 Report

Appendix A: Table of Contents

J.C. "Chris" Orman, July 2, 2014 ..... A-1

Diane Johnson, July 6, 2014 ..... A-3

Jo Chamberlain, July 7, 2014 ..... A-5

John T. Callan, July 8, 2014 ..... A-23

Sara Polgar, July 8, 2014 ..... A-29

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Wednesday, July 02, 2014 12:31 PM

Dear Scott,

Thank you for the opportunity to review the Plan Half Moon Bay report, "Existing Conditions, Trends, and Opportunities Assessment, June 2014, Preliminary Review Draft," while at City Hall yesterday.

On the basis of this review, we are writing to recommend the following--that all paper streets west of Pilarcitos Ave. in Half Moon Bay depicted in this report be deleted from further consideration in the comprehensive planning process being undertaken by the City of Half Moon Bay. These undeveloped paper streets are located within Half Moon Bay State Beach and are presently zoned as OS-P Open Space – Passive by the City.

For the same reasons, we recommend that an undeveloped extension of Beach Ave. to the west of Pilarcitos Ave., be deleted.

As residents of Half Moon Bay, we apologize for missing the GPAC meeting last night due to conflicting time demands. We appreciate your offer to forward our recommendations to appropriate parties involved with the Plan Half Moon Bay effort.

Please call or email if you have any questions or concerns. Thank you.

Sincerely yours,

J.C. "Chris" Orman
Nanette H. Orman, M.D.

820 Pilarcitos Avenue
Half Moon Bay
(650) 726-7750

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Sunday, July 06, 2014 2:32 PM

Bruce and Dante

As I mentioned at the last meeting, the current conditions for Section 9.3 for drainage are incomplete. The following additional information should be added to the section so that the planning encompasses the issues.

Currently, there are two drainage ditches owned by a patchwork of private owners that are responsible for a significant portion of the stormwater drainage for the city. These ditches are the Kehoe and Roosevelt ditches. The ditches are poorly maintained, which creates flooding during heavy storms. In addition, there is a house built over the Roosevelt ditch creating additional issues at this location. There is an opportunity to address these issues in the overall drainage plan for the long term.

Regards,

Diane Johnson

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GPAC

Jo Chamberlain

PLANNING DEPT
JUN 17 2014
RECEIVED

Doc corrections & Additions.

PLANNING DEPT.
JUN 17 2014
RECEIVED

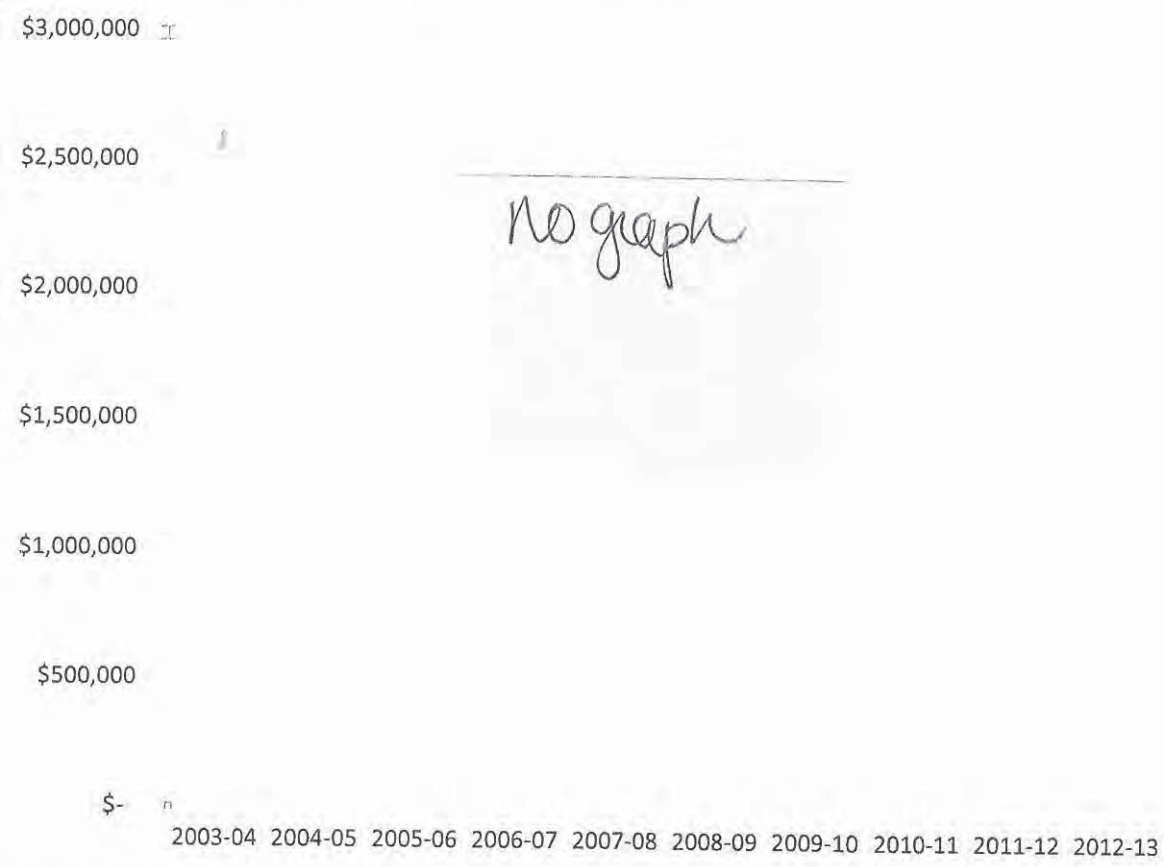
Add: Campgrounds
Both RV & Tent

add: Sealevel rise & resulting
Coastal Erosion

add: Pilarcitos Trail
Francis Beach to Main
w link to Kelly

Retail sales tax revenue in Half Moon Bay reveals a strong recovery from the deep recessionary period experienced in 2008 and 2009.[14] Sales tax revenue has increased at an average annual rate of about 5.3 percent between 2004 and 2012 (unadjusted for inflation), almost 3 percentage points above average annual inflation of 2.5 percent.

Figure 25 Sales Tax Revenue Trend (nominal)



Source: City of Half Moon Bay

[14] It is important to note that the 2012-2013 data reflect a ½-cent increase in the final quarter of FY12-13. This increase explains, to some degree, the steep revenue increase in revenue over FY11-12. Note that the ½-cent increase is a three-year increase with revenue earmarked for capital projects.

9 Recreation and Coastal Access

9.1 Coastal Access

In general, coastal access in Half Moon Bay is in good condition, though there is room for improvement and expansion. The trail system and parking infrastructure eases access along the northern beaches, though the paved trail is interrupted near the Wavecrest site. Some potential improvements to the bluffs along Poplar Beach were identified, including a separate access for equestrian use and improved pedestrian access to the beach. Parking is considered adequate at Poplar, though there has been discussion about adding more.

Access in the southern portion of the city is more of a concern, as parking becomes more limited and the bluffs become more prominent. At one time, the owner of the golf links was asked to build beach access at Redondo Beach Road as a condition of a cease and desist order for placing unauthorized riprap. Due to feasibility concerns, the location of the access point was moved next to the Halstead property. The project was dropped after the Halstead property claimed a takings.

9.2 Recreation

According to the interviews, the city has a deficit of recreation facilities and services. Though the Coastside as a whole contains a large amount of public park land, little of it is located in Half Moon Bay. Neither the City nor the County maintains many recreational facilities that are easily accessible to the Half Moon Bay community, with the exception of Smith Field.

Interviewees explained that the majority of the recreational facilities in the city are owned and maintained by the school district, and that they are used extensively by students and the public. The facilities are well-maintained, but the district has been unable to fund installation and maintenance on its own, instead relying on private donations. Even with the district's facilities, there is additional demand for more playfields. Even with soccer fields at Cunha Middle School and a general-purpose field at Hatch Elementary, and facilities at El Granada (a County school), it can be difficult to schedule all the sports organizations that need field time. The school district also owns the only public pool on the Coastside. CUSD's master plan includes plans to build a new pool at Half Moon Bay High School, but the project has not been funded yet. Even with its facilities, there are some demands that the school district is unable to meet, such as the community's need for a dedicated dog park.

Stakeholders expressed a desire for the City to devote more resources to public and recreational spaces, as well as provide more recreation services. However, it was recognized that the City has very little money in its budget to devote towards the Parks and Recreation Department. In fact,

3. TOURISM AND HOSPITALITY USES

The Coastside region of San Mateo County, including the City of Half Moon Bay and surrounding unincorporated communities, is a popular recreation and tourism destination for day and overnight, leisure and business visitors. The Half Moon Bay Coastside Chamber of Commerce and Visitors' Bureau estimates that there were nearly 3.8 million visits to the region in 2012, with over 60 percent coming from Northern California. Coastal San Mateo County also is a common stop for domestic and international visitors traveling California's famed State Route 1 Pacific Coast Highway.

The Coastside region is host to a variety of events each year, from weddings and conferences to special events such as the Pumpkin Festival, Mavericks Invitational international surf competition, and the Dream Machines show. Even with the significant tourism present in the Coastside region today, a Sunset Magazine article recently suggested that "the San Mateo County stretch of Highway 1 is its most underrated. Unjustly."[6] If growth can be accommodated in Half Moon Bay, there is great market potential to grow the tourism economy there.

The Coastside region offers visitors a variety of recreational activities, including:

- Beach recreation and surfing
- Boating, fishing, whale watching
- Hiking, walking, sightseeing
- Spas and yoga
- Golf
- Farm visits and farmers markets
- Horseback riding
- Dining
- Shopping
- Music, theater, events

Horse show / dog park



A diversity of hotels, restaurants, and shops draw tourists to the Half Moon Bay area. In particular, the historic downtown, which features a wide range of boutique retail stores, restaurants, cafes, and unique accommodation facilities, draws tourists in large numbers. The Half Moon Bay State Beach is located within walking distance of downtown as is a concentration of overnight accommodations. There are coastal walking trails and other popular beaches for surfing, bird watching, and numerous other activities.

Anecdotal information from the Half Moon Bay Airport suggests that the airport is increasingly a "destination airport" for recreational aviation. There is significant "fly-in activity" that generates visits to Half Moon Bay businesses, including restaurants, shops, and Johnson Pier. The FAA estimates that the airport supports 40,000 to 60,000 runway uses (i.e., takeoffs and landings) per year, including air ambulance/medevac, law enforcement/homeland security, Coast Guard,

[6] Ultimate California Highway 1 Road Trip, Sunset Magazine, 2013.

Figure 3-7:
Existing PUD

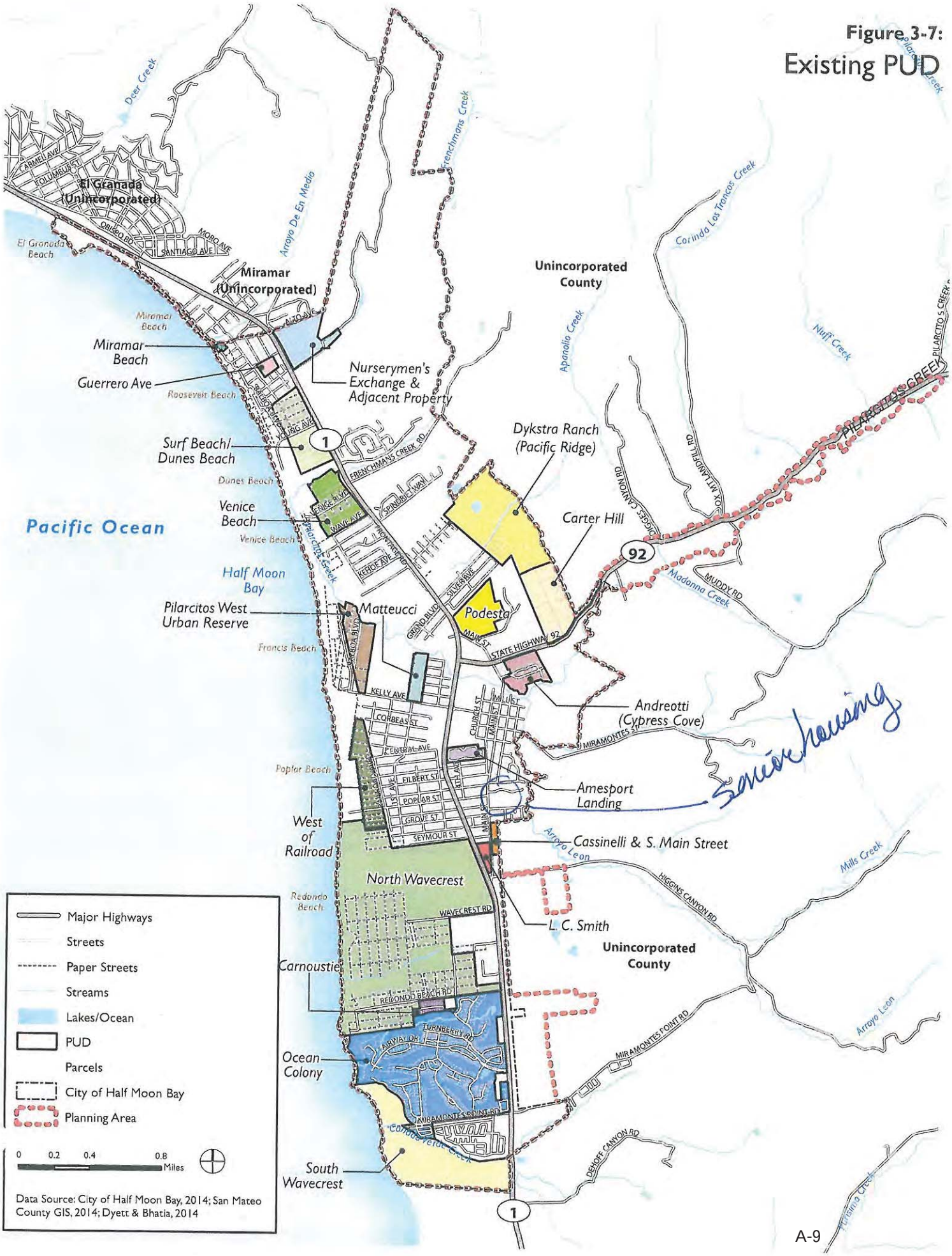


Figure 4-2:
Existing and Planned Bicycle Facilities



Figure 4-5:
Coastal Access Points



Section 30233. Diking, filling or dredging; continued movement of sediment and nutrients

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for these purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where the improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

Figure 5-3: Special-Status Animals and Critical Habitat




Figure 5-4:
Surface Waters and Watershed
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
Pacific Ocean
Half Moon Bay
Deer Creek
Locks Creek
Arroyo De En Medio
Frenchmans Creek
Apanolio Creek
Nuff Creek
Pilarcitos Creek
Roosevelt Creek
Frenchmans Creek
Pilarcitos Creek
Madonna Creek
Mills Creek
Arroyo Leon
Seymour Drainage
Wavecrest Ditch
Kehoe Ditch
Redondo Beach
Dunes Beach
Venice Beach
Miramar Beach
El Granada Beach
Roosevelt Beach
Poplar Beach
Surface Water Type
Fluvial Natural
Fluvial Unnatural
BAARI Mapped Wetlands*
Additional Wetlands**
Watershed
CalWater Hydrologic Area (HA) Boundary
Sub Basin Boundaries
Major Highways
Streets
City of Half Moon Bay
Planning Area
**This area is identified as a wetland in the California Coastal Commission Permit and Appeal Jurisdiction map for Half Moon Bay
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; USGS National Hydrography Dataset; Calwater 2.2.1 Dataset; Bay Area Aquatic Resource Inventory (BAARI); SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014
*Areas shown as wetlands were mapped using data from the Bay Area Aquatic Resources Inventory (BAARI) as part of the Wetland and Riparian Area Monitoring Program. The data was created using remotely-sensed imagery and ancillary data sources, and may require additional verification.

Figure 5-6:
Known and Potential Contaminated Sites



Table 5-5: Dams with the Potential to Inundate the Planning Area

Dam	*Dam Height (feet)[1]*	*Dam Capacity (acre-feet)[1]*	*Inundation Area within Planning Area (acres)[2]*	*Total Size of Population Affected by Inundation Area[1,3]*
Johnston	27	30	N/A	100
Pilarcitos	103	3100	247	300

1. Source: San Mateo County General Plan, Chapter 15 Natural Hazards, 1985.
2. Source: ABAG, 2014b. Includes 176 acres of urban land and 72 acres of non-urban land.
3. Based on 1983 population and build-out data.

Climate Change and Sea Level Rise

Climate change is generally expected to increase the frequency and severity of certain hazards, including flooding and wave damage. The adopted LHMP and associated mapping identifies that sea level rise in the Planning Area is primarily contained to areas along the coast resulting in more instances of shallow coastal flooding. Overall socioeconomic vulnerability to sea level rise of the Planning Area is low.[47] Climate change has not been directly linked to any specific disaster events. Sea level rise will be an ongoing issue for the Planning Area, and the City and surrounding jurisdictions are working at both the state and local level to reduce emissions generally thought to contribute to climate change, while planning communities to anticipate risks related to sea-level rise and other hydrologic hazards. Sea level rise estimates have been adopted by ABAG, and are currently under consideration by the California Coastal Commission.[48]

Stormwater Management

As discussed in this section, the City operates and maintains a storm drainage system. Stormwater is generally conveyed via the system to various surface waters or outfalls along the coastal bluffs that discharge to the ocean. Stormwater has been found to contribute various pollutants to the waters of the region. The City Department of Public Works conducts various maintenance activities to reduce pollutant loads (street sweeping, cleaning catch basins and storm lines, and removing material from drainage channels). The City as well as new development within the Planning Area must also comply with the requirements of the SMCWPPP. Details regarding stormwater management are included in this chapter, as well as within Chapter 9.3 of this report.

Atypical Conditions

There is anecdotal evidence of non-conforming uses and atypical waste or water disposal conditions in the Planning Area, including inadequate hydrocarbon filters, storage of potentially hazardous materials, and discharge of pollutants into the city drainage system.

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[47] ABAG, 2014, Sea Level Rise and Coastal Flooding Impacts Map, Accessed 1/24/2014 at http://www.csc.noaa.gov/slr/viewer/#.

[48] California Coastal Commission, 2013. Public Review Draft Sea Level Rise Policy Guidance.

EXISTING POTABLE WATER DEMAND

Coastside County Water District's baseline per capita water use in 2010 was 128 gallons per capita per day (gpcd) according to the 2010 Urban Water Management Plan. In order to comply with the Water conservation Act of 2009, CCWD's target per capita water use is 120 gpcd by 2020. The District's water demand in 2010 was approximately 2,265 acre-feet per year (afy) and is projected to reach 3,149 afy by 2035.

The District plans to meet the 2035 water demand projection with 730 AFY from Denniston Creek, 150 AFY from Pilarcitos well field, and 2,269 AFY from the SFPUC. The District is currently entitled to purchase approximately 2,455 afy from the SFPUC. This entitlement will not be increased before 2018, and because availability of additional water from SFPUC after 2018 is uncertain, the District assumes for planning purposes that this supply will not be increased. If CCWD were to purchase its remaining volume of water from SFPUC to supply the City of Half Moon Bay, there would be approximately 916 AFY of additional water supply available through 2035.

EXISTING SYSTEM DEFICIENCIES

In April 2011 Coastside County Water District adopted a Water Shortage Contingency Plan providing a response plan in the event of prolonged drought, water supply shortages or emergency outages. During normal year comparison CCWD's water supplies are adequate to meet projected demands. CCWD currently has an ongoing pipeline replacement program to replace sections of old and damaged pipelines with new ductile iron pipelines to reduce leaks and minimize losses throughout the system.[4]

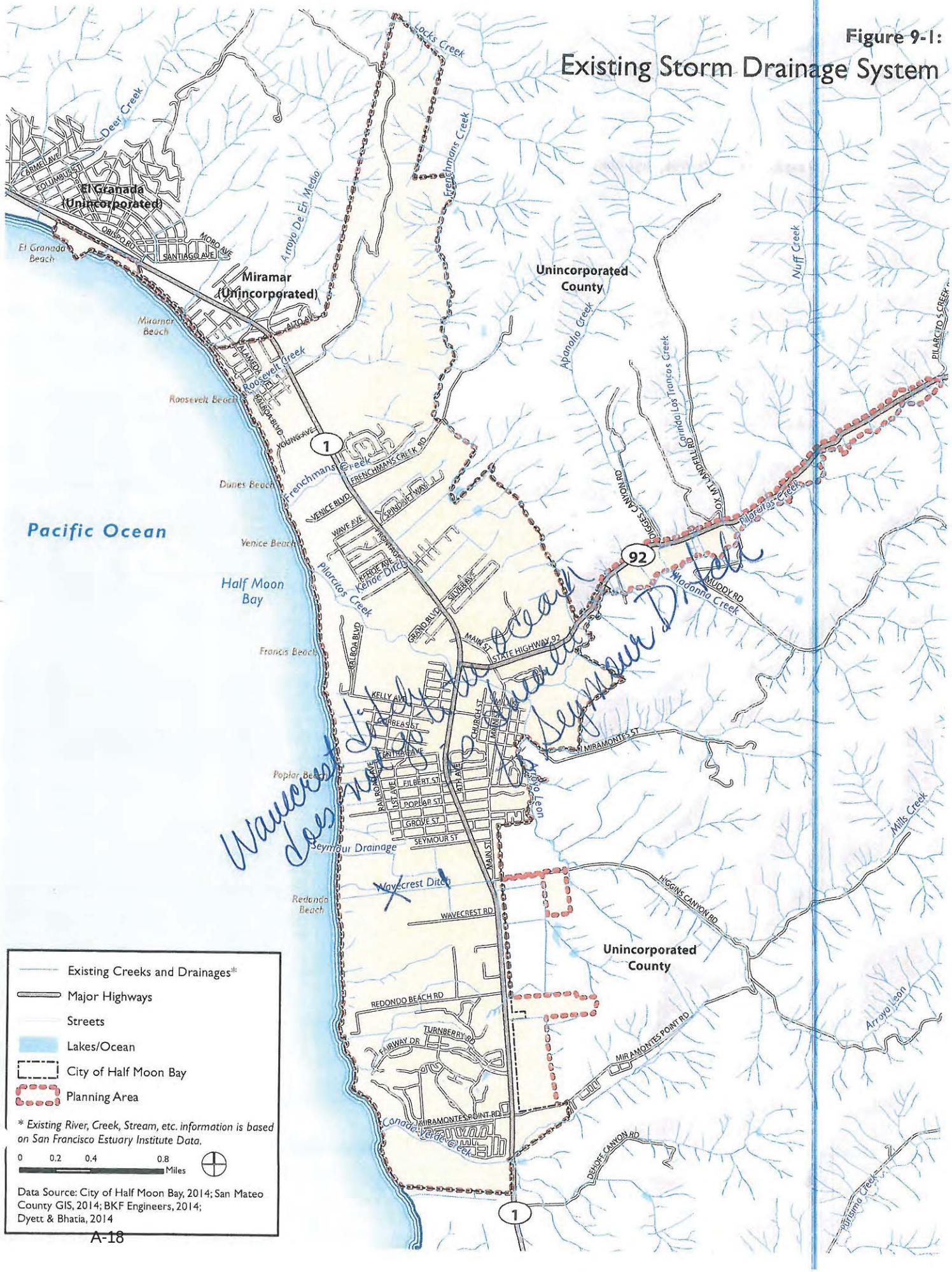
POTENTIAL WATER SYSTEM IMPROVEMENTS

CCWD has several options to reduce existing water use through conservation and to increase water supply sources. These include, but are not limited to the following:

- Implementation of Best Management Practices (residential water surveys, plumbing retrofit, system water audits, etc.), high efficiency toilet rebate programs, lawn replacement programs and residential audits.
- Groundwater studies for the Midcoast area to identify the groundwater yield that may be safely taken. This study could eventually lead to the development of a Groundwater Management Plan (GWMP).
- The District may consider seawater desalination as a long-term option for water supply. However, at this time the District has concluded that water desalination would not be cost-effective.
- New well fields, well field improvements, creek diversion structures, pump stations, pipelines, and expansions to water treatment plants.

Santa Cruz purchases Loma for 50¢ a lb — Same like a nice Solution.

[4] West Yost Associates, "Coastside County Water District 2010 Urban Water Management Plan Update", June 2011.


Figure 9-1:
Existing Storm Drainage System
Pacific Ocean
El Granada (Unincorporated)
Miramar (Unincorporated)
Unincorporated County
Unincorporated County
Half Moon Bay
El Granada Beach
Miramar Beach
Roosevelt Beach
Dunes Beach
Venice Beach
Francis Beach
Poplar Beach
Redondo Beach
Deer Creek
Locks Creek
Arroyo De En Medio
Frenchmans Creek
Roosevelt Creek
Frenchmans Creek
Pilarcitos Creek
Apanolio Creek
Corinda Los Trancos Creek
Nuff Creek
Pilarcitos Creek
Madonna Creek
Mills Creek
Arroyo Leon
Seymour Drainage
Wavecrest Ditch
Kehoe Ditch
Canada Verde Creek
Wavecrest Ditch does not drain to the Seymour Ditch
Existing Creeks and Drainages*
Major Highways
Streets
Lakes/Ocean
City of Half Moon Bay
Planning Area
* Existing River, Creek, Stream, etc. information is based on San Francisco Estuary Institute Data.
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; BKF Engineers, 2014; Dyett & Bhatia, 2014

The Sewer Authority Mid-Coastside owns and operates an 8-mile stretch of transmission main, also known as the Intertie Pipeline System (IPS). Four main lift stations are used to connect to the three member agencies' sewer distribution systems to the SAM Treatment Plant. Approximately 1.8-miles of the IPS are gravity mains, while the remaining portion is force main.

EXISTING SEWAGE TREATMENT CAPACITY

The wastewater treatment plant's current capacity is 4.0 MGD in ADWF. The 2008 Sewer System Management Plan indicates the treatment plant's current ADWF is 1.7 MGD. Biochemical Oxygen Demand (BOD) and Suspended Solids are the parameters used to evaluate the treatment capacity required at the SAM treatment plant. For any development project proposed in the City of Half Moon Bay, the average daily flow would be based on the net increase produced by the site redevelopment and adjusted for BOD and suspended solids.

EXISTING SYSTEM DEFICIENCIES

SAM, the City of Half Moon Bay, and the Granada Sanitary District have an ongoing capacity management program to address hydraulic capacity issues within their district limits. The Intertie Pipeline System that conveys wastewater from Granada Sanitary District to the SAM Treatment Plant has had capacity issues, including surcharge in some manholes, during heavy rain periods in the past.

The City of Half Moon Bay sewer collection system generally has adequate capacity to serve current levels of flow. The City has initiated a sewer system study to identify existing system deficiencies and prioritize improvements necessary to accommodate peak period flows. The City has also completed a tv/video inspection of the 37 miles of sewer mains to help identify locations causing capacity issues due to deteriorated pipes/joints, sags, blockages and tree roots. Sewer main improvements/rehabilitation, flow monitoring, lift station upgrades, and map updates are all items in the FY 2014/15 Capital Improvement Program budget.

The Granada Sanitary District has performed a sanitary sewer monitoring program that identified inflow and infiltration at locations in the District's collection system. Part of the proposed mitigation measures for these locations include better mapping of the District's collection system followed by field verification of the locations and elevations to identify capacity issues.

Sewer plant is in flood & tsunami zone.

Aircraft Noise Sources

The Half Moon Bay Airport is located to the north of the city, in an unincorporated area. There are no private airstrips in the vicinity of the city. The entire Planning Area is outside of any airport protection zones, and the 60 CNEL noise contour from aircraft operations is located well outside Half Moon Bay as well (Half Moon Bay Airport Land Use Compatibility Plan, C/CAG, 2012). While the entire city may be exposed to intermittent airport-related noise from aircraft passing overhead, aircraft noise would generally be lower in level than construction or traffic related noise.

Stationary Noise Sources

No significant sources of commercial or industrial noise were observed in the city. Noise sources that affect sensitive receptors within the community would include commercial land uses or those normally associated with and/or secondary to residential development. These include rooftop and loading dock equipment, entertainment venues, nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-throughs, air conditioning units, swimming pool pumps, school playgrounds, athletic and music events, and public parks.

Temporary Noise Sources

Construction is a temporary source of noise for residences and businesses located near construction sites. Construction noise can be significant for short periods of time at any particular location as a result of public improvement projects, private development projects, remodeling, etc. The highest construction noise levels are normally generated during grading and excavation, with lower noise levels occurring during building construction. Large pieces of earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 to 85 dBA measured at a distance of 50 feet from the site during busy construction periods. Some construction techniques, such as impact pile driving, can generate very high levels of noise (105 dBA L_{max} at 50 feet) that are difficult to control. Construction activities can elevate noise levels at adjacent businesses and residences by 15 to 20 dBA or more.

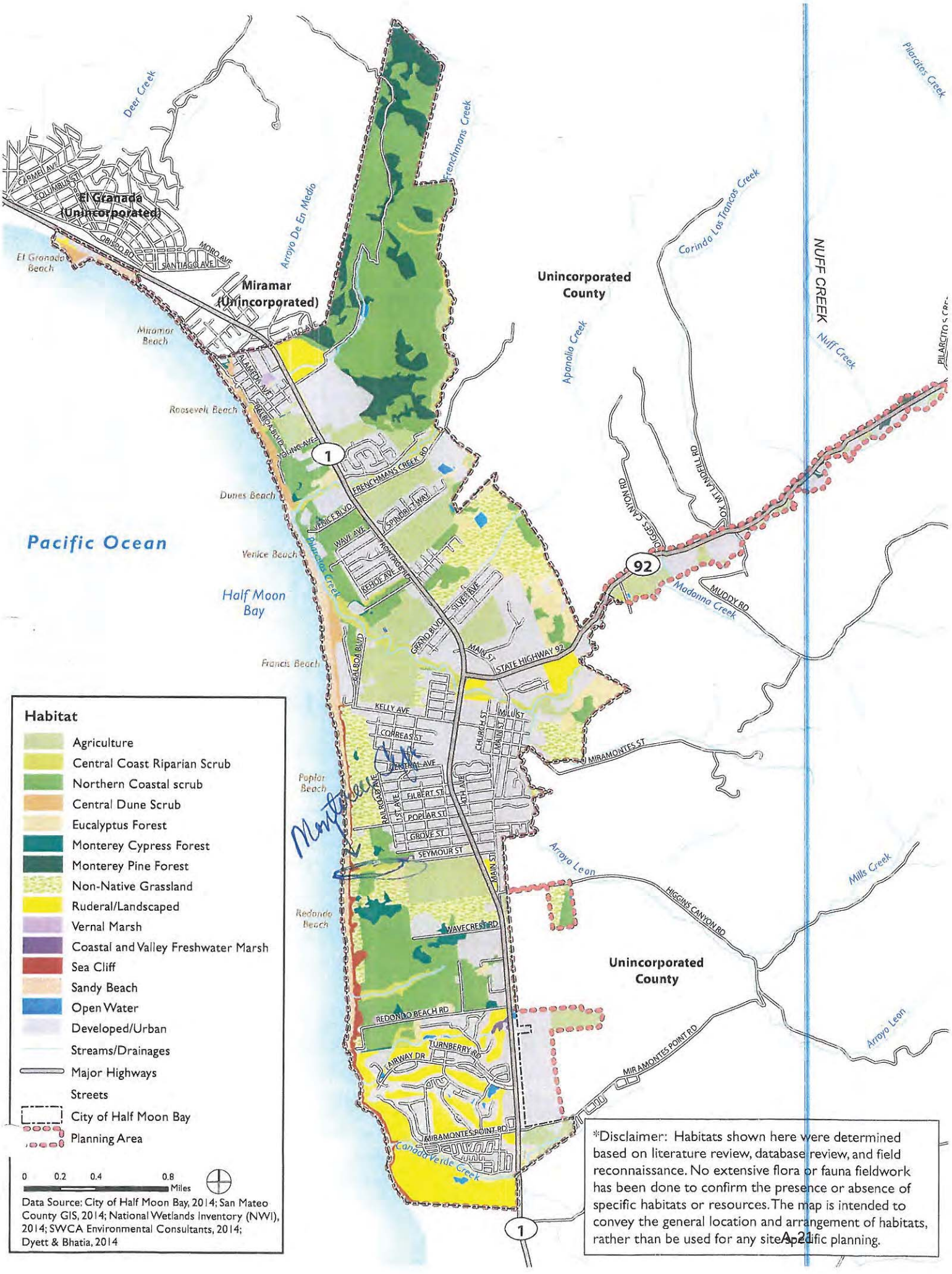
VIBRATION

Transportation-Related Vibration Sources

No fixed railroad lines pass through Half Moon Bay. Transportation-related ground vibration would only occur in Half Moon Bay from heavy truck pass-bys on Highway 1, Highway 92, and occasionally on other major local roadways. The resulting vibration levels at the nearest receivers are normally below the threshold of perception.

Temporary Vibration Sources

Construction activities such as demolition, site preparation work, excavation, and foundation work can generate ground-borne vibration at land uses adjoining construction sites. Impact pile driving has the potential of generating the highest ground vibration levels and is of primary


Deer Creek
Arroyo De En Medio
Frenchmans Creek
Pilarcitos Creek
Corinda Los Trancos Creek
NUFF CREEK
Nuff Creek
Apanolio Creek
El Granada (Unincorporated)
CARMEL AVE
COLUMBUS ST
OBISPO RD
MORO AVE
SANTIAGO AVE
El Granada Beach
Miramar (Unincorporated)
Miramar Beach
ALAMEDA AVE
ALBERTO WAY
Roosevelt Beach
YOSEMITE AVE
1
FRENCHMAN'S CREEK RD
Unincorporated County
Dunes Beach
VENICE BLVD
SPINDRIFT WAY
WAVE AVE
MONTECITO AVE
KEDEE AVE
Pacific Ocean
Venice Beach
Pilarcitos Creek
Half Moon Bay
SILVER AVE
GRAND BLVD
MAIN ST
STATE HIGHWAY 92
92
Madonna Creek
MUDDY RD
DIGGINS CANYON RD
FOX MT LANDELL RD
Francis Beach
ALBOA BLVD
KELLY AVE
CORREA ST
CENTRAL AVE
MILL ST
CHURCH ST
MAIN ST
MIRAMONTES ST
Poplar Beach
RAILROAD AVE
1ST AVE
FILBERT ST
POPLAR ST
GROVE ST
SEYMOUR ST
4TH AVE
MAIN ST
Arroyo Leon
Mills Creek
HIGGINS CANYON RD
Redondo Beach
WAVECREST RD
Unincorporated County
REDONDO BEACH RD
TURNBERRY RD
FAIRWAY DR
MIRAMONTES POINT RD
Arroyo Leon
MIRAMONTES POINT RD
Canada Verde Creek
1
Habitat
Agriculture
Central Coast Riparian Scrub
Northern Coastal scrub
Central Dune Scrub
Eucalyptus Forest
Monterey Cypress Forest
Monterey Pine Forest
Non-Native Grassland
Ruderal/Landscaped
Vernal Marsh
Coastal and Valley Freshwater Marsh
Sea Cliff
Sandy Beach
Open Water
Developed/Urban
Streams/Drainages
Major Highways
Streets
City of Half Moon Bay
Planning Area
0 0.2 0.4 0.8 Miles
Data Source: City of Half Moon Bay, 2014; San Mateo County GIS, 2014; National Wetlands Inventory (NWI), 2014; SWCA Environmental Consultants, 2014; Dyett & Bhatia, 2014
*Disclaimer: Habitats shown here were determined based on literature review, database review, and field reconnaissance. No extensive flora or fauna fieldwork has been done to confirm the presence or absence of specific habitats or resources. The map is intended to convey the general location and arrangement of habitats, rather than be used for any site-specific planning.

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SAN MATEO LAND EXCHANGE

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July 8, 2014

VIA E-MAIL

Mr. Bruce Ambo, Planning Manager
CITY OF HALF MOON BAY
501 Main Street
Half Moon Bay, California 94019

Re: Housing Element Update
Existing Conditions, Trends, and Opportunities Assessment

Dear Mr. Ambo:

San Mateo Land Exchange ("SMLE") and its closely-held affiliates own approximately 330 lots in the North Wavecrest PUD. We are extremely concerned, not only with the Existing Conditions Report, but with the Housing Element Update and designation of our properties.

Attached please find our comments to each document. Please, feel free to contact me if you should have any questions, comments or concerns.

Very truly yours,

John T. Callan

John T. Callan

JTC:jj
SMLE/Wavecrest/letters/HMB.01

Housing Element Update Comments
July 8, 2014

Listed below are comments on the Half Moon Bay Housing Element. These comments are referenced by Page number for the staff report and by 3 – page for the Resources document.

3 Housing Constraints
This section indicates that the PUD zoning requirements can be perceived as a constraint. The PUD zone is a constraint if it allows only 2 units of housing per acre and specific sites are eliminated that are required to provide affordable housing per the proposed revised Housing Element and updated General Plan.

Site Inventory
What were the specific criteria used to identify 366 acres of land as suitable and realistic for residential development?

Table 3-3: Summary of Available Housing Sites by Acreage and Unit Yield indicates 252 acres of PUD zone land with a realistic unit yield of 457? Why such a low yield? Is this plan creating its own Housing Constraint mentioned on Page 3?

Figure 3-1: Potential Housing Opportunity Sites by Current Zoning
Why is North Wavecrest completely eliminated for consideration of housing? Was any consideration given to mixed use projects that include commercial recreation and housing? What is the justification of abandoning the existing Wavecrest plan that would have allowed residential uses within this area? Would non-residential uses be acceptable in the North Wavecrest PUD?

3-8 The assumption that affordable housing is not possible in North Wavecrest is unfounded. There could be an inclusionary requirement for any market rate housing project that could provide the required affordable housing and the infrastructure for those units. There is no analysis of why housing and open space uses would not be able to co-exist in 490 acres that constitutes North Wavecrest PUD. When was the decision made to have one land use type, open space, mandate and restrict all other land uses within the North Wavecrest PUD, which was intended to have mixed use?

Table 3-8: PUD Potential for Additional Units
Same comment as listed above for page 3-8

3-12 By eliminating North Wavecrest for potential residential development, you are precluding the opportunity for a landowner to consolidate, trade and create a clustered mixed-use development envisioned by the North Wavecrest PUD.

Existing Conditions, Trends, and Opportunities Assessment

July 8, 2014

Listed below are comments on the Preliminary Review Draft Existing Conditions, Trends, and Opportunities Assessment for the City of Half Moon Bay. These comments are referenced by Chapter-Page number.

2-2 Planned Unit Development Regulations -
Report needs to address the legal standing of existing subdivisions, lots, and dedicated streets within the PUD.
Change Chapter 2 to Chapter 3 at end of paragraph.

3-2 Chart 3-1 – Is the distribution of land uses similar to other coastal communities?

3-8 Can Commercial Recreation/Visitor Serving be defined and added to this section and chart since it is a priority land use within the Coastal Zone.

3-9 & 10 Recreation, Open Space and Vacant Land
Vacant land could have different outcomes than recreational and open space lands and should not be grouped with them.

3-21 Planned Development District
This section should include previously approved projects within the PUD's.

3-22 Table 3-2 indicates 32% of City with a PUD designation, on page 3-24 Table 3-3 indicates 35% of City is zoned PUD – where is the difference?

3-30 PUD section needs to describes previously approved plans.

3-35 Population Trends should include information of contrasting the anticipated growth in the existing HMB Land Use Plan and the actual growth.

3-37 Table 3-9 needs to include the recently approved Coastside Land Trust Trail within the North Wavecrest PUD or the recently approved Stoloski subdivision within the Surf Beach PUD.

3-45 Underutilized
Is North Wavecrest considered underutilized? Is there a graphic representation of the vacant land and the underutilized land? Some land within North Wavecrest may be suitable for commercial visitor serving or residential use and should be considered for that use.

3-48 Table 3-11
Which specific parcels with North Wavecrest PUD are considered underutilized per table 3-11? Why only 2 parcels out of 693 parcels?
Fragmented ownership should not be a reason to place parcels in a vacant category rather than underutilized. There are opportunities for trades and consolidation near existing access points that should be considered for this area.

3-51 Paper Subdivisions
Is there a legal opinion to support the abandonment of the existing recorded Subdivisions?

4-11 Figure 4-2 – show approved Coastside Land Trust trail in North Wavecrest PUD.

4-25 Key Planning Issues and Implications
This section should discuss impacts to private property and other approved land uses adjacent to the trails. It should also discuss the opportunity to create compatible uses with the trails such as commercial recreation uses and some residential uses that could utilizing these improvements.

5-1 – Environmental Resources and Hazards –
How will the preliminary maps and designations be vetted by other biological professionals? How will these preliminary designations impact proposed development?

5-21 Monterey Cypress Forest and Monterey Pine Forest
What would be the development setback from a Monterey Cypress or Pine Forest? Can Redondo Beach Road be maintained? Can recreational or residential uses be nearby?

5-24 Vernal Marsh
What would be the development setback from a Vernal Marsh? Can Redondo Beach Road be maintained? Can recreational or residential uses be nearby?

5-39 Figure 5-2
What would be the development setback from Choris' Popcornflower? Can Redondo Beach Road be maintained? Can recreational or residential uses be nearby?

5-50 Hydrology section
How are the existing ditches within Half Moon Bay going to be addressed?

8-1 Parks, Recreation, and Public Services
Trails should be added into calculation of parks.
Economic cost of acquisition, improvement and maintenance needs to be addressed.
Impacts to quality of life/impacts to adjacent development needs to be discussed.
What is the status of the previous interest of a park near Ola Vista Beach?

8-3 Figure 8-1 gives the impression that the existing recreational uses will be expanded in these areas? Please explain the Service area radius?

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July 8, 2014

Dante Hall
Community Development Department
City of Half Moon Bay

Mr. Hall;

Thank you for the opportunity to provide comments on the **General Plan Existing Conditions, Trends, and Opportunities Assessment – Preliminary Draft Report**.

I want to begin by commending you and the consultants on the very good work in this assessment. Overall, I think that it captures quite well many of the challenges and opportunities for Half Moon Bay. I do have some comments for which I have referenced relevant page and figure numbers below.

Page 2-1. Key Planning Issues and Implications Section 2.1 Issues and implications for substandard lots and PUDs are either not sufficiently explained or supported. For example, it is not clear from the text why the fact that substandard lots having to meet specific design criteria before being permitted contributes to this being a key planning issue. The paragraph describing PUDs does provide an example of a how one of the PUD regulations can be confusing and create unnecessary uncertainty for developers, but the fact that preparing a comprehensive area-wide specific plan for each PUD can be "cumbersome and expensive" is not really the issue, it is more of a red herring. Furthermore, based on the critiques of the piecemeal approach to development that has led to many of the city's planning issues (e.g., in Section 2.3 Circulation, page 2-6 Connectivity and Street Systems), one might think that taking a more comprehensive approach to planning new development is a good thing. My point is that the conclusions here are not laid out well enough or sufficiently connected back to problems such that it is clear why they are *key* planning issues. Even when I reviewed the topic-specific analyses and discussions in later chapters (e.g., substandard lots and PUDs in Chapter 3), I did not find further explanation of how substandard lots and PUD regulations are key issues challenging the city's capabilities to achieve community priorities. I would recommend fleshing out these sections to clearly show how these topics are problematic for making land use decisions that support the community's priorities and are consistent with other relevant laws, plans and policies. If nothing else, this would help pinpoint actions/changes that might be appropriate for the alternatives.

Page 3-21 & Figure 3-3: Regional Public Recreation. These areas are defined as lands that are in "public ownership". In Figure 3-3, the entire coastal bluffs bounded by Kelly, Railroad, the westward extension of Grove and the ocean shown as this designation, but some of these areas are privately owned. It is not until later, on page 3-51, that this conflicting land use designation is explicitly mentioned. This should be identified and the reason for it explained on page 3-21 in the description of Regional Public Recreation. Otherwise it is confusing because it makes the reader think that these lands are publicly owned and set

aside for the uses described under Regional Public Recreation, when in fact about half that area is a PUD, and the changes to the PUD designation would have significant implications for this area.

Page 3-48: It is inappropriate to make the assumption stated in the last sentence of the paragraph ending just before the table, and I do not see how it is supported by the report.

Page 3-53 to 3-54: The major challenges identified in LUP to developing remaining paper divisions cited on page 3-51 are: substandard lot sizes; fragmented ownership; lack of utility/infrastructure; and, conflicts with resource conservation policies in the Coastal Act and LUP. This last challenge – conflicts with resource conservation policies in the Coastal Act and LUP – should also be mentioned in the discussion of Development Challenges: Substandard Lots and PUDs beginning on 3-53. It is misleading to separate out this challenge from the others, as if it is reasonable to consider changes to development regulations on substandard lots and PUDs without considering the resource conservation values of the lands in question (e.g., presence of seasonal wetlands or other sensitive habitats) – not to mention the hazards (e.g., accelerating bluff erosion) associated with putting development in some of these areas. If vagueness or lack of certainty in the permitting process is truly an issue for PUD development that needs to be resolved, then we are poorly served to artificially segregate the relevant planning considerations in developing a more predictable planning and permitting process.

Page 4-22: The description of the Wavecrest trail project is inaccurate. Please contact Jo Chamberlain, Executive Director of the Coastside Land Trust to get the correct description.

Figure 4-5: The parking area at the end of Redondo Beach Road is on private land is not designated as a public parking lot. Also, the area being used there as parking is eroding very rapidly and will not withstand many more winters before it fails (i.e., falls onto the beach below!).

Page 4-25: Parking lot at the end of Poplar Street is a pay lot.

Page 5-8: The report should include here (or reference the figure number, if it is already included) the "Habitat Areas and Water Resources Overlay" map that is identified in 3-2. a. under Designation of Sensitive Habitats.

Figure 5-16: Please include notation (e.g., asterisk in the legend, or hatching) in this map to indicate those habitats that are considered ESHA's, and another notation for those that may be considered ESHA's depending on specific conditions. (This is specified in the CCC LCP Update Guidance, so there is no reason not to include it in this report.)

Pages 5-43-49: I realize that this is a review of the biological resources for the project area as they pertain to land uses, but the discussion of Key Planning Issues and Implications, and the Summary do not sufficiently address (or even acknowledge) challenges to protection of biological resources (i.e., ESHAs) that can be caused by development (e.g., fragmentation of habitat areas leading to loss of their habitat values; spread of invasive species; changed hydrology of nearby habitats). Without identifying these types of considerations this report does not provide a basis for identifying how different alternatives will perform in terms of conservation – one of the Key Objectives in Section 1.4., and the top choice for

planning actions identified in the community survey: “Preserving environmental resources and open space.”

Page 5-75: I had been under the impression that there was a capped county landfill at the end of Seymour Street. If this is the case, it would be good to note it in this section because it may be exposed as the bluffs erode back.

Chapter 5. I could not find any place in this chapter that identifies the key role of bluff erosion as a source of new beach sand on our coastside beaches. This should be noted (e.g., perhaps on page 5-113 in the paragraph on sedimentation and erosion) as an important planning consideration for maintaining beaches (for recreation and habitat).

Section 4.4 and Chapter 8: Trails. These sections do not mention the erosion threatening key parts of the Coastal Trail, nor do the Key Planning Issues and Implications identify the need to fill gaps in the trail to allow for connectivity throughout the planning area. Overwhelmingly the community has said that enjoying the natural beauty of the coastside on trails is one of the favorite aspects of living in HMB. This update needs to address this priority through protection and enhancement of trails. The report does not sufficiently lay out the existing conditions or issues related to trails to allow for this effort.

Chapter 8, Open Space. The number one choice for planning actions identified by community members in the survey was to preserve environmental resources and open space. The paragraph on open space is insufficient (e.g., in identifying threats to protection of open space) to support identification of what is needed, in terms of general plan land use policies, to protect these areas.

Thank you again for this opportunity to provide input on the Draft Report. Please do not hesitate to contact me if you have any questions about my comments (sepalsh@hotmail.com).

I look forward to reading the revised report.

Sincerely,

Sara Polgar

GPAC Member

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