...LOOKING FORWARD

2040

HAYWARD GENERAL PLAN

Hayward 2040 General Plan Background Report

Public Review Draft January 2014

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BACKGROUND REPORT INTRODUCTION

This chapter describes the purpose and organization of the General Plan and provides an overview of what a General Plan is, why it is prepared, and why it is important. This chapter also provides an overview of the purpose, organization, and format of the General Plan Background Report.

This chapter is divided into the following sections:

- What is a General Plan? (Section 1.1)
- Using the General Plan (Section 1.2)
- Planning Boundaries and Areas (Section 1.3)
- Purpose of the Background Report (Section 1.4)
- Format of the Background Report (Section 1.5)

SECTION 1.1 WHAT IS A GENERAL PLAN?

Every county and city in California is required by State law to prepare and maintain a planning document called a general plan. A general plan serves as the jurisdiction's "constitution" or "blueprint" for future decisions concerning land use and resource conservation. All specific plans, subdivisions, public works projects, and zoning decisions must be consistent with the local jurisdiction's general plan.

A general plan has four defining features:

- **General.** As the name implies, a general plan provides general guidance for future land use, transportation, environmental, and resource decisions.

- **Comprehensive.** A general plan covers a wide range of social, economic, infrastructure, and natural resource issues. The issues include land use, urban development, housing, transportation, public facilities and services, recreation, agriculture, biological resources, and many other topics.

- **Long-Range.** A general plan provides guidance on achieving a long-range vision of the future for a county or city. To reach this envisioned future, the general plan includes goals, policies, and implementation programs that address both near-term and long-term needs. The Hayward General Plan looks out to the year 2040 (roughly 25 years in the future).

- **Integrated and Coherent.** The goals, policies, and implementation programs in a general plan present a comprehensive, unified program for development and resource conservation. A general plan uses a consistent set of assumptions and projections to assess future demands for housing, employment, and public services (e.g., infrastructure). A general plan has a coherent set of policies and implementation

programs that enables citizens to understand the vision of the general plan, and enables landowners, businesses, and industry to be more certain about how they will be implemented.

SECTION 1.2 USING THE GENERAL PLAN

The General Plan is used by the City Council, Planning Commission, and City staff on a daily basis to make decisions with direct or indirect land use implications. It also provides a framework for inter-jurisdictional coordination of planning efforts among officials and staff of the City and other government agencies (e.g., Federal, State, and local). City residents, property owners, and businesses also use the General Plan for a particular geographic area or for a particular subject of interest to them.

The General Plan is the basis for a variety of regulatory mechanisms and administrative procedures. California planning law requires consistency between the General Plan and its implementation programs. Implementation programs and regulatory systems of the General Plan include zoning and subdivision ordinances, capital improvement programs, specific plans, environmental impact procedures, building and housing codes, and redevelopment plans.

Over time the city's population will change, its goals will be redefined, and the physical environment in which its residents live and work will be altered. In order for the General Plan to be a useful document, it must be monitored and periodically revised to respond to and reflect changing conditions and needs.

The General Plan should be reviewed annually. A more comprehensive and thorough review and revision should be done every five or ten years to document changes in local conditions based on the new data. State law permits the General Plan to be amended up to four times in any calendar year, unless special conditions apply as defined by Government Code Sections 65358(c) and (d). Each amendment may contain more than one change to the General Plan.

The General Plan should be user-friendly. To this end, the General Plan is divided into two documents: the Background Report and the Goals and Policies Report. The Background Report is further divided into nine chapters, and the Goals and Policies Report is divided into four parts and nine sections so that information can be easily referenced by subject or issue.

The following paragraphs provide a summary of the two component documents that make up the City of Hayward General Plan:

- **Background Report.** The Background Report takes a "snapshot" of Hayward's current (2012) trends and conditions. It provides a detailed description of a wide range of topics within the city, such as demographic and economic conditions, land use, public facilities, and environmental resources. The report provides decision-makers, the public, and local agencies with context for making policy decisions. Unlike the Goals and Policies Report, the Background Report is objective and policy-neutral. The Background Report

also serves as a setting for the Environmental Impact Report prepared for the General Plan.

- **Goals and Policies Report.** This report is the essence of the General Plan. It contains the goals and policies that will guide future decisions within the city. It also identifies a full set of implementation programs that will ensure the goals and policies in the General Plan are carried out.

As part of the City of Hayward General Plan Update, the City also prepared and **Environmental Impact Report.** The environmental impact report (EIR) responds to the requirements of the California Environmental Quality Act (CEQA) as set forth in Sections 15126, 15175, and 15176 of the CEQA Guidelines Act (CEQA). The Planning Commission and City Council will use the EIR during the General Plan Update process to understand the potential environmental implications associated with implementing the General Plan. The EIR is not part of the General Plan.

SECTION 1.3 PLANNING BOUNDARIES AND COMMUNITY AREAS

The General Plan uses several terms to describe the city and areas beyond, including the following:

- **City Limits.** The jurisdictional boundary of the city. The city limits includes the area within a city's corporate boundary over which cities exercise land use authority and provide public services. State law requires cities to adopt a general plan that at a minimum addresses physical development within this boundary.

- **Sphere of Influence.** A sphere of influence (SOI) is the probable physical boundary and service area of a local agency, as adopted by a Local Agency Formation Commission (LAFCo). A SOI includes both incorporated and unincorporated areas within which a city or special district will have primary responsibility for the provision of public facilities and services.

- **Planning Area.** A general plan, pursuant to State law, must address all areas within the jurisdiction's planning area. The planning area encompasses all incorporated and unincorporated territory that bears a relationship to the long-term planning of the jurisdiction. At minimum, a jurisdiction's planning area should include all incorporated land within the city limits and all land within the city's Sphere of Influence.

SECTION 1.4 PURPOSE OF THE BACKGROUND REPORT

The Background Report provides a "snapshot" in time of the city's existing conditions. The Background Report presents the physical, social, and economic resource information required to support the preparation of the General Plan. The data and information in the Report are generally current as of 2012.

The Background Report serves as the foundation document upon which planning policies and programs will be formulated later in the General Plan update. The document is also used as the "environmental setting" section of the General Plan EIR.

SECTION 1.5 FORMAT OF THE BACKGROUND REPORT

Each topical section of each Background Report chapter includes the following:

- **Introduction.** The introduction provides a brief description of the issues covered in the section.
- **Major Findings.** Each section contains a brief summary of key findings. The findings present key facts and preliminary issues from the section. These findings serve as the basis for the identification of issues to be addressed in the Policy Document.
- **Existing Conditions.** This section describes existing conditions as of June 2009 for each resource or issue area. Supplemental information developed since that time is provided in some cases.
- **Regulatory Setting.** Each section summarizes the laws and regulations pertaining to the topics identified. Federal, State, and local regulations are described, as applicable.
- **Key Terms.** Each section contains a list of terms that are unique to the topical areas within each chapter in the Background Report.
- **Bibliography.** Each section contains a list of documents websites referenced and persons consulted in preparing the Background Report.

LAND USE AND COMMUNITY CHARACTER

SECTION 1.1 INTRODUCTION, PURPOSE, AND CONTENTS

This report reviews the present (2012) context for land use planning in the City of Hayward. It provides a comprehensive overview of how land resources are used and regulated within the City of Hayward and its immediate surroundings. It also identifies potential challenges and opportunities related to the long-term growth and development of the city, and analyzes the development potential of Hayward under existing plans, policies, and regulations. This report also discusses community character, historic and cultural resources, and the plans and policies of other agencies that regulate or influence land use within the city.

This report is organized into the following sections:

- Introduction, Purpose, and Contents (Section 1.1)
- Planning Boundaries (Section 1.2)
- Existing Land Use (Section 1.3)
- Community Character (Section 1.4)
- Historic and Cultural Resources (Section 1.5)
- Existing General Plan (Section 1.6)
- Existing Zoning (Section 1.7)
- Other City Plans and Policies (Section 1.8)
- Growth and Development Capacity (Section 1.9)
- Regional Plans and Agencies (Section 1.10)

SECTION 1.2 PLANNING BOUNDARIES

Introduction

This section describes the major political and geographic boundaries that influence the long-term growth and development of Hayward.

Major Findings

- The Hayward Planning Area defines the area subject to the Hayward General Plan and includes land within Hayward's city limits and land within the City's Sphere of Influence. The Planning Area covers approximately 72.18 square miles. The majority of the Planning Area (approximately 42.81 square miles) is not developable and is either covered by water or protected as natural open space.
- Hayward has an established urban limit line that protects the baylands and hillsides from urban development.
- The city of Hayward covers approximately 64.43 square miles. Only 37 percent of the city (24.06 square miles) is considered developable land. The remainder is covered by water (19.17 square miles) or located outside of the urban limit line (21.21 square miles).
- The City of Hayward provides limited services to several unincorporated communities, including Hayward Acres, Fairview, Cherryland, and parts of San Lorenzo and Castro Valley. These areas are within the City's Sphere of Influence, and could potentially be annexed into Hayward in the future.

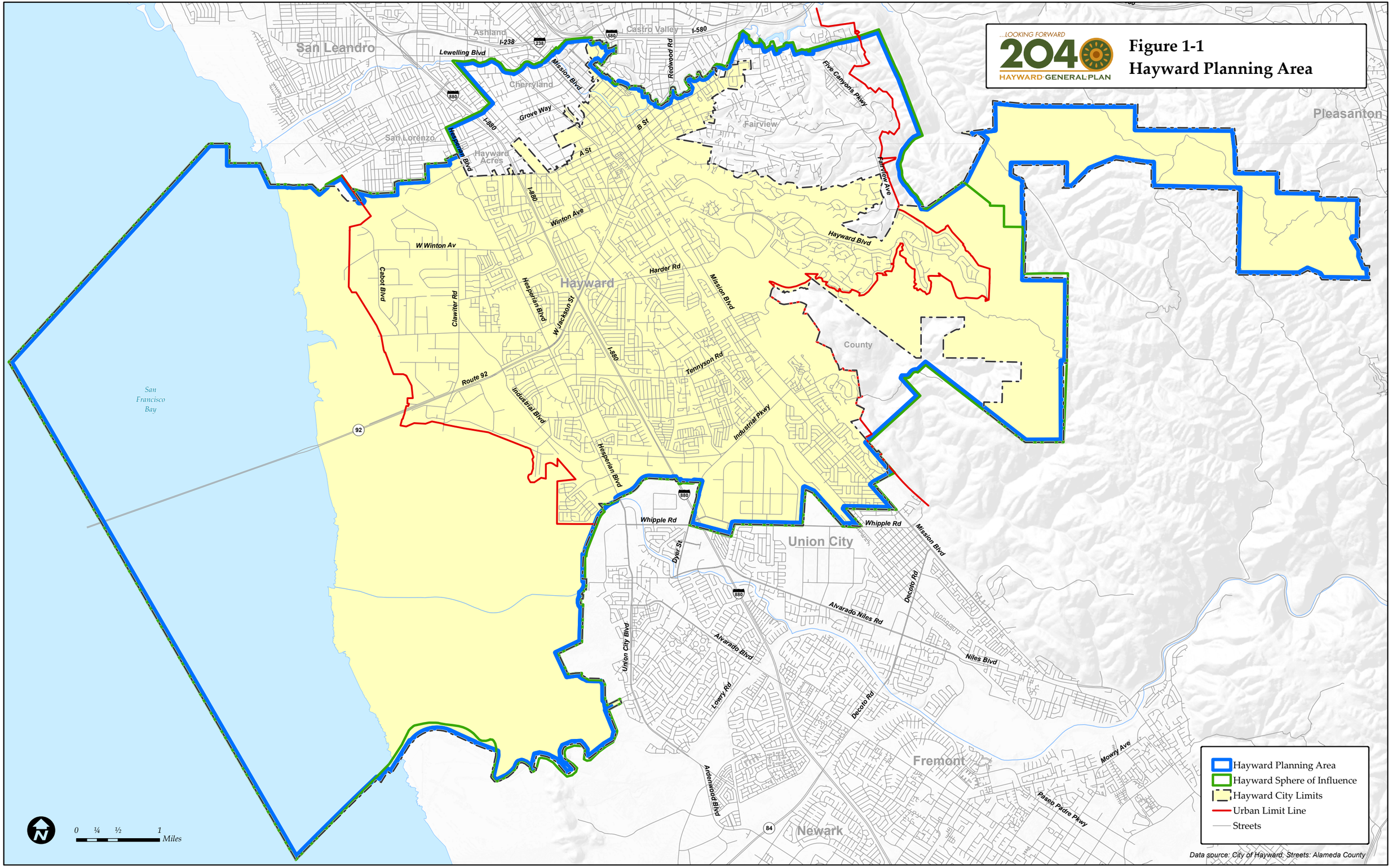
Existing Conditions

Hayward Planning Area

A general plan, pursuant to State law, must address all areas within the jurisdiction's planning area. The planning area encompasses all incorporated and unincorporated territory that bears a relationship to the long-term planning of the jurisdiction. At minimum, a jurisdiction's planning area should include all incorporated land within the city limits and all land within the city's Sphere of Influence. A city's Sphere of Influence generally includes all incorporated land within the city limits and adjacent unincorporated areas that receive or may in the future receive services from the City. Figure 1-1 shows the boundaries of the Hayward Planning Area.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-1
Hayward Planning Area



Note: The Hayward Planning Area is lands within the sphere of influence and the city limits

January, 2013

The Hayward Planning Area covers approximately 72.18 square miles. Approximately 19.17 percent of the Planning Area is covered by water, leaving approximately 53.02 square miles of land. Approximately 23.64 square miles of land is not developable because it is protected as natural open space and/or it has natural resource constraints, such as flood hazards, wetlands, or steep slopes. This land is generally located outside the Urban Limit Line shown on Figure 1-1, and generally includes the baylands (approximately 13.40 square miles) and the foothills within the eastern segment of the Planning Area (approximately 7.82 square miles). The developable land area within the Hayward Planning Area (land within the Urban Limit Line) covers approximately 29.37 square miles. The majority of the developable land is located within the City of Hayward (24.06 square miles), and the remainder (5.31 square miles) is located within unincorporated areas of the Hayward Planning Area.

City of Hayward City Limits

Figure 1-1 shows the city limits of Hayward. The city limits define the incorporated areas of the city, which covers approximately 64.43 square miles. As previously noted, only 24.06 square miles of the city is considered developable land. The remainder is located outside the urban limit line (21.21 square miles) or covered by water (19.17 square miles).

City of Hayward Sphere of Influence

Figure 1-1 shows the city's Sphere of Influence. The Sphere of Influence covers approximately 67.91 square miles. A fairly large percentage of the Sphere of Influence is not developable because it is covered by water (19.17 square miles) or located outside the Urban Limit Line (19.42 square miles). As a result, the developable land area within the Sphere of Influence covers approximately 29.32 square miles.

It is important to note that a significant portion of incorporated land is located outside the city's Sphere of Influence. This area, known as the Palomares Ridge, is an open space corridor that extends east of Hayward and connects to the city of Pleasanton. Access to properties within the corridor is limited to two county roads that do not connect to the city of Hayward's roadway network. Therefore, the City cannot efficiently provide services to this area. According to a 1993 Memorandum of Understanding between the City of Hayward, Alameda County, and the City of Pleasanton, the Palomares Ridge is intended to be preserved as a rural and open space area.

Unincorporated Areas

The unincorporated areas within the Hayward Planning Area include Garin Regional Park, the open space areas to the east of the city, portions of San Lorenzo and Castro Valley, and the communities of Hayward Acres, Cherryland, and Fairview. The unincorporated areas occupy 7.70 square miles.

Future Annexations

The Alameda County Local Agency Formation Commission (LAFCo) has the authority to approve boundary changes for cities and special districts within Alameda County. For land to be annexed into (or de-annexed from) a city or special district, the Alameda County LAFCo must analyze the proposed boundary change and determine if services can be provided efficiently and economically to the area.

All changes to Hayward's city limits and Sphere of Influence line require approval by the Alameda County LAFCO. Boundary changes can be initiated at the request of the City of Hayward, property owners, or developers.

Unincorporated land within Hayward's Sphere of Influence could be annexed into the City of Hayward in the future. Residents within the unincorporated communities may oppose annexation because they have the desire to maintain a separate community identity.

Regulatory Setting

California Government Code Section 65301

Section 65301 of the California Government Code requires a general plan to address the geographic territory of the local jurisdiction and any other territory outside its boundaries that bears relation to the planning of the jurisdiction. The jurisdiction may use judgment in determining what areas outside of its boundaries to include in the planning area. The State of California General Plan Guidelines state that the planning area for a city should include (at minimum) all land within the city limits and all land within the city's Sphere of Influence.

Cortese Knox Hertzberg Local Government Reorganization Act of 2000 (CKH Act)

The Cortese Knox Hertzberg Local Government Reorganization Act (CKH Act) is the most significant reform to local government reorganization law since the 1963 statute that created a LAFCO in each county. The law established procedures for local government changes of organization, including city incorporation, annexation to a city or special district, and consolidation of cities or special districts (Section 56000, et seq.). LAFCOs have numerous powers under the CKH Act, but those of prime concern are the power to act on local agency boundary changes and to adopt spheres of influence for local agencies. The law also states that in order to update a Sphere of Influence, LAFCOs are required to first conduct a review of the municipal services provided in the county.

While LAFCO does not have any direct land use authority, the CKH Act assigns LAFCOs a significant role in planning issues by requiring them to consider a wide range of land use and growth factors when they consider proposals. California Government Code Section 56001 specifically states that "the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with

sometimes competing State interests of discouraging urban sprawl, preserving open space and prime agricultural lands, [and] efficiently extending government services."

The CKH Act also requires LAFCOs to update spheres of influence for every city and special district every five years. The original deadline was January 2006, five years following the CHK Act becoming State law. That deadline was extended two years to January 2008. Every SOI update must be accompanied by an update of the municipal services review. At the time of this writing, Alameda County LAFCo is conducting a municipal service review for all cities in Alameda County. The review for Hayward is scheduled to be completed in spring 2013.

Key Terms

The following key terms used in this chapter are defined as follows:

Annexation. The process by which land is incorporated into an existing district or municipality, with a resulting change in the boundaries of the annexing jurisdiction.

City Limits. A political boundary that defines land that has been incorporated into a city.

Local Agency Formation Commission (LAFCO). A commission within each county that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each county's LAFCO is empowered to approve, disapprove, or conditionally approve such proposals.

Municipal Services Review. A study conducted for a city, county, or special district that examines all public service needs for the area and recommends action to promote the efficient provision of public services.

Planning Area. The area directly addressed by a jurisdiction's general plan. The planning area generally encompasses all incorporated and unincorporated territory that bears a relationship to the long-term planning of the jurisdiction.

Sphere of Influence. An area that includes the probable physical boundaries and service area of a local agency, as determined by the Local Agency Formation Commission of the county.

Bibliography

Reports/Publications

Alameda County, City of Hayward, and City of Pleasanton, Memorandum of Understanding Covering the Ridgeland Area, 1993.

City of Hayward, General Plan, 2002.

State of California, California Government Code, Sections 56000 and 65300, 2012.State of California, Governor's Office of Planning and Research, General Plan Guidelines, 2003.

Websites

Alameda County LAFCO Website, http://www.acgov.org/lafco/, December 2012.

Persons Consulted

None.

SECTION 1.3 EXISTING LAND USE

Introduction

This section describes how the properties within the Hayward Planning Area are currently (December 2012) being used. The City of Hayward's Geographic Information System (GIS) database was used to determine land use information presented within this section. Existing land use was determined based on Assessor's Use Code data, as provided by the Alameda County Assessor's Office.

Major Findings

- Water, baylands, and open space make up over half of the land in the Hayward Planning Area and city of Hayward (52.3 percent and 57.4 percent respectively).
- Of all the urban land use categories, single family residential (which includes townhomes) occupies the most land within the Hayward Planning Area and city of Hayward. Single family residential uses cover 14.3 percent (6,170 acres) of the Hayward Planning Area and 11.5 percent (4,465 acres) of the city of Hayward.
- Industrial uses occupy 6.4 percent (2,771 acres) of the Planning Area and 7.1 percent (2,751 acres) of the city. The majority of the industrial uses are located within a crescent-shaped industrial corridor along the western and southwestern edge of the City's urban limit line.
- The City of Hayward is home to a number of unique public facilities that are major assets to the Hayward community, including the Hayward Executive Airport, two BART stations, an Amtrak station, Chabot College, and California State University, East Bay.
- The Hayward Planning Area has over 2,958 acres of land for parks and recreation. Most of the parkland is located within Garin Regional Park and several golf courses. In many neighborhoods, parkland is limited to one or two small parks.
- Commercial uses are generally located within Downtown Hayward, the Southland Mall area, and along major streets. With the exception of Downtown Hayward, commercial uses are generally not within a safe, convenient, and pleasant walk of nearby homes.
- The city of Hayward is a largely built-out community and as a result, future development opportunities will be limited to relatively small infill development sites and the redevelopment of underutilized properties.

Existing Conditions

Figure 1-2 shows how the properties within the Hayward Planning Area are currently (December 2012) being used. The existing land use of a property, as shown on Figure 1-2, does

not carry any regulatory significance and may or may not be consistent with the current General Plan land use designation or zoning for the property. In many cases the existing land uses were established prior to the adoption of the current General Plan land use designation or zoning district.

Table 1-1 summarizes the existing land use data presented in Figure 1-2. As shown, the land uses that cover most of the Planning Area and the city are water, baylands, and open space, which together comprise 52.3 percent of the Planning Area and 57.4 percent of the city.

Of all of urban land uses, single family residential land (which includes townhomes) covers the most land within both the Hayward Planning Area and the city of Hayward, covering 14.3 percent (6,170 acres) of the Hayward Planning Area and 11.5 percent (4,465 acres) of the city. As shown on Figure 1-2, single family land uses are generally located in every residential neighborhood in the Hayward Planning Area. Multiple family residential land uses cover a relatively small percentage of the Hayward Planning Area (3.3 percent) and the City of Hayward (2.5 percent).

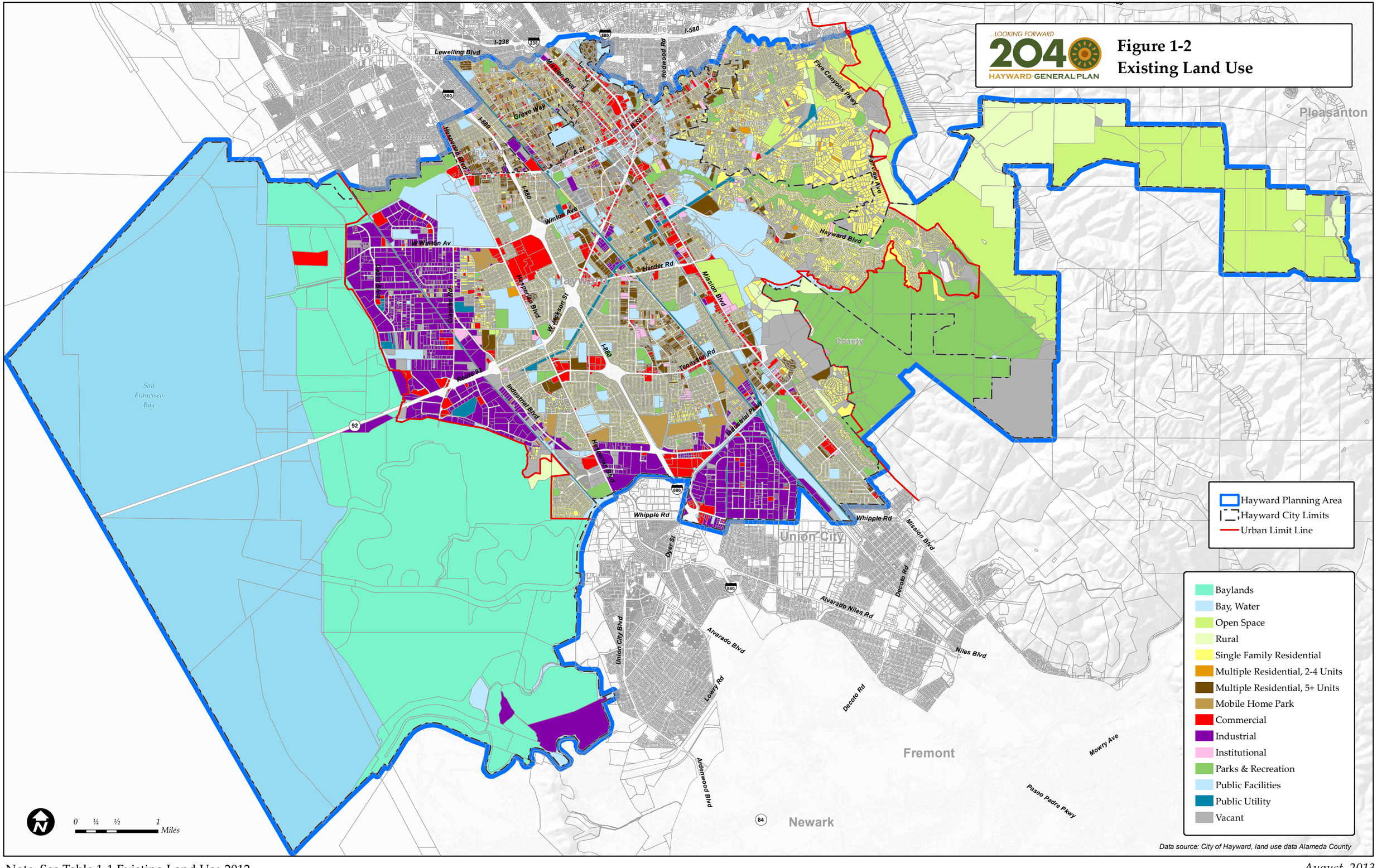
Industrial uses cover 6.4 percent (2,771 acres) of the Planning Area and 7.1 percent (2,751 acres) of the city. As shown, in Figure 1-2, the majority of the industrial uses are located within a crescent-shaped industrial corridor along the western and southwestern edge of the City's urban limit line. The industrial corridor is served by rail and Interstate 880, both of which provide convenient access to the Port of Oakland and the communities of the East Bay and Silicon Valley. The corridor is also served by State Route 92, which provides access to communities on the San Francisco Bay Peninsula.

Public facilities, which include public schools, comprise approximately 6 percent of the Hayward Planning Area and the city of Hayward. The city is home to a number of unique public facilities, including the Hayward Executive Airport, the Downtown Hayward BART Station, the South Hayward BART Station, the Hayward Amtrak Station, Chabot College, and California State University, East Bay. These public uses are major assets to the Hayward community and local economy. Public facilities also include land that is currently (2013) owned by Caltrans and was previously designated as right-of-way for the Route 238 bypass project. Caltrans is no longer constructing this bypass and is auctioning off developed and undeveloped properties within the former corridor.

Parks and recreation cover 6.5 percent (2,958.56 acres) of the Planning Area and 4.5 percent (1,761.99 acres) of the city. Most of the parkland acreage is located within Garin Regional Park and public and private golf courses. A relatively small percentage of the parkland consists of neighborhood and community parks that are more accessible for everyday use to Hayward residents. In many neighborhoods, parkland is limited to one or two small parks.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-2
Existing Land Use



Note: See Table 1-1 Existing Land Use 2012

August, 2013

TABLE 1-1
EXISTING LAND USE: 2013
Hayward Planning Area and City of Hayward

Existing Land Use	Assessor's Use Codes	Hayward Planning Area		Hayward City Limits	
		Acreage	Percent of Total	Acreage	Percent of Total
Bay (Water)	0300[1]	11,924.86	27.6	11,924.86	30.8
Baylands	0300[2]	8,308.97	19.2	8,308.97	21.4
Open Space	0300[3] and 6500	2,396.41	5.5	2,015.88	5.2
Rural	05100-05900	1,255.21	2.9	1,057.67	2.7
Single Family Residential	1100-1901	6,170.40	14.3	4,465.62	11.5
Multiple Residential (2-4 units)	2100-2900	482.54	1.1	282.28	0.7
Multiple Residential (5+units)	7090-7900	906.54	2.1	702.20	1.8
Commercial	3100-3990, 8000-8900, and 9000-9902	1,270.91	2.9	1,191.26	3.1
Industrial	4100-4900	2,771.59	6.4	2,751.59	7.1
Institutional	6400, 6600, 6700, and 6800	195.69	0.5	166.09	0.4
Parks and Recreation	0300[4] and 6300	2,958.56	6.8	1,761.88	4.5
Public Facilities	0300[5] and 6001	2,497.51	5.8	2,372.65	6.1
Public Utility	0400 and 0500	386.07	0.9	338.41	0.9
Vacant	0800, 1000, 1040, 3000, 4000, 5000, 7000, and 7040	1,703.94	3.9	1,396.01	3.6
Unknown	No Use Code	40.14	0.1	32.88	0.1
TOTAL		**43,269.34**	**100.0**	**38,768.25**	**100.0**

1. Only includes properties with both a 0300 use code and a parcel type designation of "Hay_Water_Area".
2. Only includes properties with both a 0300 use code and a parcel type designation of "Hay_Outside_ULL_Baylands".
3. Only includes properties with both a 0300 use code and a land use designation of LOS or OS-N.
4. Only includes properties with both a 0300 use code and a land use designation of PR or OS-P.
5. Excludes all properties with the conditions outlined in notes 1-4, above.

Source: City of Hayward, GIS Data, 2012.

Other urban land uses, including commercial and institutional, occupy a relatively small percentage of the Hayward Planning Area and the City of Hayward. Commercial uses are concentrated in Downtown Hayward, the Southland Mall area, and along several major streets, including Mission Boulevard, Jackson Street, Hesperian Boulevard, Winton Avenue, Harden Road and West Tennyson Road. The recent economic recession resulted in the loss of several car dealerships and business along Mission Boulevard. These vacancies provide an opportunity to redevelop the properties with new commercial and residential uses.

With the exception of Downtown Hayward and the Cannery neighborhood, commercial uses are generally not within a convenient and pleasant walk of nearby residential areas. The majority of Hayward's neighborhoods were developed between 1950 and 1980. Community design principles from this era emphasized the separation of residential and non-residential land uses and street systems that favored the automobile as the primary form of transportation. As a result, commercial uses and services are not integrated into the neighborhoods. Residents generally drive to commercial areas within Hayward.

As shown in Table 1-1, 1,703 acres, or approximately 3.9 percent of the Hayward Planning Area is vacant land. The city of Hayward only has 1,396 vacant acres, which is 3.6 percent of the City's total area. The City of Hayward is a relatively built-out community and as a result, future development opportunities will be limited to relatively small infill development sites and the redevelopment of underutilized properties.

Transportation corridors have also had a significant impact on land use within the Hayward Planning Area. The City of Hayward is divided by five major transportation corridors (Interstate 880, BART, the Union Pacific Railroad (UPRR) Oakland Subdivision, the UPRR Niles Subdivision, and the Amtrak Capitol Corridor). These corridors create physical barriers that divide the community and limit east to west connections. They also create conditions that can isolate people from other parts of the community, especially younger and older people who cannot drive.

Regulatory Setting

There is no regulatory setting for this section.

Key Terms

The following key terms used in this chapter are defined as follows:

Assessor's Use Code. Land use codes used by the County Assessor to determine the value of property for property tax purposes.

Vacant Land. Land that is not actively used for any purpose, including land that is not improved with buildings or site facilities.

Bibliography

Reports/Publications

City of Hayward, General Plan, 2002.

City of Hayward, GIS Data, December 2012.

Websites

None.

Persons Consulted

None.

SECTION 1.4 COMMUNITY CHARACTER

Introduction

This section describes the visual character of the Hayward Planning Area and the city of Hayward. It includes an overview of scenic resources, vistas, and highways within the community.

Major Findings

- The baylands and the hillsides of Hayward are major community assets that limit the expansion of Hayward and provide opportunities for residents and visitors to enjoy nature, scenic beauty, and natural wildlife. These resources provide scenic vistas of the surrounding San Francisco Bay area.
- Downtown Hayward is a major asset to the community and is characterized by attractive and historic commercial and civic buildings that promote walking and pedestrian activity.
- The majority of Hayward's residential homes and apartments were built between 1950 and 1980. Developers from this era generally favored simple architectural designs that could be easily constructed and mass produced within housing tract developments. As a result, many homes do not have design features and unique characteristics that are attractive to many home buyers and renters.
- The Southland Mall is one of the oldest shopping malls in the region and faces increasing competition from newer and more attractive shopping destinations in the region, such the Union Landing in Union City, Downtown Walnut Creek, the Newpark Mall in Fremont, and Stoneridge Mall in Pleasanton.
- Hayward's major streets are generally lined with auto-oriented commercial shopping centers and sound walls that protect adjacent homes from noise. The sound walls are subject to graffiti and litter, which degrades the image and perceived safety of the City.
- The City has a Mural Art Program, which works in partnership with various neighborhoods, commissions, youth and artists to create murals throughout the city. The murals are major community assets that help to eliminate graffiti and blight, and promote civic pride.

Existing Conditions

For the purposes of this discussion, the Hayward Planning Area is divided into three general areas: the waterfront and baylands; the urbanized core; and the eastern foothills. These areas are generally described below.

Waterfront and Baylands

The waterfront and baylands occupy the western portion of the Hayward Planning Area. This area is characterized by the open waters of the San Francisco Bay and the adjacent baylands. The majority of the baylands were altered from their natural conditions when the wetlands and salt marshes of the Hayward shoreline were converted to commercial salt evaporation ponds following the California Gold Rush. Levees were constructed throughout the area to create the evaporation ponds. Since 1970 several public agencies have been acquiring the salt pond properties and initiating wetland and upland restoration efforts. While the area has been restored with natural wetlands and uplands, remnants of the salt ponds still remain, including several levees and piers from former boat docks.

The majority of the baylands are protected resources that are part of the Don Edwards San Francisco Bay National Wildlife Refuge and the Hayward Regional Shoreline Park. The Wildlife Refuge and Regional Shoreline Park are located along the Pacific Flyway, a migratory bird corridor that hosts over 280 species of birds each year. Millions of shorebirds and waterfowl visit the area during the spring and fall migration. Thousands of people use the trails in the Wildlife Refuge and Regional Shoreline Park each year to view birds and wildlife. Several scenic vistas are located along the trails offering views of shoreline habitat, wildlife, and the San Francisco Bay. On clear days the skylines of San Francisco and Oakland can also be scene from these vistas along the trails.

Views of the Hayward Baylands (Source: City of Hayward)

Urbanized Core

The urbanized core generally occupies the center of the Hayward Planning Area and is defined by the Urban Limit Line. The urbanized core has several neighborhoods and districts, each with their unique characteristics and qualities. This report does not attempt to identify the unique characteristics and qualities of every neighborhood. Rather, it generally describes the characteristics of the following four sub-areas:

- The historic core of Hayward
- The flatland neighborhoods
- The Foothill neighborhoods
- The industrial corridor

Historic Core of Hayward

The historic core of Hayward generally includes Downtown Hayward and the surrounding residential blocks that were part of the early town grid. The area is generally defined by the BART corridor, Jackson Street/E Street, 4th Street, and A Street. This area is characterized by relatively small rectangular blocks that have been subdivided into small lots. The lots generally contain traditional "main street" buildings with pedestrian-oriented storefronts, and older residential homes. Several lots have also been consolidated and redeveloped with newer commercial buildings uses, townhome developments, and live-work units.

View of buildings in Downtown Hayward (Source: City of Hayward)

View of B Street in Downtown Hayward (Source: City of Hayward

The historic core contains several older commercial, civic, religious, and residential buildings that help define the unique character of the area. Notable buildings include:

- Historic City Hall
- All Saints Church
- The Green Shutter Hotel
- The IOOF Lodge
- The IDES Lodge
- Veterans Memorial Building
- Victorian House at 714 B Street

View of All Saints Church (Source: City of Hayward)

View of Historic City Hall (Source: City of Hayward)

Of the above buildings All Saints Church is identified as a visual focal point in the Downtown Hayward Design Plan. The Plan has an objective to preserve views of the church by providing adequate setbacks and limiting building heights on nearby properties.

The Historic Core also contains a historic district and several structures that are designated as historic resources (see Section 1.5, Historic and Cultural Resources, for additional information).

The residential neighborhoods surrounding Downtown Hayward tend to have homes with more traditional architectural features, such as front porches, porticos, bay windows, and detached garages located to the rear of the home. Most of the streets are also lined with street trees that provide a canopy of shade and help define the visual character of the area.

View of homes on B Street (Source: City of Hayward)

View of homes on C Street (Source: City of Hayward)

Several walls within the historic core have been painted with murals. The murals were funded by the City's Mural Art Program, which is a partnership between the City and various neighborhoods, commissions, youth, and artists. The murals are major community assets that help to eliminate graffiti and blight, and promote civic pride.

Views of Murals in Hayward (Source: City of Hayward)

Flatland Neighborhoods

The flatland neighborhoods are generally located west of the historic town of Hayward and the Mission Boulevard corridor. These neighborhoods were predominantly developed during the suburban housing boom that occurred after World War II. Prior to World War II individuals and families primarily bought vacant lots and built custom homes with unique styles and features that were different from neighboring homes. After World War II commercial developers began to develop large housing tracts complete with streets and finished homes that were ready for occupation. The houses were designed to be constructed quickly and mass-produced. Because of these development and building practices, most of the housing tracts in the flatland neighborhoods have similar homes with relatively simple designs and few architectural details and features. Many homes and neighborhoods do not have design features and unique characteristics that are attractive to many home buyers and renters.

The flatland neighborhoods are generally characterized by housing tracts with wide streets, narrow sidewalks, and one- and two- story homes with front garages facing the street. Most of the neighborhoods also have one or two small neighborhood parks and a public school. A lot of apartment buildings were also developed throughout these neighborhoods. The majority of the apartment buildings were constructed in the 1960s and 1970s, when modern architecture was the predominant style. Most of these apartment developments are characterized by boxy, utilitarian buildings with limited open space and landscaping.

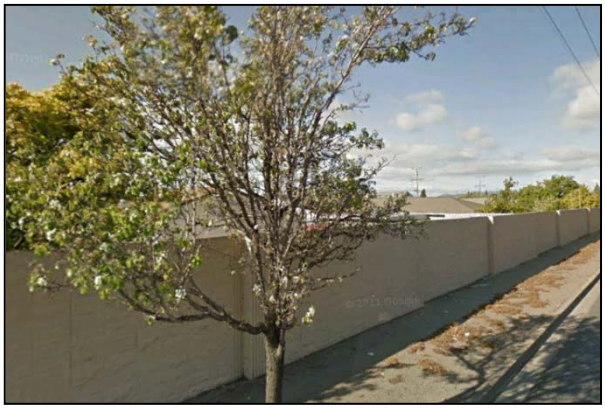
Example of tract homes in the flatland neighborhoods (Source: City of Hayward)

Example of apartment building in the flatland neighborhoods (Source: City of Hayward)

Several major streets traverse the flatland neighborhoods. In general, these streets are lined with auto-oriented commercial uses, such as strip malls and shopping centers. Most shopping centers are relatively small and serve the local population. In many locations the major streets are lined with landscaping strips and sound walls that shield adjacent residential

neighborhoods from vehicle noise. The visual quality of the landscape strips and sound walls vary greatly from neighborhood to neighborhood. They are often vandalized with graffiti and littered with trash, which creates community appearance problems for the City. Some murals have been painted on sound walls to address these problems.

View of commercial uses on Jackson Street
(Source: City of Hayward)



View of sound wall on West Winton Avenue
(Source: City of Hayward)

Other community appearance problems occur along the highway, rail, drainage, and utility corridors that cross the flatland neighborhoods. These corridors are often overgrown with weeds and littered with trash. The illegal dumping of large bulky items, such as furniture and appliances, also occurs in these areas, especially along railroad corridors. These corridors are owned and maintained by other agencies, such as BART, Caltrans, Union Pacific, and Alameda County. The City has adopted a number of ordinances ensuring that appearance standards are maintained in the City. The ordinances address graffiti, abandoned vehicles, weeds, litter, and the illegal dumping of bulky items.

Two major community assets are located in the flatland neighborhoods: Chabot College and the Southland Mall. Chabot College is a community college that occupies a 94-acre site. Its campus has several two story buildings that are arraigned within an oval shaped pattern. Southland Mall is a regional shopping destination and a major source of local sales tax revenue. However, the mall is one of the oldest shopping malls in the region and faces increasing competition from newer and more attractive shopping destinations in the county, such the Union Landing in Union City, Downtown Walnut Creek, the Newpark Mall in Fremont, and Stoneridge Mall in Pleasanton.

View of Chabot College Campus (Source: City of Hayward)

View of Southland Mall (Source: City of Hayward)

Foothill Neighborhoods

The foothill neighborhoods are generally located east of Mission Boulevard and Foothill Boulevard. A variety of residential properties are located in the foothills, including tract homes, rural ranches, and large estate homes. The foothill neighborhoods have a more rural character than the flatland neighborhoods. There are more custom homes on larger lots and fewer tract-home developments. The streets are more curvilinear, and many streets do not have sidewalks, curbs, and gutters. Many properties also have natural landscaping, which adds to the rural character of neighborhoods.

Examples of homes in the Foothill Neighborhood (Source: City of Hayward)

The main campus for California State University, East Bay is also located in the foothill neighborhoods. The 341-acre hillside campus is relatively small and compact compared to other California State University campuses. The campus has a variety of multi-story academic and administrative buildings. Warren Hall, the campus's signature 12-story building, is visible

from cities throughout the San Francisco Bay Area and serves as a landmark for Hayward. The campus's elevated site on the hillside provides scenic views of the city of Hayward and the surrounding San Francisco Bay Area. Although the city of Hayward is home to a major university, the City has not fully capitalized on this community asset and is not known as a major college town.

Views of California State University, East Bay (Source: City of Hayward)

Several streets within the foothill neighborhoods provide scenic views of the City of Hayward, the San Francisco Bay, and the natural hillsides in the area. None of the streets are currently (December 2012) designated as local scenic routes. Interstate 580, which defines the northeastern edge of the Hayward Planning Area, is eligible to become an officially designated State Scenic Highway.

Examples of scenic views from streets in the hillside neighborhoods (Source: City of Hayward)

Industrial Corridor

The industrial corridor is a crescent-shaped district located along the western and southwestern edge of the Hayward urban limit line. The industrial corridor contains a variety of manufacturing facilities, warehouses, business park developments, and supporting commercial uses. In addition, Hayward Executive Airport is located at the northeast edge of the Industrial Corridor. The Hayward Executive Airport is a general aviation facility used by a multitude of diverse aircraft, ranging from business and corporate jets to small privately-owned aircraft. The 543-acre airport has two runways, a helipad, a control tower, and several aviation hangars and facilities.

Example of buildings within the industrial corridor (Source: City of Hayward)

Eastern Foothills

The eastern foothills occupy the eastern segment of the Hayward Planning Area. They are characterized by rolling hills, ridgelines, and canyons. Agriculture and grazing occur on some of the properties within the foothills, but in general, the area is characterized by grassland, chaparral, woodland, and riparian environments that provide habitat for a diverse collection of plants and animals. The foothill grasses are typically green in the winter and spring months, and will turn yellow and brown in the dry months of summer and fall. The foothills are a natural and scenic resource that provides visual backdrop to the City of Hayward. Most of the parks are owned and managed by the East Bay Regional Parks District and are part of Palomares Ridge Regional Park.

Views of the Eastern Foothills (Source: City of Hayward)

Regulatory Setting

California State Scenic Highways Program

California's Scenic Highway Program was created by the State Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The State laws governing the Scenic Highways Program are found in the Streets and Highways Code, Sections 260 through 263.

When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. Scenic corridors consist of land that is visible from the highway right-of-way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. The city or county must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor, or document such regulations that already exist in various portions of local codes. These ordinances and/or policies make up the Corridor Protection Program.

The status of a proposed State scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

Key Terms

The following key terms used in this chapter are defined as follows:

Scenic Highway. A highway that is recognized by the State of California's Scenic Highway Program for its natural scenic beauty. Land use along Scenic Highways is regulated by ordinances or policies that help preserve the scenic qualities of the corridor.

Bibliography

Reports/Publications

City of Hayward, General Plan, 2002.

City of Hayward, Downtown Hayward Design Plan, adopted in 1987 and last updated in 1992.

Websites

California Scenic Highways Website: http://www.dot.ca.gov/hq/LandArch/scenic_highways/scenic_hwy.htm, 2012.

Don Edward San Francisco Bay National Wildlife Refuge website http://www.fws.gov/desfbay, 2012.

Hayward Regional Shoreline website: http://www.ebparks.org/parks/hayward, 2012.

Persons Consulted

None.

SECTION 1.5 HISTORIC AND CULTURAL RESOURCES

Introduction

This section describes the cultural (historical, archeological, and paleontological) resources present or potentially present in Hayward. Significant cultural resources in the city include structures that may be eligible for the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or otherwise listed on the City of Hayward List of Officially-Designated Architecturally and Historically Significant Buildings.

Major Findings

- The city of Hayward is situated within the historic territory of the Chochenyo Tribelet of the Costanoan Indians (also known as the Ohlone). Historic accounts suggest that the Native Americans may have had a village site along San Lorenzo Creek as well as temporary camps in its vicinity. The Costanoan aboriginal way of life disappeared by 1810 due to introduced diseases, a declining birth rate, and the impact of the Spanish mission system.
- The modern city of Hayward had its origins in the 1850s, during the Gold Rush. In 1854 the Mexican colonist Guillermo Castro had a map surveyed for a town covering 28 blocks in the vicinity of his adobe (a site now occupied by Hayward's Historic City Hall) and began selling land to settlers. Castro also sold a large tract to William Hayward, who built a general store and lodging house at present-day A and Main Streets. The settlement that grew up around Hayward's Hotel became known as Haywards, later shortened to Hayward.
- Farming and salt production were the major economic activities in the area during the mid nineteenth century. Rich soil and abundant water supported a prosperous farming and ranching culture.
- Railroads spurred urban and agricultural development in Hayward. In 1865 a local line began service between Hayward and Alameda, where trains connected with ferries to San Francisco. This line was soon taken over by the Central Pacific, and in 1869 transcontinental trains began running through Hayward.
- Hayward was incorporated in 1876.
- Explosive growth in the 1950s, facilitated by the opening of the Nimitz Freeway (Interstate 880), brought about a five-fold increase in the city's population, which exceeded 72,000 by 1960.
- Today, the city's historic retail core remains evident through historic commercial and mixed-use buildings along B Street between Mission and Foothill Boulevards. Early

commercial buildings dominate the blocks between A Street and C Street, and Mission Boulevard and Foothill Boulevard.

- Mark's Historic Rehabilitation District is the only historic district officially designated by the City of Hayward.
- There are several areas of the city that could potentially be designated as historic districts. The City adopted design guidelines for the B Street Historic Streetcar district as a result of the Burbank Neighborhood plan study of 1988; however, this district is not officially designated. Two other potential districts have been identified by this and other studies: the Prospect Hill Historic District and the Upper B Street Historic District.
- The City of Hayward has an Historic Preservation Ordinance, which provides for designation of historic sites and structures. The City's official list of Historically or Architecturally Significant Buildings currently contains 20 structures that have been officially designated by the City. In addition, there is one structure in the city that is listed on the National Register of historic landmarks.

Existing Conditions

This section summarizes the historical and archeological setting in Hayward, and provides the essential background pertaining to these resources.

Native American Resources

Prehistoric

In general, Alameda County had a favorable environment for prehistoric occupation. Upland areas near watercourses were favored locations for prehistoric occupation. In the San Francisco Bay Area the Bay margins are also high sensitivity areas for archeological resources, due to their proximity to fish and shellfish resources in the Bay. Prehistoric aboriginal use of the Hayward area was undoubtedly influenced by the presence of the San Francisco Bay Margin and seasonal and permanent water sources including San Lorenzo and Alameda Creeks, as well as Dry Creek and others in the hills such as Sulphur, Ward, Zeile, Palomares, Dublin, Gold, and Sinbad Creeks.

Native American occupation and use of the area in the general area appears to extend over 5,000 to 7,000 years and possibly longer. Archaeological information suggests an increase in the prehistoric population over time with a focus on permanent settlements with large populations in later periods. This change from hunter-collectors to a more sedentary lifestyle is due to more efficient resource procurement, but with a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasing complex social and political systems including long-distance trade networks. The information obtained from archeological studies in the general area has played a key role in refining both the local and regional interpretations of Native American history for central California.

Ethnographic

The aboriginal inhabitants of the Hayward area belonged to a group known as the Costanoans (also known as the Ohlone) who occupied the central California coast as far east as the Diablo Range. The population was subdivided into tribelets, which were politically autonomous groups containing some 50 to500 individuals, with an average population of 200. The tribelet territories, defined by physiographic features, usually had one or more permanent villages surrounded by several temporary camps. The camps were used to exploit seasonally available floral and faunal resources.

The city of Hayward is situated within the historic territory of the Chochenyo Tribelet of the Costanoan Indians. The nearest known tribelet settlement, Lisyan, was located at the mouth of San Lorenzo Creek. The exact location of this settlement is not known. The Yrgin Tribelet was also thought to be located in present-day Hayward and Castro Valley. Members of this group were both Costanoan and Bay Miwok language speakers and held the bayshore and watershed of San Lorenzo Creek. A major aboriginal trail passed through the Hayward area. Historic accounts of the distribution of the tribelets and villages in the 1770s to 1790s suggest that the Native Americans may have had a village site along San Lorenzo Creek as well as temporary camps in its vicinity.

The Costanoan aboriginal way of life disappeared by 1810 due to introduced diseases, a declining birth rate, and the impact of the Spanish mission system. These Native Americans were transformed from hunters and gatherers into agricultural laborers and craftsmen who lived at the missions and worked with former neighboring groups such as the Esselen, Yokuts, and Miwok. Later, because of the secularization of the missions by Mexico in 1834, most of the aboriginal population gradually moved to ranchos to work as manual laborers.

Historic Era

Recorded history in Alameda County can be divided into three periods: the Spanish Period (1769 to 1821), the Mexican Period (1822 to 1848), and the American Period (1848 topresent; Hart 1987).

Hispanic Period (Spanish/Mexican 1769 to 1848). Between 1769 and 1776 several Spanish expeditions passed through the San Francisco Bay region, including those led by Ortega, Fages, Crespi, and Anza. Even though the routes of the early explorers cannot be determined with complete accuracy, several are known to have traveled near the Hayward area. San Lorenzo Creek was viewed by Father Juan Crespi during the Pedro Fages expedition in 1772 and later in 1775/1776 by Father Pedro Font of the Juan Bautista de Anza expedition. The 1776 Juan Bautista de Anza National Historic Trail places the historic route along the foothills and would have proceeded through present-day Hayward. The "Spanish Camp Site-San Lorenzo Creek" is placed at Mattox Road on the north side of San Lorenzo Creek, just north of Hayward. This camp site has not been evaluated for the NRHP, but is on the California Inventory of Historic

Resources under the theme of Exploration/Settlement. Portales and Ortega, Fages and Father Crespi (twice), and Anza and Font camped at this location.

The Spanish philosophy of government was directed at the founding of presidios, missions, and secular towns with the land held by the Crown while the later Mexican Period (1821 to 1848) policy stressed individual ownership of the land. During the Hispanic Period cattle ranching for tallow and hides was the major economic pursuit in California.

The present-day Hayward area was part of four former ranchos as well as ungranted land along the San Francisco Bay Margin and inland in the East Bay Hills. The Rancho San Lorenzo included Castro Valley as well as the Town of Haywood (present-day downtown Hayward). This rancho was bounded on the west by part of the Rancho San Lorenzo, which also formed the western boundary of the Town of Haywood. The northern boundary of the third rancho, Rancho Arroyo de la Alameda, was bounded by Rancho San Lorenzo and a small portion of Rancho San Lorenzo on the north. The fourth and southernmost rancho, the Potrero de los Cerritos, was bounded on the northeast by the Rancho Arroyo de la Alameda Rancho.

***Rancho San Lorenzo* (Castro).** Rancho San Lorenzo consisted of 26,722 acres granted to Castro by two governors: Juan B. Alvarado on February 23, 1841; and Manuel Micheltorena on October 25, 1843. The *Rancho de San Lorenzo* (Castro) grant was patented by Guillermo Castro on February 14, 1865. He was born in 1819, was a member of the San Jose militia in 1837, in 1838 was one of three men who measured the San Jose Pueblo Lands, and from 1841 to 1844 was the justice of the peace in "Contra Costa." He was married to Luisa Peralta, daughter of Luis M. Peralta, grantee of Rancho San Antonio, which included the present-day cities of Oakland, Alameda, Berkeley, Albany, Emeryville, Piedmont, and part of San Leandro.

The Castro Homestead extended for a two-block area from B Street to D Street between Castro Street (the present Mission Boulevard) and Main Street, and two dwellings in this rancho were situated in the present-day downtown area. The Castro Adobe Dwelling Site, dating to 1841, formerly located at 22738 Mission Boulevard between C and D streets on the site of the Old City Hall, has been evaluated as "appears eligible" for the NRHP (CAL/OHP 2001a: code 3S) and is also listed on the California Historic Plan under the theme of "domestic" and the California Inventory of Historic Resources under the theme of Exploration/Settlement.

The site of the Castro Plaza was located across from the Castro Adobe at the northwest corner of Mission Boulevard and D Street at the site of the present-day Hayward Library. The Plaza was part of the 1854 to 1856 plat of Hayward, originally known as "San Lorenzo." The Plaza has not yet been evaluated for the NRHP (CAL/OHP 2001a: code 7J), but has been listed on the California Inventory of Historic Resources under the theme of Economic/Industrial.

***Rancho San Lorenzo* (Soto).** Rancho San Lorenzo, which extended from the salt marshes to the hills, was granted to Francisco Soto by Governor Juan B. Alvarado on October 10, 1842, and Governor Manuel Micheltorena on February 20, 1844. The grant was patented to his widow,

Barbara Soto, in April 1877 for 6,686 acres. Dwellings on this rancho included the Soto Palizada Dwelling Site, dating to about 1842, which was located about 600 feet east of the Hayward-Niles highway (present-day State Route 238/Mission Boulevard) and 0.55 miles south of its junction with Hayward-Mount Eden Road (present-day Jackson Street). Soto's adobe house, the Soto Adobe Dwelling Site, dating to the late 1840s, was 825 feet north of the old house, and less than a half-mile south of Castro's on the south bank of Ward Creek on the southwest side of Mission Boulevard opposite the tennis courts of Hayward Memorial Park.

Rancho Arroyo de la Alameda. Rancho Arroyo de la Alameda (ND #133), which covered 17,754 acres was granted by Governor Alvarado on August 8, 1842, to Jose de Jesus Vallejo, the older brother of Salvador and Mariano G. Vallejo. Vallejo received his patent on January 1, 1858, for 17,705 acres. Vallejo was born in San Jose in 1800, was a soldier in both Monterey and San Francisco, and was an administrator of Mission San Jose from 1837. He lived at Mission San Jose (now part of the City of Fremont) for most of his life and died in the 1880s.

Rancho Potrero de los Cerritos. A small part of the Rancho Potrero de los Cerritos is situated in the southwest portion of the present-day City of Hayward. Rancho Potrero de los Cerritos was a temporary grant by Governor Alvarado on November 29, 1842, and final grant in fee by Governor Micheltorena on March 21, 1844, to Tomas Pacheco and his brother-in-law, Augustin Alviso. Litigation surrounding the grant included a United States Supreme Court decision dated February 20, 1860, upholding the confirmation of the grant to Pacheco and Alviso followed by disagreement over the patent survey by William J. Lewis in November which went to the Supreme Court. After the February 20, 1865, decision in favor of the original survey, the rancho was patented to them on February 21, 1866, for 10,610 acres.

Historic Roads. Mission Boulevard is the namesake and former road between the missions, ranchos, and pueblos. For example, the road appears as “Road from Alvarado to San Lorenzo” on Plat of the Rancho San Lorenzo (Soto); and as the "Road to Mission San Jose" on Stratton's 1864 to 1868 Town of Haywood map. It also appears as the "Road from Oakland to San Jose" on the west side of Guillermo Castro's adobe dwelling on the Plat of the Rancho San Lorenzo (Castro) and on the Government Land Office Map for Township 3 South, Range 2 West, Mount Diablo Meridian with Hayward Area Ranchos.

American Period. In the mid-nineteenth century most of the rancho and pueblo lands in California were subdivided as the result of population growth, the American takeover, and the confirmation of property titles. The initial explosion in population was associated with the Gold Rush (1848), followed later by the construction of the transcontinental railroad (1869). Later on, the development of the refrigerator railroad car (ca. 1880s) used for the transport of agricultural produce to distant markets had a major impact on population growth. The growth of the Hayward area was dependent on transportation, first by water and roads, and later by rail and then by air. Farming and salt production were the major economic foci of the area during this time.

Alameda County, named after Alameda Creek, the former boundary between Contra Costa and Santa Clara Counties, was created from portions of Santa Clara and Contra Costa Counties on March 25, 1853. The modern city of Hayward had its origins in the 1850s during the Gold Rush. The city's site lay within the boundaries of *Rancho San Lorenzo*, a 17,000-acre estate granted in 1821 to the Mexican colonist Guillermo Castro. In 1854 Castro had a map surveyed for a town covering 28 blocks in the vicinity of his adobe (a site now occupied by Hayward's Historic City Hall) and began selling land to settlers. Castro also sold a large tract to William Hayward, who built a general store and lodging house at present-day A and Main Streets, near the intersection of the principal road from Oakland to San Jose and the road from the bayshore landings to the Castro and Livermore Valleys. The settlement that grew up around Hayward's Hotel became known as Haywards, later shortened to Hayward.

Rich soil and abundant water supported a prosperous farming and ranching culture in the area. Numerous farms and ranches spread across the flatlands and hills, producing grains, vegetables, fruits, dairy products, and meat. Most of these landholdings were large, ranging in size from 100 to 500 acres, with a few exceeding 1,000 acres. The premier agriculturist in the area was William Meek, who owned nearly 3,000 acres south and west of San Lorenzo Creek and Hayward, on which he pastured sheep and cultivated almonds, plums, oranges, lemons, limes, cherries, currants, wheat, oats, barley, and corn.

Railroads spurred urban and agricultural development. In 1865 a local line began service between Hayward and Alameda, where trains connected with ferries to San Francisco. This line was soon taken over by the Central Pacific, and in 1869 transcontinental trains began running through Hayward. In 1878 a second railroad began service along the bay shore, with a station at the village of Mt. Eden. By 1870 Hayward had a population of 1,000 and a thriving commercial district. When Hayward was incorporated in 1876, the town plat extended east from the vicinity of present-day Mission Boulevard to Fourth Street. A Street marked the town's north boundary; E Street and Jackson Street made up the south boundary. This grid would change little over the next 30 or 40 years. During these years Hayward remained a small mercantile town with a cannery by the tracks and a couple of thousand residents. Roads radiated out from the town into the surrounding farmland. A Street ran east and west to Castro Valley and the bay shore; Jackson Street headed southwest to the village of Mt. Eden; and Mission Boulevard ran north and south to nearby towns and cities.

The Hayward area entered a period of accelerated change in the early decades of the 20th century. A steady influx of farmers and townsfolk resulted in the gradual expansion of the town grid and the cutting up of larger farms into smaller farms. The opening of the Hayward-San Mateo Bridge in 1919 brought new prominence to the town as burgeoning numbers of automobiles passed through the area on newly improved county roads. During the prosperous 1920s, Hayward's population surged to 5,000 and new tracts pushed out the boundaries of the grid. When the United States declared war in 1941, Hayward was still an agricultural town, with a population of about 7,000.

By 1950, with a population exceeding 14,000, the small town was well on its way to becoming a large city. Housing tracts had begun to appear around the fringes of the grid, and the city limits now stretched south to Tennyson Road and west to the Southern Pacific tracks, with an extension to the new municipal airport (established during the war as a military airbase). Explosive growth in the 1950s, facilitated by the opening of the Nimitz Freeway (Interstate 880), brought about a five-fold increase in the city's population, which exceeded 72,000 by 1960. As vast tracts of agricultural land were annexed, pushing the city limits south to Union City and west to the bay, the farmland gave way to subdivisions, shopping centers, and industrial parks.

Historic Districts

Mark's Historic Rehabilitation District is the only historic district officially designated by the City of Hayward. The City adopted design guidelines for the B Street Historic Streetcar district as a result of the Burbank Neighborhood plan study of 1988; however, this district is not officially designated. Two other potential districts have been identified by this and other studies: the Prospect Hill Historic District and the Upper B Street Historic District. All of these districts are found to be locally significant.

Marks Historic Rehabilitation District

The Marks Historic Rehabilitation District (Marks District) was adopted by the City of Hayward in 1992, pursuant to the Marks Historic Rehabilitation Act of 1976. The designation was part of a larger effort aimed at downtown revitalization and historic preservation. At that time the City also initiated a Downtown Retrofit and Revitalization Program to upgrade historic buildings and revitalize the historic downtown core.

Figure 1-3 shows the boundaries of the Marks District. The Marks District is bounded on the east by Foothill Boulevard, from A Street south to Jackson Street. The western boundary is defined by Francisco and Atherton Streets, then extending westward across the Bart tracks to Grand Street to include a number of properties between A and B Streets. The northern boundary is irregular and includes properties on either side of Mission Boulevard up to McKeever Avenue. The boundary encompasses the historic commercial and civic core of Hayward and includes portions of downtown residential neighborhoods. The area contains over two hundred principal structures and various accessory buildings. Large portions of some commercial blocks have been cleared for parking uses.

Today, the city's historic retail core remains evident through historic commercial and mixed-use buildings along B Street between Mission Boulevard and Foothill. Early commercial buildings dominate the blocks between A and C Streets, and Mission and Foothill Boulevards. Later commercial buildings, constructed through the 1950s and 1960s, line Foothill Boulevard between Mission Boulevard and A Street. Historic civic buildings are located south of C Street, between Watkins and Main Street. Remnants of the B Street residential corridor are also contained within the district boundaries between Grand and roughly Atherton Streets. Mixed commercial and residential portions of the district are also found along Mission Boulevard and Prospect Terrace in the northern part of the district and south of D Street in the southern portion of the district.

Upper B Street Historic District

The boundaries of the proposed Upper B Street Historic District were originally defined as part of the Neighborhood Plan Study, completed with the assistance of the Hayward Area Historical Society in the early 1990s. The full Upper B Street Study Area boundary for that project encompassed a much larger area bordered roughly by E Street to the south, 2nd Street to the west, San Leandro Creek to the north, and the Upland Way and Marolyn Court subdivisions to the east. There are several potentially historic properties within the area.

The Upper B Street Historic District encompasses a notable concentration of late 19th and early 20th century residential properties in a variety of architectural styles representative of that period of development. The area contains some of the City's first residential tracts, and remains as a noteworthy example of residential development in pre-World War II Hayward. The neighborhood is also associated with Hayward's early Portuguese community, many of whose members settled in the neighborhood because of its proximity to All Saints Church, the IDES Hall, and the downtown commercial district.

Lands in the area of the proposed historic district are reflective of early residential development and were home to some of Hayward's initial settlers. Located near the emerging downtown core of Hayward, the neighborhood offered convenient proximity for residents to local shops and passenger rail lines.

The Upper B Street Neighborhood today is comprised primarily of residential and commercial uses. Small (mostly one-story) office buildings and neighborhood commercial businesses are concentrated primarily along B Street, and residential development (both single- and multi-family) dominates the remainder of the neighborhood. The blocks between downtown Hayward and Fourth Street contain some of the earliest residential development in the City. Interspersed among the earlier residences are medium- to high-density residential uses and some commercial businesses. The portion of the neighborhood from Fourth Street to about Seventh Street also includes early single-family development. Over time many lots within the neighborhood have had additional dwelling units added in back.

Clusters of mature shade trees are located throughout the district and many individual properties feature mature shade trees, fruit trees, shrubs and other older plantings. Street trees create a notable canopy along B Street, especially between 4th Street and 6th Street. Other remnants of the district's earlier days can be seen in narrow sidewalks, portions of early fencing and older street signage. Despite physical changes to the district over time, the neighborhood retains a good degree of historic character, residential scale, and visual coherence. A variety of architectural styles are represented including Queen Anne cottages, Folk Victorian residences, Neoclassical rowhouses and cottages, modest workers cottages, one-and two-story Craftsman style dwellings and California bungalows.

B Street Historic Streetcar District

The proposed B Street Streetcar Historic District encompasses residential properties along B Street between Watkins Street to the east and Meekland Avenue to the west. Properties are located primarily along the north side of B Street, with exception of the blocks between Grand and Myrtle Streets where properties on both sides of the street are included. The neighborhood is characterized by its linear arrangement, remarkable tree canopy, and by a variety of late 19th and early 20th century residences. Some notable ca.1940 and ca.1950 infill residences are also present. Most lots have had secondary residential units added in back, though overall the neighborhood retains a good degree of its historic residential character.

Construction on the Hayward Horse Car Transit Company line began in 1890 and was completed in February 1891. In 1902 it was absorbed, like many other local streetcar lines, into Borax Smith's Oakland Transit Consolidated (a.k.a. the Key System). By 1909 it was the last horse drawn line in the East Bay. It was abandoned in April of that year in favor of the electric streetcar. Today, modest houses from the late 19th and early 20th centuries line B Street between downtown and Cannery Park, marking the remnants of this early streetcar route.

The earliest residences are shown east of Soto Street (Montgomery Street today), along the north side of B Street in 1893. Residential development along lower B Street—stretching to the site of the Hunt Brothers' Cannery—is shown as early as 1899 on USGS maps of Hayward. The 1907 Sanborn map and a 1915 USGS map indicate that residential development was primarily concentrated along the north side of B Street for the first decade or so of the district's development. By 1923, however, one- and two-story single family dwellings had been constructed along the both sides of B Street from Watkins Street to Front Street, though the area of primary concentration was between Grand and Myrtle Streets. The district was fully developed by the 1950s and served by the Luther Burbank Grammar School located on the block bound by Myrtle, Filbert, B, and C Streets.

...LOOKING FORWARD 2040 HAYWARD·GENERAL·PLAN

Figure 1-3
Mark's Historic Rehabilitation Distict

January, 2013

Prospect Hill Historic District

The proposed Prospect Hill Historic District encompasses properties along both sides of Prospect Street from Rose Street at the north, and extends southeast to include a group of cottages along the north side of Hotel Avenue. This boundary then turns north again, running along the west side of Prospect Terrace to Warren Avenue, where it extends east to include properties along both sides of Main Street up to Hazel Avenue/Simon Street. The neighborhood is characterized by its hilltop location, with views overlooking the city in all directions; a variety of mature trees and other plantings; moderate setbacks and narrow sidewalks; and a variety of architectural styles including Victorian cottages and Shingle, Spanish Eclectic, Tudor, Craftsman, Mission Revival, Moderne, and Colonial Revival style residences. Some notable circa 1940 and circa 1950 modernist and ranch style residences are also present.

Officially Designated Architecturally and Historically Significant Buildings

The City of Hayward has a Historic Preservation Ordinance, which provides for designation of historic sites and structures. The City's official list of Historically or Architecturally Significant Buildings currently contains 20 structures that have been officially designated by the City. In addition, there is one structure listed on the national register of historic landmarks. Table 1-2 lists the Officially Designated Architecturally and Historically Significant Buildings. Figure 1-4 shows the locations of the resources listed in Table 1-2.

TABLE 1-2 OFFICIALLY DESIGNATED ARCHITECTURALLY AND HISTORICALLY SIGNIFICANT BUILDINGS City Hayward 2012				
Map Number (see Figure 1-4)	**Building Name/Description**	**Address**	**Year Designated**	**Register**
1	Victorian House	24072 Myrtle Street	1976	Local
2	Site & Victorian Building	21800 Hesperian Boulevard	1976	Local
3	IOOF Lodge	944-952 B Street	1977	Local
4	IDES Lodge	1105 C Street	1977	Local
5	Hayward Museum	22701 Main Street	1977	Local
6	Historic City Hall	22738 Mission Boulevard	1977	Local
7	The Castle (Standon Hall)	24077 Second Street	1977	Local
8	Oliver Estate	27355 Hesperian Boulevard	1987	Local
9	Victorian House	714 B Street	1987	Local
10	Queen Anne Victorian House	1325 B Street	1991	Local
11	Victorian House	22248 Main Street	1995	Local
12	Hunts Water Tower	199 C Street	2001	Local
13	Green Shutter Hotel	22632-22654 Main Street	2004	National
14	Neoclassical Cottage	1436 B Street	2012	Local
15	Colonial Revival House	1442 B Street	2012	Local
16	Late Queen Anne Cottage	1465 B Street	2012	Local
17	Late Queen Anne Cottage	1471 B Street	2012	Local
18	Late Queen Anne Cottage	1421 C Street	2012	Local
19	Queen Anne/Eastlake Cottage	1431 C Street	2012	Local
20	Queen Anne Cottage	1444 C Street	2012	Local
21	Vernacular Greek Revival House	22589 Chestnut	2012	Local

Source: City of Hayward Historical Resources Survey & Inventory Report, July 2010.

Various surveys and studies have been conducted over the years to determine what sites, buildings, and landmarks may be of local significance or be eligible for placement on national or State registers. In 2009 the City contracted with Circa: Historic Property Development to conduct a citywide reconnaissance-level survey and a downtown focus area survey. This survey provided a comprehensive record of historic resources within the city.

Figure 1-4
Historically Significant Buildings

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Map Number	Building Name/Description
1	Victorian House
2	Site & Victorian Building
3	IOOF Lodge
4	IDES Lodge
5	Hayward Museum
6	Historic City Hall
7	The Castle (Standon Hall)
8	Oliver Estate
9	Victorian House
10	Queen Anne Victorian House
11	Victorian House
12	Hunts Water Tower
13	Green Shutter Hotel
14	Neoclassical Cottage
15	Colonial Revival House
16	Late Queen Anne Cottage
17	Late Queen Anne Cottage
18	Late Queen Anne Cottage
19	Queen Anne/Eastlake Cottage
20	Queen Anne Cottage
21	Vernacular Greek Revival House

Local Register
National Register
Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

0 ¼ ½ 1 Miles

Data source: City of Hayward Historical Resources Survey & Inventory Report, July 2010

September, 2013

Regulatory Setting

Federal

The majority of applicable Federal regulations concerning cultural resources are established by the National Historic Preservation Act of 1966 (NHPA), and the National Environmental Policy Act of 1969.

National Historic Preservation Act of 1966(16 U.S.C. 470 et seq.). This law was enacted to prevent unnecessary harm to historic properties. The NHPA includes regulations that apply specifically to Federal land-holding agencies, but also includes regulations (Section 106) that pertain to all projects funded, permitted, or approved by any Federal agency that has the potential to affect cultural resources. Provisions of NHPA establish a National Register of Historic Places, or NRHP (the National Register is maintained by the National Park Service), the Advisory Council on Historic Preservation, State Historic Preservation Offices, and Federal grants-in-aid programs.

National Environmental Policy Act of 1969 (16 U.S.C. 4321, and 4331-4335, as amended) (NEPA). The act establishes guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." All projects that are subject to NEPA are also subject to compliance with Section 106 of the NHPA and NEPA requirements concerning cultural resources.

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996 and 1996a, as amended) and Native American Graves and Repatriation Act of 1990 (25 U.S.C. 3001 et seq., as amended). These acts establish a national policy that traditional religious practices and beliefs, sacred sites (including right of access), and the use of sacred objects shall be protected and preserved. Native American remains are further protected by the Native American Graves Protection and Repatriation Act of 1990.

Secretary of the Interior's Standards. The Secretary of the Interior is responsible for establishing professional standards and providing guidance related to the preservation and protection of all cultural resources listed in, or eligible for listing in, the National Register of Historic Places. The Secretary of the Interior's Standards for the Treatment of Historic Properties apply to all grants-in-aid projects assisted through the National Historic Preservation Fund, and are intended to be applied to a wide variety of resources, including buildings, structures, sites, objects, and districts. The treatment standards, developed in 1992, are entitled "The Secretary of the Interior's Standards for the Treatment of Historic Properties" codified as 36 CFR 68. The standards address four treatments: preservation, rehabilitation, restoration, and reconstruction (see Key Terms, below).

Certified Local Government Program. The Certified Local Government (CLG) Program is a national program developed under the National Historic Preservation Act (1966) that is designed to encourage the direct participation of a local government in the identification, registration, and preservation of historic properties located within the jurisdiction of the local government. A local government may become a CLG by developing and implementing a historic preservation program and commission, based on Federal and State standards.

The CLG program encourages the CLG preservation of cultural resources by promoting a partnership among local governments, the State of California, and the National Park Service (NPS). Becoming a CLG can provide local staff and commissions with the tools, technical training, and leadership roles required to preserve a community.

National Register of Historic Places (NRHP). Archeological and historical sites can be given a measure of protection if they are eligible for the *National Register of Historic Places* (36CFR60.4 and 36CFR800). The criterion most often applied to archeological sites is criterion (4), which addresses the potential of a site to yield information important in prehistory or history. The National Register criteria and other information issued by the Advisory Council on Historic Preservation, present the legal measures of significance relevant to cultural resources. The NRHP criteria are the following:

- The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are associated with events that have made a significant contribution to the broad patterns of our history; or
- are associated with the lives of persons significant in our past; or
- embody the distinctive characteristics of a type, period, or method of construction, 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 distinction; or
- have yielded, or may be likely to yield, information important to prehistory or history [36CFR60.4 (a-d)].

Pursuant to the intent and specification of the criteria quoted above, prehistoric and historic cultural resources may be eligible for nomination to the *National Register of Historic Places* in the event that they have yielded, or upon further investigation may be likely to yield, information important in prehistory or history. This evaluation is based on inspection of the features of the site, examination of artifacts and features, the age of the site, the apparent *integrity* of the site's context, and the location and integrity of the site in its local and regional context. Under criterion (d) it is implicit that further scientific investigation of a site based on research goals, objectives, problem domains, testable hypotheses and other research questions that have been

identified in applicable research designs (Moratto 1981; Napton 1981) will be likely to yield information important to the explication and interpretation of local and or regional prehistory and history.

In addition to meeting one or more of NRHP criteria, a cultural resource must possess physical and geographic integrity. An eligible cultural resource must be essentially in the same physical condition as when it was used or constructed, and, if it is not, its condition must be such that it may be renovated to its near original condition. A cultural resource must also have integrity of location – it must be in its original location of use or construction. The setting of a cultural resource must impart a feeling characteristic of the time when the resource achieved its significance. In reference to archeological sites, a cultural resource must have sufficient integrity so that available data can be recovered and analyzed in meaningful ways (King 1999; Hardesty and Little 2000).

State Regulations

California Environmental Quality Act (Public Resources Code 21000 et seq.)(CEQA). Section 15064.5 of the CEQA Guidelines (California Code of Regulations Title 14 Section 15000 et seq.) requires lead agencies to determine whether proposed projects that require discretionary government approval may have a significant effect on archeological or historical resources. This determination applies to cultural resources that meet significance criteria qualifying them as "unique" or "of importance," or are listed or determined eligible for listing on the California Register of Historical Resources (CRHR). If a project may have an adverse effect on a unique or important cultural or paleontological resource, the project is determined to have a significant effect on the environment, and the effect must be mitigated. If a cultural resource is found not to be significant or unique under the qualifying criteria, it need not be considered further in the planning process.

CEQA emphasizes avoidance of archeological and historical resources as the preferred strategy of reducing potential significant environmental effects resulting from a proposed project. If avoidance is not feasible, a data recovery program or other appropriate measures must be developed to mitigate project impacts. In order to address the level of potential impacts, and thereby design appropriate mitigation measures, the significance and importance of affected cultural resources must be ascertained. CEQA Guidelines section 15064.5 includes provisions for significance criteria related to archeological and historical resources. A significant archeological or historical resource is defined as one that meets the criteria of the CRHR. A significant impact is characterized as "substantial adverse change in the significance of a historical resource." An impact is considered significant if any of the following apply:

- The project may disturb historical architectural resources;
- The project may disturb known prehistoric or historical cultural resources; or

- The project may disturb buried, unknown prehistoric or historical archeological resources.

The CEQA Guidelines define three criteria that may qualify a property as a historic resource for CEQA review:

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources.
- The resource is included in a local register of historical resources, as defined in Section 5030.1[k] of the Public Resources Code, or identified as significant in a historical resource survey meeting the requirements of section 5024.1[g] of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
- The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (California Code of Regulations, Title 14, Division 6, Chapter 3, section 15064.5[a]).

California Register of Historical Resources. On September 27, 1992, Assembly Bill 2881 (Statutes of 1992, Chapter 1075) was signed into law amending the Public Resources Code as it affects historical resources (Public Resources Code §4850 *et seq*.). This legislation, which became effective on January 1, 1993, also creates the *California Register of Historical Resources*, informally the CRHR. Under CRHR a historical resource may be determined significant under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Integrity is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. All resources nominated for listing on the CRHR must have integrity. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be

judged with reference to the particular criteria under which a resource is proposed for eligibility. Alterations over time to a resource or historic changes in its use may themselves have historical, cultural, or architectural significance.

It is possible that historical resources may not retain sufficient integrity to meet the criteria for listing in the National Register, but they may still be eligible for listing in the California Register. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register if it maintains the potential to yield significant scientific or historical information or specific data.

Senate Bill 18 (Chapter 905, amends Section 815.3 California Civil Code "Traditional Tribal Cultural Places"). Senate Bill 18 requires cities and counties to conduct consultations with Native American tribes before local officials adopt or amend their general plans. These consultations are for preserving or mitigating impacts to Native American historic, cultural, sacred sites, features, and objects located within the city or county. A tribe has 90 days from the date of contact to request a consultation, unless the tribe agrees to a shorter time frame. Senate Bill 18 also added a new topic that must be addressed in the open space element: open space land for the protection of Native American historic, cultural, sacred sites, features, and objects.

Native American Heritage Commission (NAHC). The NAHC, established in 1976, was created in response to efforts by Native Americans to protect their burial grounds from destruction. NAHC authorizes Most Likely Descendants (MLDs) the right to determine the treatment, disposition, and analysis of Native American human remains. Among the functions of NAHC is maintenance of lists of Native American Contacts and Most Likely Descendents.

- **Native American Contacts.** Project proponents or their designees are required by law to contact NAHC and advise the Commission of the purpose and location of proposed projects, and request NAHC to provide a list of Native American individuals and organizations that may have concerns regarding the project or its potential effects. Upon receipt of the list, the project proponent is responsible to contact the individuals and organizations listed, furnishing each with a statement of the project's purpose and a map of its location. The Native American contacts are not to be confused with MLDs, discussed below.
- **Most Likely Descendant (MLD).** The Native American Heritage Commission (NAHC) maintains a list of Most Likely Descendants, those persons regarded as most likely descended from a deceased Native American. In the event that human remains are found in a location other than a dedicated cemetery and the remains are identified as Native American, the county coroner is required to contact NAHC. Designated MLDs have the authority to specify the treatment and disposition of Native American human remains.

Local Regulations

Historic Preservation Ordinance. The care of historic structures in Hayward is guided by the Historic Preservation Ordinance of the Municipal Code. The Ordinance covers structures, districts, and neighborhoods that contribute to the cultural and aesthetic heritage of Hayward. It also provides regulations regarding the alteration, demolition, and maintenance of significant historic structures. The Ordinance requires development projects and building permit applications involving structures that are at least 50 years old or are located within an historic district to follow certain steps in the development review process to determine if a historical alteration permit and/or historical resource demolition or relocation permit is required. Residential properties developed pursuant to a tentative tract map after 1946 are exempted from obtaining historical permits.

Key Terms

The following key terms used in this chapter are defined as follows:

Archeology: The scientific study of the physical remains of past human life, including prehistoric and historic societies.

Building. A structure created principally to shelter any form of human activity, such as a house.

Cultural resource. An object, document, or any part of the built environment that has significance in archeology, architecture, art, or history.

Designated historical resource. Any historical resource that has been designated and placed on a local register of historical resources.

Historic context statement. A document adopted by the City Council that describes historic periods and themes in Hayward's history, which is used as a tool to assist with the assessment of a property's historic significance by providing a framework against which to objectively qualify the property's relationship to larger themes and events.

Historic district. A geographically-definable area – urban or rural, small or large – possessing a significant concentration, linkage, or continuity of sites, buildings, structures, and/or objects united by past events or aesthetically by plan or physical development. A historic district may also comprise individual elements separated geographically but linked by association or history. A contributing resource within a historic district is a historical resource which contributes to the character of a historic district.

Historic resource. Any district, site, building, structure, or object determined to be historically significant.

Local register. A list of properties officially designated as historically significant by the City of Hayward pursuant to a local ordinance or resolution adopted by the City Council.

Object. A material thing of functional, aesthetic, cultural, historical, or scientific value; typically artistic in nature or relatively small in scale and simply constructed (e.g., boundary marker, boat, fountain, headstone, mile post, monument, sculpture, statuary).

Preservation. The act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses on the ongoing maintenance and repair of historic materials and features, rather than extensive replacement and new construction.

Reconstruction. The act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

Rehabilitation. The act or process of making possible an efficient compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

Restoration. The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

Bibliography

Reports/Publications

Hayward, City of. Hayward Municipal Code, Chapter 10, Article 11, Historic Preservation Ordinance. Adopted 1989.

City of Hayward Historical Resources Survey & Inventory Report. Prepared for the City of Hayward by Circa: Historic Property Development. July 2010.

Hayward, City of. Hayward General Plan Update Draft Environmental Impact Report. November 2001.

Websites

Hayward, City of. www.hayward-ca.gov. Consulted December 27, 2012.

SECTION 1.6 EXISTING GENERAL PLAN

Introduction

The purpose of this section is to provide a summary of the existing general plan documents that regulate land use within the Hayward Planning Area and the City of Hayward. This section provides an overview of the existing City of Hayward General Plan and the County of Alameda General Plan. It also identifies the total acreage of all planned land uses within the Hayward Planning Area and the City of Hayward.

Major Findings

- The current City of Hayward General Plan was adopted in 2002. The Housing Element of the General Plan was updated in 2010.
- The County of Alameda has several General Plan documents that regulate land use within the unincorporated area of the Hayward Planning Area. The main documents are the Eden Area General Plan and the Castro Valley Area General Plan.
- The majority of the land within the Hayward Planning Area, over 27,943 acres or 60.49 percent of the Hayward Planning Area, is designated within the broad land use category of open space.
- Properties with a residential land use designation total over 18 percent of the Hayward Planning Area and over 14.5 percent of the city (approximately 5,986 acres). The residential land use designation that makes up the most land is Low Density Residential, which totals 2,869 acres.
- Over 8 percent (3,314 acres) of the city is planned for industrial land uses, the majority of which is located within the city's Industrial Corridor.
- A relatively small percentage of land in Hayward is planned for commercial uses and Downtown City Center uses. Land planned for commercial uses makes up less than 1.5 percent of the city, and land designated as Downtown City Center totals less than 0.5 percent of the city.
- Rising sea levels could inundate Hayward's baylands, resulting in the loss of an important open space resource. Rising sea levels could also cause flooding in Hayward's industrial corridor. Substantial and frequent flooding would compromise the viability of Hayward's industrial corridor, which is the City's main employment base and economic asset.

Existing Conditions

City of Hayward General Plan

The City of Hayward General Plan identifies land use, transportation, environmental, economic, and social goals and policies as they relate to land use and development. The General Plan provides a basis for the City's decision-making regarding land use and informs citizens, developers, decision-makers, and others of the ground rules that guide development within Hayward. The Hayward General Plan is regarded as the constitution for local development. Hayward's current General Plan was adopted by the City Council on March 12, 2002. The Housing Element of the General Plan was updated in June 2010.

The current General Plan has the following elements:

- Land Use
- Circulation
- Economic Development
- Housing
- Community Facilities and Amenities
- Conservation and Environmental Protection
- Public Utilities and Services

Each element is discussed below:

Land Use

The Land Use Element provides policies and strategies to guide future land use within the Hayward Planning Area. Its major focus is to implement "smart growth" principles within Hayward's neighborhoods and Downtown, and to transform the city's Industrial Corridor to respond to the emerging information-based economy.

The goal of "smart growth" is to create communities that are more livable by focusing on infill development that fosters compact and walkable neighborhoods and districts. The Land Use Element outlines a variety of "smart growth" principles, including neighborhoods and districts with a mix of land uses, compact building design, providing a range of housing opportunities and choices, walkable neighborhoods, transit-oriented development, and the preservation of open spaces and natural resources. The Land Use Element identifies focus areas where the implementation of "smart growth" policies is particularly appropriate. These focus areas are Downtown Hayward, the South Hayward BART Area, the Mission Boulevard Corridor, and the Older Industrial Area (also called the Cannery). The Land Use Element identifies the

opportunity to create transit-oriented and pedestrian friendly neighborhoods in these locations, as they are all served by high quality transit facilities, including the Downtown BART Station, the South Hayward BART Station, the Hayward AMTRAK Station, and bus lines serving the Mission Boulevard corridor. The Land Use Element also establishes an Urban Limit Line to preserve the baylands and hillsides as natural open space.

The Land Use Element acknowledges that the national and regional economy is continuing to change, shifting from a manufacturing-based economy to an information-based economy. As a result, the Element establishes policies to reevaluate the current land use and zoning regulations within the city's Industrial Corridor. The Industrial Corridor is identified as a focus area and the Land Use Element has the goal to transform the area into a business and technology corridor.

Circulation

The Circulation Element discusses and analyzes the movement of people and goods through and around the city. The Element establishes policies to address the following major issues in the city:

- Addressing regional traffic on freeways and major streets,
- Promoting public transit and alternative modes of transportation,
- Improving local access and circulation within the city of Hayward, and
- Funding proposed transportation improvements.

Economic Development

The Economic Development Element identifies current economic conditions, constraints, and opportunities in the city of Hayward. It establishes policies and strategies that:

- Support economic growth,
- Maintain a healthy balance between economic growth and environmental quality,
- Provide necessary support to businesses,
- Eliminate cumbersome and unnecessary regulations,
- Prevent the wasteful underutilization of physical resources,
- Encourage businesses that create permanent high wage jobs to locate and/or expand in Hayward, and
- Help city residents acquire skills so that they may fill the jobs of the future.

Housing

The Housing Element is a plan to provide housing that fulfills the diverse needs of the community. The programs in the Housing Element aim to:

- Conserve and improve the condition of the existing affordable housing stock,
- Assist in the development of housing for low- and moderate-income households,
- Identify adequate sites to encourage the development of a variety of types of housing for all income levels,
- Address and, where appropriate and legally possible, remove governmental constraints to the maintenance, improvement, and development of housing, and
- Promote housing opportunities for all persons.

Community Facilities and Amenities

The Community Facilities and Amenities Element provides goals and policies related to public schools, libraries, parks, and community and cultural centers. It also discusses community amenities, such as historic resources and surrounding open space that provides the visual setting for the city.

Conservation and Environmental Protection

The Conservation and Environmental Protection Element addresses the conservation of natural resources and the protection of people and property from natural hazards and hazardous materials. The Element addresses multiple topics that are required to be addressed in local general plans by State law, including open space, conservation, safety, and noise.

Public Utilities and Services

The Public Utilities and Services Element provides policies related to the public utilities and services provided by the City of Hayward and other agencies within the Hayward Planning Area. The Element addresses fire protection and emergency response, water supply and distribution, wastewater collection and treatment, solid waste management, telecommunications facilities, and energy conservation.

Alameda County General Plan

The Alameda County General Plan consists of several documents, including the Eden Area General Plan, the Castro Valley General Plan, and the East County Area General Plan. In addition, the General Plan includes five elements that apply policies to all unincorporated areas of the county. These elements are the Regional Element, the Housing Element, the Energy

Element, the Safety and Noise Element, and the Natural Resources, Recreation, and Open Space Element.

The Castro Valley Area General Plan provides policies for the Five Canyon Area, which is partially within the Hayward Planning Area. The Eden Area General Plan provides policies for several unincorporated areas within the Hayward Planning Area, including Hayward Acres, Cherryland, and parts of San Lorenzo. The Eden Area General Plan states that Fairview is also part of the Eden Area. However, the Eden Area General Plan does not provide a land use map, land use designations, and policies for Fairview. Rather, it states that the "1997 Fairview Area Specific Plan contains the goals, policies, and zoning regulations that apply to this area." There is no General Plan land use map for the Fairview Area.

City and County Land Use Designations

Figure 1-5 shows the planned land use designations for the City of Hayward and Figure 1-6 shows the planned land use designations for the unincorporated areas within the Hayward Planning Area. The planned land use designations on Figure 1-6 are primarily from the Alameda County Castro Valley Area General Plan Land Use Map and the Eden Area General Plan Land Use Map. City land use designations were applied to the unincorporated area of Fairview, as the County does not currently (December 2012)have a General Plan land use map for that area. The land use designations are described below.

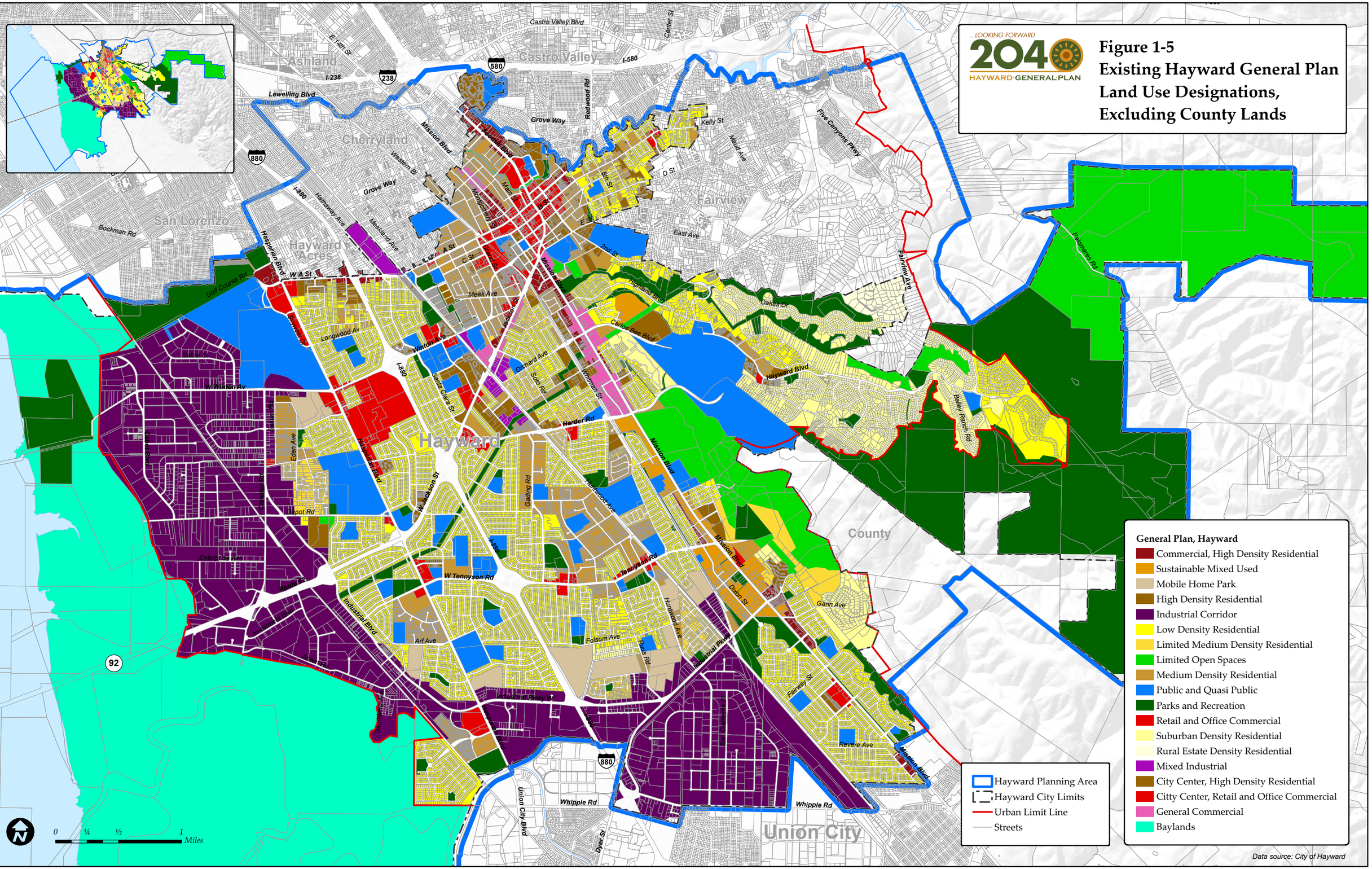
City of Hayward Land Use Designations

The City of Hayward General Plan establishes the following land use designations:

- Rural Estate Density: Typical density is between 0.2-1.0 dwelling unit per net acre. Typical lot sizes are one acre or more. Typical development is single-family detached housing, although second units may be permitted. Planned Developments may include a variety of housing types within the overall density range.
- Suburban Density: Typical density is between 1.0-4.3 dwelling units per net acre. Typical lot sizes are 10,000 square feet or more. Typical development is single-family detached housing, although second units may be permitted. Planned Developments may include a variety of housing types within the overall density range.
- Low Density: Typical density is between 4.3-8.7 dwelling units per net acre. Typical lot sizes range from 5,000 to 10,000 square feet. Typical development is single-family detached housing, although second units may be permitted. Some mobile home parks are developed at this density. Planned Developments may include a variety of housing types within the overall density range.
- Mobile Home Park: Typical density is between 8.7-12.0 dwelling units per park acre. This designation covers all mobile home parks and development is limited to mobile home parks.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-5
Existing Hayward General Plan Land Use Designations, Excluding County Lands



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...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-6
Existing County General Plan Land Use Designations

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

Castro Valley General Plan, Alameda County
- Open Sapce, Natural
- Open Space, Park
- Public Facility
- Residential Single Family
- Hillside Residential
- Residential Low Density Multi-Family
- Rural Residential

Eden Area General Plan, Alameda County
- General Commercial
- Low Density Residential
- Low-Medium Density Residential
- Medium Density Residential
- Medium-High Density Residential
- Park
- Public
- School

Fairview Area, Hayward Designations
- High Density Residential
- Low Density Residential
- Limited Open Space
- Medium Density Residential
- Public and Quasi Public
- Parks and Recreation
- Rural Estate Density Residential
- Suburban Density Residential

0 ¼ ½ 1 Miles

Data source: City of Hayward

Note: Within the planning area, Alameda County has general plan designations for the Eden Area and Five Canyons in the Castro Valley. The Fairview area has no county designations and uses city designations.

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- Limited Medium Density: Typical density is between 8.7-12.0 dwelling units per net acre. Minimum lot area per dwelling unit is 2,500 square feet. Typical development may be mobile home parks; single-family detached, mixed with duplexes, triplexes, and fourplexes; or townhouses and 2-3 story garden apartments. Planned Developments may include a variety of housing types within the overall density range.
- Medium Density: Typical density is between 8.7-17.4 dwelling units per net acre. Minimum lot area per dwelling unit is 2,500 square feet. Typical development may be mobile home parks; single-family detached, mixed with duplexes, triplexes, and fourplexes; or townhouses and 2-3 story garden apartments. Planned Developments may include a variety of housing types within the overall density range.
- High Density: Typical density is between 17.4- 34.8 dwelling units per net acre, although individual projects may be approved at higher densities if over three stories (up to 58 dwelling units per net acre). Typical development includes apartments or condominiums within multi-story buildings near major activity centers or along major streets. Planned Developments may include a variety of housing types within the overall density range.
- Sustainable Mixed Use: Mixed use development may include residential with retail and/or office/commercial uses, or educational and cultural facilities with public open space. Residential densities range from 25.0-55.0 dwelling units per net acre for mixed-use projects that include a residential component. This land use designation is located along major transit corridors, near transit stations or in close proximity to public higher education facilities or large employment centers. To facilitate transit-oriented development in these areas, developments will have reduced parking requirements. Neighborhood serving retail uses are highly recommended for residential component mixed-use projects to reduce car trips.
- Retail and Office Commercial: These areas include the regional shopping center (Southland Mall), community shopping centers, concentrations of offices and professional services, and portions of the downtown area and South Hayward BART Station area where mixed retail and office uses are encouraged.
- General Commercial: These areas include concentrations of special uses which are automobile-oriented in terms of product or access, such as automobile sales and service, building supplies, home furnishings, etc. Clustering of these uses along major arterials is appropriate where direct access and adequate parking are provided.
- Commercial/High-Density Residential: These areas may include Retail and Office or General Commercial uses. Certain areas along major arterials that are commercially zoned but presently vacant or underutilized may be appropriate for high-density residential use or mixed commercial/ residential use. Development proposals within these areas should be evaluated within the context of applicable policies and standards and compatibility with adjoining areas.

- Downtown-City Center High Density Residential: Residential densities range from 40-110 dwelling units per net acre, although the highest densities are reserved for projects near the Downtown BART Station and City Center. Typical development throughout the remaining area will be 3-5 story apartments or condominiums.
- Downtown-City Center Retail and Office Commercial: This area is the major activity center in the planning area. It contains major public facilities such as City Center and the Main Library, retail and office areas, and high-density residential areas. Mixed-use development is encouraged to promote the pedestrian orientation and to maintain the downtown area as an integrated living, working, shopping, and recreational area. The boundary of this area as delineated on the Policies Plan Map includes the Downtown Redevelopment Project Area and/or areas within the Central City Zoning District.
- Industrial Corridor: This area consists primarily of planned business and industrial parks along with supporting office and commercial uses. Comprehensive design standards and use restrictions permit their location adjacent to residential areas. Other industrial development may be appropriate if compatible with adjacent industrial parks or residential areas.
- Mixed Industrial: These areas contain older industrial uses within the central part of the city which are typically located along railroad tracks and often surrounded by residential areas. Some areas contain substantial buildings but are presently vacant or underutilized. Future uses must be compatible with adjacent residential and commercial areas. These areas should be considered for conversion to commercial uses, residential uses, or a planned development with mixed uses, as appropriate.
- Parks and Recreation: These areas include regional parks, community and neighborhood parks, and special use facilities such as golf courses, historic estates, linear parks, and trails. Not shown are school athletic fields and playgrounds.
- Water: This area includes water of the San Francisco Bay within the Hayward city limits.
- Baylands: These areas are to remain in open space uses such as salt and fresh water marshes, salt ponds, aquaculture, or agriculture; limited educational and recreational uses that provide public access to the wetlands are also desirable. Existing marshes are to be preserved and opportunities to expand marsh areas pursued.
- Limited Open Space: These areas include cemeteries, agricultural and grazing lands, land that is undevelopable due to slope or other hazards, and lands proposed for park or other permanent open space. Minimum lot sizes shall range from 5-160 acres or more.
- Public and Quasi-Public: These areas contain major governmental, educational, and cultural facilities such as the Hayward Air Terminal, California State University-Hayward, Chabot Community College, City Center, Hayward Public Library, Alameda County Governmental Complex, high schools, intermediate schools, and elementary schools.

Alameda County Land Use Designations

The County of Alameda Eden Area General Plan establishes 11 land use designations. The following land use designations are applied to parcels within the Hayward Planning Area:

- General Commercial: The General Commercial designation allows for a wide range of commercial uses that encompass small offices, local and regional retail establishments and automobile-oriented uses to meet the needs of Eden Area residents, employees, and pass-through travelers. Offices are particularly encouraged in commercially designated areas to enhance the employment base of the area. Commercial parcels have a maximum Floor Area Ratio (FAR) of 1.0.
- Low Density Residential: The Low Density Residential designation allows single-family, detached housing with a maximum density of 9 dwelling units per acre.
- Low-Medium Density Residential: The Low-Medium Density Residential designation allows a mix of single-family, detached housing, and some duplexes and triplexes. Multi-unit and mobile home parks may also be allowed where the County deems it appropriate based on compatibility with surrounding uses. The Low-Medium Density Residential designation allows densities of 7 to 12 dwelling units per acre.
- Medium Density Residential: The Medium Density Residential designation allows for a mix of single-family, duplex, triplex, townhouse, and multi-family buildings with densities ranging from 10 to 22 dwelling units per acre. Mobile home parks are also allowed, where appropriate.
- Medium-High Density Residential: The Medium-High Density Residential designation is characterized by townhouses and multi-family buildings, generally between two and four stories. Allowed densities are between 22 to 43 dwelling units per acre.
- Public: The purpose of this designation is to provide locations for uses that support government, civic, cultural, health, and infrastructure aspects of the community. The designation indicates public ownership as well as public use and covers uses such as the water treatment plant, fire stations, police stations, post offices, libraries, hospitals, and publicly-owned office buildings. Public uses may include ancillary non-public uses that support the primary use. The maximum FAR for Public uses is 1.5.
- Park: This designation provides for current and expected future locations for public parks of all sizes in the Eden Area. Parks may include a wide range of uses including active playing fields, recreation facilities including buildings, picnic areas, plazas, bicycle and walking trails, water features, passive green spaces, landscaped areas, and natural open spaces.
- School: This designation identifies publicly-owned or operated educational facilities of all sizes serving all age groups in the Eden Area. The designation also includes sites that are owned or used by the school districts for school-related purposes such as

maintenance or corporation yards as well as parcels which are leased to private entities. Sites designated as School may also be developed as residential uses at a density comparable to surrounding uses if the school district that owns them determines they are no longer needed for educational purposes.

The County of Alameda Castro Valley Area General Plan establishes 16 land use designations. The following land use designations are applied to parcels within the Hayward Planning Area:

- Rural Residential: This designation is intended to retain opportunities for rural living with very low density, single-family detached housing on large lots greater than 20,000 square feet in size. The primary purpose is residential with the secondary purpose to allow crops, orchards, and gardens, and limited animal-keeping.
- Hillside Residential: This designation is used in areas of steep slopes and/or high fire hazard areas to ensure that adequate mitigation is identified for the development of single-family detached dwellings. Lots range from 5,000 to 10,000 square feet resulting in residential densities between 4 and 8 units per net acre. Minimum lot sizes are to be based on the slope.
- Residential Single Family: This land use category provides for and protects established neighborhoods of one-family dwellings. Community facilities compatible with low-density residential uses ranging from 6 to 8 units per net acre are allowed.
- Residential Low Density Multi-Family: This designation is intended for townhouses, and low density multi-family residential uses such as garden apartments and condominiums. Typical lot sizes are 2,000 square feet per unit. Residential densities range from 18 to 22 units per net acre.
- Public Facilities: The purpose of this designation is to provide locations for uses that support government, civic, cultural, health, and infrastructure uses in the community. The designation indicates public ownership as well as public use and covers uses such as the water treatment plants, fire stations, police stations, post offices, libraries, hospitals, and publicly-owned office buildings. Public uses may include ancillary non-public uses that support the primary use. The maximum FAR for public facility uses is 1.5.
- Open Space-Park: This designation provides for current and expected future locations for public parks of all sizes and types in the community. Parks may include a wide range of uses, including active playing fields, recreation facilities (including buildings) picnic areas, plazas, bicycle and walking trails, water features, passive green spaces, and landscaped areas.
- Open Space-Natural: This designation provides for natural open spaces that have been identified for permanent conservation. These areas are typically established as part of

Planned Unit Developments as permanent easements. These areas are intended for passive recreation only.

Land Use Designation Acreages

Table 1-3 shows the total acreage for all land use designations within the Hayward Planning Area and the City of Hayward. As shown, the majority of the land within the Hayward Planning Area (over 60.4 percent) is designated within the broad land use category of open space. Properties with a residential land use designation occupy over 18 percent of the Planning Area.

The majority of the city (over 63 percent) is designated within the broad land use category of open space. Over 14.5 percent of the city (approximately 5,986 acres) is planned for residential uses. The residential land use designation that occupies the most land is Low Density Residential, which occupies 2,869 acres. Over 8 percent (3,314) of the city is planned for industrial land uses, the majority of which is located within the City's Industrial Corridor. Over 3.3 percent of Hayward is planned for Public and Quasi Public uses. Public and Quasi-Public uses include public schools; California State University, East Bay; Chabot College; Hayward Executive Airport; City Hall; and other public and civic uses. A relatively small percentage of land in Hayward is planned for commercial uses and Downtown City Center uses. Land planned for commercial uses occupies less than 1.5 percent of the city, and land designated as Downtown City Center occupies less than 0.5 percent of the city. Public rights-of-way for highways, streets and roads, and railroads occupy over 9.1 percent of the land within the city.

TABLE 1-3
PLANNED LAND USES
Hayward Planning Area and City of Hayward

Current General Plan Land Use Designation	Hayward Planning Area		Hayward City Limits	
	Acreage	Percent of Total Area	Acreage	Percent of Total Area
Residential	**8,345.47**	**18.06**	**5,986.69**	**14.52**
Rural Estate Density (H)	76.33	0.17	76.33	0.19
Suburban Density (H)	829.38	1.80	829.38	2.01
Low Density (H)	2,869.32	6.21	2,869.32	6.96
Mobile Home Park (H)	252.82	0.55	252.82	0.61
Limited Medium Density (H)	344.52	0.75	344.52	0.84
Medium Density (H)	960.14	2.08	960.14	2.33
High Density (H)	454.54	0.98	454.54	1.10
Sustainable Mixed-Use (H)	199.64	0.43	199.64	0.48
Low Density Residential (AC-E)	117.02	0.25	n/a	n/a

TABLE 1-3
PLANNED LAND USES
Hayward Planning Area and City of Hayward

Current General Plan Land Use Designation	Hayward Planning Area		Hayward City Limits	
	Acreage	Percent of Total Area	Acreage	Percent of Total Area
Low-Medium Density Residential (AC-E)	250.31	0.54	n/a	n/a
Medium Density Residential (AC-E)	378.46	0.82	n/a	n/a
Medium-High Density Residential (AC-E)	12.64	0.03	n/a	n/a
Rural Residential (AC-CV)	5.60	0.01	n/a	n/a
Hillside Residential (AC-CV)	221.55	0.48	n/a	n/a
Residential Single Family (AC-CV)	1.16	0.00	n/a	n/a
Residential Low Density Multi-Family (AC-CV)	0.16	0.00	n/a	n/a
Rural Estate Density Residential (FV)	427.47	0.93	n/a	n/a
Suburban Density Residential (FV)	210.54	0.46	n/a	n/a
Low Density Residential (FV)	701.60	1.52	n/a	n/a
Low-Medium Density Residential (FV)	0.00	0.00	n/a	n/a
Medium Density Residential (FV)	24.66	0.05	n/a	n/a
High Density Residential (FV)	7.61	0.02	n/a	n/a
Commercial	**683.79**	**1.48**	**603.06**	**1.46**
Retail and Office (H)	151.69	0.33	151.69	0.37
General (H)	108.23	0.23	108.23	0.26
Commercial/High Density residential (H)	343.13	0.74	343.13	0.83
General Commercial (AC-E)	80.73	0.17	n/a	n/a
Retail and Office (FV)	0.00	0.00	n/a	n/a
Downtown-City Center	**183.77**	**0.40**	**183.77**	**0.45**
High Density Residential (H)	39.66	0.09	39.66	0.10
Retail and Office Commercial (H)	144.11	0.31	144.11	0.35
Industrial	**3,314.79**	**7.18**	**3,314.79**	**8.04**
Industrial Corridor (H)	3,242.43	7.02	3,242.43	7.86
Mixed Industrial (H)	72.36	0.16	72.36	0.18
Open Space	**27,943.82**	**60.49**	**26,010.44**	**63.07**
Bay (water) (H)	11,207.27	24.26	11,207.27	27.18
Baylands (H)	8,382.98	18.15	8,382.98	20.33
Parks and Recreation (H)	3,279.85	7.10	3,279.85	7.95
Limited Open Space (H)	3,140.35	6.80	3,140.35	7.62
Park (AC-E)	14.51	0.03	n/a	n/a
Open Space – Park (AC-CV)	38.81	0.08	n/a	n/a
Open Space – Natural (AC-CV)	279.74	0.61	n/a	n/a
Limited Open Space (FV)	409.31	0.89	n/a	n/a
Parks and Recreation (FV)	1,191.01	2.58	n/a	n/a
Public	**1,501.92**	**3.25**	**1,375.44**	**3.34**

TABLE 1-3
PLANNED LAND USES
Hayward Planning Area and City of Hayward

Current General Plan Land Use Designation	Hayward Planning Area		Hayward City Limits	
	Acreage	Percent of Total Area	Acreage	Percent of Total Area
Public and Quasi Public (H)	1,375.44	2.98	1,375.44	3.34
Public (AC-E)	62.19	0.13	n/a	n/a
School (AC-E)	35.51	0.08	n/a	n/a
Public Facilities (AC-CV)	7.60	0.02	n/a	n/a
Public and Quasi Public (FV)	21.18	0.05	n/a	n/a
Public Rights-of-Way and Other	**4,224.36**	**9.14**	**3,763.40**	**9.13**
TOTAL	**46,197.91**	**100.00**	**41,237.59**	**100**

H: Land Use Designation is from the Hayward General Plan AC-E: Land use designation is from the Alameda County Eden Area General Plan.
AC-CV: Land use designation is from the Alameda County Castro Valley Area General Plan.
FV: Land use designation is from the Hayward General Plan for the unincorporated community of Fairview.
Source: City of Hayward, GIS Data, December 2012.

Regulatory Setting

General Plan Law (California Government Code Section 65300)

California Government Code Section 65300 regulates the substantive and topical requirements of general plans. State law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning." The California Supreme Court has called the general plan the "constitution for future development." The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private.

Since the general plan affects the welfare of current and future generations, State law requires that the plan take a long-term perspective (typically 15 to 25 years). The general plan projects conditions and needs into the future and establishes long-term policy for day-to-day decision-making.

Policies of the general plan are intended to underlie most land use decisions. Pursuant to State law, subdivisions, capital improvements, development agreements, and many other land use actions must be consistent with the adopted general plan. In counties and general law cities, zoning and specific plans are also required to conform to the general plan. In addition, preparing, adopting, implementing, and maintaining the general plan:

- Serves to identify the community's land use, circulation, environmental, economic, and social goals and policies as they relate to land use and development;
- Provides a basis for local government decision-making, including decisions on development approvals and exactions;
- Provides citizens with opportunities to participate in the planning and decision-making processes of their communities, and
- Informs citizens, developers, decision-makers, and other cities and counties of the ground rules that guide development within a particular community.

State law requires general plans to address seven mandatory elements (or topics), which are: land use, circulation, housing, conservation, open space, noise, and safety. Jurisdictions may also adopt additional elements that cover topics outside the seven mandated elements (such as economic development and historic preservation). In addition to including mandatory elements, a general plan must be internally consistent. As described by State law, internal consistency holds that no policy conflicts can exist, either textual or diagrammatic, between the components of an otherwise complete and adequate general plan. Different policies must be balanced and reconciled within the plan. The internal consistency requirement has five dimensions:

- Equal Status among Elements. All elements of the general plan have equal legal status.
- Consistency between Elements. All elements of a general plan, whether mandatory or optional, must be consistent with one another.
- Consistency within Elements. Each element's data, analyses, goals, policies, and implementation programs must be consistent with and complement one another.
- Area Plan Consistency. All principles, goals, objectives, policies, and plan proposals set forth in an area or community plan must be consistent with the overall general plan.
- Text and Diagram Consistency. The general plan's text and its accompanying diagrams are integral parts of the plan. They must be in agreement.

Housing Element Law (California Government Code Article 10.6)

The State has established detailed legal requirements for the general plan housing element, above and beyond Section 65300. State law requires each city and county to prepare and maintain a current housing element as part of the community's general plan in order to attain a statewide goal of providing "decent housing and a suitable living environment for every California family." Under State law housing elements must be updated every five years and reviewed by the State Department of Housing and Community Development.

Specific Plan Law (California Government Code Section 65451)

California Government Code Section 65451 regulates the substantive and topical requirements of specific plans. A specific plan is a tool for the systematic implementation of the general plan, and establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts, or as detailed as providing direction on every facet of development from the type, location, and intensity of uses to the design and capacity of infrastructure.

Key Terms

The following key terms used in this chapter are defined as follows:

Density (Residential). The number of permanent residential dwelling units per acre of land. Densities specified in the general plan may be expressed in units per gross acre or per net developable acre.

Dwelling Unit. A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen) that constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis.

Floor Area Ration (FAR). The ratio of interior building space on a property to the total square footage of the property: FAR = Square footage of building/square footage of property.

General Plan. A compendium of county or city policies regarding its long-term development, in the form of goals, policies, implementation measures, and maps. The general plan is a legal document required of each local agency by the California Government Code Section 65301 and adopted by the board of supervisors or city council.

Land Use Regulation. A term encompassing the regulation of land in general and often used to mean those regulations incorporated in the general plan, as distinct from zoning regulations (which are more specific).

Planning Area. The area directly addressed by a jurisdiction's general plan. The planning area generally encompasses all incorporated and unincorporated territory that bears a relationship to the long-term planning of the jurisdiction. Planning areas for cities typically encompass all areas in the city limits and the unincorporated areas that are within the city's Sphere of Influence.

Specific Plan. A legal tool authorized by Government Code Section 65450, et seq., for the systematic implementation of the general plan for a defined portion of a community's planning area. A specific plan must specify in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources, and a program of implementation measures, including financing measures.

Bibliography

Reports/Publications

Alameda County, Castro Valley Area General Plan, March 2012.

Alameda County, East Area General Plan, 1994.

Alameda County, Fairview Area Specific Plan, 1997.

Alameda County, Eden Area General Plan, March 30, 2010.

City of Hayward, General Plan, 2002.

City of Hayward, GIS Data, December 2012.

State of California, California Government Code, 2012.

Websites

None.

Persons Consulted

Lou Andrade, Planner III, Alameda County Community Development Agency, December 18, 2012.

SECTION 1.7 EXISTING ZONING

Introduction

This section describes the zoning regulations that implement the Hayward General Plan. It also provides a brief overview of the zoning regulations of Alameda County, which apply to the unincorporated areas of the Hayward Planning Area.

Major Findings

- The City of Hayward Zoning Ordinance is the primary regulatory mechanism used to implement the Hayward General Plan. The Zoning Ordinance establishes 31 zoning districts and five special design overlay districts.
- The City of Hayward has adopted two documents that contain unique zoning and development regulations for specific areas of the city: the South of Route 92/Oliver & Weber Properties Specific Plan and the South Hayward BART/Mission Boulevard Form-Based Code.
- The City of Hayward is currently (May 2013) in the process of preparing the Mission Boulevard Corridor Specific Plan. The Draft Specific Plan includes special and unique zoning regulations for properties along Mission Boulevard. The Specific Plan will likely be adopted in the summer of 2013.
- The Alameda County Zoning Ordinance provides the zoning and development regulations for the unincorporated areas within the Hayward Planning Area.
- The County of Alameda has adopted two documents that contain unique zoning regulations for specific areas of Hayward Planning Area: the Fairview Area Specific Plan and the Ashland and Cherryland Business Districts Specific Plan.

Existing Conditions

Zoning is the primary tool used to implement a community's general plan. A major difference between the general plan and the zoning ordinances is that the general plan provides general guidance on the location, type, and density of new growth and development over the long-term, while the zoning ordinance provides detailed development and use standards for each parcel of land. The zoning ordinance divides the community into zoning districts and specifies the uses that are permitted, conditionally permitted, and prohibited within each district.

The City of Hayward Zoning Ordinance and the Alameda County Zoning Ordinance are used to regulate the use and development of property within the Hayward Planning Area. In addition, the City and County have also adopted specific plans, which are planning tools used to regulate the use and development of properties within specific areas of the county or city. The zoning documents for the City of Hayward and Alameda County are described below.

City of Hayward Zoning

The City of Hayward Zoning Ordinance establishes 31 zoning districts. Each zoning district has development standards that are designed to protect and promote the health, safety, and general welfare of the community and to implement the policies of the General Plan. These standards also serve to preserve the character and integrity of existing neighborhoods. Within a typical district there are regulations related to land use, lot size and coverage, yards, and building heights. The 31 zoning districts established by the Hayward Zoning District are:

- Single-Family Residential District (RS)
- Residential Natural Preservation District (RNP)
- Medium Density Residential District (RM)
- High Density Residential District (RH)
- Residential-Office District (RO)
- Mobile Home Park District (MH)
- Sustainable Mixed-Use District (SMU)
- Neighborhood Commercial District (CN)
- Neighborhood Commercial-Residential District (CN-R)
- General Commercial District (CG)
- Commercial Office District (CO)
- Limited Access Commercial District (CL)
- Central Business District (CB)
- Regional Commercial District (CR)
- Central City Commercial Subdistrict (CC-C)
- Central City Residential Subdistrict (CC-R)
- Central City Plaza Subdistrict (CC-P)
- Industrial District (I)
- Business Park District (BP)
- Light Manufacturing, Planning/Research and Development District (LM)
- Air Terminal District (AT)
- Agricultural District (A)
- Flood Plain District (FP)

- Open Space/Parks and Recreation District (OS)
- Public Facilities District (PF)
- Planned Development District (PD)
- Urban General Zone (S-T4)
- Urban Center Zone (S-T5)
- TOD Density Overlay 1 (S-T5-1)
- TOD Density Overlay 2 (S-T5-1)
- Civic Space Zone (S-CS)

In addition to the above zoning districts, the Zoning Ordinance also establishes a combining district and overlay districts to apply additional regulations and standards to certain properties. The combining district applies additional lot standards to various residential-zoned properties. Residential properties that must comply with these additional lot standards are denoted with their base zone, a "B," and a number. For example, a property with RSB40 zoning is zoned single-family residential (RS) with a minimum lot size of 40,000 square feet (B40). A property with RMB4 is zoned medium density residential (RM) with a minimum lot size of 4,000 square feet (B4).

The overlay districts provide additional design standards for various properties. The standards are designed to ensure that projects respect the desired character for a specific area of the city. The overlay districts include:

- "B" Street Special Design Streetcar District (SD-1)
- Cottage Special Design District (SD-3)
- Cannery Area Special Design District (SD-4)
- Mission-Garin Area Special Design District (SD-5)
- Hayward Foothills Trail (SD-7)

When a property is within an overlay district, the symbol of that district is added to the base zone of the property (example: RSB40/SD-1).

Table 1-4 shows how the City's zoning districts generally correspond with the City's General Plan Land Use Designations. The zoning map for the City of Hayward is shown in Figure 1-7.

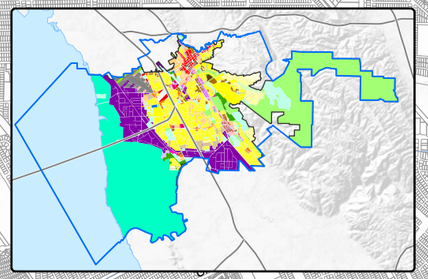
TABLE 1-4
RELATIONSHIP BETWEEN GENERAL PLAN AND ZONING
City of Hayward

General Plan Designation	Zoning District(s)
Residential	
Rural Estate Density	RSB40
Suburban Density	RSB10, RSB20, RSB40
Low Density	RS, RSB6, RSB8, RSB10
Mobile Home Park	MHP
Limited Medium Density	RSB4, RMB4, RMB3.5, (RS, RSB6, RSB8, RSB10)
Medium Density	RSB4, RMB4, RMB3.5, RM, (RS, RSB6, RSB8, RSB10, RO, CN-R)
High Density	RH, RHB7, (RSB4, RMB4, RMB3.5, RM, CN-R)
Sustainable Mixed-Use	SMU, S-T4, S-T5, S-T5-1, S-T5-2, S-CS
Commercial	
Retail and Office	CN, CO, CB, CL, AT-C, (RO, CN-R, CG, A, OS, SD, PD)
General	CN, CO, CB, CL, CR, AT-C, (A, OS, SD, PD)
Commercial/High Density residential	RHR, RHB7, CN, CO, CB,CG, CL, CR,AT-C, (RMB4, RMB3.5, RM, RO, CN-R, A, OS, SD, PD)
Downtown-City Center	
High Density Residential	CC-R, (RH, RHB7, RO, CC-C,CC-P, OS, SD, PD)
Retail and Office Commercial	CC-C, CC-P (CC-R, RO, OS, SD, PD)
Industrial	
Industrial Corridor	CR, I, LM, BP, IP, (A, OS, SD, PD)
Mixed Industrial	(GC, CR, I, LM, BP, A, OS, SD, PD)
Open Space	
Baylands	A, AB5A, AB10A, AB100A, AB160A, FP (OS)
Parks and Recreation	AT-R, A, AB5A, AB10A, AB100A, AB160A, FP, OS (RSB40, RSB20, RSB10, RSB8, RSB6, RS, RSB4, RMB4, RMB3.5, RM, RH, RHB7, CN, CN-R, CO, CB, CG, CL, CC-C, CC-R, CC-P, SD, PD, PF, S-CS)
Limited Open Space	AB5A, AB10A, AB100A,AB160A (OS, SD, PD, PF)
Public and Quasi Public	AT-O, AT-AC, A, AB5A, AB10A, AB100A, OS, PF (RSB40, RSB20, RSB10, RSB8, RSB6, RS, RSB4, RMB4, RMB3.5, RM, RH, RHB7, CN, CN-R, CO, CB, CG, CC-C, CC-R, CC-P, SD, PD, S-CS)

( ) = Zoning districts listed within parenthesis are potentially consistent. Compatibility with adjacent uses and overall densities in the project area must be considered to determine consistency.
Source: City of Hayward, General Plan, 2002; and City of Hayward Zoning Ordinance, 2008.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-7
Existing City of Hayward Zoning Designations



Residential

RSB40	Single Family Residential, min. lot size 40,000sqft
RSB20	Single Family Residential, min. lot size 20,000sqft
RSB10	Single Family Residential, min. lot size 10,000sqft
RSB8	Single Family Residential, min. lot size 8,000sqft
RSB6	Single Family Residential, min. lot size 6,000sqft
RS	Single Family Residential, min. lot size 5,000sqft
RSB4	Single Family Residential, min. lot size 4,000sqft
RMB4	Medium Density Residential, min. lot size 4,000sqft
RMB3.5	Medium Density Residential, min. lot size 3,500sqft
RM	Medium Density Residential, min. lot size 2,500sqft
RH	High Density Residential, min. lot size 1,250sqft
RHB7	High Density Residential, min. lot size 750sqft
MH	Mobile Home Park
SMU	Sustainable Mixed Use, up to 100.0 units/net acre

Commercial

RO	Residential Office
CN	Neighborhood Commercial
CN-R	Neighborhood Commercial/Residential
CR	Regional Commercial
CO	Commercial Office
CB	Central Business
CBB20	Central Business, minimum lot size 20,00sqft
CG	General Commercial
CL	Limited Access Commercial

Central City

CC-C	Central City Commercial
CC-R	Central City Residential
CC-P	Central City Plaza

South Hayward BART Form-Based Code

S-T4	Urban General Zone, 17.5 to 35 units/net acre
S-T5	Urban Center Zone, 35 to 55 units/net acres
S-T5-2	TOD Density Overlay 2, 40 to 65 units/net acre
S-T5-1	TOD Density Overlay 1, 75 to 100 units/net acre
S-CS	Civic Space Zone

Industrial

I	Industrial
LM	Light Manufacturing
BP	Business Park

Air Terminal

AT-IP	Air Terminal Industrial Park
AT-C	Air Terminal Commercial
AT-RM	Air Terminal Medium Density Residential
AT-AC	Air Terminal Airport Commercial
AT-O	Air Terminal Operations
AT-R	Air Terminal Recreation

Open Space

A	Agriculture, includes Combining Districts
FP	Flood Plain
OS	Open Space

Other

PF	Public Facilities
PD	Planned Development
RNP	Residential Natural Preserve

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

Special Design Districts

SD 1	B Street Streetcar Special Design District
SD 3	Cottage Special Design District
SD 4	Cannery Area Special Design District
SD 5	Mission-Garin Area Special Design District
SD 7	Hayward Foothills Trail Special Design District

0 ¼ ½ 1 Miles

Data source: City of Hayward

April, 2013

In addition to the City of Hayward Zoning Ordinance, the City has adopted three documents that contain unique zoning and development regulations for specific areas of the City: the South of Route 92/Oliver & Weber Properties Specific Plan, the Walpert Ridge Specific Plan, and the South Hayward BART/Mission Boulevard Corridor Form-Based Code. The City is also in the process of preparing the Mission Boulevard Specific Plan. The Draft Specific Plan includes a Form-Based Code that is similar to the South Hayward BART/Mission Boulevard Form-Based Code. Form–based codes consist of special and unique zoning and design regulations that focus on the form and design of buildings, public spaces, and streets. The Mission Boulevard Specific Plan will likely be adopted in the Summer 2013.

Figure 1-8 shows the boundaries for the South of Route 92/Oliver & Weber Properties Specific Plan, the Walpert Ridge Specific Plan, the South Hayward BART/Mission Boulevard Form-Based Code, and the Mission Boulevard Specific Plan. Section 1.8, Other City Plans and Policies, provides more information about these documents.

Alameda County Zoning

The Alameda County Zoning Ordinance establishes dozens of zoning districts. The districts that are within the unincorporated areas of the Hayward Planning Area are:

- Agriculture (A)
- Retail Business (C1)
- General Commercial (C2)
- Neighborhood Business (CN)
- Administrative Office (CO)
- Agriculture, Floodway (FA)
- High Frontage (H1)
- Light Industrial (M1)
- Planned Development PD
- Single Family Residence (R1)
- Two Family Residence (R2)
- Four-Family Residence (R3)
- Multiple Residence (R4)

Figure 1-9 shows the zoning districts within the unincorporated areas of the Hayward Planning Area.

In addition to the Alameda County Zoning Ordinance, the County of Alameda has adopted several specific plans that include unique zoning and development regulations for certain areas of the County. The boundaries of two specific plans are partially within the unincorporated areas of the Hayward Planning Area: The Fairview Area Specific Plan and the Ashland and Cherryland Business Districts Specific Plan (see Figure 1-8).

Regulatory Setting

California Government Code Section 65860

In counties, general law cities, and charter cities with a population of more than two million, zoning provisions must be consistent with the general plan. Charter cities with a population of under two million are exempt from the zoning consistency requirement unless their charters provide otherwise. The City of Hayward is a charter city with less than two million people, and is, therefore, exempt from the zoning consistency requirement.

Key Terms

The following key terms used in this chapter are defined as follows:

Form-Based Code. Zoning regulations and design standards that foster predictable built results and a high-quality public realm by regulating physical form (rather than the separation of uses) as the organizing principle for the code. Form-based codes offer an alternative to conventional zoning, which primarily regulates the use of property. Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in form-based codes are presented in both words and clearly drawn diagrams and other visuals.

Specific Plan. A planning tool authorized by Government Code Section 65450, et seq., for the systematic implementation of the general plan for a defined portion of a community's planning area. A specific plan must specify in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources, and a program of implementation measures, including financing measures.

Zoning. Local codes regulating the use and development of property. A zoning ordinance divides a county or city into districts or zones represented on zoning maps, and specifies the allowable uses within each of those zones. It establishes development standards for each zone, such as minimum lot size, maximum height of structures, building setbacks, and yard size.

Zoning Ordinance. The adopted zoning and planning regulations of a city or county.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-8
Specific Plans

Ashland-Cherryland Business Districts Specific Plan

Fariview Area Specific Plan

Mission Boulevard Specific Plan

Mission Boulevard Specific Plan

Walpert Ridge Specific Plan

South Hayward BART Form-Based Code

South of 92 Specific Plan

San Leandro
Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
Union City

Manor Blvd
Lewelling Blvd
E 14th St
I-238
Castro Valley Blvd
Center St
I-580
Redwood Rd
Grove Way
Foothill Blvd
Mission Blvd
Western Bl
Montgomery St
Main St
6th St
Kelly St
Maud Ave
Five Canyons Pkwy
D St
East Ave
2nd St
Fairview Ave
Palomares Rd
Grant Ave
I-880
Hathaway Ave
Meekland Ave
Bockman Rd
Hesperian Blvd
W A St
C St
Grand St
Golf Course Rd
Meek Ave
Jackson St
Highland Blvd
Oakes Dr
Canos Bee Blvd
Hayward Blvd
Skywest Dr
Longwood Av
Winton Ave
Orchard Ave
Solo Rd
Whitman St
Sabre St
W Winton Av
Santa Clara St
Harder Rd
Bailey Ranch Rd
Sakian Rd
Cabot Blvd
Eden Ave
Clawiter Rd
Depot Rd
W Jackson St
Hesperian Blvd
Gading Rd
Huntwood Ave
Enterprise Ave
Route 92
W Tennyson Rd
Tennyson Rd
Dixon St
Investment Blvd
Industrial Blvd
Arf Ave
Folsom Ave
Russ Rd
Industrial Pkwy
Garin Ave
Arden Rd
Baumberg Ave
Industrial Pkwy W
San Clemente St
Fairway St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St

0 ¼ ½ 1 Miles

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

Data source: City of Hayward

January, 2013

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...LOOKING FORWARD
2040
HAYWARD·GENERAL·PLAN

Figure 1-9
Existing Alameda County Zoning Designations

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

Residential
- **RS** Suburban Residence, 8 units/acre
- **R1** Single-Family District, 8 units/acre
- **R2** Two-Family Residence, 17.5 units/acre
- **R3** Four-Family Residence, 17.5 untis/acre
- **R4** Multiple Residence, 35 units/acre
- **PD** Planned Development

Commercial
- **C1** Retail Business
- **C2** General Business
- **CN** Neighborhood Business
- **CO** Administrative Office
- **TA** Transit Access
- **TC** Transit Corridor
- **FA** Freeway Access

Other
- **M1** Light Industrial
- **A** Agriculture
- **H1** Highway Frontage

0 ¼ ½ 1 Miles

Data source: Eden and Castro Valley zoning from Alameda County; Fairview area data from the City of Hayward

April, 2013

Bibliography

Reports/Publications

Alameda County, Ashland and Cherryland Business Districts Specific Plan, 1995.

Alameda County, Fairview Area Specific Plan, 1997.

Alameda County, Zoning Ordinance.

City of Hayward, Zoning Ordinance. State of California, California Government Code, 2012.

Websites

None.

Persons Consulted

None

SECTION 1.8 OTHER CITY PLANS AND POLICIES

Introduction

As previously described in Sections 1.6 and 1.7, the City of Hayward General Plan and Zoning Ordinance and the County of Alameda General Plan and Zoning Ordinance are the main planning documents that regulate land use within the Hayward planning Area. In addition, there are several other City plans, policies, and guidelines that regulate land uses within the City of Hayward. These plans, policies, and guidelines are discussed in this section.

Major Findings

- In addition to the General Plan and Zoning Ordinance, the City of Hayward has adopted dozens of plans, policies, and guidelines, creating a relatively complex regulatory framework. In some locations, such as Downtown Hayward, several documents must be reviewed to gain a full understanding of the applicable policies, regulations, and guidelines that apply to a development proposal.
- Most of the City's planning documents are relatively dated and were prepared and adopted prior to the adoption of the current General Plan and the emergence of recent planning and urban design trends, including the "smart growth", healthy communities, and sustainability. Many of the City's planning documents may not align with the vision, goals and policies of the current General Plan, as well as the vision, goals, and policies that will ultimately make up the 2040 General Plan.
- With the exception of the Industrial Corridor, the City of Hayward has prepared, or is in the process of preparing, special planning studies for all of the Focus Areas identified in the current General Plan: Downtown Hayward, the Mission Boulevard Corridor, the South Hayward BART Area, and Older Industrial Area (the Cannery).
- The City of Hayward has a strong tradition of neighborhood planning. Between 1987 and 1997, the City prepared neighborhood plans for all residential areas of the city (with the exception of Downtown Hayward). Currently (May 2013), the City has a Neighborhood Partnership Program that is implementing a new process to prepare community-based strategies to enhance Hayward's neighborhoods.

Existing Conditions

Downtown Plans

The City of Hayward has adopted several plans for Downtown Hayward. Below is a summary of each plan:

- Downtown Hayward Design Plan: The Downtown Hayward Design Plan presents the City's development policies for the Downtown area. It addresses development potential, the density and intensity of development, open space requirements, building heights, urban design objectives, and parking requirements. The Plan was adopted in 1987 and was last revised in 1992.
- Downtown Core Area Plan: The Downtown Core Area Plan is a specific component of the Downtown Hayward Design Plan. Its focus is on the creation of a Downtown Plaza and visual focal point at the southern end of B Street, developing Downtown housing, revitalizing the B Street business district, increasing the number of cultural activities, creating Downtown boundaries and gateways to enhance identity, and realigning Mission Boulevard to the Hayward Fault corridor. The Plan was adopted in 1992.
- Downtown Focal Point Master Plan: The City of Hayward Redevelopment Agency prepared the Downtown Focal Point Master Plan in 1991. The Master Plan addresses the redevelopment of several blocks located adjacent to the Downtown BART Station. For the most part, the Master Plan was implemented with the construction of the new City Hall building and plaza and the adjacent townhome development.
- Design Requirements and Guidelines for Downtown: This document, which was adopted in1992, is intended to enhance the unique qualities of Downtown buildings, create and reinforce a pedestrian shopping environment with amenities that cater to the pedestrian customer, and improve the quality and maintenance of downtown properties. The Design Requirements and Guidelines address a variety of topics, including building styles, facades, storefront elements, shading devices (awnings and canopies), lighting, and new construction.
- Hayward Downtown Historic District Rehabilitation District Commercial Manual: This manual, which was updated in 1993, provides guidelines for the rehabilitation of structures in the Downtown. It addresses a variety of topics to insure that improvements are compatible with the historic character of the buildings and surrounding Downtown properties.

Design Guidelines and Site Plan Review

The City of Hayward adopted the following documents in the early 1990s to guide the design of properties and buildings within the city:

- Design Guidelines: This document, which was adopted in 1993, establishes guidelines for site planning, circulation, architectural design, and landscape design for all development in the city. The document includes guidelines for specific land uses (residential, commercial and industrial), and guidelines that are specific for certain areas, such Downtown Hayward and the hillside residential areas. The guidelines address various topics, including tree preservation, drainage, solar access, noise control,

air quality, outdoor activity areas, circulation system improvements, parking, pedestrian areas, bikeways, and architectural design.

- Hillside Design and Urban/Wildland Interface Guidelines: This document, which was adopted in 1993, establishes guidelines that address the challenges related to development in hillside areas. It addresses street design, grading, parking, drainage, sewer availability, architecture, landscaping, visual impacts, preservation of natural features, fire access and defensibility, and geologic hazards.

All of the City's design guidelines are implemented through Site Plan Review. All new residential and commercial developments are subject to Site Plan Review. Industrial development that abuts residentially zoned land is also be subject to an Administrative Use Permit (AUP). An AUP includes design review of all proposed structures, fencing, signs, landscaping, and other factors. It is used to foster the development and establishment of uses which take into account on-site and surrounding structures and uses, as well as environmental, zoning, and building regulations, general and neighborhood plans, City design guidelines, and requirements of the public works, fire, and police departments.

The Planning Director (or Planning Division staff) reviews applications and determines if they meet all City design guidelines and City policies. If so, then the Planning Director may approve the application. The Planning Director may refer a project to the Planning Commission due to the project's magnitude, controversy or location, or when the project does not meet all of the City requirements for administrative approval. Site Plan Review is conducted concurrently with other permits that may be required, such as Use Permits or Variances.

The City's Design Guidelines are relatively dated and do not reflect current trends in urban planning and urban design. They were prepared and adopted prior to the adoption of the current General Plan and the emergence of recent planning and urban design trends, including the "smart growth," healthy communities, and sustainability movements. Therefore, they may not align with the vision, goals, and policies of the current General Plan, as well as the vision, goals, and policies that will ultimately make up the 2040 General Plan.

Neighborhood Plans and the Neighborhood Partnership Program

Between 1987 through 1997 the City prepared and adopted 16 Neighborhood Plans covering all residential and commercial areas of the city (with the exception of the Downtown area). The plans include land use policies and strategies for improving the neighborhoods. The names and boundaries for each neighborhood plan are shown on Figure 1-10. Many policies and programs from the Neighborhood Plans have been implemented. Others are out of date or no longer relevant because of changing conditions or priorities within the neighborhoods, and the emergence of new principles and ideas related to neighborhood design and revitalization.

In 2007 The City of Hayward created a Neighborhood Partnership Program to address the current challenges of Hayward's neighborhoods. The overarching goals of the program are to:

- Connect the City with residents, businesses, and other Hayward constituents so that City officials can be informed about the issues that are important to the Hayward community,
- Empower and work in partnership with community stakeholders to plan and implement successful neighborhood improvement activities with the City and other public agencies, and
- Implement sustainable neighborhood improvements that enhance the quality of life throughout Hayward.

To date the Neighborhood Partnership Program has worked with 13 neighborhoods to identify challenges, brainstorm solutions, and develop a neighborhood-centered strategy. While the Neighborhood Plans may have some policies and programs that are still relevant, the Neighborhood Partnership Program and the neighborhood-centered strategy plans are generally the preferred approach for improving Hayward's neighborhoods in the future. As a result, the City does not anticipate any future updates to the Neighborhood Plans.

South of Route 92/Oliver & Weber Properties Specific Plan

The South of Route 92/Oliver & Weber Properties Specific Plan was adopted in 1998. It is a specific plan for a 333.5 acre area southwest of the Industrial Parkway and Hesperian Boulevard intersection. The plan calls for the creation of a new neighborhood and business park and light-manufacturing uses. The residential neighborhood, known as Eden Shores, is completely developed and includes a community center, community swimming pool, and several parks and green ways. Several of the business parks and light manufacturing properties within the Specific Plan Area are still vacant.

Cannery Area Design Plan

The Cannery Area Design Plan is a land use and urban design plan to transform the older industrial zone of the city into an urban mixed-use neighborhood. The Plan was adopted in 2001. Key features of the plan include a grid of streets and blocks, a system of over 29 acres of public open space, improved access to the Hayward Amtrak Station, a new Burbank Elementary School, a community center, neighborhood commercial and professional office uses, and 800 to 950 new homes, including townhouses, apartments, and lofts. Most of the Cannery Area Design Plan has been implemented, including the elementary school, the community center, and several housing developments.

South Hayward BART/Mission Boulevard Form-Based Code

The City adopted the South Hayward BART/Mission Boulevard Form-Based Code in October 2011. The Code establishes updated zoning rules for properties in the area surrounding the South Hayward BART Station and nearby Mission Blvd. The Form-Based Code draws from the vision and design guidelines of the 2006 South Hayward BART/Mission Boulevard Concept Design Plan and combines the zoning regulations, subdivision standards, and design standards in one clear and concise document. The South Hayward BART/Mission Boulevard Form-Based Code better defines future development from the perspective of the community and from the perspective of the property owner and developer.

Mission Boulevard Corridor Specific Plan

The City of Hayward is currently (May 2013) preparing the Mission Boulevard Corridor Specific Plan. The Specific Plan is a land use and urban design plan for segments of Mission Boulevard. The plan extends from Harder Road in the south to the city limits in the north, but excludes the segment of Mission Boulevard within the downtown core.

The Mission Boulevard Corridor Specific Plan will include a form-based code and a long-term economic strategy for the project area. The goals of the project are to develop a vision and supporting implementation strategies that will result in attractive development for the City, including vibrant commercial uses; pedestrian-friendly neighborhoods that are safe, desirable, and at sufficient densities to support public transportation; and a built form that will encourage such uses. Other goals include the revitalization of the corridor; addressing the deterioration of the existing uses, including distressed auto-related uses, and establishing a vision for transit-oriented development that incorporates economic and environmental sustainability. The project is expected to be completed in Summer 2013.

Walpert Ridge Specific Plan

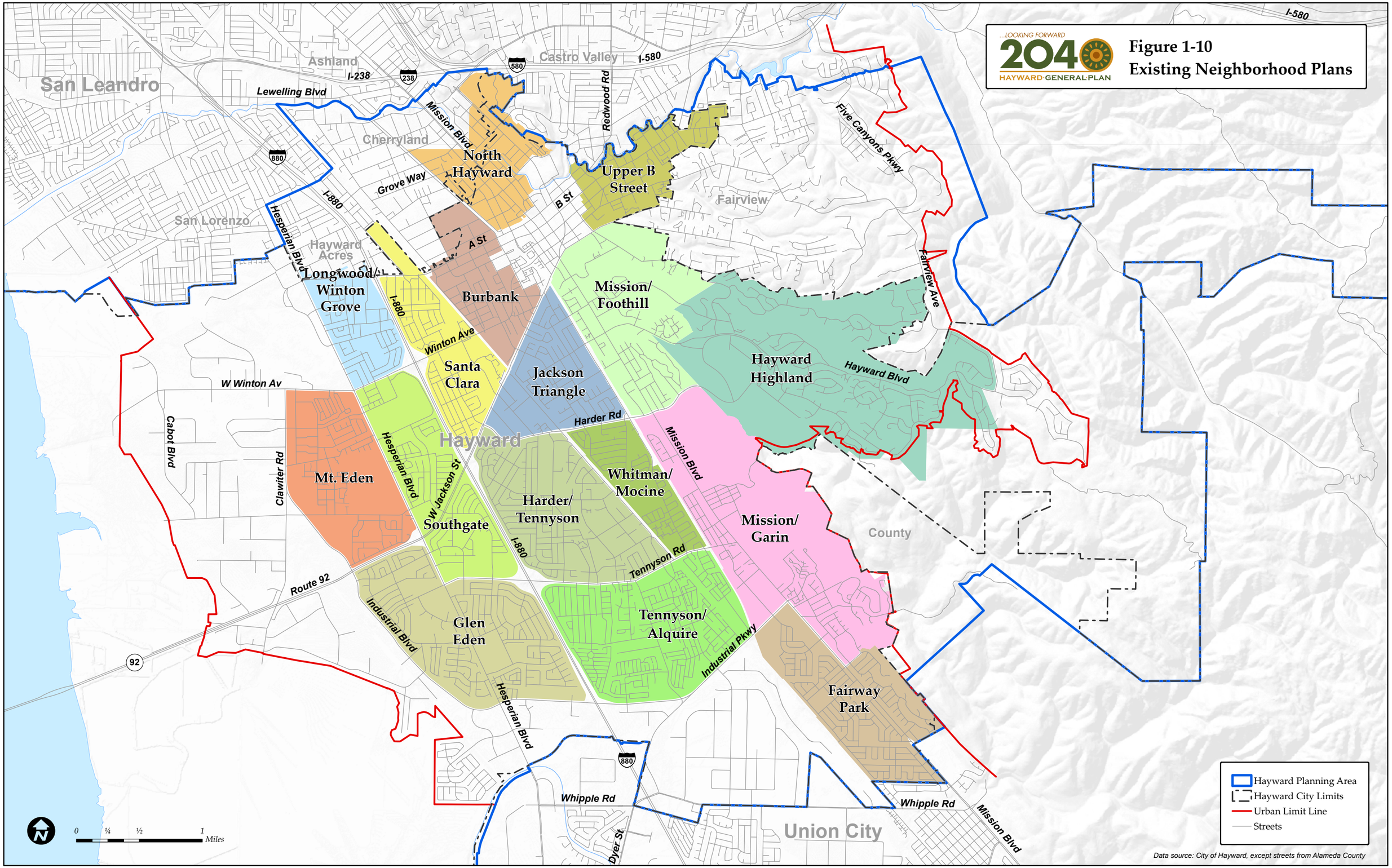
The Walpert Ridge Specific Plan was adopted in 1998. It is a specific plan for a 2,160-acre area located in the hillsides east of Garin Regional Park. The plan allows for the development of 310 acres with large single family homes and an elementary school. The remainder of the Specific Plan Area is designated as open space. The area, now known as Stonebrae, has been approved for 550 homes and is partially built out. Stonebrae Elementary School was completed in 2006.

Ridgeland Area Policies

The City of Hayward, the City of Pleasanton, and Alameda County executed a Memorandum of Understanding in 1993 related to the ridgelands to the east of the city of Hayward. The area includes approximately 13,000 acres of rural and open space lands. The Memorandum of Understanding creates a cooperative venture and establishes objectives and policies that will ensure the preservation of the ridgelands as a permanent open space and recreational resource.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-10
Existing Neighborhood Plans



January, 2013

Hayward Landscape Beautification Plan

The Hayward Landscape Beautification Plan is a master plan for streetscape improvements along the major thoroughfares of the city of Hayward. The Plan, which was adopted in 1987, is intended to further the General Plan goal to improve Hayward's image. The Beautification Plan addresses twelve major streets throughout the city. The plan addresses the design of city entries, landscaping design themes, the character and quality of new development, maintenance, and the beautification of public parcels.

Hayward Executive Airport Master Plan

The City of Hayward adopted the Hayward Executive Master Plan in 2002. The Master Plan identifies long-term improvements to the airport and identifies financing and implementation strategies for the improvements.

Regulatory Setting

Specific Plan Law (California Government Code Section 65451)

California Government Code Section 65451 regulates the substantive and topical requirements of specific plans. A specific plan is a tool for the systematic implementation of the general plan, and establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts, or as detailed as providing direction on every facet of development from the type, location, and intensity of uses to the design and capacity of infrastructure.

Key Terms

The following key terms used in this chapter are defined as follows:

Design Guidelines. Design criteria and standards that must be considered to meet a minimum standard of design for development projects. Design guidelines address a variety of topics, including site design, building mass, facade design, building materials, signage, and landscaping.

Specific Plan. A planning tool authorized by Government Code Section 65450, et seq., for the systematic implementation of the general plan for a defined portion of a community's planning area. A specific plan must specify in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources, and a program of implementation measures, including financing measures.

Bibliography

Reports/Publications

Alameda County, City of Hayward, and City of Pleasanton, Memorandum of Understanding Covering the Ridgeland Area, 1993.

City of Hayward, Cannery Area Design Plan, 2001.

City of Hayward, Design Guidelines, 1993.

City of Hayward, Design Requirements and Guidelines for Downtown, 1992.

City of Hayward, Downtown Core Area Plan, 1992.

City of Hayward, Downtown Focal Point Master Plan, 1991.

City of Hayward, Downtown Hayward Design Plan, adopted in 1987 and last updated in 1992.

City of Hayward, Draft Mission Boulevard Corridor Specific Plan, 2012.

City of Hayward, Hayward Downtown Historic District Rehabilitation District Commercial Manual, 1993.

City of Hayward, Hayward Executive Airport Master Plan, 2002.

City of Hayward, Hayward General Plan, 2002.

City of Hayward, Hayward Landscape Beautification Plan, 1987.

City of Hayward, Hillside Design and Urban/Wildland Interface Guidelines, 1993.

City of Hayward, Ridgeland Area Policies, 1993.

City of Hayward, South Hayward BART/Mission Boulevard Form-Based Code, 2011.

City of Hayward, South of Route 92/Oliver & Weber Properties Specific Plan, 1998.

City of Hayward, Walpert Ridge Specific Plan, 1998.

Websites

City of Hayward, Neighborhood Partnership Program Website: http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/CITY-MANAGER/, 2012.

City of Hayward, Neighborhood Plans Website: http://user.govoutreach.com/hayward/faq.php?cid=11047, 2012

Persons Consulted

None.

SECTION 1.9 GROWTH AND DEVELOPMENT CAPACITY

Introduction

The purpose of this section is to determine the potential amount of residential, commercial, and industrial development that could occur within the Hayward Planning Area and the City of Hayward under the existing policies and land use designations established by the Hayward General Plan and the Alameda County General Plan.

Major Findings

- The estimated residential buildout of the Hayward Planning Area is 85,794 dwelling units. Assuming an average household size of 3.1 persons per household, the population of the Hayward Planning Area at buildout would be 265,962.
- The estimated residential buildout of the city of Hayward is 67,112 dwelling units (there are currently (2012) 48,671 dwelling units in the city). Assuming an average household size of 3.1 persons per household, the estimated population of Hayward at buildout would be 208,047 (current (2012) population is 147,113). The Association of Bay Area Governments projects that the City will grow to a total of 60,584 dwelling units by 2040, which is significantly lower than the estimated buildout of the City. Therefore, it is unlikely that the City will reach full buildout by 2040.
- The estimated commercial and industrial buildout of the City of Hayward is 9.63 million square feet of commercial space and 72.20 million square feet of industrial space.

Existing Conditions

Residential Buildout

Buildout refers to the total amount of development, existing and future, that could potentially occur in a jurisdiction based on the land use standards and regulations of the jurisdiction's current general plan. Table 1-5 provides the estimated residential buildout of the Hayward Planning Area and the City of Hayward. The buildout analysis is based on the following assumptions:

- At buildout approximately 50 percent of the land designated as Commercial/High Density Residential will be developed or redeveloped to include residential units.
- At buildout approximately 25 percent of the land designated as Downtown-City Center Retail and Office Commercial will be developed or redeveloped to include residential units.

- At buildout residential properties, including commercial properties with residential uses, will be developed to achieve an average density that equals the middle of the density range for the property's land use designation. For example, the density range for the sustainable mixed use is 25.0 to 55.0 units per acre. The middle of that range, which is 40 units per acre, is used as an average density for all properties with a Sustainable Mixed Use land use designation.

TABLE 1-5
ESTIMATED GENERAL PLAN BUILDOUT: RESIDENTIAL
Hayward Planning Area and City of Hayward

Land Use	Area Acreage	Average Density at Buildout	Number of Dwelling Units at Buildout	Potential Population[1]
Residential (City of Hayward)				
Rural Estate Density	76.33	0.6	46	142
Suburban Density	829.38	2.65	2,198	6,813
Low Density	2,869.32	6.5	18,651	5,7817
Mobile Home Park	252.82	10.35	2,617	8,112
Limited Medium Density	344.52	10.35	3,566	11,054
Medium Density	960.14	13.05	12,530	38,842
High Density	454.54	26.10	11,864	36,777
Sustainable Mixed-Use	199.64	40.00	7,986	24,755
Commercial (City of Hayward)				
Commercial/High Density Residential	343.13	26.10	1,980	6,137
Downtown-City Center (City of Hayward				
High Density Residential	39.66	75.00	2,975	9,221
Retail and Office Commercial	144.11	75.00	2,702	8,376
Subtotal (City of Hayward)			**67,112**	**208,047**
Residential (Unincorporated Areas)				
Low Density Residential	117.02	9.00	1,053	3,265
Low-Medium Density Residential	250.31	9.5	2,378	7,372
Medium Density Residential	378.46	16.00	6,055	18,772
Medium-High Density Residential	12.64	32.50	411	1,273
Rural Residential	5.60	1.00	6	17
Hillside Residential	221.55	6.00	1,329	4,121
Residential Single Family	1.16	7.00	8	25
Residential Low Density Multi-Family	0.16	20.00	3	10
Rural Estate Density Residential	427.47	0.60	256	795
Suburban Density Residential	210.54	2.65	558	1,730
Low Density Residential	701.60	8.70	6,104	18,922
Low-Medium Density Residential	0.00	10.35	0	0

TABLE 1-5
ESTIMATED GENERAL PLAN BUILDOUT: RESIDENTIAL
Hayward Planning Area and City of Hayward

Land Use	Area Acreage	Average Density at Buildout	Number of Dwelling Units at Buildout	Potential Population[1]
Medium Density Residential	24.66	13.05	322	998
High Density Residential	7.61	26.10	199	616
Subtotal (Unincorporated Areas)			**18,682**	**57,915**
TOTAL (HAYWARD PLANNING AREA)			**85,794**	**265,962**

1. Assumes an average household size of 3.1.
2. Buildout calculations include both developed and vacant properties.

Source: City of Hayward, GIS Data, December 2012.

As shown in Table 1-5, the estimated buildout of the Hayward Planning Area is 85,794 dwelling units. Assuming an average household size of 3.1 persons per household, the estimated population of the Hayward Planning Area at buildout would be 265,962. The estimated buildout of the city of Hayward is estimated at 67,112 dwelling units and an estimated population of 208,047. As of January 1, 2012, there were approximately 48,671 housing units within the city. Therefore, the City could potentially grow by an additional 18,441 dwelling units under its existing General Plan.

The Association of Bay Area Governments projects that the city of Hayward will grow to a total of 60,584 dwelling units by 2040. This figure is significantly lower than the estimated buildout for the city of Hayward (67,112 units). Therefore, it is unlikely that the city and the Hayward Planning Area will grow to buildout during the planning horizon for the proposed 2040 General Plan. As always, economic forces and housing demand will ultimately determine how much housing is constructed in the city.

Commercial and Industrial Buildout

Table 1-6 provides the estimated commercial and industrial buildout of the Hayward Planning Area and the City of Hayward. The commercial and industrial buildout is based on the following assumptions:

- At buildout commercial and office uses inside the Downtown-City Center will develop at an average floor area ratio of 0.3.
- At buildout commercial and office uses outside of the Downtown-City Center will develop at an average floor area ratio of 0.275.
- At buildout industrial uses will develop at an average floor area ratio of 0.5.

As shown in Table 1-6, the estimated buildout of the Hayward Planning Area is 10.59 million square feet of commercial space and 72.20 million square feet of industrial space. The estimated buildout of the City of Hayward is estimated at 9.63 million square feet of commercial space and 72.20 million square feet of industrial space.

TABLE 1-6
ESTIMATED BUILDOUT: COMMERCIAL AND INDUSTRIAL
Hayward Planning Area and City of Hayward

Land Use Designation	Hayward Planning Area		Hayward City Limits	
	Area Acreage	Square Footage at Buildout	Area Acreage	Square Footage at Buildout
Commercial				
Retail and Office (H)	0.275	1,817,118	0.275	1,817,118
General (H)	0.275	1,296,509	0.275	1,296,509
Commercial/High Density residential (H)	0.275	4,110,395	0.275	4,110,395
General Commercial (AC-E)	0.275	967,089	0.275	0
Retail and Office (FV)	0.275	0	0.275	0
Subtotal		8,191,110		7,224,022
Downtown-City Center				
High Density Residential (H)	0.300	518,289	0.300	518,289
Retail and Office Commercial (H)	0.300	1,883,169	0.300	1,883,169
Subtotal		2,401,457		2,401,457
TOTAL COMMERCIAL		**10,592,568**		**9,625,479**
Industrial				
Industrial Corridor (H)	0.500	70,620,204	0.500	70,620,204
Mixed Industrial (H)	0.500	1,575,944	0.500	1,575,944
TOTAL INDUSTRIAL		**72,196,147**		**72,196,147**

1. Buildout calculations include both developed and vacant properties.

H: Land Use Designation is from the Hayward General Plan.
AC-E: Land use designation is from the Alameda County Eden Area General Plan.
AC-CV: Land use designation is from the Alameda County Castro Valley Area General Plan.
FV: Land use designation is from the Hayward General Plan for the unincorporated community of Fairview.
Source: City of Hayward, GIS Data, December 2012.

Key Terms

The following key terms used in this chapter are defined as follows:

Buildout. Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

Density. the number of permanent residential dwelling units per acre of land.

Floor Area Ratio (FAR). The ratio of interior building space on a property to the total square footage of the property. FAR = Square footage of building/square footage of property.

Bibliography

Reports/Publications

City of Hayward, GIS Data, 2012.

Collier International, Industrial Research & Forecast Report, Oakland, California, Quarter 2 of 2012.

Websites

None.

Persons Consulted

None.

SECTION 1.10 REGIONAL PLANS AND AGENCIES

Introduction

This section discusses the plans, policies, and regulations of other agencies that affect growth and development within the Hayward Planning Area. Regional, State, and Federal agencies are generally not subject to the policies and plans adopted by local governments. Therefore, understanding the roles and responsibilities of these agencies is vital to ensure effective inter-jurisdictional cooperation and coordination.

Major Findings

- Several local, County, regional, State, and Federal agencies control land resources within the Hayward Planning Area. To reach its full potential, Hayward must coordinate its planning efforts with these organizations.
- To reduce transportation-related greenhouse gas emissions, State law requires the preparation of a regional Sustainable Communities Strategy, which must coordinate local land use planning with regional transportation and housing plans. The Sustainable Communities Strategy for the Bay Area directs 79 percent of Hayward's future housing growth (9,659 units) to five priority development areas within the city: Downtown Hayward, the South Hayward BART Neighborhood, the South Hayward BART Corridor, the Cannery, and the Mission Corridor.
- The parks and recreational facilities within Hayward are managed by two separate districts: the Hayward Area Parks and Recreation District and the East Bay Regional Parks District. The future expansion of California State University, East Bay, and Chabot College have the potential to increase college enrollment by over 7,500 students. The City of Hayward has the opportunity to increase its student population by supporting the development of on- and off-campus housing.

Existing Conditions

Plan Bay Area and the Sustainable Communities Strategy

Plan Bay Area is an integrated long-range transportation and land-use/housing plan for the San Francisco Bay Area. It includes the Bay Area's Regional Transportation Plan, which the Metropolitan Transportation Commission (MTC) updates every four years, and the Association of Bay Area Governments (ABAG) demographic and economic forecast, which is updated every two years. Additionally, ABAG administers the State-required Regional Housing Needs Allocation (RHNA). State law requires that the RHNA process follow the development pattern specified in the Sustainable Communities Strategy.

MTC and ABAG have prepared a draft Plan Bay Area, which will likely be adopted in spring 2013. This update will include a Sustainable Communities Strategy, which will coordinate land use, housing, and transportation. The goal of the Sustainable Communities Strategy is to reduce greenhouse gas emissions for cars and light-duty trucks in the nine-county region.

Plan Bay Area grew out of the California Sustainable Communities and Climate Protection Act of 2008 (California Senate Bill 375), which requires each of the State's 18 metropolitan areas to reduce greenhouse gas emissions from cars and light trucks. The law requires that the Sustainable Communities Strategy promote compact, mixed-use commercial and residential development. To meet the goals of SB 375 more of the future development is planned to be walkable and bikable and close to public transit, jobs, schools, shopping, parks, recreation, and other amenities. To this end Plan Bay Area directs the majority of the regional housing growth to local priority development areas (PDAs).

Figure 1-11 shows the location of the priority development areas within the Hayward Planning Area. The priority development areas within the city of Hayward are:

- The Cannery
- Downtown Hayward
- The South Hayward BART Corridor
- The South Hayward BART Neighborhood
- The Mission Boulevard Corridor

Priority development areas that are within (or partially within) the unincorporated areas of the Hayward Planning Area are:

- Hesperian Boulevard Transit Neighborhood
- Meekland Avenue Corridor
- East 14th Street and Mission Boulevard Corridor

The Sustainable Communities Strategy directs the majority of Hayward's future housing development towards the five priority development areas within the city. Between 2010 and 2040, 79 percent of Hayward's housing unit growth, or 9,659 housing units, is directed to the priority development areas. Table 1-7 shows the specific allocation for each priority development area within the city.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 1-11
Priority Development Areas

East 14th Street & Mission Blvd
Mixed-Use Corridor

Hesperian Boulevard
Transit Neighborhood

Meekland Ave Corridor
Mixed-Use Corridor

Mission Boulevard Corridor
Mixed-Use Corridor

Downtown
City Center

The Cannery
Transit Neighborhood

South Hayward BART
Mixed-Use Corridor

South Hayward BART
Urban Neighborhood

San Leandro
Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
Union City

I-580
I-238
I-880
Route 92
Lewelling Blvd
Mission Blvd
Redwood Rd
Five Canyons Pkwy
Grove Way
B St
A St
Fairview Ave
Hayward Blvd
Winton Ave
W Winton Av
Harder Rd
Cabot Blvd
Clawiter Rd
Hesperian Blvd
W Jackson St
Tennyson Rd
Industrial Blvd
Industrial Pkwy
Whipple Rd
Dyer St

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

0 ¼ ½ 1 Miles

Data source: Priority development areas from the Association of Bay Area Governments, all other data City of Hayward

January, 2013

TABLE 1-7
HOUSING UNITS AND HOUSEHOLDS: 2010 THROUGH 2040
City of Hayward Priority Development Areas

Priority Development Area	2010		Growth Between 2010 and 2040		2040	
	Housing Units	Households	Housing Units	Households	Housing units	Households
The Cannery	343	331	752	741	1,095	1,072
Downtown	2,287	2,096	3,223	3,275	5,510	5,371
South Hayward BART Corridor	184	172	1,173	1,158	1,357	1,330
South Hayward Bart Neighborhood	1,796	1,658	2,698	2,737	4,494	4,395
Mission Corridor	1,482	1,229	1,839	1,977	3,321	3,206
Subtotal: Priority Development Areas	6,092	5,486	9,685	9,888	15,777	15,374
Remainder of City	42,204	39,879	2,603	3,572	44,807	43,451
Total City	48,296	45,365	12,288	13,460	60,584	58,825

Source: Association of Bay Area Governments. Draft Preferred Scenario of the Sustainable Communities Strategy (Jobs-Housing Connection Strategy), adopted and released by ABAG Executive Board and MTC on May 17, 2012.

Alameda County Airport Land Use Commission

Airport land use commissions were established by State law to protect public health, safety, and welfare by promoting the orderly expansion of airports and by adopting land use measures to minimize noise and safety hazards near airports. The Alameda County Airport Land Use Commission (ALUC) regulates land use near the Hayward Executive Airport by implementing the Hayward Executive Airport, Airport Land Use Compatibility Plan (ALUCP). The ALUCP is a tool used to review airport improvement proposals and land use development proposals within the airport influence area. The ALUCP was adopted in August 2012.

Hayward Area Recreation and Park District

The Hayward Area Recreation and Park District (HARD) is an independent special use district providing park and recreation services for over 250,000 residents living within a 64 square-mile area. The Park District boundaries include the cities of Hayward and Castro Valley, and the unincorporated communities of San Lorenzo, Ashland, Cherryland, and Fairview. Since its creation in 1944, the District has provided residents with recreational facilities and parks, as well as hundreds of educational and recreational classes and programs.

Improvements to parks and recreational facilities within Hayward are regulated by the HARD Recreation and Parks Master Plan. The Master Plan presents a visionary and pragmatic approach for managing the District for the next fifteen years. The primary goal of the Master Plan is to allow the District to make both short-term and long-range decisions regarding their

park facilities and recreation services. (See Section 5.7 of this Background Report for more details about Parks and Recreation Facilities)

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) consists of 27 members that represent various interests in the Bay, including members of the public and members appointed by Federal, State, regional, and local governments. BCDC regulates the filling and dredging of the San Francisco Bay as well as development within 100 feet of the shoreline. Their jurisdiction includes the shoreline of San Francisco Bay, salt ponds, managed wetlands, and certain waterways that are subject to tidal action (such as submerged lands, tidelands, marshlands, and various rivers and creeks). All land use proposals within the Hayward baylands are subject to regulations and permits issued by BCDC.

The Hayward Area Shoreline Planning Agency (HASPA)

The Hayward Area Shoreline Planning Agency (HASPA) is a joint powers agency of representatives from the Hayward Area Recreation and Park District, East Bay Regional Park District, and the City of Hayward. The primary purpose of HASPA is to coordinate agency planning activities and adopt and implement policies for the improvement of the Hayward shoreline for future generations. The efforts of HASPA and its member agencies, as well as the Hayward Area Shoreline Citizens Advisory Committee, have resulted in the purchase of over 3,150 acres along the Hayward shoreline. Much of the land has been restored as wetlands, marshes, or protected uplands.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service manages the Don Edwards San Francisco Bay National Wildlife Refuge, which is dedicated to preserving and enhancing wildlife habitat, protecting migratory birds, protecting threatened and endangered species, and providing opportunities for wildlife-oriented recreation and nature study for the surrounding communities. As of 2004 the Refuge spans 30,000 acres of open bay, salt pond, salt marsh, mudflat, upland and vernal pool habitats located throughout the South San Francisco Bay, including parts of the Hayward baylands.

East Bay Regional Parks District

The East Bay Regional Parks District (EBRPD) provides and manages the regional parks for Alameda and Contra Costa Counties, a 1,700 square mile area. EBRPD manages 65 regional parks, over 112,000 acres of open space, and 1,200 miles of trails.

The EBRPD Master Plan is the policy document that guides the District in its efforts to expand and improve parks, trails, and recreational services. The Master Plan defines the vision and the mission of EBRPD and sets priorities for the future. It explains the District's multi-faceted

responsibilities and provides policies and guidelines for achieving the highest standards of service in resource conservation, management, interpretation, public access and recreation. The Master Plan is designed to maintain a careful balance between the need to protect and conserve resources and the recreational use of parklands for all to enjoy now and in the future. EBRPD is currently (May 2013) preparing an update to the Master Plan.

EBRPD owns and manages several parks within the Hayward Planning Area, including:

- Don Castro Regional Recreation Area,
- Palomares Ridge Regional Park,
- Hayward Shoreline Regional Park,
- Garin Regional Park, and
- Dry Creek Pioneer Regional Park.

In addition to the EBRPD Master Plan, each park within the District has a land use plan, which serves as the long-range plan for the entire park. (See Section 5.7 of this Background Report for more details about regional park facilities.)

California State University, East Bay

California State University, East Bay has two regional campuses (located in Hayward and Concord) and a Professional Center (located in Downtown Oakland). The Hayward Campus is located approximately 2 miles southeast of Downtown Hayward and occupies approximately 364 acres of land. Only 180 acres of the campus are actually developed and in use for academic and associated uses. During the fall quarter of 2011, 10,506 full time students and 2,654 part-time students attended classes at the Hayward Campus.

The growth and development of the Hayward Campus is regulated by the Hayward Campus Master Plan. The Master Plan sets forth a growth and development strategy to ultimately serve an enrollment of 18,000 full-time equivalent students, 5,000 of whom would live in on-campus housing. The developable area of the Hayward Campus is relatively small compared to other college campuses. As a result, the Campus will need to be developed at higher densities to accommodate projected student growth. In accordance with the plan, campus buildings will generally be placed closer together and will have taller building heights.

Chabot-Las Positas Community College District

The Chabot-Las Positas Community College District operates two community colleges: Chabot College in Hayward and Las Positas College in Livermore. In 2010-11, Chabot College had an enrollment of 14,206 full- and part-time students. The projected enrollment for the year 2025 is 16,946 full- and part-time students.

The District's 2012 Facilities Master Plan sets a broad vision for the Chabot Campus over the next ten to twenty years. A variety of improvements are planned to occur in the future, including site and landscaping improvements, building renovations, and the construction of new buildings and infrastructure.

Regulatory Setting

There is no regulatory setting for this section. Applicable laws and regulations for each regional agency are discussed in the Existing Conditions subsection.

Key Terms

None.

Bibliography

Reports/Publications

Alameda County Airport land Use Commission, Hayward Executive Airport, Airport Land Use Compatibility Plan, August 2012.

Association of Bay Area Governments, Draft Preferred Scenario of the Sustainable Communities Strategy (Jobs-Housing Connection Strategy), adopted and released by ABAG Executive Board and MTC on May 17, 2012.

California State University, East Bay, Hayward Campus Master Plan, September 2009.

Chabot-Las Positas Community College District, 2012 Facilities Master Plan, July 17, 2012

Websites

City of Hayward HASPA Website: http://user.govoutreach.com/hayward/faq.php?cid=11038, 2012.

Don Edward Wildlife Refuge website: http://www.fws.gov/desfbay/, 2012.

East Bay Regional Parks District Website: http://www.ebparks.org/, 2012.

Plan Bay Area Website:http://onebayarea.org/regional-initiatives/plan-bay-area.html#.UNX8-He8QVR, 2012.

San Francisco Bay Conservation and Development Commission Website: http://www.bcdc.ca.gov, 2012.

Persons Consulted

None.

SECTION 2.1 INTRODUCTION

This chapter describes the transportation and circulation systems moving people and goods through and around the city. Centrally located in Alameda County, the transportation system in Hayward serves both regional and local travel needs. With a significant portion of traffic volume on its local streets attributable to regional through traffic, the city must coordinate with adjacent communities as well as county, regional, and State agencies to address local traffic congestion. In addition to the role that the transportation system plays in the regional context, travel in the city is closely related to the local land use pattern and affects air quality, noise, and safety in the city.

While much of the content of this chapter focuses on vehicular travel, this chapter presents mobility from a multimodal perspective including public transit, bicycling, and walking. In addition, the parking, aviation, and goods movement are covered. Each section describes existing conditions and highlights key findings as they related to citywide mobility issues.

This chapter is organized into the following sections:

- Introduction (Section 2.1)
- Travel and Commute Patterns (Section 2.2)
- Streets and Highways (Section 2.3)
- Bicycle Facilities (Section 2.4)
- Pedestrian Facilities (Section 2.5)
- Transit (Section 2.6)
- Transportation Demand Management (Section 2.7)
- Public Parking (Section 2.8)
- Aviation Facilities (Section 2.9)
- Goods Movement (Section 2.10)

SECTION 2.2 TRAVEL AND COMMUTE PATTERNS

Introduction

This section provides an overview of the travel and commute patterns in Hayward. The city is centrally located in the East Bay and is, therefore, impacted by significant local and regional travel patterns. The section describes existing travel patterns and reviews measures that the city and regional agencies have undertaken to address regional through traffic.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- Caltrans is responsible for the State highway system that influences regional travel patterns. Three interstate highways and three major State highways affect travel patterns within and around the city.
- The Measure B program, administered by the Alameda County Transportation Commission, is a major source of funding for regional and local roadway improvements and has contributed to significant improvements in and around the city of Hayward that have influenced travel patterns in the city.
- The Local Alternative Transportation Improvement Program (LATIP), administered by the Alameda CTC, formally rescinded the Route 238 (Hayward Bypass) Project and replaced it with four additional projects including the nearly completed Route 238 Corridor Improvement Project.
- Significant regional through traffic uses city streets and highways, estimated at 25 percent to 30 percent of peak hour traffic on some key major arterials in 2001.
- Since 2001 significant investment has been made to the regional and local transportation system that has contributed to improved traffic congestion within Hayward, including the completion of the I-880/SR 92 interchange reconstruction project and the I-238 widening project.
- Travel and commute patterns in the city are changing due to an alternative to the Route 238 Bypass (Foothill Freeway) that has been under construction and is nearly completed and that includes arterial improvements to Foothill Boulevard and Mission Boulevard with a one-way downtown configuration and other traffic flow improvements throughout the corridor.
- The journey to work mode choice from the 2007 American Commuter Survey found that approximately 70.9 percent of Hayward residents drive alone, 15.7 percent car-pool, 7.4 percent use public transportation and 1.6 percent of commuters walk to work.
- Between 2001 and 2011 the daily vehicle miles of travel (DVMT) on the City-maintained roadway network increased from 1,225,060 miles to 1,291,910 miles, an increase of 5.5

percent. For comparison, VMT increased by 4 percent for Alameda County, 2.4 percent for all Bay Area Counties, and 6.8 percent statewide.

Existing Conditions

The geographic location of the city in the center of the East Bay significantly influences travel patterns and commutes for residents and visitors. The city is a major crossroad for key interstate highways (I-238, I-580 and I-880), and State highways (SR 92, and SR 185). In addition, two BART lines (Fremont-Richmond and Fremont-Daly City/Millbrae) serve the city, with a 3rd line (East Dublin/Pleasanton-SFO Airport) operating just north of the city. In addition, Amtrak service connects the city via a station near downtown to Sacramento and San Jose.

As a result of Hayward's central location, the city attracts a significant amount of regional through traffic. In 2001 through traffic was estimated at 25 to 30 percent on key roadways like Mission Boulevard, Foothill Boulevard, Jackson Street, and Hesperian Boulevard.

Since 2001 significant investment has been made to the regional and local transportation system that has contributed to improved traffic congestion within Hayward. In 2000 voters approved Measure B, a 20-year transportation expenditure plan, administered by the Alameda County Transportation Commission that is a major source of funding for regional and local roadway improvements influencing travel patterns in Hayward. In 2012 voters rejected a new authorization by the Alameda CTC called Measure B1 that would have extended funding for additional transit and highway projects for an additional 20 years.

As part of Measure B, the Local Alternative Transportation Improvement Program (LATIP), administered by the Alameda CTC, formally rescinded the Route 238 (Hayward Bypass) Project and added four additional projects, including the Route 238 Corridor Improvement Project, currently near completion. Since 2001 key highway investments that have influenced regional traffic in Hayward include:

- I-238 Improvements
- I-880 HOV lanes
- I-880/SR 92 Interchange improvements (completed)
- I-880/SR 92 Reliever Route – Whitesell Street Extension in planning stages
- I-880/SR 92 Reliever Route – Improvements to Hesperian/Winton and Hesperian/Middle intersections (in planning stage)
- Clawiter Road/Whitesell Avenue Interchange (in planning stage)
- I-580/ Redwood Road Interchange improvements
- Route 238 Corridor Improvements

Transit investments include:

- BART West Dublin Station
- BART extensions planned to San Jose and Livermore

Travel and commute patterns in the city are also changing due to the alternative to the Route 238 Bypass (Hayward Bypass) under construction that includes arterial improvements to Foothill Boulevard and Mission Boulevard with a one-way downtown configuration. While this project will achieve one of the stated policies from the previous general plan to relieve traffic congestion and to reduce regional through traffic on city streets, it will also alter local bicycle and pedestrian circulation patterns within the downtown area, as well as to provide additional opportunities for improved bicycle and pedestrian circulation.

Regional/Local Travel Trends

Historical travel trends for the city are presented in Table 2-1. Since the current General Plan was prepared in 2001, the daily vehicle miles of travel (VMT) on city streets increased by 5.5 percent. During that same period, the population in Hayward increased by 6.3 percent, from 141,000 to 150,000. While this matches closely with the daily vehicle miles of travel, the slightly lower daily VMT change compared to population may be associated with less regional traffic using city roads as a result of the improvements to the freeway system since 2001. For comparison, VMT increased by 4 percent for Alameda County, 2.4 percent for all Bay Area Counties, and 6.8 percent Statewide.

TABLE 2-1
DAILY VEHICLE MILES OF TRAVEL TRENDS

Year	Daily Vehicle Miles of Travel (DVMT)			
	City of Hayward	Alameda County	Bay Area	California
2001	1,225,060	35,116,900	158,387,870	834,187,180
2011	1,291,910	36,531,750	162,158,920	890,501,310
Growth Rate 2001-2011 (%)	5.5%	4.0%	2.4%	6.8%

Source: Department of Transportation, State of California. 2001 and 2011 California Public Road Data.

Journey to Work

The journey to work mode shares from the 2007 American Community Survey found that approximately 70.9 percent of Hayward residents drive alone, 15.7 percent car-pool, 7.4 percent use public transportation, 1.6 percent of commuters walk to work, as shown in Table 2-2. Comparable mode shares are shown for Alameda County and California. When compared to the drive alone mode share for Alameda County, the share for Hayward residents is higher due to more reliance on auto travel, but less than drive alone shares for California.

TABLE 2-2 JOURNEY TO WORK MODE SHARE			
Commute Mode	**City of Hayward**	**Alameda County**	**California**
Drive Alone	70.90%	66.3%	73%
Carpooled	15.70%	10.40%	11.70%
Public Transportation	7.40%	11.50%	5.10%
Walking	1.60%	3.60%	2.80%
Work at Home	2.50%	4.90%	5.10%
Other Means	1.90%	3.30%	2.30%
Total	**100%**	**100%**	**100%**

Source: U.S. Census Bureau, 2007 American Community Survey.

Regulatory Setting

The regulatory policies and programs by state, regional and local agencies influence travel and commute patterns in the region and within the City of Hayward.

State

None

Regional

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Alameda County. It also functions as the Federally-mandated metropolitan planning organization for the region. MTC authored the current regional transportation plan known as Transportation 2035 that was adopted on April 22, 2009. Transportation 2035 specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system, specifying how anticipated Federal, State, and local transportation funds will be spent.

Alameda County Transportation Commission

The Alameda County Transportation Commission (ACTC) prepares the Congestion Management Program (CMP), a plan mandated by California law to describe the strategies to address congestion problems on the Metropolitan Transportation System (MTS) and CMP network, which includes state highways and principal arterials. The CMP uses level of service (LOS) standards as a means to measure congestion and has established LOS standards to

determine how local governments meet the objectives of the CMP. MTS and CMP roadways applicable to the General Plan Update include: I-880, SR 238 (Mission Boulevard south of Industrial Parkway), SR 185 (Mission Boulevard north of A Street), SR 92 (Jackson Street) west of Watkins Street to Santa Clara Avenue, Hesperian Boulevard, A Street, Tennyson Road, SR 92 (west of Santa Clara Avenue to the City limits, Winton Avenue to D Street, B Street, Harder Road, Industrial Parkway, and Whipple Road. Transit systems include BART and AC Transit. Union City Transit also serves a small section of the Fairway Park neighborhood.

Measure B

Measure B is a half-cent transportation sales tax approved by Alameda County residents in 2000. Administered by ACTC, it funds transportation improvements and services that address regional priorities set forth in the Alameda County 20-year Transportation Expenditure Plan. The plan includes funding for highway and transit projects that directly affect travel patterns in Hayward by improving conditions on adjacent freeways and highways, including improvements to I-238, I-880, and Route 238. In November 2012 a reauthorization of Measure B, called Measure B1, was not approved by voters to make sales tax funding for future transit and highway improvements available for 20 years. While defeat of this measure will impact projects within Alameda County like the BART Extension to Livermore, it will not directly affect planned improvements within the city of Hayward.

Key Terms

None

Bibliography

Reports/Publications

Alameda County Transportation Commission. 2011 Congestion Management Program. 2011.

Department of Transportation, State of California. 2001 California Public Road Data, Office of Highway System Information and Performance, Highway Performance Monitoring System Branch, 2002.

Hayward, City of. City of Hayward General Plan, Chapter 3 – Circulation, 2001.

Websites

Metropolitan Transportation Commission. http://www.mtc.ca.gov/planning/plan_bay_area/, January 30, 2013.

U.S. Census Bureau. http://factfinder2.census.gov/bkmk/table/1.0/en/ACS/11_5YR/DP03/1600000US0633000, January 8, 2013.

SECTION 2.3 STREETS AND HIGHWAYS

Introduction

This section describes the major streets and highways serving the city. The City defines the streets by functional classifications creating a hierarchy of streets and highways that range from regional-serving, limited access freeways, such I-880, to local streets that primarily provide access to abutting properties. Traffic volumes on major streets are reported as well as traffic operations at 42 key intersections throughout the city.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- Three interstate highways and three State highways affect travel patterns within and around the city.
- City streets are classified into the traditional functional classification of arterial, collector, and local streets.
- The average daily traffic volumes on city streets varies from 3,200 to 39,300 vehicles per day indicating the range of functions from low-volume streets providing local access to high-volume regional through routes.
- Thirty-eight of forty-tow existing study intersections are currently operating acceptably. The exceptions are at:
  - Mission Boulevard/A Street, which is operating unacceptably at LOS E during the morning peak hour and at LOS F during the evening peak hour.
  - Industrial Boulevard /Westbound SR Ramp/Cryer Street, which is operating unacceptably at LOS E during the morning peak hour.
  - Santa Clara Street/Jackson Street, which is operating unacceptably at LOS E during the morning peak hour.
  - Watkins Street/Jackson Street, which is operating unacceptably at LOS E during the evening peak hour.
- The Route 238 Corridor Improvement project on Mission Boulevard and Foothill Boulevard, which is the culmination of many years of study as the alternative to the Route 238 Bypass (Foothill Freeway) and is now near completion of construction, is designed to relieve traffic congestion and improve traffic flow in this key corridor serving the city and to improve congestion at Mission/Foothill/Jackson, Mission Boulevard/A Street, and Watkins Street/Jackson Street.

Existing Conditions

An understanding of the existing conditions on major streets and highways in the city provides the baseline from which the existing and future mobility needs can be identified and addressed. The existing streets and highways serve many different functions as presented in the hierarchy of street classifications. The average daily traffic (ADT) volume of the study segments provides an indication of the key corridors serving both regional through traffic and local access. The existing intersection level of service is analyzed and presented. On-going and future transportation improvements, such as the Route 238 Corridor Improvement project on Mission Boulevard and Foothill Boulevard, are described.

State Highways

Due to its central geographic location within the San Francisco Bay Area, the city provides a backdrop for major crossroads in terms of the regional transportation network. The city is served by three interstate freeways (I-880, I-238, and I-580), and three state routes (SR 238, SR 185, and SR 92), which are operated and maintained by the State Department of Transportation (Caltrans). These state facilities affect travel patterns within and around the city. Figure 2-1 shows the state highway network. The state highways that operate as freeways and provide access to the city are described as follows:

Interstate 880

I-880, a north-south freeway, provides regional access via interchanges at Whipple Road, Industrial Parkway, Tennyson Road, Jackson Street (SR 92), Winton Avenue, and A Street. I-880 traverses roughly 50 miles from Oakland to San Jose. I-880 is a major regional commuter route, providing connections to San Francisco, Contra Costa, Alameda, Santa Clara, and San Mateo Counties. Average daily traffic volumes on I-880 through the city exceeded 240,000 vehicles per day in 2011 with 7 percent consisting of truck traffic. Combined northbound and southbound hourly volumes exceeded 16,000 vehicles in both morning (7:30am to 8:30am) and evening peak hours (5:00pm to 6:00pm).

Interstate 580

I-580, an east-west freeway, is accessed via Foothill Boulevard as well as via the Redwood Road and Grove Way interchanges in adjacent Castro Valley. I-580 serves as a major transportation corridor between the Central Valley, I-5 and the Bay Area. In 2011 more than 180,000 vehicles, including 11,000 trucks carrying goods to and from the Central Valley, used I-580 daily. Truck restrictions apply from Foothill Boulevard in San Leandro to Grand Avenue in Oakland resulting in through truck traffic routing via SR 238 and I-880.

Interstate 238

I-238, an east-west freeway, is accessed via Hesperian Boulevard, Mission Boulevard, and Foothill Boulevard. I-238 connects I-880 to I-580, providing an alternate route for truck traffic

due to the restrictions on I-580. In 2010 I-238 was improved with additional travel lanes and auxiliary lanes.

State Route 92

SR 92 is an east-west facility that originates at SR 1 in Half Moon Bay and terminates in downtown Hayward. Between Watkins Street and the Mission-Foothill-Jackson intersection, Jackson Street is no longer designated as SR 92 as it was relinquished to the City in conjunction with the Route 238 Corridor Improvement Project. To the west of the I-880 interchange, SR 92 operates as a limited access freeway, while east of I-880, SR 92 (Jackson Street) becomes a major arterial street.

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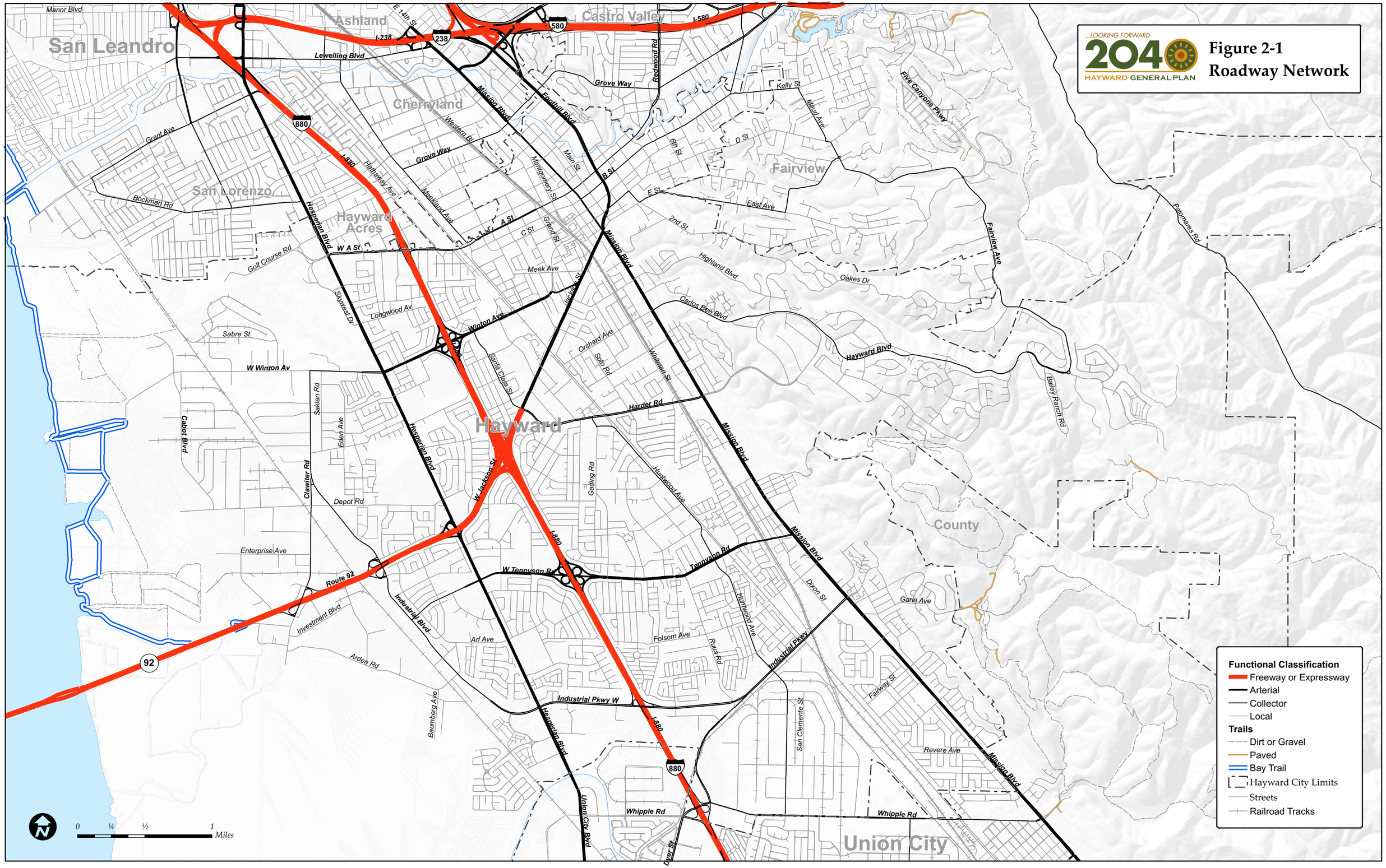
...LOOKING FORWARD
2040 HAYWARD GENERAL PLAN

Figure 2-1
Roadway Network



State Highway Traffic Volumes

Average annual daily traffic (AADT) and peak hour volumes for State freeways and highways are presented in Table 2-3. Percentages of trucks on California State highways are also available.

TABLE 2-3
TRAFFIC VOLUMES ON STATE HIGHWAYS

Roadway Segment	Post Mile	Peak Hour Traffic Volumes	Annual Average Daily Traffic (AADT)	Truck %
I-880				
Whipple Road	13.669	13,900	195,000	5.5
Industrial Parkway	14.537	14,350	201,500	5.9
Tennyson Road	15.645	15,250	214,000	5.9
Junction Route 92	16.696	16,100	230,000	6.8
Winton Avenue	17.604	17,000	247,000	6.8
A Street	18.353	17,100	248,500	6.8
I-580				
Redwood Road	29.365	15,700	184,000	6.0
Strobridge Avenue	30.354	15,000	187,000	6.0
Junction Route 238	30.807	12,700	160,500	6.0
I-238				
Junction Route 185/Mission Boulevard	14.951	10,600	138,000	11.8
Hesperian Boulevard	16.279	7,700	118,500	7.6
Route 92				
Clawiter	4.477	8,300	94,000	4.5
Hesperian	5.757	9,100	99,500	4.5
Junction I-880	6.392	7,300	81,000	4.5
Santa Clara	6.78	4,900	55,500	2.1
Winton Avenue	7.79	3,700	45,000	2.1
Junction Route 185/238	8.219	3,600	41,000	1.5
Route 185				
Mattox Road	1.613	1,950	23,400	2.2
Route 238				
Gresel Street	8.3	2,000	24,500	3.5

Source: Department of Transportation, State of California. 2011 Traffic Volumes on the California State Highway System, 20

City Street Network

A 2011 inventory of roadway miles and Daily Vehicle Miles of Travel (DVMT) within the city of Hayward is shown in Table 2-4. A total of 270 miles of roadway network is maintained by the City. More than 95 percent of the roadway miles is considered urban, and is where most of the vehicle miles traveled (VMT) occurs. A total of 1,291,910 DVMT was estimated in the city of Hayward in 2011.

TABLE 2-4
ROADWAY NETWORK DATA IN CITY OF HAYWARD

Roadway Network Data	Rural	Urban	Total
Maintained Miles	11.70	254.65	266.35
Daily Vehicle Miles of Travel (DVMT)	4,250	1,287,660	1,291,910

Source: Department of Transportation, State of California. 2011 California Public Road Data, 2012.

Functional Roadway Classifications

The Circulation Element of the current General Plan identifies a system for classifying the existing city street network by their function. State facilities, such as freeways (i.e., I-880, I-580, and portions of SR 92), are operated and maintained by Caltrans and not part of the city street network. However, except as previously noted, several city streets, such as Mission Boulevard and Jackson Street, fall under the State highway system and Caltrans jurisdiction. As described in the Circulation Element, the city classifications are as follows:[1]

- **Arterials.** These facilities, including major and minor arterials, are the principal network for through-traffic within a community and often between communities. Arterial streets serve area traffic and local traffic generators. Their primary purpose is to accommodate through traffic. Ideally, arterials are located around rather than through residential neighborhoods, commercial centers, industrial areas, and colleges. Major arterials are four to six-lane highways, other than purely residential streets, that remain consistently four lanes wide and also connect to other multi-lane roadways (e.g., Foothill Boulevard, Mission Boulevard). Minor arterials may be either two-lane or four-lane highways that interconnect and augment the major arterial system and provide service to trips of moderate length at a lower level of travel mobility and distribute travel to smaller geographic areas than the major arterial system (e.g., B Street).
- **Collectors.** These facilities supplement and provide access to arterial streets and provide access to neighborhoods. On such streets the needs of through traffic and turning and parking must be balanced. At certain times, such as peak commute hours, one function may take precedence over others. *Major collectors* are two-lane roadways (generally with 48-foot curb-to-curb width) that provide both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas (e.g., Carlos Bee

[1] Functional Classifications obtained from the Circulation Element of the current General Plan.

Road). *Minor collectors* are two-lane roadways (generally with 40-foot curb-to-curb width) that serve the same functions as major collectors.

- **Local.** These facilities primarily provide access to abutting properties. Ease of access, pedestrian safety, and parking have priority over traffic movement. Ideally, neighborhood streets are designed to discourage through traffic and unsafe speeds.

Key Roadways

The key roadways are described below and shown in Figure 2-1.

Jackson Street

Jackson Street is an east-west major arterial that commences from the I-880 interchange as the continuation of the SR 92 freeway and terminates in downtown Hayward at its junction with Mission Boulevard and Watkins Street. Jackson Street is six lanes with a raised median and no parking. Posted speed limit is 45 miles per hour.

Mission Boulevard

Mission Boulevard north of Industrial Parkway, formally designated as a State highway (SR 185) within Hayward, is a north-south major regional arterial with abutting commercial and institutional uses, including car dealerships, auto body and repair shops, retail stores, places of religious worship, schools, bars, and gas stations. It has four travel lanes, two in each direction, and unmarked on-street parking on both sides. There is a raised median south of Jackson Street-Foothill Boulevard and only a center line divider north of Jackson Street-Foothill Boulevard. The posted speed limit is 35 miles per hour. On-street parking is permitted on intermittent sections of the Mission Boulevard, with future peak hour parking restrictions to be provided. Sidewalks are provided along both sides of Mission Boulevard.

Within the city Mission Boulevard is designated as SR 185 north of downtown. Mission Boulevard is identified as part of the Alameda County Congestion Management Program (CMP) network.

On-going construction on Mission Boulevard from A Street in downtown to Industrial Parkway is under way as part of the SR 238 Corridor Improvements. Mission Boulevard is currently being converted into a one-way southbound five-lane major arterial between A Street and Jackson Street.

Foothill Boulevard

Foothill Boulevard, formally designated as a State highway (SR 238) within Hayward, is a north-south major arterial that commences from the junction of Mission Boulevard and Jackson Street to Mattox Road. Abutting properties primarily include commercial land uses. It has six northbound travel lanes between Jackson Street and A Street. The posted speed limit is 35 miles per hour. On-street parking is permitted on intermittent sections of Foothill Boulevard. Between

the I-580 on-ramps and Mattox Road, Foothill Boulevard retains its former designation as SR 238 and is under Caltrans control. Foothill Boulevard remains as a two-way eight-lane arterial between A Street and the I-580 ramps. On-going construction on Foothill Boulevard to Mission Street is underway as part of the Route 238 Corridor Improvements.

A Street

A Street, except between Foothill Boulevard and Mission Boulevard, is an east-west, four-lane major arterial with abutting commercial land uses. The posted speed limit along A Street is 25 miles per hour. Sidewalks are provided along both sides of the street. There are marked crosswalks in all approaches at its intersection with Mission Boulevard. On-street parking is permitted on both sides of the street. A Street is a one-way westbound five-lane major arterial between A Street and Mission Boulevard.

B Street

B Street is an east-west minor arterial with abutting residential and commercial land uses and access to the Hayward City Hall. B Street runs from Meekland Avenue at the Hayward Amtrak station through downtown via the Hayward BART station to Center Street. B Street varies from two to three travel lanes as it transitions from two-way operations to one-way westbound movement between 2nd Street and Watkins Street. The posted speed limit along B Street is 25 miles per hour. Sidewalks are provided along both sides of the street. On-street parking is permitted on both sides of the street. As part of the Route 238 Corridor Improvement project, B Street will be converted to two-way traffic east of Foothill Boulevard.

C Street

C Street is an east-west, two-lane minor arterial with commercial land uses and access to the Hayward Library. Access to the apartment complex and residential subdivisions is provided by local streets that intersect with C Street. C Street has one-way eastbound movement between Watkins Street and 2nd Street. The posted speed limit along C Street is 25 miles per hour.

D Street

D Street is an east-west, two-lane to four-lane minor arterial with adjacent residential and commercial land uses. The posted speed limit along D Street varies from 25 to 35 miles per hour. Sidewalks are provided along both sides of the street, but sidewalks are intermittent to the eastern side where the cross-section reduces to two-lane. On-street parking is permitted except some sections in the Downtown area (to the west of 2nd Street).

Carlos Bee Boulevard

Carlos Bee Boulevard is an east-west, four-lane minor arterial with a portion divided by a median from Mission Boulevard for 1,000 feet east, providing access to California State University at East Bay and residential subdivisions in the Hayward Hills from Mission

Boulevard. The posted speed limit along Carlos Bee Boulevard is 35 miles per hour. Sidewalks and parking are only provided along the north side of the street.

Orchard Avenue

Orchard Avenue is an east-west, two-lane to four-lane minor arterial between Soto Road and Mission Boulevard, providing access to apartment complexes. The posted speed limit along Orchard Avenue is 25 miles per hour. Sidewalks are provided along both sides of the street, and pedestrian curb ramps are found at major cross streets intersecting with Orchard Avenue. On-street parking is permitted but there are some roadway sections on Orchard Avenue with restricted parking areas.

Harder Road

Harder Road is a four-lane, east-west major arterial with a raised median. Abutting properties include residential and commercial lane uses. It is curvilinear and contains gentle grades. It also provides access to the California State University at East Bay. The posted speed limit along Harder Road is 35 miles per hour. Sidewalks are provided along both sides of the street. On-street parking is permitted, but there are some restricted parking sections along Harder Avenue.

Tennyson Road

Tennyson Road is a four-lane roadway, east-west major arterial that terminates at Mission Boulevard to the east and Industrial Boulevard to the west. From Pacific Street to Mission Boulevard the roadway is divided by a raised, landscaped median and passes under the BART train tracks. Land uses along Tennyson Road include a mixture of commercial and residential. The speed limit is 35 miles per hour.

The Circulation Element depicts the future extension of this roadway (east of Mission Boulevard) in order to serve new development. Tennyson Road is part of the Alameda County CMP network.

Hesperian Boulevard

Hesperian Boulevard is a four-lane to six-lane, north-south major arterial that traverses the city. The roadway is divided by a raised, landscaped median. Land uses along Hesperian Boulevard include a mixture of commercial and residential. Hesperian Boulevard provides access to the Hayward Executive Airport. The posted speed limit is 35 miles per hour.

Whipple Road

Whipple Road is a two-lane to four-lane, east-west major arterial that runs from Mission Boulevard to I-880 serving primarily industrial areas of the city. The posted speed limit varies from 25 to 40 miles per hour. Part of Whipple Road is located within Union City.

Industrial Parkway

Industrial Parkway is a four-lane to five-lane, east-west major arterial that runs from Mission Boulevard to Hesperian Boulevard where it continues as Industrial Boulevard. At Ruus Road Industrial Parkway divides with a connection south to Whipple Road. The roadway is divided by a raised median. Land uses along Industrial Parkway include a mixture of commercial, residential, and recreational. The posted speed limit is 40 to 45 miles per hour.

Clawiter Road

Clawiter Road is a two-lane to four-lane, north-south arterial serving primarily commercial and industrial uses. North of Industrial Boulevard, Clawiter Road is a major arterial. Between Industrial Boulevard and SR 92 it is classified as a minor arterial. The posted speed limit is 35 miles per hour.

Industrial Boulevard

Industrial Boulevard is a four-lane, north-south major arterial that terminates at Clawiter Road to the north and Hesperian Boulevard to the south. Industrial Boulevard serves as a dividing line between industrial to the west and residential to the east. The posted speed limit is 35 miles per hour.

Depot Road

Depot Road is a two-lane to four-lane, east-west minor arterial that runs from Hesperian Boulevard to the bayfront serving the Mount Eden neighborhood and Chabot College as well as industrial areas west of Industrial Boulevard. The posted speed limit is 25 miles per hour.

Huntwood Avenue

Huntwood Avenue is a two-lane to four-lane, north-south minor arterial terminating at Whipple Road to the south and Gading Road to the north. Huntwood Avenue is two-lanes between Gading Road and Tennyson Road and four-lanes south of Tennyson Road to Whipple Road. Land uses include a mixture of commercial, residential, and recreational. The posted speed limit is 25 to 30 miles per hour.

Winton Avenue

Winton Avenue is two-lane to five-lane, east-west major arterial from D Street in the east to the bayfront in the west. A small section of Winton Avenue to the west of Chabot Boulevard has a two-lane section. Winton Avenue contains a four-lane to five-lane section to the east of Chabot Boulevard. Land uses along Winton Avenue include a mixture of commercial and residential and serve the County offices, industrial uses, and downtown. The posted speed limit is 35 miles per hour.

Gading Road/Patrick Avenue

Grading Road is a four-lane minor arterial running north-south from Harder Road to Patrick Avenue, which continues to Tennyson Road as the minor arterial serving the Harder/Tennyson neighborhood. The posted speed limit is 25 miles per hour.

Soto Road

Soto Road is a two-lane minor arterial running north-south from Jackson Street to Harder Road providing an access to the Harder/Tennyson neighborhood. The posted speed limit is 25 miles

Roadway Segment Traffic Volume

The daily traffic volume along the selected roadway segments were collected using 72-hour tube counts during weekdays (Tuesday, Wednesday, and Thursday). The counts were conducted in the first and second weeks of December 2012. Most of these roadway segments were considered in the 2001 General Plan with a few extra segments added to supplement the previously considered roadway segments. The daily traffic volumes are shown in Figure 2-2.

Intersection Traffic Volumes and Operations

Key Intersections

Key intersections in the city represent locations were major roadways intersect or anticipated volume and distributional patterns of traffic have resulted in operational difficulty in previous studies. A total of 42 intersections were identified as key locations. The key intersections are shown in Figure 2-3.

Existing Traffic Volumes

Intersection turning movement counts on 22 out of 42 intersections were conducted in the first week of December 2012. These intersection counts were performed on typical weekdays (Tuesday, Wednesday, and Thursday). Traffic turning volumes were counted at the study intersections during the AM and PM commuter periods (7:00 to 9:00 AM and 4:00 to 6:00 PM). At the remaining 20 intersection locations, historical turning movement counts were used from previous studies.

Study intersection locations corresponding turning movement count year are shown in Table 2-5. Figure 2-4 presents the AM and PM peak hour turning movement counts at the study intersections.

Although 2005 traffic counts are used in some locations, an analysis of traffic count trends show they are reflective of, and conservatively higher than, current traffic volumes. This is due, in part, to a reduction in citywide generated traffic attributable to the closure of a number of local businesses. Additionally, according to annual traffic counts from Caltrans, regional pass-

through traffic along Mission Boulevard (formerly SR 238) has seen substantial decreases in traffic volumes since 2005 as shown in Table 2-6.

In addition, the existing conditions information assumes completion of the Route 238 Corridor Improvement Project and, as a result, the intersection counts in the downtown area were translated to account for the Route 238 Corridor one-way downtown configuration that will modify Foothill Boulevard (between Mission Boulevard and A Street) as one-way northbound, A Street (between Foothill Boulevard and Mission Boulevard) as one-way westbound, and Mission Boulevard (between A Street and Foothill/Jackson Street) as one-way southbound.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 2-2
Study Road Segment Locations with Average Daily Traffic Volumes

San Leandro
Ashland
Cherryland
San Lorenzo
Hayward Acres
Castro Valley
Fairview
Pleasanton
Hayward
County
Union City
Fremont
Newark
San Francisco Bay

Lewelling Blvd
Mission Blvd
Grove Way
Hesperian Blvd
A St
B St
C St
D St
E St
Second St
Redwood Rd
Five Canyons Pkwy
Fairview Ave
Carlos Bee Blvd
Hayward Blvd
Winton Ave
W Winton Av
Orchard Ave
Harder Rd
Cabot Blvd
Clawiter Rd
W Jackson St
Tennyson Rd
Industrial Blvd
Industrial Pkwy
Route 92
Whipple Rd
Dyer St
Alvarado Niles Rd
Alvarado Blvd
Union City Blvd
Decoto Rd
Niles Blvd
Lowry Rd
Ardenwood Blvd
Mowry Ave
Paseo Padre Pkwy

I-238
I-580
I-880

22,600
14,000
3,200
11,900
15,700
22,100
23,300
39,300
19,200
14,500
4,000
15,100
23,400
6,900
13,000
20,000
14,800
18,200
9,500
16,100
11,400
28,900
19,300
31,100
20,200
22,000

0 ¼ ½ 1 Miles

Hayward Planning Area
Freeways
Arterials
Local Streets

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...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 2-3
Study Intersection Locations

No	North - South Cross Street	East - West Cross Street
1	Center Street	Kelly Street
2	Mission Boulevard	A Street
3	Foothill Boulevard	A Street
4	Mission/Foothill Boulevard	Jackson Street
5	NB I-880 Ramps	A Street
6	SB I-880 Ramps	A Street
7	Hesperian Boulevard	A Street
8	Mission Boulevard	Carlos Bee Boulevard
9	Mission Boulevard	Harder Road
10	Mission Boulevard	Tennyson Road
11	Mission Boulevard	Industrial Parkway
12	Industrial Parkway SW	Industrial Parkway
13	NB I-880 Ramps	Whipple Rd/ Industrial Pkwy SW
14	SB I-880 Ramps	Industrial Parkway
15	Hesperian Boulevard	EB SR 92 Ramps
16	Hesperian Boulevard	WB SR 92 Ramps
17	Industrial Boulevard	EB SR 92 Ramps/ Sleepy Hollow Avenue
18	Industrial Boulevard	WB SR 92 Ramps/Cryer St
19	Clawiter Road	EB SR 92 Ramps/ Eden Landing Rd
20	Clawiter Road	WB SR 92 Ramps/ Breakwater Ct
21	Hesperian Boulevard	Industrial Parkway
22	Santa Clara Street	Jackson Street
23	Santa Clara Street	Winton Avenue
24	Hesperian Boulevard	W Winton Avenue
25	Santa Clara Street/ Hathaway Avenue	W A Street
26	Mission Boulevard	Sunset Boulevard
27	Mission Boulevard	B Street
28	Mission Boulevard	C Street
29	Mission Boulevard	D Street
30	Mission Boulevard	Fletcher Lane
31	Foothill Boulevard	Mattox Road
32	Foothill Boulevard	Grove Way
33	Foothill Boulevard	City Center Drive
34	Foothill Boulevard	B Street
35	Foothill Boulevard	C Street
36	Foothill Boulevard	D Street
37	Watkins Street	Jackson Street
38	Mission Boulevard	Jefferson St/Calhoun St
39	Second Street	B Street
40	Hesperian Boulevard	Tennyson Road
41	Mission Boulevard	Fairway Street
42	Huntwood Avenue	Industrial Parkway

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Streets

0 ¼ ½ 1 Miles

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Figure 2-4
Existing Conditions Intersection Peak Hour Volumes and Lane Geometry

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

LEGEND

- xx(yy) = AM(PM) Peak Hour Volume
- = Traffic Signal Control
- = Traffic Lanes
- STOP = All-way Stop

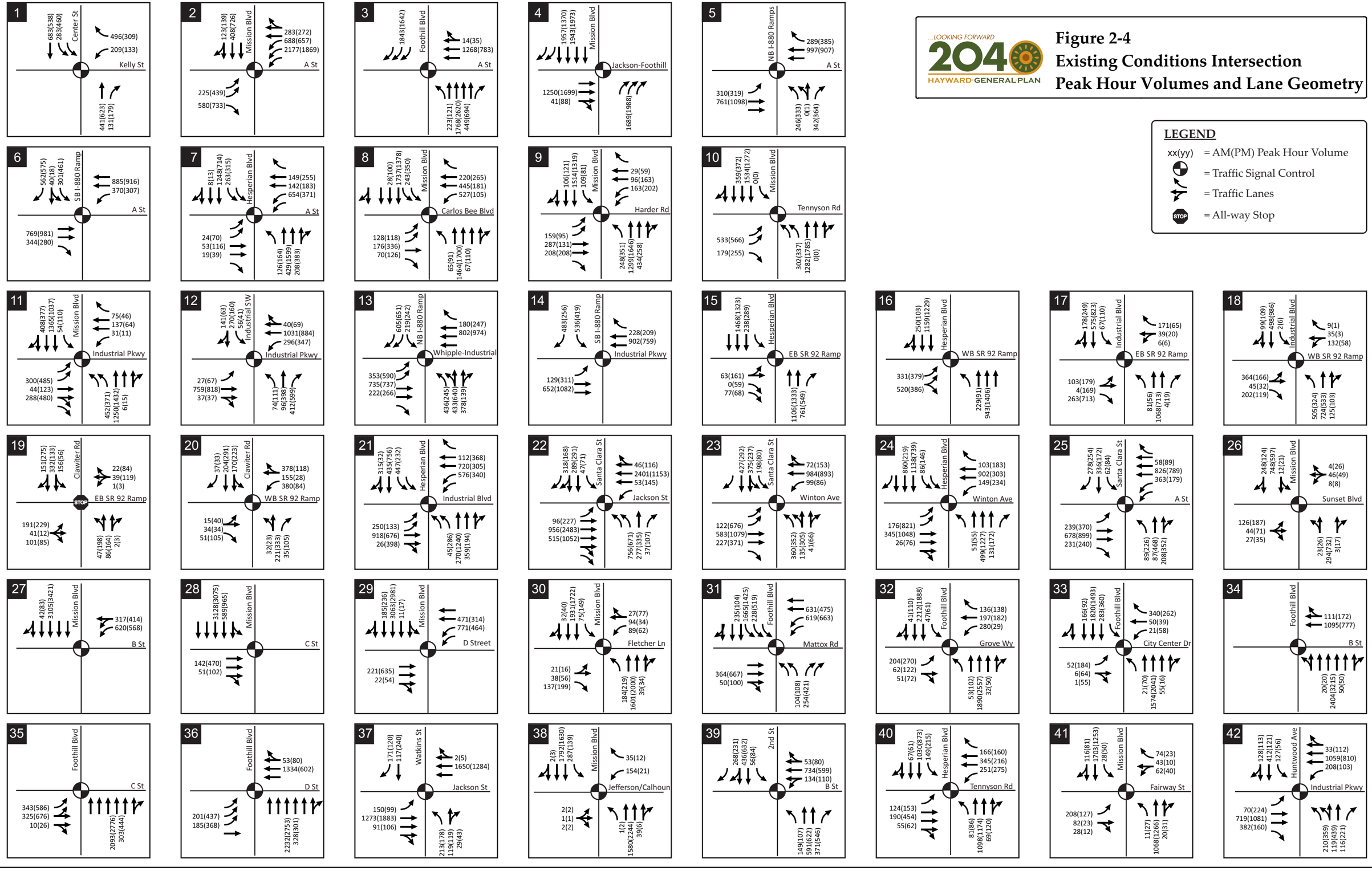


TABLE 2-5
STUDY INTERSECTION LOCATIONS AND TRAFFIC COUNT YEAR

No.	North-South Cross Street	East-West Cross Street	Traffic Data Collection Year
1	Center Street	Kelly Street	2012
2	Mission Boulevard	A Street	2005
3	Foothill Boulevard	A Street	2005
4	Mission/Foothill Boulevard	Jackson Street	2005
5	NB I-880 Ramps	A Street	2012
6	SB I-880 Ramps	A Street	2012
7	Hesperian Boulevard	A Street	2012
8	Mission Boulevard	Carlos Bee Boulevard	2005
9	Mission Boulevard	Harder Road	2005
10	Mission Boulevard	Tennyson Road	2005
11	Mission Boulevard	Industrial Parkway	2005
12	Industrial Parkway SW	Industrial Parkway	2012
13	NB I-880 Ramps	Whipple Road-Industrial Parkway SW	2012
14	SB I-880 Ramps	Industrial Parkway	2012
15	Hesperian Boulevard	EB SR 92 Ramps	2012
16	Hesperian Boulevard	WB SR 92 Ramps	2012
17	Industrial Boulevard	EB SR 92 Ramps/Sleepy Hollow Avenue	2012
18	Industrial Boulevard	WB SR 92 Ramps/Cryer Street	2012
19	Clawiter Road	EB SR 92 Ramps/Eden Landing Road	2012
20	Clawiter Road	WB SR 92 Ramps/Breakwater Ct	2012
21	Hesperian Boulevard	Industrial Parkway	2012
22	Santa Clara Street	Jackson Street	2012
23	Santa Clara Street	Winton Avenue	2012
24	Hesperian Boulevard	W Winton Avenue	2012
25	Santa Clara Street/Hathaway Ave	W A Street	2012
26	Mission Boulevard	Sunset Boulevard	2012
27	Mission Boulevard	B Street	2005
28	Mission Boulevard	C Street	2005
29	Mission Boulevard	D Street	2005
30	Mission Boulevard	Fletcher Lane	2005
31	Foothill Boulevard	Mattox Road	2005
32	Foothill Boulevard	Grove Way	2005
33	Foothill Boulevard	City Center Drive	2005
34	Foothill Boulevard	B Street	2005
35	Foothill Boulevard	C Street	2005
36	Foothill Boulevard	D Street	2005
37	Watkins Street	Jackson Street	2005

TABLE 2-5 STUDY INTERSECTION LOCATIONS AND TRAFFIC COUNT YEAR			
No.	**North-South Cross Street**	**East-West Cross Street**	**Traffic Data**
38	Mission Boulevard	Jefferson Street/Calhoun Street	2005
39	Second Street	B Street	2005
40	Hesperian Boulevard	Tennyson Road	2012
41	Mission Boulevard	Fairway Street	2012
42	Huntwood Avenue	Industrial Parkway	2012

Source: Kittelson & Associates, Inc., 2013.

TABLE 2-6 MISSION BOULEVARD (ROUTE 185/238) TRAFFIC VOLUMES YEAR 2005 TO 2011[1]			
Intersection	**Year**	**Back - Average Annual Daily Trips[2]**	**Ahead - Average Annual Daily Trips**
Mission Boulevard at A Street	2005	23,900	30,000
	2006	21,500	27,000
	2007	21,400	27,000
	2008	20,500	26,000
	2009	19,100	24,200
	2010	18,500	23,600
	2011	-	-
Mission Boulevard at Harder Road	2005	40,000	37,500
	2006	43,000	38,500
	2007	41,000	38,500
	2008	40,500	38,000
	2009	37,000	31,000
	2010	36,000	30,000
	2011	-	-

[1] *http://traffic-counts.dot.ca.gov/*

[2] *"Back AADT" is the term Caltrans uses to reference traffic South or West of the count location. "Ahead AADT" is the term Caltrans uses to reference traffic North or East of the count location.*

Intersection Level of Service

"Levels of service" describe the operating conditions experienced by motorists. Level of service is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Level of Service (LOS) "A" through "E" generally represent traffic volumes at less than intersection capacity, while LOS "F" represents over capacity and/or significant delays.

Intersection Evaluation Methodology

Intersections, rather than roadway segments between intersections, are the capacity controlling locations for an urban circulation system. Each jurisdiction determines acceptable level of service (LOS) for intersections under its jurisdiction. The City of Hayward's traffic impact study requirements require the use of the 1994 Highway Capacity Manual methodology analysis. While the 2010 Highway Capacity Manual is available, but is still demonstrating issues with software application, for this General Plan Update the City intends to adopt the 2000 Highway Capacity Manual. The 2000 Highway Capacity Manual methodology was used to analyze existing conditions for signalized and unsignalized intersections. The criteria used for both signalized and unsignalized intersections are summarized in Table 2-7 and Table 2-8 respectively (2000 Highway Capacity Manual LOS Criteria). LOS at signalized intersections is based on the weighted average delay for all intersection legs.

TABLE 2-7 HIGHWAY CAPACITY MANUAL LEVEL OF SERVICE CRITERIA SIGNALIZED INTERSECTIONS		
Level of Service (LOS)	**Average Delay (seconds/vehicle)**	**Description**
A	≤ 10	Very Low Delay: This level of service occurs when progression is extremely favorable and most vehicles arrive during a green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10 and ≤ 20	Minimal Delays: This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	> 20 and ≤ 35	Acceptable Delay: Delay increases due to fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	> 35 and ≤ 55	Approaching Unstable Operation/Significant Delays: The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume / capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 and ≤ 80	Unstable Operation/Substantial Delays: These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	> 80	Excessive Delays: This level, considered unacceptable to most drivers, often occurs with oversaturation (that is, when arrival traffic volumes exceed the capacity of the intersection). It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual (HCM), Transportation Research Board, Washington, DC, 2000, Chapter 16 (Signalized Intersections).

TABLE 2-8 HIGHWAY CAPACITY MANUAL LEVEL OF SERVICE CRITERIA UNSIGNALIZED INTERSECTIONS		
Level of Service (LOS)	**Average Delay (seconds/vehicle)**	**Description**
A	≤ 10	Very Low Delay
B	> 10 and ≤ 15	Minimal Delays
C	> 15 and ≤ 25	Acceptable Delay
D	> 25 and ≤ 35	Approaching Unstable Operation and/or Significant Delays
E	> 35 and ≤ 50	Unstable Operation and/or Substantial Delays
F	> 50	Excessive Delays

Source: Highway Capacity Manual, 2000, pages 17-2 and 17-32, Transportation Research Board, Washington, D.C.

Existing Intersection Levels of Service

The previous Hayward General Plan identifies LOS "D" as the goal for City's intersections during peak commute hours. LOS "E" may be considered acceptable due to costs of mitigation or when there would be other unacceptable impacts.

Traffic operations, based on peak hour traffic counts, were analyzed for 42 intersections in Hayward. Based on the intersection LOS thresholds, 38 out of the 42 intersections are operating at acceptable LOS D or better during the AM and PM peak hours. The study intersections and LOS of these intersections are shown in Table 2-9.

TABLE 2-9
INTERSECTION LEVEL OF SERVICE (EXISTING CONDITIONS)

No.	North-South Cross Street	East-West Cross Street	Traffic Control	Peak-Hour	LOS	Delay (seconds)
1	Center Street	Kelly Street	Signal	AM	C	32.2
				PM	C	29.5
2	Mission Boulevard	A Street	Signal	AM	**E**	**70.6**
				PM	**F**	**109.3**
3	Foothill Boulevard	A Street	Signal	AM	D	47
				PM	C	25.9
4	Mission/Foothill Boulevard	Jackson Street	Signal	AM	C	31.4
				PM	D	46.6
5	NB I-880 Ramps	A Street	Signal	AM	C	22.1
				PM	C	20.7
6	SB I-880 Ramps	A Street	Signal	AM	D	39.4
				PM	D	35.3
7	Hesperian Boulevard	A Street	Signal	AM	D	40.7
				PM	D	40.3
8	Mission Boulevard	Carlos Bee Boulevard	Signal	AM	D	48.8
				PM	D	46.3
9	Mission Boulevard	Harder Road	Signal	AM	D	39.4
				PM	D	36.8
10	Mission Boulevard	Tennyson Road	Signal	AM	C	31.9
				PM	C	33.1
11	Mission Boulevard	Industrial Parkway	Signal	AM	D	41.6
				PM	D	45.3
12	Industrial Parkway SW	Industrial Parkway	Signal	AM	D	47.1
				PM	D	40.3
13	NB I-880 Ramps	Whipple Road-Industrial Parkway SW	Signal	AM	D	39.7
				PM	D	44
14	SB I-880 Ramps	Industrial Parkway	Signal	AM	C	27.8
				PM	C	27.3
15	Hesperian Boulevard	EB SR 92 Ramps	Signal	AM	B	14.4
				PM	B	19
16	Hesperian Boulevard	WB SR 92 Ramps	Signal	AM	D	44.1
				PM	C	23.9
17	Industrial Boulevard	EB SR 92 Ramps/Sleepy Hollow Avenue	Signal	AM	B	18
				PM	D	48.8
18	Industrial Boulevard	WB SR 92 Ramps/Cryer Street	Signal	AM	**E**	**72.2**
				PM	C	27.1

TABLE 2-9
INTERSECTION LEVEL OF SERVICE (EXISTING CONDITIONS)

No.	North-South Cross Street	East-West Cross Street	Traffic Control	Peak-Hour	LOS	Delay (seconds)
19	Clawiter Road	EB SR 92 Ramps/Eden Landing Road	All-way Stop	AM	B	13.6
				PM	C	15.4
20	Clawiter Road	WB SR 92 Ramps/Breakwater Court	Signal	AM	D	42.3
				PM	D	39.8
21	Hesperian Boulevard	Industrial Parkway	Signal	AM	D	54.7
				PM	D	52.9
22	Santa Clara Street	Jackson Street	Signal	AM	**E**	**62.5**
				PM	D	45.9
23	Santa Clara Street	Winton Avenue	Signal	AM	D	39
				PM	D	46.4
24	Hesperian Boulevard	W Winton Avenue	Signal	AM	D	46.5
				PM	D	53.6
25	Santa Clara St/ Hathaway Avenue	W A Street	Signal	AM	D	39.2
				PM	D	42.4
26	Mission Boulevard	Sunset Boulevard	Signal	AM	C	21.3
				PM	C	30
27	Mission Boulevard	B Street	Signal	AM	C	33.1
				PM	C	34
28	Mission Boulevard	C Street	Signal	AM	A	6.3
				PM	B	16
29	Mission Boulevard	D Street	Signal	AM	D	38.7
				PM	D	40.3
30	Mission Boulevard	Fletcher Lane	Signal	AM	C	25.6
				PM	C	33.5
31	Foothill Boulevard	Mattox Road	Signal	AM	D	48.4
				PM	D	52.3
32	Foothill Boulevard	Grove Way	Signal	AM	D	39.1
				PM	D	42.2
33	Foothill Boulevard	City Center Drive	Signal	AM	D	43.6
				PM	D	54.1
34	Foothill Boulevard	B Street	Signal	AM	D	37.8
				PM	C	32.7
35	Foothill Boulevard	C Street	Signal	AM	C	23.4
				PM	C	32.4
36	Foothill Boulevard	D Street	Signal	AM	D	42.2
				PM	D	37.6

TABLE 2-9
INTERSECTION LEVEL OF SERVICE (EXISTING CONDITIONS)

No.	North-South Cross Street	East-West Cross Street	Traffic Control	Peak-Hour	LOS	Delay (seconds)
37	Watkins Street	Jackson Street	Signal	AM	D	38.9
				PM	**E**	**55.5**
38	Mission Boulevard	Jefferson Street/Calhoun Street	Signal	AM	C	26.4
				PM	A	9
39	Second Street	B Street	Signal	AM	C	26.4
				PM	C	24
40	Hesperian Boulevard	Tennyson Road	Signal	AM	C	30.5
				PM	D	35.1
41	Mission Boulevard	Fairway Street	Signal	AM	C	33.8
				PM	B	19.5
42	Huntwood Avenue	Industrial Parkway	Signal	AM	D	40.7
				PM	D	41.6

*Source: Kittelson & Associates, Inc. using TRAFFIX 8.0, 2013. LOS = Level of Service; Delay = Weighted average delay for vehicles in seconds. Shaded and **Bold** indicates location has exceeded City level of service Standard. Signalized intersections were analyzed using the 2000 Highway Capacity Manual (HCM).*
Note: This table does not include LOS for intersections affected by the SR238 Corridor Improvement Project.

Regulatory Setting

This planning, operations, and maintenance of the streets and highways are regulated by State, regional, and local agencies.

State

The California Complete Street Act of 2008

The purpose of the Complete Streets Act is to require cities and counties to include in the circulation elements of their general plans policies and programs supporting the development of a well-balanced, connected, safe, and convenient multimodal transportation network. This network should consist of complete streets which are designed and constructed to serve all users of streets, roads, and highways, regardless of their age or ability, or whether they are driving, walking, bicycling, or taking transit. The network should allow for all users to effectively travel by motor vehicle, foot, bicycle, and transit to reach key destinations within their community and the larger region. The City of Hayward adopted a Complete Streets Policy on March 19, 2013.

Sustainable Communities and Climate Protection Act of 2008

The Sustainable Communities and Climate Protection Act, or Senate Bill 375 (SB 375) targets greenhouse gas emissions from passenger vehicles. The bill requires that each metropolitan planning organization develop a Sustainable Communities Strategy (SCS) that integrates transportation, land use, and housing policies to achieve emissions targets set for the region by the California Air Resources Board.

Regional

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Alameda County. It also functions as the Federally-mandated metropolitan planning organization (MPO) for the region. MTC authored the current regional transportation plan known as Transportation 2035 that was adopted on April 22, 2009. Transportation 2035 specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system, specifying how anticipated Federal, State, and local transportation funds will be spent.

The Association of Bay Area Governments (ABAG) is the regional planning agency for the nine-county Bay Area, including Alameda County. It primarily deals with land use, housing, environmental quality, and economic development issues, which are often closely connected to transportation.

The MTC is currently working with ABAG on the Plan Bay Area, which is the successor to Transportation 2035. Plan Bay Area stems from the broader effort to prepare the SCS for the region through a collaborative planning process that involves MTC, ABAG, the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC). These agencies launched OneBayArea in April 2010.

Associated with these planning efforts is the One Bay Area Grant Program (OBAG), which is a new program to better integrate the region's Federal transportation program with State climate laws. A requirement of the grant program is for cities such as Hayward to either adopt a complete streets resolution by June 30, 2013, or prepare a general plan that complies with the Complete Streets Act of 2008. The land use element of the general plan will be considering several Priority Development Areas in Hayward that may be eligible for grant funding.

Alameda County Transportation Commission

The Alameda County Transportation Commission (ACTC) prepares the Congestion Management Program (CMP), a plan mandated by California law to describe the strategies to address congestion problems on the Metropolitan Transportation System (MTS) and CMP network, which includes State highways and principal arterials. The CMP uses level of service

standards as a means to measure congestion and has established LOS standards to determine how local governments meet the objectives of the CMP. MTS and CMP roadways applicable to the General Plan Update include: I-880, SR 238 (Mission Boulevard), SR 238 (Foothill Boulevard), SR 185 (Mission Boulevard), SR 92 (Jackson Street), Hesperian Boulevard, A Street, Tennyson Road, SR 92, Winton Avenue-D Street, B Street, Harder Road, Industrial Parkway, and Whipple Road. Transit systems include BART and AC Transit.

Local -

City of Hayward Climate Action Plan (CAP)

The City of Hayward published its Climate Action Plan in October 2009. The CAP identifies emissions reduction plan. One of the identified strategies is to reduce vehicle miles traveled (VMT) by encouraging residents and employees to use alternative modes of transit, by improving the effectiveness of the transportation circulation system and through land-use and zoning mechanism.

Traffic Study Preparation Guidelines

City of Hayward formulated traffic study guidelines to assess impact of a proposed project on the existing or planned street network. A traffic study may be required by City staff in certain circumstances, such as when a proposed project generates over 100 p.m. peak trips, or when there may be other warranting circumstances such as a potential impact on neighborhood streets, or to analyze the potential need for a traffic signal.

Key Terms

The following key terms used in this chapter are defined as follows:

Annual Average Daily Traffic. The average daily volume of traffic estimated on a yearly basis based on one year (365 days) of data.

Average Daily Traffic. The total volume of traffic during a given time period (in whole days greater than one day and less than one year) divided by the number of days in that time period. ADT volumes can be determined by continuous traffic counts or periodic counts. Where only periodic traffic counts are taken, ADT volume can be established by applying correction factors such as for season or day of week. For roadways having traffic in two directions, the ADT includes traffic in both directions unless specified otherwise.

Level of Service. Level of service (LOS) is a quantitative stratification of a performance measure or measures that represent quality of service. The LOS concept facilitates the presentation of results, through the use of a familiar A (best) to F (worst) scale. LOS is defined by one or more service measures that both reflect the traveler perspective and are useful to operating agencies.

Vehicle Miles Traveled (VMT). The total number of vehicle miles traveled within a specific geographic area over a set period of time.

Bibliography

Reports/Publications

Alameda County Transportation Commission. 2011 Congestion Management Program. 2011.

Department of Transportation, State of California. 2001 California Public Road Data, Office of Highway System Information and Performance, Highway Performance Monitoring System Branch, 2002.

Department of Transportation, State of California. 2011 Annual Average Daily Truck Traffic on the California State Highway System. 2012.

Department of Transportation, State of California. 2011 California Public Road Data, Office of Highway System Information and Performance, Highway Performance Monitoring System Branch, 2012.

Department of Transportation, State of California. 2011 Traffic Volumes on the California State Highway System, 2012.

Hayward, City of. City of Hayward General Plan, Chapter 3 – Circulation, 2001.

Hayward, City of. Requirement of Traffic Study, Transportation/Development Section. 2003.

Transportation Research Board of National Academies. Highway Capacity Manual 2010, Chapter 5. 2010.

Websites

California Legislative Information. http://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml, December 5, 2012.

Metropolitan Transportation Commission. http://www.mtc.ca.gov/planning/plan_bay_area/, January 30, 2013.

OneBayArea. http://onebayarea.org/funding-and-grants.html, January 30, 2013.

SECTION 2.4 BIKEWAYS

Introduction

The city is served by a network of designated bicycle facilities including on-street facilities and regional recreational trails. Combined with good transit service, temperate weather, and relatively flat topography, bicycling in Hayward is an effective transportation and recreation option. This section describes the existing bicycle network in the city and summarizes local and regional bicycle planning efforts.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- The Hayward Bicycle Master Plan sets the goals and objectives for providing the opportunity to travel by bicycle as an alternative mode of transportation and recreation for physical, environmental, and social benefits.
- The existing bikeways network totals about 61 miles, including almost 7 miles of Class I Bike Paths, 22 miles of Class II Bike Lanes, and 32 miles of Class III Bike Routes. An additional 6.87 miles of bikeways are proposed.
- Bicycle activity and purpose differ by geographic areas in Hayward with more utilitarian bicycle trips occurring on on-street bikeways in the flatlands, while recreational bicyclists use the Bayland trails and experienced cyclists climb the steeper roads and trails in the Hill Area.
- Bicycle trips account for less than one-half percent of all commute trips in Hayward, which is lower than Alameda County and the Bay Area overall.

Existing Conditions

Background

The city has a long history of planning for the needs of bicyclists that dates back as far as 1979, when the first bicycle plan was adopted. The Hayward Bicycle Master Plan, approved in October 2007, provides a broad vision, strategies, and actions for bicycle transportation in the City of Hayward. It updates a previous plan prepared in 1997 by providing an updated inventory of the city's bicycle paths, bicycle lanes, and bicycle routes. It also contains an updated list of proposed bikeways and bicycle support facilities. The plan seeks to improve connections to neighboring communities and the regional bicycle network.

Bicycle Network

While bicyclists are permitted on all roads (with the exception of access-controlled freeways), the bikeway designations recognize that certain roadways provide more optimal routes for bicyclists, for reasons such as directness or access to key destinations. With its two BART

stations and one Amtrak station, Hayward is located in central Alameda County with connections to the Cities of San Leandro and Union City and unincorporated communities of Alameda County, such as Ashland-Cherryland, Fairview, and Castro Valley.

In 2007, when the latest city bicycle plan was prepared, the city's bicycle network included:

- 6.77 miles of Class I Bike Paths
- 22.43 miles of Class II Bike Lanes
- 32.06 miles of Class III Bike Routes

The plan recommends the construction of 6.87 additional miles of bikeways, as follows:

- 0.89 miles of Class I Bike Paths
- 3.66 miles of Class II Bike Lanes
- 2.32 miles of Class III Bike Routes

These existing and proposed facilities are shown in Figure 2-5. In addition to the bikeways listed above, an additional 9.1 miles of Class I Bike Paths would be developed by other agencies such as H.A.R.D. (Hayward Area Recreational District), East Bay Regional Parks District, and East Bay Greenway Alliance (the East Bay Greenway Concept Plan will be funded by the Alameda County Transportation Commission).

In addition, the plan covers bicycle support facilities and treatments, such as signage, bicycle signal detection, and bicycle parking.

Bicycle Travel

As described in the Bicycle Master Plan, the city can be divided into three distinct geographic areas with different characteristics for bicycle planning. The Bayland stretches along the Bay and includes the trails in the Hayward Regional Shoreline Park, as well as a portion of the Bay Trail through Hayward. The Bay Plan or "flatlands" contains most of Hayward's urbanized land and is relatively flat, and is served by the on-street bikeways. The Hill Area is in the eastern portion with more rural conditions as these areas reach into the East Bay Hills. In the flatland area bicycling serves more the utilitarian purposes (commuting, shopping) than the Baylands or the Hill Area, which see more recreational and experienced cyclists.

With its location in central Alameda County, bikeways in Hayward are a key part of the countywide and regional bikeway network. Hesperian Boulevard, Clawiter Road, Winton Avenue, and A Street are identified in the MTC Regional Bicycle Plan.

Bicycle trips account for less than 1/2 percent of all commute trips in the city. As shown in Table 2-10, both the US Census 2000 and 2006-2008 American Communities Survey (ACS) data shows that Hayward has a lower average bicycle mode share for commuting relative to the

countywide and bay area wide averages. Over this time period between 2000 and 2006 to 2008, the number of bicycle commuters decreased and the bike mode share declined.

TABLE 2-10
BICYCLE MODE SHARE

Jurisdiction	2000 Census			2006-2008 ACS[1]		
	Total Commuters	Bicycle Commuters	Bike Mode Share	Total Commuters	Bicycle Commuters	Bike Mode Share
Hayward	61,696	218	0.4%	63,005	154	0.2%
Alameda County	678,910	8,385	1.2%	691,799	10,132	1.5%
Bay Area	3,306,051	36,003	1.1%	3,382,487	44,518	1.3%

[1]2006 – 2008 American Community Survey.

Source: Alameda County Transportation Commission. Appendices to the Alameda Countywide Pedestrian and Bicycle Plans, October 2012

...LOOKING FORWARD 2040 HAYWARD·GENERAL·PLAN

Figure 2-5
Existing and Proposed Bikeways and Trails

San Leandro
Ashland
Cherryland
San Lorenzo
Hayward Acres
Castro Valley
Fairview
Hayward
County
Union City

Manor Blvd
E 14th St
I-238
Lewelling Blvd
Grant Ave
Bockman Rd
Golf Course Rd
Hesperian Blvd
W A St
A St
C St
Grand St
Meek Ave
Jackson St
Mission Blvd
Grove Way
Redwood Rd
Foothill Blvd
Western Bl
Meekland Ave
Hathaway Ave
Montgomery St
Main St
B St
6th St
D St
E St
2nd St
East Ave
Kelly St
Mtbld Ave
Five Canyons Pkwy
Fairview Ave
Palomares Rd
Highland Blvd
Oakes Dr
Carlos Bee Blvd
Hayward Blvd
Bailey Ranch Rd
Skywest Dr
Longwood Av
Sabre St
W Winton Av
Winton Ave
Orchard Ave
Soto Rd
Harder Rd
Whitman St
Santa Clara St
Cabot Blvd
Saklan Rd
Eden Ave
Clawiter Rd
Depot Rd
Enterprise Ave
Route 92
Investment Blvd
Arden Rd
Baumberg Ave
Industrial Blvd
W Jackson St
Gading Rd
Huntwood Ave
W Tennyson Rd
Tennyson Rd
Arf Ave
Folsom Ave
Russ Rd
Dixon St
Garin Ave
Industrial Pkwy
Industrial Pkwy W
Fairway St
San Clemente St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St
I-880
I-580
I-880
880
92
238
580
880

0 ¼ ½ 1 Miles

Existing Bikeways
- Class I Bike Path
- Class II Bike Lane
- Class III Bike Route
- Other Bikeways

Proposed Bikeways
- Class I Bike Path
- Class II Bike Lane
- Class III Bike Route
- Other Bikeways

Trails
- Dirt or Gravel
- Paved
- Bay Trail

- Hayward City Limits
- Streets
- Railroad Tracks
- HUSD Schools

Regulatory Setting

The City of Hayward must work with the regional and State agencies, such as the Hayward Area Recreation and Park District (HARD), East Bay Regional Parks District, Alameda County Transportation Commission (ACTC), the Metropolitan Transportation Commission (MTC), and Caltrans, to implement bikeway improvements and maintain the existing bikeway network. Major regulatory policies and regulations pertaining to bicycle facilities in Hayward are summarized below:

State

California Streets and Highways Code

The California Streets and Highways Code (Section 890 to 894.2) is also known as the California Bicycle Transportation Act. This legislation adopted in 1994 establishes the responsibilities of State and local agencies with regard to bicycle safety, signage, traffic control, right-of-way, and other matters related to non-motorized and particularly bicycle transportation. The California Bicycle Act establishes minimum efforts in data collection and planning that local governments must accomplish to remain compliant. The legislation seeks "to establish a bicycle transportation system designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills." A city or county may complete a bicycle transportation plan pursuant to Section 891.2 in order for their project to be considered by the Department for funding. Section 890.6 states the Department, in cooperation with county and city governments, shall establish minimum safety design criteria for the planning and construction of bikeways and roadways where bicycle travel is permitted. Section 890.8 states the Department shall establish uniform specifications and symbols for signs, markers, and traffic control devices to designate bikeways, regulate traffic, improve safety and convenience for bicyclists, and alert pedestrians and motorists of the presence of bicyclists on bikeways and on roadways where bicycle travel is permitted. And section 891 states, "All city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall utilize all minimum safety design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established pursuant to Sections 890.6 and 890.8." The State also maintains a State Transportation Fund allocation called the Bikeway Account. This fund is dedicated to construction and maintenance of bicycle facilities. Caltrans sets requirements for the bicycle master plan and requires an adopted plan to be eligible for state bicycle funding.

State Policy Directive – Caltrans

Effective March 6, 2001, Caltrans adopted a policy directive related to non-motorized travel that applies to State highways. The Deputy Directive 64 reads:

> "The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning,

maintenance, construction, operations and project development activities and products."[2]

In support of this directive, Assembly Concurrent Resolution No. 211 (ACR 211) by Assemblyman Nation, which became effective in August 2002, encourages local jurisdictions to implement the policies in DD-64 when constructing transportation projects. On October 2, 2008, Caltrans issued Deputy Directive DD-64-R1: 'Complete Streets – Integrating the Transportation System', which supersedes DD-64. DD-64-R1 reiterates the policy to provide for all travelers of all ages and abilities in all activities and products on the State highway system and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

California Complete Streets Act of 2008 (AB 1358)

On September 30, 2008, Governor Schwarzenegger signed Assembly Bill 1358, the California Complete Streets Act of 2008. Commencing January 1, 2011, upon any substantial revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of the streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan (Gov. Code § 65302(b)).

Regional

Metropolitan Transportation Commission

In 2006 the Metropolitan Transportation Commission (MTC) adopted a Complete Streets Policy that requires all projects funded with regional funds to consider accommodating bicycle and pedestrian facilities. The policy requires submittal of a Routine Accommodations checklist evaluating bicycle facility needs as part of the planning and design of each transportation project.

Alameda Countywide Bicycle Plan

The latest Alameda Countywide Bicycle Plan, adopted by the Alameda County Transportation Commission (ACTC) on October 25, 2012, identifies and prioritizes bicycle projects, programs, and planning efforts of countywide significance. The plan includes a "vision network" of 762 miles of bicycle facilities throughout the county providing connections between jurisdictions, access to transit, access to central business district, and other activity areas as well as "communities of concern." The plan also includes priority programs to promote and support biking, and the creation and updating of local bicycle plans.

[2] California Department of Transportation. Deputy Directive DD-64, March 2001.

Local

City of Hayward Bicycle Master Plan

The goals and objectives for the City of Hayward Bicycle Master Plan are as follows:

- Goal 1: To provide the opportunity for safe, convenient and pleasant bicycle travel throughout all areas of Hayward
  - Objective 1.1: To make the system of streets accommodate bicycle use
  - Objective 1.2: To assist in the development of new facilities, require new development either to contribute funding, or to assist in the construction of nearby planned bicycle facilities
  - Objective1.3: Seek funding of bicycle facilities through available source such as the Federal surface transportation funding (SAFETEA-LU); State of California Transportation Development Act funds; the Bicycle Transportation Account funds; the Regional Bay Area Air Quality Management District funds, and County of Alameda Measure B Bicycle and Pedestrian Funding
- Goal 2: To provide the related facilities and services necessary to allow bicycle travel to assume significant role as a local alternative mode of transportation and recreation
  - Objective 2.1: To work with transit agencies, such as BART and AC Transit, to increase their systems' accessibility to bicycle users, especially during peak hour commute times and on lines serving major bicycle destinations such as California State University
  - Objective 2.2: To provide bicycle lockers at primary City facilities to increase bicycle commuter ridership among City employees
  - Objective 2.3: To consider additional Travel Demand Reduction programs that provide economic incentives for bicycle commuters
  - Objective 2.4: To increase bicycle use, as alternative transportation
- Goal 3: To encourage the use of bicycle as a pleasant means of travel recreation embodying physical, environment and social benefits
  - Objective 3.1: To reduce the number of bicyclist injuries (enhance bicyclists' safety) to create opportunities for new bicyclists to have a positive bicycling experience
  - Objective 3.2: To promote public awareness and acceptance bicycling

Key Terms

The following key terms used in this section are defined as follows:

Bay Trail. The Association of Bay Area Governments (ABAG) envisioned a 500-mile continuous bikeway that circles the San Francisco Bay with connections to parks and links to existing transportation facilities.

Class I Bikeway (Bike Path). A paved right-of-way for bicycle travel that is completely separate from any street or highway.

Class II Bikeway (Bike Lane). A striped and stenciled lane for one-way bicycle travel on a street or highway.

Class III Bikeway (Bike Route). A signed route along a street or highway where the bicyclist shares the right-of-way with motor vehicles.

Bibliography

Reports/Publications

State of California. Update to the General Plan Guidelines: Complete Streets and the Circulation Element, December 15, 2010.

Alameda County Transportation Commission. Alameda Countywide Bicycle Plan, October 25, 2012.

City of Hayward Bicycle Master Plan, Prepared by Alta, October 2007

Websites

State of California, Legislative Counsel. http://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_1351-1400/ab_1358_bill_20080930_chaptered.pdf, January 2, 2013.

State of California, Legislative Counsel. http://www.leginfo.ca.gov/cgi-bin/displaycode?section =shc &group =00001-01000&file=890-894.2, January 2, 2013.

U.S. Government Printing Office. http://www.gpo.gov/fdsys/pkg/BILLS-112hr1780ih/pdf/BILLS-112hr1780ih.pdf, January 2, 2013.

Hayward, City of. http://www.hayward-ca.gov/GREEN-HAYWARD/CLIMATE-ACTION-PLAN/, November 30, 2012.

SECTION 2.5 PEDESTRIAN FACILITIES

Introduction

Walking is the most basic form of transportation and is an important part of healthy and active lifestyles. In Hayward, with its temperate climate, extensive transit services, and urban development pattern with many activity centers, walking serves as both transportation and recreation. Basic pedestrian facilities include sidewalks, paths, and trails. This section describes the existing pedestrian facilities and summarizes information regarding facilities and programs for pedestrians in the City of Hayward.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- While the city has goals and policies to support walking in the current Circulation Element, the city does not have a separate Pedestrian Master Plan.
- The type and condition of sidewalks, crosswalks, and curb ramps vary throughout the city.
- The walk mode share for commute trips of 1.6 percent in Hayward is below that of California; however, a portion of the public transit mode share may include walk access to bus stops, therefore, when all walk modes are combined, the walk share for the city is comparable to that for statewide.

Existing Conditions

Pedestrian Facilities

In Hayward the pedestrian facilities are comprised primarily of sidewalks and recreational trails as well as improvements such as pedestrian countdown timers, lighted crosswalks, and flashing signs located throughout the City. The type and condition of sidewalks vary by areas in the city. Along the major roadways, such as Mission Boulevard, sidewalks provide access along the roadway and crosswalks are marked at key signalized crossings. Pedestrian access to eastern portions of Hayward is restricted by an existing railroad right-of-way located west of Mission Boulevard. However, Sycamore Avenue has a pedestrian overpass over the railroad right-of-way; Jackson Street, Orchard Avenue, and Harder Road have pedestrian access via roadway underpasses.

The Hayward Area Recreation and Park District's Master Plan lists parks with trails which provide excellent recreational opportunities for walking and biking. These parks are as follows:

- Sulphur Creek Nature Center – This park is located at 1801 D Street.
- Hayward Plunge & Memorial Park – This park is located at 24176 Mission Boulevard.

- Shoreline Park – This park is located at 4901 Breakwater Avenue.
- Taper Park – This park is located at the end of Veril Way.

Pedestrian Activity

The level of pedestrian activity is influenced by the land use and urban design. People are more likely to walk in mixed-use communities with high population densities, diverse land uses, and transit-friendly design. Pedestrian activity areas in Hayward identified in the Countywide Pedestrian Plan include:

- Downtown Hayward
- Hayward and South Hayward BART stations
- Amtrak Capitol Corridor Hayward station
- Chabot College and Cal State University, East Bay
- Southland Mall
- St. Rose Hospital
- Eden Area Multi-Service Center, Hayward Hall of Justice, and Veteran's Services

In addition to the pedestrian activity around local schools as well as areas within a one-half-mile of transit stops and AC Transit lines, these are locations where the Countywide Pedestrian Plan envisions increasing the number of pedestrians and walking trips, while improving pedestrian safety.

The Alameda Countywide Pedestrian Plan identifies several countywide programs including:

- Countywide Safe Routes to School (SR2S) program, which promotes walking and biking to school to students at more than 85 public elementary schools in Alameda County.
- Work with law enforcement to conduct activities such as "crosswalk stings" using plain clothes officers.
- Walkable Neighborhood for Seniors

Journey to Work

The 2007-2011 American Community Survey found that approximately 1.6 percent of commuters walk to work, as shown in Table 2-11. When compared to the walk mode share for the state, the walk mode share in Hayward is lower. However, if considering that a portion of the public transportation commute mode share may include walk access to bus stops, the non-auto mode share in the city is comparable to statewide.

TABLE 2-11 JOURNEY TO WORK MODE SHARE		
Commute Mode	**City of Hayward**	**California**
Drive Alone	70.90%	73%
Carpooled	15.70%	11.70%
Public Transportation	7.40%	5.10%
Walking	1.60%	2.80%
Work at Home	2.50%	5.10%
Other Means	1.90%	2.30%
Total	**100%**	**100%**

Source: U.S. Census Bureau, 2007-2011 American Community Survey.

Regulatory Setting

While the City of Hayward is responsible for constructing pedestrian facilities, adjacent property owners are responsible for maintaining them. Federal, state, regional, and local agencies play a regulatory role with not only policies and directives, but funding and design standards and guidelines. Major regulatory policies pertaining to pedestrian facilities are summarized below:

Federal

Americans with Disabilities Act (ADA)

All public agencies must adhere to the Americans with Disabilities Act (ADA), enacted on July 26, 1990, which provides comprehensive civil rights protections to persons with disabilities in the areas of employment, state and local government services, access to public accommodations, transportation, and telecommunications. Title II of the ADA prohibits state and local governments from discriminating against persons with disabilities or from excluding participation in or denying benefits of programs, services, or activities to persons with disabilities. Newly constructed and altered public facilities must be readily accessible to and usable by people with disabilities. In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal and transportation system. Accessibility in Federally-assisted programs is governed by the USDOT regulations (49 CFR part 27) implementing Section 504 of the Rehabilitation Act (29 U.S.C. 794). The City of Hayward adopted an ADA Transition Plan in 2000.

State

State Policy Directive – Caltrans

Effective March 6, 2001, Caltrans adopted a policy directive related to non-motorized travel that applies to State highways. The Deputy Directive 64 reads:

> "The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products."[3]

In support of this directive, Assembly Concurrent Resolution No. 211 (ACR 211) by Assemblyman Nation, which became effective in August 2002, encourages local jurisdictions to implement the policies in DD-64 when constructing transportation projects. On October 2, 2008, Caltrans issued Deputy Directive DD-64-R1: 'Complete Streets – Integrating the Transportation System', which supersedes DD-64. DD-64-R1 reiterates the policy to provide for all travelers of all ages and abilities in all activities and products on the State highway system and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

California Complete Streets Act of 2008 (AB 1358)

On September 30, 2008, Governor Schwarzenegger signed Assembly Bill 1358, the California Complete Streets Act of 2008. Commencing January 1, 2011, upon any substantial revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users of the streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan (Gov. Code § 65302(b)). The City of Hayward adopted a Complete Streets Policy on March 19, 2013.

Regional

Metropolitan Transportation Commission

In 2006 the Metropolitan Transportation Commission (MTC) adopted a Complete Streets Policy that requires all projects funded with regional funds to consider accommodating bicycle and pedestrian facilities. The policy requires submittal of a checklist evaluating pedestrian facility needs as part of the planning and design of each transportation project.

Alameda Countywide Pedestrian Plan

The Alameda Countywide Pedestrian Plan, prepared for the Alameda County Transportation Commission (ACTC), identifies and prioritizes pedestrian projects, programs, and planning

[3] California Department of Transportation. Deputy Directive DD-64, March 2001.

efforts of countywide significance. The plan includes a "vision system" of pedestrian facilities throughout the county, priority programs to promote and support walking, and the creation and updating of local pedestrian plans.

Key Terms

The following key terms used in this section are defined as follows:

Crosswalk. A crosswalk is any portion of a roadway that connects the lateral lines of a sidewalk, or in the absence of sidewalks, the edges of a roadway. Crosswalks may or may not be marked.

Curb Ramp. A combined curb ramp and landing that creates a transition between sidewalks that are raised above roadway grade to the roadway. They are necessary for people using wheelchairs, scooters, and other mobility assistive devices but benefit all pedestrians.

Mid-block Crossing. A mid-block crossing is a designated crossing of a roadway for pedestrians that is not located at a roadway intersection. A mid-block crossing may or may not include treatments as such as pedestrian signals and advanced warning signs, but only exist if they are marked.

Bibliography

Reports/Publications

Alameda County Transportation Commission. Alameda Countywide Pedestrian Plan, October 25, 2012.

Hayward Area Recreation & Park District. District of Recreation & Parks Master Plan, June 2006.

State of California. Update to the General Plan Guidelines: Complete Streets and the Circulation Element, December 15, 2010.

Websites

State of California, Legislative Counsel. http://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_1351-1400/ab_1358_bill_20080930_chaptered.pdf, January 2, 2013.

State of California, Legislative Counsel. http://www.leginfo.ca.gov/cgi-bin/displaycode?section =shc &group =00001-01000&file=890-894.2, January 2, 2013.

U.S. Government Printing Office. http://www.gpo.gov/fdsys/pkg/BILLS-112hr1780ih/pdf/BILLS-112hr1780ih.pdf, January 2, 2013.

U.S. Census Bureau. http://factfinder2.census.gov/bkmk/table/1.0/en/ACS/11_5YR/DP03/1600000US0633000, January 8, 2013.

Hayward, City of. http://www.hayward-ca.gov/GREEN-HAYWARD/CLIMATE-ACTION-PLAN/, November 30, 2012.

SECTION 2.6 TRANSIT SERVICES/ PARATRANSIT

Introduction

Transit services in Hayward consist of local, regional and intercity bus services, and paratransit services as well as rapid transit and regional rail services. These services are provided by a number of public and private transportation agencies and companies including Bay Area Rapid Transit (BART), Alameda-Contra Costa Transit District (AC Transit), Amtrak, and Greyhound Lines. These services are described in this section.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- Hayward is served by a number of transit services providing viable transit options to residents and visitors through a network of bus and rail systems.
- Hayward is directly served by two BART lines via the Hayward Station and the South Hayward Station connecting Hayward to four Bay Area counties. (Alameda, Contra Costa, San Francisco, San Mateo)
- The AC Transit operates 20 bus routes in Hayward connecting the city north to San Pablo and south to Fremont through direct and connection services.
- Paratransit service is primarily provided by AC Transit within Alameda County.
- The City's Hayward Paratransit Program, funded by the Alameda County Transportation Commission Measure B transportation tax, offers this service within Hayward and nearby jurisdictions for seniors and persons with disabilities. Service is provided via MV Transportation and Central County Taxi Service.
- Hayward's Amtrak station near downtown provides access to intercity train service via the Capitol Corridor route, which runs between Sacramento and San Jose, and provides connection to the national Amtrak network.

Existing Conditions

A variety of transit services are available to Hayward residents and visitors. These services are described below.

Heavy-Rail Rapid Transit Service

The San Francisco Bay Area Rapid Transit District (BART) provides heavy-rail, regional transit service in four Bay Area counties, including Alameda, Contra Costa, San Francisco, and San Mateo via five rail lines. There are two stations, Hayward and South Hayward, in the city. Both stations are served by the Fremont-Richmond line and the Fremont-Daly City line. The Fremont-Richmond line provides service every fifteen (15) minutes during the weekday until

7:30 PM and every twenty (20) minutes during weekday evenings and weekends. This train line runs until midnight every day, with weekday, Saturday, and Sunday service beginning at 4:00 AM, 6:00 AM, and 8:00 AM, respectively. The Fremont-Daly city line provides service every fifteen (15) minutes during the weekday and every twenty (20) minutes on Saturday. This train line runs until 6:00 PM every day, with weekday and Saturday service beginning at 5:00 AM and 9:00 AM, respectively. Figure 2-6 shows the locations of the BART line and stations in the city. BART is presently planning to extend services south to the city of San Jose, east to the city of Livermore, and north to the city of Antioch.

Local and Regional Bus Service

Alameda-Contra Costa Transit District (AC) Transit operates twenty (20) bus routes in Hayward including local, all-nighter and Transbay services. Detailed service times and frequencies for each route are presented in Table 2-12. Route 801, a part of the All-Nighter regional bus network, provides after-hour service with timed connections north to Oakland and south to Fremont. Routes M, S, and SB are Transbay routes connecting the East Bay to San Francisco and the Peninsula. Other routes provide direct and connecting services in Alameda county and a portion of Contra Costa county from San Pablo and El Sobrante to the northeast to Fremont to the south. Figure 2-7 displays a map of AC Transit's bus system serving Hayward.

Most bus stops in Hayward are indicated by free standing poles with signs indicating the bus route number. Some stops, especially those at the BART stations, are provided with other amenities, such as shelters, benches, and bus route maps.

Paratransit Service

In addition to fixed-route service, AC Transit also provides shared-ride door-to-door paratransit service for seniors and persons with disabilities. AC Transit's East Bay Paratransit is the primary paratransit service for Alameda County. Besides the East Bay Paratransit service, the City of Hayward operates the Hayward Paratransit Program, funded by the Alameda CTC Measure B Transportation Tax, a separate service for seniors and persons with disabilities of Hayward and nearby jurisdictions, The Program includes two services: MV Transportation and Central County Taxi Service. MV Transportation offers pre-scheduled, shared ride, door-to-door service in accessible vehicles. This service is available to residents of Hayward and nearby jurisdictions. Central County Taxi Service is a same day, 24-hour a day, seven days a week curb-to-curb service. Advanced reservation is not needed, but service outside of the Hayward service area is not guaranteed.

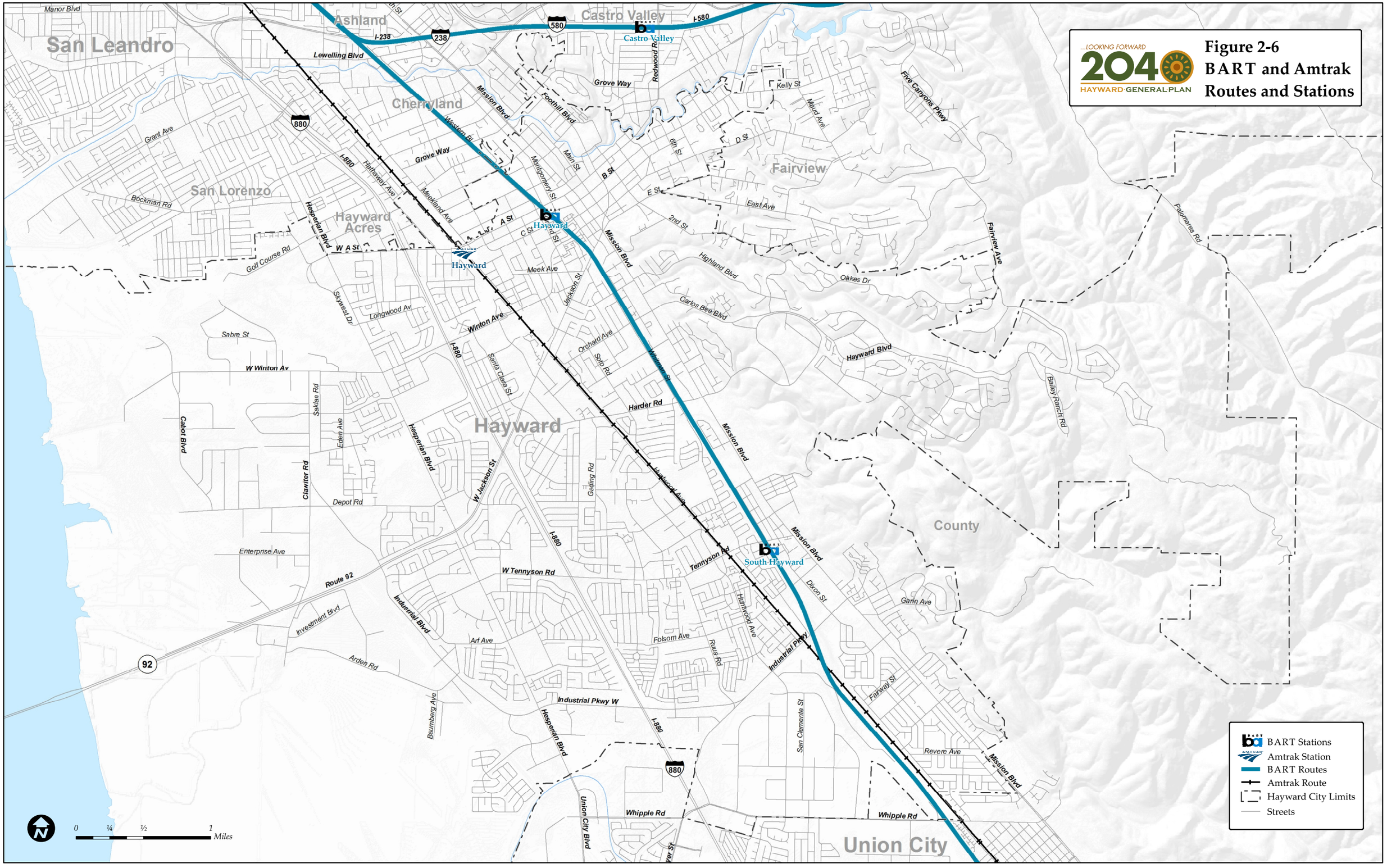

...LOOKING FORWARD
2040
HAYWARD GENERAL PLAN
Figure 2-6
BART and Amtrak
Routes and Stations
San Leandro
Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
Union City
South Hayward
Castro Valley
Hayward
Manor Blvd
Lewelling Blvd
Grant Ave
Bockman Rd
Golf Course Rd
Hesperian Blvd
Grove Way
Mission Blvd
Foothill Blvd
Redwood Rd
Kelly St
Five Canyons Pkwy
Meloid Ave
D St
6th St
B St
E St
East Ave
2nd St
Main St
Montgomery St
Hayward St
C St
A St
W A St
Meek Ave
Jackson St
Meekland Ave
Hathaway Ave
Skywest Dr
Longwood Av
Sabre St
W Winton Av
Winton Ave
Orchard Ave
Soto Rd
Santa Clara St
Harder Rd
Whitman St
Highland Blvd
Oakes Dr
Carlos Bee Blvd
Hayward Blvd
Fairview Ave
Palomares Rd
Bailey Ranch Rd
Cabot Blvd
Saklan Rd
Eden Ave
Clawiter Rd
Depot Rd
Enterprise Ave
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Arden Rd
Baumberg Ave
W Tennyson Rd
Tennyson Rd
Hartwood Ave
Russ Rd
Folsom Ave
Industrial Pkwy
Industrial Pkwy W
Dixon St
Garin Ave
Fairway St
San Clemente St
Revere Ave
Whipple Rd
Union City Blvd
W Jackson St
Geding Rd
Hesperian Blvd
I-880
I-238
I-580
880
238
580
92
0 ¼ ½ 1 Miles
BART Stations
Amtrak Station
BART Routes
Amtrak Route
Hayward City Limits
Streets

TABLE 2-12
AC TRANSIT BUSES SERVING PROJECT AREA

Route	Cities Served	Stops	Days	Times	
22	Hayward	Hayward BART Chabot College Kaiser Permanente Hayward Medical Center South Hayward BART Mission Blvd & Harder Rd Hayward BART	**Weekday**	**First**	6:00 AM
				Last	11:00 PM
				Frequency	30 min
			Weekend	**First**	6:15 AM
				Last	11:15 PM
				Frequency	60 min
32	Hayward Cherryland Ashland Castro Valley	Hayward BART B St & Center St Castro Valley BART 164th Ave & E 14th St Bay Fair BART Paseo Grande & Meekland Ave Blossom Way & Western Blvd Hayward BART	**Weekday**	**First**	5:30 AM
				Last	8:30 PM
				Frequency	60 min
			Weekend	**First**	6:15 AM
				Last	7:15 PM
				Frequency	60 min
37	Hayward	Hayward BART Santa Clara St. & Jackson St. Tennyson Rd. & Patrick Ave. South Hayward BART Hayward BART	**Weekday**	**First**	5:30 AM
				Last	8:30 PM
				Frequency	60 min
			Weekend	**No Service**	
48	Hayward Castro Valley	Hayward BART Foothill Blvd & Grove Way Castro Valley BART Eden Hospital Foothill Blvd & Manchester Rd Bay Fair BART	**Weekday**	**First**	6:30 AM
				Last	7:30 PM
				Frequency	60 min
			Weekend	No Service	
60	Hayward	Hayward BART Campus Dr & Second St Warren Hall, Cal State East Bay	**Weekday**	**First**	5:15 AM
				Last	10:15 PM
				Frequency	20 min
			Weekend	**First**	6:00 AM
				Last	7:15 PM
				Frequency	40 min
68	Hayward	South Hayward BART Industrial Parkway & Huntwood Ave Huntwood Ave & Whipple Rd Union Landing Shopping Center Stratford Rd & Industrial Parkway Tampa Ave & Tennyson Rd South Hayward BART	**Weekday**	**First**	5:37 AM
				Last	7:37 PM
				Frequency	60 min
			Weekend	**First**	8:05 AM
				Last	6:05 PM
				Frequency	60 min
83	Hayward	South Hayward BART Tennyson Rd & Hesperian Blvd Eden Landing Rd & Investment Blvd	**Weekday**	**First**	5:15 AM
				Last	8:15 PM
				Frequency	60 min

TABLE 2-12
AC TRANSIT BUSES SERVING PROJECT AREA

Route	Cities Served	Stops	Days	Times	
		Clawiter Rd & Industrial Blvd Winton Ave & Hesperian Blvd Hesperian Blvd & W A St Hayward BART	**Weekend**	**No Service**	
85	San Leandro Hayward	San Leandro BART Washington Ave & Lewelling Blvd Paseo Grande & Hesperian Blvd Hesperian Blvd & W A St Hayward BART Gading Rd & Harder Rd South Hayward BART	**Weekday**	**First**	5:40 AM
				Last	7:40 PM
				Frequency	60 min
			Weekend	**First**	7:40 AM
				Last	7:40 PM
				Frequency	60 min
86	Hayward	Hayward BART Hesperian Blvd & W A St Winton Ave & Hesperian Blvd AC Transit Hayward Division Depot Rd & Industrial Blvd Clawiter Rd & Industrial Blvd Eden Landing Rd & Investment Blvd Tennyson Rd & Hesperian Blvd South Hayward BART	**Weekday**	**First**	4:12 AM
				Last	11:47 PM
				Frequency	30-40 min
			Weekend	**First**	6:00 AM
				Last	11:24 PM
				Frequency	35-53 min
93	San Leandro Hayward San Lorenzo Cherryland Ashland	Hayward BART Bay Fair BART Paseo Grande & Meekland Ave Paseo Grande & Hesperian Blvd Grant Ave & Bockman Rd Hesperian Blvd & Hacienda Ave Hayward BART	**Weekday**	**First**	5:15 AM
				Last	8:30 PM
				Frequency	60 min
			Weekend	**First**	7:15 AM
				Last	7:15 PM
				Frequency	60 min
94	Hayward	Hayward BART C St & Foothill Blvd Campus Dr & Second St Hayward Blvd & Spencer Ln Hayward Blvd & Skyline Dr Hayward Blvd & Fairview Ave	**Weekday**	**First**	5:15 AM
				Last	8:00 PM
				Frequency	50-60 min
			Weekend	No Service	
95	Hayward	Hayward BART C St & Foothill Blvd Bret Harte Middle School Hayward High School D St & Maud Ave Kelly St & Eddy St	**Weekday**	**First**	5:30 AM
				Last	8:00 PM
				Frequency	30 min
			Weekend	**First**	6:30 AM
				Last	6:15 PM
				Frequency	30 min
97	Union City Hayward San Lorenzo San Leandro	Union City BART Union Landing Shopping Center Union City Blvd & Alvarado Blvd Whipple Rd & Union City Blvd Mt. Eden High School	**Weekday**	**First**	6:00 AM
				Last	11:40 PM
				Frequency	20 min

TABLE 2-12
AC TRANSIT BUSES SERVING PROJECT AREA

Route	Cities Served	Stops	Days	Times	
		Tennyson Rd & Hesperian Blvd Chabot College Winton Ave & Hesperian Blvd Paseo Grande & Hesperian Blvd Bay Fair BART	**Weekend**	**First**	7:00 AM
				Last	11:10 PM
				Frequency	30 min
99	Fremont Union City Hayward	Fremont BART Mission Blvd & Mowry Ave Decoto Rd & Fremont Blvd Union City BART Mission Blvd & Whipple Ave Mission Blvd & Gresel St South Hayward BART Mission Blvd & Harder Rd Hayward BART Bay Fair BART	**Weekday**	**First**	5:45 AM
				Last	11:15 PM
				Frequency	30-60 min
			Weekend	**First**	6:15 AM
				Last	12:15 AM
				Frequency	40 min
386	Hayward	AC Transit Hayward Division Winton Ave & Hesperian Blvd Southland Mall Hayward BART	**Weekday**	No Service	
			Weekend	**First**	8:55 AM
				Last	6:38 PM
				Frequency	53 min
391	Hayward	Southland Mall Hayward Villa Clubhouse Circle (Spanish Ranch) New England Village Georgian Manor Eden Roc (Mobile Home Court) Oliver Dr & Tennyson Rd Southland Mall	**Weekday**	**First**	10:07 AM
				Last	1:42 PM
				Frequency	45 min
			Weekend	No Service	
801	Fremont Union City Hayward	Fremont BART Fremont Blvd & Mowry Ave Fremont Blvd & Peralta Blvd Decoto Rd & Fremont Blvd Union City BART Mission Blvd & Gresel St South Hayward BART Hayward BART Bay Fair BART San Leandro BART 98th Ave & International Blvd Seminary Ave & International Blvd International Blvd & 34th Ave 23rd & International Blvd 14th St & Broadway	**Weekday**	**First**	All Night
				Last	All Night
				Frequency	60 min
			Weekend	**First**	All Night
				Last	All Night
				Frequency	60 min

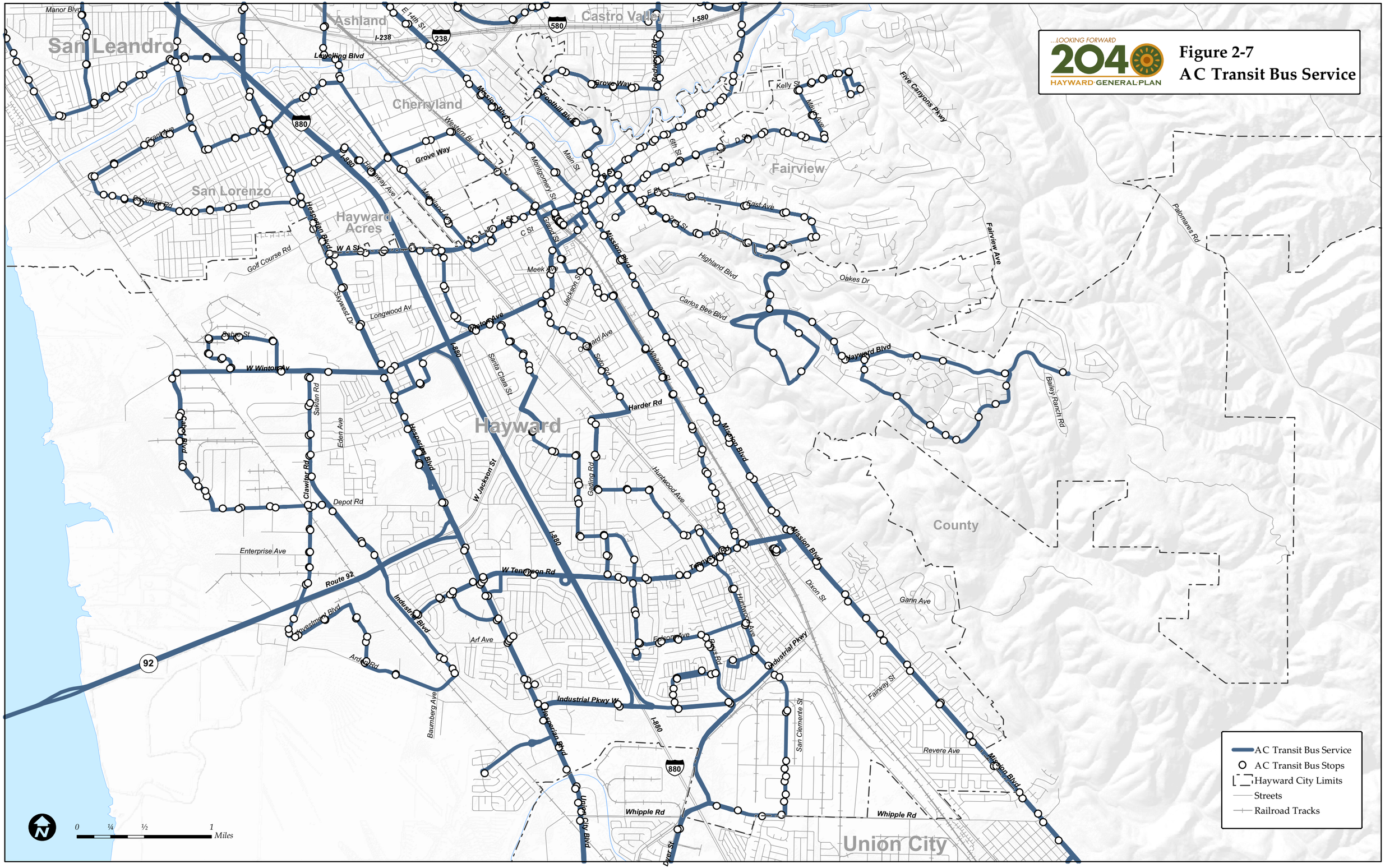
TABLE 2-12
AC TRANSIT BUSES SERVING PROJECT AREA

Route	Cities Served	Stops	Days	Times	
M	Belmont Foster City San Mateo Hayward	Hillsdale Shopping Center E Hillsdale Blvd & Saratoga Dr Oracle Headquarters 1163 Chess Dr Vintage Park Dr & Metro Center Blvd Chabot College Hayward BART	**Weekday**	**First**	6:30 AM
				Last	6:46 PM
				Frequency	24-107 min
			Weekend	No Service	
S	Hayward San Lorenzo San Leandro	San Francisco (Transbay Temporary Terminal) Marina Blvd & Merced St Manor Blvd & Farnsworth St Washington Ave & Lewelling Blvd Paseo Grande & Hesperian Blvd Winton Ave & Hesperian Blvd Hesperian Blvd & Tahoe Ave Eden Shores Park	**Weekday**	**First**	5:10 AM
				Last	7:00 PM
				Frequency	15-60 min
			Weekend	No Service	
SB	Newark Union City Hayward	San Francisco (Transbay Temporary Terminal) Hesperian Blvd & Industrial Blvd Union City Blvd & Alvarado Blvd Ardenwood Park & Ride Thornton Ave Park & Newark Blvd Newpark Mall Cedar Blvd & Stevenson Blvd	**Weekday**	**First**	5:25 AM
				Last	6:55 PM
				Frequency	20 - 55 min
			Weekend	No Service	

Source: Alameda-Contra Costa Transit District (Accessed on December 3, 2012, http://www.actransit.org)
Note: AC Transit will be implementing some route and schedule changes within Hayward in April 2013.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 2-7
AC Transit Bus Service



Intercity Passenger Train Service

Amtrak operates the Capitol Corridor service, an intercity passenger train system that provides rail service to 16 stations in 8 Northern California counties along a 170-mile rail corridor. The Capitol Corridor service is coordinated with other rail users – Amtrak, the Union Pacific Railroad, Caltrans, and the various agencies and communities that make up the Capitol Corridor. Passengers of the Capitol Corridor boarding in Hayward may also transfer to Amtrak routes providing access to over 500 destinations in forty-six (46) states, including service to Canadian destinations of Vancouver, Toronto and Montreal. The Hayward station is located at B Street and Meekland Avenue near downtown Hayward. On weekdays, train service is available from 7:00 AM to 8:00 PM with a frequency ranging every one to three hours. During weekends and holidays train service runs from 8:00 AM to 8:00 PM with a frequency ranging every one to three hour**s.** Figure 2-6 shows the location of the Amtrak station and the rail line in the city.

Long Distance Bus Service

Greyhound Lines, Inc. is an intercity, long distance bus service offering services in over 3,700 destinations in the United States, Canada, and Mexico. Greyhound operates five buses on each northbound and southbound direction from its Hayward station on B Street near the Hayward BART station.

Regulatory Setting

Public transportation facilities are planned, funded, installed and maintained under an integrated regulatory framework. Federal, state, and local dollars contribute to capital and operational costs, and those dollars are made available contingent upon certain requirements.

Regional

Measure B

Measure B is a half-cent transportation sales tax approved by Alameda County residents in 2000. Administered by Alameda CTC, it funds transportation improvements and services that address regional priorities set forth in the Alameda County 20-year Transportation Expenditure Plan. Two of the priorities are related to transit services: 1) to expand mass transit; and 2) to expand special transportation for seniors and people with disabilities. The City's Hayward Paratransit Program is funded by Measure B.

Local

City of Hayward Climate Action Plan (CAP)

The City of Hayward published its Climate Action Plan in October 2009. The CAP identifies emissions reduction plan. One of the strategies is to reduce vehicle miles traveled (VMT) by encouraging residents and employees to use alternative modes of transit, improving the

effectiveness of the transportation circulation system, and through land-use and zoning mechanisms.

Key Terms

None

Bibliography

Reports/Publications

None

Websites

Alameda-Contra Costa Transit District. http://www.actransit.org/, November 30, 2012.

Amtrak. http://en.wikipedia.org/wiki/Amtrak, December 4, 2012.

Capitol Corridor Joint Powers Authority. http://www.capitolcorridor.org/, December 4, 2012.

Greyhound. https://www.greyhound.com/farefinder/step2.aspx, December 4, 2012.

Hayward, City of. http://www.hayward-ca.gov/GREEN-HAYWARD/CLIMATE-ACTION-PLAN/, November 30, 2012.

SECTION 2.7 TRANSPORTATION DEMAND MANAGEMENT

Introduction

Transportation demand management (TDM) programs include a variety of measures that can be an effective way to reduce vehicle trips in light of new statewide regulation. This section describes the transportation demand management strategies and programs that are available to residents and employees in the city.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- The City implemented a TDM program for City employees that is managed by a private company, TranBen. The program offers a pre-tax transportation fringe benefit to all City of Hayward employees for use on public transit.
- The California State University East Bay has a TDM program that includes shuttle services to students, faculty, and staff as well as offers to assist students and staff find carpool partners.

Existing Conditions

TDM programs include a variety of strategies ranging from financial incentives, carpool and vanpools, telecommuting, and informational and promotional activities. TDM programs are implemented at the local level by the city, employers, developers, and public and private institutions. However, regional agencies provide programs, such as the Guaranteed Ride Home (GRH) funded by the Alameda CTC, and the 511.org, which provide transit information and rideshare matching.

City TDM Program

The City of Hayward recently implemented (in 2013) a TDM program for City employees that is managed by a private company, TranBen. The program encourages commuting by alternative modes to vehicle driving alone by offering a pre-tax fringe benefit to City employees to pay for work related commuting expenses for public transportation. The commuter benefit program is funded by the IRS 132 (f) tax code provision allowing employees to take a pre-tax deduction of up to $125 per month for transit. Participating employees receive a transit voucher which is used as payment when purchasing transit passes or loaded fare value from transit authorities and its retailers (i.e. Clipper, BART, AC Transit). The benefit only applies to transit use and is not available for carpools, tolls, gas, or parking.

Employer-Based TDM Programs

From the employer, policies may include pretax options, employer-paid benefits, and employer-provided transit, such as shuttle services.

The California State University East Bay campus provides shuttle services to students, faculty, and staff. This shuttle service runs between campus and the Hayward BART station. It is available from 6:20 AM to 10:20 PM between Monday and Thursday. On Friday and between semester breaks, the shuttle service is available from 6:20 AM to 6:05 PM. This service is provided at intervals between fifteen (15) and thirty (30) minutes during weekdays. The shuttle service is not available during weekends and university holidays. The California State University East Bay also offers to assist students and staff find carpool partners. Future commuting options may include carsharing at CSUEB or Chabot College.

Regulatory Setting

Federal

IRS 132(f) Tax Code – Commuting Benefits

Federal IRS 132(f) tax code provides for employees to take a pre-tax deduction from their salary up to $125 per month for transit. Employees do not pay federal and state income, Social Security or FICA taxes on money that is set aside for these pre-tax benefits.

State

California SB 1339 – Commuter Checks

California Senate Bill 1339 was introduced in February, 2012 to encourage MPO's and local air quality management districts or air pollution control districts to work with local employers to adopt policies that encourage commuting by means of other than driving alone. The policies include pretax options, employer-paid benefits and employer-provided transit.

Key Terms

None

Bibliography

None

Reports/Publications

None

Websites

California, Department of. http://leginfo.ca.gov/pub/11-12/bill/sen/sb_1301-1350/sb_1339_bill_20120224_introduced.htm, February 24, 2012.

511.org. http://rideshare.511.org/, February 1, 2013.

Persons Consulted

Pierson, Erik, Senior City Planner. City of Hayward, December 2012.

Frascinella, Don, Transportation Manager, City of Hayward, April 2013.

SECTION 2.8 PUBLIC PARKING FACILITIES

Introduction

This section describes the present public parking facilities in the city as well as programs and policies manage parking in the city. The majority of the public parking facilities are located in the downtown area.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- The City owns and maintains nine parking lots and two parking structures with a total 1,545 parking spaces in the downtown area.
- Parking in City-owned lots and garages is free to the public.
- On-street parking is generally free Certain on-street parking in the downtown area has time limit and may be prohibited during peak commuter periods along some roadways.

  The City has established residential permit parking zones in the vicinity of major Users where spillover parking into residential areas has been shown to be a problem.

Existing Conditions

The City of Hayward owns and maintains public parking facilities in the downtown area. Altogether there are 11 parking facilities with 1,545 parking spaces. Parking in these facilities are free to the public. Downtown business owners, employees and other long-term users are encouraged to park in designated long term parking spaces in order to free up on-street and other more convenient spaces for patrons of downtown businesses. The City Hall Parking Garage, which as the highest number of spaces among the garages and lots, can accommodate 498 vehicles. The locations and capacities of the downtown parking facilities are presented in **Table 2-13** and **Figure 2-8**.

Hayward residents and visitors generally want to have parking readily available on their neighborhood streets, at commercial centers, and at transit stations. However, the City recognizes that parking provision should be balanced with other City objectives such as encouraging transit uses, bicycling, and walking, as well as reduction in emissions.

On-street parking is provided on most roadways in both residential and commercial areas of the city. The majority of the on-street parking is free and unrestricted even though the City's municipal ordinance allows for metered parking. In the downtown area, parking is generally restricted to 2-hour time limit and is prohibited during peak travel times along some roadways. The City has established three residential permit parking zones to minimize the adverse effects of spillover parking from major destinations such as California State University East Bay, Chabot College and County Courthouse. In addition the City has approved a residential permit

parking program for the South Hayward BART area, to mitigate potential impacts of BART implanting a daily $1.00 parking fee.

TABLE 2-13
PARKING FACILITIES IN DOWNTOWN HAYWARD

Parking Facilities	Number of Parking Spaces
Lot 1 (East of Mission Boulevard between A Street and B Street)	110
Lot 2 (East of Main Street between A Street and B Street)	184
Lot 3 (West of Main Street between B Street and C Street)	38
Lot 4 (East of Foothill Boulevard between B Street and C Street)	97
Lot 5 (Northeast Corner of Maple Ct and A Street)	170
Lot 6 (East of Foothill Boulevard between Russell Way and A Street)	98
Lot 7 (East of Mission Boulevard between B Street and C Street)	10
City Hall Parking Garage (West of Mission Boulevard between B Street and C Street)	498
Cinema Place Parking Garage (Northwest Corner of Foothill Boulevard and C Street)	244
Lot 10 (Northwest Corner of Mission Boulevard and C Street)	46
Lot 11 (East of Foothill Boulevard between City Center Drive and Russell Way)	50
Total	**1,545**

Source: City of Hayward, 2013.

Figure 2-8
Municipal Parking Lots
Downtown

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Lot 11
50 Spaces

Lot 6
98 Spaces

Lot 5
170 Spaces

Lot 2
184 Spaces

Lot 4
97 Spaces

Lot 1
110 Spaces

Cinema Place
Parking Garage
244 Spaces

Lot 3
38 Spaces

Lot 7
10 Spaces

City Hall
Parking Garage
498 Spaces

Lot 10
46 Spaces

City Hall

BART
Parking
Garage

Hayward BART

Foothill Blvd
Russell Wy
A St
Second St
B St
Maple Ct
Main St
Mission Blvd
Smalley Ave
C St
First St
Watkins St
D St
E St
Grand St

0 250 500 1,000 Feet

Municipal Parking Lots
Hayward City Limits
Railroad Tracks

Regulatory Setting

City of Hayward

Climate Action Plan

The City of Hayward published its Climate Action Plan in October 2009. The CAP identifies ways to reduce emissions. One of the strategies to achieve emission reduction is to reduce vehicle miles traveled (VMT). There are several action items for this strategy. Action 1.3 is most relevant to parking, it states that "modify City parking ordinances to incentivize walking, biking, and public transit by employing parking strategies that include adding bicycle parking, increasing the number of parking spots with time limits, adjusting parking time limits to correspond with adjacent building uses, increasing the number of paid parking spaces, and making space location and fees consistent with demand targets."

Municipal Codes

Section 10-2 of the City's Municipal Codes identified off-street parking regulations. Specifically, the 300s sections specified the ratios of required parking spaces based on the type of land uses. The minimum number of off-street spaces for each use is generally determined based on the size of the facility measured by square footage, number of employees, or other units of measurements. However, the ordinance also provides for potential reductions of off-street parking spaces under a number of circumstances such as:

- Shared parking opportunities,
- Establishment of a Transportation System Management Program
- Proximity to public transportation facilities
- Senior citizen/handicapped housing
- Provision of two-wheel vehicle parking spaces

The 410 sections identified parking requirements and exceptions for residential and commercial developments located in the Central Parking District, the Downtown Core Area, and other specified areas of Hayward.

Key Terms

The following key terms used in this chapter are defined as follows:

Residential Permit Parking Zones. Residential zones in which parking is restricted to holders of permits, which may only be obtained by residents of the area.

Bibliography

Reports/Publications

None

Websites

Hayward, City of. http://www.hayward-ca.gov/GREEN-HAYWARD/CLIMATE-ACTION-PLAN/, November 30, 2012.

Hayward, City of. http://www.hayward-ca.gov/CITY-GOVERNMENT/SPECIAL-PROJECTS-&-STUDIES/shbfbc/pdf/2010/SO_HAYWARD_Parking_Strategy_FINALDRAFT.pdf, January 31, 2013.

SECTION 2.9 AVIATION FACILITIES

Introduction

This section describes the aviation facilities in the city, specifically the services offered at the Hayward Executive Airport.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- Hayward Executive Airport is a general aviation airport owned and operated by the City of Hayward.
- Classified as a reliever airport for Oakland International Airport, San Francisco International Airport, and San Jose International Airport, the Hayward airport serves smaller jets and general aviation operations with FAA-reported 89,799 aircraft operations in 2011.

Existing Conditions

The Hayward Executive Airport (HWD) is owned and operated by the City of Hayward. The airport is situated on 543 acres site providing two parallel runways for general aviation operations. The airport provides approximately 131,400 square yards of apron area for aircraft movement and local and transient aircraft tiedown. Over 450 aircraft are based at the airport from single-engine airplanes to sophisticated corporate jets.

The Airport Master Plan (2002) for the Hayward Executive Airport outlines several airside and landside future air transportation demand. This document provides the future development of the airport to meet projected airside and landside facilities needs and improve the airport's overall efficiency of operation. Planning horizons provide facility development according to the need generated by actual demand levels.

Since the 2002 Airport Master Plan significant changes have been implemented at the Hayward Executive Airport. The City sponsored an Airport Layout Plan Update through a planning grant from the Federal Aviation Administration Airport Improvement Program. These changes are summarized as follows:

- Runway 28L was extended 670 feet and Taxiway A1 was widened adjacent to the runway threshold.
- Six north side helicopter pads were constructed.
- Ascend Development completed ParkAvion, a hangar complex adjacent to the airport administration building.

- The City purchased a 3,000 gallon Airport Rescue and Fire Fighting truck to be used at the airport.
- Approximately 16 acres of airport property were sold from the airport.
- The East Bay Municipal Utility District and San Francisco Public Utility Commission Water System Intertie project and associated Skywest Pump Station were constructed.

The airport is included in the National Plan of Integrated Airport Systems as a reliever airport. The function of a reliever airport is to reduce the aircraft mix at a commercial service primary airport and provide less congested airport for smaller jet and general aviation operations. The airport had 89,799 aircraft operations in 2011. In 2010, over one million pounds of documents and small packages moved through the airport.

Airport Access

The airport is located along the northeastern portion of San Francisco Bay approximately 2.3 miles west of the downtown. Most of the landside development is on the north side of the airport. Landside access is from Skywest Drive, which from Hesperian Boulevard to A Street/Clubhouse Drive. The airport is accessible by personal autos, taxi, shuttle and transit. There are approximately 224 parking spaces for airport tenants, operators and users.

Regulatory Setting

Airport facilities operate through collaborative efforts of several government agencies as well as the private entities. They are subject to federal, state, and local regulation, including local land use planning agencies.

Federal

Federal Aviation Regulations

Federal Aviation Regulations (FARs) are rules established by the Federal Aviation Administration governing all civilian and, to a lesser extent, military aviation activities in the United States. FARs are designed to promote aviation safety. They are developed and approved through a formal Federal rulemaking process and address a wide variety of aviation activities, including aircraft design, flight procedures, pilot training requirements and airport design. FARs concerning aircraft flight generally preempts any state or local regulations. At the national level, the Hayward airport is included in the National Plan of Integrated Airport Systems.

State

California Aviation System Plan – Policy Element

The California Aviation System Plan – Policy Element (2011) is the primary document that explains and guides the business of the Division of Aeronautics that is housed in the California Department of Transportation. The Division's primary duties and functions are defined by statute codified in the State Aeronautics Act (originally the State Aeronautics Commission Act of 1947) and published in the California Public Utilities Code, Section 21001 et seq. The Policy Element is one of multiple elements that comprise the larger California Aviation System Plan (CASP), the means by which continuous aviation system planning is conducted by the State. CASP elements are revised on approximately a five-year cycle with the last Policy Element update published in 2006. The Hayward airport is included in the CASP.

Regional

Regional Airport System Plan

The Regional Airport System Plan (RASP) 2000 is intended to explore a range of solutions to address the increasing air traffic demands being placed on the runways at the major commercial airports and on the airspace around these airports. The RASP provides an independent analysis of future aviation trends and airport system requirements to be used together with airport planning documents to help evaluate proposed improvements to regional airport system capacity. The RASP forecasts for each airport are based on the analysis of individual markets. The RASP is primarily an advisory and informational document. The Hayward airport is included in the Metropolitan Transportation Commission's RASP for the San Francisco Bay Area.

Local

Airport Land Use Compatibility Plan (ALUCP) for the Hayward Executive Airport

The State Aeronautics Act (Public Utility Code, Section 21670) requires the preparation of an airport land use compatibility plan for nearly all public-use airports in the state (Section 21675). The intent of the ALUCP is to encourage compatibility between airports and the various land uses that surround them. The document provides a set of policies and criteria to assist the Alameda County Airport Land Use Commission in evaluating the compatibility of proposed actions and private developments as well as in determining the consistency of a proposed action or development with the ALUCP.

Key Terms

None

Bibliography

Reports/Publications

Alameda County Airport Lane Use Commission, Hayward Executive Airport – Airport Land Use Compatibility Plan. September 2010.

AECOM. Hayward Executive Airport – Airport Layout Plan Update – Approved Final Narrative Report. January 2011.

California Department of Transportation, Division of Aeronautics. California Public Utilities Code – Section 21001 et seq. relating to the State Aeronautics Act. February 2011.

Coffman Associates, Inc. and Environmental Science Associates (ESA). Hayward Executive Airport, Airport Master Plan – Final Technical Report. April 2002.

California Department of Transportation, Division of Aeronautics. California Aviation System Plan – Policy Element, October 2011.

Metropolitan Transportation Commission. Regional Airport System Plan Update 2000, September 2000.

Websites

Hayward, City of. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/PUBLIC-WORKS-ET/HEA/index.shtm, December 17, 2012.

Hayward, City of. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/PUBLIC-WORKS-ET/HEA/documents/2011/Fast_Facts.pdf, December 21, 2012.

SECTION 2.10 GOODS MOVEMENT

Introduction

Goods movement in Hayward is provided primarily by trucks using Interstate and State highways to deliver goods from the port of Oakland to city residences and businesses. . The trucking system is supplemented by railroad networks and aviation facilities. Each of the networks is described as it relates to freight transport in the city.

Major Findings

This section provides a summary of major findings. These findings are as follows:

- The City has designated truck routes, which include freeways, state routes, and other major roadways.
- I-880 and SR 92 are two STAA (Surface Transportation Assistance Act) truck routes within Hayward.
- The relinquishment portions of Foothill Boulevard (SR 238), Mission Boulevard (SR 185) and Jackson Street (SR 92) remain as designated truck routes within Hayward.
- In addition to the trucking network, rail and air freight also provide goods movement service in Hayward.

Existing Conditions

Trucking

The City of Hayward has designated a truck route system made up of freeways, state routes and other major streets within the city roadway network. Roads included in the truck route system are listed below and graphically illustrated in **Figure 2-9**: I-880, SR 92, SR 238, Foothill Boulevard, Mission Boulevard, Jackson Street, Whipple Road, Industrial Parkway SW, Industrial Parkway, Industrial Boulevard, Hesperian Boulevard, Tennyson Road, Huntwood Avenue, Huntwood Way, Gading Road, Santa Clara Street, Harder Road, Clawiter Road, Jackson Street, Winton Avenue, and A Street. As part of the Route 238 Corridor Improvement project, the relinquishment portions of Foothill Boulevard (SR 238), Mission Boulevard (SR 185) and Jackson Street (SR 92) remain as designated truck routes within Hayward. Table 2-14 shows the average weekday truck percentage of daily traffic on state roadways within Hayward.

Rail Freight

Union Pacific (UP) has three rail lines that run through the city. The UP's Coast subdivision (Mulford Line) runs between the Bay and I-880 through the entire length of Hayward serving freight as well as the Amtrak Coast Starlight long distance passenger train. Along the Mulford

Line, there are four at-grade crossings at: W. Winton Avenue, Depot Road, Clawiter Road and Baumberg Avenue.

The UP's Niles subdivision runs from West Oakland to Newark serving freight as well as Amtrak Capitol Corridor passenger service from the Hayward Station. The Niles Line bisect the city paralleling Meekland Avenue, Huntwood Avenue, and Railroad Avenue with grade-separated crossings at A Street, Winton Avenue, Jackson Street, and Harder Road and at-grade crossings at Tennyson Road, Industrial Parkway and Whipple Road.

The UP Oakland subdivision which runs through Hayward along the BART right-of-way is inactive.

Air Freight

The City's Hayward Executive Airport, which is detailed in the Aviation section of this report, provides air freight service. It handled over one million documents and parcels in 2010.

TABLE 2-14
TRAFFIC VOLUMES ON STATE HIGHWAYS

Roadway Segment	Post Mile	Peak Hour Traffic Volumes	Annual Average Daily Traffic (AADT)	Truck %
Route 92				
Clawiter	4.47	8300	94000	4.5
Hesperian	5.75	9100	99500	4.5
Junction I-880	6.39	7300	81000	4.5
Santa Clara	6.78	4900	55500	2.1
Winton Avenue	7.79	3700	45000	2.1
Mission	8.21	3600	41000	1.5
Route 238				
Gresel Street	8.3	2000	24500	3.5
I-880				
Whipple Road	13.66	13900	195000	5.5
Industrial Parkway	14.53	14350	201500	5.9
Tennyson Road	15.64	15250	214000	5.9
Junction Route 92	16.69	16100	230000	6.8
Winton Avenue	17.60	17000	247000	6.8
A Street	18.35	17100	248500	6.8
Route 185				
Mattox Road	1.61	1950	23400	2.2

Source: Department of Transportation, State of California. 2011 Traffic Volumes on the California State Highway System, 2012.

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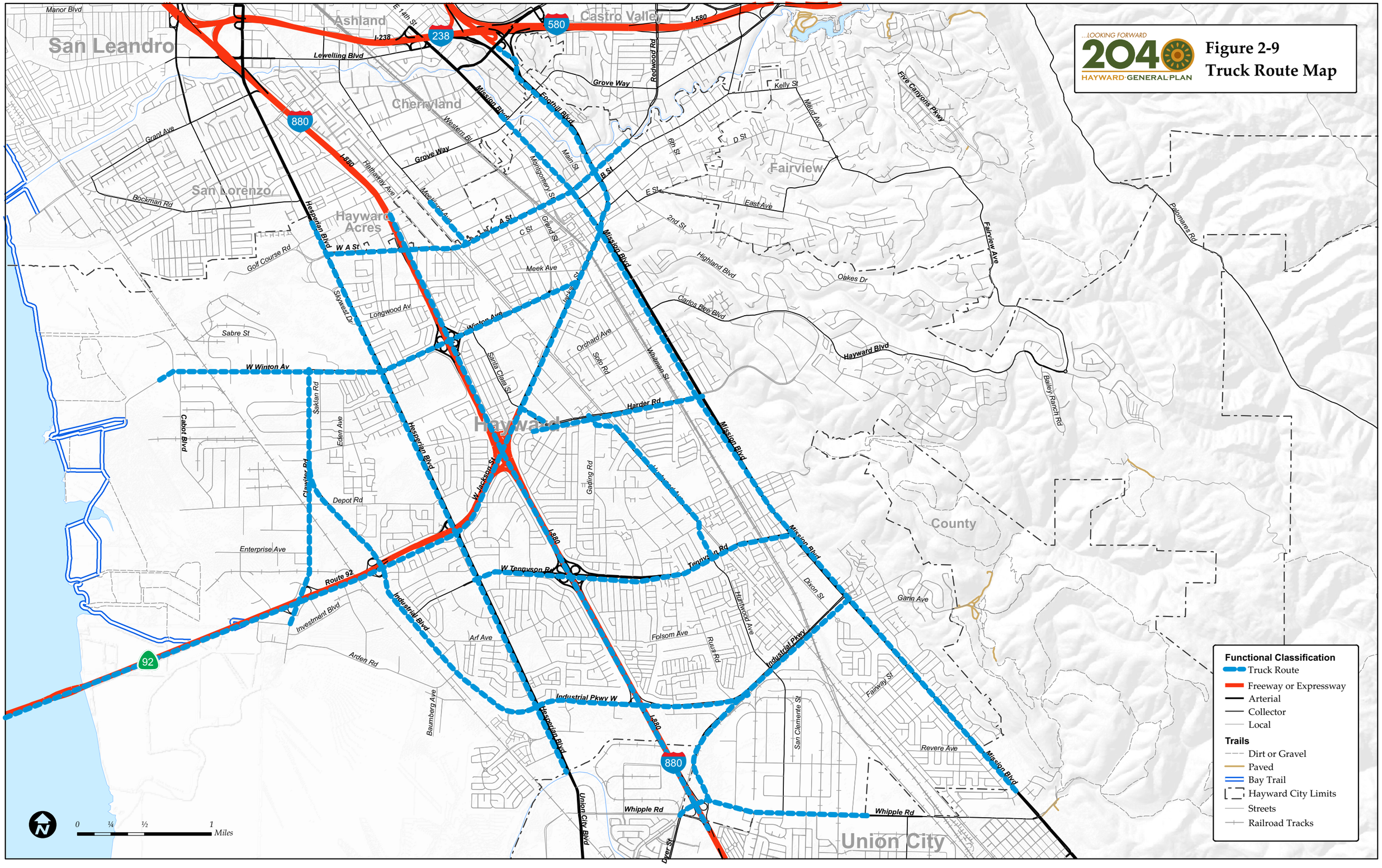
...LOOKING FORWARD
2040 HAYWARD GENERAL PLAN

Figure 2-9
Truck Route Map



Regulatory Setting

The City of Hayward designated routes for truck traffic to address traffic operations and safety concerns. The City has adopted truck route regulations in the City's Traffic Code.

Federal

Surface Transportation Assistance Act

The Federal Surface Transportation Assistance Act passed in 1982 allows large trucks to operate on the interstate and certain primary routes collectively called the National Network. These routes, referred to as STAA routes, provide larger turning radius than most local roads can accommodate. Truck routes designated by the City of Hayward meet these standards.

State

California Department of Transportation

The California Department of Transportation designated I-880 and SR 92 west of I-880 in Hayward as National Network (for STAA trucks) and SR 238 as Terminal Access (for STAA trucks) in the California Truck Network.

California Public Utility Commission

The California Public Utility Commission (CPUC) is the state agency which regulates railroad, rail transit, and passenger transportation companies in California. It strives to ensure safety at railroad crossings.

Local

City of Hayward

The Hayward Traffic Code Section 6.11 states the restriction of use of certain streets. The Section 6.11 states that "Whenever any regulation of this City designates and describes any street or portion thereof as a street the use of which is permitted by any vehicle exceeding a maximum gross weight limit of three (3) tons, the Traffic Engineer is hereby authorized to designate such street or streets by appropriate signs as "Truck Traffic Routes" for the movement of vehicles exceeding a maximum gross weight limit of three (3) tons."

Key Terms

None

Bibliography

Reports/Publications

California Department of Transportation, Division of Mass Transportation. Transportation Development Act Statutes and California Codes of Regulations, March, 2009.

Websites

California, Department of. http://www.dot.ca.gov/hq/traffops/trucks/truckmap/truckmap-d04.pdf, December 24, 2012.

SECTION 3.1 INTRODUCTION

This chapter describes the economic and fiscal trends in Hayward. It also presents information on employment trends in Alameda County and the surrounding region, since business conditions and market opportunities reflect a broader market area than the city boundaries. Part of the analysis identifies potential target industries that the City may wish to attract or develop as part of its Economic Development Strategy. Similarly, the chapter analyzes the market for retail businesses in Hayward and identifies additional retail development opportunities. It should be noted that the General Plan has a broad long-term focus, and market conditions can change over a period spanning multiple decades. The fiscal discussion summarizes the City budget and issues related to the City's tax base and demand for public services by residents and local businesses.

This chapter is organized into the following sections:

- Introduction (Section 3.1)
- Employment and Labor Force (Section 3.2)
- Retail Market (Section 3.3)
- Fiscal Conditions (Section 3.4)

SECTION 3.2 EMPLOYMENT AND LABOR FORCE

Introduction

This section provides data on the existing employment mix in Hayward and recent trends in industry growth and decline for the city and the surrounding region, including Alameda, Santa Clara, and Contra Costa Counties. Based on the analysis of this data and consideration of the Strengths, Weaknesses Opportunities and Threats (SWOT) analysis prepared by City staff, the discussion identifies potential target industries for Hayward's business attraction and development efforts. In addition to providing background for the City's General Plan Update, this information is intended to support the City's efforts to formulate an economic development strategic plan and related marketing program.

Major Findings

- Between 2000 and 2010 the city's population grew by nearly 3 percent, but its working age population grew by more than 6 percent. However, with the recession jobs in the city declined by more than 9 percent. Between 2004 and 2010 Hayward lost nearly 7 percent of its businesses, compared to about 5 percent for Alameda County.

- Hayward does have a diverse job mix, with more than 65,700 jobs in 2010, compared to an employed labor force of about 61,700. More than 9,000 jobs are in manufacturing, which is a relatively high percent of the total.

- The unemployment rate for workers living in Hayward rose from 5 percent in 2005 to more than 12 percent in 2009. It has since declined to less than 10 percent, but still remains more than one percentage point above the Alameda County average.

- Hayward has lower vacancy rates for manufacturing and R&D space than does the East Bay market as a whole. However, the city has higher vacancy rates in warehouse space.

- Comparing recent and projected growth rates for various industries in Alameda County and the East Bay, Hayward has opportunities to attract more food processing firms as well as a variety of light manufacturing such as HVAC equipment, household appliances, machinery manufacturing, and pharmaceuticals. In addition, a number of distribution types of firms are growing, as well as research and development operations and medical laboratories.

- In conducting its SWOT analysis, the City has listed among its strengths its strong and diverse industrial base, its utility infrastructure, good proximity to regional circulation and the Port of Oakland, among other items. Perceived weaknesses include issues with the city's image and certain gaps in its business mix. The city's opportunities include a growing service economy and a strong intellectual base fostered by improved

connections with CSU East Bay's Hayward campus. The target industries identified above also represent opportunities for the city to grow its local economy and job opportunities. A number of the factors identified in the SWOT affect the city's ability to foster and attract these kinds of businesses. In general, the city's location and regional circulation access, as well as the utility infrastructure, are important to the manufacturing industries, while the intellectual capital and community quality are of significant importance to the R&D sectors.

- The City has established a living wage standard to ensure that vendors within the city provide adequate wages and benefits to their workers. The majority of jobs provided by the recommended target industries meet or exceed the City's standard.

Existing Conditions

General economic conditions such as the recent recession have affected local conditions in Hayward as well as other areas in the region. Although total population growth in Hayward was slower than in Alameda County, the growth in number of working age persons and employed labor force was almost identical. However, job growth lagged in the city compared to the county (Table 3-1). With about 48,300 housing units in 2010, Hayward had a jobs/housing balance of 1.36.

TABLE 3-1
POPULATION AND JOB TRENDS

Hayward and Alameda County

	2000	2010	Total Change	Annual Growth Rate
Hayward				
Total Population	*140,030*	*144,186*	*2.97%*	*0.29%*
Working Age Population (18-64)	88,304	94,165	6.64%	0.64%
Employed Labor Force (2002)	66,108	61,718	-6.64%	-0.86%
Jobs in Hayward (2002)	72,365	65,741	-9.15%	-1.19%
Living and Working in Hayward (2002)	11,756	9,369	-20.30%	-2.80%
Alameda County				
Total Population	*1,443,741*	*1,510,271*	*4.61%*	*0.45%*
Working Age Population (18-64)	941,578	1,001,904	6.41%	0.62%
Employed Labor Force (2002)	723,564	675,517	-6.64%	-0.86%
Jobs in Alameda County (2002)	699,600	636,900	-8.96%	-1.04%

Source: Decennial U.S. Census 2000 and 2010; Local Employment Dynamics OnTheMap, November 2012.
Notes: The base year for the Local Employment Dynamics data dates back to 2002, which represents the earliest year for this source.

Hayward Business Mix and Employment Trends

Hayward offers a diverse business mix, with an exceptional concentration of manufacturing firms (Table 3-2).[1] Leading manufacturing industries in Hayward include the following:

- Food Processing: 3,310 jobs
- Machinery and Metal Fabrication: 1,620 jobs
- Plastic and Rubber Products: 1,030 jobs
- Electronics and Electrical Equipment: 660 jobs
- Transportation Equipment: 620 jobs

TABLE 3-2
EMPLOYMENT BY INDUSTRY, 2012

Hayward Area Zip Codes

	Jobs	Percent
Manufacturing	9,356	13.9%
Public Administration	8,518	12.7%
Health Care and Social Assistance	7,989	11.9%
Retail Trade	6,746	10.1%
Wholesale Trade	6,509	9.7%
Construction	5,313	7.9%
Accommodation and Food Services	3,863	5.8%
Administration & Support, Waste Management and Remediation	3,692	5.5%
Transportation and Warehousing	3,612	5.4%
Professional, Scientific, and Technical Services	3,487	5.2%
Other Services (excluding Public Administration)	3,295	4.9%
Real Estate and Rental and Leasing	1,277	1.9%
Finance and Insurance	1,039	1.5%

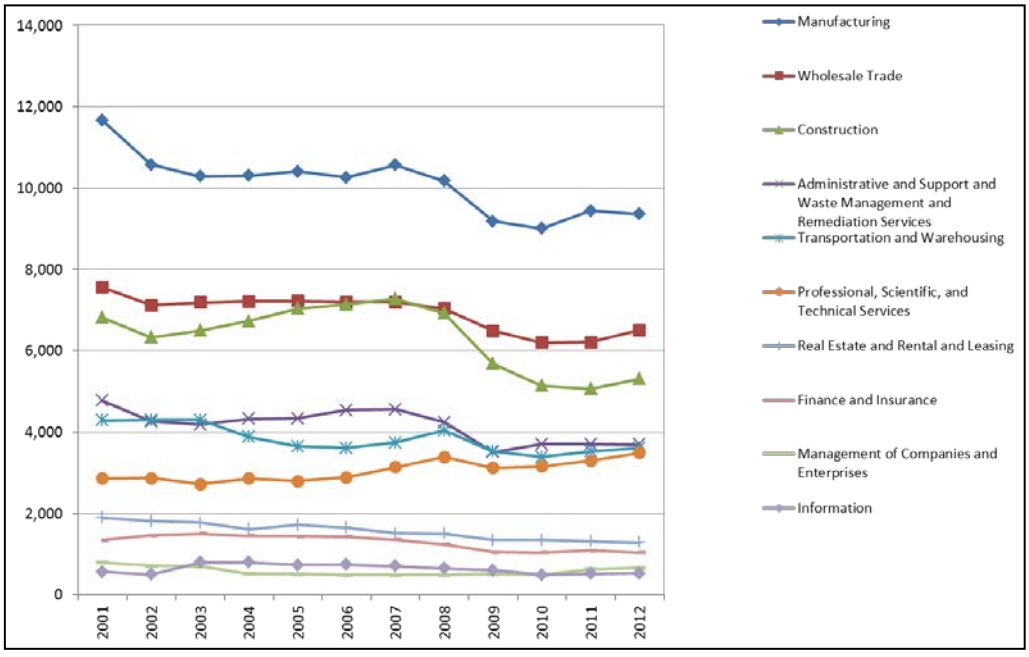
[1] The employment data is provided by EMSI at the ZIP code level rather for the city boundaries, and this data is used for any employment estimates for the year 2012 onward. For this analysis ADE used data for zip codes 94540 to 94545 and 94557. Some of these zip codes may include unincorporated areas adjacent to Hayward. Zip codes 94546 and 94552 include some areas in Hayward, but are primarily in Castro Valley and were not included in the data.

Educational Services	785	1.2%
Management of Companies and Enterprises	655	1.0%
Information	525	0.8%
Utilities	202	0.3%
Arts, Entertainment, and Recreation	198	0.3%
Agriculture, Forestry, Fishing and Hunting	23	0.0%
Mining, Quarrying, and Oil and Gas Extraction	4	0.0%
TOTAL	*67,088*	*100.0%*

Source: EMSI, November 2012. Data includes businesses in the following zip codes: 94540 to 94545 and 94557.

Manufacturing employment had been declining through 2006, but then had two years of solid growth in 2007 and 2008 before succumbing to the Great Recession in 2008 (Figure 3-1). However, manufacturing employment stabilized in 2010, with an uptick in 2011. Other industrial land uses such as construction, wholesale trade, transportation and warehousing showed similar trends, as did several office-based sectors such as professional, scientific and technical services and management services. Other office sectors such as finance, information, administrative and support services, and the real estate sector, have been flat or in continuing decline since the recession.

FIGURE 3-1
EMPLOYMENT TRENDS FOR SELECTED INDUSTRIAL AND OFFICE SECTORS
Hayward



The data on total business establishments are available for the time period of 2004 to 2010. As shown in Table 3-3 below, the city suffered a higher rate of business loss during this period than did the County as a whole.

TABLE 3-3
CHANGE IN BUSINESS ESTABLISHMENTS
Hayward and Alameda County

	2004	2010	Change
Hayward City	3,918	3,647	-6.9%
Alameda County	34,029	32,323	-5.0%

Sources: Bureau of the Census, ZIP Business Patterns; IMPLAN CEW data by County, December 2011.

Commercial, Office and Industrial Building Space Occupancies

In stable market conditions, a 5 percent vacancy rate is considered optimal, providing a high level of occupancy, but also some flexibility to accommodate business moves in the marketplace. As shown in Table 3-4 below, Hayward is close to this level for manufacturing space, but well above it for warehouse and office space. However, the city is below the I-880 East Bay corridor averages for manufacturing and R&D space.

TABLE 3-4
VACANCY RATES IN NON-RESIDENTIAL SPACE

	Hayward		East Bay	
	Q2-12	Q2-11	Q2-12	Q2-11
Manufacturing	6.6%	6.0%	8.5%	7.4%
Warehouse	12.6%	13.3%	9.3%	9.5%
R&D	19.4%	19.3%	21.5%	21.2%

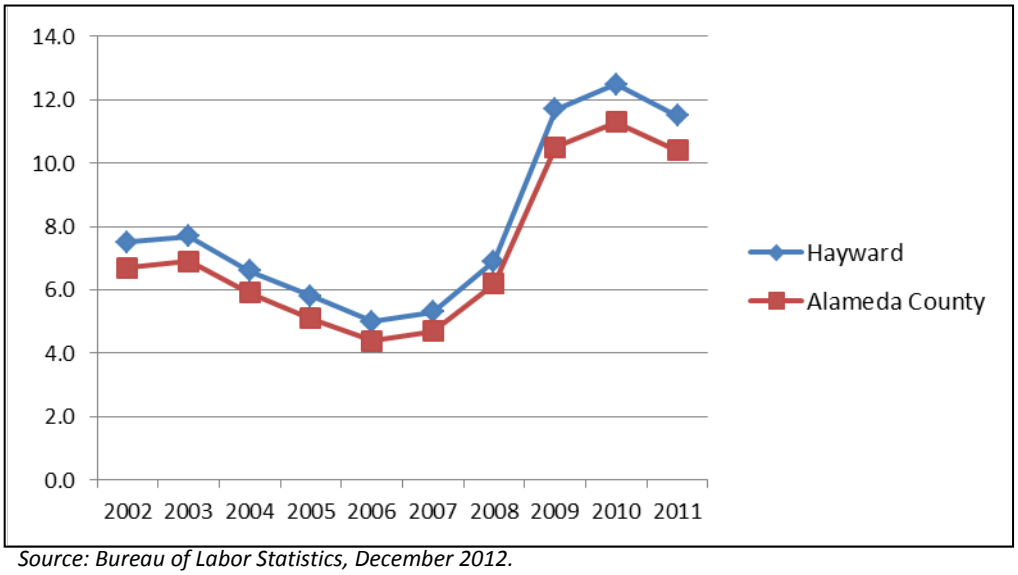
Source: Cassidy Turley Commercial Real Estate Services, East Bay Market Summaries. www.ctbt.com.

Unemployment

Figure 3-2 below tracks the city unemployment rate between 2002 and 2011, along with the similar trend for Alameda County. Hayward has averaged 0.8 percent higher unemployment than the county during this period, although the gap has widened more recently to 1.1 percent,

which has been consistent through most of 2012 to date. As of October 2012 the city's unemployment rate was 9.6 percent.

FIGURE 3-2
UNEMPLOYMENT RATES
Hayward and Alameda County



Source: Bureau of Labor Statistics, December 2012.

Target Industry Analysis

The target industry analysis is intended to identify more detailed business types that would be good prospects for expansion or attraction to Hayward. The focus is on business types that generate basic employment, such as industrial, business park, and office uses that are export-oriented and rely on a broader group of customers than just local households. Retail and commercial services are not included in this type of analysis, but are discussed in the next section of this chapter.

The first step in the analysis is to determine what industries have shown good growth performance in the region surrounding Hayward. Firms with solid growth in nearby Hayward clearly have found the location and operating requirements in the area conducive to their business. The primary growth statistic used for this analysis is the industry shift-share, meaning how well the industries in the local region grew compared to the same industries statewide. This gives an indication of industries that thrived locally compared to their general industry outlook in the broader economy. This analysis was conducted for two regions: Alameda County by itself and a combined area of Alameda, Contra Costa and Santa Clara Counties.

In addition, the industries are sorted into two groups – those that are highly concentrated in the region and constitute part of the regional economic base, and those that are smaller industries, but are growing fast. This latter group is referred to as emerging industries.

The analysis also identifies industries that are declining, although less emphasis is placed on them since the focus of the study is on business growth and development. However, larger economic base industries that might have shown recent decline should remain a focus of the City's business retention efforts. This is because these industries remain an integral part of Hayward's employment and fiscal base, and the city still has many locational assets that can keep these industries viable.

The time frame for the initial part of the analysis is 2001 to 2010. With the deep employment losses throughout the entire economy since 2008, it is important to consider how industries have done over the longer term.

Table 3-5 provides the detailed results of the analysis of Alameda County. The table is sorted by percent change in employment to highlight the fastest growing industries. At the top of the table is a list of industries that started the decade with no employment, but attracted new businesses or line of operation more recently. However, the employment numbers for these industries are mostly small, although most of them are part of larger economic base industries (right hand column).

Among those industries with high percent growth is a number of food processing industries, which may already be located in Hayward. These include coffee and tea, chocolate and confectionary, frozen specialty foods, and a wide range of food product wholesalers. It is interesting to note, however, that non-chocolate confectionary manufacturing lost 151 jobs, but this rate of loss was not as bad as the industry statewide, hence it showed a positive industry shift-share.

The other manufacturing industries with strong growth in Alameda County include a range of both heavy industry and technology companies. In addition to food processing and wholesale, the list includes manufacturing of pharmaceuticals, HVAC equipment, turbines, audio video equipment, electromedical apparatus, medical equipment and supplies, measuring and navigational instruments and controls, as well as dental and ophthalmic equipment. In terms of other technology related business activities, R&D activities in physical, engineering and life sciences gained more than 6,000 jobs during this period. In addition, growing businesses included computer systems design and programming as well as medical laboratories.

Table 3-6 highlights industries for the three-county region that do not show up on the Alameda County list. There are relatively few industries of note to highlight. Other than a few additional food processing industries, notably cane sugar refining, most of the additional manufacturing is in primary metals including copper and other non-ferrous metal fabrication. A significant number of jobs were added in the military transport sector (1,674). Interestingly, the research and development (R&D) sector (NAICS 541710), added only another 1,300 jobs in Santa Clara and Contra Costa counties, over the 6,000 jobs added in Alameda County. At this larger three county level, the growth in this sector did not match the statewide growth rate.

TABLE 3-5
INDUSTRIES WITH POSITIVE GROWTH TRENDS, 2001 TO 2010

Alameda County

NAICS CODE	2007 NAICS US Title	Alameda County Jobs 2001	Alameda County Jobs 2010	Location Quotient 2010	Change in Alameda County Jobs, 2001 to 2010	Percent Change 2001 to 2010	Shift-share	Category of Economic Function
------	*Total*	*589,983*	*530,477*	*1.00*	*-59,506*	*-10.09%*	*-5.22%*	
311930	Flavoring Syrup and Concentrate Manufacturing	0	8	0.29	8	N/A	N/A	Emerging Industries
316214	Women's Footwear (except Athletic) Manufacturing	0	14	0.72	14	N/A	N/A	Emerging Industries
325221	Cellulosic Organic Fiber Manufacturing	0	1	1.09	1	N/A	N/A	Growing Economic Base Industries
331312	Primary Aluminum Production	0	6	1.03	6	N/A	N/A	Growing Economic Base Industries
331315	Aluminum Sheet, Plate, and Foil Manufacturing	0	17	1.46	17	N/A	N/A	Growing Economic Base Industries
331422	Copper Wire (except Mechanical) Drawing	0	92	3.31	92	N/A	N/A	Growing Economic Base Industries
333412	Industrial and Commercial Fan and Blower Manufacturing	0	10	1.13	10	N/A	N/A	Growing Economic Base Industries
335222	Household Refrigerator and Home Freezer Manufacturing	0	45	5.30	45	N/A	N/A	Growing Economic Base Industries
339114	Dental Equipment and Supplies Manufacturing	2	62	0.36	60	2977.94%	2992.49%	Emerging Industries
311822	Flour Mixes and Dough Manufacturing from Purchased Flour	34	581	10.87	547	1608.82%	1633.61%	Growing Economic Base Industries
333611	Turbine and Turbine Generator Set Units Manufacturing	3	44	0.22	41	1360.66%	1360.26%	Emerging Industries
311920	Coffee and Tea Manufacturing	33	233	3.34	200	606.06%	561.71%	Growing Economic Base Industries
311320	Chocolate and Confectionery Manufacturing from Cacao Beans	124	827	26.61	703	566.94%	613.34%	Growing Economic Base Industries
334514	Totalizing Fluid Meter and Counting Device Manufacturing	14	69	1.55	55	391.04%	412.09%	Growing Economic Base Industries
324110	Petroleum Refineries	59	260	0.45	201	340.84%	342.44%	Emerging Industries
621512	Diagnostic Imaging Centers	103	388	1.12	285	276.70%	193.54%	Growing Economic Base Industries
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	210	765	1.62	555	264.29%	278.42%	Growing Economic Base Industries
4516	Analytical Laboratory Instrument Manufacturing	235	841	2.06	606	257.87%	280.78%	Growing Economic Base Industries
33522	Major Appliance Manufacturing	13	45	0.74	32	243.09%	282.28%	Emerging Industries
331111	Iron and Steel Mills	34	101	0.82	67	196.48%	180.86%	Emerging Industries
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial	83	241	1.75	158	190.36%	216.46%	Growing Economic Base Industries

TABLE 3-5
INDUSTRIES WITH POSITIVE GROWTH TRENDS, 2001 TO 2010

Alameda County

NAICS CODE	2007 NAICS US Title	Alameda County Jobs 2001	Alameda County Jobs 2010	Location Quotient 2010	Change in Alameda County Jobs, 2001 to 2010	Percent Change 2001 to 2010	Shift-share	Category of Economic Function
	and Industrial Refrigeration Equipment Manufacturing							
33131	Alumina and Aluminum Production and Processing	9	23	0.13	14	157.45%	202.49%	Emerging Industries
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	136	330	1.46	194	142.65%	172.97%	Growing Economic Base Industries
311811	Retail Bakeries	229	536	1.08	307	134.25%	137.32%	Growing Economic Base Industries
424430	Dairy Product (except Dried or Canned) Merchant Wholesalers	171	397	2.10	226	132.16%	63.17%	Growing Economic Base Industries
4820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers	981	1,945	5.09	964	98.27%	27.26%	Growing Economic Base Industries
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing	27	53	1.28	26	96.30%	143.89%	Growing Economic Base Industries
424480	Fresh Fruit and Vegetable Merchant Wholesalers	251	479	0.57	228	90.84%	62.00%	Emerging Industries
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	106	200	3.58	94	88.94%	142.43%	Growing Economic Base Industries
424470	Meat and Meat Product Merchant Wholesalers	159	300	1.10	141	88.68%	80.20%	Growing Economic Base Industries
62151	Medical and Diagnostic Laboratories	1,038	1,909	1.42	871	83.91%	28.29%	Growing Economic Base Industries
311412	Frozen Specialty Food Manufacturing	290	530	1.73	240	82.76%	97.66%	Growing Economic Base Industries
541710	Research and Development in the Physical, Engineering, and Life Sciences	7,504	13,544	2.73	6,040	80.49%	48.46%	Growing Economic Base Industries
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	1,171	2,012	2.67	841	71.82%	32.80%	Growing Economic Base Industries
5417	Scientific Research and Development Services	8,530	14,116	2.71	5,586	65.49%	38.71%	Growing Economic Base Industries
621511	Medical Laboratories	936	1,521	1.52	585	62.50%	14.57%	Growing Economic Base Industries
334517	Irradiation Apparatus Manufacturing	106	169	3.20	63	59.11%	41.76%	Growing Economic Base Industries
3314	Nonferrous Metal (except Aluminum) Production and Processing	122	188	1.48	66	54.10%	80.11%	Growing Economic Base Industries

TABLE 3-5
INDUSTRIES WITH POSITIVE GROWTH TRENDS, 2001 TO 2010

Alameda County

NAICS CODE	2007 NAICS US Title	Alameda County Jobs 2001	Alameda County Jobs 2010	Location Quotient 2010	Change in Alameda County Jobs, 2001 to 2010	Percent Change 2001 to 2010	Shift-share	Category of Economic Function
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	106	162	0.09	56	53.06%	69.26%	Emerging Industries
339115	Ophthalmic Goods Manufacturing	220	334	1.81	114	51.82%	85.57%	Growing Economic Base Industries
424410	General Line Grocery Merchant Wholesalers	1,552	2,335	2.16	783	50.45%	-36.97%	Growing Economic Base Industries
339112	Surgical and Medical Instrument Manufacturing	1,749	2,494	2.44	745	42.60%	33.02%	Growing Economic Base Industries
325412	Pharmaceutical Preparation Manufacturing	1,324	1,870	1.31	546	41.24%	23.96%	Growing Economic Base Industries
541512	Computer Systems Design Services	4,381	6,155	1.95	1,774	40.49%	33.42%	Growing Economic Base Industries
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	130	177	2.82	47	36.13%	34.99%	Growing Economic Base Industries
424340	Footwear Merchant Wholesalers	184	243	1.03	59	32.07%	33.10%	Growing Economic Base Industries
423740	Refrigeration Equipment and Supplies Merchant Wholesalers	127	165	3.51	38	29.92%	52.99%	Growing Economic Base Industries
334310	Audio and Video Equipment Manufacturing	310	401	1.48	91	29.35%	76.34%	Growing Economic Base Industries
424420	Packaged Frozen Food Merchant Wholesalers	203	255	1.57	52	25.62%	23.36%	Growing Economic Base Industries
325212	Synthetic Rubber Manufacturing	12	15	0.31	3	25.43%	54.59%	Emerging Industries
325413	In-Vitro Diagnostic Substance Manufacturing	523	653	2.59	130	24.86%	-27.51%	Growing Economic Base Industries
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,902	3,507	0.89	605	20.85%	46.44%	Emerging Industries
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	462	551	1.43	89	19.26%	16.81%	Growing Economic Base Industries
31181	Bread and Bakery Product Manufacturing	2,409	2,827	2.27	418	17.35%	24.78%	Growing Economic Base Industries
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	190	221	1.53	31	16.32%	15.70%	Growing Economic Base Industries
3241	Petroleum and Coal Products Manufacturing	279	323	0.47	44	15.77%	17.13%	Emerging Industries
311812	Commercial Bakeries	1,881	2,167	3.33	286	15.20%	30.70%	Growing Economic Base Industries

TABLE 3-5
INDUSTRIES WITH POSITIVE GROWTH TRENDS, 2001 TO 2010

Alameda County

NAICS CODE	2007 NAICS US Title	Alameda County Jobs 2001	Alameda County Jobs 2010	Location Quotient 2010	Change in Alameda County Jobs, 2001 to 2010	Percent Change 2001 to 2010	Shift-share	Category of Economic Function
33911	Medical Equipment and Supplies Manufacturing	3,102	3,563	1.61	461	14.86%	18.16%	Growing Economic Base Industries
54151	Computer Systems Design and Related Services	12,967	14,815	1.69	1,848	14.25%	15.64%	Growing Economic Base Industries
31182	Cookie, Cracker, and Pasta Manufacturing	620	708	3.44	88	14.19%	26.00%	Growing Economic Base Industries
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	495	561	0.41	66	13.33%	35.55%	Emerging Industries
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	1,229	1,391	1.39	162	13.18%	18.43%	Growing Economic Base Industries
311991	Perishable Prepared Food Manufacturing	111	124	0.40	13	11.71%	-53.56%	Emerging Industries
3352	Household Appliance Manufacturing	40	45	0.63	5	11.50%	52.82%	Emerging Industries
3118	Bakeries and Tortilla Manufacturing	3,393	3,759	2.19	366	10.79%	17.48%	Growing Economic Base Industries
32541	Pharmaceutical and Medicine Manufacturing	2,590	2,659	1.40	69	2.66%	-7.56%	Growing Economic Base Industries
541511	Custom Computer Programming Services	7,613	7,812	1.58	199	2.61%	5.70%	Growing Economic Base Industries
31194	Seasoning and Dressing Manufacturing	259	262	1.86	3	1.16%	3.42%	Growing Economic Base Industries
423710	Hardware Merchant Wholesalers	450	454	1.07	4	0.89%	11.68%	Growing Economic Base Industries
424450	Confectionery Merchant Wholesalers	465	469	1.87	4	0.86%	-10.34%	Growing Economic Base Industries
4244	Grocery and Related Product Merchant Wholesalers	6,094	6,144	1.48	50	0.82%	-21.10%	Growing Economic Base Industries
3119	Other Food Manufacturing	758	763	0.77	5	0.66%	-24.11%	Emerging Industries
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	623	627	0.47	4	0.64%	-3.79%	Emerging Industries

Source: ADE, based on CEW data provided by IMPLAN, December 2011.

TABLE 3-6
ADDITIONAL POTENTIAL TARGET INDUSTRIES

Combined Alameda, Contra Costa and Santa Clara County Region

NAICS	2007 NAICS US Title	Three County Study Area Jobs 2001	Three County Study Area Jobs 2010	LQ--2010	Change in Study Area Employment, 2001 to 2010	Percentage Change in Study Area Employment, 2001 to 2010	Shift-share	Economic Role
------	*Total*	*1,793,811*	*1,554,428*	*1.00*	*-239,383*	*-13.34%*	*-8.48%*	
311312	Cane Sugar Refining	33	508	2.98	475	1439.17%	1415.10%	Growing Economic Base Industries
311411	Frozen Fruit, Juice, and Vegetable Manufacturing	50	107	0.19	57	114.50%	150.17%	Emerging Industries
311421	Fruit and Vegetable Canning	282	422	0.23	140	49.72%	68.70%	Emerging Industries
311911	Roasted Nuts and Peanut Butter Manufacturing	15	18	0.03	3	21.20%	-33.96%	Emerging Industries
324199	All Other Petroleum and Coal Products Manufacturing	59	72	2.88	13	22.00%	-61.02%	Growing Economic Base Industries
331315	Aluminum Sheet, Plate, and Foil Manufacturing	0	36	1.06	36	N/A	N/A	Growing Economic Base Industries
331319	Other Aluminum Rolling and Drawing	23	128	0.56	105	456.09%	492.54%	Emerging Industries
33149	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, Extruding, and Alloying	145	179	0.80	34	23.35%	23.41%	Emerging Industries
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	25	83	0.75	58	232.61%	231.19%	Emerging Industries
333613	Mechanical Power Transmission Equipment Manufacturing	3	41	0.51	38	1253.43%	1262.06%	Emerging Industries
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing	843	2,517	15.73	1,674	198.60%	184.72%	Growing Economic Base Industries

Source: ADE, based on CEW data provided by IMPLAN, December 2011.

Considering more recent employment estimates and projections for the preliminary target industries, the following industry trends are apparent in Alameda County (see Table 3-7).

Chocolate and Confectionary Mfg. Although this industry grew well during the past decade, it is projected to lose jobs over the next five years, perhaps having reached short-term capacity in the local marketplace.

Fruit and Vegetable Preserving. modest growth through 2017

Frozen Food Mfg. modest growth through 2017

Bakeries. have grown well recently abut are projected to decline

Perishable Prepared Foods. modest prospects

Other Misc. Mfg.. future declines projected after recent growth

Pharmaceutical preparation Mfg/In-vitro diagnostic substances. good growth prospects

HVAC Equipment. moderate growth after strong recovery

Turbines. stabilizing after good recovery

Audio Video Equipment. strong growth projected

Electromedical Apparatus. strong growth projected

Instruments. analytical Lab instruments and surgical instruments projected for strong to moderate growth but other instrument categories showing declines

Household Appliance Mfg. slow to recover despite growth in previous decade

Hardware wholesalers. strong growth projected

Apparel wholesalers. good growth projected

Grocery wholesalers. projected recovery, but not much net growth

Wine and alcohol distributors. strong growth projected

Computer programming and systems design. relatively strong local growth projected, but below state averages

Research and Development. relatively strong local growth projected, but below state averages

Medical laboratories. strong growth projected

The results for the three county region shown in Table 3-8 generally reinforce the comments above. No additional industries were identified from the larger region as potential targets for Hayward.

TABLE 3-7
RECENT AND PROJECTED EMPLOYMENT CHANGE
FOR PRELIMINARY TARGET INDUSTRIES

Alameda County

NAICS Code	Description	Employment Change 2010 to 2012		Projected Employment Change 2012 to 2017	Shift Share 2010 to 2012	Shift Share 2012 to 2017
541710	Research and Development in the Physical, Engineering, and Life Sciences	2,251		1,656	11.17%	-1.19%
541512	Computer Systems Design Services	1,417		1,474	3.99%	-2.53%
541511	Custom Computer Programming Services	309		801	-6.22%	-7.59%
424820	Wine and Distilled Alcoholic Beverage Merchant Wholesalers	203		721	-10.02%	4.14%
621511	Medical Laboratories	166		387	7.16%	3.88%
334516	Analytical Laboratory Instrument Manufacturing	159		365	18.45%	34.53%
325412	Pharmaceutical Preparation Manufacturing	176		362	7.75%	3.98%
334310	Audio and Video Equipment Manufacturing	37		317	11.57%	86.76%
4244	Grocery and Related Product Merchant Wholesalers	-233		265	-6.55%	-9.89%
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	39		264	0.01%	7.47%
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	34		242	4.02%	20.94%
325413	In-Vitro Diagnostic Substance Manufacturing	56		139	1.73%	-8.49%
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	43		131	1.75%	4.04%
339112	Surgical and Medical Instrument Manufacturing	158		58	4.08%	-4.49%
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	196		50	38.21%	12.19%
311991	Perishable Prepared Food Manufacturing	147		33	112.42%	-8.80%
311412	Frozen Specialty Food Manufacturing	44		25	-1.02%	-1.74%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	39		17	6.93%	9.59%

33361	Engine, Turbine, and Power Transmission Equipment Manufacturing	63		4	52.64%	-2.90%
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	55		-2	36.68%	9.45%
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	-6		-16	-2.79%	11.41%
311999	All Other Miscellaneous Food Manufacturing	60		-38	104.05%	-42.43%
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	48		-65	7.48%	31.27%
311320	Chocolate and Confectionery Manufacturing from Cacao Beans	-104		-111	-0.74%	6.77%
3118	Bakeries and Tortilla Manufacturing	344		-150	6.36%	-2.27%
334513	Instruments Manufacturing for Measuring, Displaying, and Controlling Industrial Processes	36		-154	14.14%	-64.60%

Source: ADE, based on EMSI projections, November 2012; and CEW data provided by IMPLAN, December 2011.

TABLE 3-8 RECENT AND PROJECTED EMPLOYMENT CHANGE FOR PRELIMINARY TARGET INDUSTRIES in Three County Region						
NAICS Code	**Description**	**Employment Change 2010 to 2012**	**Projected Employment Change 2012 to 2017**	**Shift Share 2010 to 2012**		**Shift Share 2012 to 2017**
31141	Frozen Food Manufacturing	163	174	7.34%		14.19%
325413	In-Vitro Diagnostic Substance Manufacturing	256	209	25.43%		-8.17%
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	991	271	191.94%		21.30%
334310	Audio and Video Equipment Manufacturing	33	256	8.70%		60.76%
334516	Analytical Laboratory Instrument Manufacturing	-12	686	-0.73%		13.71%
334519	Other Measuring and Controlling Device Manufacturing	187	756	14.03%		37.73%
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	48	224	-0.70%		-1.45%
423740	Refrigeration Equipment and Supplies Merchant Wholesalers	79	114	35.22%		32.43%
4244	Grocery and Related Product Merchant Wholesalers	104	884	-1.69%		-5.36%
42448	Fresh Fruit and Vegetable Merchant Wholesalers	231	274	23.97%		10.35%
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	302	822	-4.55%		3.83%
54151	Computer Systems Design and Related Services	5,770	6,665	-5.11%		-9.25%
5417	Scientific Research and Development Services	3,782	2,749	5.43%		-3.57%
62151	Medical and Diagnostic Laboratories	438	954	7.51%		1.22%

Source: ADE, based on EMSI projections, November 2012; and CEW data provided by IMPLAN, December 2011.

Industry Location Criteria

Industry production input requirements data helps to indicate what supplies and services are needed by the target industries in terms of identifying marketing points for attracting the businesses or addressing concerns that may arise about the suitability of Hayward as a location for specific industries. For example, Hayward knows that a high quality and plentiful supply of water has led to a large concentration of food processing industries locating in Hayward. Other important location criteria include adequate wastewater treatment capacity, good access to the regional transportation system, including rail services, and the availability of suitable industrial sites. These last two items apply fairly uniformly to most all manufacturing industries.

The analysis also suggests that having a cluster of food processing industries is advantageous in that manufacturing establishments need to obtain intermediate processed products for their own production processes, which they can get from other businesses in Hayward or the surrounding area. This type of criteria not only applies to other basic manufacturing industries, but also is extremely critical to R&D and technology product development. The following highlights key location criteria based on industry production requirements for other types of potential target industries in Hayward.

Pharmaceutical and Medicine Manufacturing: This industry locates in regions where a high degree of research and development capacity exists, as well as ancillary medicinal products manufacturing. Hayward is reasonably close to centers of biotechnology research in the region. Other manufactured production inputs for this industry with high availability in Alameda County include plastic products, glass bottles, industrial gasses, and corrugated and solid fiber boxes.

HVAC Equipment Mfg.. This industry uses a lot of local metal manufacturing services, including machine shops, metal stamping, bolt, nut and screw manufacturing, and other machinery components. The industry also purchases local semiconductors and related products as well as printed circuit assembly services.

Audio Video Equipment. This industry is closely connected to components manufacturing outfits and programming services in Silicon Valley, including printed circuit assembly, custom computer programming, semiconductors, other electronic components and the like.

Instruments Manufacturing. Similar to pharmaceuticals, this industry relies heavily on local R&D capacity and engineering services as well as software and computer programming services. However, it also uses local machining establishments, sheet metal shops, custom roll forming shops, plastic and rubber products manufacturing, and adhesives.

Medical Equipment. The cluster effect is very apparent in reviewing the data for this industry. The top input for this industry in Alameda County is purchases of intermediate medical equipment components from other businesses in the county, representing about $22 million in annual purchases. However, as with other instruments above, this industry also uses a lot of local basic manufacturing capacity for machining, sheet metal, plastics and resins, and other fabrication services.

The target industry recommendations listed below have been incorporated into the City's Economic Development Strategic Plan. Any additional review of site location data and conditions in Hayward relevant to the proposed industries will be incorporated into the policies developed as part of the General Plan process. Additionally, this analysis is not intended to address the market for retail or commercial services uses, which are addressed in the next section of this chapter.

The recommended industries encompass both industrial and office types of businesses. The relative wage rates typically provided by some of the industries are discussed in a section below. The City would like to promote higher-paying jobs and these are generally achieved in office businesses (computer and research enterprises), and in higher value added manufacturing (pharmaceuticals, instruments, medical equipment). In addition, office businesses would help to further diversify the City economy and would help to create a stronger economic connection to CSU East Bay. These kinds of businesses, therefore, should receive priority in the City's business attraction efforts. However, food processing and other mechanical manufacturing, as well as wholesale and distribution businesses, are solid components of the City's existing economic base and provide jobs and career ladders for workers with more basic skills, which is an important segment of the workforce as well. In this sense, all of these business types merit inclusion in the City business development efforts.

Recommended Target Industry Groups:

NAICS Code	Industry Description
3113	Sugar and Confectionery Product Manufacturing
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3118	Bakeries and Tortilla Manufacturing
3119	Other Food Manufacturing
3162	Footwear Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments
3254	Pharmaceutical and Medicine Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3313	Alumina and Aluminum Production and Processing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3343	Audio and Video Equipment Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments
3352	Household Appliance Manufacturing
3369	Other Transportation Equipment Manufacturing

3391	Medical Equipment and Supplies Manufacturing
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers
4244	Grocery and Related Product Merchant Wholesalers
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
5415	Computer Systems Design and Related Services
5417	Scientific Research and Development Services
6215	Medical and Diagnostic Laboratories

SWOT ANALYSIS

In an early step in the process to complete its economic development strategic plan, the City identified significant factors describing the city's strengths, weaknesses, opportunities, and threats (see column headings for Table 3-9). For example, among its strengths, the City has listed its strong and diverse industrial base, its utility infrastructure, good proximity to regional circulation and the Port of Oakland, among other items. Perceived weaknesses include issues with the city's image and certain gaps in its business mix. The city's opportunities include a growing service economy and a strong intellectual base fostered by improved connections with CSU East Bay, Chabot College, and the Eden Area Regional Occupational Program. The target industries identified above also represent opportunities for the city to grow its local economy and job opportunities.

A number of the factors identified in the SWOT affect the City's ability to foster and attract these kinds of businesses. In general, the city's location and regional circulation access, as well as the utility infrastructure, are important to the manufacturing industries, while the intellectual capital and community quality are of significant importance to the R&D sectors. These factors, both positive and negative, can be used to help tailor the City business attraction marketing program, and also to help understand what issues may occur for existing businesses in the city, related to business retention. Table 3-9 indicates with a blue square the factors that may be relevant to each industry group from the standpoint of viewing Hayward as a desirable location.

TABLE 3-9
CITY SWOT CHARACTERISTICS AFFECTING POTENTIAL TARGET INDUSTRIES

		STRENGTHS							WEAKNESSES								OPPORTUNITIES							THREATS						
NA ICS Code	Target Industry	Location (Port and Highway Proximity)	Diverse Business Base/Community	Intellectual Capital	Strong Industrial Base/Airport	Utility Infrastructure	Technical and Community Resources	Well Established/Value Community	Brand Awareness/Strategic Marketing Promotion	Perception/Image/Appearance	Leakage in Full-Service Restaurants	Communication to Outside World	Disconnect Between Universities/Colleges	Limited Recreational Amenities	Fee Structure/Costs to Do Business	Crime Rates/Homelessness/Blight	City/Downtown Branding/Marketing	Industry Cluster Developments	Reuse of Available Land	Stronger Connection with Universities/Colleges	Internet Sales/New Economy	Entertainment/Dining District/BID	Growing Service Economy	Overall Economic Conditions/Unemployment	Internet Sales/IT Development	Legislative/Redevelopment Effects	Growing Service Economy	Cost of Green Initiatives & Mandates	Homelessness	Academic Achievement/Public Schools
3113	Sugar and Confectionery Product Manufacturing	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3118	Bakeries and Tortilla Manufacturing	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3119	Other Food Manufacturing	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3254	Pharmaceutical and Medicine Manufacturing	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	■	■		■	■	■								■		■	■	■		■			■	■			■		■
3343	Audio and Video Equipment Manufacturing	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
3345	Navigational, Measuring, Electromedical, and Control Instruments	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
3352	Household Appliance Manufacturing	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
3369	Other Transportation Equipment Manufacturing	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
3391	Medical Equipment and Supplies Manufacturing	■	■	■	■	■	■						■		■		■	■	■		■			■	■			■		■
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	■	■		■			■							■		■	■	■		■			■	■			■		■
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	■	■		■			■							■		■	■	■		■			■	■			■		■
4244	Grocery and Related Product Merchant Wholesalers	■	■		■			■							■		■	■	■		■			■	■			■		■
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	■	■		■			■							■		■	■	■		■			■	■			■		■
5415	Computer Systems Design and Related Services		■	■	■	■	■						■				■	■	■	■	■		■	■	■					■
5417	Scientific Research and Development Services		■	■	■	■	■						■				■	■	■	■	■		■	■	■					■
6215	Medical and Diagnostic Laboratories		■	■	■	■	■						■		■		■	■	■	■	■		■	■	■			■		■

ADE, Inc. with information provided by the City of Hayward.

Job Quality

The City has adopted a living wage ordinance requiring certain categories of business vendors to meet a minimum wage level for their workers. The wage level for 2012 was $11.09 if medical benefits were provided, and $12.80 if such benefits were not available to workers. This wage level provides a benchmark to evaluate the level of pay provided by the potential target industries. Table 3-10 below provides data where available on the percentage of jobs in each target industry where the median wage is above the $11.09 level. Table 3-10 is based on the lower living wage level because information about benefits is not available at the industry level. The term "median wage" means that 50 percent of the jobs fall below the wage level and 50 percent are above, so for any given firm in these industries, a greater percentage of jobs would meet the living wage level than is indicated by the percentages in the table. Although wage levels for a number of the industries is not reported, the general trend is that the food processing industries have a lower percentage of higher-paying jobs, while the distribution and technology-oriented industries generally meet the wage standard with a few exceptions.

TABLE 3-10
TARGET INDUSTRY JOB QUALITY INDICATORS, 2012

NAICS Code	Target Industry	Percent Jobs With Median Pay Above Living Wage
3113	Sugar and Confectionery Product Manufacturing	70.8%
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	68.6%
3118	Bakeries and Tortilla Manufacturing	69.3%
3119	Other Food Manufacturing	73.2%
3162	Footwear Manufacturing	NA
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments	NA
3254	Pharmaceutical and Medicine Manufacturing	91.2%
3311	Iron and Steel Mills and Ferroalloy Manufacturing	NA
3313	Alumina and Aluminum Production and Processing	NA
3314	Nonferrous Metal (except Aluminum) Production and Processing	NA
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment	NA
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	NA
3343	Audio and Video Equipment Manufacturing	NA
3345	Navigational, Measuring, Electromedical, and Control Instruments	99.6%
3352	Household Appliance Manufacturing	NA
3369	Other Transportation Equipment Manufacturing	NA
3391	Medical Equipment and Supplies Manufacturing	94.1%
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	98.9%
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	91.6%
4244	Grocery and Related Product Merchant Wholesalers	92.2%
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	100.0%
5415	Computer Systems Design and Related Services	100.0%
5417	Scientific Research and Development Services	99.9%
6215	Medical and Diagnostic Laboratories	100.0%

Source: EMS, November 2012.I
Note: NA = Not Available.

Regulatory Setting

Not applicable to this section.

Key Terms

The following key terms used in this chapter are defined as follows:

Industry Cluster. A group of related industries, usually within a defined geographic area, that have similar labor force needs, capital requirements, production inputs and supplies as well as utilities and infrastructure. An industry cluster includes not only the private sector businesses, but also related research and development capacity usually found in universities, and public sector agencies that address workforce development and regulatory issues.

Industry shift-share. A statistical measure that compares an industry's growth rate in a local area to the growth rate for the same industry throughout the state or nation. If the shift-share is a positive factor, it means the industry grew faster locally than it did across the state or nation.

Labor Force. The portion of the population that is employed or actively seeking work.

Location Quotient (LQ). A statistical measure that compares an industry's share of total employment in a local area to its share in the state or nation as a whole. If the LQ is above 1.0, it means the industry is more prominent or concentrated in the local area than it is across the state or nation.

Median Wage. The wage level for any particular industry where 50 percent of the jobs in that industry pay more and 50 percent pay less.

SWOT. Refers to a "strengths, weaknesses, opportunities and threats analysis," which helps the City identify strategic issues that should be addressed in the City's business marketing program.

Target Industry. An industry recommended as desirable for the City to attempt to develop or attract due to favorable market prospects, location requirements, fiscal benefits or job quality, among other factors.

SECTION 3.3 RETAIL MARKET

Key Terms

This section analyzes the trends and market demand for retail commercial businesses in Hayward. Retail shopping opportunities are an important element of the quality of life for Hayward residents, both in terms of providing a good selection of goods and services for local consumption and also in terms of providing attractive gathering places downtown and in local neighborhoods. From a fiscal perspective for the City budget, retail development is also very important as the primary source of sales tax revenues available to support City services. Hayward has a fairly strong retail sector that attracts shoppers from throughout the East Bay and this sales tax revenue provides 23 percent of the City General Fund revenues that support police and fire protection along with other City services.

Major Findings

- Over the past decade since 2003, Hayward's taxable sales have seen some year-over-year fluctuations, but at the end of the decade, the taxable sales totals for 2011/12 (July 2011 to June 2012) did not change significantly from 2003/04. The major shift during this time period occurred when the taxable sales declined by 12.9 percent between 2007/08 to 2008/09, coinciding with the start of the Great Recession. More recently since the latter half of 2011, Hayward has seen a significant rebound in taxable sales, with year-over-year growth of 10.1 percent in 2011/12.
- Hayward has the third largest population among incorporated cities in Alameda County (behind Oakland and Fremont), and the city's sales tax receipts also rank third in the county, with about $27.6 million in sales tax during the period between October 2011 and September 2012.
- However, when the sales tax receipts are calculated on a per capita basis relative to the population, Hayward's $187 in sales tax per capita rank seventh among incorporated cities in Alameda County. Hayward's per capita sales tax receipts are above the Alameda County average, and generally fare better than the unincorporated areas and Tri-City communities (except for Newark).
- Taken as a whole, Hayward's retail sales exceed the local demand based on income levels. It is estimated that the consumer-driven business categories currently capture about 65 percent more taxable sales than would be expected based on Hayward's residential income levels. This indicates that Hayward likely serves as a net retail provider to the surrounding communities, as evidenced by the low per capita sales tax receipts generated in unincorporated Alameda County. However, while Hayward has a strong net capture of regional retail sales, there are also specific retail categories in which the existing store sales do not meet the existing demand. Generally, the store

categories with retail leakage are concentrated in the apparel, specialty retail, and food groups.

- The City of Hayward has a number of retail commercial corridors and other concentrations of commercial business activity that offer distinct and important shopping opportunities. Among these subareas the Hesperian and Central Mission Boulevard corridors, and Southland Mall area, generate the highest taxable sales. For general retail the Hesperian corridor and Southland Mall area make up the greatest taxable sales. In the food-related retail categories, downtown Hayward is the largest taxable sales generator, while Hesperian and the Southland Mall area also each generate more than $30 million in taxable annual sales. With transportation-related retail, the Central Mission Boulevard corridor, with its concentration of car dealerships, is by far the largest source of taxable sales in Hayward.

Existing Conditions

Hayward benefits from a broad and substantial base of retail stores and service providers. The city has a very large and diverse range of shopping districts and retail centers that serve a large population that extends well beyond the city limits. This has put the city in a position where much of its retail support comes through attracting household spending from a large market area that includes the surrounding unincorporated communities to the north and east of Hayward, as well as residents living south of the city. While most of Hayward's retail categories show a net capture of regional retail sales, some retail segments continue to show leakage as Hayward residents travel to other communities to meet their retail needs in these specific niches. While it constitutes a shortcoming by Hayward's retail base, retail leakage also represents opportunities to recapture retail sales that Hayward currently loses.

Over the past decade since 2003, Hayward has seen significant changes to its retail base, as the City government has made investments to the downtown area and attracted new retail development. Concurrently, other corridors and retail categories have seen sales declines and vulnerabilities as other communities compete with Hayward for retail spending.

This analysis looks at how Hayward has fared since 2003, and identifies areas where existing retail sales leakage can potentially be resituated into support for new stores in Hayward. In addition, the analysis looks at how the retail sales trends have differed between different areas within Hayward.

Demographic Trends

Population

The support for retail stores largely comes from population and income (with some addition demand from visitors, commuters, and other local businesses), which is the primary generator of household spending demand. For Hayward its retail base benefits from having a sizable population base nearby. The city itself has over 147,000 residents, while surrounding communities in unincorporated Alameda County (such as Castro Valley, Cherryland, and San

Lorenzo) and the Tri-City area (Union City, Newark, and Fremont) contribute additional population to the market area.

While Hayward has a substantial population to support its retail stores, this population has not grown much over the past decade. As shown in Table 3-11, Hayward's population only grew by 5.1 percent since 2000. This is the fourth lowest rate in Alameda County and below the average (6.1 percent) for Alameda County as a whole, Fremont, Union City, and the unincorporated portions of Alameda County.

TABLE 3-11
POPULATION TREND, 2000 TO 2012

Hayward and Alameda County

Alameda County Population	2000	2010	2011	2012	2000 to 2012 Growth Rate
Alameda	72,259	73,812	74,052	74,640	3.3%
Albany	16,444	18,539	18,345	18,488	12.4%
Berkeley	102,743	112,580	113,925	114,821	11.8%
Dublin	30,023	46,036	46,207	46,785	55.8%
Emeryville	6,882	10,080	10,110	10,200	48.2%
Fremont	203,413	214,089	215,391	217,700	7.0%
Hayward	**140,030**	**144,186**	**145,101**	**147,113**	**5.1%**
Livermore	73,464	80,968	81,547	82,400	12.2%
Newark	42,471	42,573	42,700	43,041	1.3%
Oakland	399,566	390,724	392,333	395,341	-1.1%
Piedmont	10,952	10,667	10,710	10,807	-1.3%
Pleasanton	63,654	70,285	70,537	71,269	12.0%
San Leandro	79,452	84,950	85,364	86,053	8.3%
Union City	66,869	69,516	69,746	70,646	5.6%
Unincorporated Alameda County	135,717	141,266	141,688	142,833	5.2%
Alameda County Total	*1,443,939*	*1,510,271*	*1,517,756*	*1,532,137*	*6.1%*

Source: ADE, Inc.; data from California Department of Finance, May 2012.

Local Income

In 2011 Hayward had an average (median) household income of about $56,332, along with an aggregate household income of nearly $3.2 billion (Table 3-12). The average income in Hayward is about on par with the statewide average ($57,287) and below the average for Alameda County ($67,558).

The distribution of income shows no significant concentrations in any single income grouping. A very similar percentage of households earn more than $100,000 annually as those earning below $25,000, so the income distribution in Hayward is very broad and diverse across many different groups.

TABLE 3-12
ANNUAL INCOME DISTRIBUTION
OF HOUSEHOLDS, 2011

Hayward

Income Range	Percent of Total Households
Less than $10,000	7.7%
$10,000 to $14,999	6.0%
$15,000 to $19,999	3.0%
$20,000 to $24,999	5.9%
$25,000 to $29,999	4.6%
$30,000 to $34,999	6.4%
$35,000 to $39,999	3.2%
$40,000 to $44,999	5.0%
$45,000 to $49,999	2.6%
$50,000 to $59,999	8.5%
$60,000 to $74,999	13.8%
$75,000 to $99,999	12.3%
$100,000 to $124,999	9.6%
$125,000 to $149,999	3.6%
$150,000 to $199,999	4.3%
$200,000 or more	3.4%
Median Household Income	$56,332
Aggregate Household Income	*$3,152,390,800*

Source: ADE, Inc.; data from American Community Survey 2011 sample.
Notes: The American Community Survey replaces the demographic data formerly collected during the decennial U.S. Census of Population. The ACS is collected on an annual basis, and the data in this table reflects the one-year sample from 2011. ACS data also includes larger three- and five-year sample data.

Hayward Taxable Sales Trends

Since 2003 Hayward's taxable sales have seen some year-over-year fluctuations, but at the end of the decade, the taxable sales totals for 2011/12 (July 2011 to June 2012) did not change significantly from 2003/04. The major shift during this time period occurred when the taxable sales declined by 12.9 percent between 2007/08 to 2008/09, coinciding with the start of the Great Recession. More recently since the latter half of 2011, Hayward has seen a significant rebound in taxable sales, with year-over-year growth of 10.1 percent in 2011/12 (Table 3-13).

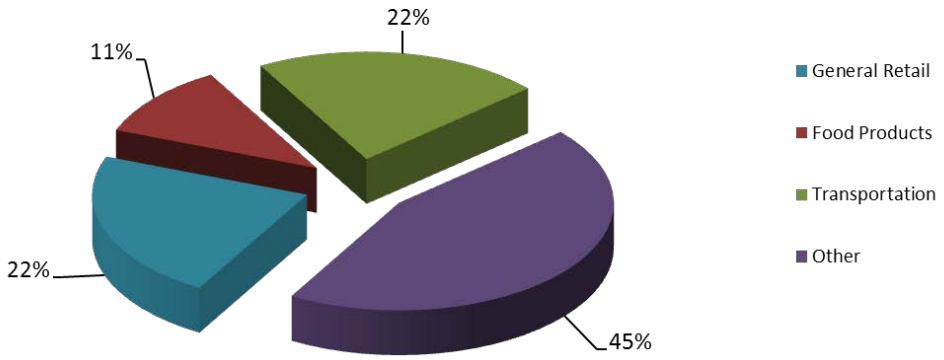
Taxable sales in Hayward include much more than just retail store sales, as Hayward's high concentration of industrial businesses generates significant sales tax receipts from business-to-business and other point-of-sale transactions that are not directed towards household consumers. The sections below address the trends for the different types of taxable sales at a more detailed level. Figure 3-3 shows the categorical distribution of the taxable sales in Hayward for 2011/12.

TABLE 3-13
TAXABLE SALES TREND, 2003/04 TO 2011/12
(JULY TO JUNE)
Hayward

Annual Taxable Sales	Hayward Total	Year-Over-Year Change
2003/04	$2,582,836,800	n/a
2004/05	$2,514,522,800	-2.6%
2005/06	$2,582,220,700	2.7%
2006/07	$2,647,510,300	2.5%
2007/08	$2,669,474,100	0.8%
2008/09	$2,324,912,000	-12.9%
2009/10	$2,242,071,400	-3.6%
2010/11	$2,296,267,200	2.4%
2011/12	$2,527,149,900	10.1%

Source: ADE, Inc.; data from MuniServices LLC, September 2012.

Figure 3-3
TOTAL TAXABLE SALES: $2.5 BILLION



General Retail Taxable Sales

The taxable sales from retail stores in Hayward totaled about $567 million in 2011/12 (Table 3-14). This represents about 22.4 percent of the total taxable sales in Hayward. The general retail taxable sales category includes broad business groupings such as apparel stores, general

merchandise stores (including department and discount stores), furniture and home furnishings stores, drug stores, recreation products, and specialty retail stores.

TABLE 3-14
TAXABLE SALES TREND FROM GENERAL RETAIL BUSINESSES, 2003/04 TO 2011/12
(JULY TO JUNE)

Hayward

Annual Taxable Sales	General Retail Taxable Sales	Year-Over-Year Change	Percent of Total Hayward Taxable Sales
2003/04	$490,177,900	n/a	19.0%
2004/05	$503,964,400	2.8%	20.0%
2005/06	$519,382,000	3.1%	20.1%
2006/07	$545,883,700	5.1%	20.6%
2007/08	$517,047,900	-5.3%	19.4%
2008/09	$492,398,200	-4.8%	21.2%
2009/10	$494,212,700	0.4%	22.0%
2010/11	$547,054,400	10.7%	23.8%
2011/12	$566,991,000	3.6%	22.4%

Source: ADE, Inc.; data from MuniServices LLC, September 2012.

Transportation Taxable Sales

The transportation category includes several distinct business categories such as gas stations, new car dealerships, used car dealerships, other vehicle sales, auto parts, and taxable sales from vehicle repair shops. This category generated about $551 million in 2011/12, with a 21.8 percent share of the total taxable sales in Hayward (Table 3-15). This category is highly concentrated in Hayward as the taxable sales for transportation businesses were roughly the same as the retail store category.

However, the general trend for the transportation category has showed a significant sales decline since 2003/04 when the taxable sales totaled nearly $725 million and constituted 28.1 percent of the total taxable sales in Hayward. Yet, the sales in this category have actually recovered since 2008/09, although sales remain far short of where they were in 2003/04. This reflects some conflicting trends within the broader transportation business category. First, Hayward has seen a broad decline in its once flourishing auto dealership locations and sales. Since 2003/04, new car dealership sales in Hayward have declined by more than 60 percent. Concurrently, rising fuel prices led to sales increases by gas stations of nearly 50 percent.

TABLE 3-15
TAXABLE SALES TREND FROM TRANSPORTATION BUSINESSES, 2003/04 TO 2011/12
(JULY TO JUNE)

Hayward

Annual Taxable Sales	General Retail Taxable Sales	Year-Over-Year Change	Percent of Total Hayward Taxable Sales
2003/04	$724,541,400	n/a	28.1%
2004/05	$647,781,200	-10.6%	25.8%
2005/06	$668,224,800	3.2%	25.9%
2006/07	$666,978,100	-0.2%	25.2%
2007/08	$655,501,700	-1.7%	24.6%
2008/09	$485,001,700	-26.0%	20.9%
2009/10	$516,772,000	6.6%	23.0%
2010/11	$555,302,500	7.5%	24.2%
2011/12	$550,507,100	-0.9%	21.8%

Source: ADE, Inc.; data from MuniServices LLC, September 2012.

Food Products Taxable Sales

Businesses in the food products category include a combination of grocery stores (both supermarkets and convenience stores), specialty food stores, full service restaurants, bars, and fast food restaurants. In 2011/12 the taxable sales in this category totaled $278 million, which represents about 11.0 percent of Hayward's total taxable sales (Table 3-16). It should be noted that grocery stores generate a significant proportion of their sales from non-taxable food items, so the actual retail sales total in this category is considerably higher.

Over the past decade since 2003/04, food product sales generally showed an upward trend. Even during the peak recession years, food product taxable sales did not show significant declines, and in fact increased its share of total taxable sales in Hayward. Most of the growth in this category occurred with restaurants, but grocery stores also showed steady growth during this period.

TABLE 3-16 TAXABLE SALES TREND FROM FOOD PRODUCTS BUSINESSES, 2003/04 TO 2011/12 (JULY TO JUNE) Hayward			
Annual Taxable Sales	**General Retail Taxable Sales**	**Year-Over-Year Change**	**Percent of Total Hayward Taxable Sales**
2003/04	$216,166,400	n/a	8.4%
2004/05	$232,708,800	7.7%	9.3%
2005/06	$235,647,700	1.3%	9.1%
2006/07	$258,800,100	9.8%	9.8%
2007/08	$260,181,700	0.5%	9.7%
2008/09	$264,528,700	1.7%	11.4%
2009/10	$262,101,300	-0.9%	11.7%
2010/11	$255,905,500	-2.4%	11.1%
2011/12	$278,397,100	8.8%	11.0%

Source: ADE, Inc.; data from MuniServices LLC, September 2012.

Non-Retail Taxable Sales

Taxable sales in the non-retail categories generally focus on business-to-business transactions and construction-oriented businesses. Specific business categories in this broad group include heavy industry, light industry, leasing, chemical products, and building materials wholesale. This category accounted for $1.1 billion in taxable sales in 2011/12 (Table 3-17). Hayward is unusual in that nearly 45 percent of its taxable sales come from non-retail transactions. Statewide, about 31.5 percent of the total taxable sales come from non-retail sources. Clearly, Hayward's municipal revenues benefit from its high concentration of industrial activity.

Since 2003/04, Hayward has seen significant declines in taxable sales from non-retail businesses. However, 2011/12 saw the category bounce back with a 20.6 percent year-over-year taxable sales increase, and a full sales recovery to 2004/05 levels.

TABLE 3-17
TAXABLE SALES TREND FROM NON-RETAIL BUSINESSES, 2003/04 TO 2011/12
(JULY TO JUNE)

Hayward

Annual Taxable Sales	General Retail Taxable Sales	Year-Over-Year Change	Percent of Total Hayward Taxable Sales
2003/04	$1,151,951,100	n/a	44.6%
2004/05	$1,130,068,400	-1.9%	44.9%
2005/06	$1,158,966,200	2.6%	44.9%
2006/07	$1,175,848,400	1.5%	44.4%
2007/08	$1,236,742,800	5.2%	46.3%
2008/09	$1,082,983,400	-12.4%	46.6%
2009/10	$968,985,400	-10.5%	43.2%
2010/11	$938,004,800	-3.2%	40.8%
2011/12	$1,131,254,700	20.6%	44.8%

Source: ADE, Inc.; data from MuniServices LLC, September 2012

Regional Sales Tax (Gross and Per Capita) Comparison

Hayward has the third largest population among incorporated cities in Alameda County (behind Oakland and Fremont). As shown in Table 3-18, the city's sales tax receipts also rank third in the county, with about $27.6 million in sales tax during the period between October 2011 and September 2012.

However, when the sales tax receipts are calculated on a per capita basis relative to the population, Hayward's $187 in sales tax per capita rank seventh among incorporated cities in Alameda County. Hayward's per capita sales tax receipts are above the Alameda County average, and generally fare better than the unincorporated areas and Tri-City communities (except for Newark).

Most of the communities north of Hayward are unincorporated, and five of the six unincorporated communities large enough to be classified as Census Defined Places in Alameda County (Ashland, Castro Valley, Cherryland, Fairview, and San Lorenzo) either border Hayward or are located nearby. This is important because the average per capita sales tax receipts for unincorporated Alameda County comes out to only $59, which serves as a strong indicator that Hayward's retail base attracts significant spending from those communities.

TABLE 3-18
TOTAL AND PER CAPITA SALES TAX RECEIPTS
(OCTOBER 2011 TO SEPTEMBER 2012)

Hayward and Alameda County

City	Sales Tax Receipts (Oct. 11 to Sept. 12)	Per Capita Sales Tax
Alameda	$6,517,397	$87.32
Albany	$2,133,114	$115.38
Berkeley	$15,265,212	$132.95
Dublin	$15,367,200	$328.46
Emeryville	$7,212,113	$707.07
Fremont	$32,016,289	$147.07
Hayward	**$27,568,387**	**$187.40**
Livermore	$22,027,468	$267.32
Newark	$8,773,966	$203.85
Oakland	$44,183,300	$111.76
Piedmont	$149,568	$13.84
Pleasanton	$18,061,272	$253.42
San Leandro	$20,769,981	$241.36
Union City	$8,207,684	$116.18
Unincorporated Alameda County	$8,453,877	$59.19
Alameda County Total	*$236,706,828*	*$154.49*

Source: ADE, Inc.; data from MuniServices LLC, September 2012, and California Department of Finance, May 2012.
Notes: Sales tax receipts only include the allocation that goes to the city of Hayward. Per capita calculations are based on the population estimate for January 2012 by the California Department of Finance.

Retail Leakage

Retail leakage occurs when existing local household demand for specific retail store types is not met by local stores in that category, and those shoppers go to stores located outside of their local market area instead. This happens when local stores do not meet the needs of shoppers, whether that results from an insufficient quantity of stores in a particular category, or existing stores otherwise not sufficiently attracting spending from local shoppers. Concurrently, net capture occurs when retail stores (within a specific category) attract shoppers from neighboring communities, and the store sales exceed the local demand.

Retail leakage represents both a shortcoming and an opportunity, because the unmet retail demand that currently goes elsewhere can potentially be recaptured within a local market area by establishing new stores (or expanding existing businesses) that do a better job at capturing household spending. In general, if the leakage in a particular retail category is high enough, then it can potentially support a discrete retail store of that type.

In order to estimate the retail leakage, this analysis relied on the sales tax capture and gap analysis tracking data that MuniServices provides to the City of Hayward. This data source is confidential and the retail leakage analysis does not report any raw numbers that might disclose sales for individual businesses.

The MuniServices report estimates the retail capture and unmet demand by comparing the actual sales tax receipts for each business category with the potential sales tax. The potential sales tax uses the Bay Area region's buying patterns as the benchmark.

Taken as a whole, Hayward's retail sales exceed the local demand. Using the data from MuniServices, the consumer-driven business categories currently capture about 65 percent more taxable sales than would be expected based on Hayward's residential income levels. This indicates that Hayward likely serves as a net retail provider to the surrounding communities, as evidenced by the low per capita sales tax receipts generated in unincorporated Alameda County.

However, while Hayward has a strong net capture of regional retail sales, there are also specific retail categories in which the existing store sales do not meet the existing demand. These store categories that have retail leakage are shown in Table 3-19. Generally, the store categories with retail leakage are concentrated in the apparel, specialty retail, and food groups.

In order to identify the potential for new store attraction or expansion, the analysis first calculated the actual sales potential that includes non-taxable items.[2] The calculation then compared the sales potential with the average sales per store for each retail leakage category. Table 3-19 shows the number of supportable establishments within each category. Many store categories do not have sufficient levels of leakage/unmet demand to support the revenue level for an average retail store. The unmet demand for these categories could potentially be met by either establishing smaller scale stores or through expanding and upgrading existing stores. The sections below discuss each retail group in more detail.

[2] The estimate for sales from non-taxable items comes from the U.S. Economic Census data for source of sales by merchandise line category. Non-taxable items in California include groceries and other non-prepared food items, and prescription medications.

TABLE 3-19 SUMMARY OF POTENTIAL NEW STORE ATTRACTION/EXPANSION SUPPORTABLE BY EXISTING RETAIL LEAKAGE (2ND QUARTER, 2012)	
Retail Group	**New Stores Supportable by Existing Leakage**
Apparel Store Group	*2.4*
Women's Apparel	0.6
Men's Apparel	0.9
Family Clothing	1.0
General Merchandise Group	***
Specialty Retail Group	21.4
Gifts & Novelties	4.5
Sporting Goods	3.3
Florists	3.2
Records & Music	2.1
Office Supplies/Computer Equipment	5.5
Jewelry	2.8
Food, Eating and Drinking Group	*6.5*
Grocery Stores	2.4
Eating Places	4.1
Building Materials and Homefurnishings Group	*8.8*
Furniture & Home Furnishings	5.3
Household Appliances & Electronics	3.3
Home Centers and Hardware Stores	0.3
Automotive Group	***

Source: ADE, Inc.; data from MuniServices LLC, September 2012, and 2007 U.S. Economic Census.
*Notes: Categories marked with asterisks ("**") have a net capture of taxable sales. The retail leakage from taxable sales was modified to include an estimate of non-taxable item sales for each retail category. The new store support divides the retail leakage by the average sales per establishment within each retail store category.*

Apparel Store Group

Because of existing concentrations of apparel stores in areas such as Southland Mall, Hayward has a strong base of apparel stores. However, compared to regional trends, Hayward has a slight unmet need in most apparel store categories. The only apparel store category in which the retail leakage is large enough to support a full establishment is family apparel.

With women's apparel and men's apparel, the retail leakage will not support an average establishment in those categories. Considering the existing concentration of apparel stores in Hayward, this demand could also potentially be met by expanding or resituating existing establishments to better respond to customer demand.

General Merchandise Group

Hayward does not have any retail leakage in general merchandise, and in fact, has a net attraction that exceeds the local demand by 148 percent. This category is one of Hayward's strongest regional concentrations, as it includes a diverse mix of traditional department store, discount store, warehouse club, and variety store establishments.

It should be noted that because general merchandise stores carry broad product lines, they can attract sales away from more specialized retail stores, especially if they are not sufficiently supplied in Hayward. For example, if apparel stores do not meet retail demand for apparel products, then shoppers can potentially find what they want at a department store or discount store. Given that the degree to which the net capture exceeds local resident demand, it is very likely that the net capture with general merchandise stores consists not only of sales captured from surrounding communities, but also from above average sales from local residents in specific product categories as well.

Specialty Retail Group

The specialty retail store category presents a mixed picture for Hayward. As a group, the specialty retail category has the largest number of potential new stores that could be supported by meeting unmet demand. However, as mentioned previously, the unmet demand occurs in many categories where larger general merchandise stores also carry the same product lines. This potentially limits the number of establishments that could actually be attracted to Hayward, given that they would have to compete with established general merchandise stores. In addition, specialty retail stores generally have lower average sales per store than other types of retail.

Food, Eating and Drinking Group

The retail leakage data shows potential for new grocery stores and restaurants in Hayward. With grocery stores Hayward has a notable situation in which the supermarket sales capture shows that about 21 percent of the local demand is not currently met. This can potentially support about four new supermarkets in Hayward. However, much of the shortfall with supermarket sales in Hayward is currently met by convenience stores or smaller grocery stores, which significantly reduces the overall unmet demand in grocery stores. Even after accounting for these factors, Hayward can still support at least two new grocery stores. Since grocery stores can be highly specialized by demography and serve shopping needs more at a neighborhood level, the location of these stores and who they would potentially serve are important considerations.

The analysis also shows a net attraction potential of four new restaurants in Hayward. Here too, Hayward has a more nuanced situation that goes beyond the simple supply and demand numbers. In general, Hayward has a very large concentration of fast food and limited service eating establishments, with the taxable sales exceeding the local demand by more than 60 percent.

Conversely, Hayward has a much lower concentration of full service restaurants. In fact, if the full service restaurant leakage was analyzed independently from the other eating places, the

unmet demand would equal the average sales for more than 40 restaurants. Hayward likely would not support 40 new full service restaurants, since much of the unmet demand is likely met by limited service restaurants. However, this illustrates the degree to which Hayward's restaurant trade is currently dominated by limited service establishments, and could present an opportunity for full service restaurants to fill an existing shortcoming.

Building Materials and Home Furnishings Group

The business attraction potential in this category is primarily with furniture/home furnishings stores, and appliance and electronics stores. With these types of stores, the existing sales leakage represents about 26 percent of unmet local demand.

With building material stores, such as home centers and hardware stores, Hayward has an abundance of existing establishments with a very high net capture of regional sales. In particular Hayward has a very strong presence with supplying the construction trade. Even though home centers and hardware stores show some potential for expansion, much of this demand could also easily be met by other similar stores, such as building materials suppliers and paint/wallpaper stores.

Automotive Group

The automotive group is one of Hayward's strongest concentrations of retail activity. Even though new car dealerships have had a severe decline in sales that began well before the recession, businesses in this category still retain a slight net capture of regional sales. For Hayward the sales decline was accompanied by new car dealership closures, which means that dealerships in the city no longer carry many car brands. Because of this, future expansion of sales in this category might need to rely on strengthening the remaining dealerships.

All of the other transportation-related business categories, such as auto supply stores, used car dealerships, and gas stations, continue to attract very high net capture of local sales.

Hayward Subarea Trends and Opportunities

The city of Hayward has a number of retail commercial corridors and other concentrations of commercial business activity that offer distinct and important shopping opportunities (see Tables 3-20 and 3-21). Among these subareas, the Hesperian and Central Mission Boulevard corridors, and Southland Mall area generate the highest taxable sales. For general retail the Hesperian corridor and Southland Mall area make up the greatest taxable sales. In the food-related retail categories, downtown Hayward is the largest taxable sales generator, while Hesperian and the Southland Mall area also each generate more than $30 million in taxable annual sales. With transportation-related retail the Central Mission Boulevard, with its high concentration of car dealerships, is by far the largest source of taxable sales in Hayward.

TABLE 3-20
SUBAREA TAXABLE SALES DISTRIBUTION BY CATEGORY, 2011/12

Hayward

Annual Taxable Sales	General Retail	Food Products	Transportation	All Other Taxable Sales	Total Taxable Sales
Tennyson Corridor	$12,018,900	$19,683,400	$37,948,200	$116,100	$69,766,600
Hesperian Corridor	$130,743,900	$30,099,300	$28,096,100	$49,653,600	$238,592,900
A Street Corridor	$991,400	$12,864,800	$18,258,100	$145,300	$32,259,600
Jackson Corridor	$5,143,400	$8,701,300	$39,362,000	$1,604,100	$54,810,800
Central Mission Blvd.	$18,780,700	$17,193,800	$153,309,500	$4,096,700	$193,380,700
South Hayward BART Area	$2,092,600	$5,364,800	$27,582,700	$12,304,200	$47,344,300
Foothill Corridor	**	$4,387,900	$25,004,600	$3,307,000	$32,699,500
I-880 Retail Area	$38,407,100	$10,029,900	$23,677,700	$14,099,500	$86,214,200
Southland Mall Area	$167,787,700	$32,172,900	**	$13,833,600	$213,794,200
Downtown Hayward	$12,795,500	$35,587,000	$21,266,800	$3,856,900	$73,506,200

Source: ADE, Inc.; data from MuniServices LLC, November 2012.

TABLE 3-21
SUBAREA TAXABLE SALES TREND, 2003/04 TO 2011/12

Hayward

Annual Taxable Sales by Hayward Subarea ($1000)	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Tennyson Corridor	$50,611	$54,071	$62,313	$66,656	$69,019	$60,504	$60,519	$65,398	$69,767
Hesperian Corridor	$158,321	$160,064	$163,369	$184,589	$183,938	$175,314	$201,951	$226,378	$238,593
A Street Corridor	$28,826	$28,885	$34,340	$35,284	$36,174	$28,296	$27,709	$28,017	$32,260
Jackson Corridor	$40,259	$43,274	$48,133	$54,814	$62,418	$50,974	$50,534	$53,476	$54,811
Central Mission Blvd.	$390,534	$355,276	$362,351	$337,039	$281,509	$184,348	$162,786	$177,445	$193,381
South Hayward BART Area	$51,517	$45,950	$46,775	$43,344	$39,573	$38,437	$33,943	$41,121	$47,344
Foothill Corridor	$32,282	$37,974	$38,614	$39,021	$49,330	$39,207	$31,971	$30,219	$32,700
I-880 Retail Area	$63,049	$69,201	$80,221	$93,028	$93,378	$90,585	$72,889	$76,650	$86,214
Southland Mall Area	$274,098	$277,395	$277,677	$270,295	$256,659	$225,945	$215,362	$213,452	$213,794
Downtown Hayward	$74,005	$73,652	$70,737	$63,584	$68,287	$62,088	$63,011	$68,474	$73,506

Source: ADE, Inc.; data from MuniServices LLC, November 2012.

Regulatory Setting

Not applicable to this section.

Key Terms

The following key terms used in this chapter are defined as follows:

Retail Market Demand. Market demand refers to the average amount that a consumer unit (household, commuter, out-of-town visitor, or student) within a given area will typically spend on retail purchases at retail stores. The retail market demand is distributed among different store groups, such as general merchandise, apparel, food, and automotive.

Net Market Capture (Also Excess Capture). Net capture refers to situations where the retail sales in a given store category exceed the retail market demand. This will generally occur when retail stores or commercial centers can attract customers from beyond the local area, and/or attract significant spending from other non-local constituents such as businesses, tourists, and online sales.

Retail Leakage. Retail leakage refers to situations where the retail sales in a given store category are less than the local retail market demand. Leakage will generally occur when retail stores or commercial centers are insufficient in number and/or quality to match the local spending habits, or if local offerings for certain products do not adequately match local demand. While retail leakage represents a shortcoming in the local retail base, it can also represent an opportunity to recapture retail spending that currently leaves a community.

Taxable Sales. Taxable sales refer to revenues collected by businesses on goods that are subject to State sales tax. Under California law most goods sold by retail stores are taxable. Exceptions would include groceries, non-prepared meals, and prescription drugs.

SECTION 3.4 FISCAL CONDITIONS

Introduction

This section discusses City revenues and costs to provide public services and construct and maintain public facilities and infrastructure. The ability of the City to provide municipal services and facilities that meet the needs of its residents is dependent on the tax revenues, fees, service charges, and other sources of funding the City has available. As a result of the Great Recession, virtually all of the City's revenue sources were impacted, resulting in significant budget reductions, including staffing levels for many service departments and reductions in capital and long-term maintenance expenditures. The current City budget makes progress in closing the gap between City revenues and City costs and the City's goal is to eliminate the gap by Fiscal Year (FY) 2015.

This information is important for the General Plan Update because land use affects both the tax base of the City and the demand for public services. The City has policies and programs in place to help ensure that new development pays at least a portion of the costs of services and facilities it will need, but is not clear that all such costs are covered. In addition, it is important to plan for normal maintenance and operations costs that both new and existing facilities will require in the future. The information in this section is closely related to the previous sections in that the city's economic base and retail businesses contribute vital public tax revenues to the City budget that help maintain a desirable level of services for the residential neighborhoods.

Major Findings

The analysis of City revenues and service costs was conducted for Fiscal Year 2013 and all figures relate to that time frame unless otherwise indicated.

- Property taxes in FY 2013 comprise about 30 percent of the City General Fund budget, and sales taxes add another 23 percent. The City has seen more than a 12 percent decline in both these revenues since the peak in 2008 and 2009, along with a 62 percent decline in real property transfer taxes since 2006.
- In terms of General Fund expenditures in FY 20013, 48 percent is budgeted for the Police Department and 25 percent for the Fire Department. General Government and Non-departmental expenditures account for another 16 percent of General Fund costs. The General Fund supports 621.55 full time equivalent (FTE) staff positions in City government. This is 150 FTE fewer than in 2004.
- A little less than half of the City's total operating budget is made up of enterprise funds, internal service funds and other special revenue funds. Enterprise Funds include water, sewer, recycling, stormwater and the airport. These funds are affected by increasing costs of wholesale water, wastewater and stormwater treatment, and costs to transition from solid waste disposal to recycling.
- Hayward budgets for capital improvement project (CIP) expenditures on a ten-year basis. The CIP budget is separate from the City's operating budget, but it is updated on a biennial basis along with the operating budget. Capital projects are funded through a variety of mostly restricted-use sources such as the gas tax, Measure B and the enterprise funds. The General Fund also contributes toward general capital needs. The City has budgeted for $106.3 million in capital expenditures in FY 2013, with $46 million budgeted for FY 2014. Road and street projects, along with improvements to the water and sewer systems, are the major categories of CIP expenditures. In outlying years during the ten-year CIP cycle, annual expenditures are generally less than $30 million per year.

Existing Conditions

Hayward provides a wide range of municipal services and utilities to its residents, including not only police and fire protection, but also water and wastewater services. In addition, the City helps fund development services, including planning and building inspection (supplemented by applicant fees); libraries and housing services; public works engineering and maintenance

services; and a variety of administrative functions including human resources, finance, information technology, legal services, and overall city management. Parks and recreation services are provided by an independent agency called the Hayward Area Recreation and Park District (HARD), which also coordinates with the Hayward Unified School District (HUSD) for the use of school facilities for recreation.

The City General Fund pays for most City services that are supported by general tax revenues and totals $123.5 million in expenditures for the FY 2013, about 51 percent of the City's total operating budget (Table 3-22). Current revenues total $117.9 million and the $5.6 million difference is made up from existing reserves. The City has had to make significant budget adjustments over the past several years to balance its budget. According to the City Manager's budget message, "The City has carried a structural General Fund gap for the last decade, frequently balancing the budget with one-time remedies." The projected General Fund deficit at the beginning of FY 2013 was $15 million, but through a series of both long-term and short-term measures the City Council was able to reduce the deficit to its current level. These measures included compensation and benefits concessions from City employees, operating expenditure cuts, some new revenue and a limited use of the General Fund reserve. The City's goal is to erase the remaining cost/revenue gap by FY 2015 and achieve a budget that is entirely structurally balanced.

TABLE 3-22
GENERAL FUND BUDGET, FY 2013

City of Hayward

REVENUES	BUDGET
Property Tax	$35,768,000
Secured and Unsecured	$23,020,000
In-Lieu (Ent. Funds)	$1,629,000
RDA Pass-through	$298,000
VLF Swap	$10,071,000
Airport	$750,000
Sales Tax	$26,590,000
Sales and Use	$19,827,000
Public Safety	$570,000
Triple Flip	$6,193,000
Utility Users Tax	$15,096,000
Franchise Fee Tax	$9,686,000
Waste mgmt.	$3,806,000
Water	$2,490,000
Sewer	$1,365,000
PG&E	$946,000
Cable TV	$1,079,000
Real Property Transfer tax	$3,525,000
Business License Tax	$2,448,000
Emergency Facilities Tax	$1,754,000

TABLE 3-22 GENERAL FUND BUDGET, FY 2013 City of Hayward	
Transient Occupancy Tax	$1,418,000
Licenses and Permits	$1,944,000
Fees and Service Charges	$2,681,000
Construction Related Fees	$3,565,000
Inter-Governmental	$2,713,000
Fines and Forfeitures	$2,570,000
Other Revenues	$3,850,000
Interest and Rents	$453,000
Transfers	$3,867,000
Use of Reserves	$5,596,000
TOTAL REVENUES AND FUNDING SOURCES	*$123,525,000*
EXPENDITURES	**BUDGET**
General Government	$10,951,307
Development Services	$4,391,140
Fire	$30,484,478
Library and Community Services	$4,606,357
Maintenance Services	$3,867,644
Police	$59,091,147
Public Works - Eng. & Trans.	$1,481,562
Public Works - Utilities & Env. Svcs.	$51,207
Non-Departmental &Transfers	$8,599,784
TOTAL EXPENDITURES	*$123,524,626*

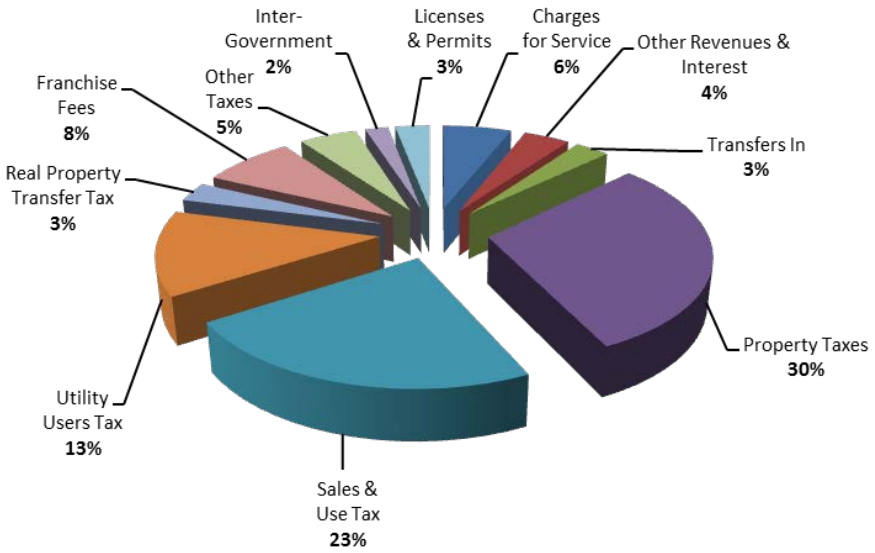
City of Hayward, Adopted Biennial Operating Budget, Fiscal years 2013 & 2014.

Most cities in California have faced similar budgetary challenges as the Great Recession weakened tax revenues and the State has moved to shift local revenues to balance the State budget. State shifts of property tax, along with the elimination of redevelopment, has had significant negative impacts on local government finances.

Property taxes comprise about 30 percent of the General Fund budget, and sales taxes add another 23 percent (Figure 3-4). The City is estimating more than a 12 percent decline for FYs 2013 and 2014 in both these revenues since the peak in 2008 and 2009, along with a 62 percent decline in real property transfer taxes since 2006.

FIGURE 3-4

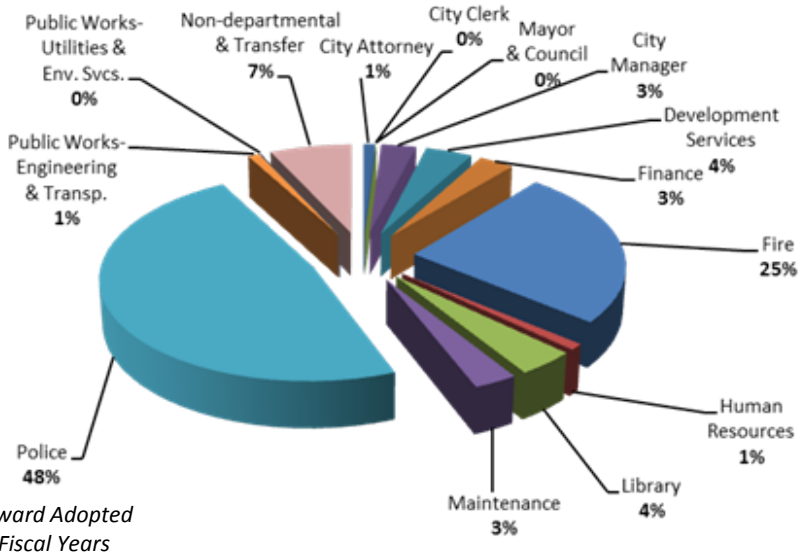
FY 2013 GENERAL FUND REVENUES BY SOURCE, $117.928 MILLION



Source: Source: City of Hayward Adopted Biennial Operating Budget Fiscal Years 2013 & 2014

In terms of FY 2013 General Fund expenditures, 48 percent is budgeted for the Police Department and 25 percent for the Fire Department (Figure 3-5). General Government and Non-departmental expenditures account for another 16 percent of General Fund costs. The General Fund supports 621.55 full-time equivalent (FTE) staff positions in City government. This is 150 FTE fewer than in 2004.

FIGURE 3-5
FY 2013



Source: Source: City of Hayward Adopted Biennial Operating Budget Fiscal Years 2013 & 2014

A little less than half of the City's total operating budget is made up of enterprise funds, internal service funds, and special revenue funds (Table 3-23). Enterprise funds are meant to be operated primarily from charges to service recipients and do not rely on general tax revenues. Internal service funds, on the other hand, charge other City departments for their services and are, therefore, supported by a combination of taxes and fees. The special revenue funds are used to account for the proceeds of specific revenue sources (other than for capital improvement projects) that are legally restricted. Examples of restricted funds include grant funding, such as the Community Development Block Grant program, enabling legislation or earmarking funds for specific purposes.

As with the General Fund, a number of these funds have experienced deficits recently.

The major issue impacting the **Water Fund** is the escalating cost of wholesale water. As indicated in the City budget, "Over the next five years, wholesale water rates are expected to increase by nearly 60 percent, due in large part to the costs of improving the reliability of the regional water system." Water Fund revenues have also been affected by declining water consumption over the past three years, probably due to both economic and climatic conditions, higher cost of water, and the use of more water efficient fixtures and behavioral-based water conservation. However, the City has anticipated these changes and has made prudent use of its reserve to moderate the impact on Hayward rate payers. The deficit is projected to be eliminated by FY 2015.

The **Wastewater Fund** is affected by the cost of capital improvements to meet Federal and State wastewater discharge requirements. The City received a $54 million low interest loan from the State Water Quality Control Board to help fund majority of these improvements. The City

Council has approved incremental sewer rate increases to help offset these additional costs and the fund deficit is projected to be eliminated by FY 2015.

The **Recycling Fund** is supported largely by local Measure D funds, which are a direct function of solid waste deposited in landfills. With increased recycling and organics composting which diverts solid waste from the landfill, these funds have been declining, but are projected to stabilize after FY 2016. In order to avoid long-term deficits in this fund, the City Council may consider a new integrated waste management fee when a new solid waste and recycling franchise agreement is developed in FY 2017.

The **Stormwater Fund** is supported by both Stormwater fees assessed directly to households and street cleaning fees charged through garbage billings. The Stormwater fees require two-thirds voter approval to be increased and have not changed for over a decade. The garbage fees could potentially be increased along with the recycling fund fees in or before FY2017. Although the Stormwater Fund has had a modest revenue surplus through FY 2013, it is projected to start running a deficit in FY 2014.

A decline in aviation operations due to the economy has affected revenues for the **Airport Fund**. The fund reserve can weather such deficits until economic conditions improve. In addition, Hayward anticipates new development at the airport that will translate to additional enterprise fund revenues. The airport continues to provide a host of community benefits including law enforcement, media and emergency medical flights, and its annual economic impact is estimated at $300 million.

TABLE 3-23
ENTERPRISE AND INTERNAL SERVICE FUNDS

	Enterprise Funds					Internal Service Funds			
	Water Maintenance and Operations	**Wastewater Maintenance and Operations**	**Recycling**	**Stormwater Maintenance and Operations**	**Airport**	**Fleet Maintenance and Operations**	**Facilities Maintenance and Operations**	**Information Technology**	
Beginning FY 2013 Fund Balance	$12,867,904	$10,094,890	$1,374,782	$2,635,301	$2,876,679	$692,627	$283,769	$570,338	
Program Revenues	$38,344,275	$22,446,100	$568,500	$2,705,000	$3,126,562	$4,627,889	$3,513,544	$4,296,968	
Expenditures	$41,923,720	$23,367,518	$763,230	$2,689,595	$3,767,126	$4,563,910	$3,525,813	$4,331,528	
Annual Surplus/Deficit	($3,579,445)	($921,418)	($194,730)	$15,405	($640,564)	$63,979	($12,269)	($34,560)	
Ending 2013 Fund Balance	$9,288,459	$9,173,472	$1,180,052	$2,650,706	$2,236,115	$756,606	$271,500	$535,778	

City of Hayward, Adopted Biennial Operating Budget, Fiscal years 2013 & 2014.

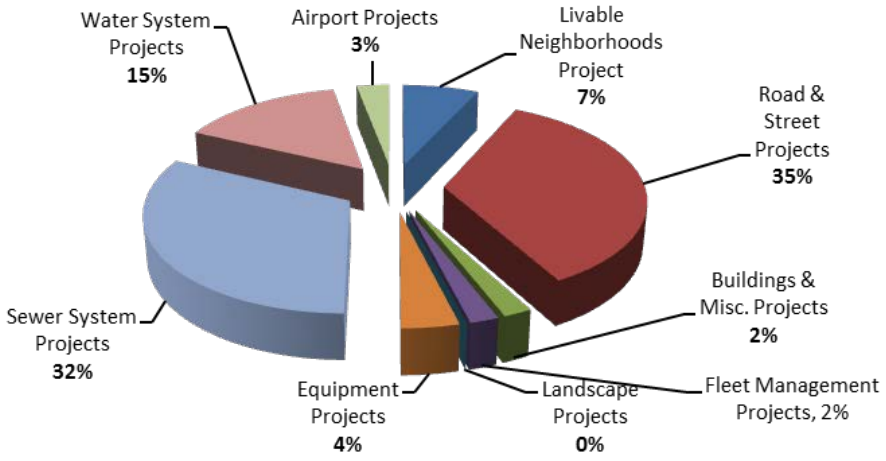
The **Internal Service Funds** are driven by transfers from the General Fund and the Enterprise Funds. Therefore, their annual cost/revenue balance is a function of available revenues from the City's other tax and fee sources.

Capital Improvement Fund

Hayward budgets for capital improvement project (CIP) expenditures on a ten-year basis. The CIP budget is separate from the City's operating budget, but it is updated on a biennial basis along with the operating budget. Capital projects are funded through a variety of mostly restricted-use sources such as the gas tax, Measure B, and the Enterprise Funds. The General Fund also contributes toward general capital needs.

As shown in Figure 3-6 and Table 3-24 below, the City has budgeted for $106.3 million in capital expenditures in FY 2013, with $46.1 million budgeted for FY 2014. Road and street projects, along with improvements to the water and sewer systems, are the major categories of CIP expenditures. In outlying years during the ten-year CIP cycle, annual expenditures are generally less than $30 million per year. The CIP also identifies $326 million in projects for which no funding has yet been identified.

FIGURE 3-6
CITYWIDE CAPITAL IMPROVEMENT PROJECTS BY CATEGORY FY 2013



Source: City of Hayward Adopted Biennial Operating Budget Fiscal Years 2013 & 2014

TABLE 3-24 CITYWIDE CAPITAL IMPROVEMENT PROJECTS BY CATEGORY FY 2013 ALL FUNDING SOURCES		
Project Category	**FY 2013 Adopted**	**FY 2014 Adopted**
Livable Neighborhoods Project	$7,835,000	$2,917,000
Road and Street Projects	$ 36,905,000	$18,567,000
Buildings & Misc. Projects	$2,440,000	$1,362,000
Fleet Management Projects	$1,980,000	$1,867,000
Landscape Projects	$175,000	$329,000
Equipment Projects	$4,003,000	$2,090,000
Sewer System Projects	$33,933,000	$7,466,000
Water System Projects	$15,600,000	$10,755,000
Airport Projects	$ 3,404,000	$750,000
Total Capital Improvement Projects	*$106,275,000*	*$46,103,000*

City of Hayward, Adopted Biennial Operating Budget, Fiscal years 2013 & 2014.

Regulatory Setting

Proposition 13. Enacted as part of the State constitution, Proposition 13 limits the base property tax to 1 percent of assessed value and requires a two-thirds vote to raise any tax rates. It also limits assessed value increases to no more than 2 percent per year.

Proposition 4 (Gann). Limits increases in tax-supported municipal general operating expenses to the combined rate of population growth and inflation.

Proposition 218. Regulates the way in which property-based assessments must be approved by affected property owners. Requires preparation of an engineer's report to define the "special benefit" that the assessment would convey to affected property owners. Requires majority approval by the property owners. Benefits which are deemed to be "general" rather than special to the affected properties must be paid for by taxes rather than assessments, which require two-thirds voter approval rather than a majority vote.

AB 1600 (Mitigation Fee Act). Defines the process and findings necessary to establish development impact fees. Impact fees may only pay for capital improvements required to serve new development, not deficiencies in existing facilities. The amount of the fee must meet the "nexus" test in terms of being a reasonable cost to address specifically the impact of the land uses affected by the fee.

Key Terms

The following key terms used in this chapter are defined as follows:

Assessed Valuation. A value established for real property for use as a basis for levying property taxes. Assessed values are determined by the County Assessor and are set at full market value when property is sold or newly constructed. Thereafter, assessed values may only increase by up to 2 percent per year until sold or improved again. During periods of real estate price decline, the Assessor may reduce assessed values on existing properties.

Capital Improvement Plan (CIP). A multi-year plan for maintaining or replacing existing public facilities or assets, and for building or acquiring new ones that have an initial useful life beyond one year.

Debt Financing. Borrowing funds for capital improvements needed today and pledging future revenues to repay principal and interest expenditures.

Debt Service. Payments of principal and interest on bonds and other debt instruments in accordance with a predetermined schedule.

Enterprise Funds. This type of fund is used to account for operations that are financed and operated in a manner similar to private sector enterprises and it is the City's intent that the costs (including depreciation) of providing goods or services to the general public be financed or recovered primarily through user charges. The City has established five enterprise funds: water, sewer, stormwater, recycling, and the airport .

Fiscal Year. The beginning and ending period of recording financial transactions. The City has specified July 1 to June 30 as its fiscal year.

General Fund. As the primary operating fund of the City, all revenues that are not allocated by law or contractual agreement to a specific fund are accounted for in the General Fund. Except for subvention or grant resources restricted for specific uses, General Fund resources can be used for any legitimate governmental purpose.

Operating Budget. The portion of the budget that pertains to daily operations and delivery of basic governmental services.

Reserve. An account used to indicate that a portion of fund's balance is legally restricted for a specific purpose and is, therefore, not available for general appropriation.

Special Revenue Funds. Special Revenue funds are used to account for the proceeds of specific revenue sources that are legally restricted. Examples of the City's special revenue funds include: Community Development Block Grant funding, Measure B – Paratransit funding, Landscape & Lighting Districts, etc.

SECTION 5.1 INTRODUCTION, PURPOSE, AND CONTENTS

This chapter presents an overview of public and community services provided by the City of Hayward and other agencies within the planning area. Issues addressed include police protection and community safety, fire protection and fire hazards, emergency response, parks and recreation, civic and community facilities, schools and education, and libraries.

This chapter is divided into the following sections:

- Introduction, Purpose, and Contents (Section 5.1)
- Police Protection (Section 5.2)
- Community Safety and Crime Prevention (Section 5.3)
- Fire Protection (Section 5.4)
- Fire Hazards and Emergency Response (Section 5.5)
- Parks and Recreation (Section 5.6)
- Civic and Community Facilities and Programs (Section 5.7)
- Schools, Libraries, and Education (Section 5.8)

SECTION 5.2 POLICE PROTECTION

Introduction

This section describes the general characteristics of existing (2012) law enforcement facilities and services provided within the city of Hayward by the Hayward Police Department and its divisions. It identifies the police protection service providers for Hayward and describes staffing levels, equipment, and jail facilities.

Major Findings

- The City of Hayward Police Department (HPD) provides police protection services in Hayward through four divisions: Office of the Chief, Field Operations, Investigations, and Support Services.
- HPD employs over 190 sworn officers in a staff of 300.
- HPD currently maintains a ratio of 1.32 sworn officers per 1,000 residents, which is less than its goal of 1.5 sworn officers per 1,000 residents.
- In 2012 HPD eliminated ten sworn officer positions and six non-sworn employee positions. However, the number of police department employees (303) will not change during the 2013-2014 fiscal year.

Existing Conditions

City of Hayward Police Department

As shown in Figure 5-1, the City of Hayward Police Department (HPD) provides police protection services throughout the Hayward city limits. HPD headquarters is located at 300 West Winton Avenue and operates two district offices. The Northern District Office is located at 1190 B Street and the Southern District Office is located at 28200 Ruus Road. HPD also operates the Hayward Police Detention Facility, a Type I Jail which houses up to 30 prisoners.

HPD's mission is to be responsive to the community in the delivery of quality services and to recognize the department's responsibility to maintain order, while affording dignity and respect to every individual. HPD's objective is to improve quality of life through a community partnership which promotes safe, secure neighborhoods. HPD is divided into four divisions: Office of the Chief, Field Operations, Investigations, and Support Services.

Office of the Chief Division

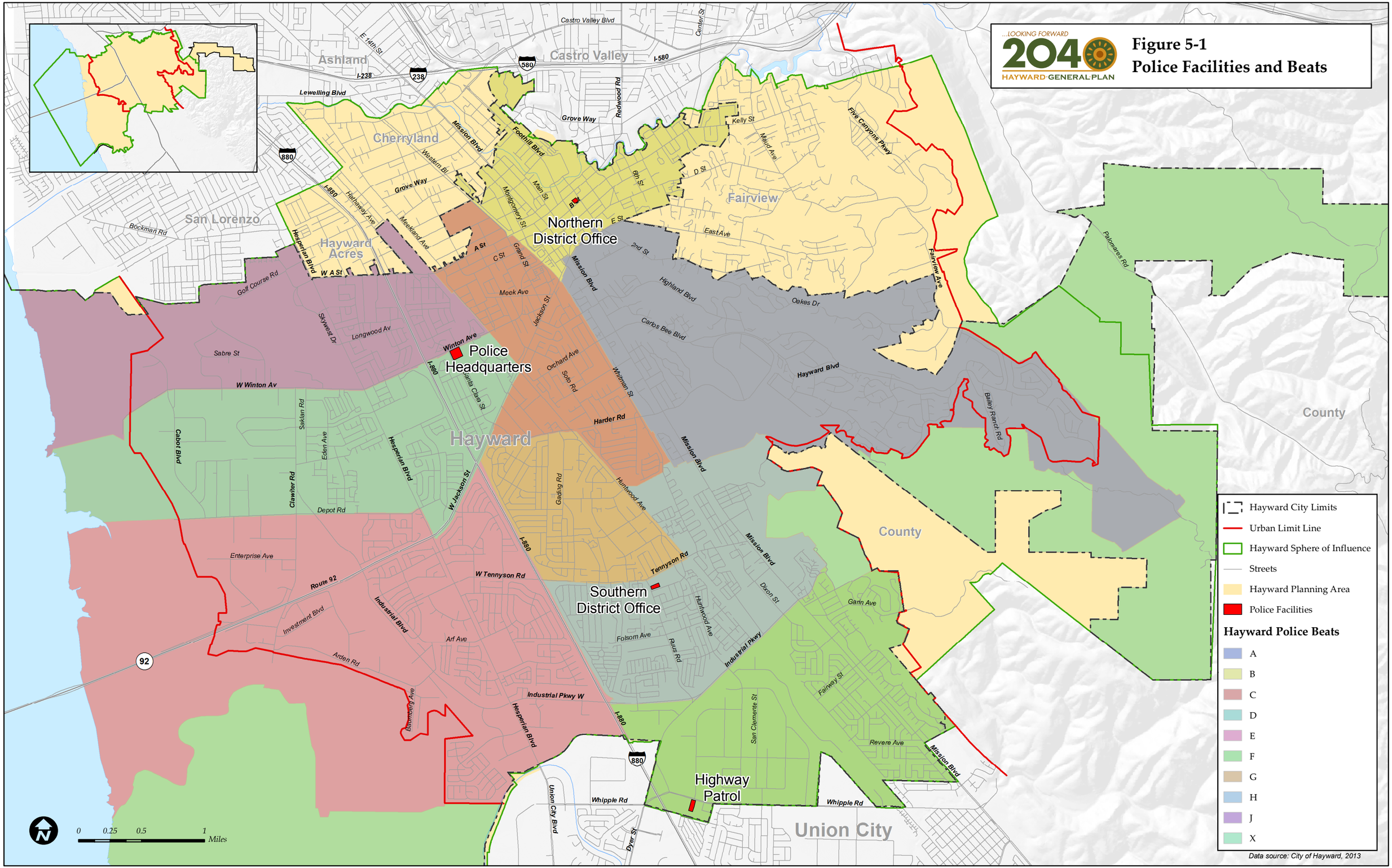
The Office of the Chief Division oversees the overall administration and management of the Department. It includes the Internal Affairs Unit, Crime Analysis Unit, Office of Accreditation & Planning & Research, and Office of Personnel and Training. The Internal Affairs Unit ensures the impartial, thorough, and timely investigation of citizen complaints, incidents of alleged misconduct, and incidents with significant use of force. Internal Affairs is also the custodian of records for court-ordered examinations of police personnel records. The Crime Analysis Unit develops strategies for crime prevention and suppression, and provides case matching, lead generation, graphics manipulation, photo enhancement, and other specialized services.

The Office of Accreditation and Planning and Research is responsible for maintaining Commission on Accreditation for Law Enforcement Agencies (CALEA) accreditation. Accreditation through CALEA ensures that the Police Department is operating with the most updated policies and practices used in law enforcement. The CALEA standards are considered benchmarks for today's modern public safety agencies, and reflect the best thinking and experience of contemporary public safety practitioners and researchers. This unit is also responsible for researching future law enforcement trends and technologies, and making recommendations to command staff in order to ensure the organization is adequately prepared and equipped to meet the department's current and future mission.

The Personnel and Training Bureau manages Departmental recruitments, screening, hiring, employee training, and Workers Compensation issues. The Personnel and Training Bureau also runs the Volunteer Program, which includes qualified members of the community of all ages in support of the Department's mission.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-1
Police Facilities and Beaches



Data source: City of Hayward, 2013

January, 2013

Field Operations Division

The Field Operations Division provides patrol, traffic enforcement, and crime prevention services to the city of Hayward. The Field Operations Division manages the Patrol and Traffic Bureaus. The Patrol Bureau is the Police Department's primary contact with the Hayward community. The Patrol Bureau responds to emergency and non-emergency calls for service from the community around the clock, with a focus on intervention and prevention of youth-related crime and violence, drug activity, and domestic violence.

In order to decentralize and deliver quality service to the community, HPD divided the city into north and south districts, and established a District Command substation in each district. Each substation is managed by a lieutenant and serves as the primary liaison with the community and City government to enhance the quality of life to the residents of Hayward. District Command uses a problem-solving model to solve issues at their core through a variety of innovative programs. In addition, District Command is responsible for coordinating the Neighborhood Alert Program and the Volunteers in Police Services Program (VIPS). VIPS are residents who volunteer to provide, support, and assist the various HPD internal departments.

The Traffic Bureau provides Hayward with traffic safety services. The Traffic Bureau uses traffic-related data and focused enforcement to reduce the number of traffic-related accidents and injuries in the city, and to investigate fatal and major injury accidents. The Reserve Bureau includes a group of volunteers who are trained as police officers and provide support in a broad range of law enforcement roles. The Reserve Bureau is heavily involved in supporting community-oriented events (e.g., the Farmers' Market, Southland Mall).

Investigations Division

The Investigations Division investigates criminal complaints and provides youth crime prevention services. The Investigations Division manages the Criminal Investigation Bureau, Special Investigations Bureau, and the Youth and Family Services Bureau. The Criminal Investigations Bureau is staffed to conduct in-depth investigations of crimes of violence and property crimes. The Special Investigations Bureau investigates crimes that disrupt public order, such as gang violence, drug sales, and vice-related crime. In addition, the Special Investigation Bureau collects, analyzes, and disseminates information related to criminally involved individuals, organized crime groups, emerging criminal groups, and terrorist groups.

The Youth and Family Services Bureau provides youth-related intervention and prevention services, school campus safety services, and family counseling.

Support Services Division

The Support Services Division provides assistance in criminal investigations, arrestee processing and detention, and records processing services to support other HPD functions. The Support Services Division manages the Emergency Communications Center, the Jail Operations Bureau, the Records and Clerical Support Bureau, the Property Unit Bureau, the Crime Scene

Investigation Bureau, and Animal Services Bureau. The Emergency Communications Center provides continuous 911 and non-emergency call answering services, and prioritizes and dispatches appropriate police and fire responders. The Jail Operations Bureau provides temporary detention of all persons arrested in the course of police actions. The Records and Clerical Support Bureau assists the public at the front counter; processes, distributes, and maintains public record information; and processes criminal warrants, subpoenas, and civil orders to meet State and local mandates. Additionally, the Records and Clerical Support Bureau assembles, compiles, and submits crime statistics to the FBI in support of the Uniform Crime Reporting system.

The Property Unit Bureau serves as the custodian of physical evidence required in the prosecution of crime. As such, it ensures strict accountability and integrity in the chain of custody to ensure that evidence retains maximum value in the courtroom. The Crime Scene Investigation Bureau conducts crime scene investigations, collects and analyzes physical evidence, and collects fingerprint evidence to identify possible suspects. The Animal Services Bureau enforces City, State, and Federal laws involving animals, animal licensing, and rabies prevention. The shelter facilitates adoptions and provides assistance in resolving animal-related issues. The Animal Services Bureau includes an active volunteer program.

Staffing

HPD employs over 190 sworn officers in a staff of 300. Sworn staff include a Police Chief, 2 Captains, 11 Lieutenants, 25 Sergeants, 7 Inspectors, and 145 Police Officers. Non-sworn staff include 22 Program Managers and Supervisors and 87.5 other personnel. HPD also operates the Volunteers in Police Services (VIPS) program for residents who volunteer for the Police Department.

In 2012 HPD eliminated 10 sworn officer positions. Of those 10 positions, 4 were from uniformed patrol, 3 were from traffic enforcement, and 3 were from criminal investigations. HPD also eliminated 6 non-sworn positions including 1 Jail Manager, 1 Youth and Family Services Bureau Counseling Supervisor, 1 Crime Prevention Supervisor, 2 Police Records Clerks, 1 Animal Care Attendant, and 1 Property Room Technician. The loss of the Jail Manager necessitated a significant reorganization. The current Manager of the Property/Evidence Room and Crime Scene Unit took on the added responsibility of managing the Jail, and all 3 units were re-assigned to the Support Services Division. While the number of police department employees (303) will not change during the 2013-2014 fiscal year, 3.0 positions will be reclassified, 2.5 positions will be filled, and 0.5 positions will be eliminated.

HPD currently (2012) maintains a ratio of 1.32 sworn officers per 1,000 residents, with a goal of providing 1.5 officers per 1,000 residents. With a population of 147,113, HPD would need 31 additional sworn officers (221 total) to meet its goal. Current staffing provides for 7 Patrol Teams headed by 5 Lieutenants, each with 2 Sergeants and between 12 and 14 Police Officers and/or K9 Officers. Patrol officers currently work a 3-day, 12-hour schedule. HPD maintains mutual aid agreements with police departments in neighboring cities (e.g., Oakland Police

Department), the County Sheriff's Department, and California Highway Patrol. HPD is also a part of the State Mutual Aid System in Region II, which includes Alameda, Del Norte, Humboldt, Mendocino, Lake, Sonoma, Napa, Solano, Marin, Contra Costa, San Mateo, Santa Clara, Santa Cruz, San Benito, and Monterey Counties. Sheriff Greg Ahern from Alameda County is the Regional Coordinator for Region II.

HPD has a long-standing history of partnership and collaboration with the Hayward Unified School District (HUSD). Hayward Police Officers that are assigned as school resource officers (SROs) act as a liaison between HUSD and HPD. SROs serve at middle and high schools providing prevention, education, apprehension, and investigation services, and receive special training on handling child abuse investigations and conducting follow-up investigations on missing person cases. In collaboration with the Alameda County Health Care Services Agency, Youth and Family Services Bureau counselors offer case management; crisis intervention; and youth, family, and group counseling through the Our Kids Our Families school-based prevention program. The Bureau also provides support at school sites for parents and teachers.

HPD has also formed a partnership with the Chabot-Las Positas Community College District to better address campus safety and security. There is a contract between the two agencies, which provides funding for a Hayward police sergeant who acts as the full-time Safety and Security Director for the Chabot Campus.

Alameda County Sheriff's Department

Some portions of the Hayward Planning Area include unincorporated areas that are under the Alameda County Sheriff Department's jurisdiction. The Sheriff's Department includes seven Divisions: Sheriff's Administration, Agency Watch Commander, Countywide Services, Detention and Corrections, Law Enforcement Services, Management Services, and Urban Area Security. The closest patrol office is located at the Eden Township substation at 15001 Foothill Boulevard in San Leandro. The Sheriff's Department also operates the South County Office at 24405 Amador Street. The South County Marshal's Office is one of three units providing security to the Alameda County Superior Courts. The Sheriff's Department employs 1,500 staff, including about 1,000 sworn officers.

California Highway Patrol

The California Highway Patrol (CHP) provides traffic safety and enforcement services on unincorporated roadways and State highways. CHP is also responsible for:

- Assisting in emergencies exceeding local capabilities;
- Providing disaster and lifesaving assistance;
- Truck and bus inspections;
- Air operations (both airplanes and helicopters);
- Vehicle theft investigation and prevention;

- Protecting State property and employees, the Governor, and other dignitaries; and
- Public education on driver safety issues.

Hayward is located in the Golden Gate Division. CHP operates one of eight area offices at 2434 Whipple Road in Hayward. The Golden Gate Division also includes three commercial inspection facilities, one Communications Center, and an Air Operations unit. The Golden Gate Division employs 1,250 peace officers and 200 civilians.

Regulatory Setting

California Commission on Peace Officer Standards and Training. The California Commission on Peace Officer Standards and Training (POST) advocates for, exchanges information with, sets selection and training standards for, and works with law enforcement and other public and private entities. POST was established by the Legislature in 1959 to identify common needs that are shared by representatives of law enforcement.

City of Hayward Municipal Code, Section 2-2.32, State Aid in Training Law Enforcement Officers and Public Safety Dispatchers. Section 2-2.32 of the City of Hayward Municipal Code requires that the City of Hayward adhere to the standards for the recruitment and training of peace officers and public safety dispatchers established by the California Commission on Peace Officer Standards and Training (POST), since the City of Hayward is Qualified to receive aid from the State of California pursuant to Section 13522, Chapter 1 of Title 4, Part 4 of the California Penal Code. Pursuant to Section 13512 of said Penal Code the Commission and its representatives may take measures to ensure peace officer and public safety dispatcher personnel adhere to selection and training standards established by POST.

238 Bypass Fiscal Impact Analysis. The 238 Bypass Fiscal Impact Analysis prepared on October 6, 2008, established an optimum service ratio of 1.5 sworn police officers per 1,000 residents.

Key Terms

The following key terms used in this chapter are defined as follows:

Mutual Aid. The provision of resources (personnel, apparatus, and equipment) to a requesting jurisdiction already engaged in emergency operations, which have exhausted or will shortly exhaust local resources.

SECTION 5.3 COMMUNITY SAFETY AND CRIME PREVENTION

Introduction

This section describes community safety and crime prevention services provided by the Hayward Police Department and its divisions. It identifies police protection services and describes services calls and dispatch times.

Major Findings

- The Hayward Police Department (HPD) promotes community safety through regular patrol operations, district operations, and traffic patrol operations. HPD also operates the Crime Stoppers and Neighborhood Policing programs.
- Overall crime rates citywide, including the ratio of both violent and property crimes per 1,000 residents, have been declining over the past five years.
- HPD received 95,239 calls for service in 2012. HPD's average response time to Priority 1 calls (3.7 percent of calls for service) was 9 minutes and 2 seconds. HPD responded to Priority 2 calls (25.1 percent of calls for service) in 20 minutes and 58 seconds on average, and responded to Priority 3 calls (68.3 percent of calls for service) in 45 minutes and 10 seconds on average.
- HPD's goal is to arrive at the scene of Priority 1 calls within five minutes of dispatch, 90 percent of the time. In 2012 HPD arrived at the scene of Priority 1 calls within five minutes of dispatch 68.7 percent of the time.
- HPD provides crime prevention education presentations, conducts residential and commercial security surveys, and operates many crime prevention programs. HPD's crime prevention programs include: Hayward Neighborhood Alert/Watch, Community Academy, Business Watch/Academy, the Crime Free Multi-Housing Program, and the Synchronized Multi-Agency Safe Housing (SMASH) Program.

Existing Conditions

Community Safety

HPD promotes community safety through regular patrol operations, including police officers, canine units, and S.W.A.T.; through district operations, including downtown patrol and other special programs; and through traffic patrol operations, including parking and traffic law enforcement. HPD also operates the Crime Stoppers and Neighborhood Policing programs. Crime Stoppers of Southern Alameda County is a citizen, media, and police collaborative program designed to involve the public in the fight against crime. Crime Stoppers provide citizens with a means to anonymously supply the police with information about a crime or a potential crime. Crime Stoppers of Southern Alameda County offers a reward of up to $1,000 for information that leads to an arrest.

Neighborhood policing is a mutual effort by HPD, City government, community organizations, and most importantly, the people who live and work in Hayward's residential neighborhoods and business centers. It combines the resources, efforts, and ideas of all of these stakeholders to identify and solve problems at the neighborhood level. Field officers work intensely with specific neighborhoods in their beats to coordinate problem-solving strategies that positively impact an affected neighborhood. Neighborhood policing allows HPD to join forces with neighborhoods in an effort to reduce neighborhood crime and the fear of crime, and to enhance the quality of life in the community.

HPD has also implemented several new community safety initiatives. During the 2012 Fiscal Year, traffic officers agreed to modify their work schedule to allow for better enforcement coverage and focused enforcement for the 12 high accident areas within the City. The end result was a 30 percent reduction in traffic collision reports. HPD entered into an agreement with the City of San Leandro for the purpose of booking its prisoners into Hayward's jail, supplementing police officer staffing and creating revenue for Hayward's General Fund. HPD created and implemented the first "Safety Expo" partnership with six other law enforcement agencies and 25 private vendors, for the purpose of improving safety and security at the Southland Mall. HPD completed a partnership with the Identity Theft Council, a non-profit group of security experts who assist identity theft victims in Hayward. HPD was the first Police Department in the nation to implement this partnership. Additionally, the department implemented an online crime database to provide real-time information to the public at the neighborhood level.

As shown in Table 5-1, overall crime rates citywide have been declining over the past five years. During this same period the ratio of both violent and property crimes per 1,000 residents has consistently decreased. However, crime rates tended to fluctuate by type. Robberies and aggravated assault were the only specific crime rates to consistently decrease over the five-year period, while none of the specific crime rates consistently increased over the same period.

TABLE 5-1
CRIME STATISTICS
City of Hayward
2007 to 2011

Crime	2007		2008		2009		2010		2011	
	Number	Ratio*	Number	Ratio*	Number	Ratio*	Number	Ratio*	Number	Ratio*
Violent Crime										
Homicide	8	0.06	7	0.05	7	0.05	13	0.09	7	0.05
Forcible Rape	48	0.34	57	0.40	29	0.20	48	0.33	44	0.30
Robbery	538	3.83	517	3.67	446	3.14	391	2.71	360	2.47
Aggravated Assault	287	2.04	287	2.04	259	1.82	200	1.38	168	1.15
Subtotal	*881*	*6.27*	*868*	*6.16*	*741*	*5.21*	*652*	*4.51*	*579*	*3.97*
Property Crime										
Burglary	965	6.86	1,080	7.66	979	6.88	1,097	7.59	988	6.77
Motor Vehicle Theft	1,681	11.96	1,343	9.53	1,452	10.21	1,007	6.97	1,101	7.55
Larceny	2,021	14.37	2,114	14.99	1,974	13.88	1,649	11.41	1,693	11.61
Arson	60	0.43	72	0.51	51	0.36	55	0.38	16	0.11
Subtotal	*4,667*	*33.19*	*4,537*	*32.18*	*4,405*	*30.97*	*3,753*	*25.97*	*3,782*	*25.93*
Total	**5,548**	**39.46**	**5,405**	**38.34**	**5,146**	**36.18**	**4,405**	**30.48**	**4,361**	**29.89**
Population Estimate	140,603	--	140,984	--	142,227	--	144,509	--	145,881	--

*Per 1,000 residents

Source: Federal Bureau of Investigation, Criminal Justice Statistics Center, December 2012.

After a significant increase of residential burglaries in Summer 2012, HPD initiated a concentrated effort to combat these crimes. Over 490 residential burglaries were committed from January to August 2012, including 94 instances between the months of July and August alone. In response HPD employed a multi-agency task force for the period from August to September 2012. The task force included one Police Sergeant, three Police Officers, one California Highway Patrol Officer, and one Probation Officer Supervisor from Alameda County.

As shown in Table 5-2, HPD received 95,239 calls for service in 2012. HPD's average response time to Priority 1 calls, which include felonies in progress or threats to life, was 9 minutes and 2 seconds on average. Priority 1 calls made up 3.7 percent of calls for service. HPD responded to Priority 2 calls, which include felonies that just occurred, threats to property, or misdemeanor crimes in progress, in 20 minutes and 58 seconds on average. Priority 2 calls made up 25.1 percent of calls for service. HPD responded to Priority 3 calls, which include nuisance complaints and standard reports, in 45 minutes and 10 seconds on average. Priority 3 calls made up 68.3 percent of calls for service. Priority 4 calls, which include animal control complaints, made up 29.1 percent of calls for service. Priority 5 calls include telephone reports.

TABLE 5-2 CALLS FOR SERVICE BY PRIORITY City of Hayward 2012			
Priority	**Calls for Service (Number)**	**Calls for Service (Percent)**	**Average Response Time (Call Creation To Arrival On Scene)**
Priority 1	3,513	3.7%	00:09:02
Priority 2	23,948	25.1%	00:20:58
Priority 3	65,009	68.3%	00:45:10
Priority 4	2,769	29.1%	--
Total	**95,239**	**100.0%**	**--**

Source: Hayward Police Department, 2013.

The Fiscal Year 2012 Adopted Operating Budget identified the following safety and service goals for HPD:

- Dispatch Priority 1 calls for service within five minutes 90 percent of the time;
- Have 90 percent of all patrol officers initiate a crime reduction or neighborhood improvement project within their respective beat or sub-beat;
- Maintain the current rate of gang related arrests and probation/parole searches;
- Achieve a 3 percent reduction in injury and in alcohol-related collisions;
- Increase the number of drunken driving arrests by 10 percent;
- Increase the number of community partnerships by 10 percent;
- Increase the number of Neighborhood Block Captains by 20 percent; and
- Re-contact citizens waiting for non-emergency police response if their call is holding over 30 minutes 80 percent of the time.

As described above, HPD's goal is to arrive to Priority 1 calls within five minutes of dispatch, 90 percent of the time. As shown in Table 5-3 below, in 2012 HPD responded to Priority 1 calls in five minutes 68.7 percent of the time. HPD responded to 91.4 percent of Priority 1 calls within nine minutes. Additionally, HPR responded to 90.9 percent of Priority 2 calls within 11 minutes and responded to 90.8 percent of Priority 3 calls within 11 minutes. The Department does not maintain response time goals for Priority 2, Priority 3, or Priority 4 calls.

TABLE 5-3 CALLS FOR SERVICE AVERAGE BY MINUTE BY PRIORITY City of Hayward 2012	
Average Response By Minute (Call Dispatched to Arrival on Scene)	**Percent Response Meeting the Average Response By Minute**
Priority 1	
00:00:05	68.7%
00:00:09	91.4%
00:00:16	98.3%
Priority 2	
00:00:05	62.1%
00:00:11	90.9%
00:00:26	98.0%
Priority 3	
00:00:05	76.1%
00:00:11	90.8%
00:01:00	99.1%

Source: Hayward Police Department, 2013.

Crime Prevention

HPD provides crime prevention education presentations, conducts residential and commercial security surveys, and operates many crime prevention programs. The Crime Prevention Unit helps residents and businesses develop strategies and solutions to community problems through the following programs:

- Hayward Neighborhood Alert/Watch: Hayward Neighborhood Alert (HNA) is a nonprofit organization governed by an elected board of directors. Hayward Neighborhood Alert, in partnership with HPD, establishes Neighborhood Watch Groups throughout the city and educates and supports them in crime prevention and safety. Neighborhood Watch Groups are made up of residents in a neighborhood and headed by a Block Captain.
- Community Academy: The Community Academy is a certified educational program held in English and Spanish, and is designed to give participants a working knowledge of HPD. It consists of a series of classes and discussions held once a week, on a designated evening, for a period of two hours. The educational program gives residents the opportunity to learn about the issues that affect law enforcement efforts in Hayward. The academy is also intended to encourage a more engaged community and bolster the City's Neighborhood Alert program by educating the Block Captains of Neighborhood Alert and participants in the Volunteers in Police Services (VIPS) program.
- Business Watch/Academy: Business Watch is a crime prevention program that enlists the active participation of business owners, managers, and employees in cooperation with law enforcement to reduce crime in their work environment. Merchants and

businesses who form a Business Watch group can arrange to attend a Business Academy crime prevention presentation.

- Crime Free Multi-Housing Program: The Crime Free Multi-Housing Program is a free education and certification program designed to help owners, managers, and residents of rental property keep drugs and other illegal activity off their property. The three-phase program includes a free education training class on various aspects of effective property management for landlords and property managers; an on-site property review using the tools of Crime Prevention Through Environmental Design (CPTED); and a resident "Safety Social" for tenants on general safety principles, crime prevention, and Neighborhood Watch.
- Synchronized Multi-Agency Safe Housing (SMASH) Program: The SMASH program deals with neighborhood blight by eradicating havens for criminal activity and abating behaviors that create public nuisances and threaten the livability of Hayward neighborhoods. SMASH is a synchronized and collaborative effort, where City departments work together to combat problem locations. The collaboration includes the Police Department, City Attorney's Office, Fire Department, Parole Officers, Building Inspectors, the Housing Authority, and Code Enforcement Officials. Many of the locations targeted for SMASH operations come from observations by patrol officers, while others come through City official inquiries or neighborhood complaints. From 2008 to 2011 Hayward conducted 29 SMASH operations, impacting 13 apartment complexes, two businesses, and 14 residences.

Regulatory Setting

Federal Bureau of Investigation. The Federal Bureau of Investigation (FBI) is an intelligence-driven and threat-focused national security and law enforcement organization that protects and defends the United States against terrorist and foreign intelligence threats, upholds and enforces the criminal laws of the United States, and provides leadership and criminal justice services to Federal, State, municipal, and international agencies and partners. The FBI also gathers, shares, and analyzes intelligence to support its own investigations and those of its partners, and to better understand and combat the security threats facing the United States.

Key Terms

The following key terms used in this chapter are defined as follows:

Aggravated Assault. An unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury.

Arson. The unlawful intentional burning of any structure or object resulting in damage or destruction of property.

Automatic Aid. The process whereby the closest piece of emergency apparatus is dispatched to a call for assistance, regardless of jurisdiction.

Burglary. The unlawful entry of an inhabited structure to commit a felony or a theft.

Forcible Rape. The carnal knowledge of a person forcibly and against his/her will.

Homicide. The willful (non-negligent) killing of one human by another.

Larceny. The unlawful taking, carrying, leading, or riding away of property from the possession or construction possession of another.

Motor Vehicle Theft. The theft, or attempted theft, of a motor vehicle.

Response Time. The total amount of time it takes for a fire, police, and/or emergency medical service (EMS) unit to respond to a call, from the time when the emergency call is placed to 911 to the time that the unit arrives on scene. Response times are typically broken into three components:

- Call-handling time which includes the time of the call to 911 until the time that Communications dispatches fire, police, and/or EMS units.
- Turnout time which includes the time that Communications dispatches a fire, police, and/or EMS unit until the time that the unit responds and is en route to the scene.
- Travel time which includes the time that the fire, police, and/or EMS unit responds until the time that the unit arrives on scene.

Robbery. Taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear.

SECTION 5.4 FIRE PROTECTION AND EMERGENCY RESPONSE

Introduction

This section describes the existing (2012) structural and urban fire protection systems in Hayward, as well as responsible agencies and fire prevention measures currently in place. It discusses the organization, staffing, and resources of the Hayward Fire Department.

Major Findings

- The City of Hayward Fire Department (HFD) provides fire, paramedic advanced life support (ALS)/emergency medical (EMS), and emergency services to all areas within the city limits, and to the Fairview Fire Protection District (FFPD) on a contract basis. The City recently (2012) extended this contract to June 30, 2018.
- HFD includes two divisions under the Fire Chief: Operations and Special Operations. The Operations Division consists of two battalions with three shifts each, with a daily minimum staffing of 35. Special Operations encompasses the Fire Prevention Division which include Inspectors, Permit Center, Hazardous Materials Program, and the Public Education/Public Information Officer. The Training Division is also under Special Operations which includes the Training Officer and ALS/EMS Coordinator.
- HFD maintains nine operating stations: seven within the city and two within the Fairview area. The stations house 11 fire companies, including nine engine companies, and two truck companies, as well as an aircraft firefighting apparatus and a California Emergency Management-owned (CAL EMA) firefighting apparatus.
- Each HFD fire company has at least one paramedic that provides ALS services. There are also 57 ambulances servicing Hayward throughout Alameda County operated by Paramedics Plus.
- HFD protects 147,000 residents within the city limits and an additional 13,000 residents in the FFPD with 118 sworn personnel. HFD currently maintains a 0.73 staffing ratio, which is less than its goal of 1.0 firefighters per 1,000 residents.
- In 2012 HFD provided emergency services to citizens of the Hayward and Fairview Fire Protection Districts, responding to over 20,962 alarms and including 15,163 calls for service. Due to increased training and the incorporation of new medical devices, HFD increased their Return of Spontaneous Circulation (from pulseless, non-breathing patients to patients with a pulse and breathing) survivability rates from 7 to almost 30 percent.
- For each emergency response (Code 3) HFD meets or exceeds the response goal of putting the first arriving fire company on scene in five minutes or less 90 percent of the time, with the balance of the first alarm structural response on scene in less than eight minutes 90 percent of the time.

Existing Conditions

City of Hayward Fire Department

The City of Hayward Fire Department (HFD) provides fire, ALS/EMS, and emergency services to all areas within the city limits, and to the Fairview Fire Protection District (FFPD) on a contract basis. On May 15, 2012, the City extended this contract for the period from July 1, 2013, to June 30, 2018. The new agreement incorporates a starting contract price that will be instated on the expiration of the existing agreement, and provides for annual increases of 2 to 5 percent per year based on the Consumer Price Index (CPI). HFD's mission is to protect lives and property by providing superior fire suppression and emergency medical services (EMS) that are supported by prevention through responsible regulatory and educational programs. HFD includes two divisions under the Fire Chief: Operations and Special Operations. The Operations Division has two battalions with three shifts each. Special Operations encompasses the Fire Prevention Office, Inspectors, Permit Center, Hazardous Materials Program Public Education/Public Information, and Training Division.

Fire Administration

The Fire Administration Division provides direction, leadership, financial oversight, and administrative support services for HFD. The Fire Administration Division coordinates programs and service delivery with other City departments and jurisdictions, and analyzes and plans for the Department's long-range needs including disaster planning. The Fire Chief serves as the chair of the Hayward Disaster Council. The Fire Administration Division also administers the Fairview Fire Protection District (FFPD) agreement, with the Hayward Fire Chief serving as the FFPD Chief.

Operations

The Operations Division provides the community with a broad range of emergency services to protect life and property from fire, explosion, hazardous materials, accidents, emergency medical incidents, and disasters. These services include firefighting, rescue response, and the ALS delivery system with Firefighter-Paramedics. In addition, Operations Division staff conduct Fire Code compliance inspections and provide public education.

The Operations Division is divided into three separate organizational units referred to as battalions. Battalions are further divided into firefighting teams called Fire Companies. A Fire Company assigned to a pumping engine is referred to as an Engine Company, while a Fire Company assigned to a ladder truck is referred to as a Truck Company. The Training Division ensures that HFD meets or exceeds mandated training requirements, and also assists with the entry level firefighter testing process and internal promotional examinations.

Special Operations

The Special Operations Division is designed to protect life and property through prevention, education, preparedness, and inspection activities. The Special Operations Division includes the Training Division, ALS/EMS, Fire Prevention, and Hazardous Materials programs. Fire Prevention enforces the Uniform Fire Code and the applicable State and Federal codes and standards for the purpose of preventing fires. This includes enforcing the use of approved building fire protection devices; regulating storage and use of hazardous materials and operations; and maintaining warning devices, fire extinguishing equipment, and building exit systems. Fire Prevention also investigates the cause, origin, and circumstances of fires. The Public Education Officer oversees the Emergency Services Office and disseminates emergency information to the public.

Hazardous Materials regulates the storage and use of hazardous materials in above ground facilities and underground storage tanks. This includes: plan checks and the inspection of new hazardous materials facilities, hazardous operations and soils and groundwater contamination cleanups, and routine oversight of hazardous materials facilities. Staff also develops, coordinates, and delivers hazardous materials training programs. Hazardous Materials enforces the City's Hazardous Waste Minimization Ordinance to reduce the proliferation of hazardous waste generated by Hayward's industrial and commercial establishments. Staff works with industrial facilities to develop risk management prevention programs for acutely hazardous materials processes and storage. The ALS/EMS Program oversees the timely and efficient delivery of ALS and EMS to residents throughout Hayward.

Facilities

HFD maintains nine operating stations: seven in the city of Hayward and two in the Fairview area. Existing stations and their response areas are shown in Figure 5-2. The nine operating stations maintained by the Department are as follows:

- Fire Station 1: 22700 Main Street
- Fire Station 2: 360 West Harder Road
- Fire Station 3: 31982 Medinah Street
- Fire Station 4: 27836 Loyola Avenue
- Fire Station 5: 28595 Hayward Boulevard
- Fire Station 6: 1401 West Winton Avenue
- Fire Station 7: 28270 Huntwood Avenue
- Fire Station 8: 2582 Five Canyons Parkway (Fairview)
- Fire Station 9: 24912 Second Street (Fairview)

The stations house eleven fire companies: nine engine companies, which are first responders and provide fire suppression, and two truck companies that provide structural entry, ventilation, laddering and rescue operations, and medical response. In 2011, HFD acquired a new passenger van that is used to assist in providing statewide mutual aid. HFD purchased the van using mutual aid reimbursement funding. HFD also acquired a new Type III Engine and trained all personnel in its operation. The new truck is housed at Fire Station 8 and was fully paid for by the Fairview Fire Protection District. In addition, the Hayward stations house an aircraft firefighting apparatus and a California Emergency Management-owned (CAL EMA) firefighting apparatus.

HFD delivers ALS service through engine- and truck-based paramedics assigned to every apparatus and funded through the Alameda County Emergency Medical Services (ALCO EMS) First Responder Advanced Life Support program. ALCO EMS is a division of the Public Health Department responsible for planning, implementing, and evaluating local EMS systems. There are also 57 ambulances servicing Hayward throughout Alameda County operated by Paramedics Plus. Paramedics Plus is a partner of ALCO EMS offering ambulance service using the Mobile Area Routing and Vehicle Location Information System (MARVLIS) for real-time communications and deployment.

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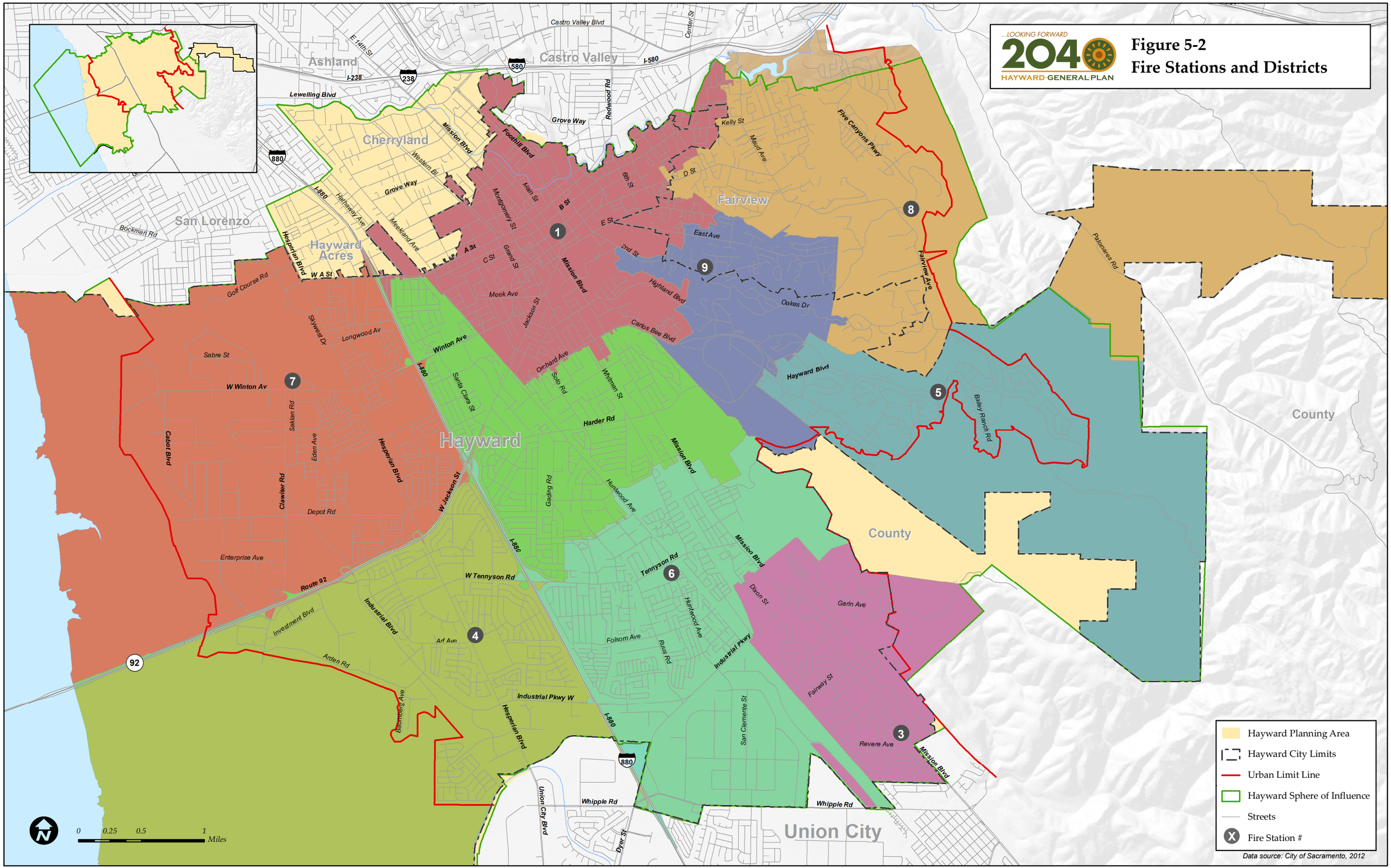
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-2
Fire Stations and Districts



Data source: City of Sacramento, 2012

January, 2013

Staffing

Currently (2012), HFD employs 135.5 staff members, including 1 Fire Chief, 2 Deputy Fire Chiefs, 6 Battalion Chiefs, 1 Fire Marshal, 2 Assistant Fire Marshals, 34 captains, 33 apparatus operators, and 41 firefighters. The Department also employs 2 Fire Inspectors (sworn), 1 Fire Protection Engineer, 1 Hazardous Materials Program Coordinator, 1 Administrative Analyst, 2 Hazardous Materials Investigators, 1 Public Education Officer (sworn), 1 Training Officer (sworn), 1 EMS Coordinator Registered Nurse, 1 Fire Services Supervisor, 3 Fire Technicians, 1 Administrative Clerk, and a Mail Clerk (0.5). There are also 117 EMS personnel providing emergency service to Hayward.

HFD maintains a 0.73 staffing ratio with a goal of a firefighter per 1,000 residents. With a city population of 147,113 and the additional population of 10,300 in FFPD, HFD would need 42 additional firefighters or 160 firefighters total (currently HPD has 118 sworn personnel). In Fiscal Year 2013-14 staffing levels will be reduced to 134.5 FTE. The Fiscal Year 2012 Adopted Operating Budget identified 3 staffing goals for HFD:

- Provide 140 hours/year of mandated training to fire operations personnel and approximately 100 hours/year of training or continuing education to its regulatory personnel. Maintain thorough training records managed through web-based Target Safety program; and
- Provide paramedic training and provide advanced life support (ALS) service throughout the city.

During Fiscal Year 2010-2011 HFD provided mutual aid to Northern and Southern California wild-fires, providing over 177 hours of manpower with a reimbursement of $44,103. HFD enhanced the department's computer web-based training capabilities to track all personnel training records and provide an array of correspondence curriculum, while keeping resources available in their respective fire response districts. HFD developed an Aircraft Rescue and Firefighting (ARFF) Program in cooperation with the Hayward Executive Airport, providing over 150 hours of on-duty ARFF training. All personnel received California Fire Marshal Fire Control 5 certification. HFD also outfitted the newly acquired ARFF apparatus with necessary equipment. In the Fiscal Year 2013-2014 Budget plan, HFD plans to oversee the design and construction of a new Fire Station 7; continue to pursue renovations of Fire Stations 2, 3, 4, 5 and 6; and develop a replacement plan for Fire Station 9.

Emergency Response

HFD provides emergency response services to citizens of the Hayward and Fairview Fire Protection Districts, responding to over 20,962 alarms and to over 15,163 calls for service. Approximately 10,800 calls required emergency medical services. In the city of Hayward four units are dispatched to all single-family dwelling fires and five units respond to apartment, commercial, and industrial fires. HFD saved over $19,500,000 in property value through aggressive firefighting and preventive efforts. The City has also upgraded its Emergency

Response Traffic Pre-emption System by installing traffic signal priority for Fire Department vehicles to improve response times.

The guideline established by the National Fire Protection Association (NFPA) for fire response times is 6 minutes at least 90 percent of the time, with response time measured from the 911-call time to the arrival time of the first-responder at the scene. The fire response time guideline established by the Center for Public Safety Excellence (CPSE, formerly the Commission on Fire Accreditation International) is 5 minutes 50 seconds at least 90 percent of the time. Emergency response time standards also vary by level of urbanization of an area: the more urban an area, the faster a response has to be. The California Emergency Medical Services Agency (CEMSA) established the following response time guidelines: 5 minutes in urban areas, 15 minutes in suburban or rural areas, and as quickly as possible in wildland areas.

The Fiscal Year 2012 Annual Operating Budget identifies the following service goals for HFD:

- Respond to emergency calls for service with first units arriving on scene in 5 minutes or less 90 percent of the time, with the remaining units arriving in less than 8 minutes; and
- Deliver ALS through engine- and truck-based paramedics, with a paramedic assigned to every apparatus.

HFD meets or exceeds the NFPA, SPSE, CEMSA, and department goals for fire response. At the present time (2013) 90 percent of all *emergency* calls (Code 3) result in the first fire department unit arriving in 5 minutes or less with the balance of the first alarm structure response arriving in less than 8 minutes.

Hayward has an average response time of 5 minutes and 28 seconds for *all* calls for service (not just emergency calls). As shown in Figure 5-3, Hayward responds to 54 percent of all calls for service in 5 minutes or less and to 96 percent of all calls for service in 10 minutes or less.

TABLE 5-4
HFD AVERAGE RESPONSE TIMES FOR ALL CALLS FOR SERVICE
City of Hayward
2012

Number of Minutes	Number of Calls	Percent of Calls
0-5	8,081	54%
5-7	4,807	32%
7-10	1,520	10%
10+	506	4%
Total	**14,914**	**100%**

Source: Hayward Fire Department, 2013.

The Insurance Services Office (ISO) provides rating and statistical information for the insurance industry in the United States. To do so, ISO evaluates a community's fire protection needs and services, and assigns each community evaluated a public protection classification rating. The

rating is developed as a cumulative point system, based on the community's fire-suppression delivery system, including fire dispatch (operators, alarm dispatch circuits, telephone lines available), fire department (equipment available, personnel, training, distribution of companies, etc.), and water supply (adequacy, condition, number, and installation of fire hydrants). Insurance rates are based on this rating. The lowest rating is a Class 10, while the best rating is a Class 1. Based on the type and extent of training provided to fire-company personnel and the City's existing water supply, Hayward currently has a Class 3 ISO rating.

While the City's fire prevention and emergency response capacities are typically adequate to meet existing needs, HFD is also a participant in the Alameda County and California mutual aid system and can receive or provide additional services for large emergency events that tax the capabilities of any one jurisdiction. HFD has responded to mutual aid requests to assist with the 1991 Oakland Hills fire and other significant mutual aid emergencies outside the city of Hayward.

The California Master Mutual Aid Agreement establishes a formal process where jurisdictions can give and receive fire or emergency assistance to other members within their mutual aid region whenever it is needed. The City of Hayward is within Mutual Aid Region II or the Coastal Region.

The Alameda County Fire Mutual Aid Plan was substantially revised and re-signed in 2004 and last amended in 2012. It includes the following participants: Alameda County Fire Department, Alameda Fire Department, Albany Fire Department, Berkeley Fire Department, Cal-Fire, East Bay Regional Parks District, Fremont Fire Department, Hayward Fire Department, Livermore-Pleasanton Fire Department, Oakland Fire Department, Camp Parks Reserve Forces Training Area, Piedmont Fire Department, and California Mutual Aid Agreement.

The Plan provides a protocol for assisting a fire jurisdiction responding to an emergency. The agreement will go into effect when resources have been depleted to the point that, in the opinion of the Fire Chief, additional resources are necessary to provide reasonable protection for the jurisdiction. Participating jurisdictions will initiate the agreement when the California Master Mutual Aid Agreement is activated and another jurisdiction requests resources from Alameda County to respond to emergencies outside the county. Mutual aid resources shall respond immediately (Code 3) to the requesting agency with minimum delay.

Regulatory Setting

California Emergency Management Agency (CAL EMA). CAL EMA serves as the lead State agency for emergency management in California. CAL EMA coordinates the State response to major emergencies in support of local government. It is also responsible for collecting, verifying, and evaluating information about the emergency, facilitating communication with local government and providing affected jurisdictions with additional resources when necessary. If necessary, CAL EMA may task State agencies to perform work outside their day-to-day and statutory responsibilities.

The primary responsibility for emergency management resides with local government. Local jurisdictions first use their own resources and, as they are exhausted, obtain more from neighboring cities and special districts, the county in which they are located, and other counties throughout the state through the Statewide Mutual Aid System. In California the Standard Emergency Management System (SEMS) provides the mechanism by which local government requests assistance. CAL EMA serves as the lead agency for mobilizing the State's resources and obtaining Federal resources; it also maintains oversight of the State's mutual aid system.

Key Terms

Emergency. An emergency is the actual or threatened existence of conditions of disaster or of extreme peril to the safety of persons and property.

Emergency Services. Emergency services refers to the preparation and carrying out of all emergency functions, other than functions for which the military forces are primarily responsible.

Insurance Services Office (ISO) Rating. Rating and statistical information for the insurance industry based on a community's fire-suppression delivery system, including fire dispatch, fire department, and water supply. Insurance rates are set using this rating, which is based on a scale from Class 1 to Class 10, where Class 1 is the best score. HFD maintains an ISO rating of 3**.**

Mutual Aid. The provision of resources (personnel, apparatus, and equipment) to a requesting jurisdiction already engaged in emergency operations, which have exhausted or will shortly exhaust local resources.

Operational Area. The Standard Emergency Management System (SEMS) established operational areas, which correspond with county boundaries, to coordinate mutual aid and emergency operations. The Operational Area acts as a link between local and State governments to communicate and coordinate aid during emergency events.

Response Time. The total amount of time it takes for a fire, police, and/or emergency medical service (EMS) unit to respond to a call, from the time when the emergency call is placed to 911 to the time that the unit arrives on scene. Response times are typically broken into three components:

- Call-handling time which includes the time of the call to 911 until the time that Communications dispatches fire, police, and/or EMS units.
- Turnout time which includes the time that Communications dispatches a fire, police, and/or EMS unit until the time that the unit responds and is in route to the scene.
- Travel time which includes the time that the fire, police, and/or EMS unit responds until the time that the unit arrives on scene.

SECTION 5.5 FIRE HAZARDS

Introduction

This section addresses the potential hazards from structural and wildland fires within the planning area and the existing fire protection service standards and resources of the City of Hayward Fire Department (HFD). It documents the complex regulatory environment applicable to fire hazard management and the inter-agency approach and coordination efforts performed to manage this hazard.

Major Findings

- Older buildings constructed prior to requirements for fire-resistant construction materials, internal sprinklers, and other fire safety systems, and buildings with high occupancy rates are more susceptible to structural fires.
- The historic downtown area is especially susceptible to structure fire hazards. The downtown area contains historic structures that date back to the 1850s and were built according to older building standards and fire codes that have since become outdated and have been superseded by current codes.
- The latest Draft Fire Hazard Severity Map, created by CAL FIRE in July 2007, shows that there are several areas designated as high fire hazard severity zones in the Hayward planning area. These include the Garin Regional Park area; the wildland/urban interface area east of Mission Boulevard and south of D Street; the community of Fairview; and several fielded areas, near Enterprise Avenue, along Arden Road, and near the city's western edge below the Hayward Regional Shoreline.
- HFD has also defined the areas east of Mission Boulevard from the south side of D Street to the city limits and south to Union City as a hazardous fire zone.
- Wildfire and wildland/urban interface fire threats affect 7,408 acres of land in Hayward, or less than 20 percent of the planning area. About 44,770 people, or 24 percent of the population in the Hayward Planning Area, live in the wildland fire hazard area. Fire hazards may also impact 204 miles of roadway, transit, and rail infrastructure, and 86 public facilities.

Existing Conditions

Fire Hazards

Both structural and wildland fire hazards threaten life and property within the city of Hayward and the larger planning area. Wildland fires that result from both man-made and natural causes often occur in forest, brush, or grasslands, primarily in sparsely developed or existing open space lands. Urban buildings and infrastructure may also be threatened or destroyed in the area of wildland fires. However, structural fires typically result from manmade causes and threaten

many residential and commercial structures, especially those built before existing building and fire codes were established. These substandard structures represent the highest potential for injury, death, or loss of property.

Hayward also faces the risk of structural fires resulting from earthquakes. The Hayward/Rogers Creek Fault traverses the city of Hayward in a northeast to southwestern direction parallel to the base of the Hayward Hills just east of Mission Boulevard. No fires were recorded during the last major earthquake, a magnitude 6.9 occurring on October 21, 1868. Recent (2010) estimates from the United States Geological Survey (using new "Shake-map" technology) state that a 7.0 magnitude earthquake on the Hayward/Rogers Creek fault will result in amplification to rock on the east side of the fault, leading to broken gas and water lines that are likely to ignite uncontrollable fires. The San Andreas Fault is also a notable threat for earthquakes, located just 20 miles from Hayward.

HFD annually responds to approximately 15,150 calls for service for structural fires and other emergencies. Hayward has not experienced any major natural disasters in the past five years (2006 through 2011); however, one of the most common threats is hillside urban wildfires. On August 2, 2011, HFD requested mutual aid to suppress a vegetation fire in the Hayward Hills just southeast of the Stonebrae Country Club. Two fixed-wing aircraft and two helicopters from CAL FIRE and East Bay Regional Parks department responded via air, accompanied by dozers and hand crews on the ground from Hollister in San Benito County, and Santa Clara Counties. The Alameda County Fire Department provided additional reserve equipment and personnel.

Structural Fire Hazards

Structural fires can occur in any of the developed areas within Hayward. The Hayward Municipal Code defines a structural fire hazard as "any building or structure, that because of obsolescence, dilapidated condition, deterioration, damage, inadequate exits, lack of sufficient fire-resistive construction, faulty electric wiring, gas connections or heating apparatus, or other cause, is determined by the Fire Marshal to be a fire hazard" (Chapter 9, Article 3 Building Abatement). While structural fires may occur in any of the city's developed areas, it is the historic downtown area that is especially susceptible to fire hazards. As shown in Figure 5-3, the historic downtown area contains a concentration of historic structures that date back to the 1850s, generally located around Foothill Boulevard and Jackson Street from Sunset Boulevard to Martin Luther King Drive. Due to their age these structures were built according to older/outdated building standards and fire codes, using construction materials that are not fire-resistant, and without internal sprinklers or other fire suppression or safety systems in place.

With the exception of the Fairview Area, the other portions of the planning area outside the city boundary are not likely to experience a substantially greater risk of structural fire than the areas located within the city boundaries. The rest of the unincorporated sites within the Hayward planning area are primarily open space lands within Garin Regional Park and contain few structures.

Structural Fire Hazard Mitigation

The City of Hayward adopted the 2010 California Building Code, effective January 1, 2011, in Ordinance 10-15 on November 16, 2010. On November 30, 2010, the City Council passed Ordinance No. 10-14 adopting the 2010 California Fire Code. It also defines the following requirements for buildings:

- Construct fences within 10 feet of a structure with an open wire mesh or non-combustible material;
- Design roofs with a "Class A" non-combustible roof rating as outlined in the California Building Code;
- Provide spark arrestors with one-quarter-inch metal mesh screens on all chimneys;
- Build decks to meet building construction and fire protection standards subject to Fire Marshal discretion;
- Clearly address all structures at the curb and on the structure or facility per Fire Department specifications;
- Locate outdoor storage of fire wood, kindling, or compost material within 30 feet of any structure unless the material is stored in an approved bin or enclosure and locate the chimney at least 10 feet away from existing tree canopies; and
- Enclose all roof eaves.

The City also requires a fire permit for all new building construction and for new installation or alterations to an existing fire sprinkler system. HFD requires special protection measures in buildings with limited accessibility, such as high-rise apartments or large industrial complexes. The special protection measures include fire sprinklers and smoke detectors above and beyond what may be required in the California Building Code. Higher standards for fire protection set by nationally recognized organizations have encouraged the construction of many new industrial buildings that are already equipped with fire protection and alarm systems meeting the needs of high-tech industries. In addition, high water flows required by these standards and provided by the City water delivery system easily satisfy specifications not only for on-site industrial equipment and manufacturing, but also for fire suppression and emergency response equipment.

Wildland/Urban Interface

Much of Hayward has been developed as urban uses, and most of these areas are not susceptible to risks from wildland fires. Hayward is bordered by the urban areas of San Lorenzo to the north and Union City to the south. However, the eastern planning area boundary is surrounded by regional parkland and open space located in High or Very High Fire Hazard Severity Zones. The outbreak and spread of wildland fires in these areas is a potential danger to the city, particularly during the summer months and even more with off-shore wind conditions.

HFD has defined the areas east of Mission Boulevard from the south side of D Street to the city limits south to Union City as a hazardous fire zone (see Figure 5-3). Similarly, CAL FIRE has designated the area east of Mission Boulevard as a High Fire Hazard Severity Zone (see Figure 5-4). This area is home to more than 43,000 residents and includes $3.28 billion in assessed property value. Most of the area, which extends outward (east) in a narrow extension, of land, remains undeveloped east of Garin and out to the Pleasanton Ridge and to the Regional Parks boundary. However, California State University East Bay and several subdivisions are located within this zone east of Mission Boulevard. Similarly, the entire community of Fairview, which includes a substantial amount of residential and commercial development, is also designated as a High Fire Hazard Severity Zone.

Within the city of Hayward, fielded areas near Enterprise Avenue, along Arden Road, and near the western edge of the city below the Hayward Regional Shoreline have also been identified as High Fire Hazard Severity Zones. However, these areas are not located near, and do not include, many housing units. Separated by major roadways, these areas typically border areas with commercial development on the eastern side.

As shown in Table 5-5, wildfire and wildland/urban interface fire threats affect 7,408 acres of land in Hayward, or less than 20 percent of the planning area. About 44,770 people or 24 percent of the population in the Hayward Planning Area live in the wildland and wildland/urban interface fire hazard areas. Fire hazards may also impact 204 miles of roadway, transit, and rail infrastructure, and 86 public facilities.

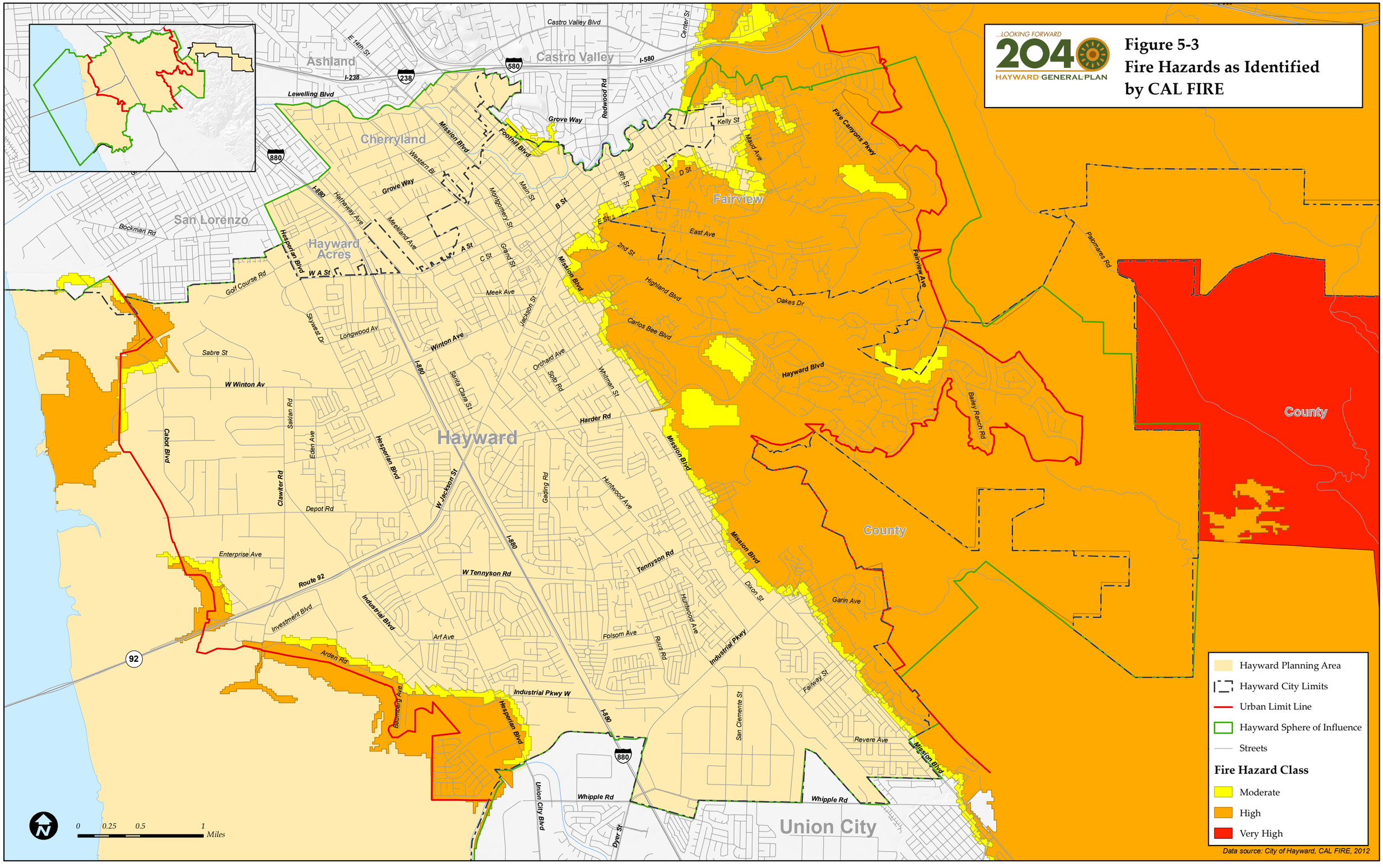
TABLE 5-5
FIRE HAZARD EXPOSURE
City of Hayward
2010

Hazard	Acres
Wildfire Threat (high, very high, or extreme)	811
Wildland/Urban Interface Fire Threat	6,597
Total	**7,408**

Source: 2010 Local Hazard Mitigation Plan, City of Hayward Annex, October 25, 2011.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-3
Fire Hazards as Identified by CAL FIRE



January, 2013

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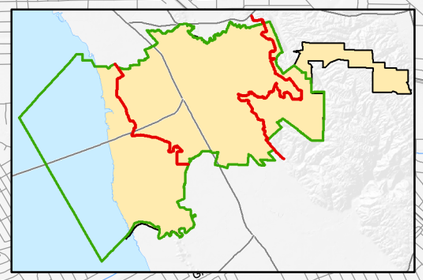
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-4
Fire Hazards as Identified by HFD



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Hayward
Union City
County

E 14th St
Castro Valley Blvd
Center St
I-238
I-580
Lewelling Blvd
Grove Way
Redwood Rd
Mission Blvd
Western Bl
I-880
Hathaway Ave
Meekland Ave
Bockman Rd
Hesperian Blvd
W A St
Golf Course Rd
Grand St
Jackson St
Skywest Dr
Longwood AV
Winton Ave
Sabre St
W Winton Ave
Orchard Ave
Solo Rd
Whitman St
Harder Rd
Santa Clara St
Saklan Rd
Eden Ave
Cabot Blvd
Clawiter Rd
Depot Rd
W Jackson St
Gading Rd
Huntwood Ave
Enterprise Ave
Route 92
W Tennyson Rd
Tennyson Rd
Investment Blvd
Industrial Blvd
Arf Ave
Arden Rd
Folsom Ave
Russ Rd
Dixon St
Industrial Pkwy
Baumberg Ave
Industrial Pkwy W
San Clemente St
Fairway St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St

0 0.25 0.5 1 Miles

Hayward Planning Area
Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Streets
Historic Buildings
Wildland Urban Interface
Extreme WIldfire Threat

Data source: City of Hayward, 2013

May, 2013

Wildland/Urban Interface Fire Hazard Mitigation

HFD actively promotes defensible space to minimize loss and to protect responders in the event of a wildland fire. Existing programs form a strong basis for fire safety in new developments. However, portions of the community developed in the 1950s and 1960s do not share the same level of protection. Many of these earlier developments were built along ridges around steep canyons. Additional emergency units service this Hillside/Urban Interface assignment area during High Fire Season. Additional factors such as high wind, rough terrain and topography, low humidity, and high temperatures may influence HFD to further increase the number of responding fire units. HFD has completed fire management plans for each of the 13 creek drainages in this interface area. These plans provide a description of the drainage fuel, topography, and structural exposures to fire hazards.

Ward Creek Drainage Community Defensible Space Project

On December 16, 2010, HFD was awarded grant 11USFS-ESO184 funded through a National Fire Plan grant from the cooperative fire program of the U.S. Forest Service, Department of Agriculture, Pacific Southwest Region, through the California Fire Safe Council, for the Ward Creek Drainage Community Defensible Space project.

HFD received $88,400 in grant funding from December 1, 2010, through May 3, 2012, to treat over 125 acres and chip trees in 51 acres of wildland areas. The grant required matching funds of 50 percent, which HFD acquired through cooperative efforts from the Hayward Area Recreation and Parks District (HARD) and the East Bay Regional Park District (EBRPD). The project, which was initiated in 2011 and implemented in early January 2012, used a total of $178,800 for mitigation. The project focused on areas within the FFPD and included:

- A defensible space training, with follow-up work sessions for participants to observe and question contractors who implement key defensible space concepts at demonstration work sites;
- A planning session to identify and prioritize short- and long-term community fuel reduction projects; and
- Fuel reduction for priority projects and a chipping service for neighbors who do their own fuel removal work.

Planning for Community Fuel Reduction Projects

On February 25, 2012, HFD and HARD held a community session focused on planning for community fuel reduction projects attended by 26 residents. Staff gave a comprehensive presentation that provided an overview of how fuel, topography, and weather influence wildfire behavior and fire spread in Ward Creek Canyon. Staff explained the criteria for prioritizing fuel management treatments and outlined initial ideas for the potential projects. These criteria included five fire-based considerations, such as ignition potential, probability of damaging wildfire, location near homes or sensitive values at risk from wildfire, and whether

the project would aid fire suppression and evacuation. Other site related considerations included potential non-fire related benefit and environmental sensitivities. The final three criteria evaluated owner and community support, available funding and time frame, and phasing considerations.

Staff and participants ranked the potential projects based on the following criteria:

- Ignition potential
- Probability of damaging wildfire
- Adjacency to homes or sensitive values at risk from wildfire
- Aids fire suppression
- Aids evacuation
- Potential non-fire related benefit
- Environmental sensitivities
- Owners and community support
- Available funding and time frame
- Phasing considerations

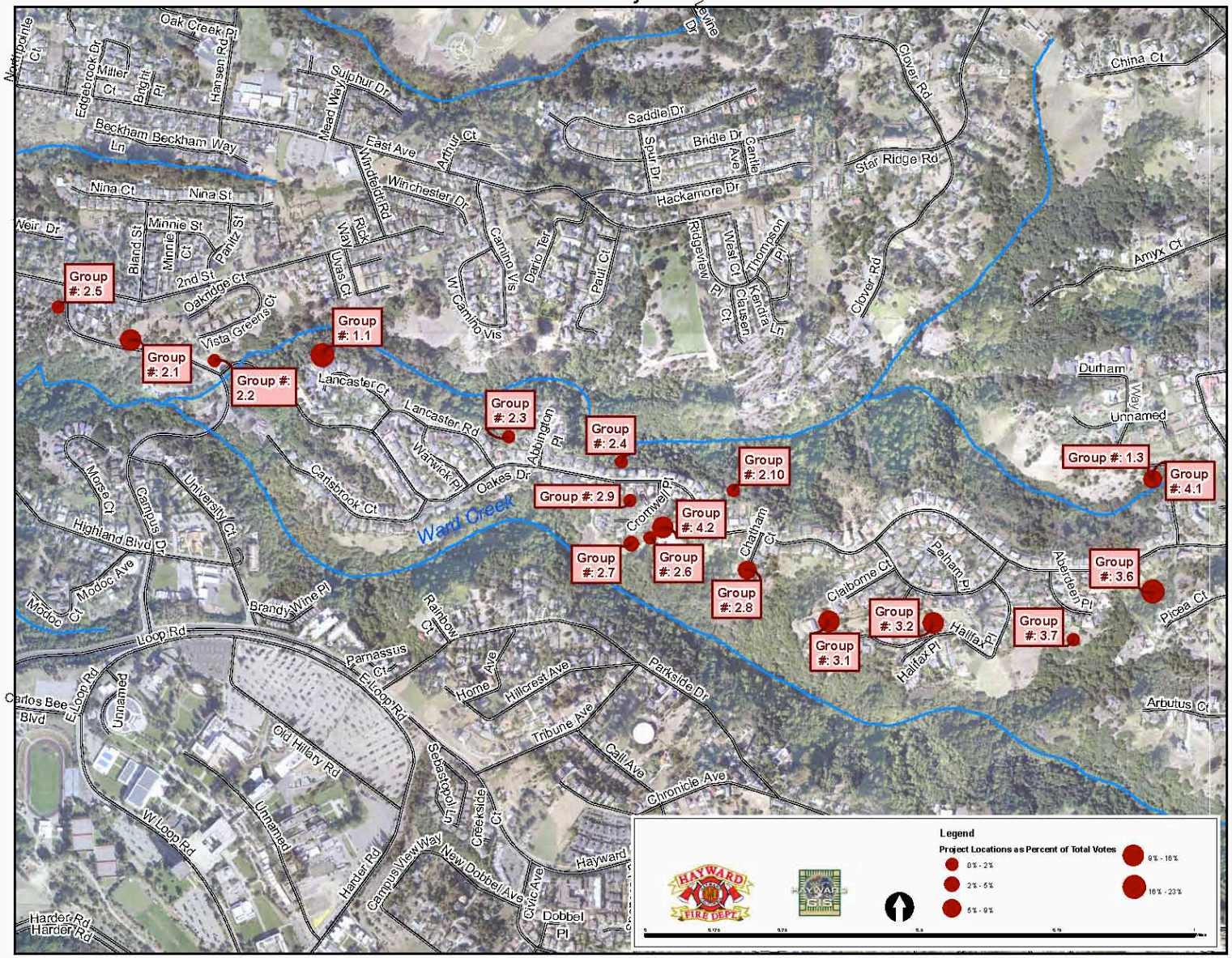
Community planning session participants divided into four groups, based on where they live in the canyon, to brainstorm and map potential projects. Once all the project ideas had been described, each participant voted on their four favorite projects. Following the community planning session, HFD and HARD reviewed the top ranking community project recommendations to determine their feasibility using the criteria discussed at the Community Collaboration Session. Four locations were selected as short-term projects and were completed prior to May 2012.

Future Sustainability for Wildland/Urban Interface Fire Hazard Mitigation Programs

Recently, HFD secured additional grant funding for 2013-2014 Fiscal Year. Concentrated efforts during this time frame will focus on the Ziele Creek Drainage (see Figure 5-5). The fuel reduction project will reduce fire hazards, decreasing the need for future maintenance. Removal of shrubs will enhance less flammable native grasslands by reducing competition and removal of lower tree limbs or shrubs that create fuel ladders will reduce the potential for crowning fires and damage to oak woodlands.

FIGURE 5-5

Ward Creek Project Locations



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Both fuel reduction projects have been designed to be self-sustainable by fostering residential participation and reducing the cost of future annual defensible space activities. HFD has used fuel reduction planning to facilitate the efficient implementation of fuel treatment programs. The community identifies the program's short- and long-term goals, which are necessary to accomplish more challenging mitigation efforts. By having residents participate in fuel reduction activities, HFD will reinforce that hazard reduction is an on-going partnership. Focused outreach and awareness activities will lay the groundwork for future campaigns as part of the City of Hayward's commitment toward fire safety. Residents will be able to take the skills they learned and share them with their neighbors.

Weed Abatement Program

HFD enforces defensible space weed abatement and structure ignition prevention measures. Annually, HFD engine companies undertake a "weed survey," inspecting all 25,000 properties in the interface. In 1993 the City adopted the Hillside design and Urban/Wildland Interface Guidelines for new construction. These guidelines include building construction standards, requirements for fuel management, homeowner education, shaded fuel breaks for woodland areas, mosaic islands for brush lands, fire resistive plantings, and fuel management zones up to 300 feet from structures. HFD often requires a qualified urban wildland fire management consultant to develop the fuel modification program and stipulates a fire road or trail around the perimeter of the development as a condition of approval in new developments. In January 2008, when the City adopted the new wildland urban interface building standards amendments (Chapter 7A of the California Building Code), the City found that its local building code requirements for structure ignition prevention were more stringent than the State code. In 2011 HFD enhanced the weed abatement program to assist in the prevention of urban wildfires. The program identifies properties within HFD's service area that may pose a risk for fire on adjacent properties. Residents have a year-round responsibility and obligation to maintain vegetation on their property in a condition that will not contribute to the spread of fire. To comply with the weed abatement program, residents must:

- Maintain a 30-foot minimum defensible space around all buildings and structures (up to 300 feet may be required);
- Maintain a 10-foot minimum clearance next to the roadside;
- Remove all portions of trees within 10 feet of chimney and/or stovepipe outlets and remove all dead or dying wood;
- Keep the roof of any structure free of leaves, needles, or other dead or dying wood;
- Install a spark arrester on chimney and/or stovepipe outlets;
- Provide street address numbers that are clearly visible from the roadside, with a minimum height of two inches on contrasting background;
- Remove all tree limbs within six feet of the ground; and
- Remove dead or dying vegetation from the property.

Wildland/Urban Interface Guidelines (1993)

In 1993 the City adopted the Wildland/Urban Interface Guidelines for development in the hill area to address potential fire hazards. The Wildland/Urban Interface is defined as the hill area south of D Street and east of Mission Boulevard. The Guidelines include standards for street and sidewalks that allow for fire truck access, cluster home development to make efficient use of hillside space, and architectural and site design that allow for fire setbacks and environmental disaster mitigation. The Guidelines also establish two structure categories for the urban/wildland interface: Category I structures located on sites where maximum built-in fire protection measures are necessary due to nearby steep slopes for wildland fuel loading, and Category II structures located on sites within the balance of the urban/wildland interface. Both Category I and II structures must meet or exceed the minimum California Fire Safe Guidelines and include sprinkler systems, double-paned windows, decks made from non-combustible materials, fire-resistant planting, and other fire safe design elements. Hillside development should establish a fuel management program that focuses on homeowner education, shaded fuel breaks, and mosaic islands.

Hayward Municipal Code

The City of Hayward Municipal Code limits the location of flammable or combustible liquid above ground tanks, bulk liquefied petroleum gas, explosive and blasting agent, and compressed natural gas storage; includes regulations for where bonfires, incinerators, and inflammable liquids can be used; and prohibits the use of explosives, firearms, and fireworks in the city of Hayward.

Wildland Fire Hazards

Records from the U.S. Department of Forestry reveal that wildland fires occur across the nation every year, while large fires occur fairly regularly every ten years. The occurrence of major wildfires in a particular region corresponds to the age of its vegetation. Often, renewed growth of vegetation after a major fire tends to pose a lesser risk during the first ten years of growth. However, as dead vegetation accumulates, the potential for a major wildfire increases as these materials are more susceptible to ignition and facilitate the spreading of flames. Therefore, the occurrence of wildland fires tends to be cyclical, where a decade will pass with few fires followed by a decade with several large fires. In addition, the occurrence of the largest fires also corresponds to periods of dry, high wind conditions.

Factors such as humidity, drought, rainfall, wind velocity, type and presence of vegetation, and fuel buildup are the main determinants to the start, spread, and control of wildland fires. The annual drought season (May to October) gives rise to the most hazardous fire conditions, especially in the latter months. Most wildland fires in California are the result of either arson or human carelessness.

Besides the community of Fairview, the portions of the planning area outside the city boundaries are primarily open space areas in Garin Regional Park, which includes rolling hills

covered in grassland and scattered woodland areas. CAL FIRE has designated the Garin Regional Park area as a High Fire Hazard Severity Zone in the State Responsibility Area. Wildland fires could occur in this area, but because it contains few structures, human safety hazards would be limited. Areas particularly susceptible to the threat of wildland fire hazards are depicted in Figure 5-4.

Wildland Fire Mitigation

Association of Bay Area Governments Multi-Jurisdictional Local Hazard Mitigation Plan (2010)

Hayward adopted the Association of Bay Area Governments (ABAG) 2010 Multi-Jurisdictional Local Hazard Mitigation Plan, including the City of Hayward Annex by Resolution 11-170 on October 25, 2011. The Plan establishes disaster mitigation policies and programs, and specifies methods of implementation of disaster mitigation. The disaster mitigation standards applicable for fire hazards include:

- Requiring all new privately-owned commercial and industrial buildings be constructed in compliance with requirements of the most recently adopted version of the California Building Code;
- Enforcing construction standards and building codes for private development and FEMA retrofit standards;
- Requiring sprinklers in all mixed use development to protect residential uses from fires started in non-residential areas and require fire sprinklers in all new or substantially remodeled multifamily housing;
- Requiring that new homes in wildland-urban-interface fire-threatened communities or in areas exposed to high-to-extreme fire threat be constructed of fire-resistant building materials and incorporate fire-resistant design features (to increase structural survivability and reduce ignitability); and
- Ensuring all dead-end segments of public roads in new development in high hazard areas have at least a "T" intersection turn-around sufficient for typical wildland fire equipment.

Regulatory Setting

Federal Emergency Management Agency. In March 2003 the Federal Emergency Management Agency (FEMA) became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage Federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

Disaster Mitigation Act of 2000. In 2000 the Disaster Mitigation Act was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988. Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide and is aimed primarily at the control and streamlining of the administration of Federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Disaster Mitigation Act of 2000 include:

- Funding for pre-disaster mitigation activities;
- Developing experimental multi-hazard maps to better understand risk;
- Establishing State and local government infrastructure mitigation planning requirements;
- Defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- Adjusting ways in which management costs for projects are funded.

The mitigation planning provisions outlined in Section 322 of the Act establish performance-based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation–AIM) to develop county government plans.

Uniform Fire Code. The Uniform Fire Code contains Federal regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and premises. The Code contains specialized technical regulations related to fire and life safety.

California Fire Code (Title 24, Part 9, California Code of Regulations). The California Fire Code is Part 9 of the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. The California Fire Code incorporates the Uniform Fire Code with necessary California amendments. This Code prescribes regulations consistent with nationally recognized good practices for the safeguarding to a reasonable degree of life and property from the hazards of fire explosion; it also addresses dangerous conditions arising from the storage, handling, and use of hazardous materials and devices; conditions hazardous to life or property in the use or occupancy of buildings or premises; and provisions to assist emergency response personnel.

California Public Resources Code 4291 (PRC 4291). PRC4291 requires homeowners to address wildland fire hazards through creation of defensible space and other building construction mitigation measures. Specifically, the code requires homeowners to:

- Maintain adequate defensible space 100 feet around structures;

- Remove that portion of any tree which extends within 10 feet of the outlet of any chimney or stovepipe;
- Maintain any tree adjacent to or overhanging any building free of dead or dying wood;
- Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth; and
- Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen is to be constructed of nonflammable material with openings of not more than one-half inch in size.

California Building Code (CBC). On September 20, 2007, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the California Code of Regulations (CCR), Title 24, Part 2, known as the 2007 California Building Code. The 2010 California Building Code became effective January 1, 2011, including Part 9 of Title 24 the California Fire Code.

Section 701A.3.2 of the California Building Code requires that new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, any Local Agency Very-High Fire Hazard Severity Zone, or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, comply with all sections of this chapter. New buildings located in any Fire Hazard Severity Zone shall comply with one of the following:

- **State Responsibility Areas.** New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas (SRAs) for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.
- **Local Agency Very-High Fire Hazard Severity Zone.** New buildings located in any Local Agency Very High Fire Hazard Severity Zone for which an application for a building permit is submitted on or after July 1, 2008, shall comply with all sections of this chapter.
- **Wildland-Urban Interface Fire Area Designated by the Enforcing Agency.** New buildings located in any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

California Code of Regulations, Title 19. Title 19, chapters one through six of the California Code of Regulations (CCR), establishes regulations related to emergency response and preparedness under CAL EMA.

California Health and Safety Code (Sections 13000 et seq.). California Health and Safety Code Sections 13000 et seq., establish State fire regulations, including regulations for building standards (also set forth in the California Building Code), fire protection and notification

systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Occupational Safety and Health Administration Regulations. In 1970 Congress passed the Occupational Safety and Health Act, creating the Occupational Safety and Health Administration (OSHA) under the United States Department of Labor. OSHA sets and enforces workplace standards and provides training, outreach, education, and assistance. The Federal and State Occupational Health and Safety Regulations mandate that firefighters cannot enter a burning structure that is past the small fire stage without four firefighters, with one team of two inside and the other team of two outside. The only exception to this rule is when there is a known life in danger.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes the following regulations related to fire protection:

- Chapter 3, Article 1 of the City of Hayward Municipal Code regulates the areas where bonfires, incinerators, and inflammable liquids may be used.
- Chapter 3, Article 3 of the City of Hayward Municipal Code prohibits the use of explosives, firearms, and fireworks within the city of Hayward.
- Chapter 4, Article 8 of the City of Hayward Municipal Code requires that alarm installation businesses notify the City of Hayward Fire Department each time the business sells, installs, operates, or maintains an alarm system within the city. It also establishes a fee charged to alarm users for false alarms requiring HFD response.
- Ordinance No. 10-14 adopts the 2010 California Fire Code. It establishes that the Fire Chief designates hazardous fire areas on a map maintained in the office of the Fire Chief. The hazardous fire area of Hayward has been defined as the areas east of Mission Boulevard from the south side of D Street to the city limits and all the way south to Union City. It also defines the additional fire safety requirements for buildings.

Wildland/Urban Interface Guidelines. In 1993 the City adopted the Wildland/Urban Interface Guidelines for development in the hill area in order to address potential fire hazards. The Wildland/Urban Interface is defined as the hill area south of D Street and east of Mission Boulevard. The Guidelines include standards for street and sidewalks that allow for fire truck access, cluster home development to make efficient use of hillside space, architectural and site design that allow for fire setbacks, and environmental disaster mitigation.

Weed Abatement Program. In 2011 HFD enhanced the weed abatement program to assist in the prevention of urban wildfires. The program identifies properties within the Fire Department's service area that may pose a risk for fire on adjacent properties. Residents have a year-round responsibility and obligation to maintain vegetation on their property in a condition that will not contribute to the spread of fire.

Key Terms

The following key terms used in this chapter are defined as follows:

Defensible Space. This term refers to the area between a building and an oncoming wildfire where the vegetation has been modified to reduce the threat of the wildfire igniting the structure and allows firefighters to operate safely. Typically, creating a defensible space involves thinning of flammable native trees and shrubs, removal of dead vegetation, and planting of more fire resistant plant materials around the house. The defensible space concept conveys several important ideas including homeowner responsibility, being proactive, vegetation management, house survivability, and firefighter safety.

Hazardous Fire Area. A hazardous fire area is land designated which is covered with grass, grain, brush, or forest, whether privately or publicly-owned, which is so situated or is of such in accessible location that a fire originating upon such land would present an abnormally difficult job of suppression or would result in great and unusual damage through fire or resulting erosion such areas are designated by the Fire Chief on a map maintained in the office of the Fire Chief. The hazardous fire area of Hayward has been defined as the areas east of Mission Boulevard from the south side of D Street to the city limits south to Union City.

Structural Fire. A fire that occurs within a man-made structure.

Threat Zone. Threat zones are community regions and rural centers within one and one-quarter miles of continuous wildland fuels equally threatened by a wildfire burning under average to worst fire weather conditions.

Urban. Urban is a characteristic of or constitutes a city. Urban areas are generally characterized by moderate and higher density residential development (i.e., three or more dwelling units per acre), commercial development, and industrial development, as well as the availability of public services required for that development, specifically central water and sewer, an extensive road network, public transit, and other such services (e.g., safety and emergency response). Development not providing such services may be nonurban or rural.

Urban Structure. Urban structure includes the physical elements of the urban landscape and includes the natural setting, street patterns, water courses, and overall building placement, height, scale, color, wall types, and prominent views.

Urban Wildfire. A fire occurring within the urban/wildland interface.

Wildland. An area in which development is essentially non-existent except for power lines, roads, railroads, and similar transportation facilities. Structures, if any, are widely scattered and are primarily for recreational purposes. Includes large cattle ranches and forests managed for timber production.

Wildland Fire. Any fire occurring in wild land areas.

Wildland/Urban Interface. The wildland/urban interface is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

SECTION 5.6 PARKS AND RECREATION

Introduction

This section describes the various parks facilities and recreational opportunities within the city of Hayward and the Hayward Planning Area. This section also includes an analysis of current (2012) and future (2040) parkland needs.

Major Findings

- The Hayward Area Recreation and Park District (HARD) and the East Bay Regional Park District (EBRPD) provide parks and recreation services in the city of Hayward.
- HARD currently owns, leases, maintains, or operates a system of 106 facilities in Hayward, Castro Valley, San Leandro, and San Lorenzo. HARD facilities encompass almost 2,000 acres.
- HARD operates 57 parks within the Hayward Planning Area and provides 159.85 acres of local parkland, 36.71 acres of school parks, 91.74 acres of community parkland, 271.29 acres of districtwide parkland, 1,627 acres of regional parkland, and 145.70 acres of open space, trails, and linear parkland.
- HARD offers recreational activities; age group activities; cultural programs; environmental, educational, and interpretive programs; day camps, and several seasonal events.
- Within the City of Hayward there are currently (2012) 1.02 acres of local parkland per 1,000 residents, which is just above HARD's minimum standard for local parks (1.0 acres per 1,000 residents).
- Within the City of Hayward there are currently (2012) 1.09 acres of school parkland per 1,000 residents, which is above HARD's minimum standard for school parks (1.0 acres per 1,000 residents).
- Within the City of Hayward there are currently (2012) 2.06 acres of districtwide parkland per 1,000 residents, which is below HARD's minimum standard for districtwide parks (3.0 acres per 1,000 residents). The city needs an additional 138.03 acres of districtwide parkland to meet this standard (the equivalent of approximately seven to 14 districtwide parks).
- Within the City of Hayward there are currently (2012) 33.75 acres of regional parkland per 1,000 residents, which is far above HARD's desirable standard for regional parks (3.0 acres per 1,000 residents). In 2040 it is estimated that there will be 27.05 acres of regional parkland per 1,000 residents. Therefore, the city does not need additional regional parkland to meets HARD's minimum standard.

- Between 2012 and 2040 the city will need an additional 33.12 acres of local parkland (the equivalent of four to 12 local parks) to serve the projected population and to meet HARD's minimum standard for local parks (1.0 acres per 1,000 residents).
- Between 2012 and 2040 the city will need an additional 23.52 acres of school parkland (the equivalent of three to eight school parks) to serve the projected population and to meet HARD's minimum standard for school parks (1.0 acres per 1,000 residents).
- Between 2012 and 2040 the city will need an additional 247.29 acres of districtwide parkland (the equivalent of 13 to 25 districtwide parks) to serve the projected population and to meet HARD's minimum standard for districtwide parks (3.0 acres per 1,000 residents).
- The City of Hayward's current (2013) parkland dedication requirement is 748 square feet per single family detached unit, 713 square feet per single family attached unit, and 604 square feet per multifamily unit. The current (2013) park dedication fee requirement is $11,953 per single family detached unit, $11,395 per single family attached unit, and $9,653 per multifamily unit.

Existing Conditions

Two special districts, the Hayward Area Recreation and Park District (HARD) and the East Bay Regional Park District (EBRPD), provide parks and recreation services in the city of Hayward. The City of Hayward also owns and maintains two small parks in the city. A private golf course (TPC Stonebrae) is also located within the city of Hayward. Figure 5-6 shows the location of local and regional parks in both districts.

Hayward Area Recreation and Park District

Park Facilities

HARD is a recreation district that encompasses 64 square miles and serves over 270,000 residents in the city of Hayward, as well as the major unincorporated areas of Castro Valley, San Lorenzo, Cherryland, Ashland and Fairview. HARD currently owns, leases, maintains or operates a system of 106 facilities that encompasses almost 2,000 acres. As shown in Table 5-6, HARD operates 57 park facilities in the Hayward Planning Area with a total of 2,337.29 acres, including 159.85 acres of local parkland, 36.71 acres of school parks, 91.74 acres of community parkland, 271.29 acres of districtwide parkland, 1,627 acres of regional parkland, and 145.70 acres of open space, trails, and linear parkland.

Some parks are owned outright by HARD, while others are leased from the City of Hayward, or one of the four school districts in the area. Additional park facilities are typically located in PG&E easements. HARD has also contributed to the development of recreation facilities owned and operated by others. HARD operates six types of parks: local parks; school recreation sites; community and districtwide parks; special use facilities; trails, linear parks, and greenways; and open space.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-6
Local and Regional Parks

Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
Union City
County

Community Facilities
Existing EBRPD Trail
Existing EBRPD Regional Trail
Potential EBRPD Regional Trail
SF Bay Water Trail
Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Streets
School Sites
HARD Park Facilities
EBRPD Park Facilities
Open Space
Water District Land
Hayward Planning Area

0 0.25 0.5 1 Miles

Data source: City of Hayward 2012; EBRPD 2012; HARD 2012

Note: Numbers, letters, and roman numerals refer to IDs located in tables 5.6-1, 5.6-2, and 5.6-3.

January, 2013

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
Local Parks						
1	Bechtel Mini Park	399 Ross	Picnic Tables, Barbecues, Play Area, Open Lawn Area	--	1.03	1.03
2	Birchfield Park	Santa Clara and Winton	Picnic Tables, Barbecues, Play Area, Basketball Courts, Horseshoe Courts, Restrooms, Open Lawn Area	--	5.75	5.75
3	Cannery Park[5]	125 B Street	Picnic Tables, Barbecues, Play Area, Parking Lot, Ball Fields, Basketball Courts, Soccer Fields, Snack Bar, Restrooms, Open Lawn Area	--	7.4	7.4
4	Canyon View Park	Farm Hill and Daisy	Picnic Tables, Barbecues, Play Area, Ball Fields, Basketball Courts, Soccer Fields, Open Lawn Area	--	6	6
5	Centennial Park	24000 Amador	Picnic Tables, Barbecues, Play Area, Parking Lot, Ball Fields, Basketball Courts, Soccer Fields, Snack Bar, Restrooms, Open Lawn Area	--	10.7	10.7
6	Cherryland Park	198 Grove	Picnic Tables, Barbecues, Play Area, Parking Lot, Basketball Courts, Horseshoe Courts, Open Lawn Area, Skate Area	3	--	3
7	Children's Park at Giuliani Plaza	22738 Mission Blvd	Play Area	--	.25	.25
8	Christian Penke Park	Tahoe and Morningside	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area	--	4.11	4.11
9	College Heights Park	27020 Fielding	Picnic Tables, Barbecues, Play Area, Open Lawn Area, Par Course	--	3.88	3.88
10	Eden Greenway[2]	Hesperian to 880, Eldridge to Harder	Picnic Tables, Barbecues, Play Area, Hiking/Riding Trails, Basketball Courts, Open Lawn Area, Par Course	--	31.32	31.32

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
11	Eldridge Park	Hamric at Rieger	Picnic Tables, Barbecues, Play Area, Open Lawn Area	--	2.96	2.96
12	Fairview Park[4]	2841 Romagnola	Play Area, Recreation Center Building, Restrooms, Open Lawn Area	1		1
13	Fairway Greens Park	30504 Vanderbilt	Picnic Tables, Barbecues, Play Area, Open Lawn Area	--	3	3
14	Gansberger Park	Kay and Calaroga	Picnic Tables, Barbecues, Play Area, Open Lawn Area	--	2	2
15	Gordon E. Oliver/Eden Shores Park	2841 Seahaven Court	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Tennis Courts, Half Basketball Court, Restrooms, Open Lawn Area	--	5	5
16	Greenwood Park	Eden and Middle	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area	--	3	3
17	Haymont Mini Park	Collete and Luvena	Picnic Tables, Play Area, Basketball Courts, Open Lawn Area	--	0.49	.49
18	Jalquin Vista Park	28846 Bay Heights Road	Picnic Tables, Hiking Trails	--	2	2
19	La Placita Mini Park	El Dorado and Sonoma	Picnic Tables, Barbecues, Play Area, Open Lawn Area	--	0.13	.13
20	Lakeridge Park	23333 Lakeridge	Picnic Tables, Barbecues, Play Area, Half Basketball Court, Open Lawn Area	5.64	--	5.64
21	Lewis Park[3]	28630 Hayward Blvd.	Play Area, Picnic Area, Restrooms, Parking Lot	--	10	10
22	Longwood Park	Leonardo and Reed	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area, Par Course	--	2.9	2.9
23	Nuestro Parquecito[3]	East 10th at Jefferson	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area	--	2.6	2.6

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
24	Old Highlands Park	26180 Parkside	Picnic Tables, Barbecues, Play Area, Hiking/Riding Trails, Parking Lot, Horseshoe Courts, Open Lawn Area, Ball wall	--	5.05	5.05
25	Palma Ceia Park[5]	27600 Decatur	Picnic Tables, Barbecues, Play Area, Recreation Center Building, Snack Bar, Meeting Rooms, Restrooms, Open Lawn Area	--	5.7	5.7
26	Rancho Arroyo Park[5]	2121 Depot	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area	--	6	6
27	Ruus Park[4,5]	Dickens and Folsom	Picnic Tables, Barbecues, Play Area, Ball Fields, Soccer Fields, Restrooms, Open Lawn Area	--	5.57	5.57
28	Silver Star Veterans Park	695 Industrial Pkwy	Soccer	--	3	3
29	Stonybrook Park	Woodland and Vanderbilt	Picnic Tables, Parking Lot, Tennis Courts, Play Area, Open Lawn Area	--	4	4
30	Stratford Village Park	Stratford Road and Canterbury Lane	Picnic Area, Play Area, Open Turf Area, Skate Area	--	2.2	2.2
31	Tennyson Park	Panjon and Huntwood	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Ball Fields, Soccer Fields, Snack Bar, Restrooms, Open Lawn Area, Skate Area	--	10.17	10.17
32	Twin Bridges Park	301 Arrowhead	Picnic Tables, Barbecues, Play Area, Half Basketball Court, Open Lawn Area	--	3	3
33	Valle Vista Park	381 Valle Vista	Picnic Tables, Barbecues, Play Area, Basketball Courts, Open Lawn Area	--	1	1
Subtotal				**9.64**	**150.21**	**159.85**

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
School Parks						
34	Bidwell Park	175 Fairway	Picnic Tables, Barbecues, Play Area, Parking Lot, Ball Fields, Basketball Courts, Soccer Fields, Horseshoe Courts, Open Lawn Area, Volleyball Courts	--	8.09	8.09
35	Brenkwitz Field/Impact Academy	2560 Darwin Street	Play Area, Open Lawn Area	--	3	3
36	Bret Harte School[4]	1047 E Street	Parking Lot, Ball Fields, Basketball Courts, Soccer Fields, Restrooms, Open Lawn Area	--	4.2	4.2
37	El Rancho Verde Park/ Conley/Caraballo High School[4]	541 Blanche	Parking Lot, Ball Fields, Snack Bar, Restrooms, Open Lawn Area, Gymnasium	--	4	4
39	Stonebrae School	28761 Hayward Boulevard	Playfields	--	5.62	5.62
40	Sunset Adult School[4]	22100 Princeton	Parking Lot, Restrooms, Swim Center, Open Lawn Area	--	11.8	11.8
Subtotal				**-**	**36.71**	**36.71**
Community Parks						
41	East Avenue Park[3]	3221 East Ave	Picnic Tables, Barbecues, Play Area, Hiking/Riding Trails, Parking Lot, Basketball Courts, Horseshoe Courts, Restrooms, Open Lawn Area, Amphitheatre	26.87	--	26.87
42	Meek Park[4]	Boston and Hampton	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Parking Lot, Restrooms, Open Lawn Area, Historical Building	12.3	--	12.3

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
43	Mt Eden Park[4]	2451 W Tennyson	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Parking Lot, Tennis Courts, Ball Fields, Soccer Fields, Horseshoe Courts, Snack Bar, Meeting Rooms, Restrooms, Open Lawn Area, Historical Building, Shuffle Board	--	14.5	14.5
44	San Felipe Park	2058 D Street	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Parking Lot, Basketball Courts, Community Center Building, Meeting Rooms, Restrooms, Open Lawn Area	10.75	--	10.75
45	Southgate Park[5]	26780 Chiplay	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Hiking/Riding Trails, Tennis Courts, Ball Fields, Soccer Fields, Horseshoe Courts, Community Center Building, Snack Bar, Meeting Rooms, Restrooms, Open Lawn Area	--	10.66	10.66
46	Weekes Park	27182 Patrick	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Parking Lot, Tennis Courts, Ball Fields, Basketball Courts, Soccer Fields, Community Center Building, Snack Bar, Meeting Rooms, Restrooms, Open Lawn Area, Art Studio	--	16.66	16.66
Subtotal				**49.92**	**41.82**	**91.74**
Districtwide Parks						
47	Alden E. Oliver Sports Park of Hayward[1,2,4]	2580 Eden Park Place	Picnic Tables, Barbecues, Play Area, Ball Fields, Soccer Fields, Basketball Courts, Snack Bar, Restrooms		25	25

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
48	Hayward Plunge and Memorial Park[1,2,4,5]	24176 Mission	Picnic Tables, Group Picnic Area, Barbecues, Play Area, Hiking/Riding Trails, Parking Lot, Tennis Courts, Restrooms, Swim Center, Open Lawn Area, Indoor Pool		31	31
49	Japanese Gardens[4]	North Third and Crescent	Parking Lot, Restrooms, Wedding site rental		3.61	3.61
50	Kennedy Park[1,2,4]	19501 Hesperian	Picnic/Group Picnic Area, Barbecues, Play Area, Parking Lot, Tennis Courts, Horseshoes, Restrooms, Open Lawn Area, Petting Zoo, Rides, Train		13.3	13.3
51	Mission Hills of Hayward Golf Course and Driving Range[4]	275 Industrial Parkway West	Golf Course, Driving Range, Restrooms, Pro Shop, Restaurant, Parking Lot, Picnic Tables		58.6	58.6
52	Skywest Golf Course[4]	1401 Golf Course Road	Group Picnic Area, Barbecues, Hiking/Riding Trails, Parking Lot, Snack Bar, Restrooms, Pro Shop, Restaurant, Driving Range		125	125
53	Sorensdale Park[1,4]	275 Goodwin	Picnic Tables, Barbecues, Play Area, Parking Lot, Ball Fields, Basketball Courts, Soccer Fields, Snack Bar, Meeting Rooms, Restrooms, Open Lawn Area, Disabled Citizen Center		4.78	4.78
54	Sulphur Creek Nature Center[4]	1801 D Street	Picnic Tables, Barbecues, Parking Lot, Restrooms, Open Lawn Area, Nature Center	10		10
Subtotal				**10**	**261.29**	**271.29**

TABLE 5-6
HARD PARKS
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Acres		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
Regional Parkland						
55	Shoreline Interpretive Center[3,4]	4901 Breakwater	Hiking/Riding Trails, Parking Lot, Meeting Rooms, Restrooms		1,627	1,627
Subtotal				**-**	**1,627.00**	**1,627.00**
Open Space, Trails, and Linear Parks						
56	Taper Park	End of McDonald Way	Open Space		37.00	37.00
57	Greenbelt Trails	Ward Creek Canyon	Picnic Tables, Barbecues, Hiking/Riding Trails		108.7	108.7
Subtotal				**-**	**145.70**	**145.70**
TOTAL				**69.56**	**2,272.82**	**2,342.38**

Notes:
[1]Also considered local parks.
[2]Also considered community parks.
[3]Also considered open space, linear park, or trails.
[4]Also considered a special use facility.
[5]Also considered a school joint-use facility.
Source: HARD, 2012; HARD Master Plan, 2006.

Local Parks

Local parks provide a combination of playground and park areas designed primarily for non-supervised, non-organized recreation activities. These parks are typically three to ten acres in size (although a few are less than three acres), and serve an area of approximately one-quarter to one-half mile radius (see Figure 6-11 Access to Parks and Recreational Facilities in Chapter 6 Community Health and Quality of Life for more information).

Local parks should form an integral part of the neighborhood and create a sense of community by providing not only a place to engage in informal sports and playground activities, but also social gathering areas located in association with these park activities and other neighborhood amenities. Typically, facilities found in a local park include a children's playground with adjacent sitting areas, individual family picnic areas, open grass areas, youth sports/activity areas, and community gardens.

School Parks and School Recreation Sites

School parks and recreation sites include facilities that are developed on school land and are available for use by the recreating public. School parks may be jointly-owned or managed by any combination of HARD, the School District, or the school itself. There are four school districts within the HARD service area: the Hayward, Castro Valley, San Lorenzo, and New Haven Unified School Districts. Within these four districts there are several school parks in the Hayward Planning Area that are jointly-managed by HARD and a school district (see Table 5-6 above). Several local, community, and districtwide parks are also considered school joint-use facilities because they are used by adjacent schools (see Table 5-6 above). In addition, there are 13 school recreation sites that are solely managed by the school districts (see Table 5-7 below).

TABLE 5-7
DISTRICT SCHOOL RECREATION SITES IN HAYWARD
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Approximate Acreage		
				Unincorporated Areas within Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
I	Burbank School	380 C Street	Picnic Tables, Ball Fields, Recreation Center Building, Soccer Fields, Restrooms, Open Lawn Area	--	2.8	2.8
II	Cesar Chavez Middle School	27845 Whitman Street	Sports Courts, Sports Fields		9.12	9.12
III	Colonial Acres School	17115 Meekland	Play Area, Open Lawn Area	6.5	--	6.5
IV	Harder School	Harder and Whitman	Play Area, Parking Lot, Ball Fields, Soccer Fields, Open Lawn Area	--	4.2	4.2
V	Hayward High School	1633 East Ave	Athletic Fields, Sport Courts	--	22.15	22.15
VI	Mt Eden High School	2300 Panama	Parking Lot, Restrooms, Swim Center, Athletic Fields, Sports Courts	--	21.86	21.86
VII	Anthony Ochoa Middle School	2121 Depot Road	Sports Fields, Sports Courts		12.82	12.82
VIII	Park School	411 Larchmont	Play Area, Ball Fields, Soccer Fields, Sports Courts, Open Lawn Area	--	5.13	5.13
IX	Pexioto School	24150 Russ Road	Play Area, Ball Fields, Soccer Fields, Open Lawn Area	--	4.82	4.82
X	Shepherd School	27211 Tyrrell	Play Area, Parking Lot, Ball Fields, Soccer Fields, Open Lawn Area	--	5.9	5.9
XI	Stobridge School	21400 Bedford Drive, Castro Valley	Sports Fields and Sport Courts		4.20	4.20
XII	Tennyson High School	27035 Whitman	Parking Lot, Athletic Fields	--	23.3	23.3
XIII	Winton School	119 Winton	Ball Fields, Soccer Fields, Open Lawn Area	--	7.0	7.0
TOTAL				**6.6**	**123.3**	**129.8**

Note: Includes the acreage of exterior fields, sports courts, and open lawn areas. Excludes parking lots, restrooms, and internal gyms/recreation facilities.
Source: HARD, 2012; HARD Master Plan, 2006.

Public use school recreation sites are subject to use restrictions defined in specific joint-use agreements between HARD and one of the four school districts. These areas supplement the active recreation areas available to HARD residents and may include active facilities such as turf ballfields for organized sports, swimming pools, gymnasiums and hard courts (e.g., basketball, tennis courts).

Community and Districtwide Parks

Community parks are larger than local parks and provide a wider variety and higher intensity of recreational uses. Typically, community parks include more active and structured activities for larger segments of the community. In general, community park facilities are designed for organized activities and sports, although individual and family activities are also encouraged. Districtwide parks include the same amenities as communitywide parks, but serve a larger population.

Community and districtwide parks should have a distinctive design theme carried throughout the park that provides it with a compelling identity that ties into the surrounding neighborhood and the District as a whole. Typical facilities found in a communitywide or districtwide park may include: preschool and elementary children's playgrounds with adjacent sitting areas, water play features, shaded group picnic areas, and athletic fields and courts.

Special Use Facilities

Special Use Facilities are unique public recreation amenities that add diversity to the range of recreational opportunities provided by HARD. The size and location of these special use facilities depends on its function. Some of the uses that fall into this classification include: special population group facilities (e.g., senior centers, recreation facilities for the disabled), cultural facilities (e.g., theaters, auditoriums, botanic gardens), single purpose sites that are used for golf, field sports, aquatics or other activities, and sites occupied by a special use building (e.g., historic structures). There are 16 special use facilities in Hayward, not counting civic or community centers. Most are located within parks (see Table 5-6).

Trails, Linear Parks, and Greenways

Trails and linear parks are parklands that are linear in nature and provide connections between parks, schools, neighborhoods, business, and shopping areas. HARD's trails form part of a comprehensive regional trail system developed in conjunction with several other agencies, including the East Bay Regional Park District, East Bay Municipal Utilities District, City of Hayward, and Alameda County.

Greenways are recreation throughways which preserve natural habitat or cultural features through urban areas or open, undeveloped lands. These corridors may traverse natural canyons, creeks, and ridgelines, or may be constructed as part of newly developing areas or areas undergoing revitalization. Greenways may include abandoned railroad right-of-ways, canals, scenic roads, or other routes.

Open Space

Natural open space is defined as undeveloped land primarily left in its natural environment that provides recreation uses as a secondary objective. Open space may or may not be publicly accessible. This type of land often includes wetlands, steep hillsides, or other similar spaces. In some cases environmentally sensitive areas are considered as open space and can include wildlife habitat, stream and creek corridors, or unique and/or endangered plant/animal species.

Recreation Programs

HARD offers a variety of recreational programs to accompany district parks, including active league sports, fitness classes, aquatics, senior programs, disabled programs, music, drama, golf lessons, photography, arts, crafts, culture, dance, and nature programs.

Recreational activities offered by HARD range from competitive team sports (e.g., softball, soccer, basketball, flag football, volleyball) to individual instructional programs (e.g., aerobics, golf, tennis, martial arts, gymnastics). Aquatics programs include learn-to-swim classes and adult lap swimming, which are offered at five swim centers. Only one swim center is open year-round.

Activities for specific age groups offered by HARD provide opportunities for supervised recreation. Youth activities are addressed in a variety of programs, including sports, crafts, tutoring, leadership, and instructional classes. For example, teenage activity centers offer informal programs, such as pool, table tennis, arts and crafts, and band practice. Senior centers also offer a variety of services, including, bingo, dances, and instructional classes.

Cultural programs offered by HARD include art, dance, drama, music, and photography, as well as an extensive area of special interest classes, such as computer competency, culinary arts, money management, and dog training.

HARD also offers environmental educational and interpretive programs and classes at the Shoreline Interpretive Center and Sulphur Creek Nature Center. These programs and classes are augmented by Sulphur Creek's wildlife discovery center and animal lending library.

Day camps offered by HARD generally serve the elementary school-age bracket. Day camps include a science-oriented program at the Shoreline Interpretive Center, Ward Creek Day Camp for the disabled, and three nature camps. Other day camps include specialized swim/tennis, theater, sports, and art programs.

Events

HARD parks are also home to several community events held throughout the year. In the spring Kennedy Park hosts the Bonnet Parade and Egg Hunt, an event where young children in homemade bonnets enter the parade and hunt for eggs. In the summer the Hayward Shoreline Interpretive Center hosts an Annual Father's Day Camp Out with a BBQ for Dads and their

families. The Sulphur Creek Nature Center hosts several animal-themed events, including Bats and Brews, Flight to Freedom, and Reptile Rally. The Skywest Golf Course hosts two summer events: the Greater Hayward Area Recreation and Park Foundation Annual Golf Tournament and the Junior Golf Association of Northern California Golf Tournament. Additionally, Memorial Park is home to summer concerts in the park and Kennedy Park holds a Hayward Zucchini Festival.

After the summer season, park events start to wind down in the fall. Sulphur Creek Nature Center holds International Turkey Vulture Awareness Day and the Hayward Shoreline Interpretive Center holds International Coastal Cleanup Day. The Alden E. Oliver Sports Park hosts a Science in the Park event. During this season HARD also puts on several holiday-themed events. Sulphur Creek Nature Center also hosts an UnHaunted House for Halloween and the Hayward Plunge and Memorial Park holds an annual Thanksgiving Turkey Swim. The main event in the winter is the Mother Nature's Holiday Gifts celebration at the Sulphur Creek Nature Center.

District Master Plan

The original HARD master plan was adopted in 1958. It has been updated four times: 1967, 1974, 1990, and most recently in 2005. The District Master Plan incorporates changes in land use planning, legislative mandates, and Special District allocations from the State. The Plan presents a visionary and pragmatic approach for managing HARD in the long term, while providing specific policies and standards to guide day-to-day actions. The Plan also includes park acreage and facility standards that are incorporated by reference into the Hayward General Plan.

As shown in Table 5-8, HARD uses the National Recreation and Park Association (NRPA) standards as a basis for preparing its own standards. The HARD Master Plan includes the minimum standards of:

- One acre of local parkland per 1,000 residents;
- One acre of school parkland per 1,000 residents; and
- Three acres of district wide parkland per 1,000 residents (districtwide parkland includes community parks, community centers, special use facilities, and athletic fields that serve neighborhood and community needs).

The Master Plan also includes desirable standards and optimal standards as goals for various types of parks (see Table 5-8). Further, the City of Hayward Municipal Code established a standard of five acres of parkland for every 1,000 residents, not including street areas and school district joint use facilities.

TABLE 5-8
HARD PARK STANDARDS FOR PARK FACILITY ACQUISITION AND DEVELOPMENT
Hayward Planning Area
2012

Park Type	Acreage per Thousand Population[1]			Size[1]	Service Radius[2]	Level Area
	Minimal	Desirable	Optimal			
Local Parks	1.0[3]	1.5	2.0	3 to 10 acres	¼ to ½ mile	3.0 acres
School Parks	1.0[3]	1.5	2.0	3 to 10 acres	¼ to ½ mile	3.0 acres
Districtwide Parks[4]	3.0	4.0	5.0	10 to 20+ acres	2 to 3 miles	10 acres[5]
Regional Parkland	--	3.0	--	100+ acres	½ hour driving time	Varies[5]
Open Space, Trails, and Linear Parks	--	1 mile	--	Within 10 minute walk	As needed to provide linkages	ADA

[1] Modifying factors which must be taken into account when applying the above guidelines include: a) availability and cost of land, b) nature of neighborhood, c) population characteristics, 4) accessibility.
[2] Service area radii are generalized and must be evaluated on a case-by-case basis, taking into account such variables as terrain, major man-made obstacles (such as freeways) and general availability of open space. See Chapter 6, Community Health and Quality of Life, for more information on access to parks and recreational facilities.
[3] Smaller than minimum acreage sizes may be considered.
[4] Districtwide parks include: community parks and centers, special use facilities and athletic fields that serve neighborhood and community needs.
[5] Level area required may vary widely depending on use, parking areas for community facilities – two acres average.
Source: HARD Master Plan, 2006.

Funding Sources

The main source of funding for parkland acquisition and development is the State Quimby Act. Under this provision of State law, the City requires dedication of parkland or in-lieu fees for each new housing unit it approves. Hayward's current (2013) parkland dedication requirement is 748 square feet per single family detached unit, 713 square feet per single family attached unit, and 604 square feet per multifamily unit. The current (2013) park dedication fee requirement is $11,953 per single family detached unit, $11,395 per single family attached unit, and $9,653 per multifamily unit.

East Bay Regional Park District (EBRPD)

Park Facilities

The East Bay Regional Park District (EBRPD) provides and manages the regional parks for Alameda and Contra Costa Counties, a 1,400 square mile area which is home to 2.6 million people. The District's facilities consist of 65 regional parks and over 1,200 miles of trails. EBRPD recreation areas include lakes, shorelines, campgrounds, visitor centers, interpretive and recreation programs, picnic areas, indoor/outdoor rental facilities, and golf courses. As shown in Table 5-9, EBRPD operates five regional parks that serve the Hayward planning area. These parks total 13,549 acres: 3,338 acres of regional parkland are within the City of Hayward and 4,701 are within the Hayward Planning Area.

TABLE 5-9
EBRPD PARKS IN HAYWARD
Hayward Planning Area and the City of Hayward
2012

ID	Park Name	Address	Facilities	Total Acres of Park	Acres Within:		
					Unincorporated Areas of the Hayward Planning Area	City of Hayward	Total: Hayward Planning Area
A	Don Castro	22400 Woodroe Avenue	Parking, swimming, fishing, meadows and lawns, picnic areas, unpaved multiuse trails, paved multiuse trails, narrow hiking and riding trails, day camps, and food service	93	2	0	2
B	Garin Regional Park	1320 Garin Avenue	Parking, fishing, visitor center, picnic areas, unpaved multiuse trails, day camps, group camps, and other special features	3,366	1,321	713	2,034
C	Hayward Shoreline	3010 West Winton Avenue	Parking, fishing, kayak/canoe launch areas, and unpaved multiuse trails	1,025	32	965	997
D	Pleasanton Ridge	Foothill Road, Pleasanton	Parking, picnic areas, unpaved multiuse trails, and narrow hiking and riding trails	7,389	0	1,660	1,660
E	Dry Creek Pioneer Regional Park	1320 Garin Avenue	Parking, unpaved multiuse trails, other special features	1,676	8	0	8
Total				**13,549**	**1,363**	**3,338**	**4,701**

Note: Includes land banked parkland.
Source: EBRPD, 2012.

Regional parklands are essentially different from local and community parks. They preserve large areas of intact, natural open space that are significant for their natural conditions, views, and potential to provide visitors with an experience of nature. For this reason regional parks are planned and developed to support low-intensity, passive recreational activities, such as hiking, biking, horseback riding, swimming, fishing, and nature study. Generally, regional parks have a relatively low level of development, except for improvements needed to provide access, such as staging areas, trails, bridges, picnic areas, campgrounds, and necessary operational facilities. A regional park should be at least 500 acres in size, and include scenic or natural resources in at least 70 percent of its area. All five of the EBRPD regional parks that serve the Hayward Planning Area are classified as regional parks, except for the upper portion of Don Castro, which is a regional recreation area.

Recreational Programs

EBRPD provides recreational and interpretive programs to enhance access and use of the park system. These programs serve people of all ages, cultural backgrounds, and physical abilities.

Interpretive programs offer park visitors educational experiences that include talks and tours, workshops, permanent and portable exhibits, resource materials, activities with school groups and educators, and special events. With naturalist-led field trips and hands-on demonstrations, the parklands serve as "living laboratories" for students of all ages.

Recreational programs are oriented around outdoor recreational activities, such as hiking, mountain biking, fishing, and kayaking. Participants in these regional programs can swim at lifeguard-staffed beaches, picnic, camp, and enjoy a wide range of special events and outdoor activities.

District Master Plan

The EBRPD Master Plan defines the overall mission and vision for the Park District. The policies contained in the Plan guide the stewardship and development of parks, and balance the need to protect and conserve resources with the need to provide opportunities for recreational use of the parklands.

Funding

The major source of the District's General Fund is property tax revenues received in accordance with the master tax sharing agreements of both Alameda and Contra Costa Counties. The District receives funds from eastern Alameda County via a tax sharing agreement with the Livermore Area Parks and Recreation District. It does not collect property taxes from eastern Contra Costa County, where a separate Landscaping and Lighting District has been established to provide a funding source for District programs.

In 2008 Alameda and Contra Costa County residents voted to approve Measure WW to extend the funding provided in Measure AA, previously passed by voters in 1988, without raising tax rates. Measure AA was a $225 million bond measure that EBRPD used to preserve 34,000 acres of regional parkland and to add over 100 miles of trails. Measure AA also provided $60 million to fund local city park projects. However, funding for Measure AA was completely allocated by 2008. Measure WW extends Measure AA with a $500 million bond extension, $375 million of which will fund regional park acquisition and capital and $125 million of which will fund local parks in cities, counties, special park and recreation districts, and the Oakland Zoo.

Other Parks and Recreation Facilities

The City of Hayward owns and maintains two parks. Newman Park is a 0.2 acre park located in Downtown Hayward and includes landscaping and seating areas. The Mission Boulevard Greenway is a 4.82 acre linear park located along Mission Boulevard and includes landscaping and a trail.

Parks Needs Analysis: 2012 and 2040

2012 Analysis

Table 5-10 provides an analysis of the current (2012) parkland acreage within the city of Hayward and the Hayward Planning Area. The purpose of this analysis is to determine if there is currently (2012) enough parkland within the city and the Hayward Planning Area based on HARD's standards. Based on the analysis, the city of Hayward currently (2012) has enough local parks, school parks, and regional parks to meet HARD's standards. Within the city of Hayward, there are currently (2012) 1.02 acres of local parkland and 1.09 acres of school parkland per 1,000 residents, which is just above HARD's minimum standard of 1.0 acres per 1,000 residents. Additionally, there are currently (2012) 33.75 acres of regional parkland per 1,000 residents in the city of Hayward, which is far above HARD's desirable standard for regional parks (3.0 acres per 1,000 residents).

However, the city does not have enough districtwide parkland. There are currently (2012) 2.06 acres of districtwide parkland per 1,000 residents, which is below HARD's minimum standard for districtwide parks (3.0 acres per 1,000 residents). The city needs 138 additional acres of districtwide parkland (the equivalent of 7 to 14 districtwide parks) to meet HARD's minimum standard.

When looking at the Hayward Planning Area, there is not enough local, school, and districtwide parkland to meet HARD's standards. The city needs an additional three to eight local parks, two to six school parks, and 10 to 19 districtwide parks to meet HARD's standards for the Hayward Planning Area.

2040 Analysis

Table 5-11 provides an analysis of the projected parkland needs within the city of Hayward and the Hayward Planning Area in 2040. The purpose of this analysis is to determine how much parkland will be needed in 2040 based on projected population growth and HARD's standards. It also estimates the approximate number of additional parks that will be needed to meet HARD's standards in 2040. Based on the analysis, the city needs additional local, school, and districtwide parks within the city of Hayward to meet HARD's standards in 2040:

- The city needs an additional 33.12 acres of local parkland, the equivalent of four to 12 local parks, between 2012 and 2040 to serve the projected 2040 population and to achieve HARD's standards.
- The city needs an additional 23.52 acres of school parkland, the equivalent of three to eight school parks, between 2012 and 2040 to serve the projected 2040 population and to achieve HARD's standards.
- The city needs an additional 247.29 acres of districtwide parkland, the equivalent of 13 to 25 districtwide parks, between 2012 and 2040 to serve the projected 2040 population and to achieve HARD's standards.

It is estimated that in 2040 there will be 27.05 acres of regional parkland per 1,000 residents. Therefore, no additional regional parkland will be needed to meets HARD's minimum standard.

When looking at the Hayward Planning Area, the city will need an additional 7 to 22 local parks, 6 to 19 school parks, and 16 to 31 districtwide parks between 2012 and 2040 to serve the projected 2040 population and to achieve HARD's standards.

TABLE 5-10
HARD PARK STANDARDS VERSUS ACTUAL ACREAGE PROVIDED: 2012
Hayward Planning Area and City of Hayward
2012

Park Type and Park Standard[1]	City of Hayward				Hayward Planning Area			
	Acres Needed to Achieve Standard[2]	Actual Acres	Additional Acres Needed	Approximate Number of Additional Parks Needed[3]	Acres Needed to Achieve Standard[4]	Actual Acres	Additional Acres Needed	Approximate Number of Additional Parks Needed[3]
Local Parks: 1.0 acres per 1,000 population[5]	147.11	150.41	NA	NA	183.35	160.05	23.3	3 to 8
School Parks: 1.0 acres per 1,000 population[6]	147.11	160.01	NA	NA	183.35	166.51	16.84	2 to 6
Districtwide Parks: 3.0 acres per 1,000 population[7]	441.34	303.31	138.03	7 to 14	550.05	363.03	187.02	10 to 19
Regional Parkland: 3.0 acres per 1,000 population	441.34	4,965	NA	NA	550.05	6,328	NA	NA

Notes:
1. HARD's "Minimum" standard is used for Local Parks, School Parks, and Districtwide Parks. HARD's "Desirable" standard is used for Regional Parks because HARD does not have a minimum standard for Regional Parks (see Table 5.6-3).
2. Based on a 2012 population of 183,533.
3. A range is provided because the size of each park can vary. The approximate range is based on HARD's ideal standards for park size (3 to 10 acres for Local and School Parks, and 10 to 20 acres for Districtwide Parks). The range could change if smaller or larger parks are provided.
4. Based on a 2012 population of 183,349.
5. Includes HARD Local Parks (see Table 5.6-1) and Newman Park (City of Hayward).
6. Includes HARD School Parks (see Table 5.6-1) and School District Recreation Sites (see Table 5.6-2).
7. Includes Community Parks, Districtwide Parks, and Special Use Facilities (see Table 5.6-1).

Source: HARD Master Plan, 2006; Mintier Harnish, 2012.

TABLE 5-11
PROJECTED PARK NEEDS: 2040
Hayward Planning Area and City of Hayward
2012

Park Type and Park Standard[1]	City of Hayward				Hayward Planning Area			
	Acres Needed to Achieve Standard[2]	Acres In 2012	Additional Acres Needed by 2040	Approximate Number of Additional Parks Needed by 2040[3]	Acres Needed to Achieve Standard[4]	Acres in 2012	Additional Acres Needed by 2040	Approximate Number of Additional Parks Needed by 2040[3]
Local Parks: 1.0 acres per 1,000 population[5]	183.53	150.41	33.12	4 to 12	223.86	160.05	63.81	7 to 22
School Parks: 1.0 acres per 1,000 population[6]	183.53	160.01	23.52	3 to 8	223.86	166.51	57.35	6 to 19
Districtwide Parks: 3.0 acres per 1,000 population[7]	550.60	303.31	247.29	13 to 25	671.57	363.03	308.54	16 to 31
Regional Parkland: 3.0 acres per 1,000 population	550.60	4,965	NA	NA	671.57	6,328	NA	NA

Notes:

1. HARD's "Minimum" standard is used for Local Parks, School Parks, and Districtwide Parks. HARD's "Desirable" standard is used for Regional Parks because HARD does not have a minimum standard for Regional Parks (see Table 5-X).
2. Based on a 2040 projected population of 147,113.
3. A range is provided because the size of each park can vary. The approximate range is based on HARD's ideal standards for park size (3 to 10 acres for Local and School Parks, and 10 to 20 acres for Districtwide Parks). The range could change if smaller or larger parks are provided.
4. Based on a 2040 projected population of 223,855.
5. Includes HARD Local Parks (see Table 5-X) and Newman Park (City of Hayward).
6. Includes HARD School Parks (see Table 5-X) and School District Recreation Sites (see Table 5-X).
7. Includes Community Parks, Districtwide Parks, and Special Use Facilities (see Table 5-X).

Source: HARD Master Plan, 2006; Mintier Harnish, 2012.

Regulatory Setting

State Public Park Preservation Act (California Public Resource Code Section 5400 – 5409). The State Public Park Preservation Act is the primary instrument for protecting and preserving parkland in California. Under the Act cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This ensures a no net loss of parkland and facilities.

State Street and Highway Code. The State Street and Highway Code includes provisions for equestrian and hiking trails within the right-of-way of county roads, streets, and highways.

Quimby Act (1975). The Quimby Act allows cities and counties to adopt park dedication standards/ordinances requiring developers to set aside land, donate conservation easements, or pay fees towards parkland.

City of Hayward Municipal Code, Chapter 10, Article 16, Property Developers – Obligations for Parks and Recreation. Chapter 10, Article 16 of the City of Hayward Municipal Code sets parkland dedication and Quimby fees. The City of Hayward current (2013) parkland dedication requirement is 748 square feet per single family detached unit, 713 square feet per single family attached unit, and 604 square feet per multifamily unit. The current (2013) park dedication fee requirement is $11,953 per single family detached unit, $11,395 per single family attached unit, and $9,653 per multifamily unit.

Measure WW. In 2008 Alameda and Contra Costa County residents voted to approve Measure WW to extend the funding provided in Measure AA, previously passed by voters in 1988, without raising tax rates. Measure WW extends Measure AA with a $500 million bond extension, $375 million of which will fund regional park acquisition and capital, and $125 million of which will fund local parks in cities, counties, special park and recreation districts, and the Oakland Zoo.

Key Terms

The following key terms used in this chapter are defined as follows:

Active Recreation. A mix of recreation uses that involve some form of built infrastructure or constructed facilities, such as athletic fields, concession stands, golf courses, tennis or basketball courts, baseball fields, children's playgrounds, dog parks, or paved bike paths.

Community Park. A community park is larger than a local park and provides a wider variety and higher intensity of recreational uses. The focus is on more active and structured activities for larger segments of the community. In general, community park facilities are designed for organized activities and sports, although individual and family activities are also encouraged. Their service area is roughly a two- to three-mile radius.

Local Park. A local park is a combination playground and park area designed primarily for non-supervised, non-organized recreation activities. These parks are generally three to ten acres in size and serve an area of approximately one-quarter to one-half mile radius. At least fifty percent of the site should be level and usable for both active and passive recreation.

Open Space. Open space is defined as undeveloped land primarily left in its natural environment with recreation uses as a secondary objective. Open space may or may not have public access. This type of land often includes wetlands, steep hillsides, or other similar spaces.

Passive Recreation. A mix of non-motorized or non-consumptive recreational uses, such as wildlife viewing, hiking, biking, and canoeing that typically occur on undeveloped or minimally-improved lands.

Recreational Area. Any public or private space set aside for, or primarily oriented to, recreational use. This includes both parks and community centers.

Regional Park. A regional park is a spacious land area with outstanding natural features and sufficient land area to support outdoor recreational opportunities. A regional park must be 500 acres or more, including scenic or natural resources in at least 70 percent of its area.

School Park/Recreation Site. A school recreation site is a facility that has been developed on school land and is available for use by the recreating public. School parks may be jointly-owned and/or developed. Public use of these school parks for recreational purposes is subject to use restrictions defined in specific joint-use agreements.

Special District. A Special District is defined by the State of California as "a legally constituted governmental entity, which is governed neither by the city or county and is established for the purpose of carrying on specific activities within defined boundaries."

Special Use Facility. A special use facility is a unique public recreation amenity that includes: special population group facilities (such as senior centers and recreation facilities for the disabled; cultural facilities such as theaters, auditoriums, and botanic gardens); single purpose sites that are used for golf, field sports, aquatics or other activities; and sites occupied by a special use building (such as historic structures). The size and location of these special use facilities depend on the function.

Trails, Linear Parks, and Greenways. Trails, linear parks, and greenways are untraditional parklands that are identified as areas that are linear in nature, and provide a significant connection within the District between parks, schools, neighborhoods, business, and shopping areas. They also preserve natural habitat or cultural features through urban areas or open, undeveloped lands.

SECTION 5.7 CIVIC AND COMMUNITY FACILITIES AND PROGRAMS

Introduction

This section describes the major community facilities and programs within the city of Hayward.

Major Findings

- There are currently 11 community facilities in Hayward: Bidwell Community Center, Douglas Morrisson Theatre, Hayward Area Senior Center, HARD Admin Building/PhotoCentral, Hayward Plunge Pool, Matt Jimenez Community Center, Ruus Community Center, Sorensdale Community Center, Southgate Community Center, Sunset Swim Center, and Weekes Community Center. Additionally, the Chabot Community College Reed L. Buffington Visual and Performing Arts Center also provides indoor meeting space and group events available to Hayward residents.

Existing Conditions

Hayward Recreation and Parks District Community Facilities

Community facilities are focal points of the recreational programming aspect of their services, providing space for classes, meetings, and special events. Community facilities typically include a multi-purpose room with a stage, high ceilings, and storage areas; a gym for basketball, volleyball, or badminton; and fitness/exercise facilities for activities such as dance, yoga, Pilates, spinning, and kick boxing. Additional outdoor amenities commonly found with a community facility include an outdoor amphitheater, performance, or classroom space; small tot lot; picnic area; and informal turf play areas. Other community facilities may include swim centers, theaters, and galleries.

As shown in Table 5-12, there are currently 11 community facilities in Hayward, providing over 150,000 square feet of space. These are the Bidwell Community Center, Douglas Morrisson Theatre, Hayward Area Senior Center, HARD Admin Building/PhotoCentral, Hayward Plunge Pool, Matt Jimenez Community Center, Ruus Community Center, Sorensdale Community Center, Southgate Community Center, Sunset Swim Center, and Weekes Community Center.

TABLE 5-12
COMMUNITY FACILITIES IN HAYWARD
Hayward Planning Area
2012

ID	Community Facility Name	Address	Facilities	Square Feet
a	Douglas Morrisson Theatre[1]	North Third and Crescent	Parking Lot, Restrooms	15,496
b	Hayward Area Senior Center	North Third and Crescent	Parking Lot, Community Center Building, Meeting Rooms, Restrooms, Par Course	11,500
c	HARD Admin Building/PhotoCentral[1]	1099 'E' Street	Parking Lot, Meeting Rooms, Restrooms, Gallery	15,530
d	Hayward Plunge Pool[1]	24176 Mission	Swimming Pool	30,438
e	Matt Jimenez Community Center	28200 Ruus Road	Youth Center, Meeting Rooms, Gymnasium, Restrooms	20,000
f	Ruus Community Center (Portable)	Dickens and Folsom	Meeting Room	900
g	Sorensdale Community Center	275 Goodwin	Offices, Activity Rooms, Kitchen, Multipurpose Room, Stage, Parking Lot, Restrooms	23,846
h	Southgate Community Center	26780 Chiplay	Parking Lot, Community Center Building, Meeting Rooms, Restrooms	6,376
i	Sunset Swim Center[1]	22100 Princeton	Swim Center	2,436
j	Weekes Community Center	27182 Partick Avenue	Parking Lot, Community Center Building, Meeting Rooms, Restrooms	10,092
Total				**136,614**

[1]Community facility, not a community center.
Source: HARD, 2012.

While there is no specific standard related to community facilities, HARD established guidelines relating to site requirements for community centers. Community Center buildings should provide 10,000 square feet of usable space for classes, meetings, and special events. All of the facilities HARD defines as community centers (except for the Ruus Community Center portable building), noted in Table 5-12 above, provide more than 10,000 square feet of space.

Community Facilities

Douglas Morrisson Theatre

The Douglas Morrisson Theatre is owned and operated by HARD and includes a 250-seat theatre. The theatre shows plays, concerts, and other performances. The theatre's extensive costume, scenery, and property inventory is also available for rental to the community.

Hayward Area Senior Center

The Hayward Area Senior Center is a facility that offers a space and variety of programs for older adults. The facility has the capacity to accommodate up to 150 people. The senior center offers social services, special events, bingo, lunches, classes, activities, day trips, and tours. The facility has classrooms, a dining area, game areas with pool tables, computer laboratories with Internet access, and libraries. The Hayward Area Senior Center also has a full service woodshop.

HARD Building/PhotoCentral

The HARD office and Photocentral are located in the same building. The HARD offices often provide classroom space for recreational activities. PhotoCentral is a community facility where photographers can grow, explore, and enjoy the company of other photographers. The facility includes space where artists can showcase their work and hosts several art shows a year. Photocentral also offers classes and workshops designed for photographers of all abilities and ages.

Hayward Plunge Pool

The Hayward Plunge Pool includes an indoor lap pool and diving boards. Water aerobics, diving lessons, swim lessons, and lifeguard instruction are offered at the year-round aquatics program at Hayward Plunge. The pool is also available for residents to rent for parties.

Matt Jimenez Community Center

The Matt Jimenez Community Center features a large hall with smaller meeting rooms, a youth center, and basketball courts. The youth center includes pool tables, a ping pong table, and a video game room. The Matt Jimenez Community Center provides facilities for youth sporting events, community meetings, and other events. Residents can rent the facility for private parties or other events, which includes tables and chairs to set up for such occasions.

Ruus Community Center

The Ruus Community Center is a portable building located at Ruus Park. The Ruus Community Center provides community meeting space for Hayward residents.

Sorensdale Community Center

The Sorensdale Community Center is a recreational facility for the disabled. The community center offers classes for cooking, gardening, exercising, carpentry, and scrapbooking.

Southgate Community Center

The Southgate Community Center features a large community space seating up to 70 people, a landscaped outdoor area, and event space for performing arts. The community center hosts public classes and other activities for residents.

Sunset Swim Center

The Sunset Swim Center was a joint venture by the Hayward Unified School District and HARD. After closing in 1978 and again in 1994, the pool reopened in 2001 with cooperation from the City of Hayward. The swim center includes a 25-yard pool offering aquatic classes.

Weekes Community Center

The Weekes Community Center is located at Weekes park and is surrounded by a play area, and sports fields and courts. The community center features a large main hall and several smaller meeting rooms and has the capacity to accommodate up to 140 people.

Events

HARD holds many events throughout the year in Hayward community and civic centers, including art shows at the PhotoCentral Gallery, plays and concerts at the Douglas Morrison Theatre, and fundraisers at several locations. In the spring the Chabot College Auditorium holds a Battle of the Bands concert, the Douglas Morrison Theatre holds a summer theatre camp, and the Hayward Senior Center holds a Heritage and Diversity Festival and Potluck. In the fall, the Hayward Senior Center holds two additional events: a Talent Show and a Dinner and Dance.

Chabot Community College Reed L. Buffington Visual and Performing Arts Center

The Chabot Community College Reed L. Buffington Visual and Performing Arts Center is located on campus at 25555 Hesperian Boulevard. The Performing Arts Center is 14,000 square feet and includes exhibit space and meeting rooms. It includes a 1,432-seat auditorium in a full-featured theatre and a smaller 200-seat arena stage in an open setting. As a community facility, the performing arts center is available for corporate meetings, conferences, public performances, and fund-raising events.

Regulatory Setting

There are no Federal, State, or local regulations that pertain to community centers and facilities.

Key Terms

The following key terms used in this chapter are defined as follows:

Special District. A Special District is defined by the State of California as "a legally constituted governmental entity, which is governed neither by the city or county and is established for the purpose of carrying on specific activities within defined boundaries."

Special Use Facility. A **s**pecial use facility is a unique public recreation amenity that includes: special population group facilities such as senior centers and recreation facilities for the disabled; cultural facilities such as theaters, auditoriums, and botanic gardens; single purpose sites that are used for golf, field sports, aquatics or other activities; and sites occupied by a special use building, such as, historic structures. The size and location of these special use facilities depend on the function.

SECTION 5.8 SCHOOLS, LIBRARIES, AND EDUCATION

Introduction

This section describes the existing (2012) general characteristics of school, library, and other educational facilities in Hayward. It describes the public and private schools currently (2012) in operation in Hayward and provides information regarding library programs, collections, staffing, funding, and services provided in the city.

Major Findings

- The City of Hayward is served mainly by the Hayward Unified School District (HUSD), while the New Haven Unified School District and the San Lorenzo Unified School District provide education services to the northernmost and southernmost portions of the city. Chabot College and the California State University, East Bay provide college education services to the city of Hayward.
- HUSD operates 22 elementary, five middle, and four high schools within the Hayward Planning Area with a total enrollment of 20,496 in 2011-2012. HUSD schools are generally not overcrowded. Burbank Elementary School and Cherryland Elementary School are the only overcrowded schools in the district.
- HUSD has experienced a substantial decline in its student population for the past ten years (2000-2001 to 2011-2012). After 2000-2001 district enrollment began to decline and continued to sharply decline from 2003-2004 until 2008-2009. After a small increase in 2008-2009, district enrollment has continued to decrease into 2011-2012.
- HUSD high school enrollment experienced the most significant decline. While elementary schools also experienced a sharp decline in enrollment, middle school enrollment held fairly constant.
- Although HUSD districtwide enrollment was 21,637 in 2011-2012, projections indicate that overall HUSD enrollment may drop to 21,108 students by 2017. Middle school enrollment is projected to increase the most during the same time period.
- From 2008 to 2012 HUSD completed renovations and installed power generation facilities at four schools: Martin Luther King, Jr. Middle School, Shafer Park Elementary School, East Avenue Elementary School, and Fairview Elementary School. In addition, HUSD substantially completed improvements at Tyrrell Elementary School.
- HUSD proposed projects identified by the 2012 District-Wide Facilities Master Plan include renovations for Cherryland, Longwood, and Harder Elementary Schools; Winton Middle School; and the High School Sports Facility. HUSD is exploring the feasibility of a local school improvement measure to acquire funding for these improvements.

- The San Lorenzo Unified School District (SLUSD) operates two elementary and one high school serving the planning area. The New Haven Unified School District (NHUSD) operates two elementary, two middle, and two high schools serving the planning area. A total of 1,609 and 8,856 SLUSD and NHUSD students were enrolled in schools serving Hayward.
- None of the NHUSD schools are at capacity; however, César Chávez Middle School is currently (2012) at capacity. SLUSD does not measure school facility capacity.
- Public charter schools in Hayward include one elementary and two high schools. A total of 1,043 students were enrolled in Hayward public charter schools in 2012.
- There are 12 private schools located within the city of Hayward: three elementary schools, five elementary/middle schools, two high schools, and two combination elementary/middle/highs schools. In 2012, 2,157 students were enrolled in private schools.
- The City of Hayward library system includes the Main Library at 835 C Street and Weekes Branch Library at 27300 Patrick Avenue. With a service area population of 145,839 in 2011, the library system provides 0.23 square feet of library space per resident, which is less than half the amount considered sufficient to provide a baseline level of public library service. By 2030, when Hayward is projected to have 171,500 residents, the level will be even lower at 0.20 square feet per person served.
- There are 169,697 collection items in the Hayward Library System. In 2010 Hayward had the eleventh lowest number of total library materials per capita at 1.12. The statewide mean was almost double that of Hayward at 2.16. By 2030 the Hayward Library will need about 366,550 collection materials to reach the State mean of library materials per capita.
- The 2008 Hayward Main Library Community Analysis established a long-range goal for overall library facility space in Hayward to reach 78,500 to 86,500 square feet, to provide 0.46 to 0.50 square feet per capita in the year 2030.
- The Library conducted 114 homework help sessions at the Homework Support Center during the 2011-2012 school year that gave participating students an average 30-point improvement in their English Language Arts scores and an average 20-point improvement in their Mathematics scores on the 2012 CST.
- The Alameda County Library provides service to the participating cities of Albany, Dublin, Fremont, Newark, and Union City, as well as unincorporated areas of Alameda County that are served by branches in Castro Valley and San Lorenzo. In 2012, 10.3 percent of Castro Valley's library patrons and 11.1 percent of San Lorenzo's library patrons were Hayward residents.

Existing Conditions

Schools and Education

The City of Hayward is served mainly by the Hayward Unified School District, while the New Haven Unified School District and the San Lorenzo Unified School District provide education services to the northernmost and southernmost portions of the city. Public charter schools and private schools provide additional education opportunities to the city. The California State University, East Bay operates the Hayward campus in the Hayward hills. Chabot College, located in the western area of the city near Highway 92 and Hesperian Boulevard, provides community college education in technical and vocational programs. Tables 5.8-1 through 5.8-3 list the District schools, their corresponding facility capacities, and student enrollment as of the 2011-2012 school year. See Figure 5-7 for school locations.

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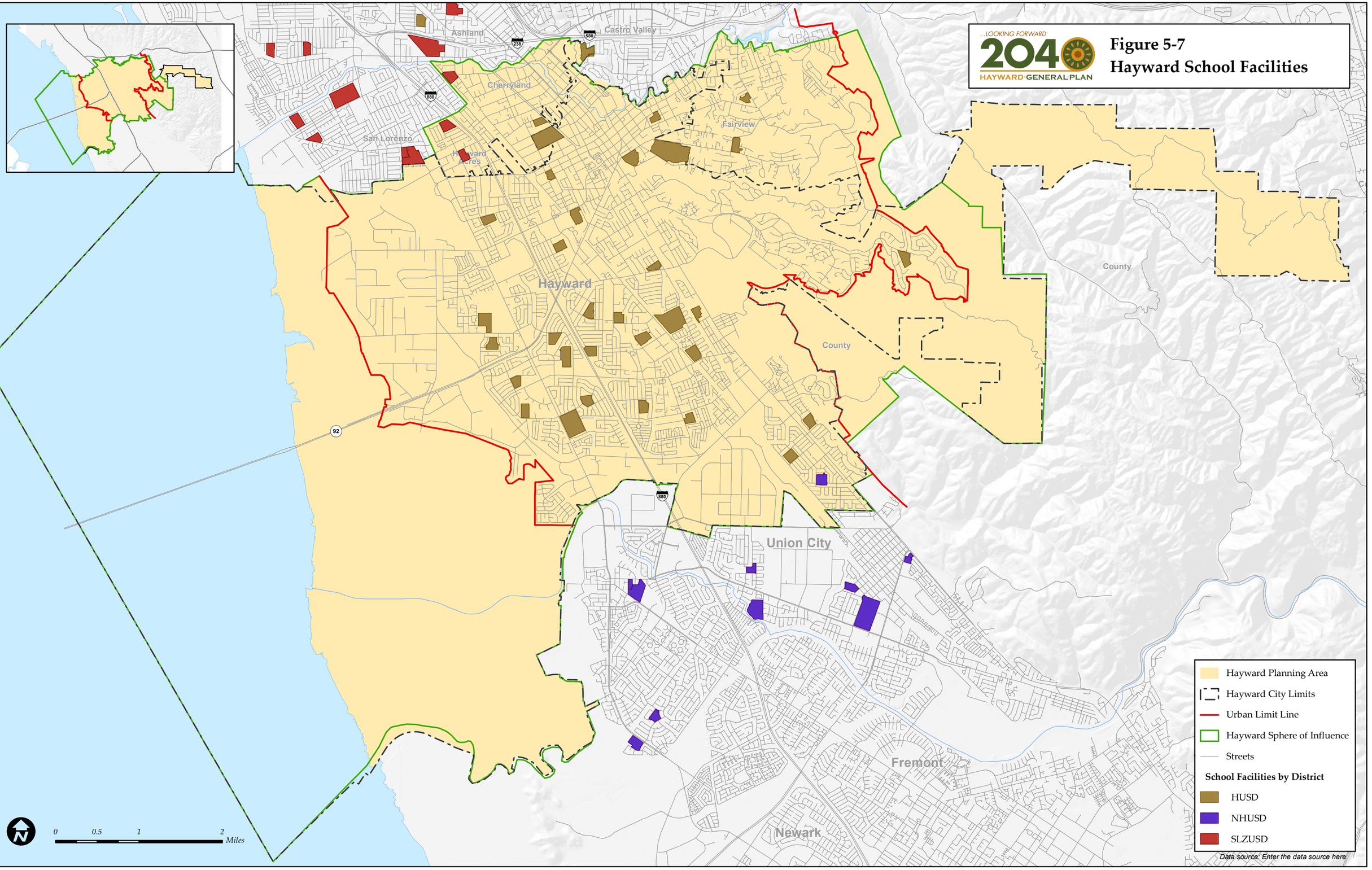
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 5-7
Hayward School Facilities



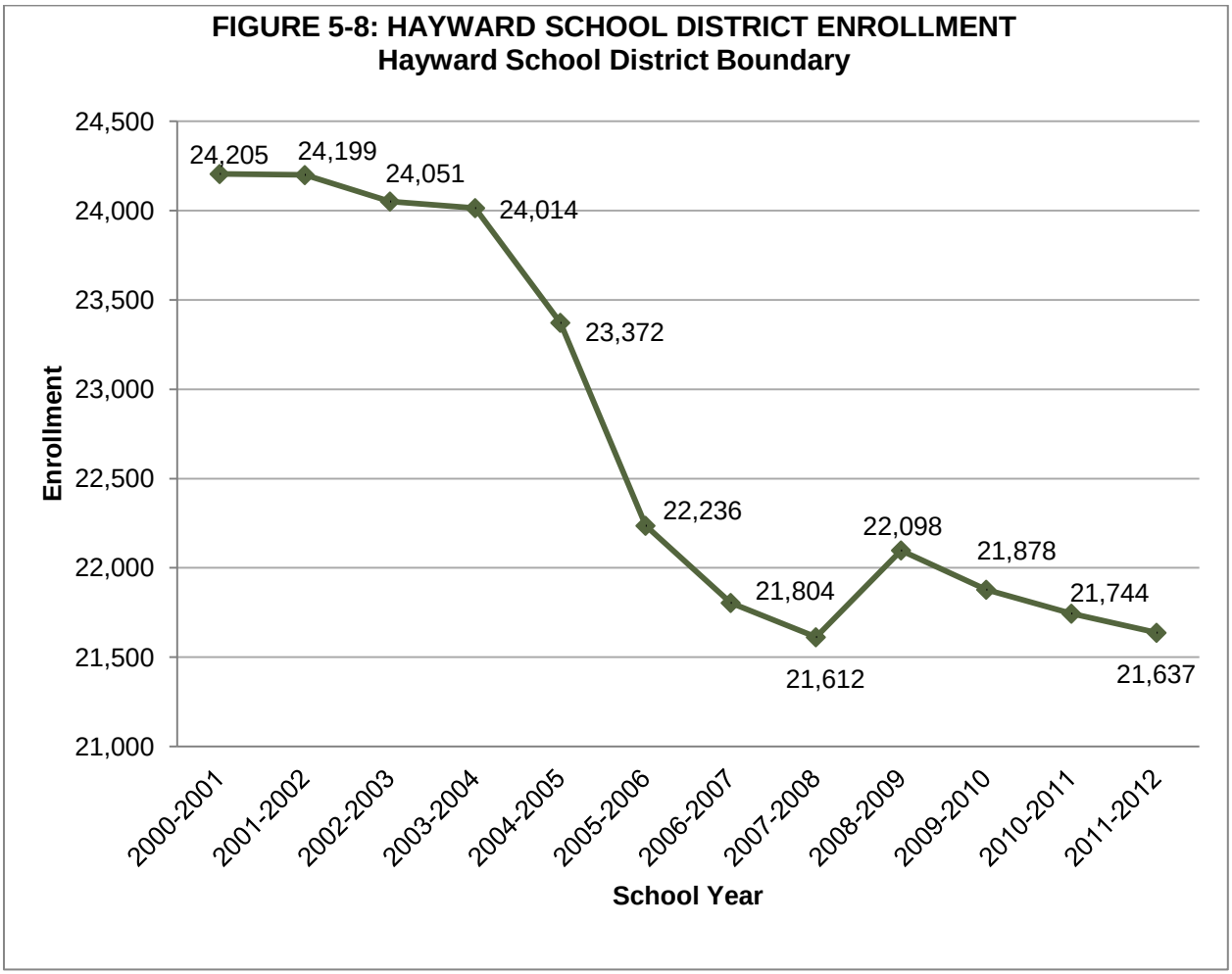
January, 2013

Hayward Unified School District

Enrollment and Capacity

The Hayward Unified School District (HUSD) boundaries include most of the city of Hayward as well as parts of the unincorporated communities of Cherryland and Fairview. The District employs about 1,990 persons, including 982 teachers, 879 classified employees, and 129 administrative and pupil services positions. Before the 2000-2001 school year, HUSD experienced a significant increase in enrollment due to new housing growth and an increase in average household size. In the past 10 years (2000-2001 to 2011-2012), HUSD has experienced a substantial decline in its student population. As shown in Figure 5-8 below, after 2000-2001 district enrollment began to decline and continued to sharply decline from 2003-2004 until 2008-2009. This decline occurred even as 1,500 new housing units were built between 2000 and 2005, before the recession halted construction. After a small increase in 2008-2009, district enrollment has continued to decrease again. District projections indicate that overall enrollment may drop to 21,108 students by 2017.

FIGURE 5-8: HAYWARD SCHOOL DISTRICT ENROLLMENT
Hayward School District Boundary



Source: California Department of Education. District Level Enrollment Reports 2000-2012, DataQuest <http://data1.cde.ca.gov/dataquest>, accessed January 2, 2013.

In response to the sharp decline in elementary school enrollment from 2001-2002 to 2010-2011, HUSD recently closed three elementary schools. The District closed Shepherd in 2006, Muir in 2007, and Markham in 2008. The District also consolidated Piexoto into Ruus in 2011 and consolidated Bidwell into Treeview in 2012. Middle schools enrollment has not declined significantly. However, high school enrollment dropped 23 percent in seven years (2004-2005 to 2010-2011).

By 2017 the elementary school enrollment is expected to increase by 305 students (or 2.4 percent). These projected increases are mainly due to new housing construction in recent years along with larger incoming grade classes. The greatest increases are based on the Burbank Elementary School, Tyrrell Elementary School, and other elementary schools located in the central portion of the District along the BART line. The middle school student population is anticipated to grow by 78 students by 2017 (a net growth of 2.5 percent). The least growth in the Hayward Unified School District is anticipated for the high school student population. A net increase of only 26 high school students is expected to occur by 2017 (0.5 percent growth).

As shown in Table 5-13, HUSD operates 22 elementary, five middle, and four high schools. Attendance at these schools totaled 20,496 in 2011-2012. On September 29, 2005, the Hayward Unified Schools Design Team (HUSDT) reached a consensus and recommended that student populations should range from 650-750 students for elementary schools, 750-900 students for middle schools, and 2,000-2,200 students for high schools. Burbank Elementary School and Cherryland Elementary School are the only overcrowded schools. However, the total number of elementary students is far below capacity, similar to middle and high schools.

TABLE 5-13
HAYWARD UNIFIED SCHOOL DISTRICT SCHOOLS
Hayward Planning Area
2012

	Address	Facility Capacity	Total Enrollment[1]
Elementary Schools			
Bowman	520 Jefferson Street	650-750	536
Burbank	222 Burbank Street	650-750	762
Cherryland	585 Willow Avenue	650-750	782
East Avenue	2424 East Avenue	650-750	532
Eden Gardens	2184 Thayer Avenue	650-750	581
Eldridge	26825 Eldridge Avenue	650-750	594
Fairview	23515 Maud Avenue	650-750	470
Faith Ringgold	1570 Ward Street	650-750	136
Glassbrook	975 Schafer Road	650-750	575
Harder	495 Wyeth Road	650-750	595
Longwood	850 Longwood Avenue	650-750	649
Lorin Eden	27790 Portsmouth Avenue	650-750	498
Palma Ceia	27679 Melbourne Avenue	650-750	564
Park	411 Larchmont Street	650-750	651
Ruus	28027 Dickens Avenue	650-750	646
Schafer Park	26268 Flamingo Avenue	650-750	466
Southgate	26601 Calaroga Avenue	650-750	670
Stonebrae	28761 Hayward Boulevard	650-750	722
Strobridge	21400 Bedford Road	650-750	660
Treeview	30565 Treeview Street	650-750	622
Treeview (Bidwell Campus)	175 Fairway Street	650-750	--
Tyrell	27000 Tyrrell Avenue	650-750	645
Total K-6		**14,300-16,500**	**12,356**
Middle Schools			
Bret Harte	1047 E Street	750-900	628
Chavez	27845 Whitman Street	750-900	639
Martin Luther King	26890 Holly Hill Avenue	750-900	615
Anthony W. Ochoa	2121 Depot Road	750-900	599
Winton MS	119 West Winton Avenue	750-900	628
Total Middle School		**3,750-4,500**	**3,109**
High Schools			
Brenkwitz HS	22100 Princeton Street #A	2,000-2,200	227
Hayward HS	1633 East Avenue	2,000-2,200	1,640
Mt. Eden HS	2300 Panama Street	2,000-2,200	1,894
Tennyson HS	27035 Whitman Street	2,000-2,200	1,270
Total High School		**8,000-8,800**	**5,031**
District Total		**26,050-29,800**	**20,496[2]**

[1]2011-2012 School Year

[2]District totals in Table 5-13 do not match the District total in Figure 5-8 because of a separate category of children in "Other Public Schools."

Source: Hayward Unified School District, 2012; California Department of Education. School Level Enrollment Reports 2011-12, DataQuest <http://data1.cde.ca.gov/dataquest>, accessed January 2, 2013.

Construction of New Facilities

HUSD has spent considerable time and effort in planning for future facility needs since the 2006 Facilities Master Plan identified a significant need to modernize older school facilities and provide appropriate space for all of the activities that occur at schools, such as library, music, art, and science programs. Bond funds, District funds, and State funds are pooled to meet these challenges. Hayward residents passed Measure I on June 3, 2008. By September 2012 HUSD had completed the renovations and installed power generation facilities at four schools: Martin Luther King, Jr. Middle School, Shafer Park Elementary School, East Avenue Elementary School, and Fairview Elementary School. In addition, the District had substantially completed improvements to Tyrrell Elementary School. The new multipurpose, library, and administration buildings at Tyrrell Elementary are expected to be completed by the 2012-2013 school year.

Future projects identified by the 2012 District-Wide Facilities Master Plan include renovations for Cherryland, Longwood, and Harder Elementary Schools; Winton Middle School; and the High School Sports Facility. While most of the schools will still house students during construction, Harder Elementary students will be temporarily relocated to the John Muir Elementary School and high school students would temporarily play sports at Sunset High. HUSD is exploring the feasibility of a local school improvement measure to acquire funding for school improvements. HUSD is considering two options: 1) a parcel tax between $58 and $75 that would generate up to $14.8 million in revenue, and/or 2) a general obligation bond that would involve a tax of $54 per $100,000 of assessed value that would generate $55.6 million in revenue for the general fund and $195 million in bond proceeds for the building fund.

HUSD receives $3.20 per square foot of new residential development and $0.51 per square foot of new commercial development. These fees were adopted on December 12, 2012, and are the maximum allowed by State law. HUSD is currently working on a Developer Fee Justification Report and Impact Analysis to justify levying Level I developer fee rates to be approved by the State Allocation Board in 2013.

Other School Districts

As shown in Tables 5.8-2 and 5.8-3, two other school districts provide education services to the city of Hayward. The San Lorenzo Unified School District (SLUSD) provides education services to the northernmost portion of the planning area, and New Haven Unified School District (NHUSD) provides education services to the southernmost portion of the planning area. SLUSD operates two elementary and one high school serving the planning area. NHUSD operates two elementary, two middle, and two high schools serving the planning area. None of the NHUSD schools are over capacity; however, César Chávez Middle School is currently (2012) at capacity. SLUSD does not measure school facility capacity.

TABLE 5-14 SAN LORENZO UNIFIED SCHOOL DISTRICT SCHOOLS Hayward Planning Area 2012			
	Address	**Facility Capacity**	**Total Enrollment[1]**
Elementary Schools			
Lorenzo Manor	8250 Bengal Avenue	N/A	646
Colonial Acres	17115 Meekland Avenue	N/A	648
Total K-6		**N/A**	**1,294**
High Schools			
East Bay Arts HS	20450 Royal Avenue	N/A	315
Total High School		N/A	**315**
District Total		**N/A**	**1,609**

[1]2011-2012 School Year

Source: San Lorenzo Unified School District, 2012; California Department of Education. School Level Enrollment Reports 2011-12, DataQuest <http://data1.cde.ca.gov/dataquest>, accessed January 2, 2013.

TABLE 5-15 NEW HAVEN UNIFIED SCHOOL DISTRICT SCHOOLS Hayward Planning Area 2012			
	Address	**Facility Capacity[1]**	**Total Enrollment[2]**
Elementary Schools			
Hillview Crest	31410 Wheelon Avenue, Hayward	900	667
Kitayama	1959 Sunsprite Drive, Union City	900	878
Total K-6		1,800	1,545
Middle Schools			
Alvarado MS	31604 Alvarado Boulevard	1,500	1,400
César Chávez MS	2801 Hop Ranch Road, Union City	1,500	1,500
Total Middle School		3,000	2,900
High Schools			
Conley-Caraballo HS	541 Blanche Street	630	278
Logan HS	1800 H Street, Union City	6,300	4,133
Total High School		6,930	4,411
District Total		**11,730**	**8,856**

[1]Capacity is calculated as the number of classrooms at 30 students per classroom.

[2]2011-2012 School Year

Source: New Haven Unified School District, 2012; Source: San Lorenzo Unified School District, 2012; California Department of Education. School Level Enrollment Reports 2011-12, DataQuest <http://data1.cde.ca.gov/dataquest>, accessed January 2, 2013.

Public Charter Schools

There are three charter schools located within the city of Hayward. Charter schools work within the framework of California State law to create a charter that outlines the school's governing structure, mission, methods of assessment, student outcomes, and goals. Charter schools

function like a small independent school district and accept students across neighborhoods and districts. Public charter schools in Hayward include one elementary and two high schools. Table 5-16 describes the location, grades, and enrollment of the charter schools in the city. A total of 1,043 students were enrolled in Hayward public charter schools in 2012.

TABLE 5-16
PUBLIC CHARTER SCHOOL ENROLLMENT
City of Hayward
2011-2012

School	Grades	Address	Enrollment
Golden Oak Montessori of Hayward	1-7	951 Palisade Street	158
Impact Academy of Arts and Technology	9-12	2560 Darwin Street	439
Leadership Public Schools	9-12	28000 Calaroga Avenue	446
Total			**1,043**

Source: California Department of Education. School Level Enrollment Reports 2011-12, DataQuest <http://data1.cde.ca.gov/dataquest>, accessed January 2, 2013.

Private Schools Serving the Community

Private schools provide educational services based on individually set criteria (e.g., academic performance, religious affiliation). There are 12 private schools located within the city of Hayward: three elementary schools, five elementary/middle schools, two high schools, and two elementary/middle/highs schools. In 2012, 2,157 students were enrolled in private schools. Table 5-17 summarizes the location, grades, and enrollment of Hayward private schools.

TABLE 5-17
PRIVATE SCHOOL ENROLLMENT
City of Hayward
2011-2012

School	Grades	Address	Enrollment
All Saints Catholic School	K-8	22870 Second Street	218
Bayside Seventh-day Adventist Christian	K-8	26400 Gading Road	38
Elmhurst Learning Center	K-3	380 Elmhurst Street	24
Lea's Christian	K-4	26236 Adrian Avenue	68
Liber Community School	4-12	22138 Main Street	27
Montessori Children's House of Hayward	K-3	166 West Harder Road	58
Moreau Catholic High School	9-12	27170 Mission Boulevard	891
Peaceful Learning	K-12	2633 Bal Harbor Lane	9
St. Bede Catholic	K-8	26910 Patrick Avenue	225
St. Clement Catholic	K-8	790 Calhoun Street	262
St. Joachim's Elementary	K-8	21250 Hesperian Boulevard	309
Stellar Preparatory High School	9	1570 Ward Street, Unit 23	28
Total			**2,157**

Source: California Department of Education. Private School Directory 2011-2012. http://www.cde.ca.gov/ds/si/ps/, January 11, 2013

Colleges and Universities

California State University at Hayward, East Bay

The California State University, East Bay is one of 22 campuses of the California State University system. The Hayward campus was established in 1957 as the State College for Alameda County. It began with 293 students meeting in downtown Hayward. The school was moved to its current site in the Hayward hills in 1963 and was granted university status in 1972. The Hayward Campus sits on about 342 acres and offers 35 graduate fields of study, 52 undergraduate fields of study, and 65 Minors. In 2011 the Hayward Campus awarded 3,537 Bachelor's degrees, 1,182 Master's degrees, and seven Doctoral degrees. Current (Fall 2011) enrollment is over 13,000 students.

Chabot College

Chabot College is a community college that was established in 1961. The Chabot-Las Positas Community College District includes three colleges: the Hayward campus on 94 acres located off Hesperian Boulevard, the Las Positas campus is located in Livermore, and the San Leandro Center, which offers short-term classes, in San Leandro. The college offers 67 two-year career programs in academic and vocational education, leading to an Associate of Arts or Associate of Science degree, as well as 60 certificate programs. Current (Spring 2011) enrollment is about 15,000 students.

Libraries

City of Hayward Library

The City of Hayward library system includes the Main Library at 835 C Street and Weekes Branch Library at 27300 Patrick Avenue. The Main Library generally serves the portion of the city north of Harder Road and the Weekes Library generally serves the portion of the city south of Harder Road. The two libraries have a combined total of 33,567 square feet. With a service area population of 145,839 in 2011, the library system provides 0.23 square feet of library space per resident (see Table 5-18), which is less than half the amount considered sufficient to provide a baseline level of public library service. By 2030, when Hayward is projected to have 171,500 residents, the level will be even lower at 0.20 square feet per person served.

TABLE 5-18
HAYWARD LIBRARY SERVICE
Hayward Planning Area
2000 to 2030

Year	Population	Facility Square Feet	Square Feet Per Person Served
2000	140,030	33,567	0.24
2007	147,845	33,567	0.23
2011	145,839	33,567	0.23
2030	171,499	33,567	0.20

Source: Hayward Main Library Community Analysis, 2008; California State Library, Public Library Survey Data (2010-2011 Fiscal Year), 2012.

The libraries offer a diverse collection of books, magazines, newspapers, records, pamphlets and audio and video materials. As of November 2012 the Main Library had a total of 114,053 collection items and the Weekes Library had 55,644 collection items. Between the two libraries there are 169,697 collection items in the Hayward Library System (see Table 5-19). In 2010 Hayward had a total library materials per capita of 1.12, exceeding the statewide mean of 2.16. By 2030 the Hayward Library will need about 366,550 collection materials to reach the State mean of library materials per capita.

TABLE 5-19
HAYWARD LIBRARY COLLECTION
Hayward Planning Area
2008 to 2030

Year	Collection
2008	156,134
2010	167,864
2012[1]	169,697
2030[2]	366,550

[1]November 2012
[2]Minimum circulation needed to reach a ratio of 2.1 library materials per capita.
Source: Source: Hayward Main Library Community Analysis, 2008; California State Library, California Library Statistics (2009-2010), 2011.

The Hayward library system is administered by the Library Commission. The Library Commission is made up of seven Hayward residents who are appointed by the Hayward City Council. The Library Commission advises the Hayward City Council on library policies, including hours of service, fines, and fees; library programs; capital improvements; Federal and State legislation; parking for library users; special services to persons with disabilities; cooperation with neighboring libraries; improvements in service; publicity and promotion; location of service outlets; equipment needs; policies governing the use of the meeting room; bilingual library programs; and cooperation with other community agencies.

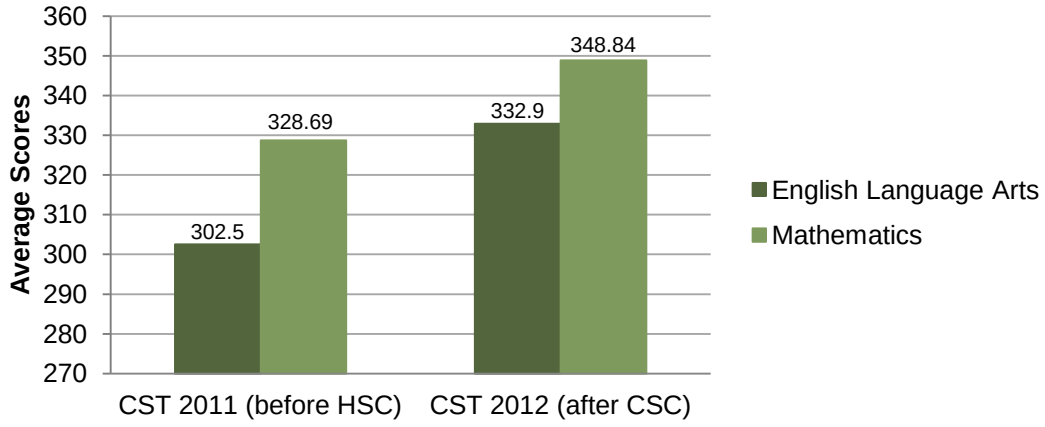
Library Services

The Library System provides community outreach programs in Hayward schools, mobile home parks, convalescent hospitals, and homeless shelters. The library offers extensive programming and pre-reading experiences for children. Young adults are offered instructional, career choice, and leisure time materials and programs, as well as volunteer opportunities. The Library also offers a Literacy Plus program which trains volunteers and matches them with persons wishing to improve their reading skills.

The Library also runs the Homework Support Center that provides homework help sessions at Longwood Elementary School. During the 2011-2012 school year, the Library conducted 114

homework help sessions for 230 students over a period of eight months. As shown in Figure 5-9 below, students who regularly attended the Homework Center achieved a 30 point improvement in their English Language Arts scores and a 20 point improvement in their Mathematics scores on the 2012 CST. The Library continues to work closely with the Hayward Unified School District (HUSD) to identify opportunities and to support and expand this successful program to help students improve their test scores in additional HUSD schools, including a planned expansion into Jackson Triangle schools under the auspices of the Hayward Promise Neighborhood initiative.

FIGURE 5-9: LIBRARY HOMEWORK SUPPORT CENTER CALIFORNIA STANDARDS TEST (CST) RESULTS Longwood Elementary School



Source: City of Hayward. City Manager's Biweekly Report. Volume 2, Issue 33. November 30, 2012.

The existing library facility, however, cannot accommodate the full spectrum of services the community wants and needs. As Hayward's population continues to grow, pressure on the main library will increase. City officials have initiated a planning process to determine the spaces and services needed at the main library in order to serve the Hayward community over the next twenty to thirty years (2010 to 2040).

Library Facilities

In 1996 the Mayor's Blue Ribbon Task Force on Library Services submitted its findings, recommendations, and goals for the Hayward Public Library. Since then, the City has expanded hours at the Weekes Branch Library, increased the materials budget, increased staffing, and installed an automatic card catalog system. The City also completed a 4,000 square-foot expansion of the Weekes Branch Library and established links with the CSUH libraries and other libraries in the region.

The existing Main Library opened in 1951. It has been renovated and expanded twice, in the 1960s and again in 1978. In 2006 the public interior spaces were extensively refurbished and services updated. The recent innovations have been well received and

public use levels are at new highs. The Main Library currently has 25,000 square feet on two floors, with a basement that is used primarily as staff work space.

Shelf space at the Main Library building reached capacity in 2008. The 2008 Hayward Main Library Community Analysis determined that the facility not only lacks the space required to accommodate current and projected community library service needs, but it is also limited by a physical infrastructure that cannot support modern library service. Despite these limitations, library use continues to grow. Library circulation, reference transactions, computer use, and program attendance are all increasing. The 2008 Hayward Main Library Community Analysis established a long-range goal for overall library facility space in Hayward at 78,500 to 86,500 square feet in order to provide 0.46 to 0.50 square feet per capita by the year 2030.

Alameda County Library

The Alameda County Library provides service to the participating cities of Albany, Dublin, Fremont, Newark, and Union City, as well as unincorporated areas of Alameda County that are served by branches in Castro Valley and San Lorenzo. There are two County library facilities in the vicinity of Hayward: the Castro Valley Library and the San Lorenzo Library. In 2012 the two libraries served 121,493 people with 259,901 collection materials. The Castro Valley Library is 34,537 square feet with a ratio of 0.56 square feet per capita and the San Lorenzo Library is 11,867 square feet with a ratio of 0.20 square feet per capita. In 2012 10.3 percent of Castro Valley's library patrons and 11.1 percent of San Lorenzo's library patrons were Hayward residents.

Regulatory Setting

California Code of Regulations. The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the state.

Key Terms

The following key terms used in this chapter are defined as follows:

Charter School. A tax-supported school established by a charter between a granting body (i.e., school board) and an outside group (e.g., teachers and parents). Charter schools operate within the framework of California State law (Education Code §47605-47608) to create a charter that outlines the school's governing structure, mission, methods of assessment, student outcomes, and goals. Charter schools function as small independent school districts and accept students based on criteria established in the school charter.

Certificated School Employee. A certificated school employee is an employee of a school district who is in a position requiring a teaching certificate from the State Department of Education. Classified school employees include teachers, student services personnel, principals, assistant principals, program directors, and coordinators.

Classified School Employee. A classified school employee is an employee of a school district who is in a position not requiring a teaching certificate from the State Department of Education. Classified school employees include employees in such positions as teaching assistants, teacher's aides, pupil services aides, library aides, school secretaries, custodians, bus drivers, and cafeteria workers. The numbers of classified staff members do not include preschool, adult education, or regional occupational center or program classified employees.

Hayward Unified School District Design Team (HUSD Design Team). The HUSD Design Team consists of 37 members and several groups, including the City, administrators, employees, classified staff, teachers, parents, and students. The HUSD Design Team volunteered countless hours of their personal time at 14 evening meetings, over the course of 11 months to update the HUSD Facilities Master Plan.

School Developer Fees. Fees levied on new development by school districts as established by Proposition 1A and SB 50 and determined by the State Allocation Board.

- Level I fees are set at rates of $3.20 per square foot of new residential and $0.51 per square foot for commercial and industrial development. A fee of $3.20 per square foot also applies to any additions to existing residential development. Additions of less than 500 square feet are exempt from this fee.
- Level II fees are additional fees on new development set by individual School Districts to generate one-half of the cost of providing new school facilities. Use of Level II fees assumes that the State will provide the other half of the cost of new schools through the issuance of general obligation bonds.
- Level III fees are additional fees on new development set by individual School Districts to generate 100 percent of the cost of providing new school facilities allowed in the event that the State does not have funding available. The district must, however, refund these funds when general obligation funds from the State do become available.

Bibliography

Reports/Publications

Association of Bay Area Governments. Taming Natural Disasters: Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. 2010 Update of 2005 Plan.

California State Library, Public Library Survey Data (2010-2011 Fiscal Year), 2012.

California State Library, State Library Statistics (2009-2010), 2011.

East Bay Regional Park District (EBRPD). Master Plan 2012. Public Review Draft September 2012.

Hayward Area Recreation and Park District (HARD). District Recreation and Parks Master Plan. June 2006.

Hayward, City of. Adopted Operating Budget Fiscal Year 2012. July 2011.

Hayward, City of. Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan Taming Natural Disasters. October 25, 2011.

Hayward, City of. City of Hayward Charter. Adopted March 7, 1956 and Amended in 1994.

Hayward, City of. City Manager's Biweekly Report. Volume 2, Issue 33. November 30, 2012.

Hayward, City of. Resolution No. 11-70. October 25, 2011.

Hayward Police Department. 2012 Strategic Plan. Adopted 2012.

Hayward Unified School District. 2012 District-Wide Facilities Master Plan 2012 Update. January 2012.

Hayward Unified School District. Board of Education Summary Report. December 12, 2012. https://hayward.csbaagendaonline.net/cgi-bin/WebObjects/hayward-eAgenda.woa/files/MTM1NzI1NzgyMDY5Ni9oYXl3YXJkZUFnZW5kYS8xNTkvMTM5NC9GaWxlcw==/resolution__1213-19_school_development_fees_annual_report.pdf.

Page + Moris. Hayward Main Library Community Analysis. January 2008.

Websites

Alameda County Library. www.aclibrary.org/, January 3, 2013.

California Department of Education. School Level Enrollment Reports 2011-12, DataQuest <http://data1.cde.ca.gov/dataquest>, January 2, 2013.

California State University East Bay, Hayward. http://www.csueastbay.edu/, January 3, 2013.

Chabot College. www.chabotcollege.edu/, January 3, 2012.

Chabot College. Chabot College Student Characteristics. http://www.chabotcollege.edu/IR/StudentCharacteristics/Latest%20Student%20Characteristics%20Spring%202011%20Prelim%20Census.pdf, January 3, 2012.

East Bay Regional Park District (EBRPD). http://www.ebparks.org/, January 7, 2013.

Education Data Partnership. Ed-Data 2010-2011, http://www.ed-data.k12.ca.us/App_Resx/EdDataClassic/fsTwoPanel.aspx?#!bottom=/_layouts/EdDataClassic/profile.asp?Tab=2&level=06&reportnumber=16&county=01&district=61192, January 3, 2012.

Hayward Area Recreation and Park District (HARD). http://www.haywardrec.org/, January 7, 2013.

Hayward, City of. http://www.ci.hayward.ca.us/, December 27, 2012.

Hayward, City of. Fire Department. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/FIRE/, December 28, 2012.

Hayward, City of. Police Department. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/POLICE/, December 28, 2012.

Hayward Unified School District. www.husd.k12.ca.us/, January 2, 2013.

New Haven Unified School District. www.nhusd.k12.ca.us/, January 2, 2013.

San Lorenzo Unified School District. www.slzusd.org/, January 2, 2013.

Persons Consulted

Dixon, Paul, Director. Facilities and Operations. San Lorenzo Unified School District. January 30, 2013.

Lepore, Larry, Parks Superintendent. Hayward Area Recreation and Park District. January 17, 2013.

Martinez, Jason, Lieutenant. Hayward Police Department. Criminal Investigations Bureau. January 8, 2013.

Poulsen, Thor. Assistant Fire Marshal. Hayward Fire Department. January 10, 2013.

SECTION 6.1 INTRODUCTION, PURPOSE, AND CONTENTS

This chapter describes issues related to community health and wellness in the city of Hayward. Increasingly, communities are facing the challenges of childhood and adult obesity, asthma, diabetes, and other health issues resulting from an unhealthy and sedentary lifestyle. Past efforts to address these issues have typically focused on changing individual behaviors and have not succeeded in reversing trends. Recent research has found that neighborhood conditions have a profound impact on one's health and life expectancy. Where people live greatly determines their access to resources that enable them to be healthy – such as clean air and water, safe streets, nutritious foods, quality housing, good jobs, access to healthcare, and excellent schools. Where people live also impacts their exposure to environmental risks that harm health, such as toxic air pollution, crime and violence, and substandard housing. A healthy community promotes a positive physical, social, and economic environment that supports the overall well-being of its residents. As a result, many health advocates are focusing their efforts more on improving the qualities of neighborhoods and communities, rather than trying to change individual behaviors.

Planning decisions about land use, mobility, and urban design can have a strong impact on an individual's transportation choices, housing options, and social interactions. These decisions have the ability to improve physical and mental health by providing opportunities for physical activity, providing access to nutritious food, or enabling social interaction with neighbors on a regular basis. For these reasons, general plans are an important venue for addressing citywide links between public health and the built environment.

This chapter is divided into the following sections:

- Introduction (Section 6.1)
- Overall Health Indicators (Section 6.2)
- Physical Activity and Mobility Options (Section 6.3)
- Access to Healthy Foods (Section 6.4)
- Health Care Access (Section 6.5)
- Economic Opportunities (Section 6.6)
- Safe Neighborhoods (Section 6.7)
- Environmental Quality (Section 6.8)
- Community Resiliency (Section 6.9)

Several of the sections within this chapter compare the existing conditions in different neighborhoods in Hayward. Figure 6-1 shows the boundaries of these neighborhoods. Figure 6-1 also shows areas where 50 percent or more of the households are low-income (i.e., households that earn 80 percent or less of the area median income of Alameda County).

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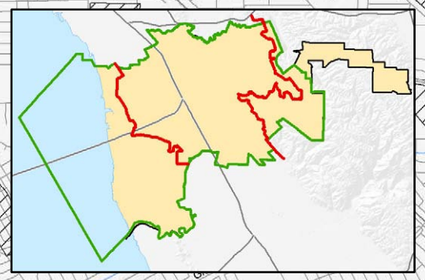
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-1
Hayward Neighborhoods



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
County
Union City

North Hayward
Upper B Street
Burbank
Mission/Foothill
Hayward Highland
Longwood/ Winton Grove
Santa Clara
Jackson Triangle
Whitman/ Mocine
Mt. Eden
Southgate
Harder/Tennyson
Mission/Garin
Tennyson/Alquire
Glen Eden
Fairway Park

Castro Valley Blvd
Lewelling Blvd
Grove Way
Foothill Blvd
Mission Blvd
Redwood Rd
Kelly St
Five Canyons Pkwy
Maud Ave
D St
East Ave
Fairview Ave
Patterson Rd
Bockman Rd
Golf Course Rd
Hesperian Blvd
Meekland Ave
A St
C St
Meek Ave
Jackson St
Winton Ave
Sabre St
W Winton Av
Skywest Dr
Longwood Av
Orchard Ave
Santa Clara St
Harder Rd
Carlos Bee Blvd
Oakes Dr
Highland Blvd
Bailey Ranch Rd
Cabot Blvd
Clawiter Rd
Depot Rd
Enterprise Ave
W Jackson St
Gading Rd
W Tennyson Rd
Tennyson Rd
Dyer St
Route 92
Investment Blvd
Industrial Blvd
Arden Rd
Baumberg Ave
Industrial Pkwy W
Industrial Pkwy
Huntwood Ave
Russ Rd
Folsom Ave
Dutch St
Garin Ave
Fairway St
Revere Ave
San Clemente St
Whipple Rd
Union City Blvd

I-238
I-580
I-880
I-980
880
238
580
92

0 0.25 0.5 1 Miles

- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Hayward Planning Area
- Streets
- 50% or More Low-Income Households

Data source: HUD Neighborhood Stabilization Program Data, 2010; City of Hayward, 2012

January, 2013

SECTION 6.2 OVERALL HEALTH INDICATORS

Introduction

This section describes basic indicators of public health, including statistics on mortality and life expectancy, the prevalence of disease (including obesity, diabetes, and asthma), and data on the physical fitness of public school children in Hayward relative to the region. This section summarizes several health indicators described in a 2010 report prepared by the Alameda County Public Health Department entitled *The Health of Alameda County Cities and Places*. Overall, the report concludes that communities of color and low-income communities in Alameda County continue to fare poorest on most key health indicators tracked over time by the Public Health Department. Hayward residents are at higher risk than residents in most other areas of the county on many health indicators.

Major Findings

- Out of 20 cities and unincorporated communities in Alameda County, Hayward ranked 16th for life expectancy, with an average life expectancy at birth of 80.5 years. The unincorporated communities of Fairview and Cherryland, which are located in the Hayward Planning Area, ranked last, with an average life expectancy of 79.0 years and 78.2 years, respectively.
- Hayward had the sixth highest mortality rate among cities and unincorporated communities in Alameda County, with 669.4 annual deaths per 100,000 residents.
- Hayward has the second highest percentage of overweight children in Alameda County (38.4 percent).
- The three cities in Alameda County with the most asthma-related visits to the emergency room (per 100,000 residents) were Oakland, Hayward, and San Leandro.
- Hayward had more emergency room visits related to mental disorders (per 100,000 residents) than any city or unincorporated community in Alameda County.

Existing Conditions

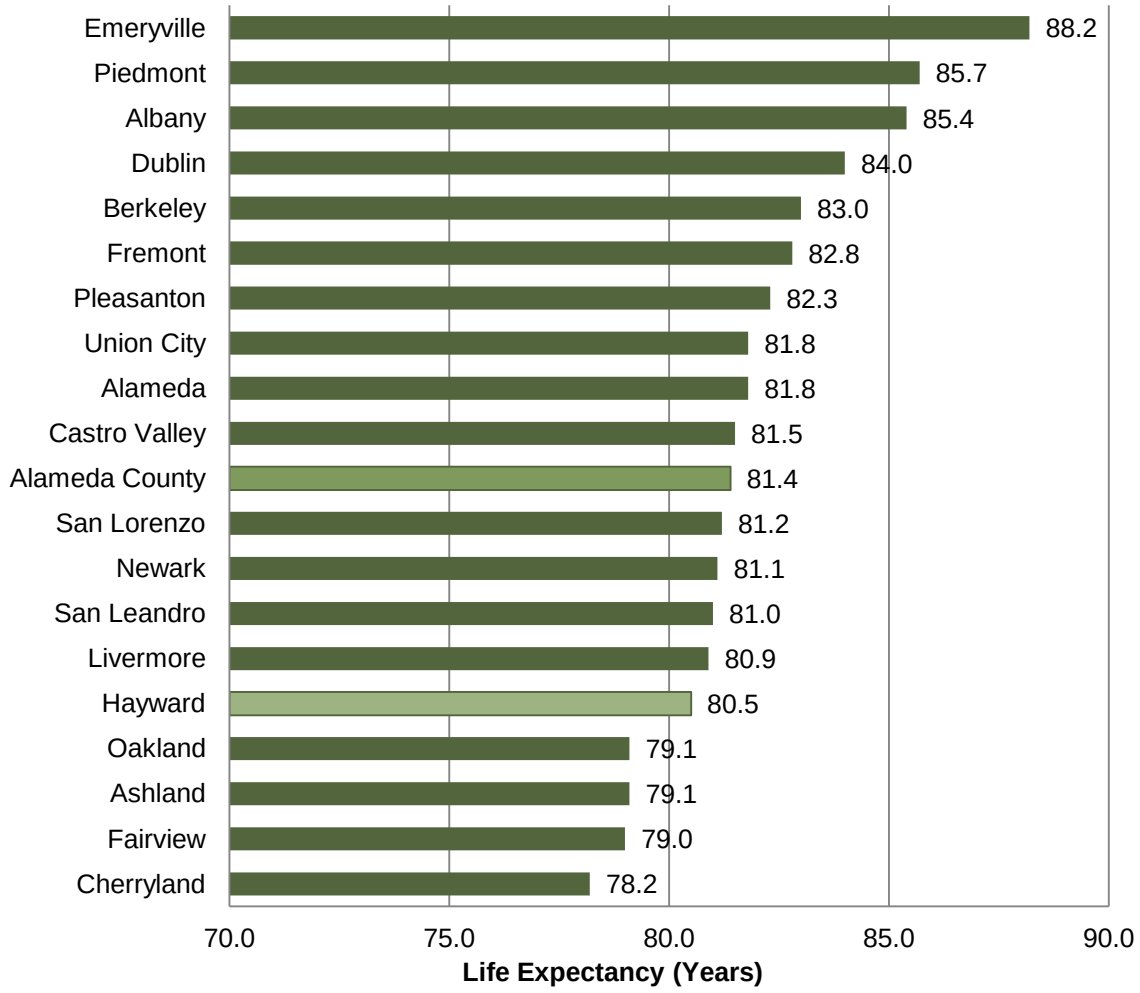
Life Expectancy

Life expectancy represents the number of years a group is expected to live, either from birth or from a given point in the lifespan. Life expectancy at birth is the average number of years that a group of infants would be expected to live if they were to experience throughout their lifespan the same mortality experienced by the different age groups at the time of their birth. This summary measure is strongly influenced by infant and childhood mortality.

Figure 6-2 shows life expectancy at birth for cities and communities in Alameda County based on 2006-2008 data. Among cities and unincorporated communities in Alameda County, life expectancy at birth ranged from a low of 78.2 years in Cherryland to a high of 88.2 years in

Emeryville. The gap was 10 years between the lowest and highest communities. Hayward ranked 16th out of 20 for life expectancy in Alameda County. However, life expectancy in Hayward (80.5 years) was similar to the statewide average of 80.2 years and higher than the national average of 77.9 years. The unincorporated communities of Fairview and Cherryland, which are located in the Hayward Planning Area, ranked last, with an average life expectancy of 79.0 and 78.2, respectively.

FIGURE 6-2
LIFE EXPECTANCY AT BIRTH BY CITY/COMMUNITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

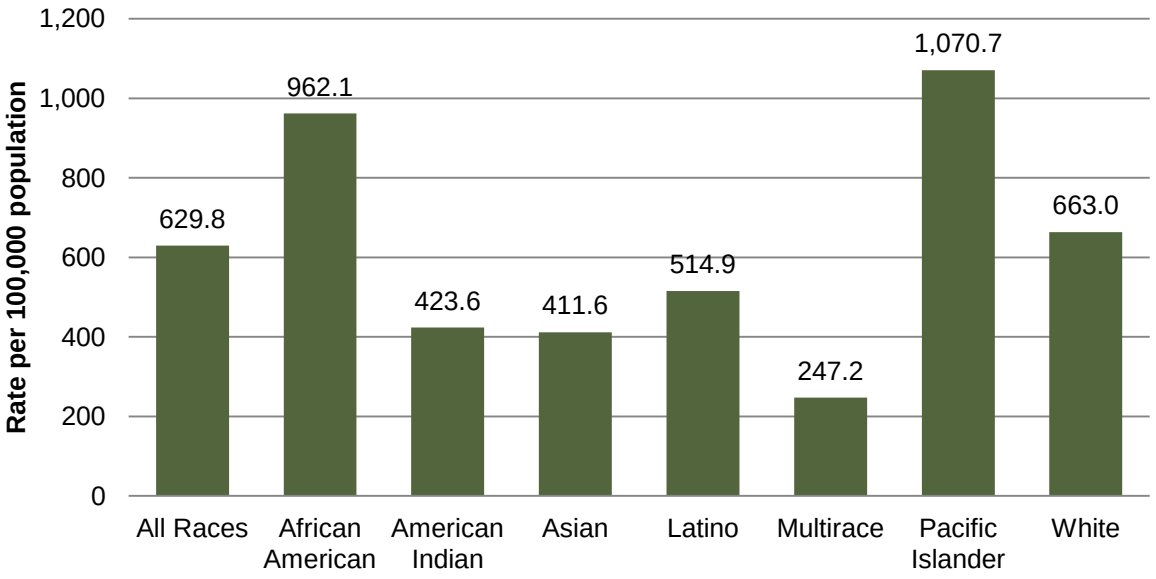
Mortality Rate

Measuring mortality rates from all causes is a valuable tool for monitoring progress in fighting disease and improving health. In 2007 a total of 2,423,712 deaths occurred in the United States

and the age-adjusted[1] mortality rate from all causes was 760.2 per 100,000 population. In California it was 666.4 for the period 2006-08; and in Alameda County it was 629.8.

Figure 6-2 shows mortality rates by race/ethnicity in Alameda County from 2006-2008. The mortality rates from all causes for African Americans, Pacific Islanders, and whites were significantly higher than the rates for American Indians, Asians, Latinos, and the multirace group. Rates among African Americans and Pacific Islanders were 1.5 to 2.3 times those among Asians, Latinos, and whites. The multi-race group had the lowest rate. However, deaths among this group may be underreported.

FIGURE 6-3
ALL-CAUSE MORTALITY RATE BY RACE/ETHNICITY
Alameda County
2006-2008

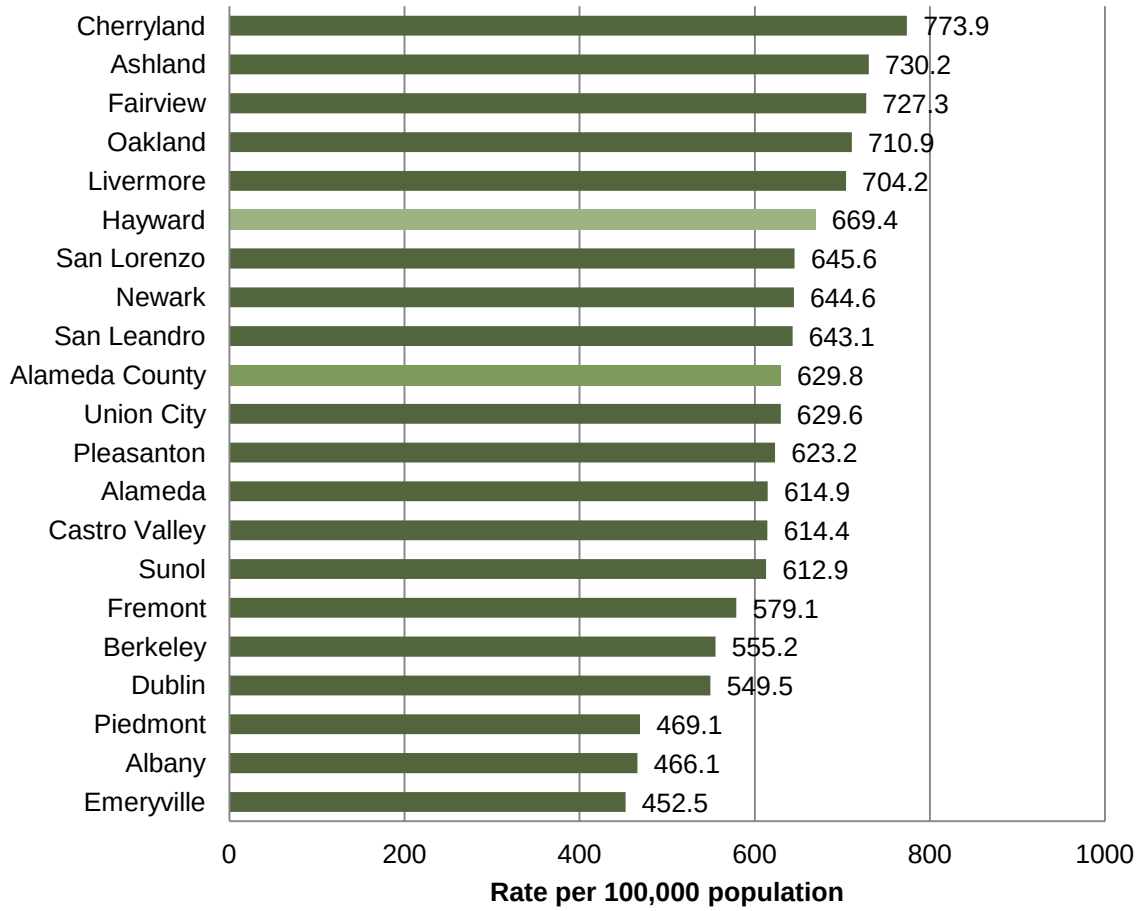


Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

Figure 6-4 shows the mortality rate for cities in Alameda County in 2006-2008. The city of Hayward ranked sixth among cities and unincorporated communities in Alameda County in the overall mortality rate, with 669.4 annual deaths per 100,000 population. Cherryland and Fairview, which are located in the Hayward Planning Area, had the highest and third highest mortality rate, with 773.9 annual deaths per 100,000 population and 727.3 annual deaths per 100,000 population.

[1] *Age Adjustment.* In general, the number of deaths or disease for specific causes of mortality in a community is affected by the size and age composition of the population. Because the risk of death or disease is primarily a function of age, simply calculating a crude rate (the number of events/population) can lead to misleading conclusions when comparing different subpopulations. This is because populations with a large component of elderly people tend to have higher death and disease rates simply because the risk is determined mostly by age. To nullify the effect of differences in the age composition of populations, death and disease rates are age-adjusted. Age-adjusted death and disease rates form a better basis for making comparisons across populations.

FIGURE 6-4
ALL-CAUSE MORTALITY RATE BY CITY/COMMUNITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

Leading Causes of Death

In 2007 the ten leading causes of death accounted for 76 percent of all deaths occurring in the United States. Five chronic diseases – heart disease, cancer, stroke, chronic lower respiratory disease, and diabetes – accounted for more than 60 percent of all deaths in the United States. The first and third leading causes of death – heart disease and stroke – have been declining since 1950 and the second leading cause of death, cancer, has been declining since 1990.

As shown in Table 6-1, the three most common causes of death in Hayward during 2006-2008 were heart disease, cancer, and stroke. These three chronic diseases accounted for about 53

percent of all deaths. Chronic lower respiratory diseases and unintentional injuries ranked fourth and fifth, respectively.

TABLE 6-1
LEADING CAUSES OF DEATH
City of Hayward
2006-2008

Cause of Death	Number	Percent
Diseases of the Heart	662	24.30%
Cancer	587	21.50%
Stroke	185	6.80%
Chronic Lower Respiratory Diseases	144	5.30%
Diabetes	125	4.60%
Unintentional Injuries	125	4.60%
TOTAL	2,725	100.00%

Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

Obesity

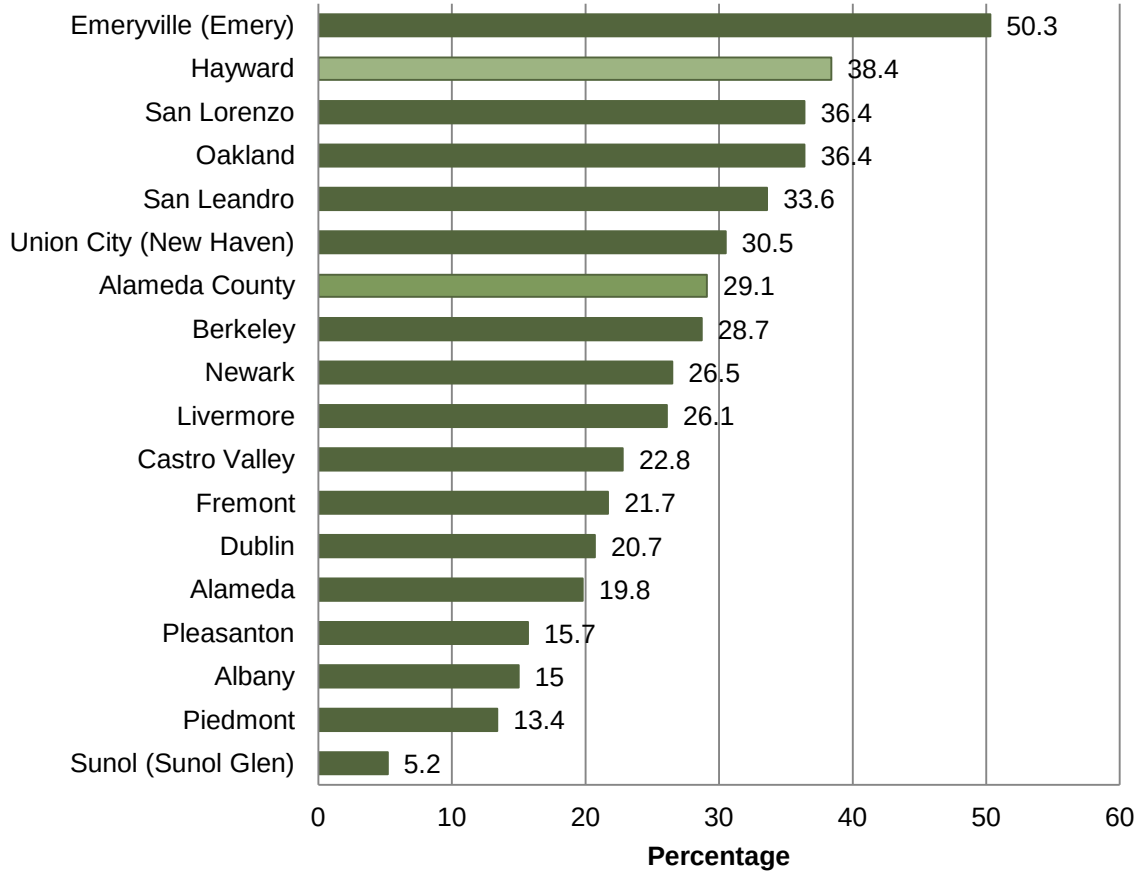
Research has begun to show a correlation between the built environment and obesity rates. Persons living in a more compact, densely populated environment are more likely to walk or bike to work or social settings. This increased physical activity level may contribute to reduced rates of obesity. While scientists debate the most important causes of increased levels of obesity in American society, few seriously dispute the fact that overweight and obesity rates are on the rise.

As shown in Figure 6-5, Hayward has the second highest percentage of overweight[2] children in the County. Hispanics and Pacific Islanders living in Hayward were shown as being the ethnic groups with the highest percentage of overweight children (42 percent and 46 percent, respectively). This is significantly higher than the county average of 29 percent. In each of the school districts, the proportion of overweight students was higher among males than females. In Hayward 41.6 percent of males were overweight, compared to 35.1 percent of females.

Figure 6-6 shows the percentage of children that are overweight or obese by Census Tract within the Hayward Planning Area.[3] In some neighborhoods, including parts of Cherryland, Jackson Triangle, Mission/Garin, and Fairway Park, more than 52 percent of children are overweight or obese.

[2] Overweight is defined as having a body mass index of between 25.0 and 29.9.
[3] The data source shown on Figure 6-5 defines overweight or obese children as those over the 85th percentile for age and gender based on the Center for Disease Control growth curves.

FIGURE 6-5
PERCENTAGE OF OVERWEIGHT CHILDREN BY SCHOOL DISTRICT
Alameda County
2008-2009



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-6
Percent of Children Overweight or Obese

Ashland
Castro Valley
San Lorenzo
Hayward Acres
Cherryland
North Hayward
Upper B Street
Fairview
Burbank
Longwood/
Winton Grove
Santa Clara
Jackson Triangle
Mission/Foothill
Hayward Highland
Whitman/
Mocine
Mt. Eden
Harder/Tennyson
Southgate
Mission/Garin
Tennyson/Alquire
Glen Eden
Fairway Park
Hayward
County
Union City

Castro Valley Blvd
E 14th St
Lewelling Blvd
Grove Way
Redwood Rd
Center St
Kelly St
Five Canyons Pkwy
Mission Blvd
Foothill Blvd
Meekland Ave
Hathaway Ave
Bockman Rd
Golf Course Rd
Hesperian Blvd
A St
Grand St
Meek Ave
Jackson St
Highland Blvd
Oakes Dr
Carlos Bee Blvd
Fairview Ave
East Ave
Patterson Rd
Bailey Ranch Rd
Sabre St
W Winton Av
Winton Ave
Longwood Av
Skywest Dr
Orchard Ave
Solo Rd
Harder Rd
Santa Clara St
Whitman St
Hayward Blvd
Saklan Rd
Cabot Blvd
Eden Ave
Clawiter Rd
Depot Rd
Gading Rd
W Jackson St
Enterprise Ave
W Tennyson Rd
Tennyson Rd
Dixon St
Garin Ave
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Arden Rd
Baumbert Ave
Industrial Pkwy W
Industrial Pkwy
Hamilton Ave
Ruus Rd
Folsom Ave
San Clemente St
Fairway St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St
I-238
I-580
I-880
I-980
880
238
580
92

0 0.25 0.5 1 Miles

- Hayward Neighborhoods
- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Streets

Percent of Children Overweight or Obese

- No Data
- 0.1% - 21.7%
- 21.8% - 42.1%
- 42.2% - 52.5%
- 52.6% - 64.7%

Data source: Ortega Hinojosa, A. M. 2011.

February 2013

Diabetes

Diabetes is a chronic disease in which the body does not produce or properly use insulin (the hormone produced by the pancreas to regulate blood sugar), which can lead to blood glucose (sugar) levels that are too high. Diabetes requires rigorous management to reduce the risk of serious complications and premature death. It also contributes to a variety of medical problems, including heart disease, stroke, high blood pressure, blindness, kidney disease, diseases of the nervous system, amputations, dental problems, and complications during pregnancy.

Diabetes is becoming increasingly prevalent in both the United States and California. It was the seventh leading cause of death in the U.S. in 2007. According to the National Center for Health Statistics, the total direct and indirect cost of diabetes in the United States was $174 billion in 2007. Research has linked the increasing prevalence of diabetes with the recent rise in rates of overweight and obesity. As with the health issue of obesity, the design of the built environment cannot be said to directly "cause" diabetes. However, research has begun to establish a connection between the quality of the built environment and overall community wellness.

Table 6-2 compares the prevalence of diabetes in Alameda County, California, and the United States. The table shows that diabetes is less prevalent in Alameda County and California than the United States as a whole.

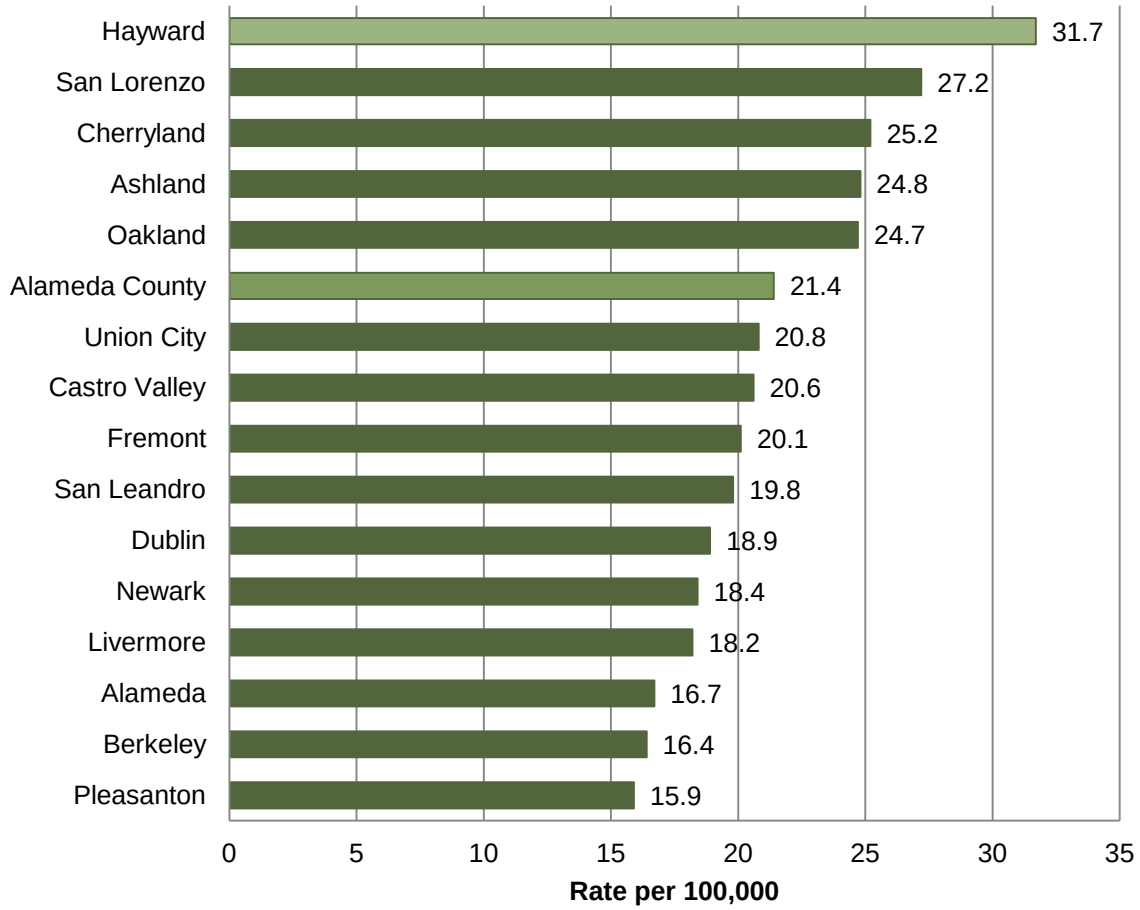
TABLE 6-2
COMPARISON OF DIABETES PREVALENCE
Alameda County, California, United States
2007

Geography	Diabetes Prevalence (Percentage)	Mortality (Rate per 100,000)
Alameda County	7.8	21.4
California	7.8	21.1
United States	10.7	22.5

Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

Figure 6-7 shows the diabetes mortality rate for cities in Alameda County from 2006-2008. There were 917 deaths from diabetes in Alameda County from 2006 to 2008, for an age-adjusted diabetes mortality rate of 21.4 per 100,000. Among the cities and unincorporated communities in Alameda County, Hayward ranked the highest on the age-adjusted diabetes mortality rate, with a rate of 31.7.

FIGURE 6-7
DIABETES MORTALITY RATE BY CITY/COMMUNITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

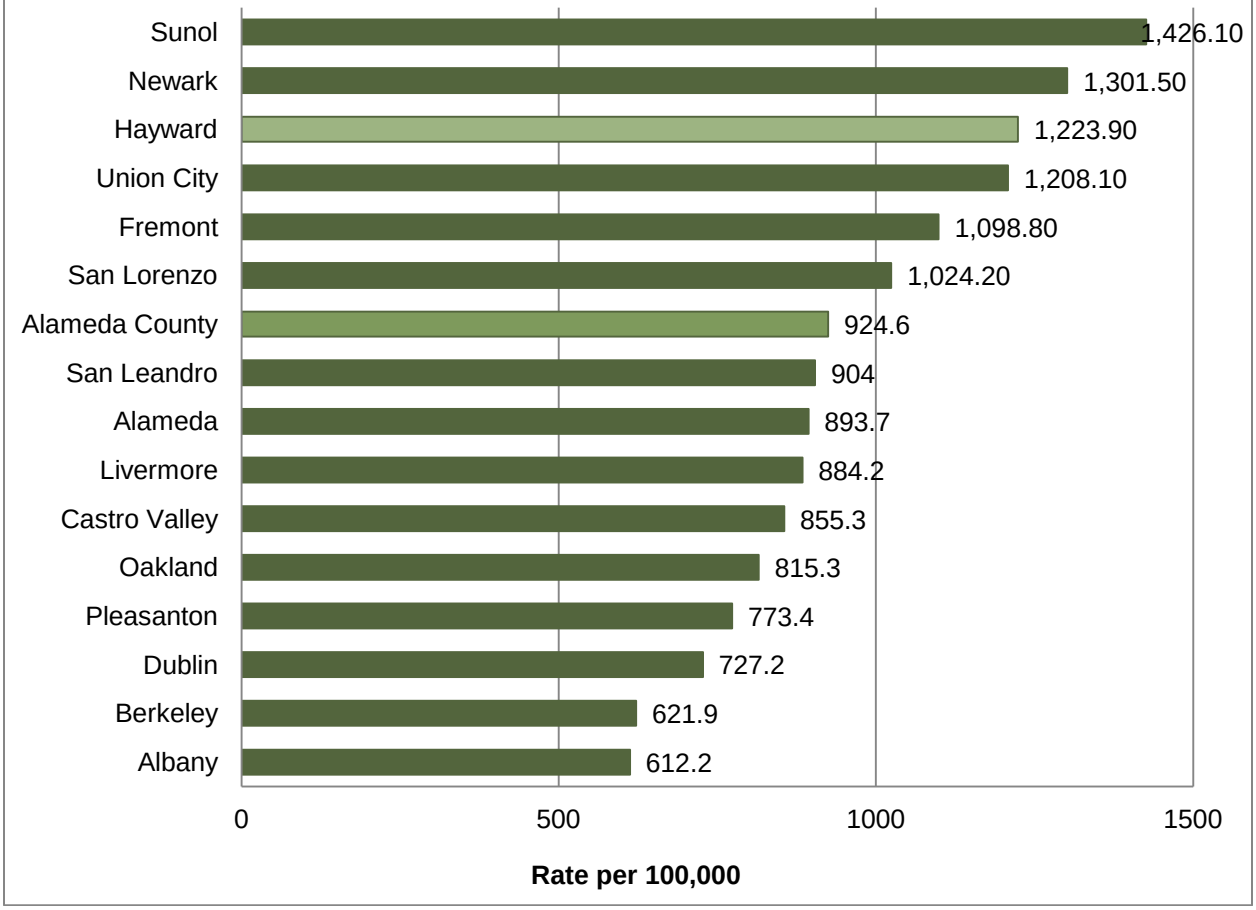
Coronary Heart Disease

Coronary heart disease (CHD) develops when the arteries of the heart become narrowed or clogged and cannot supply enough oxygen-rich blood and nutrients to the heart muscle. CHD is the most common cause of death in the United States, accounting for more than one of every six deaths. Several risk factors for coronary heart disease can be modified through lifestyle changes. The risk of developing CHD can be reduced significantly through a healthy diet, regular exercise, reducing stress levels, and not smoking, in addition to reducing or controlling high blood pressure, high blood cholesterol, and diabetes.

There were 40,011 CHD-related hospitalizations in Alameda County from 2006 through 2008. The age-adjusted rate was 924.6 per 100,000 population. As shown on Figure 6-8, Hayward

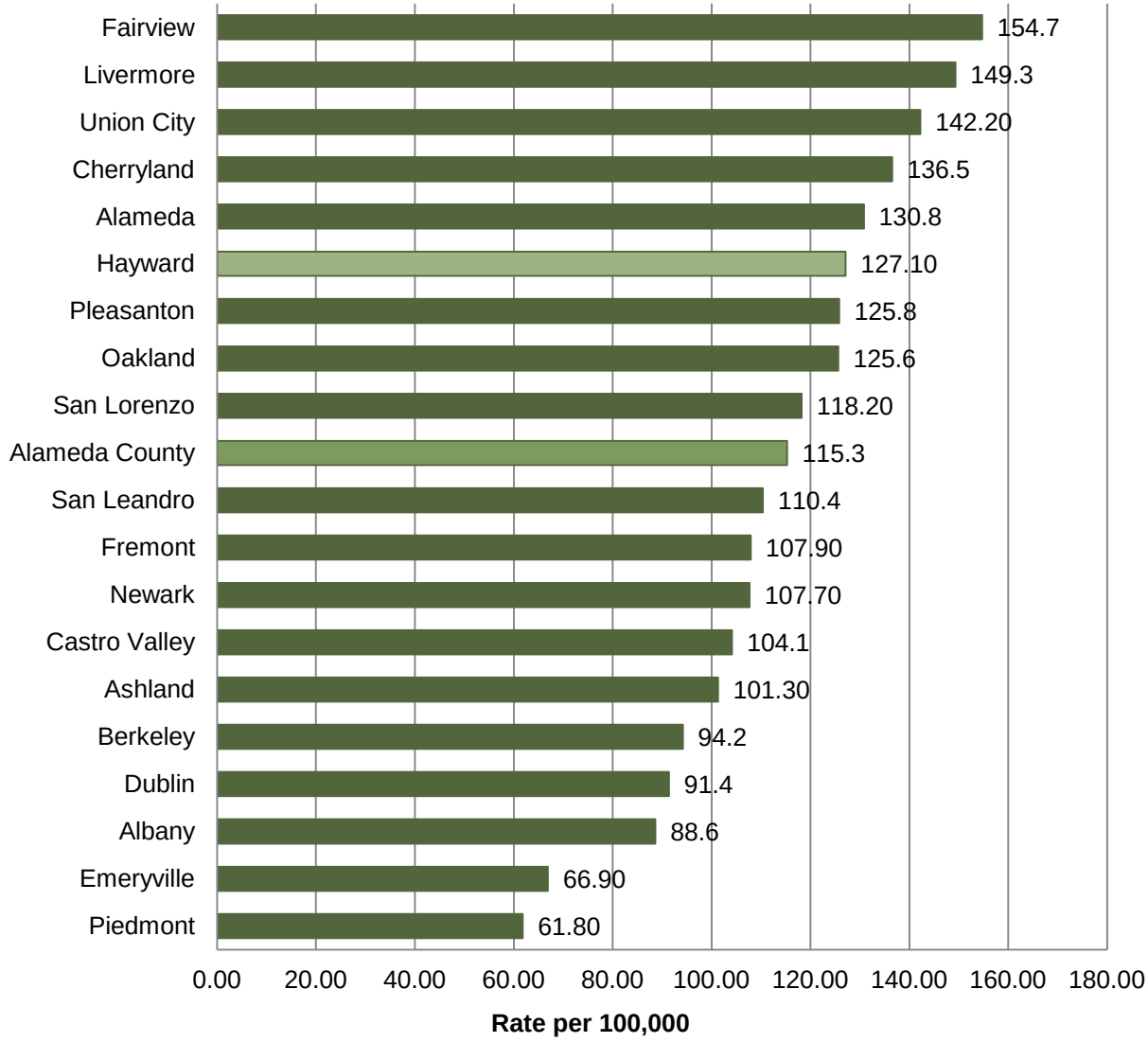
ranked third in the county for CHD-related hospitalizations. Hayward ranked sixth for CHD-related mortality, as shown in Figure 6-9. CHD-related mortality was highest in Fairview with a rate of 154.7.

FIGURE 6-8
CHD-RELATED HOSPITALIZATION BY CITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

FIGURE 6-9
CHD-RELATED MORTALITY BY CITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

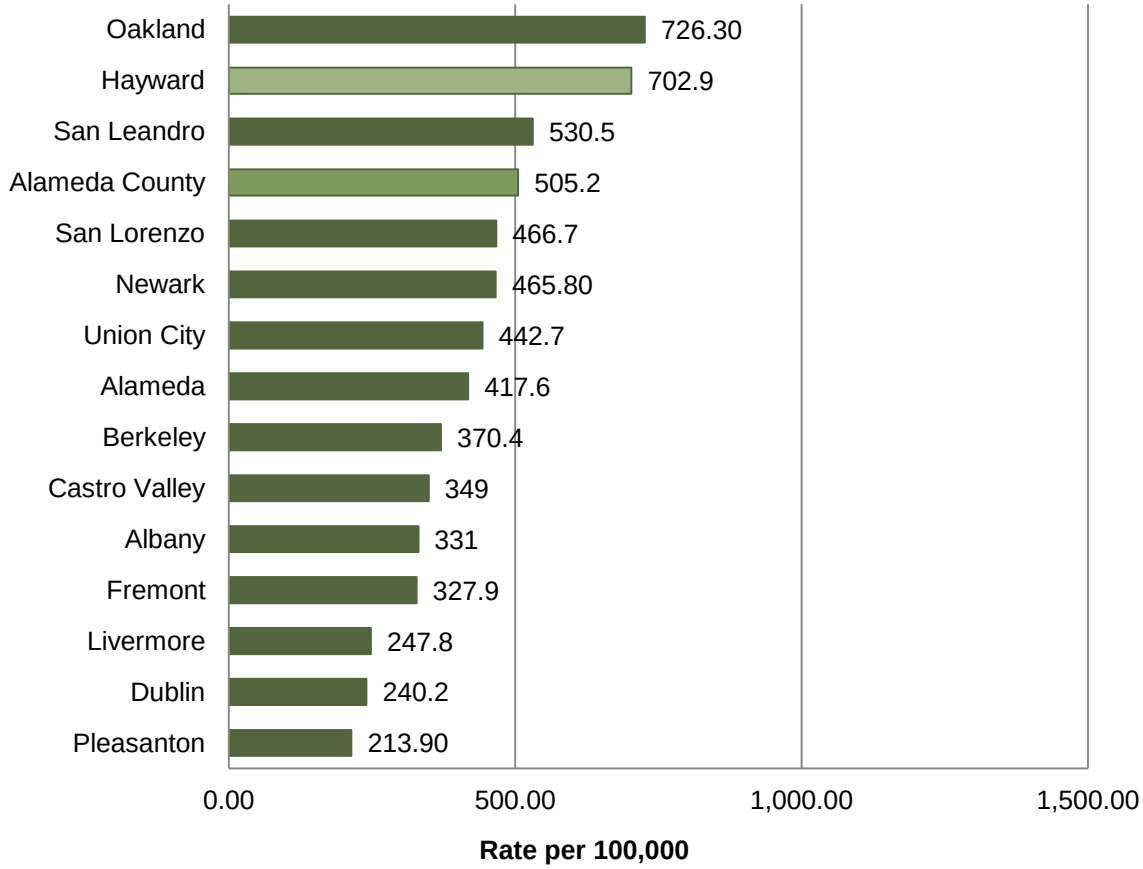
Asthma

Asthma is a chronic lung condition that causes swelling, excess mucus, and narrowing of the airways. Many studies have identified a link between air pollution and asthma. Asthma prevalence has been increasing nationally since 1980. The 2008 Behavioral Risk Factor Surveillance System estimates that over 30 million adults in the United States and nearly four million California adults have self-reported lifetime asthma. More recent data shows that 8.8 percent of U.S. adults and 7.8 percent of California adults currently have asthma. In general,

asthma rates are higher among females and children five to 14 years. They are also higher among African Americans and low-income residents of inner cities. In California asthma hospitalization rates are highest among African Americans even when income is taken into account. Statewide and nationally, rates among African Americans are at least three times higher than rates for whites.

Figure 6-10 shows the rate of asthma-related emergency room visits per 100,000 population. The three cities in Alameda County with the most asthma-related visits to the emergency room (per 100,000 residents) were Oakland, Hayward, and San Leandro.

FIGURE 6-10
ASTHMA EMERGENCY ROOM VISITS BY CITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

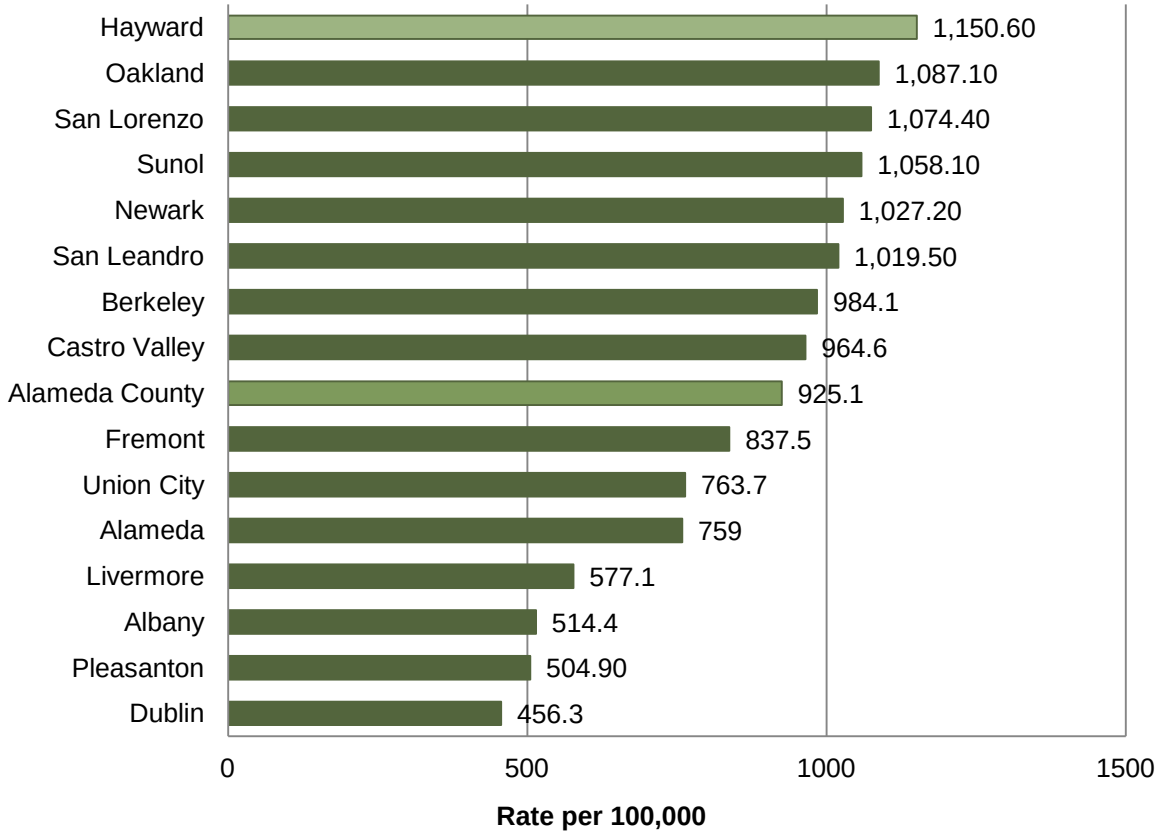
Mental Illness

Mental health and mental illnesses can both cause and be influenced by positive or negative social determinants of health, which include income, housing, stress, early childhood experiences, drug use, social exclusion, occupation, education level, sanitation, social support, discrimination (such as racism), and lack of access to resources.

From 2006 to 2008 there were 43,264 emergency room visits for mental disorders among Alameda County residents. The age-adjusted rate was 925.1 per 100,000 population. Emergency room visits for mental disorders were most common between the ages of 15 and 64 years. Rates were highest among males 45-54 years and females 15-24 years. The most common primary diagnoses among both age groups were drug abuse, neurotic disorders, non-organic psychoses, and alcohol dependence. Alcohol dependence is less common among the younger age groups.

Figure 6-11 shows emergency room visits for mental disorders in Alameda County for 2006-2008. Hayward had more emergency room visits related to mental disorders (per 100,000 residents) than any city or unincorporated community in Alameda County. African Americans and whites living in Hayward had even higher rates, at 1709.9 and 1,878.4 emergency department visits per 100,000 population, respectively.

FIGURE 6-11
EMERGENCY ROOM VISITS FOR MENTAL DISORDERS BY CITY
Alameda County
2006-2008



Source: Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

SECTION 6.3 PHYSICAL ACTIVITY AND MOBILITY OPTIONS

Introduction

In the United States, major changes in lifestyle and the built environment have contributed to dramatic declines in physical activity levels among adults over the last few decades. Sedentary lifestyles have become a pressing public health problem. Physical activity is important in preventing obesity and other chronic conditions such as diabetes, heart disease, osteoporosis, and some types of cancer.

The design of the built environment has a significant impact on the opportunities residents have to remain active and healthy and avoid chronic diseases. There is evidence that neighborhoods that provide facilities for active recreation, such as nearby parks, multiuse trails, and appealing sidewalks or public spaces for walks, may also promote recreational activity. Physical environments designed to facilitate commuting by foot, bicycle, or transit help promote physical activity by incorporating walking or biking into the daily routine of people. Studies have demonstrated that the perceived safety and accessibility of neighborhood amenities that allow physical activity (such as parks, recreation centers, and green belt trails) are important predictors of a person's overall physical activity level.

This section describes opportunities for residents within the Hayward Planning Area to live an active and healthy lifestyle.

Major Findings

- Students within the Hayward Unified School District performed poorer than the statewide average on all six measures of fitness included in the Department of Education survey of public school children.
- Most residents live close to parks and recreation facilities. Over 77 percent of residents within the Planning Area live within one-quarter-mile radius of a neighborhood or regional park or recreational facility. However, poor connectivity in the street network (e.g., large arterials with limited crossings, cul-de-sacs, rail corridors, large blocks) creates barriers to accessing parks. There are also a few neighborhoods within the Planning Area that have poor physical proximity to parks. These include areas within: Hayward Acres, Cherryland, Burbank, and Longwood/Winton Grove.
- Most residents within the Planning Area live close to a local or regional transit stop, with nearly 83 percent of residents located within a one-quarter-mile radius of a local transit stop or a one-half-mile radius of a regional stop. Over 91 percent of middle schools and high schools (or 11 out of 12 schools) are within a one-quarter-mile radius of a local transit stop. However, poor connectivity in the street network makes it difficult to walk to transit stops in some parts of Hayward.
- There are bike paths on about 19 percent (67 miles) of the roads in Hayward. Since schools tend to be located along major arterials, over 91 percent of middle schools and

high schools (or 11 out of 12 schools) are within 200 feet of a bicycle path, dedicated bike lanes, or dedicated bike routes.

- Both Chabot College and California State University (CSU) East Bay are well-served by bike paths and transit service. Chabot College is directly served by three bus lines, the 22, 97, and M lines. CSU East Bay is served by two lines, the 60 and 94 lines.

Existing Conditions

Physical Activity

Regular physical activity helps improve overall health and fitness, and reduces risk for many chronic diseases. Today, Americans are getting less physical activity than previous generations. Some schools have cut back on activities like physical education and recess (in part due to budget pressures at the State and local level), and children are increasingly driven to school by car or bus, rather than walking or biking.

According to a 2010 report by the Alameda County Public Health Department, only 38.5 percent of adults in Alameda County reported being physically active regularly[4]. Whites were 1.5 times as likely to be physically active as African Americans (44.9 percent versus 29.0 percent). Latinos and Asian/Pacific Islanders had higher rates of physical activity than African Americans (38.2 percent and 33.8 percent, respectively, versus 29.0 percent).

The California Department of Education tracks statistics on the percentage of public school children in different California school districts who fall into a defined "healthy fitness zone." Table 6-3 shows how students within the Hayward Unified School District performed on several measures of fitness compared to the statewide average. Students within the District performed poorer than the statewide average on all six measures. The biggest difference was in the measure of aerobic capacity, for which only 47 percent of students in Hayward fell within the "healthy fitness zone" compared to 62 percent statewide.

[4] Regular physical activity for adults is defined as those who reported at least 30 minutes of moderate activity (excluding walking) for 5 or more days in the last week or those who reported at least 20 minutes of vigorous activity for 3 or more days in the last week.

TABLE 6-3
PERCENTAGE OF STUDENTS IN THE HEALTHY FITNESS ZONE
Hayward School District, California
2010-11

Test	Hayward Unified School District	Statewide
Abdominal Strength	73%	84%
Aerobic Capacity	47%	62%
Body Composition	45%	56%
Flexibility	73%	78%
Trunk Extension Strength	81%	90%
Upper Body Strength	67%	73%

Source: California Department of Education, School Quality Snapshot, 2010-11.

Access to Recreation and Open Space

Adults and children tend to be more physically active when they have access to safe parks, playgrounds, and indoor and outdoor recreational facilities. There are two agencies that maintain parks and open space within the Hayward Planning Area: the Hayward Area Recreation and Park District (HARD) and the East Bay Regional Park District (EBRPD). EBRPD maintains four regional parks that are outside city limits, but serve Hayward residents. Altogether there are over 11,000 acres of parks and open space within or immediately adjacent to the city of Hayward.

Figure 6-12 shows areas within a one-quarter-mile radius of parks and recreation facilities in the Planning Area. A one-quarter-mile radius, or a five-minute walk on average, is considered a standard "walkable" distance that a pedestrian is willing to walk before opting to drive. As shown on the figure, most residents live close to parks and recreation facilities. Over 77 percent of residents within the Planning Area live within a one-quarter-mile radius of a neighborhood or regional park or recreational facility. However, this proximity to parks does not necessarily correlate with accessibility. Poor connectivity in the street network (e.g., large arterials with limited crossings, cul-de-sacs, rail corridors, and large blocks) hinders accessibility and increases the distance that many residents would have to walk to a nearby park. There are also a few neighborhoods within the Planning Area that have poor physical proximity to parks. These include areas within: Hayward Acres, Cherryland, Burbank, and Longwood/Winton Grove.

According to a 2010 report by the Alameda County Public Health Department, about three-fourths (74.2 percent) of adolescents and adults in the county had visited a park, playground, or open space in the past month. Use of these parks varied significantly by racial/ethnic group. African Americans were least likely to report use of parks and open spaces (69.1 percent) and multiracial persons were most likely (80.0 percent). Latinos reported only slightly higher rates of park use than African Americans. Asian/Pacific Islanders and Whites had similar rates of park use (76.7 percent and 74.8 percent, respectively).

Access to Public Transit and Active Transportation

There are many health benefits associated with using public transit and active transportation (e.g., walking, biking), including increased physical activity and reduced air pollution from vehicle emissions. Proximity to transit improves access to social, medical, employment, and recreational activities, and using public transit helps people meet minimum requirements for physical activity. Pedestrian and bicycle trips do not contribute to noise or air pollution emissions, including ozone and particulate matter, which are risk factors for cardiovascular mortality and respiratory disease and illness.

Access to Public Transit

Hayward residents have access to a range of public transit options including: Bay Area Rapid Transit (BART), Amtrak, and Alameda-Contra Costa Transit (AC Transit). As shown on Figure 6-13, most residents live close to a local and regional transit stops, with nearly 83 percent of residents living within a one-quarter-mile radius of a local transit stop or one-half-mile radius of a regional stop. All neighborhoods in Hayward are served to some extent by public transit; however, areas within some neighborhoods are less than adequately served by local public transit. This includes areas along I-880 in Southgate and Santa Clara; the eastern area of Glen Eden, west of I-880 between West Tennyson Road and Industrial Parkway; the western area of Fairway Park; and an area within Cherryland, south of Hampton Road. While this analysis might suggest good accessibility to public transit, poor connectivity in the street network (e.g., large arterials with limited crossings, cul-de-sacs, rail corridors, and large blocks) hinders accessibility. The quality of the walking environment and perceived safety impacts decisions to walk or drive. Auto-oriented streets can also discourage pedestrian activity.

AC Transit and BART provide transit service to persons with disabilities or with disabling health conditions through the East Bay Paratransit Program. The program provides sedans or vans with wheelchair lifts. The service is only available near operating bus and train lines; within three-quarters-mile radius of an AC Transit bus route or three-quarters-mile radius of a BART station; during the same hours that buses and trains are running on those routes.

As shown on Figure 6-14, most schools in Hayward are also well served by transit. Over 91 percent of middle schools and high schools in the Planning Area (or 11 out of 12 schools) are within a one-quarter-mile radius of a local transit stop.[5] The only school that is not well-served by transit is the Anthony E. Ochoa Middle School. Both Chabot College and California State University (CSU) East Bay are well-served by transit service. Chabot College is directly served by three bus lines, the 22, 97, and M lines. CSU East Bay is served by two lines, the 60 and 94 lines.

According to the 2011 ACS (five-year estimate), about 7 percent of Hayward residents use public transit to travel to work, compared to over 11 percent of Alameda County residents.

[5] Elementary schools were not included in this analysis since they tend to be located in closer proximity to the residents they serve and are less dependent on public transit.

Approximately 2 percent of Hayward households do not have access to an automobile and are entirely dependent on public transit, compared to 5 percent in Alameda County.

Access to Safe Bicycle Lanes

Figure 6-15 shows bike paths by class in the city of Hayward. According to the 2007 Bicycle Master Plan, there are nearly 65 miles of bike paths and dedicated bike lanes in Hayward, made up of approximately 7 miles of Class I bike paths, 26 miles of Class II bike paths, and 32 miles of Class III bike paths. In total there are bike paths on about 19 percent of total road miles in the city.

Figure 6-16 shows the location of schools in relation to bike paths in the city. Since schools tend to be located along major arterials, most schools in Hayward are well served by bicycle lanes, providing opportunities for students to bike to school. Over 72 percent of elementary schools, middle schools, and high schools in the Planning Area (or 61 out of 84 schools) are within 200 feet of a bike path. Most of the schools that are not within 200 feet of a bike path are elementary schools. The only high school that is not within 200 feet of a bike path is Moreau Catholic High School. Both Chabot College and CSU East Bay are served by bike paths.

According to the 2011 ACS (five-year estimate), only 1.6 percent of Hayward residents walked and 0.3 percent rode a bicycle to work. These figures are much lower than walking and bicycling rates for Alameda County, as 3.6 percent of county residents walk to work and 1.6 percent of county residents ride a bicycle to work.

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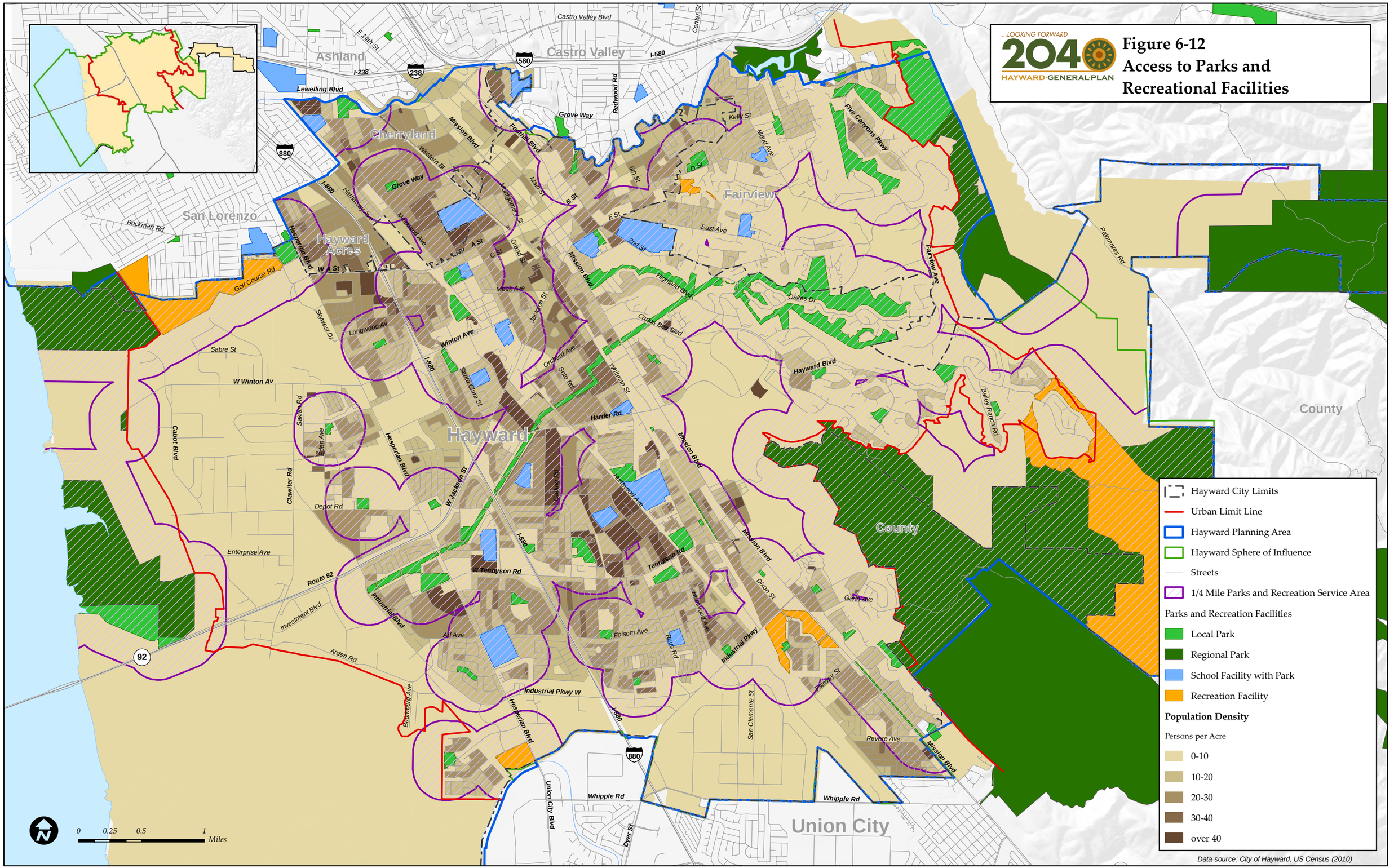
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-12
Access to Parks and Recreational Facilities



January, 2013

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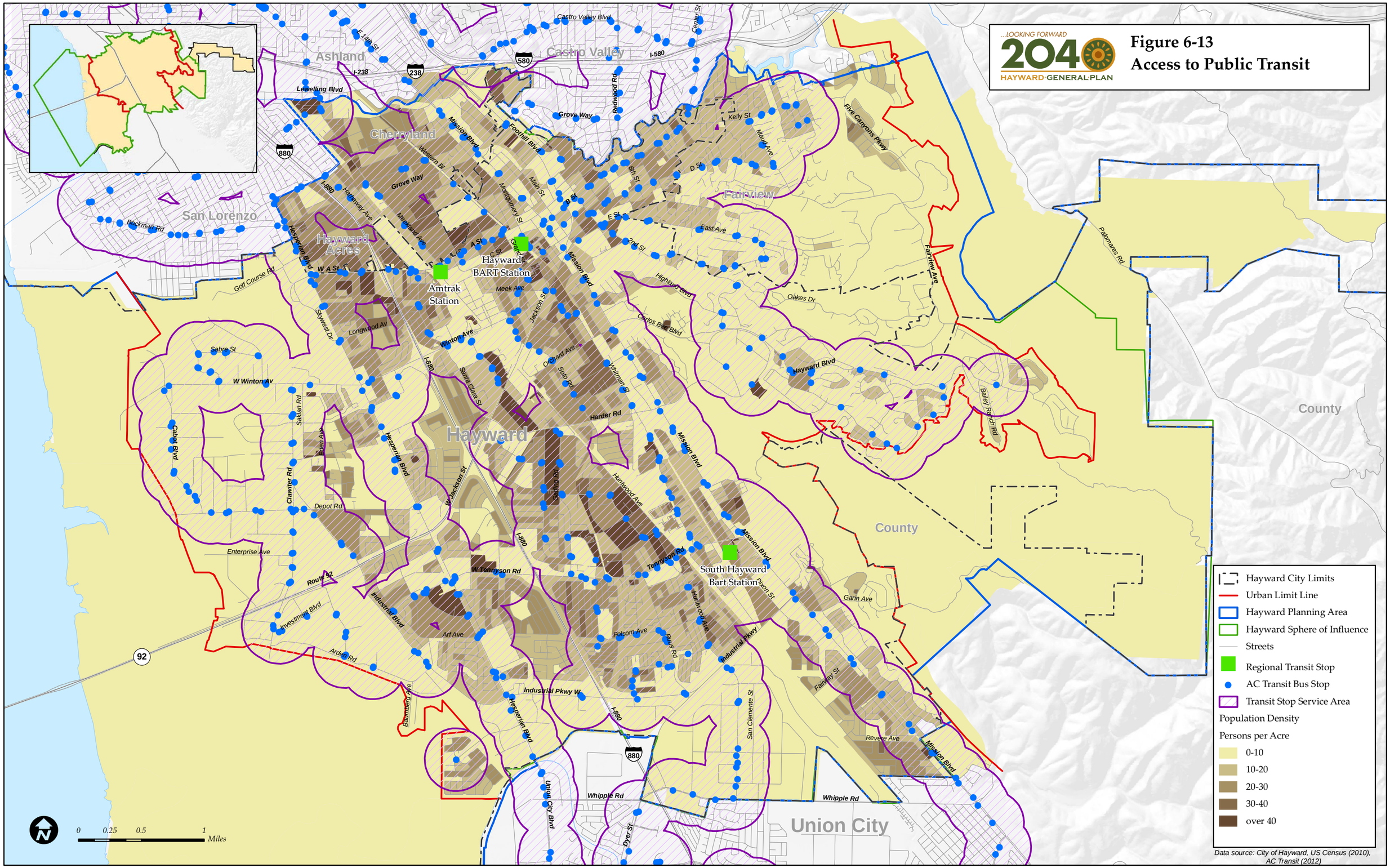
...LOOKING FORWARD 2040 HAYWARD·GENERAL·PLAN

Figure 6-13
Access to Public Transit



- Hayward City Limits
- Urban Limit Line
- Hayward Planning Area
- Hayward Sphere of Influence
- Streets
- Regional Transit Stop
- AC Transit Bus Stop
- Transit Stop Service Area

Population Density

Persons per Acre

- 0-10
- 10-20
- 20-30
- 30-40
- over 40

Data source: City of Hayward, US Census (2010), AC Transit (2012)

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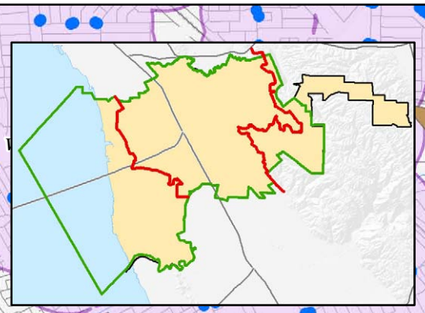
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-14
School Access to Public Transit



Edendale Middle School
San Lorenzo High School
KIPP King Collegiate
East Bay Arts High School
Bohannon Middle School
Amtrak Station
Hayward BART Station
Bret Harte School
Hayward High School
Winton Middle School
California State University, East Bay
Chabot College
Anthony W. Ochoa School
Martin Luther King Middle School
Mt. Eden High School
Leadership Public School
Tennyson High School
Moreau Catholic High School
Cesar Chavez School
South Hayward Bart Station
Conley-Caraballo High School
Ashland
Cherryland
San Lorenzo
Hayward Acres
Castro Valley
Fairview
Hayward
Union City
County
Castro Valley Blvd
Grove Way
Foothill Blvd
Mission Blvd
Redwood Rd
Five Canyons Pkwy
Hesperian Blvd
Winton Ave
Harder Rd
Whipple Rd
Industrial Pkwy W
Industrial Pkwy
Tennyson Rd
Route 92
Hayward Planning Area
Urban Limit Line
Hayward Sphere of Influence
Regional Transit Stop
AC Transit Bus Stop
High School
Middle School
Collge/University
Streets
Transit Stop Service Area
(1/2 mile for regional transit stops and 1/4 mile for local transit stop)
0 0.25 0.5 1 Miles

Data source: City of Hayward, US Census (2010), AC Transit (2012)

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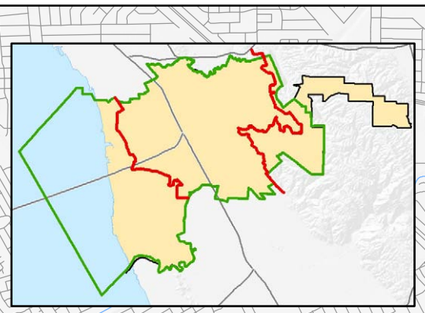
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-15
Bike Paths by Class



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
Union City
County

Castro Valley Blvd
E 14th St
I-238
Lewelling Blvd
I-580
Center St
Grove Way
Redwood Rd
Kelly St
Five Canyons Pkwy
Mission Blvd
Foothill Blvd
Western Blvd
Main St
Maud Ave
D St
Bockman Rd
I-880
Hathaway Ave
Meekland Ave
Montgomery St
B St
Sth St
E St
East Ave
Hesperian Blvd
A St
W A St
C St
Grand St
2nd St
Palomares Rd
Golf Course Rd
Meek Ave
Jackson St
Highland Blvd
Fairview Ave
Oakes Dr
Carlos Bee Blvd
Skywest Dr
Longwood Av
Winton Ave
Sabre St
Orchard Ave
Hayward Blvd
Bailey Ranch Rd
W Winton Av
Solo Rd
Mountain St
Santa Clara St
Harder Rd
Clawiter Rd
Eden Ave
Cabot Blvd
Depot Rd
W Jackson St
Gading Rd
Huntwood Ave
Enterprise Ave
W Tennyson Rd
Tennyson Rd
Dixon St
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Folsom Ave
Ruus Rd
Industrial Pkwy
Garin Ave
Ardenwood Blvd
Baumberg Ave
Industrial Pkwy W
San Clemente St
Fairway St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St
92
880

0 0.25 0.5 1 Miles

Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Hayward Planning Area
Streets

Existing Bike Paths
Class 1 Bike Path
Class 2 Bike Path
Class 3 Bike Path
Other Bikeway

Data source: City of Hayward, 2012

January, 2013

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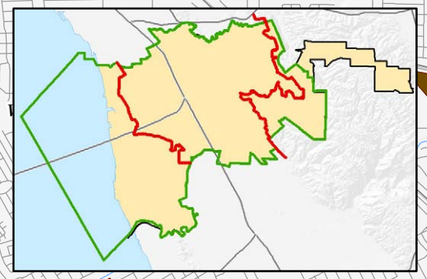
Figure 6-16
School Access to Bike Paths

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN



Edendale Middle School
San Lorenzo High School
KIPP King Collegiate
East Bay Arts High School
Bohannon Middle School
Winton Middle School
Anthony W. Ochoa School
Chabot College
Martin Luther King Middle School
Mt. Eden High School
Leadership Public School
Bret Harte School
Hayward High School
California State University, East Bay
Moreau Catholic High School
Tennyson High School
Cesar Chavez School
Conley-Caraballo High School
Ashland
Cherryland
San Lorenzo
Hayward Acres
Castro Valley
Fairview
Hayward
County
Union City
Castro Valley Blvd
E 14th St
Lewelling Blvd
I-238
I-580
Redwood Rd
Grove Way
Kelly St
Five Canyons Pkwy
Foothill Blvd
Mission Blvd
Western Bl
I-880
Hathaway Ave
Bockman Rd
Meadland Ave
Montgomery St
Main St
B St
C St
D St
E St
6th St
Maud Ave
East Ave
Golf Course Rd
Hesperian Blvd
W A St
Meek Ave
Jackson St
Grand St
Highland Blvd
Oakes Dr
Fairview Ave
Palomares Rd
Carlos Bee Blvd
Hayward Blvd
Bailey Ranch Rd
Skywest Dr
Longwood Av
Sabre St
W Winton Av
Winton Ave
Orchard Ave
Solo Rd
Whitman St
Santa Clara St
Harder Rd
Cabot Blvd
Clawiter Rd
Saklan Rd
Eden Ave
N Jackson St
Gading Rd
Depot Rd
Enterprise Ave
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Arden Rd
Baumberg Ave
W Tennyson Rd
Tennyson Rd
Folsom Ave
Ruus Rd
Industrial Pkwy
Industrial Pkwy W
Hunwood Ave
Dixon St
Garin Ave
Fairway St
San Clemente St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St
Paloma Ave
Patterson House Rd
Bailey Rd
Mission Blvd
92
880
580
238

Hayward City Limits
Urban Limit Line
Hayward Sphere of influence
Streets
Hayward Planning Area
Bike Paths
Elementary School
Middle School
High School
College/University

0 0.25 0.5 1 Miles

Data source: City of Hayward, US Census (2010)

January, 2013

SECTION 6.4 ACCESS TO HEALTHY FOODS

Introduction

A lack of access to healthy food options and an overabundance of fast food restaurants are strong determinants of community health. In areas where there are high numbers of fast-food restaurants compared to grocery stores, there are higher rates of diabetes, cardiovascular disease, and cancer. Studies have shown that when there is better access to grocery stores, there is a lower prevalence of overweight and obese individuals, higher rates of fruit and vegetable consumption, and more individuals with healthy diets.

A healthy community promotes access to healthy food options, including fresh produce stores, farmers markets, and community gardens, through the design of its built environment. The presence of a grocery store in a neighborhood predicts higher fruit and vegetable consumption, reducing the prevalence of overweight and obese individuals. Farmers' markets provide another source of fresh, locally produced fruits, vegetables, and other food products. Community gardens can provide a source of fresh fruits and vegetables for users, increase physical activity, and provide opportunities for social interaction and cohesion. This section describes the existing food environment in Hayward and access to healthy food.

Major Findings

- About 55 percent of Hayward residents live within one-half-mile radius of a grocery store; conversely, 45 percent of residents live further than one-half mile.
- Certain areas of Hayward are underserved by fresh produce vendors, but are close to fast food restaurants. The most pronounced of these areas are within Southgate and Mt. Eden along Hesperian Boulevard and within Cherryland where there is a concentration of fast food restaurants and limited access to fresh produce.

Existing Conditions

Food Desert Analysis

The term "food desert" is used to describe geographic areas within urban settings that have limited access to the fresh produce needed to maintain a healthy diet. These areas often contain many fast food restaurants and convenience stores. Figure 6-17 displays a simple food desert analysis for the Hayward Planning Area. For the purpose of the analysis, a one-half-mile radius is used to define "access" to a grocery store. While a one-quarter-mile radius is considered a standard walking distance, people tend to walk longer distances for basic necessities. Households that have access to a vehicle could travel further distances to purchase food; therefore, the one-half-mile is meant to define "access" for households without access to a vehicle. About 55 percent of Hayward residents live within one-half-mile radius of a grocery store; conversely, 45 percent of residents live further than one-half mile from grocery stores.

As shown on the figure, certain areas of Hayward are underserved by fresh produce vendors but are close to fast food restaurants. The most pronounced of these areas are within Southgate and Mt. Eden along Hesperian Boulevard and within Cherryland, where there is a concentration of fast food restaurants and limited access to fresh produce. Figure 6-17 also shows low-income Census tracts in which more than 100 households have no access to a vehicle. These areas tend to also be areas of the city with lower access to grocery stores.

Farmers Markets

The Hayward Farmers' Market is currently (2013) open Saturday mornings from 9am to 1pm, year round. Approximately 35 farmers and food purveyors participate in the market each week. The market is located at the Hayward City Plaza, which is adjacent to the Hayward BART Station and well-served by local bus transit. The Farmers' Market accepts food stamps in the form of an electronic benefit transfer (EBT). It also accepts WIC (Women, Infants, Children supplemental nutrition program).

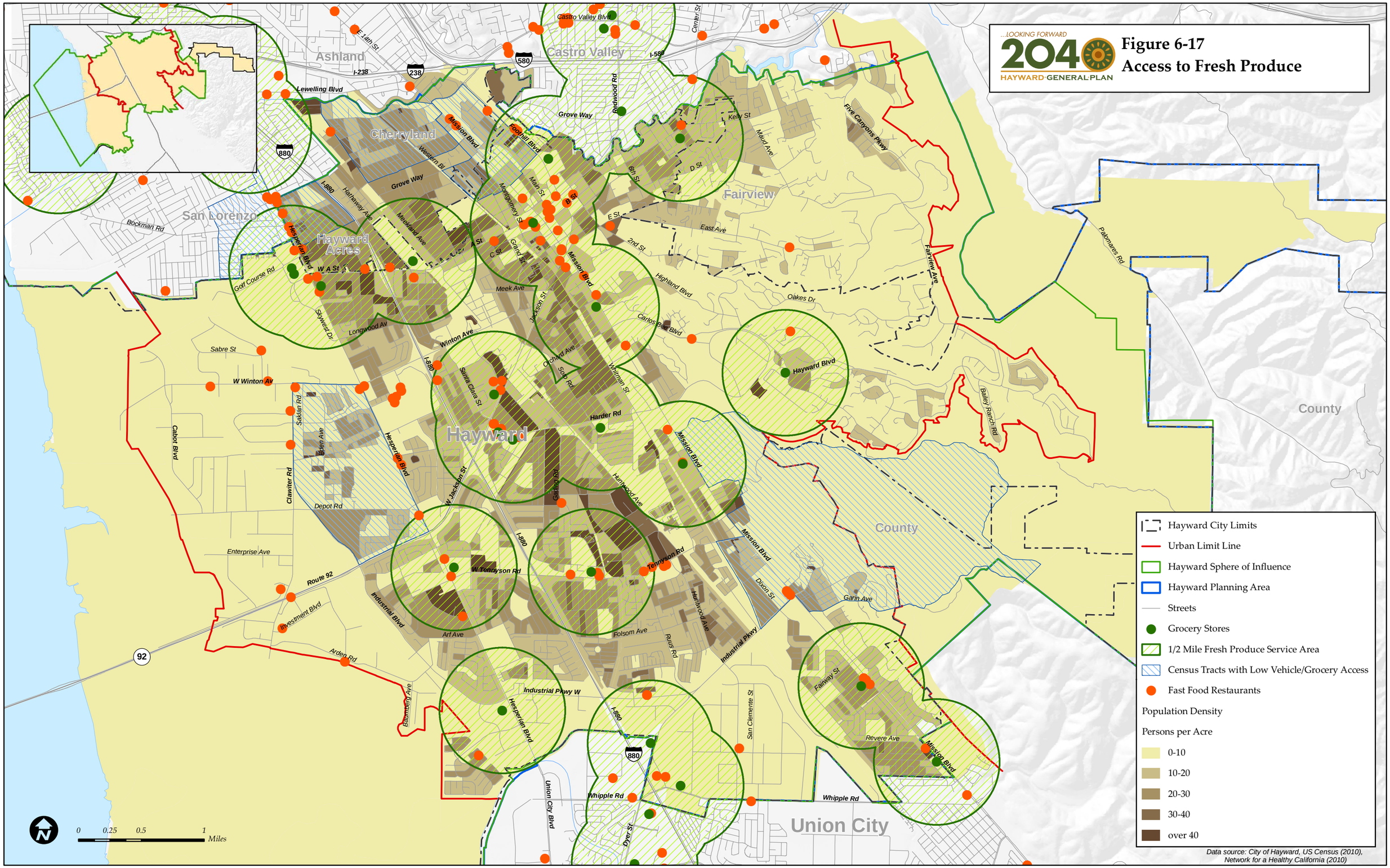
Community and School Gardens

Community gardens can increase access to healthy food, encourage physical activity, and enhance the building of social capital. There is one community garden operating in Hayward on Whitman Street in the Jackson Triangle neighborhood. The garden has been in operation since 1993 when the non-profit, Hayward Community Gardens, contracted with the Hayward Area Recreation and Parks District (HARD) for use of a 5.3-acre PG&E easement. The organization sublets the property from HARD at no charge. The garden contains over 210 plots, which are maintained by about 140 members.

There are also 25 school gardens operated within the Hayward Unified School District, and overseen by Project EAT ("Educate, Act, Thrive"), an extensive program coordinated by the Alameda County Office of Education. Project EAT promotes physical activity in garden-based nutrition education and cooking connection classes for students during the school day and after school. Healthy Living classes for parents and community members are provided free to low-income families.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-17
Access to Fresh Produce



Data source: City of Hayward, US Census (2010), Network for a Healthy California (2010)

Note: Low Vehicle/Grocery Access defined as census tracts in which more than 100 households have no access to a vehicle and are more than 1/2 mile from nearest grocery store.

January, 2013

SECTION 6.5 HEALTH CARE ACCESS

Introduction

This section describes existing health care facilities in Hayward and health insurance coverage for Hayward residents.

Major Findings

- There are two general acute care hospitals in Hayward – the St. Rose Hospital and the Kaiser Permanente Hayward Hospital. The St. Rose Hospital is currently (2013) in the process of transferring ownership and management. The Kaiser Permanente Hayward Hospital will be moving to a new campus in San Leandro in 2014.
- St. Rose Hospital is compliant with current seismic safety requirements through 2030 under HAZUS; however, necessary seismic improvements to bring the hospital into compliance with seismic safety requirements after 2030 would be an estimated $70-80 million.
- About 83 percent of health care facilities in the Hayward Planning Area are within one-quarter-mile radius of a public transit stop.
- According to the 2011 ACS, 18.2 percent of Hayward residents did not have health insurance coverage. The percent of uninsured residents is similar to the statewide average of 18.1 percent, but significantly higher than the countywide average of 12.9 percent, and the national average of 15.1 percent.

Existing Conditions

Health Care Facilities

The availability of primary care has a role in preserving good health and preventing morbidity and hospitalizations from chronic and communicable diseases. Figure 6-18 shows the location of health care facilities in the Hayward Planning Area. There are two general acute care hospitals in Hayward – the St. Rose Hospital and the Kaiser Permanente Hayward Hospital. The St. Rose Hospital is currently (2013) in the process of transferring ownership and management. Additionally, while the hospital is compliant with current seismic safety requirements through 2030 under HAZUS, the hospital's management estimates that the necessary seismic improvements would be $70-80 million to bring the hospital into compliance with seismic safety requirements after 2030. The Kaiser Permanente Hayward Hospital will be moving to a new campus in San Leandro in 2014. There are four other general acute care hospitals within a 10-mile radius of Hayward (not shown on the figure).

Most health care facilities in the city are served by public transit. Figure 6-18 also shows the location of facilities in relation to public transit. About 83 percent of health care facilities in the Planning Area are within one-quarter-mile radius of a public transit stop.

Health Insurance

Health insurance coverage is strongly correlated with better health outcomes. Uninsured people generally receive much less care, either preventive or for acute and chronic conditions, than insured people. According to the 2011 ACS, 18.2 percent of Hayward residents did not have health insurance coverage. For those under 18 years of age, 4 percent had no health insurance coverage; 59 percent had private coverage; and 30 percent had public coverage. The percent of uninsured residents is similar to the statewide average of 18.1 percent, but significantly higher than the countywide average of 12.9 percent, and the national average of 15.1 percent.

A report prepared for the California Attorney General about the St. Rose Hospital stated that 5.9 percent of all inpatient hospital discharges in 2011 were uninsured, poor patients, which is substantially higher than the state average of 1.9 percent for all California hospitals. The hospital also had a comparatively high proportion of Medicare and Medi-Cal patients. In fact, the high share of uninsured patients and the low reimbursement rates for Medi-Cal and Medicare patients, among other things, were important factors leading up to the change in management and sale of the hospital in 2013.

Measure A, the Essential Health Care Services Tax Ordinance, was passed in 2004 in Alameda County and will remain in effect until 2018. The initiative raised the sales tax for Alameda County residents by one-half of a cent in order to provide additional financial assistance for emergency medical, hospital inpatient, outpatient, public health, and substance abuse services for low-income, needy, and uninsured adults, children, families, seniors, and other Alameda County residents. Measure A helps cover the costs for hospitals to treat uninsured patients.

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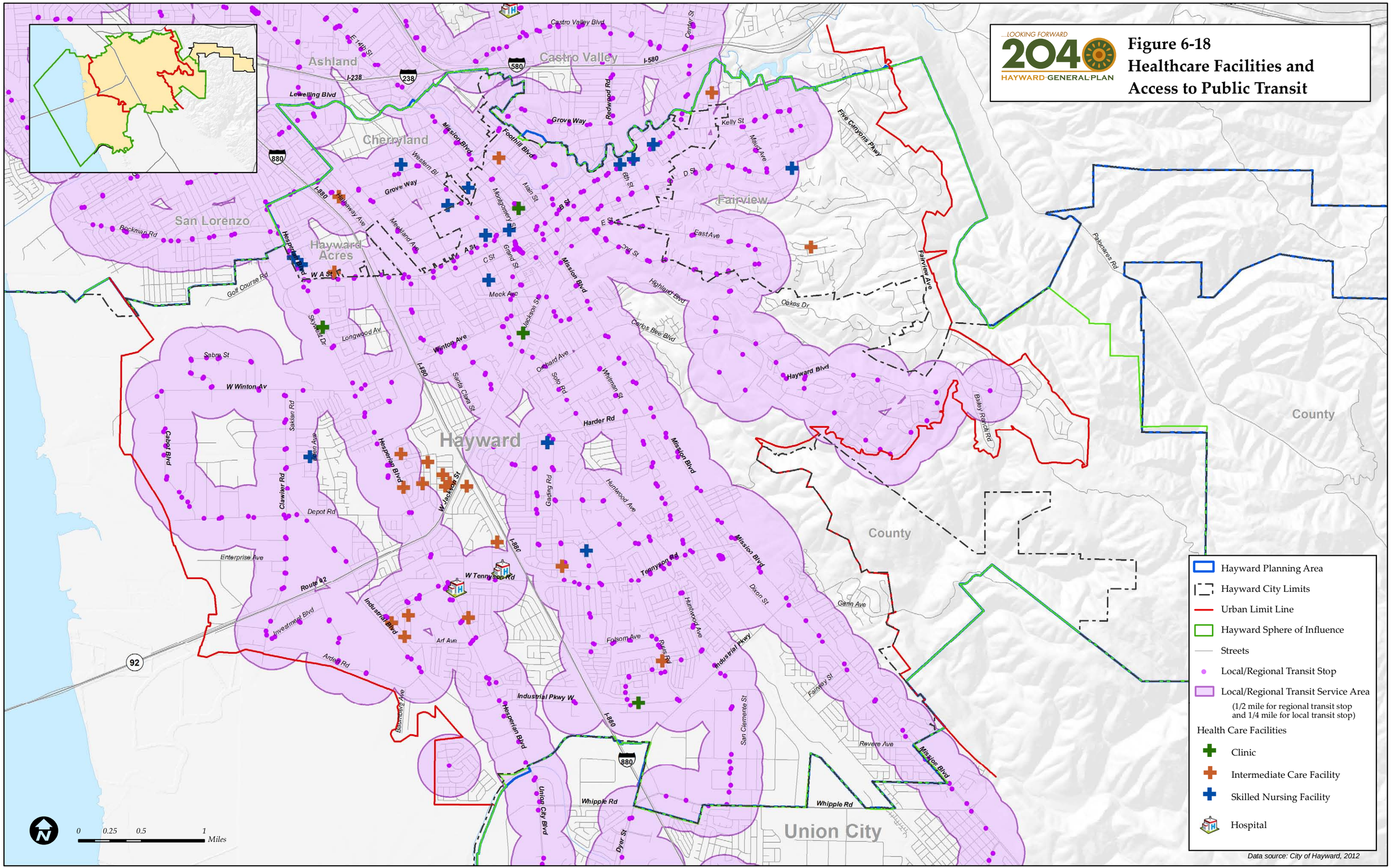
Figure 6-18
Healthcare Facilities and Access to Public Transit



- Hayward Planning Area
- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Streets
- Local/Regional Transit Stop
- Local/Regional Transit Service Area
  (1/2 mile for regional transit stop and 1/4 mile for local transit stop)

Health Care Facilities

- Clinic
- Intermediate Care Facility
- Skilled Nursing Facility
- Hospital

Data source: City of Hayward, 2012

January, 2013

SECTION 6.6 ECONOMIC OPPORTUNITY

Introduction

In the United States there is a strong relationship between a person or family's wealth and their overall health. According to 2007 data from the National Longitudinal Mortality Survey, people at the bottom of the income distribution in the U.S. are over three times more likely to die before the age of 65 than those at the top. The risk of premature death increases with each step down in income earnings. This pattern is called a "social gradient" in health. Those with fewer economic resources are more likely to face barriers to health. This section describes several measures of socioeconomic status in Hayward and Alameda County, which are important factors that influence health and quality of life.

Major Findings

- Hayward residents have a lower average of educational attainment than Alameda County and California residents. Hayward had the smallest percentage of high school graduates and college graduates of any city in the county.
- Across all grade levels, in both reading and mathematics, students within the Hayward Unified School District (HUSC) have scored significantly lower than averages for the state and Alameda County. In 2011 only 4 out of the 33 Hayward schools received an Academic Performance Indicator ranking above the fifth decile; 11 schools ranked within the first decile, or bottom 10 percent. None of the district's elementary schools surpassed the fifth decile, placing these schools in the bottom half of schools in the state.
- Students in Hayward had the second highest dropout rate in the county (26.2 percent) behind Oakland.
- Hayward had the highest unemployment rate (13.2 percent) of all cities in Alameda County.
- According to United Way, the self-sufficiency annual income for a family of four in Alameda County was $69,529 in 2011. Only 4 out of 13 industry sectors in the county paid a self-sufficiency income. Shifts in the economy from manufacturing to services have made it especially difficult for workers with lower levels of education to earn a self-sufficiency income.
- Having access to banks helps lower-income communities build wealth. Only about 34 percent of Hayward residents live within a one-half-mile radius of a bank.

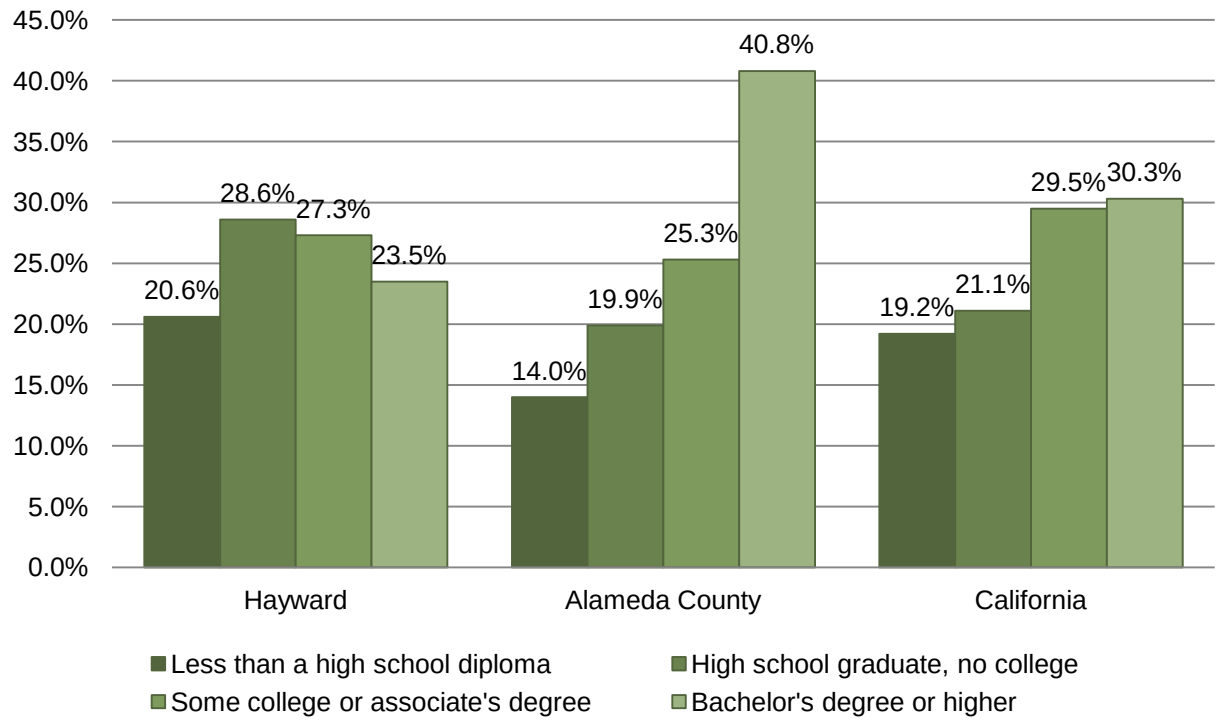
Existing Conditions

Educational Attainment

Hayward residents have lower educational attainment than residents of Alameda County and California as a whole. According to the 2007-2011 American Community Survey, 20.6 percent of

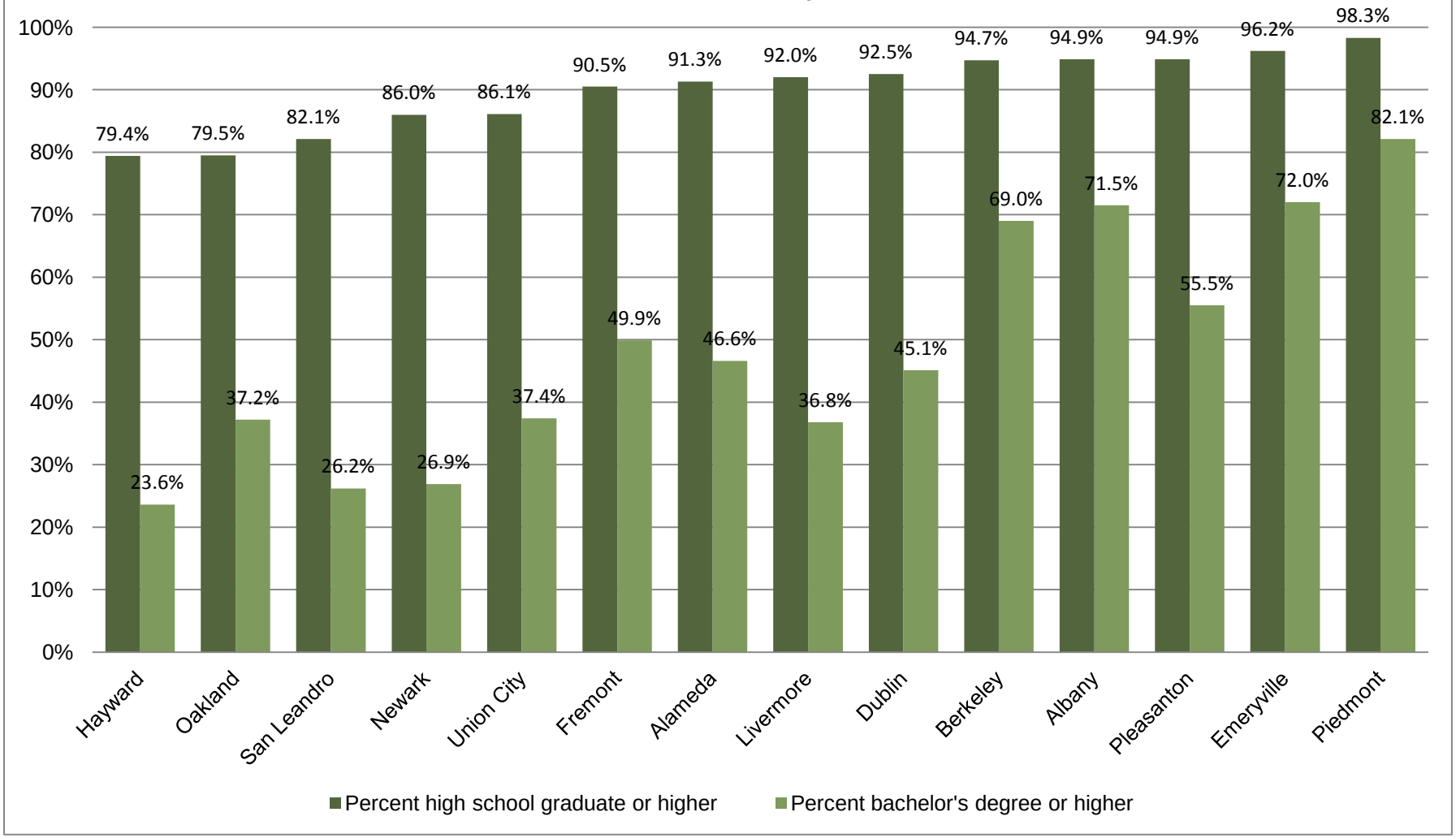
Hayward residents had less than a high school diploma, compared to 14 percent of Alameda County and 19.2 percent of California residents. At the other end of the spectrum, only 23.5 percent of Hayward residents had a bachelor's degree or higher, compared to 40.8 percent of Alameda County and 30.3 percent of California residents (see Figure 6-19). In fact, Hayward has the lowest educational attainment of all cities in Alameda County. As shown in Figure 6-20, Hayward had the smallest percentage of high school graduates and college graduates of any city in the county.

FIGURE 6-19: EDUCATIONAL ATTAINMENT FOR POPULATION 25 YEARS AND OLDER
City of Hayward, Alameda County, and California



Source: 2007-2011 American Community Survey.

FIGURE 6-20: EDUCATIONAL ATTAINMENT FOR POPULATION 25 YEARS AND OLDER
Jurisdictions in Alameda County, and California



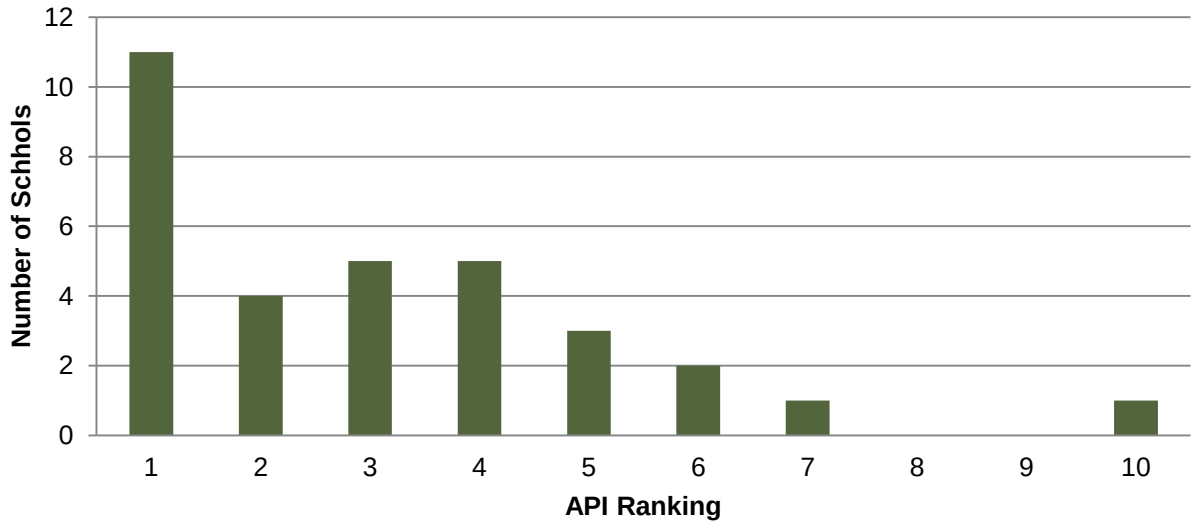
Source: 2007-2011 American Community Survey.

School Performance

The California Department of Education monitors academic performance of all public schools, including charter schools, and release public school rankings known as the Academic Performance Index, or API. The API is based on a series of State tests. Each school receives an API score from 200 to 1,000. If a school receives the score of 1,000, it is considered a "very high performing school." The target ranking for all schools in California is 800, a baseline number also used to calculate the school's statewide ranking from 1 to 10. Schools receiving the ranking of 1 scored in the first decile, or bottom 10 percent, and are considered among the lowest performing schools in the state. Conversely, schools scoring a 10 are in the top 10 percent and considered "high performing.

Across all grade levels, in both reading and mathematics, students within the Hayward Unified School District (HUSC) have scored significantly lower than averages for the state and Alameda County. Figure 6-21 shows the results on the 2011 rankings for all schools in the HUSC. In 2011 only 4 out of the 33 Hayward schools received an API ranking scored above the fifth decile; 11 schools ranked within the first decile, or bottom 10 percent. None of the district's elementary schools surpassed the fifth decile, placing these schools in the bottom half of schools in the state.

FIGURE 6-21: ACADEMIC PERFORMANCE INDEX RANKINGS FOR ALL SCHOOLS
Hayward Unified School District
2011



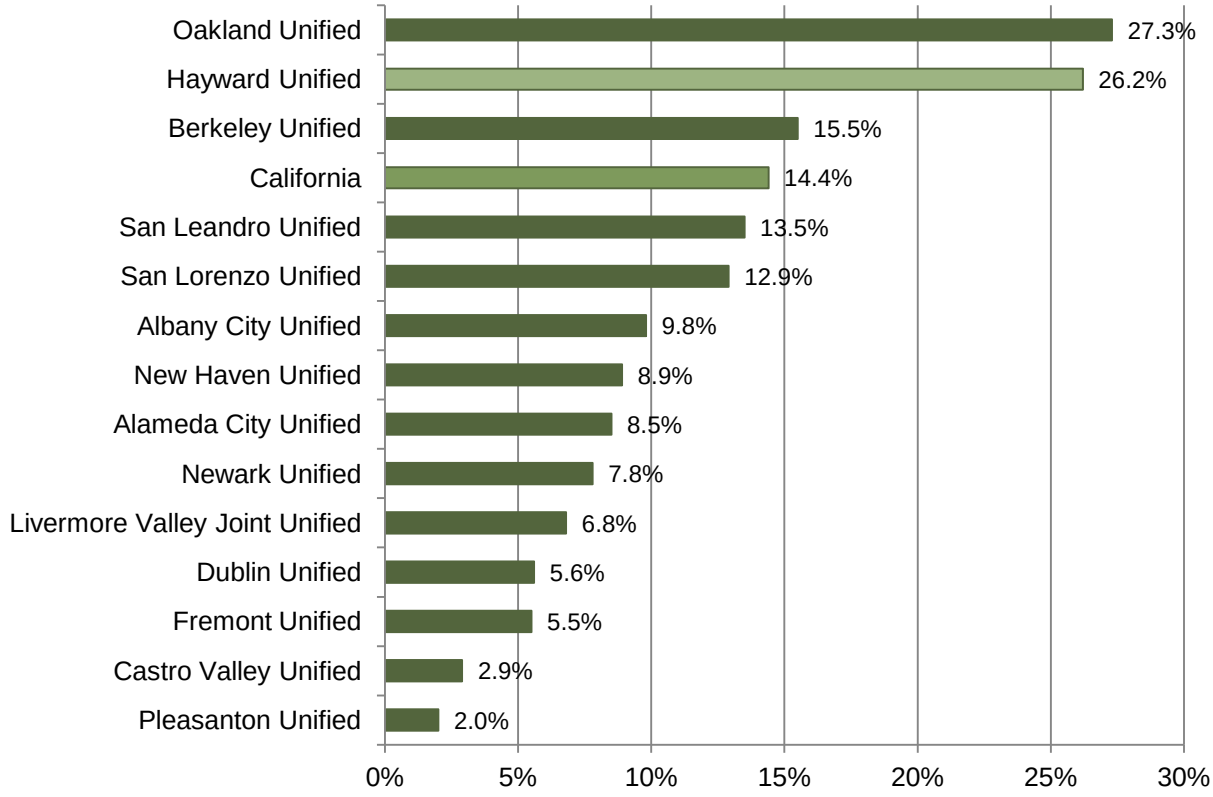
Source: California Department of Education, Academic Performance Index, 2011.

School Dropout Rate

In 2011 more than 72,000 California students in grades 9-12 dropped out of high school – about one in every seven students, or 14.4. Generally, higher percentages of African American/Black, Latino, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander students drop out of high school than Asian American, white, and Filipino students.

Figure 6-22 shows high school dropout rates for school districts in Alameda County, as well as the statewide average for California. In Hayward 26.2 percent of the district's high school students (348 students) dropped out in 2011. Students in Hayward had the second highest dropout rate in the county behind Oakland. Most school districts within Alameda County had lower high school dropout rates than the statewide average.

FIGURE 6-22: HIGH SCHOOL DROPOUT RATE, 2011
Hayward Unified School District
2011

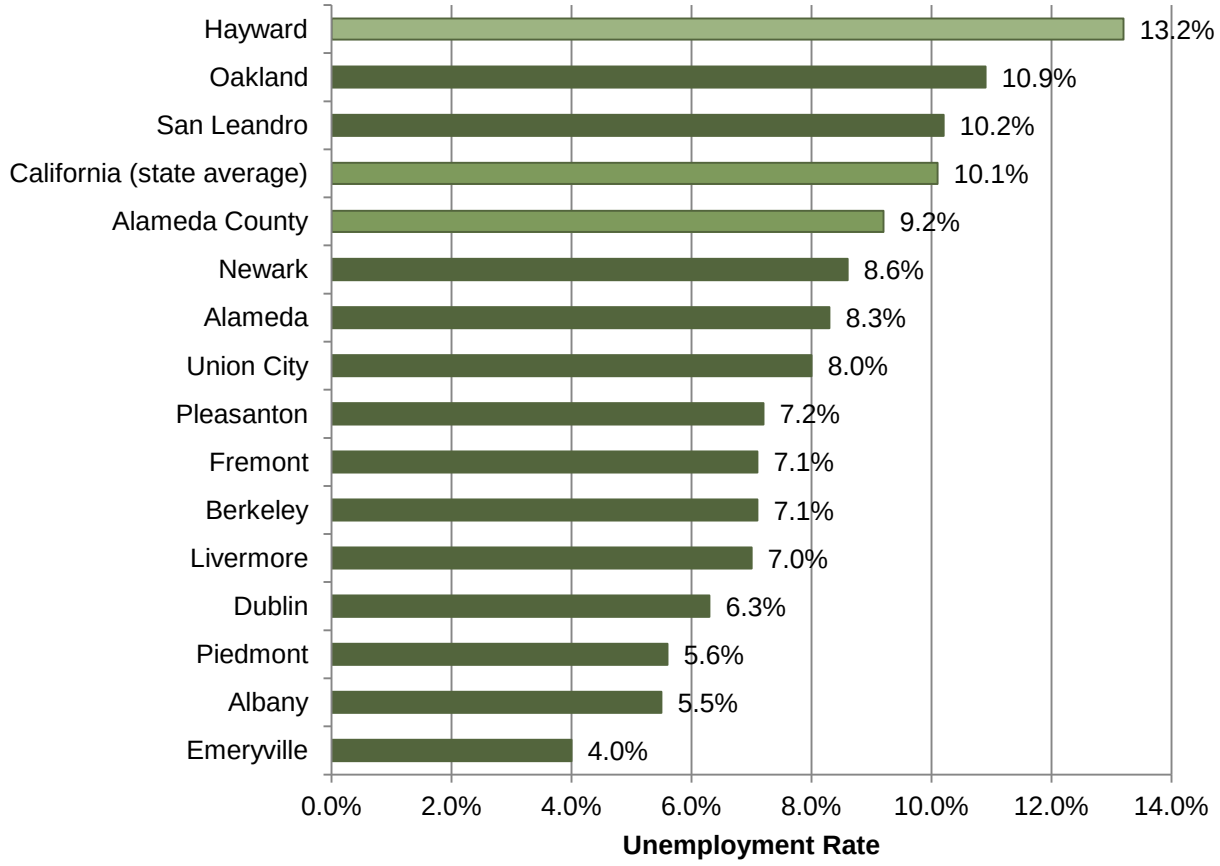


Note: Number of public high school students who drop out of high school, based on the four-year adjusted cohort dropout rate. The adjusted cohort dropout rate measures the number of students who exit grades 9-12 without a high school diploma, GED, or special education certificate of completion and do not remain enrolled after the end of the fourth year. Dropout rates for the Emery Unified School District and Piedmont City Unified School District were not reported because there were fewer than 20 high school dropouts.
Source: California Dept. of Education, California Basic Educational Data System (CBEDS).Accessed February 2013.

Unemployment Rate

Figure 6-23 shows unemployment in Hayward compared to the other cities in Alameda County. According to the 2007-2011 American Community Survey, Hayward had the highest unemployment rate (13.2 percent) in Alameda County. Overall, Alameda County had a lower unemployment rate than the state average (9.2 percent compared to 10.2 percent), with 11 out of the 14 cities in the county with a lower rate than the state average.

FIGURE 6-23: UNEMPLOYMENT RATE
Alameda County and California, 2011



Source: 2007-2011 American Community Survey

Self-Sufficiency Income

In Alameda County the cost of living tends to be higher than the statewide average. The Self-Sufficiency Standard calculates the income needed by working families to meet their basic needs. It provides a county-specific measure of the actual cost of living for different household types, including costs for housing, food, health care, taxes, and child care. Lack of self-sufficiency wages affects the ability of Hayward residents to access essential services such as health care, healthy food, and quality housing. According to United Way, the self-sufficiency

annual income for a family of 4 (2 adults, 1 preschooler, and 1 school-age child) was $69,529 in 2011, up 19 percent from $58,251 in 2008. At the same time, average annual pay increased only 6 percent in Alameda County over this same time period, from $58,666 in 2008 to $62,269 in 2011, according to the Bureau of Labor Statistics (BLS).

The 2011 self-sufficiency income for a family of 4 described above is the equivalent of each adult earning an annual income of $34,764, or an hourly wage of $16.46. In Hayward in 2012, 8 out of the top 10 industries paid a self-sufficiency income (based on average annual pay). However, this analysis is based on a household that is supported by 2 wage earners. A family of 3 with 1 adult, 1 preschooler, and 1 school-age child would need an income of $55,642 in 2011. Assuming only 1 wage earner, 6 out of 10 industries paid an average income that would provide a self-sufficient income.

Shifts in the economy from manufacturing to services have made it especially difficult for workers with lower levels of education to earn a self-sufficiency income. In 2011 the average annual income in the manufacturing industry was $76,591 and 6 percent of the county population worked in manufacturing. On the other hand, the average pay for the service-providing industry was $58,816 and 41 percent of the population worked in this industry. The low-wage services sector has been growing over time, as manufacturing – an industry with relatively high wages for less-educated workers – has been decreasing over time.

Access to Banking Services

According to the National Community Reinvestment Coalition, lack of access to banking services impacts the ability of families in underserved neighborhoods to build assets and/or climb out of poverty. When individuals lack access to wealth-building tools such as savings accounts, they are not as easily able to accumulate wealth. It can also be difficult for them to establish a credit history, making them less able to obtain a mortgage and become homeowners. Low-income and minority families, which are more likely to be underserved by banking services, more frequently resort to using the "fringe banking industry" – the check cashers, payday loan stores, and pawnshops that charge much higher costs for similar services.

Figure 6-24 shows the locations of banks in the Hayward Planning Area. Only about 34 percent of Hayward residents live within one-half-mile radius of a bank. As described earlier in Section 6.4, Access to Healthy Foods, the one-half mile is meant to define "access" for households without access to a vehicle. Neighborhoods without direct access to a bank include: Tennyson/Alquire, Whitman/Mocine, and Cherryland. Large portions of several other neighborhoods are also outside a one-half-mile radius from a bank, including: Longwood/Winton Grove, Mission/Garin, and Jackson Triangle. This analysis is focused only on physical access. A more detailed analysis would be needed to determine whether Hayward residents have equitable access to capital.

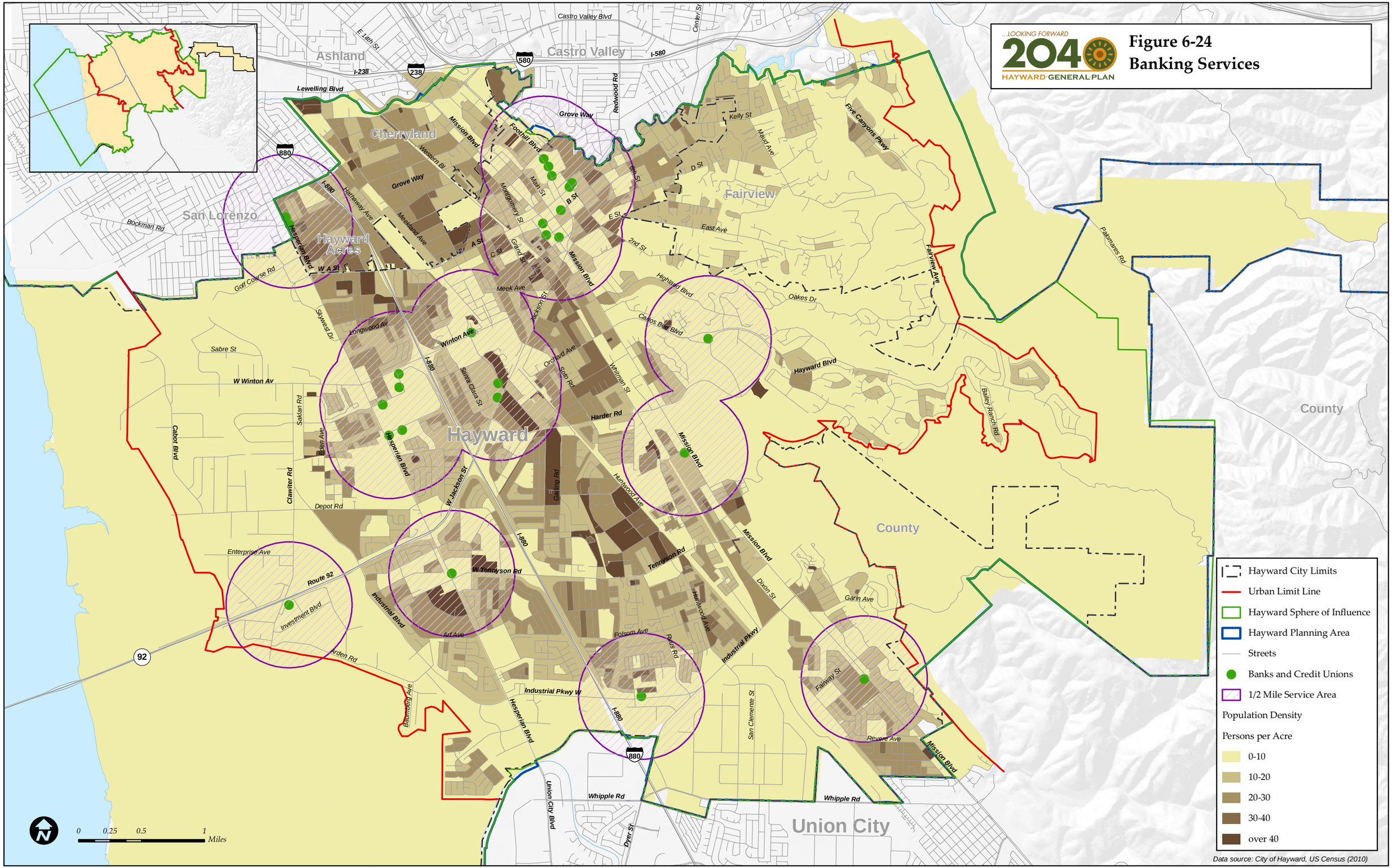
Subprime Lending

Subprime loans are loans offered to individuals who do not qualify for a loan at the prime rate due to poor credit history. Subprime loans carry higher interest rates than traditional loans (i.e., high-cost loans). At the peak of the housing boom in the early 2000s, lenders began offering more subprime loans to high-risk borrowers and increasingly risky loan options and borrowing incentives, such as adjustable rate and zero down payment mortgage loans.

Figure 6-25 shows the percentage of mortgages that were subprime (i.e., high-cost) between 2004 and 2007. As shown on the figure, there are many areas of Hayward in which more than 17 percent of all conventional mortgage loans were high-cost between 2004 and 2007. Figure 6-23 also shows there was a correlation between areas with higher rates of high-cost mortgages and areas with higher concentrations of lower-income residents in Hayward. As shown on the figure, most of the neighborhoods with the highest rates of high-cost loans were neighborhoods where 50 percent or more of the households were considered low-income (i.e., earned less than 80 percent of the area median income).

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-24
Banking Services



Data source: City of Hayward, US Census (2010)

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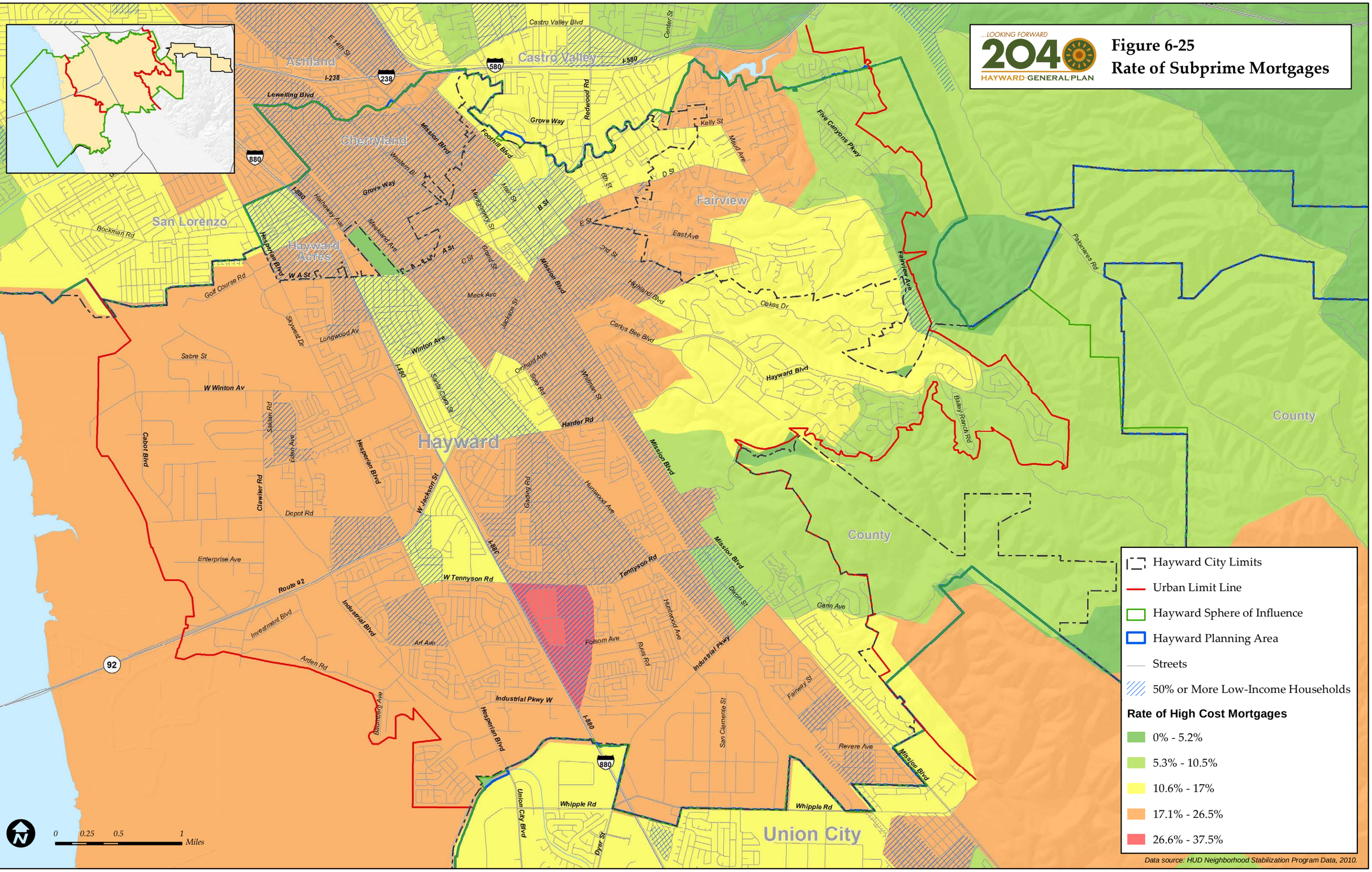
Figure 6-25
Rate of Subprime Mortgages



Data source: HUD Neighborhood Stabilization Program Data, 2010.

SECTION 6.7 NEIGHBORHOOD SAFETY

Introduction

A healthy community is one that promotes safety through the design of the built environment. People are more likely to walk, bike, and generally live an active lifestyle if they feel safe in their neighborhood. Safe neighborhoods encourage community interaction and social cohesion. This section describes the relative safety of Hayward neighborhoods. See Chapter 5, Community Services and Safety, for more information on community safety and crime prevention.

Major Findings

- Hayward had a modest rate of crime compared to other jurisdictions in Alameda County in 2008. With 3,024 property crimes per 100,000 population, Hayward was higher than the countywide average of 2,303 crimes; but much lower than several other cities in the county, including Berkeley, Emeryville, and Oakland, which had the highest property crime rates. Hayward was lower than the countywide average for violent crimes, with 579 violent crimes per 100,000 population compared to 825 per 100,000 population in the county. However, this countywide average is skewed by the high violent crime rates in Oakland and Emeryville.
- Between 2005 and 2010 there were 207 bicycle collisions and 314 pedestrian collisions, or an average of 35 bicycle collisions and 52 pedestrian collisions each year in Hayward. In 2010 Hayward ranked 3rd in Alameda County in the ratio of pedestrian and bicycle collisions with 36.76 pedestrian collisions and 36.06 bicycle collisions per 100,000 population, behind Berkeley and Oakland. The incidence of bicycle and pedestrian collisions in Hayward was slightly lower than the countywide average but slightly higher than the statewide average.
- The City of Hayward has taken several proactive steps to prevent and control graffiti from degrading neighborhoods, including establishing the City of Hayward Mural Art Program. Since 2009 the City has teamed up with local artists to create attractive murals on areas targeted by graffiti vandals. The program has helped reduce crime, build public-private partnerships, enhance community pride, and save taxpayers money.

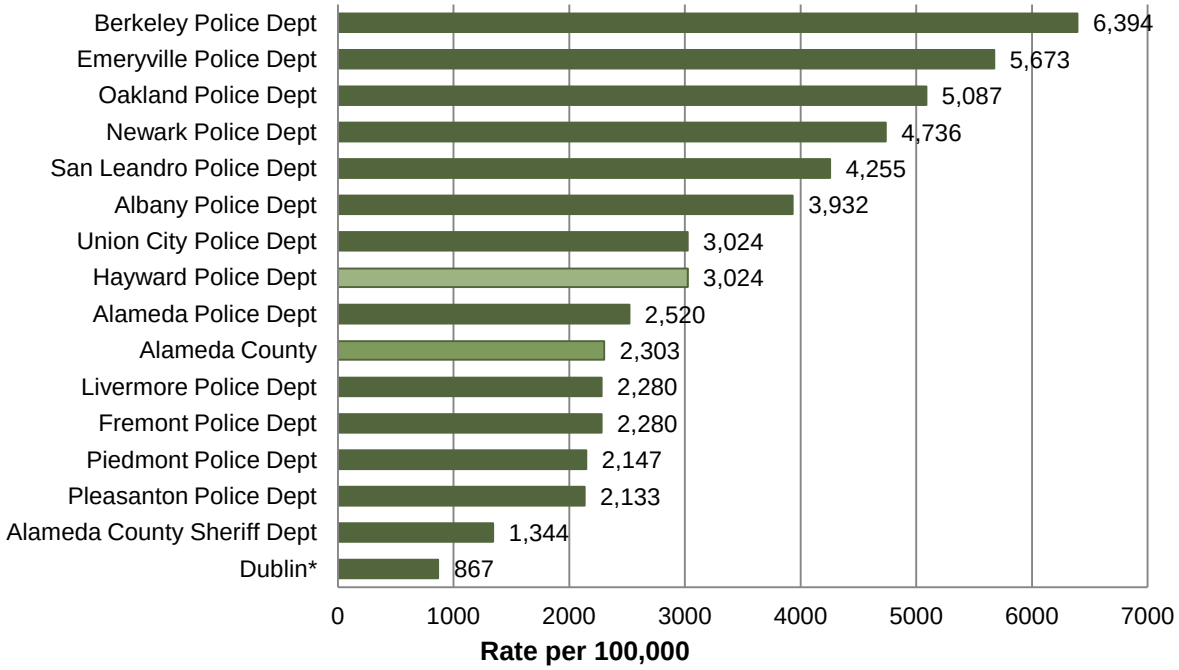
Existing Conditions

Crime Rates

Hayward had a modest rate of crime compared to other jurisdictions in the county in 2008. Figure 6-26 shows property crime rates and Figure 6-27 shows violent crime rates in Alameda County. With 3,024 property crimes per 100,000 population, Hayward was higher than the countywide average of 2,303 crimes; but much lower than several other cities in the county, including Berkeley, Emeryville, and Oakland, which had the highest property crime rates. With 579 violent crimes per 100,000 population in 2008, Hayward had a much lower violent crime

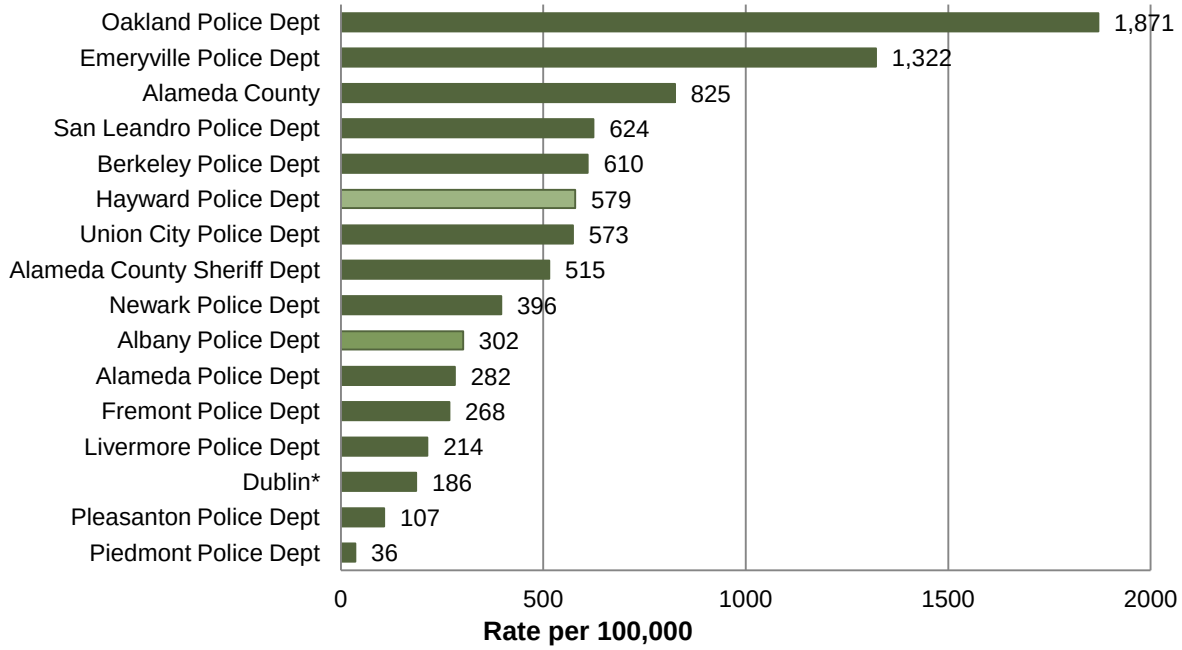
rate than the countywide average of 825. However, this average is skewed by extremely high crime rates in Oakland and Emeryville.

FIGURE 6-26: PROPERTY CRIME RATES
Alameda County
2008



*Note: The Alameda County Sheriff Department patrols Dublin and the unincorporated areas of Ashland, Cherryland, San Lorenzo, Fairview, Castro Valley, Sunol, and the remainder of the county.
Source: California Criminal Justice Statistics Center, 2010.

FIGURE 6-27: VIOLENT CRIME RATES
Alameda County
2008

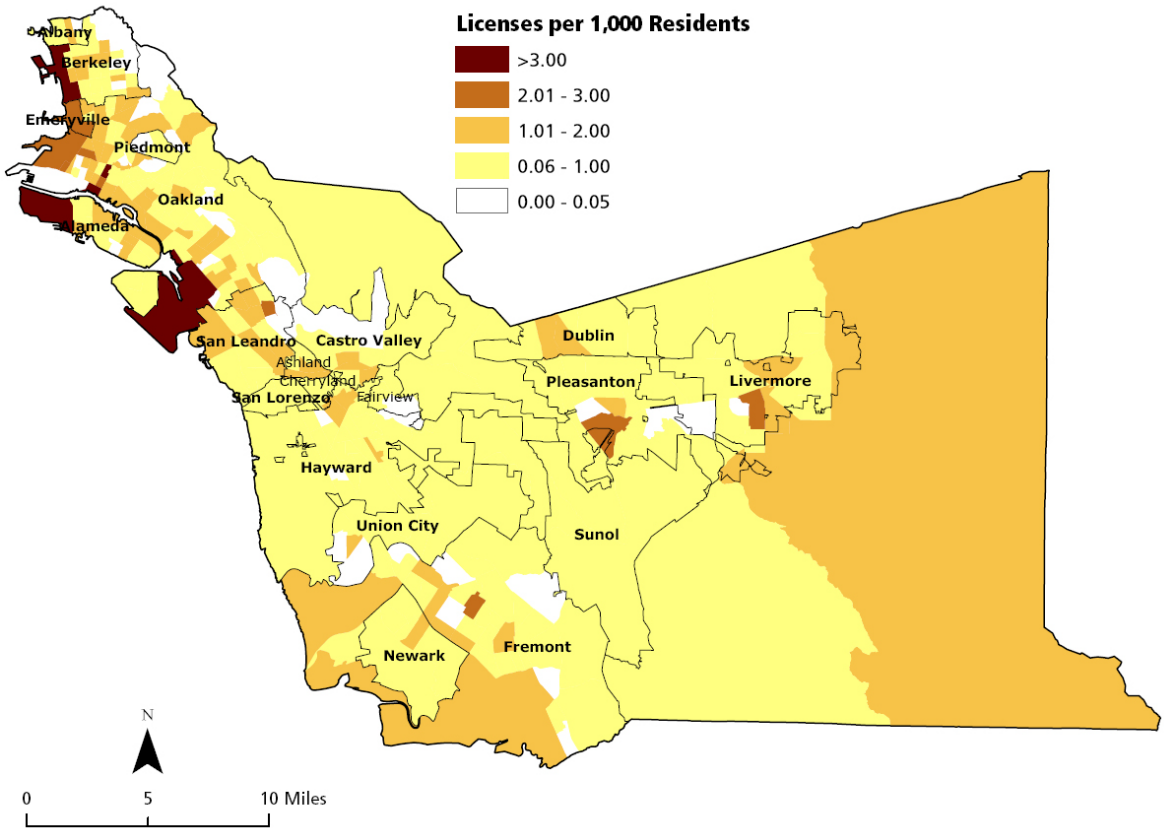


*Note: The Alameda County Sheriff Department patrols Dublin and the unincorporated areas of Ashland, Cherryland, San Lorenzo, Fairview, Castro Valley, Sunol, and the remainder of the county.
Source: California Criminal Justice Statistics Center, 2010.

Liquor Stores

According to several studies, the density of liquor stores is closely related to crime and violence. A study conducted by Paul Gruenewald at the Pacific Institute for Research and Evaluation in 2006 analyzed over 580 zip codes in California and found a correlation between liquor store density and higher violent crime rates. Figure 6-28 shows the density of off-sale liquor licenses in Alameda County. Hayward has a relatively low number of liquor stores per 1,000 residents. Figure 6-29 shows the location of stand-alone liquor stores in relation to violent crimes in the Hayward Planning Area. There are 31 stand-alone liquor stores in the Planning Area. Liquor stores do not appear to be overly concentrated in any one area of Hayward. Given the small number of liquor stores in Hayward, it is difficult to determine if there is a correlation between liquor stores and locations of violent crimes.

FIGURE 6-28: DENSITY OF OFF-SALE LIQUOR LICENSES
Alameda County
2007



Source: California Department of Alcohol Beverage Control, 2007.

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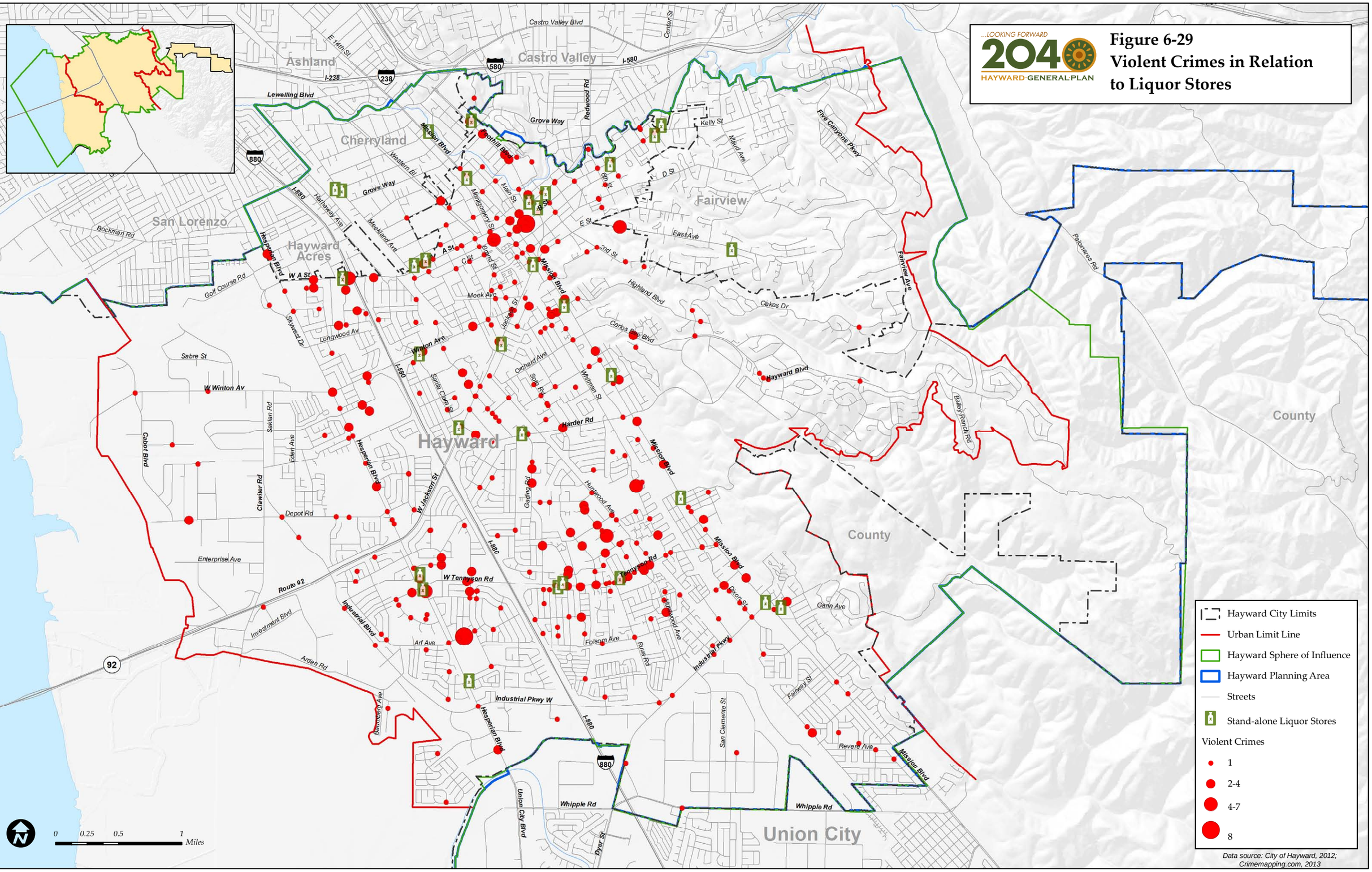
Figure 6-29
Violent Crimes in Relation to Liquor Stores



Note: Violent crimes include assault, homocide, armed robbery, and weapons crimes from 8/16/12 through 2/11/2013
This data only reflects crimes within the Hayward City Limits and does not include other areas within the Planning Area

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Pedestrian and Bicycle Safety

An unsafe environment for bikers and pedestrians can contribute to the problem of lack of physical activity. Residents who view bicycling and walking within their communities as unsafe are less likely to engage in this form of activity.

Figure 6-30 shows pedestrian and bicycle collisions in the city of Hayward from 2005 to 2010. During the 6-year time frame there were 207 bicycle collisions and 314 pedestrian collisions, or an average of 35 bicycle collisions and 52 pedestrian collisions each year. Of the total collisions over the 6-year time frame, 2 bicycle collisions and four pedestrian collisions resulted in fatality.

Most of the pedestrian and bicycle collisions in Hayward are concentrated in Downtown Hayward and along major arterials, including A Street, Winton Avenue, Tennyson Road, Harder Road, Jackson Street, and Foothill Boulevard. The concentration of accidents in the Downtown area does not necessarily mean that Downtown is not safe for pedestrian and bicyclists. Rather, the concentration of accidents is likely attributed to the fact that there are substantially more pedestrians and bicyclists within the Downtown when compared to other areas of Hayward.

Figure 6-31 compares pedestrian and bicycle collisions per 100,000 population in cities in Alameda County in 2010. Hayward ranked 3rd in the ratio of pedestrian and bicycle collisions with 36.76 pedestrian collisions and 36.06 bicycle collisions per 100,000 population, behind Berkeley and Oakland and slightly lower than the countywide average. Hayward was only slightly higher than the statewide average in 2010.

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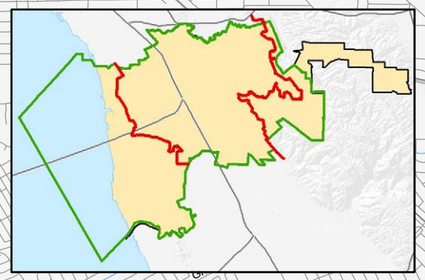
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-30
Pedestrian and Bicycle Collisions (2005-2010)



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
Union City

E 14th St
Castro Valley Blvd
Center St
I-238
I-580
Lewelling Blvd
Grove Way
Redwood Rd
Kelly St
Five Canyons Pkwy
Mission Blvd
Foothill Blvd
Western Bl
Maud Ave
I-880
Hathaway Ave
Meekland Ave
Main St
Montgomery St
6th St
D St
E St
East Ave
2nd St
Bockman Rd
Hesperian Blvd
W A St
A St
B St
C St
Grand St
Golf Course Rd
Meek Ave
Jackson St
Highland Blvd
Oakes Dr
Fairview Ave
Pabmares Rd
Skywest Dr
Longwood Av
Carlos Bee Blvd
Sabre St
Winton Ave
W Winton Av
Orchard Ave
Solio Rd
Whitman St
Hayward Blvd
Bailey Ranch Rd
Harder Rd
Cabot Blvd
Sakian Rd
Eden Ave
Clawiter Rd
W Jackson St
Gading Rd
Huntwood Ave
Depot Rd
Enterprise Ave
W Tennyson Rd
Tennyson Rd
Dixon St
Garin Ave
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Folsom Ave
Russ Rd
Industrial Pkwy
Fairway St
Arden Rd
Baumberg Ave
Industrial Pkwy W
San Clemente St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St

880 238 580 92

0 0.25 0.5 1 Miles

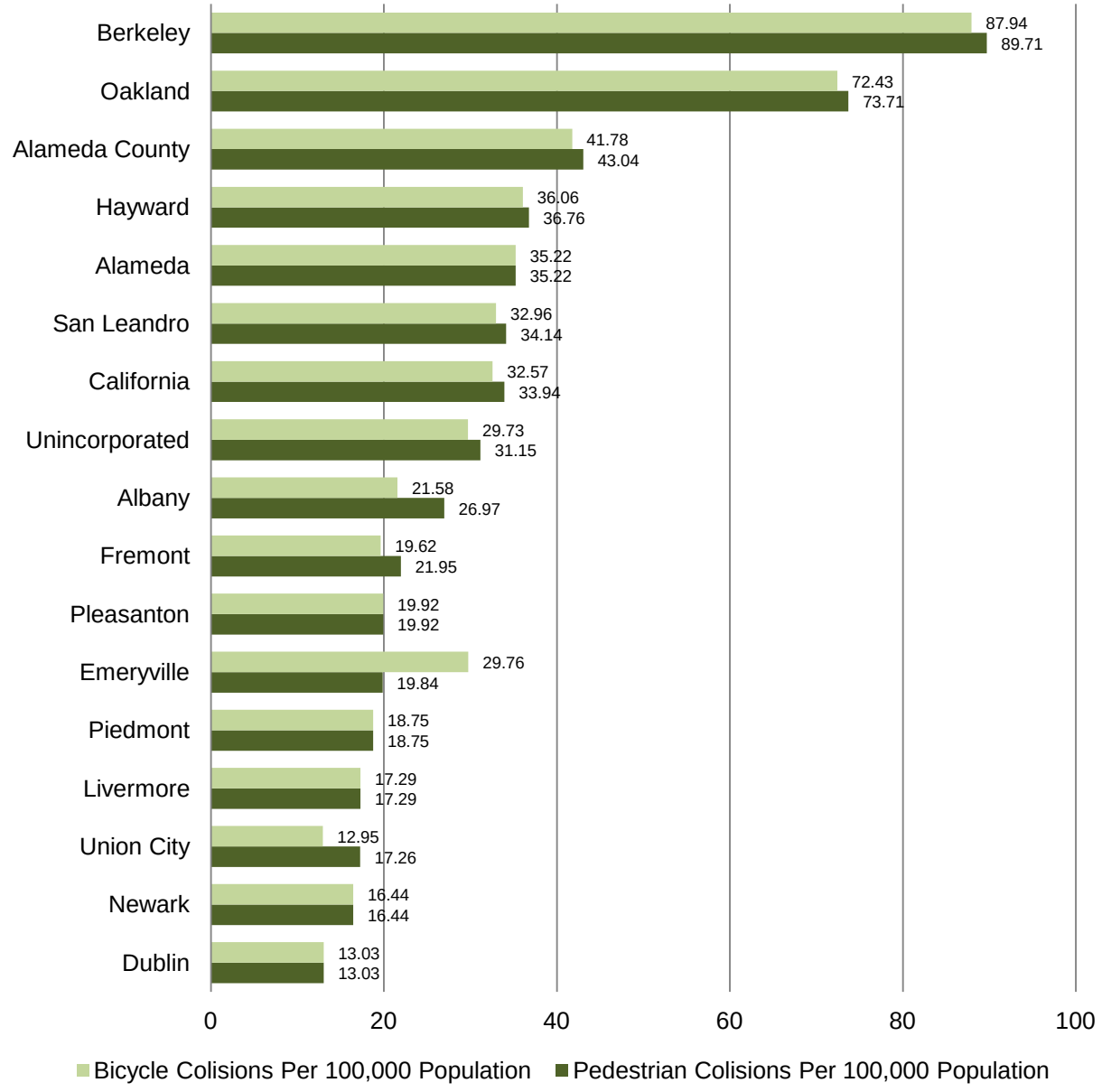
Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Hayward Planning Area
Streets
Bicycle Accident
Pedestrian Accident

Data source: City of Hayward, 2013

Note: This data only reflects accidents within the Hayward City Limits and does not include other areas within the Planning Area. Includes all accidents from 2005 -2010.

January, 2013

FIGURE 6-31: PEDESTRIAN AND BICYCLE COLLISIONS PER 100,000 POPULATION
Alameda County, California
2010



Note: Per capita estimates are based on 2010 Department of Finance population estimates.
Source: California Highway Patrol 2010 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions, Table 8A: Collisions and Persons Killed and Injured by City, County, and Road Classification – 2010; California Department of Finance, Table E-5: Population and Housing Estimates for Cities, Counties, and the State, January 2011 and 2012, with 2010 Benchmark; Mintier Harnish, 2013.

Graffiti Abatement

Graffiti is a problem in the city of Hayward. It represents 35 percent of all forms of property vandalism reported to the Hayward Police Department. Graffiti degrades the community and leads to urban blight. It is detrimental to property values, business opportunities, and the enjoyment of life. It also creates a perception of lawlessness and fosters disrespect for the law, which can lead to an increase in crime.

The City of Hayward has taken several proactive steps to prevent and control graffiti from degrading neighborhoods. The City adopted a Graffiti Prevention and Abatement Ordinance, which holds property owners and/or tenants responsible for the removal of any graffiti on their property within 48 hours. Residents who wish to remove existing graffiti in their neighborhoods can obtain paint from the Facilities Maintenance Division to paint over graffiti. The City owns and operates the Graffiti Buster Vehicle, and offers one-time courtesy graffiti abatement services. City staff also removes graffiti from municipal property, pedestrian and vehicular overpasses, BART columns, sidewalks, traffic control boxes, fire hydrants, water testing stations, and the Amtrak Station. The City also operates a Graffiti Reward Hotline and offers cash rewards to individuals who can identify and help convict a graffiti vandal.

The City of Hayward Mural Art Program, started in April 2009, is another way in which the City is proactively preventing and eliminating graffiti. The City has teamed up with local artists to create attractive murals on areas targeted by graffiti vandals. The murals showcase the City's civic pride and historically significant local events. As of early 2012 the following projects had been completed through the Mural Art Program:

- 11 commercial building walls throughout the downtown corridor, with two more currently under way;
- Two schools;
- 15 library book-return boxes;
- A 10,000-square-foot sound wall, with a second under way;
- 12 tile benches created for the Hayward Paratransit Program; and
- 30 utility boxes, with work on 35 more beginning in spring 2012.

Crime Prevention Through Environmental Design

Crime Prevention Through Environmental Design (CPTED) is a theory developed several decades ago to reduce community violence. Its principles – increasing the visibility of peoples' activity through residential design and mixing commercial and residential areas (i.e., eyes on the street), deliberately creating public spaces, and maintaining order and cleanliness – have proven effective in reducing violence and crime in many cities. CPTED works by decreasing a criminal's ability to commit crime. It also increases the chances that a resident will see and

report the crime as it occurs. CPTED goes beyond traditional security methods by naturally integrating security measures in the community.

The Hayward Police Department promotes the principles of CPTED by encouraging apartment managers, homeowners, business owners, architects, renters, and other community members to enact strategies of CPTED. The Police Department has created and distributed a brochure, as part of a series of crime prevention brochures, describing how residents and businesses can make an effort to decrease the chance that a crime will occur by designing areas and maintaining properties in ways that discourage criminal activity, consistent with the principles of CPTED.

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SECTION 6.8 ENVIRONMENTAL QUALITY

Introduction

Local environmental conditions can have a major impact on community health. Environmental pollutants in the air, water, or soil can lead to health problems. This section describes the degree to which residents in the Planning Area are exposed to environmental pollutants, including air contaminants, hazardous materials, and excessive noise. It also describes the existing tree canopy, which is important for improving community health.

Major Findings

- An estimated 6,600 residents (3.7 percent) in the Planning Area live within 500 feet of a busy roadway (i.e., roadways with at least 100,000 average daily vehicles) and are directly exposed to air contaminants from vehicles.

Existing Conditions

Air Contaminants

Studies have found that living along busy roadways or near heavy industrial processing facilities is associated with higher incidences of asthma and other respiratory illnesses. The elderly, children, people with illnesses, or others who are sensitive to air pollutants are particularly impacted by local air pollutants.

Figure 6-32 shows population density in relation to busy roadways (i.e., roadways with at least 100,000 average daily vehicles) in the Planning Area. As described in the Mobility Chapter, several freeways segments located within or in the vicinity of the Planning Area have average daily traffic volumes in excess of 100,000 vehicles, including Interstate 880, Interstate 580, and Interstate 238. An estimated 3.7 percent of residents in the Planning Area live within 500 feet of these busy roadways. This data would suggest that approximately 6,600 residents are directly exposed to air contaminants from busy roadways.[6]

Contaminated Sites

Figure 6-34 shows the locations of hazardous materials sites in Hayward that are considered to potentially pose a threat.[7] As would be expected, most of the hazardous materials sites are

[6] According to the latest traffic model, sections of three arterials in Hayward – Misson Boulevard, Jackson Street, and Foothill Boulevard – are projected to potentially carry daily traffic volumes in excess of 100,000 vehicles within the time frame of the General Plan (i.e., 2035), which would qualify them as "busy roadways." However, not all of the improvements necessary for these arterials to carry this much traffic are planned at this time.

[7] Depending on the status of a listed project, the site does not necessarily pose a threat to public health or the environment. The following Status labels indicate that a site is not considered to pose a threat based on the contamination criteria of the oversight agency: No Further Action, No Action Required, Permitted, and Open-Eligible for Closure. The following Status labels indicate that a site does or might pose a threat, depending on past or future testing and remediation: Refer: RWQCB; Inactive-Needs Evaluation; Certified/Operation & Maintenance; Active; Refer: Other Agency; Inactive-Action Required; Voluntary

located in the western area of the city within the industrial zones. However, there are also several sites containing hazardous materials close to more populated areas within the Burbank neighborhood, Hayward Acres, and downtown Hayward.

Cleanup; RCRA; and all Open cases except Eligible for Closure. In a few cases that have more than one Status, a site is listed more than once

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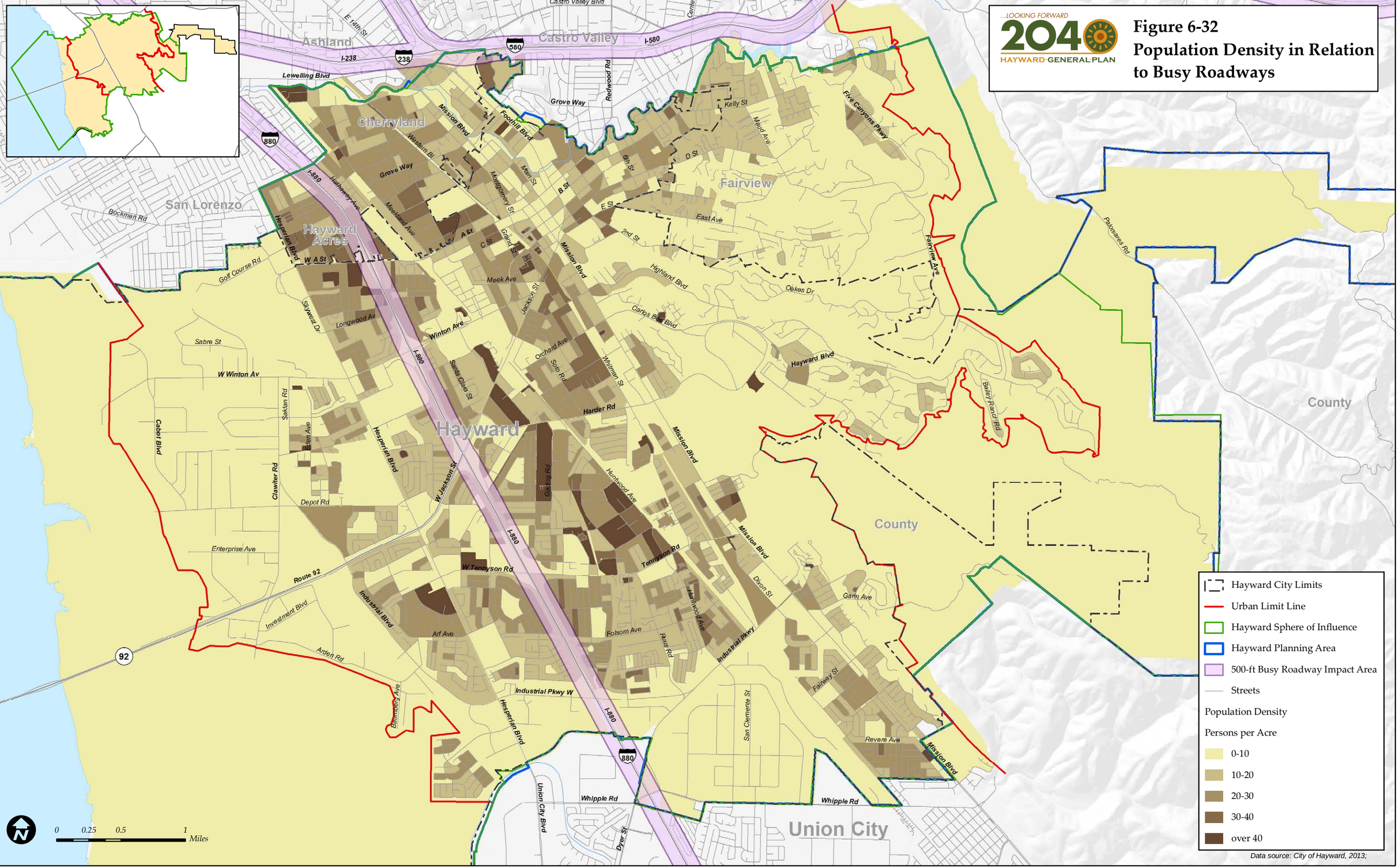
Figure 6-32
Population Density in Relation to Busy Roadways



Data source: City of Hayward, 2013;

Note: Busy roadways are defined as those that have at least 100,000 average daily vehicles.

February 2013

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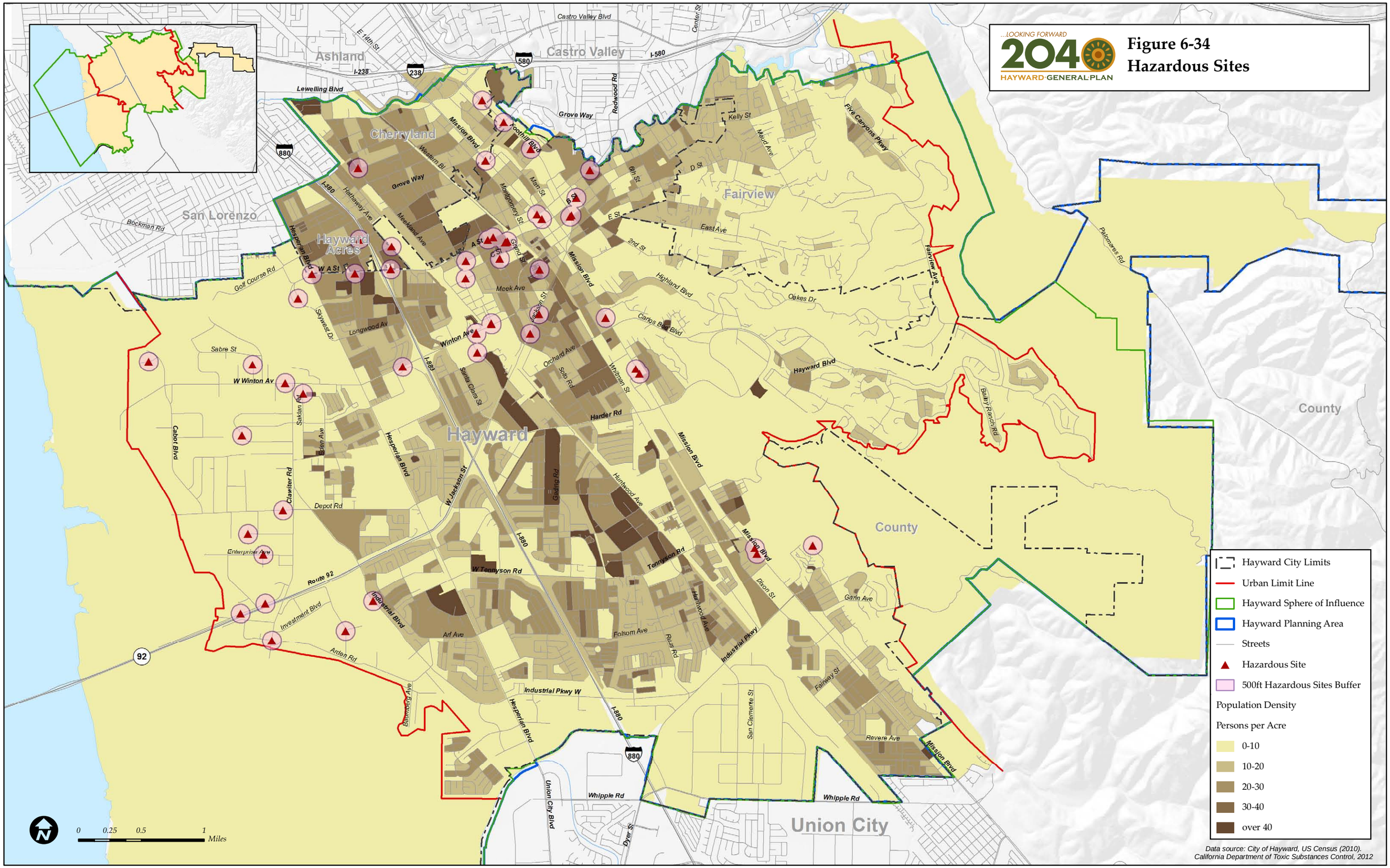
Figure 6-34
Hazardous Sites



Data source: City of Hayward, US Census (2010).
California Department of Toxic Substances Control, 2012

Noise Exposure

Chronic exposure to sudden noises, such as sirens, brakes, explosions, or vehicle crashes can result in sleep disturbance, cognitive impairment, hypertension, and stress hormone activation. Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship, hotels and transient lodging, and other places where low interior noise levels are essential are also considered noise-sensitive.

The predominant sources of noise pollution in Hayward are mobile sources, including motor vehicles on roadways, freight and passenger trains, and aircraft. Major freeways in the Planning Area include Interstate 880, Interstate 580, Interstate 238, and CA Highway 92. There are also several major urban arterials, including (but not limited to) Foothill Boulevard, Mission Boulevard, Hesperian Boulevard, and Industrial Parkway. Several freight and passenger railroad lines are also present in the Planning Area, including the Amtrak Coast Starlight and Union Pacific line, which runs parallel to the San Francisco Bay shoreline west of Industrial Boulevard; the Amtrak Capitol Corridor and Burlington Northern Santa Fe line, which runs parallel to and east of I-880; and the Bay Area Rapid Transit system (BART) line, which runs parallel to and west of Mission Boulevard. Hayward Executive Airport, located in the northwestern portion of the city, also generates noise from flight operations. Additional aircraft over-flight noise from Oakland International Airport and other airports in the region may also contribute to the existing noise environment.

Stationary noise sources are also present in the Planning Area, including warehouse, industrial and manufacturing land uses in the western and southern portions of the city; school and university campuses with outdoor sports/recreation facilities, including California State University-East Bay, Chabot College, and several high schools, middle schools and elementary schools throughout the city. Major retail and business-related districts in the city may also have existing land uses that are considered stationary sources of noise, including Downtown Hayward, and commercial corridors, such as Mission Boulevard and Hesperian Boulevard.

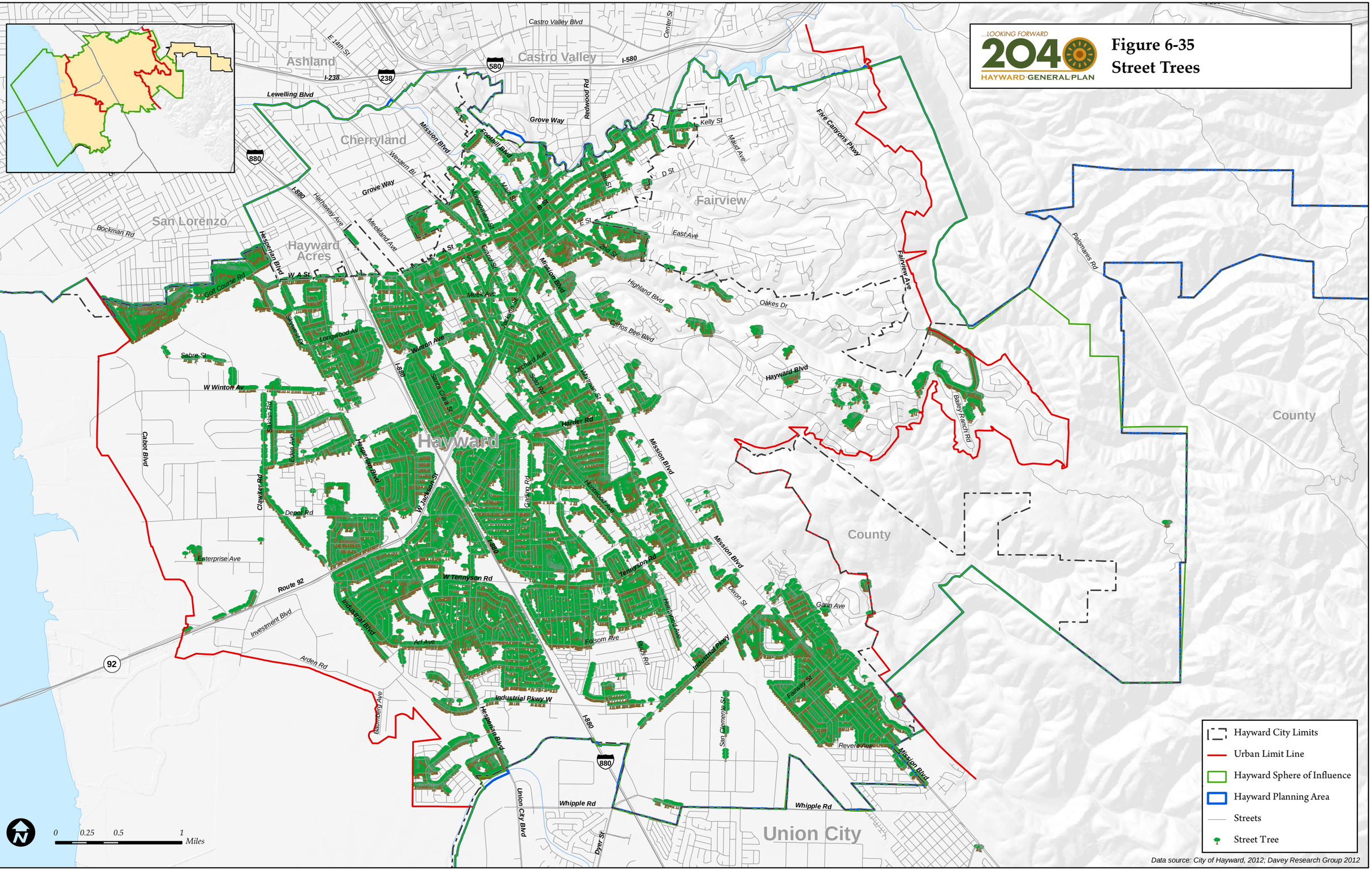
Tree Canopy

A robust tree canopy can improve community health in several ways. Trees capture air pollution, reduce carbon dioxide, and help capture stormwater runoff, which can reduce contaminants flowing into the Bay. Trees produce shade, which provides natural cooling and reduces exposure to ultra-violet radiation and the risk of skin cancer. The presence of trees in a neighborhood also slows down traffic, reducing risk for pedestrian and bike injuries.

The Landscape Maintenance Division of the City of Hayward Maintenance Services Department operates a Tree Giveaway Program as part of the Keep Hayward Green Program. The City provides and plants free street trees to help improve the city's tree canopy. Over the past two years the City has planted 850 trees, of which 275 were requested by Hayward residents though the Tree Giveaway Program. Figure 6-35 shows street trees in Hayward. The map reflects those trees that the City of Hayward maintains, and does not include all trees within the Planning Area.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-35
Street Trees



Note: This data only reflects City maintenanced street trees within the Hayward City Limits and does not include privately maintenanced trees or trees in other areas within the Planning Area.

January, 2013

SECTION 6.9 COMMUNITY RESILIENCY

Introduction

Community resiliency is a measure of the sustained ability of a community to use available resources to respond to, withstand, and recover from natural and manmade disasters and other adverse situations, such as economic hardship. Resilient communities have the necessary tools to confront challenges of climate instability, rising energy costs, and economic recession. This section describes the most immediate threats facing the city of Hayward, and the existing infrastructure, institutions, policies, practices, and other tools that support the city's ability to respond to these threats. See the Hazards Chapter and the Community Services and Safety Chapter for more information on climate change, natural and manmade hazards, and emergency response systems.

Major Findings

- Hayward has several plans and procedures in place to respond to emergency situations, including: the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan, which makes the City eligible for Federal Disaster assistance; the City of Hayward Comprehensive Emergency Management Plan, which defines the City's responsibilities in responding to emergencies; and the Community Emergency Response Team (CERT) program, which trains members of the public in basic emergency response.
- According to the San Francisco Bay Conservation and Development Commission, California sea level is predicted to rise between 19 to 55 inches by the end of the 21st century. There are several critical facilities in and around Hayward located within the 2100 100-year flood zone, including the City Water Pollution and Control Facility, the San Mateo Bridge, two health care facilities; Alvarado Middle School, and several parks. There are also 10 EPA-regulated hazardous materials sites located within the 2100 100-year flood zone, which puts Hayward residents at risk for exposure to toxic chemicals.
- The Hayward Area Shoreline Planning Agency (HASPA) has purchased over 3,150 acres or land along the shoreline to restore and preserve wetlands, marshes, and protected uplands. These wetland mitigation and enhancement projects form a tidal "buffer" that makes Hayward more resilient to potential sea level rise.
- Decreasing snowpack and spring stream flows and increasing demand for water from a growing population and hotter climate could lead to increasing water shortages. The City has emergency water supplies through connections with the Alameda County Water District (ACWD) and the East Bay Municipal Utility District (EBMUD) in case of disruption of delivery from the San Francisco Public Utilities Commission (SFPUC). Hayward has also developed five local emergency wells to provide emergency water sources in the event of a disruption in water supply.
- Energy demand is anticipated to increase to cool buildings due to higher temperatures and extreme heat waves. The City has implemented several energy conservation

measures, both regulatory measures and incentives, which will help reduce the impact of rising energy prices on residents and the City, including the Municipal and Private Green Building Standards.

Existing Conditions

Earthquake

Hayward is located within the seismically active San Francisco Bay region. Several major earthquake faults in the region are capable of generating strong earthquakes (magnitude of 6.0+ on the Richter scale). The Hayward fault, which traverses the city, is one of the most dangerous faults in the United States due to its high slip rate, historical activity, and location through the highly urbanized East Bay area. According to a 1996 Earthquake Engineering Research Institute report, the next major Hayward Fault quake is expected to cause significant loss of life and extensive damage to homes, businesses, and infrastructure, such as transportation and utilities. Several hundred thousand people are likely to be homeless after the quake. In addition, fault creep occurs along the entire length of the fault resulting in slow but persistent damage to infrastructure. The rate of creep deformation along the segment of the Hayward fault within the city of Hayward is about 5 millimeters per year which is roughly 2 inches every 10 years.

The City of Hayward has adopted the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan as the City's Local Hazard Mitigation Plan (LHMP). The ABAG Plan involves local agencies throughout its nine-county Bay Area jurisdiction. The Plan, which focuses on mitigation *before* rather than after disasters, identifies specific preventive actions that can be taken to reduce the risk from the hazards. Adoption of the Multi-Jurisdictional Plan allows the City of Hayward to become eligible for Federal Disaster assistance.

The Hayward Fire Department implements the City of Hayward Comprehensive Emergency Management Plan. The Plan addresses the City's responsibilities in emergencies associated with natural disaster, human-caused incidents, and technological incidents, including earthquakes and their seismic-related results (e.g., liquefaction). It defines the primary and support roles of City of Hayward agencies and departments in after-incident damage assessment and reporting requirements.

The Hayward Fire Department also operates the Community Emergency Response Team (CERT) program. The program trains and certifies members of the public in basic emergency response and organizational skills, including light fire suppression, hazardous materials awareness, first aid, light search and rescue techniques, and disaster response assistance. In addition, the Alameda County Fire Department operates the Map Your Neighborhood (MYN) project – a program to educate members of the community to become more prepared to respond to large-scale emergencies. The program is designed to assist already organized for community or neighborhood groups (e.g., homeowners associations, neighborhood watch groups, faith-based organizations) assess and map their emergency response resources and educate community members on the process to develop a community response plan.

Sea Level Rise

Rising sea levels are expected to occur in the future due to temperature increases that cause ocean water to expand, Arctic and glacial ice to melt, and increased amounts of snowpack runoff to enter the sea. According to the San Francisco Bay Conservation and Development Commission, California sea level appears to have risen by about seven inches over the 20th century and is predicted to rise between 19 to 55 inches by the end of the 21st century. According to a study by the Pacific Institute on the impacts of sea level rise, most of the western edge of Hayward past the Pacific Railroad, as well as the area extending east along Tennyson Road to Mission Boulevard, are at risk of a 100-year flood with a rise in sea level either currently (2000) or by 2100.

Figure 6-36 shows areas in the Hayward Planning Area at risk of a 100-year flood with a rise in sea level by 2100 and the critical facilities located within these areas. The City's Water Pollution and Control Facility and the San Mateo Bridge, which connects Hayward to Palo Alto across the San Francisco Bay, are both located within the 2100 100-year flood zone. Two health care facilities in Hayward are located within the 2100 100-year flood zone: Crescent Health Care, Inc. Hospice Agency and Kaiser Foundation Hospital, although the Kaiser facility will be relocating to a new campus in San Leandro in 2014. Alvarado Middle School in the New Haven Unified School District, located outside the planning area but providing services to Hayward, is located in the 2100 100-year flood zone. Several parks are threatened by the 2100 100-year flood, including: Shoreline Interpretive Center, Hayward Shoreline, Skywest Golf Course, Alden E. Oliver Sports Park, Christian Penke Park, and Gorden E. Oliver/Eden Shores.

The majority of the industrial uses in Hayward are located within a crescent-shaped industrial corridor along the western and southwestern edge of the City's urban limit line near the waterfront. About 8 percent of the industrial corridor is currently in the 100-year flood zone. With sea level rise 17 percent of the industrial corridor would be located within the 2100 year 100-year flood zone with a sea level rise of 19 inches, and 39 percent would be in the 100-year flood zone with a rise of 55 inches. Under these scenarios, flooding could have a huge impact on the Hayward economy and the health of residents and workers exposed to potentially contaminated flood waters in the industrial corridor.

Additionally there are 10 EPA-regulated hazardous materials sites located within the 2100 100-year flood zone. Three of these sites are also currently (2012) at-risk of a 100-year flood. Three other EPA-regulated hazardous materials sites are located in Union City at Hayward's southern border adjacent to the Eden Landing Ecological Reserve. Inundation at these sites puts Hayward at-risk for exposure to toxic chemicals. With a 55-inch rise in sea level by 2100, up to 63 hazardous material sites in Alameda County as a whole will be at risk.

There are a variety of strategies available to manage rising sea levels, ranging from building infrastructure to protect the shoreline to moving infrastructure and development away from low-lying areas. However, not all strategies are financially, politically, environmentally, or culturally appropriate for all areas. In the Netherlands, where most of the country's population

lives below sea level, there is an extensive system of dikes and levees that protect the country from sea level rise. In the southern San Francisco Bay, large-scale wetland restoration projects are helping to protect the shoreline.

In October 2011 the San Francisco Bay Conservation and Development Commission (BCDC) updated the San Francisco Bay Plan to deal with the expected impacts of climate change in San Francisco Bay. The BCDC adopted several new policies to address sea level rise, including requiring a risk assessment. Plans or large projects located within shoreline areas must conduct a sea level rise risk assessments. If sea level rise and storms that are expected to occur during the life of the project would result in public safety risks, the project must be designed to cope with flood levels expected by mid-century. If it is likely that the project will remain in place longer than mid-century, the applicant must have a plan to address the flood risks expected at the end of the century. The Plan also contains policies that encourage preservation and habitat enhancement in undeveloped areas that are vulnerable to future flooding and contain significant habitats or species, or are especially suitable for ecosystem enhancement.

The Hayward Area Shoreline Planning Agency (HASPA) was established in 1970 as a joint powers agency of representatives from the Hayward Area Recreation and Park District, East Bay Regional Park District, and the City of Hayward. The primary purpose of HASPA is to coordinate agency planning activities and adopt and carry out policies for the improvement of the Hayward Shoreline for future generations. Through the efforts of HASPA and its member agencies, over 3,150 acres have been purchased for public ownership, preserved, restored, or are in the process of being returned to wetlands, marshes, and protected uplands. These wetland mitigation and enhancement projects, which have been in existence for many years, make Hayward more resilient to potential sea level rise. These areas form a tidal 'buffer' which protects both public and private improvements and facilities built along the inboard levees, and hence their continued existence is critical to the protection of this shoreline.

In 2009 the City contracted with a consultant to prepare a Preliminary Study of the Effect of Sea Level Rise on the Resources (March 2010). The study evaluates the potential impacts of sea level rise on the Hayward shoreline and the feasibility of making improvements to prevent or mitigate potential flooding. The study provides HASPA with a preliminary assessment of the possible impacts, mitigations, costs, funding sources, and strategies to manage the affects of sea-level rise on both the natural and developed resources. The report outlines the following three adaptation measures:

- The "Hold the Line" option, which protects land and infrastructure from erosion, inundation, and flooding by the use of structures such as levees and sea walls. Under this option the crest elevation of the levees will have to be raised to keep pace with rising sea levels and increasing wave run-up elevations.

- The "Realignment" option to move the levee to a new location further inland, which would allow marshes and mudflats to transgress landward naturally.

- The "Gradual Steepening" option would create a system of natural berms and swales to create a more sustainable shoreline.

The report recommends that the next step in the process be the preparation of a Shoreline Realignment Master Plan and the design and implementation of specific adaptation measures.

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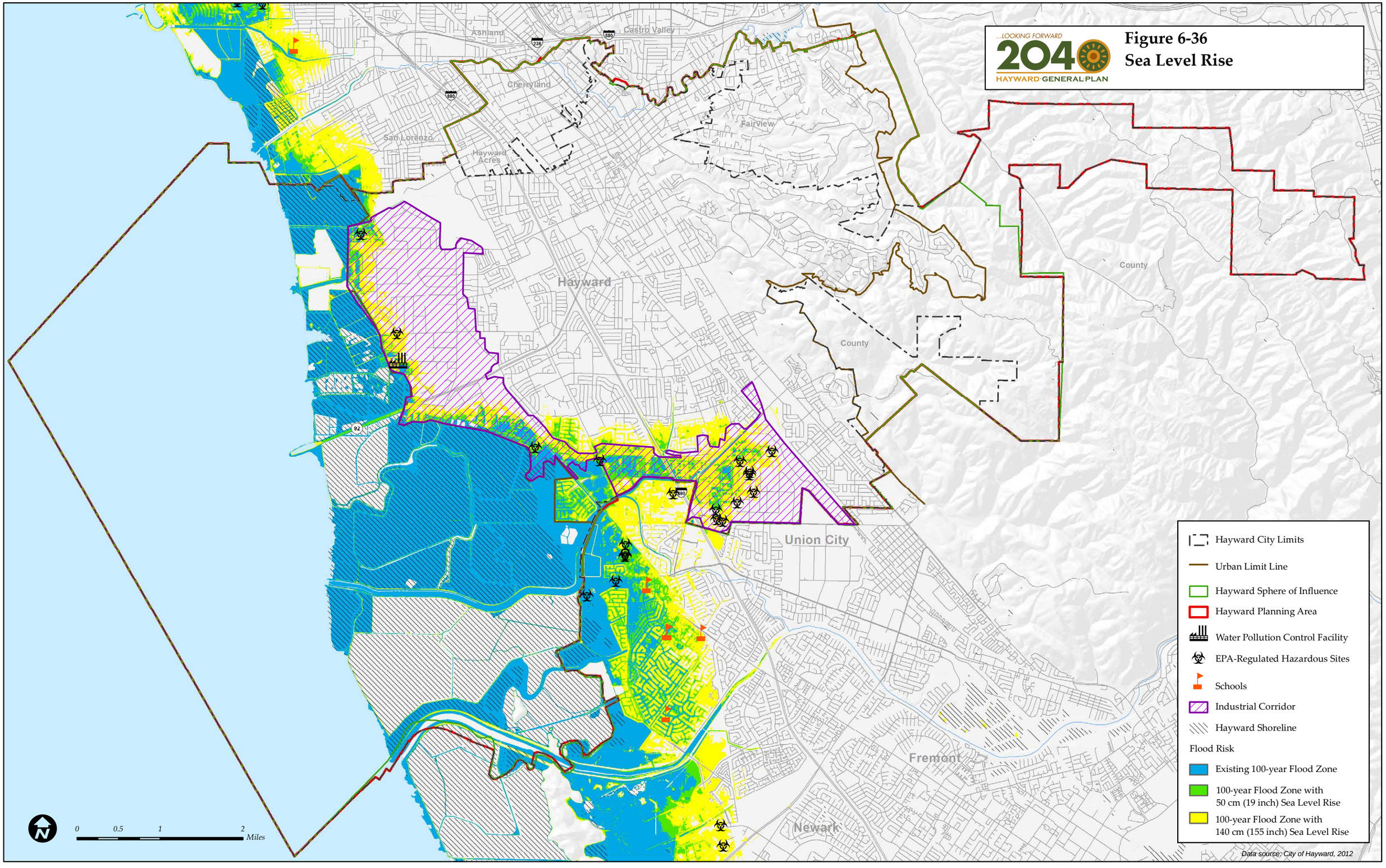
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 6-36
Sea Level Rise



Drought

Climate Change is expected to increase pressure on and competition for water resources, further exacerbating already stretched water supplies. Decreasing snowpack and spring stream flows and increasing demand for water from a growing population and hotter climate could lead to increasing water shortages. Current projections from the California Climate Change Center forecast that the Sierra snowpack could decline between 70 and 90 percent in the next 100 years. Drought in the Sierra Nevadas, as well as the region itself, can cause water shortages because of the large dependency of the Bay Area on imported water.

The City of Hayward purchases all its water from the San Francisco Public Utilities Commission (SFPUC). The water supplied to Hayward is predominantly from the Sierra Nevadas, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watershed and facilities in Alameda County. The supply comes from reservoirs in the Tuolumne River watershed. Most of the water is soft snow water from the high Sierras. The water is captured in the Hetch Hetchy watershed and piped, entirely by gravity, one hundred and fifty miles from their reservoirs in northern Yosemite Park to the Bay Area.

The agreement with the SFPUC allows the City of Hayward to buy unlimited water to serve its needs. However, during drought years, the City has to reduce water use based on a formula established by SFPUC. The City has emergency water supplies through connections with the Alameda County Water District (ACWD) and the East Bay Municipal Utility District (EBMUD) in case of disruption of delivery from SFPUC. Hayward has also developed five local emergency wells to provide emergency water sources in the event of a disruption in water supply. The City of Hayward also adopted a Water Shortage Contingency Plan that contains four stages of conservation actions.

In addition to acquiring interties with two neighboring water agencies and implementation of an emergency well system, Hayward has adopted a Catastrophic Water Supply Interruption Plan. The Plan outlines significant steps to plan for and to supplement potable water supplies in the event of a catastrophic interruption in regular water supplies, including interruptions caused by a regional power outage, earthquake, or other disaster.

Hayward has an extensive water conservation program. Hayward expects to achieve total water conservation savings of about 750,000 gallons per day, by 2030, through a combination of indoor and outdoor conservation measures that include:

- Rebates for replacement of high usage toilets with high efficiency models, purchase of water efficient clothes washing machines, and replacement of cooling tower conductivity controllers;
- Distribution of high efficiency water devices, such as showerheads, at no charge to customers;
- Rebates for approved customers who convert water-thirsty lawns to water-efficient landscapes;

- Programs for school classrooms and assemblies;
- Public education and outreach; and
- Free water-efficient landscaping classes.

The City adopted the Indoor Water Use Efficiency (WUE) Ordinance in 2010, which establishes water use standards for all new development and certain remodel projects. In 2010 Hayward adopted the Bay-friendly Water Efficient Landscape Ordinance that will assist in minimizing future water use of developer-installed irrigation systems for new landscaping associated with new development. These water conservation measures will help reduce future water demand and better prepare the City and its residents during periods of drought.

Increasing Energy Prices

Energy costs are expected to rise as a result of climate change. Energy demand is anticipated to increase to cool buildings due to higher temperatures and extreme heat waves. The California Energy Commission predicts that overall energy demand could increase 6 percent by 2020 and electricity demand by residential dwellings could increase by up to 55 percent by 2100. Energy prices may also be affected due to more variable energy supplies locally and from increased competition for electricity, natural gas, and oil.

The City has implemented several energy conservation measures, both regulatory measures and incentives, which will help reduce the impact of rising energy prices on residents and the City. The City has adopted the Municipal and Private Green Building Standards. The Municipal Green Building Standards require that all City-owned buildings meet a minimum Leadership in Energy & Environmental Design (LEED) Silver rating, which is an internationally recognized green building certification standard. The Private Green Building Standards require that all new multifamily and single family residential projects are GreenPoint rated and demonstrate full compliance with the California Building Energy Efficiency Standard (Title 24, part 6) at the time of permitting. All new commercial projects must exceed the 2008 Building Energy Efficiency Standards (Title 24, Part 6) of the California Building Code requirements by at least 15 percent.

The City has also enacted "green" practices in vehicle fleet management. As a Certified Green Business through Alameda County, the Fleet Management Division of the Maintenance Services Department is continuously improving the fuel efficiency of its vehicle fleet.

The City of Hayward is working with the Business Energies Solutions Team (BEST) Program to offer free facility energy assessments and incentives for energy efficient lighting retrofits, select refrigeration equipment, controls, and other proven technologies for local businesses. The City of Hayward is participating in the CaliforniaFIRST Program, which is a property assessed clean energy (PACE) finance program. PACE programs allow property owners to finance the installation of energy improvements on their home or business and pay the amount back as a line item on their property tax bill.

Finally, the City has adopted a Transit-Oriented Development policy (i.e., Policy # 2 of the Land Use Element) in the General Plan that encourages mixed-use and high-density development along transit corridors. Smart growth principles call for well designed, high-density and mixed-use development near transit lines. This type of development minimizes travel in personal vehicles and thereby reduces fuel consumption.

Economic Recession

The health of the population and the health of the local economy are directly related. A healthy population is fundamental for a strong local economy. Economic development relies on skilled, healthy individuals as workers and consumers. Poor health and illness generate economic burden to individuals and communities. At the same time a strong local economy is important in maintaining a healthy community. Communities that have a diversity of jobs are more resilient to economic recession or major shifts in the economy.

Hayward currently (2013) offers a diverse business mix, with an exceptional concentration of manufacturing firms. Manufacturing employment had been declining through 2006, but then had two years of solid growth in 2007 and 2008 before succumbing to the Great Recession in 2008. However, manufacturing employment stabilized in 2010, with an uptick in 2011.

As discussed in Chapter 3, Economic Conditions, the recent economic recession has affected local conditions in Hayward as well as other areas in the region. From 2004 to 2010 the city suffered a 6.9 percent loss of business establishments, compared to a 5 percent loss in Alameda County. Hayward averaged 0.8 percent higher unemployment than Alameda County from 2002 to 2011, although the gap has widened more recently to 1.1 percent, which has been consistent through most of 2012 to date. As of October 2012 the city's unemployment rate was 9.6 percent.

Regulatory Setting

Measure A (Essential Health Care Services Tax Ordinance). Measure A, the Essential Health Care Services Tax Ordinance, was passed in 2004 in Alameda County and will remain in effect until 2018. The initiative raised the sales tax for Alameda County residents by one-half of a cent in order to provide additional financial assistance for emergency medical, hospital inpatient, outpatient, public health, and substance abuse services for low-income, needy, and uninsured adults, children, families, seniors, and other Alameda County residents. The initiative allows for 75% of the Measure A funds to be allocated to ACMC, with the remaining 25% distributed to other healthcare providers.

Green Building Requirements for Municipal Buildings (Hayward Municipal Code, Chapter 10, Article 21). The Municipal Green Building Standards require that all City-owned buildings meet a minimum LEED Silver rating. All projects must have a LEED-accredited professional as a principal member of the design team. Minor City projects are required to complete and submit the LEED checklist as a way of documenting the green building practices incorporated into the project. Projects using the LEED checklist must earn a minimum of 20 points.

Green Building Requirements for Private Development (Hayward Municipal Code, Chapter 10, Article 22). The Private Green Building Standards require that all new multifamily and single family residential projects are GreenPoint rated and demonstrate full compliance with the California Building Energy Efficiency Standard (Title 24, part 6) at the time of permitting. Applicants for single or multifamily remodels and/or additions greater than 500 square feet must submit the GreenPoint Rated Existing Homes Checklist. All new commercial projects must exceed the 2008 Building Energy Efficiency Standards (Title 24, Part 6) of the California Building Code requirements by at least 15 percent.

Indoor Water Use Efficiency Ordinance (Hayward Municipal Code, Chapter 10, Article 23). The Indoor Water Efficiency Ordinance includes standards for new construction and remodels mandating the installation of water conserving fixtures.

Bay-friendly Landscaping Ordinance (Hayward Municipal Code, Chapter 10, Article 20). The Bay-friendly Landscaping Ordinance requires all new development with landscapes to meet the most recent minimum Bay-friendly Landscape Scorecard points as recommended by StopWaste.org.

Key Terms

The following key terms used in this chapter are defined as follows:

Asthma. A chronic lung condition that causes swelling, excess mucus, and narrowing of the airways.

Class I Bikeway (Bike Path). A paved right-of-way for bicycle travel that is completely separate from any street or highway.

Class II Bikeway (Bike Lane). A striped and stenciled lane for one-way travel on a street or highway.

Class III Bikeway (Bike Route). A signed route along a street or highway where the bicyclist shares the right-of-way with motor vehicles.

Coronary heart disease. A disease that develops when the arteries of the heart become narrowed or clogged and cannot supply enough oxygen-rich blood and nutrients to the heart muscle.

Diabetes. A chronic disease in which the body does not produce or properly use insulin, which can lead to blood glucose (sugar) levels that are too high.

Food desert. A geographic area within urban settings that has limited access to the fresh produce needed to maintain a healthy diet.

Life expectancy at birth. The average number of years that a group of infants would be expected to live if they were to experience throughout their lifespan the same mortality experienced by the different age groups at the time of their birth.

Medi-Cal (The California Medical Assistance Program). The California Medicaid welfare program serving low-income families, seniors, persons with disabilities, children in foster care, pregnant women, and certain low-income adults.

Medicare. A Federal system of health insurance for people over 65 years of age and for certain younger people with disabilities.

Overweight and Obesity. According to the Centers for Disease Control and Prevention (CDC), overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. For adults, overweight and obesity ranges are determined by using weight and height to calculate a number called the "body mass index" (BMI). BMI is used because, for most people, it correlates to the amount of body fat. An adult who has a BMI of between 25 and 29.9 is considered overweight. An adult who has a BMI of 30 or higher is considered obese.

Self-Sufficiency Income. A measure of the actual cost of living for different household types in each county, including costs for housing, food, health care, taxes, and child care.

Subprime loan. A type of loan that is offered at a rate above prime to individuals who do not qualify for prime rate loans.

Bibliography

Reports/Publications

Alameda County Public Health Department. Economic Inequality: A Growing Threat to Public Health. 2012. http://www.acphd.org/media/213313/economic%20inequality%20fact%20sheet-headers%20.pdf

Alameda County Public Health Department. The Health of Alameda County Cities and Places: A Report for the Hospital Council of Northern and Central California, 2010. July 2010.

Alameda County Public Health Department. Life and Death from Unnatural Causes: Health and Social Equity in Alameda County. August 2008.

Beaulac, Julie, Elizabeth Kristjansson & Steven Cummins. A Systematic Review of Food Deserts, 1966 to 2007. Preventing Chronic Disease, July 2009.

California Department of Education. School Quality Snapshot, 2010-11.

California Highway Patrol 2010 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions. http://www.chp.ca.gov/switrs/index.html. April 17, 2013.

Gruenewald PJ, Remer L. (2006) Changes in outlet densities affect violence rates. Alcohol Clin Exp Res 30:1184–93.

Hayward, City of. 2010 Local Hazard Mitigation Plan. Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan, *Taming Natural Disasters*. October 25, 2011.

Hayward Uses Murals to Fight Blight. Western City Magazine. March 2012.

Healthcare Services. Prepared for the Office of the California Attorney General. December 6, 2012.

Medical Development Specialists, LLC. Effect of Alecto Healthcare Services Hayward LLC's Management and Acquisition of St. Rose Hospital on the Availability or Accessibility of

National Community Reinvestment Coalition. Are Banks on the Map?: An Analysis of Bank Branch Location in Working Class and Minority Neighborhoods. 2007.

Phillip Williams & Associates, Ltd. Preliminary Study of the Effect of Sea Level Rise on the Resources of the Hayward Shoreline. Prepared for the Hayward Area Shoreline Planning Agency. March 2010.
http://www.ebparks.org/Assets/files/HASPA_Seal_Level_Rise_Study_Report_v15B.pdf

Tam, Laura. Climate Adaptation and Sea-Level Rise in the San Francisco Bay Area. Planning: The magazine of the American Planning Association. January 2012.

Twiss J, Dickinson J, Duma S, Kleinman T, Paulsen H, Rilveria L. Community gardens: lessons learned from California Healthy Cities and Communities. American Journal of Public Health, Volume 31, Issue 1, 2003.

United States Department of Agriculture. Reaching Those in Need: State Supplemental Nutrition Assistance Program participation Rates in 2010. December 2012.

United Way. Bay Area Cost of Living has Soared 18% Since Recession Onset (Press Release). October 4, 2011.

United Way. Struggling to Make Ends Meet in the Bay Area: Bay Area Self-Sufficiency Report, 2009.

Websites

Agricultural Institute of Marin. http://www.agriculturalinstitute.org/hayward/. January 8, 2013.

California Department of Education. www.cde.ca.gov. January 9, 2013.

Centers for Disease Control and Prevention. www.cdc.gov. January 9, 2013.

California Highway Patrol. www.chp.ca.gov. April 17, 2013.

Project EAT. www.projecteat.com. January 8, 2013.

SECTION 7.1 INTRODUCTION, PURPOSE, AND CONTENTS

This chapter describes the location and extent of existing natural resources within the city of Hayward. The following is a summary description of biological, open space, agricultural, energy, mineral, water, paleontological, and scenic resources. The chapter also includes a discussion of air quality and greenhouse gas emissions.

This chapter is organized into the following sections:

- Introduction, Purpose, and Contents (Section 7.1)
- Biological Resources (Section 7.2)
- Air Quality (Section 7.3)
- Greenhouse Gas Emissions (Section 7.4)
- Open Space and Agricultural Resources (Section 7.5)
- Energy Resources and Efficiency (Section 7.6)
- Mineral Resources (Section 7.7)
- Hydrology, Water Quality, and Conservation (Section 7.8)
- Paleontological Resources (Section 7.9)
- Scenic Resources (Section 7.10)

SECTION 7.2 BIOLOGICAL RESOURCES

Introduction

This chapter describes the biological resources within and in the vicinity of the city of Hayward. With a location adjacent to the San Francisco Bay, Hayward supports multiple vegetation types and habitats for numerous plant and animal species, including special status species (rare plants and animals that require special consideration and/or protection under State or Federal law). Within the Hayward Planning Area, there are shoreline and upland vegetation communities, disturbed and relatively undisturbed vegetation communities, and developed areas mostly devoid of vegetation. While certain plant and animal species have adapted to living within the developed areas of Hayward, the native vegetation and creeks within the urbanized areas have been modified to a degree that severely limits their value as habitat for special status plant and animal species. However, the shoreline and hillsides of Hayward provide grassland, woodland, and aquatic habitats that are important for a number of special status species.

Major Findings

- Approximately 40% of the lands within the Planning Area boundaries are developed, recently disturbed, or ruderal. The implication is that these disturbed or ruderal lands within the Planning Area do not provide suitable habitat for special status species.
- Areas likely to provide suitable habitat for special status species include: the foothill areas in the eastern portion of the Planning Area, baylands (salt marsh) adjacent to the Hayward Shoreline, and riparian areas that bisect the Planning Area.
- Within the Planning Area there are about 1,686 acres of Mixed Evergreen Woodland and about 3,500 acres of California grasslands. These vegetation communities provide potential habitat for multiple special status bird species, and are located in the eastern portion of the City, adjacent to the Pleasanton Ridge.
- The Planning Area is bordered or adjacent to several undeveloped areas. On the eastern side it is bordered by Garin Regional Park and the Eden Landing Ecological Reserve to the south. Don Edwards National Wildlife Refuge lies to the south of Eden Landing.
- Based on biological resource information from a biological resources assessment prepared by WRA Environmental (2007), there are 85 special status species with potential (ranging from unlikely to high) to occur within the Planning Area boundaries (Appendix A). However, more detailed analysis of characteristics of potential habitat for special status species indicates there are only 26 species with moderate or high potential to occur within the Planning Area.
- The Hayward Shoreline Regional Park is located within the city of Hayward. The undeveloped character of the Park implies greater potential to provide habitat for special status species than adjacent urbanized lands.

- Approximately 1,436 acres of wetlands are located within the Planning Area, including one wetland adjacent to a developed area southeast of where Highway 92 intersects the Hayward City Limits boundary (Figure 7-1). This wetland could constrain any additional development on adjacent properties.

Existing Conditions

The presence of multiple vegetation types in the Planning Area is relevant to the General Plan Update since they provide potential habitat for special status plant and animal species. The presence of special status plant and animal species is relevant to the General Plan Update in that they determine the extent to which a particular area can be developed, and the types of design guidelines, best management practices, and environmental permits that projects would need to obtain to avoid significant environmental impacts under the California Environmental Quality Act (CEQA). The presence of wildlife and plant species in general will inform policies and goals associated with the Open Space and Conservation element(s).

The topography of the Hayward Planning Area varies from mudflats adjacent to San Francisco Bay to foothills adjacent to the city of Hayward and Pleasanton boundary. Topography on the east side of Mission Boulevard includes some moderately steep foothills descending from the Diablo Range, leveling into the valley on the west side of Mission Boulevard, and draining into San Francisco Bay.

Much of the Planning Area is developed and does not offer suitable habitat for sensitive species. However, the baylands and eastern foothills offer potential habitat for special status species. All of the shoreline area within the Project Area is managed by the Hayward Area Shoreline Planning Agency (HASPA) since 1970 (2002 General Plan Update). HASPA is a joint powers agency and its members include the East Bay Regional Park District, Hayward Area Recreation and Park District, City of Hayward, Hayward Unified School District, and San Lorenzo Unified School District. HASPA prepared an Environmental Enhancement Program in 1993 to identify the various habitat types, and make enhancements to each parcel included in the HASPA jurisdiction. These lands include about 40 parcels in public and private ownership and cover about 8,500 acres from the northern to the southern city limits west of I-880.

Vegetation Communities and Land Cover Types

Table 7-1 and Figure 7-1 display the major vegetation communities and other land cover types present in the Planning Area. This information is based on data from the USDA Forest Service Landfire GIS database. The Landfire GIS database identifies more than 35 vegetation communities. For ease of interpretation these communities have been aggregated into communities, to largely conform to vegetation communities described in the WRA report, which is a primary source of information for preparing this report. Vegetation communities range from areas of scrub to areas with dense forest cover. Descriptions of each vegetation community (but not each land cover type, i.e., agriculture) are provided after Table 7-1.

TABLE 7-1
VEGETATION COMMUNITIES AND LAND COVER TYPES[1]
Planning Area

Vegetation Community	Acres
Barren	41.1
California Grasslands[2]	3,522.9
Oak Woodland Savanna	324.8
Chaparral/ Scrub and California Sparsely Vegetated Systems	1017.7
Riparian Forests	110.98
Central and Southern California Mixed Evergreen Woodlands	1,685.75
Pacific Coastal Marsh Systems	14.9
Herbaceous Wetlands	1421.5
Exotic Vegetation areas	170.5
Agricultural areas	629.1
Ruderal areas	5,832
Developed areas	13,395.7
Quarries/Strip mines/Gravel pits	38.4
Recently disturbed areas	49.8
Open Water[3]	17,036.4
Total Land Acreage[4]	**46,204**

[1]Vegetation communities described in the Landfire GIS data do not directly correspond to the vegetation community descriptions developed by WRA (2007). Landfire categories reported in this table have been aggregated to correspond with WRA data.
[2] "Grasslands" include non-native annual grasslands, northern California, and southern California coastal grasses. The latter two categories comprise less than 1% of total grasslands in the Planning Area.
[3] "Open Water" includes marsh, salt pond, and tidal areas.
[4] Please note the total acreage for vegetation cover does not correspond with areas depicted in other background reports since the vegetation data are from a source other than the City of Hayward.
Source: Landfire USDA Forest Service GIS Data, 2012

California grasslands

Several California grassland communities are present in the large, steep undeveloped parcels of the Planning Area. The predominant community type is described as non-native grassland by Holland (1986) and California annual grassland by Sawyer and Keeler-Wolf (1995), and is dominated by exotic annual grasses with scattered native and non-native forbs. Project Area grasslands are generally dominated by wild oats (*Avena spp.*) and other common invasive grasses, such as ripgut brome (*Bromus diandrus*) and Italian ryegrass (*Lolium multiflorum*). The exotic herbaceous species observed by WRA in 2007 in this community included yellow star thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), chicory (*Cichorium intybus*), and fennel (*Foeniculum vulgare*). Scattered native and exotic trees and shrubs are naturally-occurring or planted in the grasslands, but do not generally create more than five percent average canopy cover. It is likely that more native species would be observed in these areas during the spring

and early summer, but they generally appear disturbed by invasive species and historic grazing practices. Most portions of the Planning Area that were identified as non-native annual grassland continue to be managed with mowing or goat and cattle grazing to reduce fuel loads. (WRA, 2007). Some examples of wildlife species commonly associated with this vegetation community include the harvest mouse (*Reithrodontomys sp*.), shrew (*Sorex sp*.), Western Meadowlark (*Sturnella neglecta*), and the gopher snake (*Pituophis catenifer*). There are approximately 3,522 acres of annual grasslands within the Planning Area.

Oak woodland

Oak woodland is present in disturbed, remnant patches in the Project Area, often adjacent to more intact riparian forested corridors. This community is similar to the coast live oak woodland community described by Holland (1986) and the coast live oak series described by Sawyer and Keeler-Wolf (1995). This community is typically dominated by coast live oak with an understory of non-native annual grasses and both native and non-native shrubs. It is usually found on steep slopes, raised stream banks, and stream terraces. Within the Planning Area oak woodland persists in small remnant patches, often in or surrounded by areas of graded, disturbed soils and ruderal vegetation or non-native annual grassland species. Many of the oak woodland areas appear to be regularly mowed or grazed by cattle or goats. The native species diversity in this community type is lower than most riparian forest in the Planning Area, and the native tree canopy cover ranges from approximately 10 to 100 percent.

Oak woodland areas adjacent to riparian forest provide the most valuable habitat because they enhance wildlife corridors and transitional habitats between forest and grassland areas. Wildlife species that may use these areas include Northern Flicker (*Colaptes auratus*), Western Scrub-Jay (*Aphelocoma californica*), fox squirrel (*Sciurus niger*), and raccoon (*Procyon lotor*). Oak woodlands comprise approximately 325 acres in the Planning Area.

Chaparral/ Scrub and California Sparsely Vegetated Systems

The coastal scrub community type is present in small patches on steep slopes scattered throughout the Project Area. This community is a disturbed variation of the northern coastal scrub community described by Holland (1986), and the coyote brush series and California sagebrush series described by Sawyer and Keeler-Wolf (1995). Within the Project Area coastal scrub consists of sparse to dense coyote brush (*Baccharis pilularis*) or California sagebrush (*Artemisia californica*), with an understory similar to the non-native annual grassland community type. Most areas mapped as coastal scrub appear to be former ruderal or non-native annual grassland areas that have been colonized by native shrubs. Some examples of wildlife species commonly associated with this community include coyote (*Canis latrans*), Savannah Sparrow (*Passerculus sandwichensis*), and western fence lizard (*Sceloporus occidentalis*). This vegetation community occupies approximately 1,000 acres of the Project Area.

Riparian forest

Riparian forests line all of the creeks in the Planning Area, and range from completely native tree canopies to a mix of urban plantings with invasive and native trees. The largest corridors of riparian forest within the Planning Area are dominated by coast live oak (*Quercus agrifolia*) and

California bay (*Umbellularia californica*), with scattered California buckeye (*Aesculus californica*) and big leaf maple (*Acer macrophyllum*). These forests are typical of oak/bay forests in the San Francisco Bay Area, and are similar to the coast live oak forest and southern coast live oak riparian forest communities described by Holland (1986) and the coast live oak series and California bay series described by Sawyer and Keeler-Wolf (1995). A dense tree canopy results in minimal understory vegetation, including scattered toyon, snowberry (*Symphoricarpos albus*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and blue elderberry (*Sambucus mexicana*).

A few creeks, such as San Lorenzo Creek, Castro Valley Creek, and the small seasonal creek segments directly west of Hayward High School, have relatively narrow riparian corridors due to surrounding urban development. In addition, some of the riparian forests, most notably Ward Creek in Hayward Memorial Park, have moderate to severe infestations of invasive plants such as English ivy (*Hedera helix*), Himalayan blackberry (*Rubus discolor*), and cape ivy (*Delairea odorata*).

All contiguous forest canopies on the steep slopes lining perennial and seasonal creeks were considered riparian forest, although the actual delineation of riparian corridors under the jurisdiction of CDFG may result in narrower corridors more directly influenced by the creek channels. Some examples of wildlife species commonly associated with riparian forest include black-tail deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), dusky-footed woodrat (*Neotoma fuscipes*), Lesser Goldfinch (*Carduelis psaltria*), Spotted Towhee (*Pipilo maculatus*), and chorus frog (*Pseudacris regilla*). There are approximately 111 acres of riparian forests in the Planning Area.

Central and Southern California Mixed Evergreen Woodland

This community is found in the undeveloped eastern portions of the Planning Area, and is dominated by broad-leafed trees ranging from 10 to 30 meters in height, interspersed with taller coniferous species, forming a dense canopy. This community is found in upland areas often interspersed with grassland areas (Holland 1986). These communities support oaks (*Quercus chrysolepis, Quercus kelloggii*), big-leaf maple (*Acer macrophyllum*), Pacific manzanita (*Arbutus menziesii*) and Coulter's pine (*Pinus coulteri*).

Wildlife species that may be found with this community include Steller's Jay (*Cyanocitta stelleri*) Raccoon (*Procyon lotor*), and Gray squirrel (*Sciurus carolinensis*). There are approximately 2,500 acres of this vegetation community in the Planning Area.

Herbaceous Wetlands

In the report on terrestrial ecosystems (Russo, 2011), pacific coastal marshes are referred to as a subset of Herbaceous Wetlands. Pacific coastal marshes are a mixture of halophytic plants and wetland adapted plants, the latter occurring in areas where the freshwater inlet lowers the salt to the point where not-so-salt-tolerant plants can survive (Mayer and Laudenslayer, 1988). Pacific coastal salt marshes develop along the intertidal shores of bays and estuaries. Cordgrass (*Spartina foliosa*), occurs in the marine-to-terrestrial transition zone, characterized by lower salinity and periodic exposure to the air. Further inland conditions become drier, and pickleweed species belonging to the genus Salicornia are common. On higher ground, where

tidal intrusions are rare, the wiry, prickly-leaved succulent jaumea (*Jaumea carnosa*) is common, as are the bushy shoregrass (*Monanthochloe littoralis*), tall and slender sea arrowgrass (*Triglochin maritime*), and endangered salt marsh bird's beak (*Cordylanthus maritimus*). There are numerous animal species associated with coastal marshes that are special status species (see Table 7-2). Some of these species include the California Clapper Rail (*Rallus longirostris obsoletus*), Least tern (*Sterna antillarum browni*), the Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), the Salt marsh harvest mouse (*Reithrodontomys raviventris*), and the Saltmarsh wandering shrew (*Sorex vagrans halicoetes*). There are approximately 1,436 acres of herbaceous wetlands in the Planning Area.

Pacific Coastal Marshes

The Landfire vegetation data source identifies approximately 15 acres of Pacific Coastal Marshes, shown as two parcels located about 2.75 miles southeast of where SR 92 makes landfall. These parcels are not adjacent to the Bay, and are identified in the Landfire vegetation data as a separate category from Herbaceous Wetlands. It is not clear why these parcels have been named differently from Herbaceous Wetlands vegetation type described above.

Exotic Vegetation

Many undeveloped parcels within the Planning Area have relatively dense tree and/or shrub canopies consisting almost entirely of exotic species. The understory in these parcels is similar to non-native annual grassland or the disturbed/ruderal community type where grading or other soil disturbance has occurred. These parcels do not appear to be regularly maintained except for mowing or grazing to reduce fuel loads. While some of the trees and shrubs may be historic plantings, many of the species are naturalized and some are invasive. These areas provide a somewhat natural open woodland habitat beneficial to wildlife, so this community was mapped separately from developed areas with maintained landscaping. Exotic woodlands within the Planning Area range from contiguous patches of blue gum eucalyptus (*Eucalyptus globulus*) to small lots covered with a diverse mix of typical weedy urban trees and shrubs including eucalyptus, acacias (*Acacia spp.*), cotoneaster, and tree of heaven (*Ailanthus altissima*).

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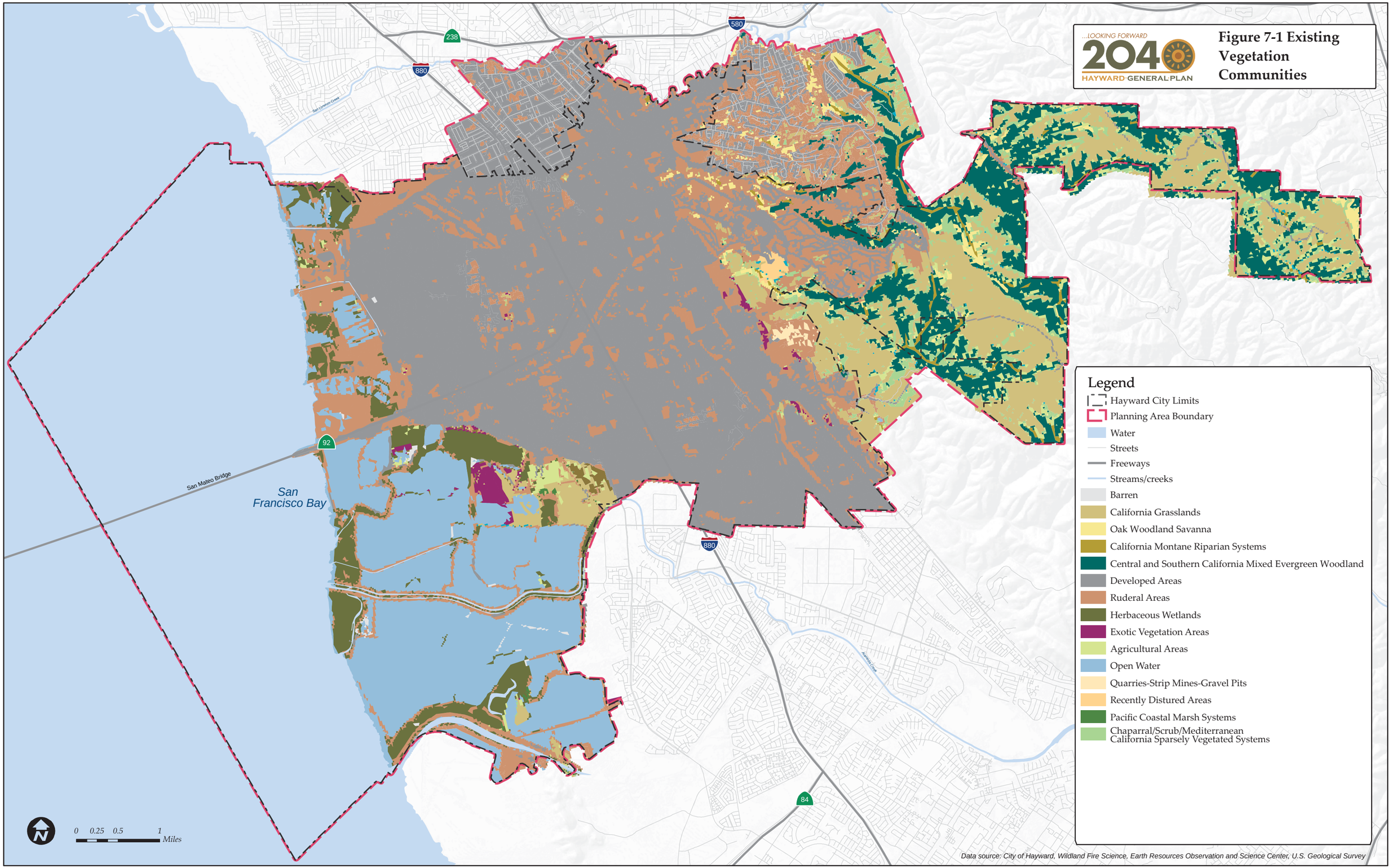
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-1 Existing Vegetation Communities



Legend

- Hayward City Limits
- Planning Area Boundary
- Water
- Streets
- Freeways
- Streams/creeks
- Barren
- California Grasslands
- Oak Woodland Savanna
- California Montane Riparian Systems
- Central and Southern California Mixed Evergreen Woodland
- Developed Areas
- Ruderal Areas
- Herbaceous Wetlands
- Exotic Vegetation Areas
- Agricultural Areas
- Open Water
- Quarries-Strip Mines-Gravel Pits
- Recently Distured Areas
- Pacific Coastal Marsh Systems
- Chaparral/Scrub/Mediterranean California Sparsely Vegetated Systems

Data source: City of Hayward, Wildland Fire Science, Earth Resources Observation and Science Center, U.S. Geological Survey

April, 2013

These exotic woodlands also support scattered native species including coast live oak (*Quercus agrifolia*), toyon (*Heteromeles arbutifolia*), coyote brush, and willows (*Salix spp*.). Wildlife species that may be found in this community include striped skunk (*Mephitis mephitis*), Great Horned Owl (*Bubo virginianus*), Mourning Dove (*Zenaida macroura*), and Wild Turkey (*Megeagris gallopavo*). Approximately 170 acres of exotic vegetation are present in the Planning Area.

Recently disturbed/ruderal

Recently disturbed and ruderal communities include areas that have been partially developed or have been used in the past for agriculture. In the Project Area the disturbed/ruderal communities consist primarily of vacant parcels that have been recently disked. Some examples of wildlife species commonly associated with this community include the Rock Dove (*Columba livia*), Brewer's Blackbird (*Euphagus cyanocephalus*), gophers (*Thomomys bottae*), and voles (*Microtus sp*). Recently disturbed and ruderal vegetation communities are found on approximately 5,880 acres within the Planning Area.

Development (urban/landscaping)

Development consists of all portions of the Planning Area not mapped as a natural community type, and includes commercial, residential, industrial, uses, roads, and other areas dominated by human uses. Much of these developed areas contains planted exotic vegetation and casually to intensively maintained landscaping. Scattered native trees, primarily coast live oak, persist as street trees, in residential yards, and on larger landscaped grounds such as schools. Approximately 13,400 acres of developed areas are found within the Planning Area.

Special Status Species

Table 7-2 identifies the special status species that are known to occur or that could potentially occur in the Project Area. Species described below are those for which moderate or high potential exists for them to occur in the Planning Area. Potential species that could occur were identified from two California Native Diversity Database (CNDDB) queries; one conducted by WRA Environmental in 2007, and another by HT Harvey in 2011. Both queries focused on potential occurrences for a 5-mile buffer around the city of Hayward. That includes the Planning Area.

Among the 25 species presented in Table 7-2, one is an insect, one is an anadromous fish, one is an amphibian, and one is a reptile. There are multiple bird, mammal, and plant species with moderate to high potential to occur in the Project Area. Among all the species 12 have high potential to occur, including eight bird species, and four mammal species. In addition to these high potential species, there are two species that have been observed in the Project Area or in close proximity; the Central California Coastal Steelhead in San Lorenzo Creek, and the Pallid bat in an undisclosed location.

TABLE 7-2
SPECIAL STATUS SPECIES AND POTENTIAL TO OCCUR
(City of Hayward 5-mile radius, includes Planning Area)

Species	Status[1]	Habitat	Potential for Occurrence
Monarch Butterfly (*Danaus plexippus*)	SSI	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind protected tree groves (eucalyptus, Monterey pine, and Monterey cypress) with nectar and water sources nearby.	Moderate Potential. Suitable roost habitat is present within the Project Area and a roost site has been documented about 2 miles southwest of where Interstate 880 intersects with Alameda Creek.
Central California Coastal steelhead (*Oncorhynchus mykiss irredueus*)	FT, CSC,NMFS	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean	Present. O. mykiss have been recently documented in San Lorenzo Creek. However, barriers to movement and spawning and minimal, degraded habitat make San Lorenzo Creek and adjoining tributaries only marginal habitat.
California red-legged frog (*Rana aurora draytonii*)	FT, CSC, RP	Lowlands and foothills in or near permanent deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	Moderate potential. Suitable habitat for this species exists along creeks, and occurrences have been reported nearby.
Western pond turtle (*Actinemys marmorata*)	CSSC	Requires large bodies or free-flowing rivers with abundant fish and adjacent snags and large trees for perching and nesting.	Moderate Potential. Aquatic and riparian habitats in the Project Area provide marginally suitable habitat
Coast horned lizard (*Phrynosoma coronatum frontale*)	CSC, FS	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for covers, patches of loose soil for burial, and abundant supply of ant and other insects.	Moderate potential. The Project Area contains marginal habitats for this species. Occurrence records suggest that this species may be locally extirpated although it is known to be present as close to Livermore.
California clapper rail (*Rallus longirostris obsoletus*)	FE, SE, SP	Coastal salt and brackish marshes and tidal habitat.	High Potential. Marshes along the shoreline provide suitable habitat.
California least tern (*Sterna antillarum browni*)	FE, SE, SP	Nests on sandy beaches usually associated with river mouths or estuaries	High Potential. There are known occurrences of this species at Hayward Regional Park District Marsh and at Don Edwards National Wildlife Refuge to the

TABLE 7-2
SPECIAL STATUS SPECIES AND POTENTIAL TO OCCUR
(City of Hayward 5-mile radius, includes Planning Area)

			south.
Cooper's hawk (*Accipiter cooperi*)	CSSC	Associated with open or interrupted woodland and riparian habitats in the Coast ranges and foothills adjacent to the Central Valley. Nest sites mainly in deciduous trees in riparian communities such as canyon bottoms on river floodplains. Also nests in live oaks.	High Potential. Woodlands and riparian corridors provide suitable nesting habitat, and foraging habitat is available within the Project Area and in open spaces areas to the east.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrugs, dense trees; forages in grasslands, marshes, and ruderal habitats	High potential. In 2007 WRA, Environmental biologists observed a single shrike in an agricultural grassland north of East 16th Street. Agricultural/ ruderal grassland within the Project Area provides suitable nesting and foraging habitat for the species.
Northern harrier (*Circus cyaneus*)	CSC	Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. May also occur alkali desert sinks.	Moderate potential. This species is unlikely to find suitable nesting habitat within Project Area, but is likely to be found in the vicinity year-round and may forage in isolated open areas.
Long-eared owl (*Asio otus*)	CSC	Inhabits riparian bottom lands, tall willows and cottonwoods, and belts of live oak paralleling streams courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Moderate potential. This species may be present in the Project Area year-round, although it is unlikely to nest there. Marginal habitat for this species is present along isolated, wooded creek corridors.
Sharp shinned hawk *(Accipiter striatus)*	CSC	This species is a fairly common migrant and winter visitor throughout California. It is found in a variety of habitats, especially woodlands. It usually nests in dense stands of conifers near water. Preferred roost sites are in intermediate to high canopy forested areas.	High Potential. Isolated riparian woodlands may provide nesting habitat. Foraging habitat is present in isolated grassland and open area. The species nested about 2 miles east of the Project Area in 1994.

TABLE 7-2
SPECIAL STATUS SPECIES AND POTENTIAL TO OCCUR
(City of Hayward 5-mile radius, includes Planning Area)

Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, CSC	Sandy beaches, salt pond levees, shores of large alkali lakes	High Potential. Known occurrences at Hayward Regional Shoreline Park.
White tailed kite (*Elanus leucurus*)	CFP	Year round resident of coastal and valley lowlands, rarely found away from agricultural areas. Preys on small mammals and occasional birds, insects, reptiles, and amphibians.	High Potential. Woodlands and riparian corridors provide suitable nesting habitat, especially in more isolated portions of the Project Area adjacent to open space to the east. Grasslands and open area within and adjacent to the Project area provide suitable foraging habitat.
Yellow Warbler (*Dendroica petechia brewsteri*)	CSC	Yellow warblers prefer dense riparian vegetation for breeding. Yellow warblers populations have declined due to brood parasitism by brown-headed cow birds (Molothrus ater) and habitat destruction. Diet is primarily insects supplemented with berries.	High potential. Suitable riparian habitat is present along a number of creeks within the Project Area. Based on a CNDDB search conducted in 2007, this species was documented in a creek corridor that runs through the Project Area. The occurrence was roughly two miles to the northeast.
Saltmarsh common yellow throat (*Geothlypis trichas sinuosa*)	CSC, BCC	Frequents low, dense vegetation near water, including fresh saline emergent wetlands and uses brushy habitats during migration. Forages among wetland herbs and shrubs, primarily for insects.	Moderate potential. Creek corridors containing willow trees may provide habitat for this species. It has been documented in numerous locations of the South Bay as close as two miles from the Project Area.
Pallid Bat *(Antrozous pallidus)*	CSC	Forages over many habitats and roosts in caves, rock outcrops, buildings, and hollow trees.	Present. Large trees with cavities and old buildings may provide suitable habitat in the Project Area. CNDDB (2011) records indicate one occurrence adjacent to Project Area and another occurrence less than 3 miles to the south.
Salt-marsh harvest mouse *(Reithrodontomys raviventris*)	FE, SE	Inhabits tidal and non-tidal salt marshes dominated by pickleweed and surrounding Suisun, San Pablo, and San Francisco Bays.	High Potential. Known occurrences in Hayward Regional Park District Marsh.

TABLE 7-2 SPECIAL STATUS SPECIES AND POTENTIAL TO OCCUR (City of Hayward 5-mile radius, includes Planning Area)			
Salt-marsh wandering shrew (*Sorex vagrans halicoetes*)	CSC	Inhabits salt marshes and pickleweed.	High Potential. Known occurrences in Hayward Regional Park District Marsh.
San Francisco dusky footed woodrat (*Neotoma fuscipes annectens*)	CSC	Nests in a variety of habitats, including riparian areas, oak woodlands, and scrub.	High potential. Species may be present in the riparian habitat.
Townsend's big-eared bat (*Corynorhinus townendii*)	CSC	Primarily found in rural settings in a wide variety of habitats, including oak woodlands and mixed coniferous-deciduous forest. Day roosts are strongly associated with caves and mines.	Moderate potential Unoccupied buildings within the Project Area may provide roosting habitat.
Western mastiff bat (*Eumops perotis californicus*)	CSC	Found in a variety of open, arid and semi-arid habitats. Presence seems associated with large rock structures for roosting, including cliff crevices and cracks in boulders.	High potential. Historical records of this species exist near or within the Project Area. Suitable roosting and foraging habitat exists in open areas and a quarry site within the Project Area.
Johnny nip (*Castilleja amibigua ssp. Ambigua*)	CNPS 4.2	Inhabits coastal bluff scrub, coastal prairie, coastal scrub, marshes, swamps, valley and foothill grassland, and the margins of vernal pools.	Moderate potential. Habitat conditions are suitable for the species within the wetland seep in agricultural/ruderal grass fields and riparian habitats.
Western leatherwood (*Dirca occidentails*)	List 1B	Inhabits broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, Northern Coast coniferous forest, riparian forest, and riparian woodland/mesic. Elevational range is 50-395 meters. The plant blooms between January and March.	Moderate potential. Suitable habitat present, but no recorded occurrences in the Hayward Hills or vicinity. Most known occurrences are located farther north in Oakland Hills.
Diablo helianthella (*Helianthella castanea*)	CNPS 1B.2	Inhabits broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands.	Moderate potential. Several occurrences have been reported in the Project vicinity. Project area oak woodlands and grasslands do not have ideal habitat features for this species due to dense forest canopy, or disturbance from invasive plant species, grazing, and other historic uses.
Santa Cruz tarplant	FT, SE	Inhabits clay or sandy soils in	Moderate Potential. Habitat

TABLE 7-2
SPECIAL STATUS SPECIES AND POTENTIAL TO OCCUR
(City of Hayward 5-mile radius, includes Planning Area)

(*Holocarpha macradenia*		coastal prairie, coastal scrub, and valley and foothill grasslands.	conditions considered suitable within agricultural or ruderal grasslands and exotic woodland areas.

[1]Status Code Definitions:

FE = Federal Endangered
FT = Federal Threatened
FD = Federal De-listed
SE = State Endangered
ST = State Threatened
SR = State Rare
BCC = USFWS Birds of Conservation Concern
RP = Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
NMFS = Species under the Jurisdiction of the National Marine Fisheries Service
BLM = Bureau of Land Management sensitive species
FS = USDA Forest Service sensitive species
CSC = CDFG Species of Special Concern
CFP = CDFG Fully Protected Animal
SSI = G Special Status Invertebrates
WBWG = Western Bat Working Group High Priority species
SCDF = CDF Sensitive: CA Department of Forestry and Fire Protection – warrant special protection during timber operations
List 1A = CNPS List 1A: Plants presumed extinct in California
List 1B = CNPS List 1B: Plants rare, threatened or endangered in California and elsewhere
List 2 = CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere
List 3 = CNPS List 3: Plants about which CNPS needs more information (a review list)
Sources: WRA Environmental, 2007. HT Harvey, 2011. City of Fremont, 2011.

Regulatory Setting

Biological resources in California are managed by a complex network of Federal and State regulations. The California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) administer laws pertaining to the protection of threatened and endangered species, as well as permits for project activities occurring near or in waters of the State or United States, as appropriate. For marine environment species, the National Marine Fisheries Service administers the same or similar laws as the CDFG and USFWS. Regulations pertaining to biological resources are summarized below.

Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (as updated in 50 CFR 17.11 and 17.12, January 1992) (FESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Section 9 of the FESA prohibits the taking of endangered wildlife. Taking is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50CFR 17.3). For plants this statute pertains to removing, possessing, maliciously damaging, or destroying any endangered plant on Federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-Federal land in knowing violation of State Law (16 USC 1538). Under Section 7 of the FESA, Federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect an endangered species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to another authorized activity provided the action will not jeopardize the continued existence of the species. Consultation would be triggered if a particular project within the city affects wetlands or waters of the U.S., requiring the U.S. Army Corps of Engineers to issue a 404 permit. Section 10 of FESA provides for issuance of incidental take permits to private parties provided a habitat conservation plan is developed.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from a variety of activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513 and 3503.5 of the CDFG Code.

Federal Clean Water Act

The Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the USACE. The definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (U.S. EPA) also has authority over wetlands and may override a USACE permit. Substantial impacts on wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

State Regulations

California Endangered Species Act

The California Endangered Species Act of 1970 (California Administrative Code Title 14, Sections 670.2 and 670.51) (CESA) generally parallels the main provisions of the Federal ESA, but unlike its Federal counterpart, the CESA applies the take prohibitions to species proposed for listing (called "candidates" by the state). Section 2080 of the CDFG Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the CDFG Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with the CDFG to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as "Fully Protected" prior to the creation of the CESA and the FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, mammals, amphibians, reptiles, birds and mammals. Most fully protected species have since been listed as threatened or endangered under the CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (CDFG Code Section 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, the CDFG prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (CDFG Code Sections 1900-1913) was created with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by the CDFG. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA provides further protection for rare and endangered plant species, but the NPPA remains part of the CDFG Code.

California Streambed Alteration Notification/Agreement

Section 1602 of the California CDFG Code requires that a Streambed Alteration Application be submitted to the CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFG reviews the proposed actions and, if necessary, submits a proposal for measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed upon by the CDFG and the applicant is the Streambed Alteration Agreement. Often projects that require a Streambed Alteration Agreement also require a permit from the Corps under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne) imposes stringent controls on any discharges into the "waters of the state" (California Water Code § 13000, et seq.). Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code § 13050(e)). Pursuant to Porter-Cologne, the State Water Resources Control Board (SWRCB) has the ultimate authority over state water rights and water quality policy. However, Porter-Cologne also establishes nine RWQCBs to oversee water quality at the local/regional level. Under Porter-Cologne, the state retains authority to regulate discharges of waste into any waters of the state, regardless of whether the USACE has concurrent jurisdiction under Section 404 of the CWA. This applies specifically to isolated wetlands considered non-jurisdictional by the Corps in accordance with the Solid Waste Agency of Northern Cook County (SWANCC) v. Corps decision, which limited the Corps' jurisdiction over isolated wetlands.

Required RWQCB certification would be under the jurisdiction of the San Francisco Bay RWQCB in Oakland, California, and would include consultation with the CDFG under the provisions of the California Fish and Game Code section 5650F, which gives CDFG jurisdiction over the input of any deleterious substances, such as silt, into the waters of the State, resulting from construction activities.

California Fish and Game Code Sections 3503, 3503.5, and 3800

Sections 3503, 3503.5, and 3800 of the California Fish and Game Code prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take." Such a take would violate the Migratory Bird Treaty Act. The act is implemented as part of the review process for any required State agency authorization, agreement, or permit.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC), created by the California Legislature in 1965, has regulatory responsibility over development in San Francisco Bay and along the Bay's nine-county shoreline. BCDC is authorized in the public interest to control both: (1) Bay filling and dredging, and (2) Bay-related shoreline development.

BCDC has jurisdiction over the open water, marshes, and mudflats of greater San Francisco Bay (including Suisun, San Pablo, Honker, Richardson, San Rafael, San Leandro and Grizzly Bays and the Carquinez Strait), the first 100 feet inland from the shoreline around San Francisco Bay, the portion of the Suisun Marsh below the ten-foot contour line (including levees, waterways, marshes and grasslands), portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay, and salt ponds, duck hunting preserves, game refuges, and other managed wetlands that have been diked off from San Francisco Bay.

It is necessary to obtain a BCDC permit prior to undertaking most work in the Bay or within 100 feet of the shoreline, including filling, dredging, shoreline development, and other work. There are several different types of permit applications, depending on the size, location, and impacts of a project.

Don Edwards San Francisco Bay National Wildlife Refuge

The Don Edwards San Francisco Bay National Wildlife Refuge, created in 1974, is a 30,000-acre oasis for millions of migratory birds and endangered species on the southern end of San Francisco Bay dedicated to preserve and enhance wildlife habitat, protect migratory birds and threatened and endangered species, and provide opportunities for wildlife-oriented recreation and nature study for the surrounding communities.

The refuge consists primarily of tidal marsh, salt ponds, mud flats, and seasonal wetlands, providing habitat for nine species of Federally-listed threatened or endangered species. It is also home to 227 species of birds, including 8 percent of the world population of the western snowy plover, and protects 60 percent of the world's population of California clapper rail (*Rallus longirostris obsoletus*) as well as a substantial number of salt marsh harvest mouse (*Reithrodontymys raviventris*), both found only in the remaining tidal marshes of San Francisco Bay.

Wintering waterfowl make extensive use of the area, averaging 45,000-75,000 each winter. More than 500,000 shorebirds make use of the mud flats and salt ponds. Globally significant numbers of at least eight species of shorebirds visit this refuge during migration.

The refuge provides wildlife-oriented recreation opportunities at its Fremont Visitor Center, Alviso Environmental Education Center, over 30 miles of hiking trails, and its accessible fishing pier that extends into San Francisco Bay. Nearly 700,000 people visit the refuge each year, including 10,000 school children, teachers, and parents, who take part in the refuge's nationally recognized environmental education programs.

City of Hayward Tree Preservation Ordinance

Hayward Municipal Code Chapter 10, Article 15 (Tree Preservation) provides for the protection and preservation of significant trees by designating what types of trees located on what types of development or properties are "protected" and would require a permit before removal or pruning (aside from routine maintenance) as well as determining when removed or disfigured trees would require replacement.

"Protected trees" include (1) trees having a minimum trunk diameter of eight inches measured 54" above the ground (multi-trunk trees are measured by the diameters of the largest three trunks added together); (2) street trees or other trees required as a condition of approval, Use Permit, or other Zoning requirement, regardless of size (street trees are protected under the Street Tree Ordinance); (3) all memorial trees dedicated by an entity recognized by the City, and all specimen trees that define a neighborhood or community; (4) a tree or trees of any size planted as a replacement for a Protected Tree; and (5) trees of the following species that have reached a minimum of four inches diameter trunk size:

- Big Leaf Maple (*Acer macrophyllum*)
- California Buckeye (*Aesculus californica*)
- Madrone (*Arbutus menziesii*)
- Western Dogwood (*Cornus nuttallii*)
- California Sycamore (*Platanus racemosa*)
- Coast Live Oak (*Quercus agrifolia*)
- Canyon Live Oak (*Quercus chrysolepis)*
- Blue Oak (*Quercus douglassii)*
- Oregon White Oak (*Quercus garryana)*
- California Black Oak (*Quercus kelloggi)*
- Valley Oak (*Quercus lobata)*
- Interior Live Oak (*Quercus wislizenii)*

- California Bay (*Umbellularia californica)*.

An application for a Protected Tree Removal or Cutting permit must be filed and approved prior to any tree removals, relocations, or cutting. Where Protected Tree removal, relocation, or encroachment into the Protected Zone of a tree is requested as part of the development of a lot or parcel, the application must be processed prior to the issuance of any grading, trenching, encroachment, demolition, or building permit for development. On receipt of a completed application, the City Landscape Architect or his or her designated representative shall inspect the premises and determine which Protected Trees may be removed or what reshaping or cutting may occur.

Key Terms

The following key terms used in this chapter are defined as follows:

California Natural Diversity Database. (CNDDB) The CNDDB is a program that inventories the status and locations of rare plants and animals in California. The CNDDB is used frequently in planning projects to determine if special status species occur within a particular project area. Using information from CNDDB queries is often the first step in determining whether or not a project or plan may impact habitat for a certain species.

Endangered Species Act. (ESA) Both the Federal and State Acts protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The California State Endangered Species Act also protects species that are considered candidates to be listed as threatened or endangered.

Special Status Species. According to the Sacramento County Department of Environmental Review and Assessment, "Special Status Species" is a universal term used by biological scientists to describe plant and animal species that are considered sufficiently rare that they require special consideration and/or protection. These species should be, or have been, listed as rare, threatened or endangered by the Federal and/or State governments.

Special Status Vegetation Communities. According to California Department of Fish and Game, these are vegetation communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects.

Vegetation Sommunity. A vegetation community is a group of plant species that occupy the same area at the same time, and are associated with a particular group of animal species.

Bibliography

Reports/Publications

Hayward, City of. City of Hayward General Plan Update Draft EIR. 2002.

Holland, R.F. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Game, Sacramento, California, 1986.

HT Harvey. Biological Resources Report for the Mission Boulevard Corridor Specific Plan EIR. Prepared for Lamphier-Gregory, June, 2011.

Mayer, K.C., and W.F. Laudenslayer. California Department of Forestry and Fire Protection. A Guide to Wildlife Habitats of California, 1988.

Russo, M.J. Terrestrial Ecosystems Definitions. NatureServe, Durham, North Carolina. 2011.

Sawyer, J.O. and T. Keeler-Wolf. A Manual of California Vegetation. California Native Plant Society, Sacramento, California. 1995.

WRA Environmental, Inc. Biological Resources Assessment for Route 238 Bypass Corridor. Prepared for Community Design and Architecture, September, 2007.

Websites

Sacramento County Department of Environmental Review and Assessment. http://www.dera.saccounty.net/ProtectedResources/Biological/SpecialStatusSpecies/tabid/96/Default.aspx, December 31, 2012

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. California Department of Fish and Game http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/protocols_for_surveying_and_evaluating_impacts.pdf, December 31, 2012.

Natural Resource Conservation Service. National Water and Climate Center. Data available online courtesy of the USDA at http://www.wcc.nrcs.usda.gov/ cgibin/state.pl?state=ca., December 5, 2012.

USDA Forest Service. Landfire Vegetation Data. http://www.landfire.gov/NationalProductDescriptions21.php, April 17, 2013.

Environmental Conservation Online System. http://ecos.fws.gov/ecos/indexPublic.do. January 14, 2013.

Coastal salt marshes defined. http://ceres.ca.gov/ceres/calweb/coastal/plants/smarsh.html, January 15, 2013.

SECTION 7.3 AIR QUALITY

Introduction

This section summarizes air quality conditions within the city of Hayward and the Planning Area. Air quality is described as the concentration of various pollutants in the atmosphere for a specific location or area. Air quality conditions at a particular location are a function of the type and amount of air pollutants emitted into the atmosphere, the size and topography of the regional air basin, and the prevailing weather conditions. Air quality is an important natural resource that influences public health and welfare, the economy, and quality of life. Air pollutants have the potential to adversely impact public health, the production and quality of agricultural crops, native vegetation, visibility, buildings, and other structures.

Regarding public health impacts from poor air quality, some people are more sensitive to poor air quality than others. These people include children, the elderly, and persons with asthma. Land uses where these people are likely to be located are defined as sensitive receptors. Sensitive receptors include long-term healthcare facilities, hospitals, rehabilitation centers, retirement homes, convalescent homes, residences, schools, childcare centers, and playgrounds. Sensitive receptors are located throughout the city of Hayward.

Climate change and sources of greenhouse gas (GHG) emissions are often associated with air quality. Greenhouse Gas Emissions are addressed in Section 7.4 of this chapter and Climate Change is addressed in Section 9.6 of the Hazards Chapter.

Major Findings

- The city of Hayward is located in the San Francisco Bay Area Air Basin, which is currently designated as a nonattainment area for a number of different types of air pollutants (including ozone precursors and various forms of particulate matter) under State and Federal ambient air quality standards. A nonattainment area is defined as an area or air basin that does not meet State or Federal ambient air quality standards for a given pollutant.
- Within Alameda County, mobile sources (e.g., cars, trucks, etc.) are the largest contributor of ozone precursor emissions, which include reactive organic gases (ROG) and nitrogen oxides (NO_X). Areawide sources (e.g., paved road dust, construction and demolition activities, etc.) in Alameda County are the largest contributor of respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) emissions.
- Emissions data collected between 2006 and 2011 from air quality monitoring stations within or adjacent to the Planning Area indicated ozone violations for the eight-hour and one-hour Federal and State ambient air quality standards, respectively. In addition, emissions data collected between 2006 and 2011 from a nearby monitoring station indicated violations of $PM_{2.5}$ standards for both the State and Federal ambient air quality standards during this period.

- There are approximately 172 stationary sources in the Planning Area that emit toxic substances and are subject to the Air Toxics Hot Spots reporting requirements under AB 2588. Most of these are located within industrial areas in the western region of the Planning Area.
- Portions of the Planning Area in upland areas east of Mission Boulevard have been classified as having the potential to contain serpentine bedrock, which may contain naturally occurring asbestos (NOA).

Existing Conditions

In addition to the presence of existing air pollution sources, air quality is determined by a number of natural factors, such as topography, climate, and meteorology. These factors are discussed below.

Topography, Climate, and Atmospheric Conditions

Hayward is located in the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, as well as the southwestern portion of Solano County and the southern portion of Sonoma County. The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays. The complex terrain of the Bay Area often distorts normal wind flow patterns. Breaks in the coastal range create both a western coast gap (at the Golden Gate) and an eastern coast gap (at the the Carquinez Strait). These gaps allow air to flow in and out of the SFBAAB and the Central Valley (ARB 2013f). Proximity to the Pacific Ocean helps to moderate Bay Area temperatures in both summer and winter.

Hayward is located in the Southwestern Alameda County sub-region of the SFBAAB. This sub-region encompasses the southeast side of San Francisco Bay, from Dublin Canyon to north of Milpitas. It is bounded on the east by the East Bay hills and on the west by the San Francisco Bay. Most of the area is flat. This sub-region is indirectly affected by marine air flow. Marine air entering through the Golden Gate is blocked by the East Bay hills, forcing the air to diverge into northerly and southerly paths. The southern flow is directed down the Bay, parallel to the hills, where it eventually passes through Hayward and over southwestern Alameda County. These sea breezes are strongest in the afternoon. The further from the ocean the marine air travels, the more the ocean's effect is diminished. Although the climate in this region is affected by sea breezes, it is affected less so than the regions closer to the Golden Gate.

The climate of southwestern Alameda County is also affected by its close proximity to San Francisco Bay. The Bay cools the air in which it comes in contact with during warm weather, and warms the air during cold weather. The normal northwest wind pattern carries this air onshore. Bay breezes push cool air onshore during the daytime and draw air from the land offshore at night. Winds are predominantly out of the northwest during the summer months. In the winter, winds are equally likely to be from the east. Easterly-southeasterly surface flow into

southern Alameda County passes through three major gaps: Hayward/Dublin Canyon, Niles Canyon, and Mission Pass. Areas north of the gaps experience winds from the southeast, while areas south of the gaps experience winds from the northeast. Wind speeds are moderate in this sub-region, with annual average wind speeds close to the Bay at about 7 miles per hour (mph), while further inland they average 6 mph.

Air temperatures are moderated by the sub-region's proximity to the Bay and to the sea breeze. Temperatures are slightly cooler in the winter and slightly warmer in the summer than East Bay cities to the north. During the summer months average maximum temperatures are in the mid-70s (degrees Fahrenheit [°F]). Average maximum winter temperatures are in the high 50s to low 60s. Average minimum temperatures are in the low 40s in winter and mid-50s in the summer.

Pollution potential is relatively high in this sub-region during the summer and fall. When high pressure dominates, Bay and ocean wind patterns can concentrate and carry pollutants from other cities to this area, adding to the locally emitted pollutant mix. The polluted air is then pushed up against the East Bay hills. In the wintertime the air pollution potential in southwestern Alameda County is moderate. Air pollution sources include light and heavy industry and motor vehicles. Increasing motor vehicle traffic and congestion in the sub-region may increase Southwest Alameda County pollution as well as that of its neighboring sub-regions (BAAQMD 2012a).

Existing Sources of Criteria Air Pollutant and Precursor Emissions

An emissions inventory for criteria air pollutants and precursors has not been developed for the city of Hayward or its Planning Area. However, the California Air Resources Board (ARB) developed an emissions inventory within Alameda County for 2008 (ARB 2009). The County inventory is generally representative of the types of emission sources that are included in the city and Planning Area. The County emissions inventory is summarized in Figure 7-2. A detailed breakdown of the County inventory is provided in Appendix AQ-1.

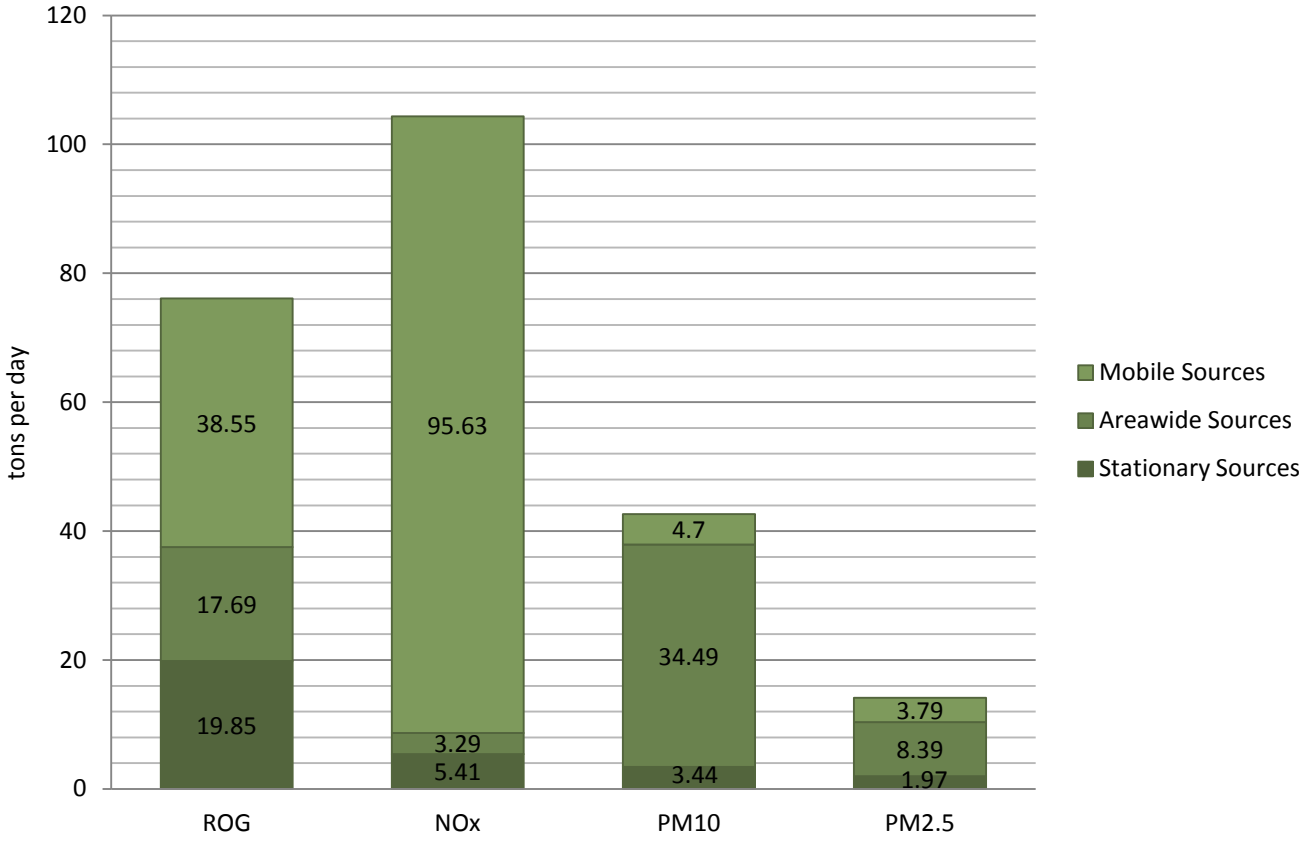
According to the adjusted inventory, mobile sources such as cars and trucks are the largest contributor to the estimated annual average for air pollutant levels of ROG and NO_X, accounting for approximately 49 percent and 91 percent, respectively, of the total emissions in Alameda County. Areawide sources, such as the use of solvents, asphalt paving, roofing, and other activities, account for about 24 percent of ROG emissions, while stationary sources, such as industrial and manufacturing activities, contribute about 27 percent of ROG emissions.

Areawide sources account for approximately 82 percent and 61 percent of the County's PM_{10} and $PM_{2.5}$ emissions, respectively, most of which was from vehicle travel on unpaved roads, vehicle travel on paved roads, and construction and demolition activity (ARB 2009).

Emissions of ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels.

FIGURE 7-2

ALAMEDA COUNTY 2008 EMISSIONS INVENTORY - CRITERIA AIR POLLUTANTS AND PRECURSORS (TONS PER DAY)



Source: California Air Resources Board, 2009. 2008 Almanac Emission Projected Data: Estimated Annual Average Emissions—Alameda County, http://www.arb.ca.gov/ei/emissiondata.htm.

Air Quality Monitoring and Existing Pollutant Concentrations

Measurements of ambient air quality from the Hayward-La Mesa monitoring station, located at 3466 La Mesa Drive, are representative of the air quality in the Planning Area. Table 7-3 summarizes the pollutant concentrations measured from this station for the years 2006–2011. The U. S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies (see further discussion on attainment with State and Federal standards under Regulatory Setting below). Each pollutant is described further below.

TABLE 7-3
SUMMARY OF AIR POLLUTANT CONCENTRATIONS IN HAYWARD VICINITY (2006-2011)

	2006	2007	2008	2009	2010	2011
Ozone[1]						
Maximum concentration (1-hour/8-hour, ppm)	0.101/ 0.071	0.075/ 0.065	0.114/ 0.087	0.107/ 0.081	No data	0.088/ 0.070
Number of days State standard exceeded (1-hour/8-hour)	2/1	0/0	1/3	4/4	No data	0/0
Number of days national standard exceeded (8-hour)	0	0	1	3	No data	0
Fine Particulate Matter ($PM_{2.5}$)[2]						
Maximum Concentration (µg/m^3) (California)	43.9	51.2	28.6	39.3	No data	No data
Number of days national standard exceeded (measured[1])	5.9	6.0	0.0	3.1	No data	No data
Respirable Particulate Matter (PM_{10})[3]						
Maximum Concentration (µg/m^3) (California)	No data	35.8	42.3	33.5	42.8	No data
Number of days State standard exceeded (measured[4])	No data	No data	0.0	0.0	No data	No data
Number of days national standard exceeded (measured[4])	No data	No data	0.0	0.0	0.0	No data

Notes: µg/m^3 = micrograms per cubic meter; ppm = parts per million. No data = data unavailable or insufficient for this location during time period. [1]Ozone data from Hayward-La Mesa monitoring station. [2] Since no $PM_{2.5}$ data were collected at Hayward-La Mesa, data shown is from the Fremont-Chapel Way monitoring station. [3]Since no PM_{10} data were collected at Hayward-La Mesa, data shown is from Berkeley-6th Street monitoring station. [4]Measured days are those days that an actual measurement was greater than the level of the CAAQS or the NAAQS. Calculated days are the estimated number of days that measurement would have exceeded the applicable CAAQS or NAAQS if measurements had been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.
Source: California Air Resources Board, http://www.arb.ca.gov/adam/topfour/topfour1.php, site accessed August 17, 2013b.

Ozone/Smog

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is a pungent, colorless, toxic gas created in the atmosphere rather than emitted directly into the air. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between emissions of ozone precursors, including ROG and NO_x in the presence of sunlight. Ozone precursors occur either naturally or as a result of human activities such as the use of combustion engines.

Increased levels of ground level-ozone are generally harmful to living systems because ozone reacts strongly to destroy or alter many other molecules. Excessive ozone exposure reduces crop yield and forest growth. It interferes with the ability of plants to produce and store food, reducing overall plant health and the ability to grow and reproduce. The weakened plants are

more susceptible to harsh weather, disease, and pests. In addition, increases in tropospheric ozone lead to a warming of earth's surface.

Smog is a term used to describe a yellowish/black haze that is formed in the atmosphere (near ground level) through the mixing of air pollutants and fog (i.e., industrial smog) or sunlight (i.e., photochemical smog). Photochemical smog is a condition that develops when primary pollutants (oxides of nitrogen and volatile organic compounds created from fossil fuel combustion such as from automobiles) interact under the influence of sunlight to produce a mixture of hundreds of different hazardous chemicals known as secondary pollutants. Smog can make it difficult for some people to breathe and it greatly reduces air visibility.

The presence of smog in the atmosphere is more likely to increase as ozone increases. Although the SFBAAB is in nonattainment for ozone, as shown in Table 7-4, 2006-2011 data from the Hayward-La Mesa monitoring station, show that there were no recorded exceedances of State or Federal air quality standards for ozone in 2011.

Currently (2012), the air quality within the city of Hayward is typically moderate to good. However, as population increases and the city and region continue to grow, additional pollution sources (e.g., mobile-and-stationary source) could result in increased emissions of ozone precursors and more smog. Temperature increases as a result of global climate change could also lead to the production of more smog, since warmer weather can result in more smog.

Particulate Matter

Particulate matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Dust and other particulates exhibit a range of particle sizes. The size of particles is directly linked to their potential for causing health problems. PM_{10}, also referred to as "respirable particulate matter," is made up of dust and particulates that are 10 microns in diameter or smaller. $PM_{2.5}$, also referred to as "fine particulate matter," is made up of dust and particulates that are 2.5 microns in diameter or smaller. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries, and automobiles react in the air (EPA 2012). Fine particulate matter is considered a toxic air contaminant (see below for further discussion), and creates the greatest health problems because it can get deep into lung tissue, and may even get into the bloodstream (EPA 2012).

As shown in Table 7-3, there have been several recorded days per year between 2006 and 2009 when concentration levels of fine particulate matter have exceeded national standards at the Hayward-La Mesa Monitoring Station.

Toxic Air Contaminants

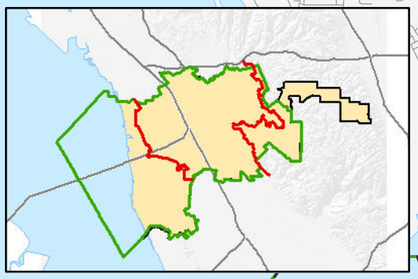
Toxic air contaminants (TACs), or hazardous air pollutants, (HAPs), are regulated in California primarily through the Tanner Air Toxics Act of 1983 (AB 1807), as well as the Air Toxic Hot Spot Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM ($PM_{2.5}$) was added to ARB's list of TACs.

The goals of AB 2588 are to collect air toxics emissions data, identify facilities having localized effects, and to ascertain the health risks. TACs may include diesel, formaldehyde, benzene, acetaldehyde, and polycyclic aromatic hydrocarbons (PAHs). Figure 7-3 shows the locations of the AB 2588-identified facilities, which include gasoline service stations, crematories, hospitals, auto body paint shops, dry cleaning plants, etc. Appendix AQ-2 provides a complete summary of all the AB 2588-identified facilities locations within the Planning Area.

Other sources of TAC's in California include mobile sources, such as freeways and urban roadways with more than 100,000 vehicles per day, and rural roadways with more than 50,000 vehicles per day. Several freeways segments located within or in the vicinity of the Planning Area include annual average daily traffic volumes (AADT) in excess of 100,000 vehicles per day. These include I-238, I-580, I-880, and SR 92 (Caltrans 2012). There are no rural roadways in the Planning Area with volumes that exceed 50,000 vehicles per day.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-3
Facilities Subject to the Toxics Hot Spots Information Assessment Act (AB 2588)



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
San Leandro
Union City
Fremont
Newark

0 0.5 1 2 Miles

- AB 2588 Facility
- Hayward Planning Area
- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Streets

Data source: ARB 2008; Adapted by Ascent Environmental in 2013

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Odors

The Bay Area Air Quality Management District (BAAQMD) has identified typical land uses that have the potential to result in increases in odorous emissions and provides recommendations for siting new sensitive land uses in close proximity to these land uses. Examples of land uses that have the potential to generate considerable odors include, but are not limited to, wastewater treatment plants, landfills, confined animal facilities, recycling and composting stations, food manufacturing and services, refineries, and chemical plants (BAAQMD 2012).

Within or adjacent to the city of Hayward, a number of existing facilities may have the potential to generate considerable odors. These include the Hayward Wastewater Treatment Plant and the Oro Loma Wastewater Treatment Plant.

Naturally Occurring Asbestos

Asbestiform minerals (asbestos) occur naturally in rock and soil as the result of natural geologic processes, often in veins near earthquake faults in the coastal ranges and the foothills of the Sierra Nevada Mountains. Naturally occurring asbestos (NOA) is also found in other areas of the country. NOA can take the form of long, thin, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, easily suspended in air. There is no health threat if asbestos fibers in soil remain undisturbed and do not become airborne. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses. Asbestos, a known carcinogen, causes cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function (EPA 2013d).

Portions of the Planning Area in upland areas east of Mission Boulevard, running parallel and adjacent to the Hayward Fault, have been classified as having ultramafic bedrock, which can be associated with certain forms of serpentine rocks near the surface that could contain NOA (California Geologic Survey, 2010). While geologic conditions are more likely for NOA to be present in or near these areas compared to areas within different types of bedrock, its presence is not certain. The only way to establish the presence or absence of serpentine rocks or soils and potential NOA at a specific location is through a detailed site examination by a qualified geologist (Churchill et al, 2000). Information about locations where NOA is more likely to occur continues to evolve. The most recent maps indicating such locations in California are published by the California Department of Conservation (California Geologic Survey, 2010; and Churchill et al., 2000) and the U.S. Geological Survey (Van Gosen et al., 2011).

During site grading, rock blasting, and other ground disturbance activities associated with construction of individual projects, the serpentine soils in these areas (if determined to be present by a qualified geologist) may be disturbed, potentially exposing nearby sensitive receptors to airborne asbestos during construction activity.

REGULATORY SETTING

Air quality within the Planning Area is regulated by EPA, ARB, and BAAQMD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, State and local regulations may be more stringent.

Federal

EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress were in 1990.

U.S. Environmental Protection Agency

Criteria Air Pollutants

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS). As shown in Table 7-4, EPA has established primary and secondary NAAQS for several different pollutants, expressed in maximum allowable concentrations generally defined in units of parts per million (ppm) or in micrograms per cubic meter ($\mu g/m^3$). The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

TABLE 7-4
AMBIENT AIR QUALITY STANDARDS, 2012

Pollutant	Averaging Time	California Ambient Air Quality Standards	National Ambient Air Quality Standards (Federal)
Ozone	1-hour	0.09 ppm (180 $\mu g/m^3$)	No Federal Standard
	8-hour	0.07 ppm (137 $\mu g/m^3$)	0.075 ppm (147 $\mu g/m^3$)
Respirable Particulate Matter (PM_{10})	24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$
	Annual Arithmetic Mean	20 $\mu g/m^3$	No Federal Standard
Fine Particulate Matter ($PM_{2.5}$)	24-hour	No Separate Standard	35 $\mu g/m^3$
	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$ *

TABLE 7-4
AMBIENT AIR QUALITY STANDARDS, 2012

Pollutant	Averaging Time	California Ambient Air Quality Standards	National Ambient Air Quality Standards (Federal)
Carbon Monoxide	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 µg/m^3)
	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 µg/m^3)
Nitrogen Dioxide	1-hour	0.18 ppm (338 µg/m^3)	100 ppb (188 µg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 mg/m^3)
Lead	30 Day Average	1.5 µg/m^3	No Separate Standard
	Calendar Quarter	No State Standard	1.5 µg/m^3
Sulfur Dioxide	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)
	24-hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m3)
	Annual Arithmetic Mean	No State Standard	0.030 ppm (80 µg/m3)
Sulfates	24-hour	25 µg/m^3	No Federal Standard
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	No Federal Standard

*Note: on December 14, 2012, EPA Administrator Lisa Jackson signed a notice that the EPA is revising the annual $PM_{2.5}$ standard to 12.0 µg/m^3. The final rule will become effective 60 days after publication of a notice in the Federal Register.
Source: California Air Resources Board (www.arb.ca.gov/research/aaqs/aaqs2.pdf) and EPA (www.epa.gov/air/criteria.html), sites accessed January 2, 2013.

Toxic Air Contaminants/Hazardous Air Pollutants

Air quality regulations also focus on toxic air contaminants (TACs), which are also referred to as hazardous air pollutants (HAPs) by Federal agencies. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. (By contrast, for the criteria air pollutants, acceptable levels of exposure can be determined and the ambient standards have been established [Table 7-4].) Instead, EPA and, in California, ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions. (See the discussion of TACs in the "State" section below for a description of ARB's efforts.) These in conjunction with additional rules set forth by BAAQMD, described below under "Bay Area Air Quality Management District," establish the regulatory framework for TACs.

State

California Air Resources Board

Criteria Air Pollutants

ARB is responsible for preparing and enforcing the Federally-required SIP to achieve and maintain NAAQS, as well as the California Ambient Air Quality Standards (CAAQS) (Table 7-4), which were developed as part of the California Clean Air Act (1988). CAAQS for criteria pollutants equal or surpass NAAQS, and include other pollutants for which there are no

NAAQS. ARB is also responsible for assigning air basin attainment and nonattainment designations in California. Air basins are designated as being in attainment if the levels of a criteria air pollutant meet the CAAQS for the pollutant, and are designated as being in nonattainment if the concentration of a criteria air pollutant exceeds the CAAQS. ARB is the oversight agency responsible for regulating statewide air quality, but implementation and administration of the CAAQS is delegated to several regional air pollution control districts and air quality management districts. These districts have been created for specific air basins, and have principal responsibility for developing plans to comply with the NAAQS and CAAQS; developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain NAAQS and CAAQS; implementing permit programs established for the construction, modification, and operation of air pollution sources; enforcing air pollution statutes and regulations governing non-vehicular sources; and developing employer-based trip reduction programs.

Toxic Air Contaminants/Hazardous Air Pollutants

TACs in California are regulated primarily through the Tanner Air Toxics Act (AB 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review are required before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to ARB's list of TACs.

Once a TAC is identified, ARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000 ARB adopted a new public-transit bus fleet rule and emissions standards for new urban buses. These rules and standards included more stringent emission standards for some new urban bus engines, beginning with the 2002 model year; zero-emission-bus demonstration and purchase requirements for transit agencies; and reporting requirements, under which transit agencies must demonstrate compliance with the public-transit bus fleet rule. Recent milestones included the low-sulfur diesel fuel requirement, and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and

subsequent model years) and off-road diesel equipment (2011) nationwide. Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced significantly over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., Low Emission Vehicle/ Clean Fuels and Phase II reformulated-gasoline regulations) and control technologies.

With implementation of ARB's risk reduction plan, it is expected that concentrations of diesel PM will be reduced statewide by 75 percent in 2010 and 85 percent in 2020 from the estimated year-2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

San Francisco Bay Air Basin Attainment Status

As described above, EPA and ARB have adopted NAAQS and CAAQS to regulate air quality within air basin in the state and nation. Both agencies make determination about the status of each air basin relative to these standards, known as attainment designations. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." Nonattainment areas are areas that do not meet air quality standards, whereas attainment areas meet air quality standards. "Unclassified" is used in areas that cannot be classified on the basis of available information as meeting or not meeting the NAAQS or CAAQS.

The most current national and State attainment designations for the SFBAAB are shown in Table 7-5 for each criteria air pollutant. The SFBAAB is in nonattainment status for California Ambient Air Quality Standards (CAAQS) one-hour ozone and National Ambient Air Quality Standards (NAAQS) eight-hour ozone; the CAAQS annual arithmetic mean standard for PM_{10}; and the CAAQS and NAAQS annual arithmetic mean standard for $PM_{2.5}$. Attainment status designations are summarized in Table 7-5.

TABLE 7-5 ATTAINMENT STATUS DESIGNATIONS FOR THE SAN FRANCISCO BAY AREA AIR BASIN		
Pollutant	**State Designation**	**National Designation**
Ozone – 1-hour	Nonattainment (Serious)	No Federal Standard
Ozone – 8-hour	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/ Attainment
Nitrogen Dioxide	Attainment	Unclassified/ Attainment
Lead	Attainment	Unclassified/ Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard

Source: BAAQMD, 2012a.

Local

San Francisco Bay Area Air Basin

To regulate air pollutant emissions within California, the state has been divided into 15 air basins based on similar meteorological and geographic conditions. Hayward is located in the SFBAAB (ABB 2013e).

Bay Area Air Quality Management District

Criteria Air Pollutants

BAAQMD, the lead air quality regulatory agency for the SFBAAB, maintains air quality conditions through comprehensive programs of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of BAAQMD involves the preparation of plans and programs for the attainment of CAAQS and NAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The Bay Area 2010 Clean Air Plan is an integrated, strategic multi-pollutant control plan and is described separately below.

BAAQMD also inspects stationary sources to ensure they abide by permit requirements, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA and the CCAA.

BAAQMD provides regulations and rules to the ARB that regulate emissions from construction activities and stationary sources (BAAQMD 2013). Regulations and rules pertaining to construction and land development are listed below:

Regulation 2: Permits. This Regulation specifies the requirements for authorities to construct and permits. Examples of pertinent rules included under this regulation are listed below:

- **Rule 1: General Requirements.** Includes criteria for issuance or denial of permits, exemptions, appeals against decisions of the Air Pollution Control Officer (APCO) and District actions on applications.
- **Rule 2: New Source Review.** Applies to new or modified sources. Contains requirements for Best Available Control Technology and emission offsets. Implements Federal New Source Review and Prevention of Significant Deterioration requirements.
- **Rule 3: Power Plants.** Contains special provisions for the review of and standards for the approval of authorities to construct power plants within the District.
- **Rule 6: Major Facility Review.** Establishes procedures for large facilities to obtain Title V permits.
- **Rule 10: Large Confined Animal Facilities.** Provides requirements for agricultural sources of air pollution, and complies with the provisions of SB 700.

Regulation 5: Open Burning. Generally prohibits open burning, but also allows for exemptions such as agricultural burning, disposal of hazardous materials, fire training, and range, forest, and wildlife management.

Regulation 6, Rule 1: General Requirements. Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions, and opacity.

Regulation 8: Organic Compounds. Limits the emissions of a number of organic pollutant categories. There are 53 separate rules under this regulation. Pertinent examples include Rule 3 (Architectural Coatings), Rule 4 (General Solvent and Surface Coating Operations).

Regulation 9: Inorganic Gaseous Pollutants. Limits the emissions of a number of inorganic gaseous pollutant categories. There are 13 separate rules under this regulation.

Regulation 10: Standards of Performance for New Stationary Sources. Establishes emission and/or performance standards for new plants and other sources. The rules are incorporated by reference to the provisions of Part 60, Chapter 1, Title 40, of the Code of Federal Regulations.

Regulation 12: Miscellaneous Standards of Performance. Establishes emission and/or performance standards for plants and operations that are not otherwise included in District Regulations.

Toxic Air Contaminants/Hazardous Air Pollutants

At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. BAAQMD Regulation 2, Rule 5 ("New Source Review of Toxic Air Contaminant") applies preconstruction permit review to new and modified sources of toxic air contaminants and contains project health risk limits and requirements for Toxics Best Available Control Technology. BAAQMD Regulation 11 ("Hazardous Pollutants") sets emission and/or performance standards for hazardous pollutants. There are 17 separate rules under this

regulation. Pertinent examples include Rule 1 (Lead) and Rule 2 (Asbestos Demolition, Renovation and Manufacturing).

Area sources of fugitive dust (e.g., dirt or sand storage piles) and combustion emissions from mobile equipment or off-road vehicles at a facility (e.g., loaders, haul trucks, compressors, portable generators) are not generally subject to direct permitting and control by BAAQMD.

Air Toxics "Hot Spots" Information and Assessment Act

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), enacted in 1987, requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels (ARB 2013a).

Recommended Setback Distances from Sources of Air Toxics

ARB research substantiates the health risks to sensitive populations from exposure to high levels of TACs. ARB recommends local jurisdictions adopt land use policies to separate sensitive land uses a minimum of 500 to 1,000 feet from air toxic sources (ARB 2005). ARB's recommendations for siting new sensitive land uses for both mobile and stationary sources of air toxics is presented in Table 7-6 and published in "Air Quality and Land Use Handbook: A Community Health Perspective." These recommended setback distances in Table 7-6 are advisory and should not be interpreted as defined "buffer zones." ARB recognizes the opportunity for more detailed site-specific analyses and that land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues (ARB 2005).

TABLE 7-6 RECOMMENDATIONS FOR SITING NEW SENSITIVE LAND USES	
Source Category	**Advisory Recommended Setback Distance**
Freeways and High-Traffic Roads	500 feet from a freeway or urban road with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	1,000 feet. Avoid location new sensitive land uses near entry and exit points.
Rail Yards	1,000 feet. Within 1 mile, consider siting limitation and mitigation approaches.
Ports	Immediately Downwind. Consult local air district.
Refineries	1,000 feet
Chrome Platers	1,000 feet
Dry Cleaners Using Perchloroethylene	300 to 500 feet
Gasoline Dispensing Facilities	300 feet

Source: California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, 2005.

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. NOA is located in many parts of California, including the Bay Area, and is commonly associated with ultramafic rocks. ARB has identified asbestos as a toxic air contaminant. Exposure to asbestos fibers, whether naturally occurring or in manufactured products, may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs) (ARB 2013f).

Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially or completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks, along their boundaries, or in the soil. According to a special publication published by the California Department of Conservation, all areas in California known to contain ultramafic rocks, and which are, therefore, more likely to contain NOA, have been mapped (Churchill et al, 2002).

Under the ARB's Air Toxics Control Measures (ATCMs) for Construction, Grading, Quarrying, and Surface Mining Operations, prior to any grading activities at the site, a geologic analysis is required to determine if serpentine rock is present. These statewide regulations now supersede BAAQMD rules for Asbestos-Containing Serpentine under Regulation 11, Rule 14 (BAAQMD 2013).

Odors

Offensive odors rarely cause any physical harm. They are generally regarded as an annoyance rather than a health hazard. Federal and State air quality regulations do not contain any requirements for their control. However, odors can severely affect livability and quality of life, and manifestations of personal reactions to odors can range from psychological to physiological.

BAAQMD has developed Regulation 7 ("Odorous Substances") to place general limitations on odorous substances and specific emission limitations on certain odorous compounds (BAAQMD 2013).

The BAAQMD's CEQA Guidelines also includes guidance on identifying and mitigating potential odor impacts that could result from siting a new odor source near sensitive receptors, or siting a new sensitive receptor near an existing odor source. Examples of land uses that have the potential to generate considerable odors include, but are not limited to, wastewater treatment plants, landfills, confined animal facilities, recycling and composting stations, food manufacturing and services, refineries, and chemical plants (BAAQMD 2012).

Bay Area 2010 Clean Air Plan

The Bay Area 2010 Clean Air Plan (CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The CAP defines a control strategy that the BAAQMD and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce GHG emissions to protect the climate. In its dual roles as an update to the Bay Area State ozone plan and a multi-pollutant plan, the 2010 Clean Air Plan addresses four categories of pollutants: ground-level ozone and its key precursors (ROG and NO_X), particulate matter ($PM_{2.5}$ as well as precursors secondary to $PM_{2.5}$), air toxics, and greenhouse gases (BAAQMD 2010).

The 2010 Clean Air Plan provides a control strategy containing over 55 control measures applicable to a number of different sources, including:

- 18 Stationary Source Measures
- 10 Mobile Source Measures
- 17 Transportation Control Measures
- Six Land Use and Local Impact Measures
- Four Energy and Climate Measures

BAAQMD CEQA Guidelines

The BAAQMD CEQA Guidelines are developed to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts to air quality. These CEQA Guidelines were updated in June 2010 to include reference to thresholds of significance ("Thresholds") adopted by the Air District Board on June 2, 2010. The Guidelines were further updated in May 2011. On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the Thresholds. The court did not determine whether the Thresholds were valid on the merits, but found that the adoption of the Thresholds was a project under CEQA. The court issued a writ of mandate ordering BAAQMD to set aside the Thresholds and cease dissemination of them until the Air District had complied with CEQA. The BAAQMD has appealed the Alameda County Superior Court's decision. The appeal is currently pending in the Court of Appeal of the State of California, First Appellate District

In view of the court's order, BAAQMD is no longer recommending that the Thresholds be used as a generally applicable measure of a project's significant air quality impacts. Lead agencies will need to determine appropriate air quality thresholds of significance based on substantial evidence in the record. Although lead agencies may rely on the District's CEQA Guidelines (updated May 2011) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, BAAQMD has been ordered to set aside the Thresholds and is no longer recommending that these Thresholds be used as a general measure of a project's significant air quality impacts. Lead agencies may continue to rely on the BAAQMD's 1999 Thresholds of Significance and they may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project (BAAQMD 2012).

Table 7-7 summarizes the 1999 thresholds of significance, while Table 7-8 summarizes proposed thresholds of significance as adopted by BAAQMD in 2010.

TABLE 7-7 BAAQMD THRESHOLDS OF SIGNIFICANCE (1999)		
Pollutant	**Thresholds**	
	Construction-Related	**Operational-Related**
Project-Level		
ROG	None[1]	15 tons/yr, or 80 lbs/day
NO_X	None[1]	15 tons/yr, or 80 lbs/day
PM_{10}	Compliance with feasible PM_{10} control measures	15 tons/yr, or 80 lbs/day
$PM_{2.5}$	None	None
Local CO	None[1]	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)
Asbestos	Compliance with District Regulation 11, Rule 2: Hazardous Materials; Asbestos Demolition, Renovation and Manufacturing	None
Toxic Air Contaminants	None	Increased cancer risk of >10.0 in a million for the Maximally Exposed Individual (MEI) OR Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.
Accidental Release of Acutely Hazardous Air Pollutants		Storage or use of acutely hazardous materials locating near receptors OR Any project resulting in receptors being within the Emergency Response Planning Guidelines exposure level 2 for a facility.[2]
Odors	None	1. Project would result in an odor source and receptors located within screening distances; and/or 2. If project is locating near an existing odor source: more than one confirmed complain per year averaged over three years; or three or more unconfirmed complaints per year averaged over a three year period.
Plan-Level		
Criteria Air Pollutants and Precursors	None	1. Consistency with Clean Air Plan Population and VMT Assumptions (projected VMT or vehicle trip increase is less than or equal to projected population increase); and 2. Consistency with Clean Air Plan Transportation Control Measures
Odors and Toxics	None	Inclusion of buffer zones in plan policies, land use map(s), and implementing ordinance (e.g. zoning).

[1] The BAAQMD's 1999 CEQA Guidelines stated that PM_{10} is the pollutant of greatest concern with respect to construction activities, and that CO and ozone precursors are not expected to impede attainment or maintenance of ozone and CO standards in the Bay Area.

[2] Per the State of CA Guidance for the Preparation of a Risk Management and Prevention Program, Exposure Level 2 is "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action"

TABLE 7-8
PROPOSED BAAQMD THRESHOLDS OF SIGNIFICANCE (ADOPTED 2010)

Pollutant	Construction-Related	Operational-Related	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tons/yr)
Project-Level			
ROG	54	54	10
NO_X	54	54	10
PM_{10} (Exhaust)	82	82	15
$PM_{2.5}$ (Exhaust)	54	54	10
PM_{10} / $PM_{2.5}$ (Fugitive Dust)	Best Management Practices	None	None
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs (Projects Other than Stationary Sources)	None	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT CO_2e/yr OR 4.6 MT CO_2e/SP/yr	
GHGs (Stationary Sources)	None	10,000 MT CO_2e/yr	
Risks and Hazards – New Source (Individual Projects)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor	
Risks and Hazards – New Receptor (Individual Project)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor	
Risks and Hazards – New Source (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor	

TABLE 7-8
PROPOSED BAAQMD THRESHOLDS OF SIGNIFICANCE (ADOPTED 2010)

Pollutant	Construction-Related	Operational-Related	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tons/yr)
Risks and Hazards – New Receptor (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor	
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or receptors locating near stored or used acutely hazardous materials considered significant	
Odors	None	Complaint History—5 confirmed complaints per year averaged over three years	
Plan-Level			
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase	
GHGs	None	Compliance with Qualified Greenhouse Gas Reduction Strategy (or similar criteria included in a General Plan) OR 6.6 MT CO_2e/ SP/yr (residents + employees)	
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas); 2. Overlay zones of at least 500 feet (or Air District-approved modeled distance) from all freeways and high volume roadways	
Odors	None	Identify locations of odor sources in general plan	
Accidental Release of Acutely Hazardous Air Pollutants	None	None	

Notes: CO = carbon monoxide; CO_2e = carbon dioxide equivalent; GHGs = greenhouse gases; lb/day = pounds per day; MT = metric tons; NO_X = oxides of nitrogen; $PM_{2.5}$= fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; ROG = reactive organic gases; SP = service population; tpy = tons per year; yr= year.

*Note: The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

Key Terms

The following key terms used in this chapter are defined as follows:

Ambient Air Quality Standards. These standards measure outdoor air quality. They identify the maximum acceptable average concentrations of air pollutants during a specified period of time. These standards have been adopted at both State and Federal levels.

Areawide Source. Areawide sources include sources of pollution where the emissions are spread over a wide area, such as consumer products, fireplaces and wood stoves, natural gas-fueled space heaters and water heaters, road dust, landscape maintenance equipment, architectural coatings, solvents, and farming operations. Areawide sources do not include mobile sources or stationary sources.

Mobile Source. A moving source of air pollution such as on road or off-road vehicles, boats, airplanes, lawn equipment and small utility engines.

Nonattainment Area. An area or air basin that does not meet State of Federal ambient air quality standards for a given pollutant.

Oxides of Nitrogen (NOx). Oxides of nitrogen include composed of nitric oxide (NO), nitrogen dioxide (NO2), and other molecules consisting of nitrogen and oxygen. Oxides of nitrogen are created from the combustion of fuels process and are a major contributor to smog and acid rain formation.

Ozone and Ozone Precursors. Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is a pungent, colorless, toxic gas created in the atmosphere rather than emitted directly into the air. Ozone is not directly emitted into the air but is formed through complex chemical reactions between emissions of ozone precursors, including reactive organic gases (ROG) and oxides of nitrogen (NOX) in the presence of sunlight. Ozone precursors occur either naturally or as a result of human activities such as the use of combustion engines.

Particulate Matter (PM). Particulate matter (PM), also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Dust and other particulates exhibit a range of particle sizes. The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into lungs, and some may even get into the bloodstream (EPA 2012).

PM_{10}. PM_{10} refers to dust and particulates that are 10 microns in diameter or smaller. Federal and State air quality regulations reflect the fact that smaller particles are easier to inhale and can be more damaging to health. EPA is concerned about particles that are 10 micrometers in

diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects (EPA 2012). PM_{10} is also referred to as respirable particulate matter.

$PM_{2.5}$. $PM_{2.5}$ refers to dust and particulates that are 2.5 microns in diameter or smaller. These small particles can be inhaled into the lungs and have the potential to cause health-related impacts in sensitive persons. These particles can be directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air (EPA 2012). $PM_{2.5}$ is also referred to as fine particulate matter.

Reactive Organic Gases (ROG). ROG are photo chemically reactive and are composed of non-methane hydrocarbons. These gases contribute to the formation of smog. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels.

Sensitive Receptors. Populations or uses that are more susceptible to the effects of air pollution than the general population, such as long-term health care facilities, rehabilitation centers, retirement homes, convalescent homes, residences, schools, childcare centers, and playgrounds.

Stationary Source. A non-mobile source of air pollution such as a power plant, refinery, distribution center, chrome plating facility, dry cleaner, port, rail yard, or manufacturing facility. In San Joaquin County, confined animal facilities are identified as important stationary sources of air emissions.

BIBLIOGRAPHY

Reports/Publications

Bay Area Air Quality Management District. *Bay Area 2010 Clean Air Plan*. September 15, 2010.

Bay Area Air Quality Management District. *CEQA Air Quality Guidelines*. May 2012a.

Bay Area Air Quality Management District. *CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans*. December 1999.

California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. March 2005.

Churchill, Ronald K. and Robert L. Hill. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally-Occurring Asbestos. California Department of Conservation, Division of Mines and Geology*. August 2000.

Van Gosen et al. *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*. U.S. Geological Survey. 2011.

Websites

Bay Area Air Quality Management District, CEQA Guidelines, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx, dated August 9, 2012b.

Bay Area Air Quality Management District. Rules and Regulations, http://www.baaqmd.gov/Divisions/Planning-and-Research/Rules-and-Regulations.aspx, site accessed January 2, 2013.

California Air Resources Board, 2008 Almanac Emission Projected Data: Estimated Annual Average Emissions—Alameda County, http://www.arb.ca.gov/ei/emissiondata.htm. Published in 2009.

California Air Resources Board, AB 2588 Air Toxics "Hot Spots" Program, http://www.arb.ca.gov/ab2588/ab2588.htm, site accessed January 4, 2013a.

California Air Resources Board, Air Quality Data Statistics, http://www.arb.ca.gov/adam/topfour/topfour1.php, site accessed January 2, 2013b.

California Air Resources Board, Ambient Air Quality Standards, www.arb.ca.gov/research/aaqs/aaqs2.pdf, site accessed January 2, 2013c.

California Air Resources Board, Area Designation Maps—State and National, http://www.arb.ca.gov/desig/adm/adm.htm, site accessed January 2, 2013d.

California Air Resources Board, Naturally Occurring Asbestos, http://www.arb.ca.gov/toxics/asbestos/asbestos.htm, site accessed January 2, 2013e.

California Air Resources Board, San Francisco Bay Area Air Basin Map, http://www.arb.ca.gov/ei/maps/basins/absfmap.htm, site accessed January 2, 2013f.

California Department of Conservation, 2010 Geologic Map of California, http://www.quake.ca.gov/gmaps/GMC/stategeologicmap.html, site accessed April 8, 2013.

California Department of Transportation (Caltrans), Traffic and Vehicle Data Systems Unit, http://traffic-counts.dot.ca.gov/2011all/index.html, site accessed January 4, 2013.

U.S. Environmental Protection Agency, National Ambient Air Quality Standards (NAAQS), www.epa.gov/air/criteria.html, site accessed January 9, 2013a.

U.S. Environmental Protection Agency. *National Ambient Air Quality Standards for Particulate Matter, Notice of Final Rule*, http://www.epa.gov/airquality/particlepollution/actions.html#dec12, accessed January 9, 2013b.

U.S. Environmental Protection Agency, *Six Common Air Pollutants*, http://www.epa.gov/air/urbanair/, site accessed January 9, 2013c.

U.S. Environmental Protection Agency. Naturally Occurring Asbestos, http://www.epa.gov/region9/toxic/noa/, site accessed April 10, 2013d.

Appendix AQ-1

TABLE AQ-1

2008 ESTIMATED ANNUAL EMISSIONS (TONS PER DAY)

Alameda County

Category	ROG	NO_X	PM_{10}	$PM_{2.5}$
Stationary Sources				
Fuel Combustion	0.3	5.13	0.45	0.45
Waste Disposal	4.25	0.09	0.02	0.01
Cleaning and Surface Coatings	10.51	0.02	0	0
Petroleum Production And Marketing	2.23	0	0	0
Industrial Processes	2.56	0.17	2.97	1.51
Subtotal	*19.85*	*5.41*	*3.44*	*1.97*
Areawide Sources				
Solvent Evaporation	15.38	0	0	0
Miscellaneous Processes	2.31	3.29	34.49	8.39
Subtotal	*17.69*	*3.29*	*34.49*	*8.39*
Mobile Sources				
On-Road Motor Vehicles	26.15	63.18	2.91	2.17
Other Mobile Sources	12.4	32.45	1.79	1.62
Subtotal	*38.55*	*95.63*	*4.7*	*3.79*
TOTAL (ALL SOURCES)	**76.09**	**104.33**	**42.63**	**14.15**

Source: ARB, 2008 Almanac Emission Projected Data: Estimated Annual Average Emissions—Alameda County

Appendix AQ-2

TABLE AQ-1 TOXIC INVENTORY 2009 Alameda County			
Plant	**Address**	**Pollutant**	**Emissions lbs/yr**
A-1 Cleaners	26953 Mission Blvd, #K	Perchloroethylene	134.91
AC Transit	1758 Sabre Street	Diesel Engine Exhaust Particulates	10.32
Alameda County Public Works Agency	Addison Way	Diesel Engine Exhaust Particulates	4.25
Alameda County Public Works Agency	1850 Pacheco Way	Diesel Engine Exhaust Particulates	1.35
Alameda County Public Works Agency	7065 Edn Shrs Bsnss P	Diesel Engine Exhaust Particulates	0.58
Alameda County Public Works Agency	Bsco Pmp Sttn En St	Diesel Engine Exhaust Particulates	18.59
Alameda County Public Works Agency	951 Turner Court	Diesel Engine Exhaust Particulates	0.84
Alameda County Public Works Agency	Horner St & Veasy St	Diesel Engine Exhaust Particulates	37.35
Alpine Cleaners	22286 Foothill Blvd	Perchloroethylene	424.96
American Messaging Services, LLC	2181 W Winton Ave	Diesel Engine Exhaust Particulates	3.35
Applied Biosystems, LLC	3525 Arden Road	Diesel Engine Exhaust Particulates	11.39
Aradigm Company	3929 Point Eden Way	Diesel Engine Exhaust Particulates	1.21
Art Cleaners	27312 Hesperian Blvd	Perchloroethylene	133.91
AT & T Corp	1391 B Street	Diesel Engine Exhaust Particulates	1.01
Atlantic Aviation	19990 Skywest Blvd	Benzene	32.81
Baxter Health Care Corp, Hyland Div.	1978 W Winton Ave	Diesel Engine Exhaust Particulates	5.83
Berkeley Farms Inc	25500 Clawiter Road	Diesel Engine Exhaust Particulates	33.88
Bristol-Myers Squibb Co c/o GVA Kiddev Matthews	3825 Bay Center Place	Diesel Engine Exhaust Particulates	0.34
California Hydronics Corp	2293 Tripaldi Way	Diesel Engine Exhaust Particulates	5.36
California State University, East Bay	25800 Carlos Bee Blvd	Diesel Engine Exhaust Particulates	21.57
Catholic Cremation Services	1051 Harder Road	Arsenic (all)	0.01
Catholic Cremation Services	1051 Harder Road	Chlorinated dioxins & furans (	0.00
Catholic Cremation Services	1051 Harder Road	Chromium (hexavalent)	0.01
Catholic Cremation Services	1051 Harder Road	Mercury (all) pollutant	0.50
Chabot Community College	25555 Hesperian Blvd	Formaldehyde	24.43
Chapel of the Chimes Memorial Park	32992 Mission Blvd	Arsenic (all)	0.01
Chapel of the Chimes Memorial Park	32992 Mission Blvd	Chlorinated dioxins & furans (	0.00
Chapel of the Chimes Memorial Park	32992 Mission Blvd	Chromium (hexavalent)	0.01
Chapel of the Chimes Memorial Park	32992 Mission Blvd	Mercury (all) pollutant	0.52
Cholestech /Biosite	3347 Investment Blvd	Diesel Engine Exhaust Particulates	3.68

TABLE AQ-1 TOXIC INVENTORY 2009 Alameda County			
Plant	**Address**	**Pollutant**	**Emissions lbs/yr**
City of Hayward	28758 Fairview Ave	Diesel Engine Exhaust Particulates	0.53
City of Hayward Department of Public Works	1241 Walpert Street	Diesel Engine Exhaust Particulates	1.00
City of Hayward Public Works Utilities	28251 Industrial Blvd	Diesel Engine Exhaust Particulates	0.48
City of Hayward Public Works Utilities	1810 Pacheco Way	Diesel Engine Exhaust Particulates	1.32
City of Hayward Public Works Utilities	2695 Eden Shores Blvd	Diesel Engine Exhaust Particulates	0.50
Colored Aggregates LLC	2242 Davis Court	Benzyl chloride	627.83
Comcast of San Leandro, Inc	23525 Clawiter Road	Diesel Engine Exhaust Particulates	0.73
Costco Bus. Center/Attn: Licensing	22330 Hathaway Ave	Diesel Engine Exhaust Particulates	0.56
Custom Commercial Dry Cleaners	3201 Investment Blvd, Suite A	Perchloroethylene	763.58
dba Manheim San Francisco Bay	967 W Industrial Pkwy	Diesel Engine Exhaust Particulates	2.51
Deep Cleaner	350 W Tennyson Road	Perchloroethylene	593.59
DuPont Electronic Technologies	2520 Barrington Ct	Diesel Engine Exhaust Particulates	6.57
Dynasty Cleaners	1147 B Street	Perchloroethylene	134.91
East Bay Dischargers Authority	3700 Enterprise Ave	Diesel Engine Exhaust Particulates	1.85
eSignal-A Division of Interactive Data Corp	3955 Point Eden Way	Diesel Engine Exhaust Particulates	2.40
Hayward FBO, LLC	21889 Skywest Drive	Benzene	6.69
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Benzene	15.12
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Chloroform	338.63
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Dichlorobenzene	49.67
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Diesel Engine Exhaust Particulates	14.50
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Methylene chloride	460.53
Hayward Waste Water Treatment Plant	3700 Enterprise Ave	Perchloroethylene	194.14
Health Care Properties	26103 Research Road	Diesel Engine Exhaust Particulates	2.10
Highland Cleaners	26775 Hayward Blvd, #F	Perchloroethylene	134.91
Impax Laboratories, Inc	30941 San Clemente St	Diesel Engine Exhaust Particulates	0.80
Injex Industries Inc	30559 San Antonio St	Diesel Engine Exhaust Particulates	0.67
Intarcia Therapeutics	24650th, Plot Plan S1	Diesel Engine Exhaust Particulates	6.14

TABLE AQ-1 TOXIC INVENTORY 2009 Alameda County			
Plant	**Address**	**Pollutant**	**Emissions lbs/yr**
Jack's Cleaners & Shirt Laundry	1214 W Winton Street	Perchloroethylene	505.90
Jackson Cleaners	203 Jackson Street	Perchloroethylene	674.54
Kaiser Foundation Hosp,	27400 Hesperian Blvd	Diesel Engine Exhaust Particulates	1.88
Kaiser Foundation Hosp,	27400 Hesperian Blvd	Ethylene oxide	1.87
Kaiser Foundation Hospital-Hayward	27303 Sleepy Hollow Ave	Diesel Engine Exhaust Particulates	3.22
Kleen Blast	30028 Industrl Pkwy SW	Diesel Engine Exhaust Particulates	20.90
Kobe Precision Inc	1510 Zephyr Avenue	Diesel Engine Exhaust Particulates	1.41
Manheim San Francisco Bay	29900 Auction Way	Diesel Engine Exhaust Particulates	8.37
Manheim San Francisco Bay	29900 Auction Way	Ethylbenzene	125.08
Millipore Corporation	25801 Industrial Blvd	Diesel Engine Exhaust Particulates	0.69
Morgan Advanced Ceramics	2425 Whipple Road	Diesel Engine Exhaust Particulates	1.05
Morgan Advanced Ceramics	2425 Whipple Road	Formaldehyde	19.88
Neopost	30955 Huntwood Ave	Diesel Engine Exhaust Particulates	1.81
Novo Nordisk Delivery Technologies, Inc	26103 Research Road	Diesel Engine Exhaust Particulates	4.32
Pacific Bell	1880 Depot Court	Diesel Engine Exhaust Particulates	9.88
Pacific Bell	1129 B Street	Diesel Engine Exhaust Particulates	19.80
Pacific Gas and Electric Company	24300 Clawiter Road	Diesel Engine Exhaust Particulates	17.92
Pentagon Technologies Inc	21031 Alexander Ct	Diesel Engine Exhaust Particulates	1.00
Proteus Biomedical, Inc	3911 Trust Way	Diesel Engine Exhaust Particulates	2.21
ProZyme, Inc	3832 Bay Center Place	Diesel Engine Exhaust Particulates	4.19
Rainbow Cleaners	427 Industrial Pkwy	Perchloroethylene	135.31
Rohm and Haas Chemicals LLC	25500 Whitesell St	Acrylonitrile	8.48
Selix Formalwear	22423 Foothill Blvd	Perchloroethylene	2,066.78
SF Tube, Inc	23099 Connecticut St	Trichloroethylene	4,962.00
Silktech Cleaners	853 Sycamore Avenue	Perchloroethylene	674.54
Skywest Emergency Pump Station	22487 Skywest Drive	Diesel Engine Exhaust Particulates	2.66
St Rose Hospital	27200 Calaroga Ave	Diesel Engine Exhaust Particulates	22.51
State of California Department of Transportation	Sn Mto Hywrd Brd Plaza	Diesel Engine Exhaust Particulates	2.21
Sunshine Center Cleaners	22530 2nd Street	Perchloroethylene	1,100.85
Teikuro America Company, Ltd	31499 Hayman Street	Chromium (hexavalent)	0.07
The Home Depot #1017	21787 Hesperian Blvd	Diesel Engine Exhaust Particulates	2.57
Town & Country Cleaners	456 W Harder Road	Perchloroethylene	1,200.68
Verizon Business	21350 Cabot Blvd	Diesel Engine Exhaust Particulates	54.13
Verizon Wireless (Mission Tennyson)	275 Industrial Pkwy	Diesel Engine Exhaust Particulates	1.23
Verizon Wireless-815831	3880 Bay Center Place	Diesel Engine Exhaust Particulates	0.59

Source: AB 2588 Air Toxics "Hot Spots" Program, http://www.arb.ca.gov/ab2588/ab2588.htm, 2013

SECTION 7.4 GREENHOUSE GAS EMISSIONS

Introduction

This section provides a discussion of existing global climate conditions, climate change science, and greenhouse gas (GHG) emissions sources in California, the San Francisco Bay Area, and the city of Hayward. This section also provides a summary of applicable regulations with respect to local, regional and statewide GHG emission sources. A discussion of the impacts caused by global climate change within the Planning Area is included in the Hazards chapter of this Background Report in Section 9.6 (Climate Change Impacts).

GHG emissions have the potential to adversely affect the environment because, on a cumulative basis, they contribute to global climate change. In turn, global climate change has the potential to result in rising sea levels, which can inundate low-lying areas; affect rain and snow fall, leading to changes in water supply; and to affect habitat, leading to adverse effects on biological and other resources. Because GHG emissions come from many different sources in both current and expected future activities in a growing community, identification and reduction of GHG emissions is an important consideration in long-range planning efforts.

Major Findings

- Total GHG emissions in Hayward were approximately 1,183,279 metric tons of CO_2 equivalent in 2005. The primary source of GHG emissions in Hayward is the transportation sector, comprising about 62 percent of all GHG emissions in the city. Residential and commercial building energy consumption comprises nearly 34 percent of local emissions.
- In 2010 total GHG emissions decreased in certain sectors compared to 2005 levels. Residential and commercial energy usage in building each decreased by 3 percent during this period, while transportation GHG emissions from on-road sources (including passenger vehicles, commercial vehicles, and buses) decreased significantly by a total of 8 percent between 2005 and 2010. Waste-related GHG emissions experienced the most significant decline, approximately 54 percent, between 2005 and 2010.
- The City of Hayward has an adopted Climate Action Plan (CAP) that includes the 2005 GHG emission inventory, forecasts future emissions, and sets reduction targets. The City's GHG reduction targets are as follows:
    - 6 percent below 2005 levels by 2013
    - 12.5 percent below 2005 levels by 2020
    - 82.5 percent below 2005 levels by 2050
- The CAP's forecasted GHG emission scenarios for 2020 and 2050 take into account "business of usual" growth in emissions without any local, State or Federal actions, as

well as future emissions with key assumptions regarding State and Federal actions. Projected growth in GHG emissions was indexed to generalized growth factors, and may not be consistent with General Plan build-out conditions. Any changes in assumed growth in the current General Plan Update will need to be applied to revised GHG emission forecasts.

- The CAP includes nine GHG reduction strategies that apply to all sectors in the GHG inventory. Within these strategies, there are approximately 40 specific communitywide actions and 20 specific municipal actions that implement the strategies. Full implementation of all quantitative actions according to the implementation plan in the CAP will result in meeting the City's GHG reduction targets by 2020 and 2050.

Existing Conditions

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens 2003). The climate of the Planning Area is characterized as Mediterranean, and is strongly influenced by proximity to the Pacific Ocean.

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). CO_2 is the most prevalent of all GHG emissions. All GHG's are classified in terms of their global warming potential (GWP). GWP is a simplified index that uses the warming potential of carbon dioxide as the base unit of measurement. For example, CO_2 has a GWP of 1, but methane (CH_4) has a GWP of 21 because methane has approximately 21 times more warming potential than CO_2. Since there are numerous GHG's with varying degrees of GWP, GHG's are frequently expressed in a unit known as carbon dioxide equivalent (CO_2e), which normalizes all GHG's to equivalent CO_2 levels. This allows varying types and amounts of GHG emissions to be expressed in the same unit of measurement.

Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global warming or global climate change. It is extremely

unlikely that global climate change of the past 50 years can be explained without taking into consideration the contribution of GHG emissions from human activities (IPCC 2007).

Climate change is a global problem. GHGs originate from local and regional sources all over the world, but they are global pollutants. GHGs differ from criteria air pollutants and toxic air contaminants, which are mostly generated locally and regionally, have mostly localized air quality effects and have relatively short atmospheric lifetimes (about one day). GHGs have long atmospheric lifetimes (one year to several thousand years), and persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Statewide GHG Emissions

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors (ARB 2011a). In California the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2011b). California produced 478 million gross metric tons of CO_2e in 2008 (ARB 2011a).

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2008, accounting for 37 percent of total GHG emissions in the state (ARB 2011b). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (24 percent) and the industrial sector (19 percent) (ARB 2011a). California GHG emissions inventory and projections are summarized in Table 7-9 below.

TABLE 7-9 CALIFORNIA GHG EMISSIONS INVENTORY AND PROJECTIONS					
	MMT CO_2e/yr				
Emissions Sector	**1990**	**2000**	**2005**	**2008**	**2020**
Electrical Generation[1]	110.6	103.9	111.0	116.4	110.4
Residential/Commercial	44.1	42.9	40.8	43.1	45.3
Transportation	150.7	171.1	184.3	175.0	183.9
Industrial	103.0	97.3	90.7	92.7	91.5
High GWP Gases	-[2]	11.0	14.2	15.7	37.9
Agriculture	23.4	25.4	29.0	28.1	29.1
Waste Management	-[2]	6.2	6.5	6.7	8.5
Forestry	0.2	0.2	0.2	0.2	0.2
Gross Total Emissions[3]	**433**	**458.0**	**476.7**	**477.7**	**506.8**
Carbon Sequestration	-6.7	-4.7	-4.2	-4.0	0.0
Total Net Emissions[3]	**427**	**453.3**	**472.6**	**473.8**	**506.8**

Notes: GWP = global warming potential; MMT CO_2e/yr = million metric tons carbon dioxide equivalent per year.
[1] Includes in-state-generated and imported electricity production.
[2] Contained within Industrial Sector emissions.
[3] Totals may not sum exactly due to rounding.
Source: ARB 2007:6, 2011b, 2011c.

Regional and Local GHG Emissions

San Francisco Bay Area

The Bay Area Air Quality Management District (BAAQMD) conducts periodic inventories of GHG emissions within the San Francisco Bay Area Air Basin. In 2010 BAAQMD updated its regional GHG emissions inventory (originally conducted for the baseline year of 2002) to the base year 2007. In 2007 95.8 million metric tons of CO_2 equivalent ($MMTCO_2e$) were emitted as a result of activities in the San Francisco Bay Area. Of these 88.7 $MMTCO_2e$ were emitted within the Air Basin and 7.1 $MMTCO_2e$ were indirect emissions from imported electricity. The Transportation sector contributed approximately 36 percent of total GHG emissions in the Bay Area, including on-road motor vehicles, locomotives, ships and boats, and aircraft. The Industrial/Commercial also contributed about 36 percent of regional GHG emissions, with primary sources including oil refining, natural gas and other fuel combustion, waste management, cement manufacturing, and other sources (BAAQMD 2010a).

A summary of the 2007 regional GHG emissions inventory, by sector and county, is shown in Table 7-10. Alameda County, in which the city of Hayward is located, emitted approximately 15.9 $MMTCO_2e$, or about 16 percent of total regional emissions.

TABLE 7-10 2007 BAY AREA GHG EMISSIONS, BY SECTOR AND COUNTY ($MMTCO_2E$)										
	Alameda	**Contra Costa**	**Marin**	**Napa**	**San Francisco**	**San Mateo**	**Santa Clara**	**Solano***	**Sonoma***	**Total SF Bay Area**
Industrial/ Commercial	3.3	19.2	0.5	0.3	1.9	1.6	4.7	2.9	0.6	35.0
Residential Fuel	1.3	1.1	0.4	0.1	0.9	0.8	1.6	0.3	0.4	6.9
Electricity/Co-Generation	2.0	5.7	0.3	0.2	1.3	1.0	3.6	0.4	0.6	15.1
Off-Road Equipment	0.6	0.4	0.1	0.0	0.4	0.3	0.8	0.1	0.2	2.9
Transportation	8.4	5.0	1.3	0.9	2.7	4.8	7.9	1.8	2.1	34.9
Agriculture/ Farming	0.1	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.2	1.1
TOTAL (All Sectors)	**15.7**	**31.5**	**2.7**	**1.6**	**7.1**	**8.5**	**18.8**	**5.7**	**4.1**	**95.8**

Notes: $MMTCO_2e$ = million metric tons of carbon dioxide equivalent. Totals may not be completely accurate, due to rounding of figures. * = Portion within BAAQMD.
Source: BAAQMD 2010a.

The 2007 Regional GHG Emissions Inventory also includes a list of the "Top 200" major GHG emitting point source facilities in the region. Four of the facilities on the list are located within the City of Hayward, as shown in Table 7-11.

TABLE 7-11 2007 BAY AREA "TOP 200" MAJOR GHG EMITTING FACILITIES LOCATED IN HAYWARD.			
Rank in Top 200	**Facility Name**	**Address**	**Total GHG Emissions in 2007 ($MTCO_2e$)**
49	American Lithographers & Business Forms	21062 Forbes Street	45,790
93	Morgan Advanced Ceramics	2425 Whipple Road	16,071
177	Mission Foods	23423 Cabot Blvd	4,594
187	Hayward Waste Water Treatment Plant	3700 Enterprise Ave	4,053

Source: BAAQMD 2010a.

City of Hayward

The City of Hayward adopted a CAP in 2009. Included in the City's CAP is a summary of a community GHG emissions inventory prepared for the City of Hayward by International Council for Local Environmental Initiatives (ICLEI) USA – Local Governments for Sustainability in 2006, and subsequently updated in 2008, for the baseline year of 2005. The 2005 inventory is summarized below in Table 7-12. Total GHG emissions in Hayward were approximately 1,183,279 $MTCO_2e$ in 2005. The transportation sector was the single largest source of emissions in 2005, contributing 62 percent of total emissions. Approximately 61 percent of transportation emissions were generated on State highways, compared to 39 percent on local roads. Energy consumption in the form of natural gas and electricity accounted for nearly 34 percent of Hayward's total emissions, about 60 percent of which is in the commercial/industry sector and 40 percent in the residential sector. In 2005, Hayward consumed a total of 922 million kilowatt

hours (kWh) of electricity and 36 million therms of natural gas. Solid waste emissions from community-generated and landfilled waste (approximately 158,000 metric tons of waste in 2005) constituted over 4 percent of total GHG emissions (City of Hayward 2009).

TABLE 7-12
CITY OF HAYWARD 2005 GHG EMISSIONS

Emissions Sector	$MTCO_2e/yr$	
	2005	% of total
Residential Energy	158,528	13.4%
Commercial/Industrial Energy	238,226	20.1%
Transportation[1]	734,087	62.0%
Waste	52,438	4.4%
Water/Wastewater[2]	n/a	-
Total Emissions	**1,183,279**	**100%**

Notes: $MTCO_2e/yr$ = metric tons carbon dioxide equivalent per year. Totals may not be completely accurate, due to rounding of figures.
[1] Includes on-road transportation sources only (off-road sources, certain transit (e.g. Bay Area Rapid Transit (BART)) sources, and air travel related to Hayward Executive Airport, were not included)
[2] Water/Wastewater emissions were not included in the 2005 inventory.
Source: City of Hayward Climate Action Plan, 2009.

In January 2013, a new GHG emissions inventory for the year 2010 was completed for the City of Hayward, using methods similar, but not identical to the 2005 inventory (StopWaste.org 2013). In 2010, community emissions for the city of Hayward were estimated to be 1,118,560 $MTCO_2e$. Transportation continued to be the largest emitting sector in the inventory, with nearly 63 percent of total emissions, while Residential and Commercial/Industrial sector energy consumption comprised nearly 35 percent of total emissions. The 2010 inventory is summarized below in Table 7-13.

TABLE 7-13
CITY OF HAYWARD 2010 GHG EMISSIONS

Emissions Sector	$MTCO_2e/yr$	
	2010	% of total
Residential Energy	154,423	13.8%
Commercial/Industrial Energy	235,693	21.1%
Transportation[1]	700,310	62.6%
Waste	24,048	2.1%
Water/Wastewater[2]	4,087	0.4%
Total Emissions	**1,118,560**	**100%**

Notes: $MTCO_2e/yr$ = metric tons carbon dioxide equivalent per year. Totals may not be completely accurate, due to rounding of figures.
[1] Includes both on-road and off-road sources, as well as BART and air travel related to Hayward Executive Airport.
[2] Includes apportioned emissions from wastewater discharge activities only. Process and fugitive emissions related to the Hayward Water Pollution Control Plant are included in Commercial/Industrial Energy Sector.
Source: StopWaste.org, 2013.

It is important to note here that the 2005 and 2010 GHG inventories **cannot** be directly compared because calculation methodologies used for some inventory sectors were inconsistent between the two inventory years, and also because some emissions sources were inconsistently reported between the two inventories. Key differences between the 2005 and 2010 inventories are summarized below:

- On-road transportation emissions were calculated using different methodologies between the two inventory years. The 2005 inventory calculated transportation emissions based on total vehicle miles traveled (VMT) within the city limits using what is sometimes referred to as the "boundary method." However, the 2010 inventory used VMT data obtained from activity-based modeling, as provided by the Metropolitan Transportation Commission, which takes into account origin/destination of trips beginning and ending in Hayward, screens out pass-through trips, and takes other factors into consideration. Therefore on-road transportation emissions between the two inventory years cannot be directly compared.
- Off-road transportation, other transit emissions (e.g. Bay Area Rapid Transit (BART)), and air travel emissions related to Hayward Executive Airport were not included in the 2005, but were included in the 2010 inventory.
- Water/Wastewater sector emissions were not included in the 2005 inventory, but were included in the 2010 inventory.
- Hayward Water Pollution Control Plant Process and Fugitive Emissions data were included in the 2010 inventory's Commercial/Industrial sector emissions, but not in the 2005 inventory (StopWaste.org 2013).

In order to provide meaningful and accurate comparisons between 2005 and 2010, StopWaste.org provided adjustments to certain 2005 transportation emissions subsectors using the same methods used to prepare the 2010 transportation emissions, and determined which sectors and subsectors can be directly compared. These are summarized below in Table 7-14. Key highlights of comparable changes between 2005 and 2010 include:

- Residential energy sector emissions showed a decrease of over 3 percent. This occurred despite a small increase in residential electricity consumption between 2005 and 2010. Increasing renewable energy sources in Pacific Gas & Electric Company's (PG&E) electricity supply portfolio likely resulted in lower GHG emission factors which, when combined with annual variations in weather and precipitation levels (which can also lead to some variation in the amount of hydropower generation, which also impacts GHG emission factors), may have been enough to offset the net increase in usage during this time period.
- Commercial/Industrial energy sector emissions also decreased by 3 percent. There were no net increases in energy consumption in this sector.

- Transportation emissions from on-road sources (including passenger vehicles, commercial vehicles, and buses) decreased significantly by a total of 8 percent between 2005 and 2010. Commercial vehicle emissions decreased by over 12 percent, and emissions from buses declined by 15 percent. Passenger vehicle emissions, the largest share of all on-road travel, declined by 6 percent.
- Waste emissions from landfilled waste were reduced by more than half, or approximately 54 percent. Total landfilled waste, expressed in metric tons, decreased by over 31 percent during this time period. Changes in the community waste stream profile as a result of increased recycling and other efforts also likely contributed to this major reduction in emissions in the waste sector.

TABLE 7-14
DIRECTLY COMPARABLE GHG EMISSION SECTORS IN HAYWARD, 2005 TO 2010

Sector	2005 Activity Data	2010 Activity Data	2005 $MTCO_2e$	2010 $MTCO_2e$	Percent Change $MTCO_2e$	Notes
Residential						
Electricity	242,674,455 kWh	252,427,371 kWh	54,252	51,297	-5%	All 2005 activity data were found in "City of Hayward Baseline Greenhouse Gas Emissions Inventory Report, November 2006." All 2005 emissions estimates were found in Appendix A: Baseline Emissions Detailed Reports, 1/30/2009 in "Hayward Climate Action Plan, October 8, 2009." Data and methodologies are consistent across inventory years.
Natural Gas	19,496,859 Therms	19,400,629 Therms	104,277	103,126	-1%	
Total			**158,529**	**154,423**	**-3%**	
Commercial/Industrial						
Electricity	678,989,309 kWh	657,204,663 kWh	151,793	146,446	-4%	
Natural Gas	16,160,661 Therms	16,041,943 Therms	86,434	85,273	-1%	
Total			**238,227**	**231,719**	**-3%**	
Transportation						
Commercial Vehicles	182,760,367 VMT	162,121,413 VMT	239,600	210,934	-12%	Transportation emissions estimates were recalculated for year 2005 using data and methodologies consistent with 2010 calculations.
Passenger Vehicles	1,030,891,165 VMT	968,074,654 VMT	430,413	405,267	-6%	
Buses	6,535,790 VMT	5,549,659 VMT	11,025	9,375	-15%	
Total	1,220,187,322 VMT	1,135,745,726 VMT	**681,038**	**625,577**	**-8%**	
Waste						
Total Landfilled Waste	173,509 tons	119,483 tons	**52,319**	**24,048**	**-54%**	2005 emissions reported here excluded ADC waste, which was excluded from 2010 calculations as well.

TABLE 7-14 DIRECTLY COMPARABLE GHG EMISSION SECTORS IN HAYWARD, 2005 TO 2010						
Sector	**2005 Activity Data**	**2010 Activity Data**	**2005 $MTCO_2e$**	**2010 $MTCO_2e$**	**Percent Change $MTCO_2e$**	**Notes**
TOTAL Comparable Emissions			**1,130,113**	**1,035,766**	**-8%**	

Source: StopWaste.org 2013

Regulatory Setting

This report has been prepared at a time where accepted practice and legislation regarding how government agencies should address climate change continues to evolve. This section summarizes the current and relevant Federal, State, and local regulatory programs, plans, and policies that apply to GHG emissions and land use planning.

Federal

Supreme Court Ruling

The U.S. Environmental Protection Agency (EPA) is the Federal agency responsible for implementing the Federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

Mandatory GHG Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are subject to this final rule.

Proposed GHG Permitting Requirements on Large Industrial Facilities

On May 13, 2010, EPA issued the Prevention of Significant Deterioration and Title V Greenhouse Gas Tailor Rule (EPA 2010). This final rule sets thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

Endangerment and Cause or Contribute Findings

On December 7, 2009, EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Administrator (of EPA) found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher-intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations. The Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants.

National Program to Cut GHG Emissions and Improve Fuel Economy for Cars and Trucks

On August 28, 2012, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) issued joint Final Rules for Corporate Average Fuel Economy (CAFE) standards for vehicle model years 2017 and beyond (NHTSA 2012). These first-ever national GHG emissions standards will increase fuel economy to the equivalent of 54.5 miles per gallon (mpg) for cars and light-duty trucks by model year 2025. EPA approved these standards under the CAA, and NHTSA approved them under the Energy Policy and Conservation Act.

Climate Change Adaptation

Activities are already underway across the Federal government to build adaptive capacity and increase resilience to climate change. These activities include efforts to improve understanding of climate science and impacts, to incorporate climate change considerations into policies and practices, and to strengthen technical support and capacity for adaptation decision-making. Some efforts are large collaborative undertakings involving Federal and non-Federal partners while others are smaller and at the program-level. The Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), makes recommendations to President Obama for how Federal Agency policies and programs can better prepare the United States to respond to the impacts of climate change (CEQ 2011).

State

The California Air Resources Board (ARB) is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even

though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. This Executive Order is binding only on State agencies, and has no force of law for local governments; however, the signing of S-3-05 sent a clear signal to the California Legislature about the framework and content for legislation to reduce GHG emissions.

Assembly Bill 32, The California Global Warming Solutions Action of 2006

In September 2006 Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs the ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

Assembly Bill 32 Climate Change Scoping Plan

In December 2008 ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) CO_2e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). ARB's original 2020 projection was 596 MMT CO_2e, but this revised 2020 projection takes into account the economic downturn that occurred in 2008 (ARB 2011b). The Scoping Plan reapproved by ARB in August 2011 includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED), which further examined various alternatives to Scoping Plan measures. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. ARB estimates the largest reductions in GHG emissions to be achieved by implementing the following measures and standards (ARB 2011b):

- improved emissions standards for light-duty vehicles (26.1 MMT CO_2e),
- the Low-Carbon Fuel Standard (LCFS) (15.0 MMT CO_2e),
- energy efficiency measures in buildings and appliances (11.9 MMT CO_2e), and
- renewable portfolio and electricity standards for electricity production (23.4 MMT CO_2e).

In 2011 ARB adopted the cap-and-trade regulation. The cap-and-trade program covers major sources of GHG emissions in the state such as refineries, power plants, industrial facilities, and transportation fuels. The cap-and-trade program includes an enforceable emissions cap that will decline over time. The State distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap are required to surrender allowances and offsets equal to their emissions at the end of each compliance period (ARB 2012a).

With regard to land use planning, the Scoping Plan expects that reductions of approximately 3.0 MMT CO_2e will be achieved through implementation of Senate Bill (SB) 375, which is discussed further below (ARB 2011b).

AB 32 also requires that the Scoping Plan be updated every five years. ARB began efforts to update the Scoping Plan in 2012, and the update is scheduled to be adopted by December 2013. ARB expects that the 2013 Update to the AB 32 Scoping Plan will: summarize the scientific advancements concerning the understanding of climate change and its impacts, highlight California's accomplishments to date (including State, regional and local climate initiatives), quantify progress toward meeting the 2020 GHG emissions goal, examine the economic impacts of actions taken to support that goal, identify opportunities to pursue additional measures as appropriate (such as uncovered sectors or short-lived climate pollutants), and lay the foundation for the research and policy work needed to map the path to the post-2020 goals. (ARB 2013).

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG emission reduction targets for cars and light trucks, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which integrate regional land use planning within an MPO's Regional Transportation Plan (RTP). The Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing the SCS for the Bay Area. Known as Plan Bay Area, this SCS is the successor to Transportation 2035, the long-range RTP adopted by MTC in 2009. Plan Bay Area is scheduled for adoption in summer 2013 and covers the time period through 2040 (One Bay Area 2013).

ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if

advancements in emissions technologies affect the reduction strategies to achieve the targets. The specific GHG reduction targets to be used by MTC and ABAG in Plan Bay Area include 7 percent below 2005 emissions levels by 2020, and 15 percent below 2005 levels by 2035 (ARB 2012b). ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG emission reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

Senate Bill 97

As directed by SB 97, the California Natural Resources Agency (CNRA) adopted Amendments to the California Environmental Quality Act (CEQA) Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

CEQA allows lead agencies to analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan, or as part of a separate plan (e.g., a climate action plan) to reduce GHG emissions (CEQA 15183.5).

Renewable Electricity (or Renewable Portfolio) Standard

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. On November 17, 2008, Governor Schwarzenegger signed Executive Order S-14-08 requiring all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. The following year, Executive Order S-21-09 directed the California Air Resources Board, under its Assembly Bill 32 authority, to enact regulations to achieve the goal of 33 percent renewables by 2020. In 2011, Governor Brown signed SB X1-2 codified the 33 percent by 2020 standard into law.

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) jointly implement the statewide Renewable Portfolio Standard (RPS) program through rulemakings and monitoring the activities of electric energy utilities in the state (CPUC 2012a).

Executive Order S-1-07, Low-Carbon Fuel Standard

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. It establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. This order also directed ARB to determine if this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early action measure after meeting the mandates in AB 32. ARB adopted the LCFS on April 23, 2009.

Advanced Clean Cars Program

In January 2012, ARB approved a new emissions-control program for model years 2017 through 2025 of passenger vehicles and light-duty trucks that addresses emissions from passenger vehicles and light-duty trucks. In addition to establishing more stringent emission standards for both GHGs and criteria air pollutants (and precursors), the program increases requirements of manufacturers to produce more Zero Emission Vehicles, including battery electric vehicles, hydrogen fuel cell vehicles, and plug-in hybrid electric vehicles. The program also includes a Clean Fuels Outlet regulation that helps make sure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to market. More specifically, it requires major refiners/importers of gasoline to develop hydrogen fueling stations to meet demand for hydrogen fuel (ARB 2012c).

California Building Codes, Title 24

Title 24 of the California Code of Regulations (CCR) regulates how each new home and business is built or altered in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and about buildings. Two sections of Title 24 – Part 6, the California Energy Code, and Part 11, the California Green Building Standards Code or CalGreen Code – contain standards that address GHG emissions related to new construction. These two sections require direct electricity, natural gas, and water savings for every new home or business built in California. Part 6, which was last updated in January 2011, also includes requirements for lighting, insulation and equipment upgrades to residential and nonresidential buildings undergoing additions, alterations or repairs. CCR Title 24 codes are statewide codes and standards that must be enforced by local agencies through the construction application process.

The California Green Building Standards Code, or CalGreen, became a mandatory code beginning January 1, 2011. The code takes a holistic approach to green building by including minimum requirements in the areas of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The CalGreen code has minimum mandatory standards and two additional tiers of voluntary measures intended to achieve greater levels of efficiency that result in lower levels of GHG emissions. Local governments must enforce the minimum standards and can choose to adopt either Tier 1 or Tier 2 standards to achieve greater positive environmental impacts.

Mandatory CalGreen standards do not require explicit reductions in energy consumption beyond the minimum Title 24 Part 6 standards. However, if a local agency elects to adopt either of the optional tiers of CalGreen, additional prerequisites and electives must be implemented by new development projects. For the voluntary energy efficiency prerequisites, Tier 1 is a 15 percent and Tier 2 is a 30 percent improvement over minimum Title 24 Part 6 requirements.

California Solar Initiative

The California Solar Initiative (CSI) was authorized in 2006 under SB 1 and allows the California Public Utilities Commission (CPUC) to provide incentives to install solar technology on existing

residential, commercial, nonprofit, and governmental buildings if they are customers of the State's investor-owned utilities (IOUs), including Pacific Gas & Electric (PG&E). The CSI program has a budget of nearly $2.2 billion to be expended by 2016 with a goal to reach 1,940 megawatts (MW) of installed solar power throughout the state by that time (CPUC 2012b). The CSI program has several components, including the Research and Development, Single-family Affordable Solar Housing (SASH), Multi-family Affordable Solar Housing (MASH), and Solar Water Heating Pilot Program, each of which provides incentives to further the installation of solar technology on California's buildings.

California Climate Adaptation Strategy

In 2009 California adopted a statewide Climate Adaptation Strategy (CAS) that summarizes climate change impacts and recommends adaptation strategies across seven sectors: public health; biodiversity and habitat; oceans and coastal resources; water; agriculture; forestry; and transportation and energy. The 2009 CAS was the first of its kind in the usage of downscaled climate models to more accurately assess statewide climate impacts as a basis for providing guidance for establishing actions that prepare, prevent, and respond to the effects of climate change (CNRA 2009). The California Natural Resources Agency, in coordination with other State agencies, began updating the Climate Adaptation Strategy in 2012, and a draft is planned for release for public review and comment in early 2013 (CNRA 2013).

Model Policies for Greenhouse Gases in General Plans

In June 2009 the California Air Pollution Control Officers Association (CAPCOA) prepared a white paper that presents model policies for addressing GHG emissions in general plans. CAPCOA intends this paper to be a resource rather than a guidance document intended to dictate how local communities should address GHG emission in their general plans. Model language is provided in nine major categories: GHG reduction planning (overall); land use and urban design; transportation; energy efficiency; alternative energy; municipal operations; waste reduction and diversion; conservation and open space; and education (CAPCOA 2009).

Regional and Local

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the lead air quality regulatory agency for the San Francisco Bay Area Air Basin. BAAQMD maintains air quality conditions through comprehensive programs of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues, as well as reducing GHG emissions. A number of BAAQMD programs related to GHG emissions are addressed below.

Climate Protection Program

On June 1, 2005, the Air District Board of Directors adopted a resolution establishing a Climate Protection Program and acknowledging the link between climate protection and programs to

reduce air pollution in the Bay Area. The Board of Directors also formed a standing Committee on Climate Protection to provide direction on District climate protection activities.

A central element of the District's climate protection program is the integration of climate protection activities into existing District programs. The District is continually seeking ways to integrate climate protection into current District functions, including grant programs, CEQA commenting, regulations, inventory development, and outreach. In addition, the District's climate protection program emphasizes collaboration with ongoing climate protection efforts at the local and State level, public education and outreach, and technical assistance to cities and counties (BAAQMD 2012a).

Greenhouse Gas Fee for Stationary Sources

On May 21, 2008, the District's Board of Directors approved a new fee on air pollution sources in the region to help defray the costs associated with the District's climate protection activities and programs, including environmental review, air pollution regulations and emissions inventory development. Industrial facilities and businesses that are currently required to submit an air quality permit to operate are required to pay a fee of 4.4 cents per metric ton of GHG emissions added to their permit bill. The fee will apply to climate protection program activities related to stationary sources, such as developing emission inventories (BAAQMD 2012a).

Bay Area 2010 Clean Air Plan

The Bay Area 2010 Clean Air Plan provides a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines a control strategy that the BAAQMD and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce GHG emissions to protect the climate. In its dual roles as an update to the Bay Area state ozone plan and a multi-pollutant plan, the 2010 Clean Air Plan addresses four categories of pollutants: ground-level ozone and its key precursors (ROG and NO_X), particulate matter ($PM_{2.5}$ as well as precursors secondary to $PM_{2.5}$), air toxics, and greenhouse gases (BAAQMD 2010b).

The 2010 Clean Air Plan provides a control strategy containing over 55 control measures applicable to a number of different sources, including:

- 18 Stationary Source Measures,
- 10 Mobile Source Measures,
- 17 Transportation Control Measures,
- 6 Land Use and Local Impact Measures, and
- 4 Energy and Climate Measures.

California Environmental Quality Act Guidelines

The BAAQMD CEQA Guidelines are developed to assist local jurisdictions and lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts related to both air quality and climate change. These CEQA Guidelines were updated in June 2010 to include reference to thresholds of significance ("Thresholds") adopted by the Air District Board on June 2, 2010. The Guidelines were further updated in May 2011. On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the Thresholds. The court did not determine whether the Thresholds were valid on the merits, but found that the adoption of the Thresholds was a project under CEQA. The court issued a writ of mandate ordering BAAQMD to set aside the Thresholds and cease dissemination of them until the Air District had complied with CEQA. The BAAQMD has appealed the Alameda County Superior Court's decision. The appeal is currently pending in the Court of Appeal of the State of California, First Appellate District.

In view of the court's order, BAAQMD is no longer recommending that the Thresholds be used as a generally applicable measure of a project's significant air quality or climate change impacts. Lead agencies will need to determine appropriate thresholds of significance based on substantial evidence in the record. Although lead agencies may rely on the District's CEQA Guidelines (updated May 2011) for assistance in calculating air pollution and GHG emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, BAAQMD has been ordered to set aside the Thresholds and is no longer recommending that these Thresholds be used as a general measure of a project's significant impacts. Lead agencies may continue to rely on the BAAQMD's 1999 Thresholds of Significance and they may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project (BAAQMD 2012b).

Tables 7.3-5 and 7.3-6 in the Air Quality section (7.3) of this Report contain both the 1999 and proposed 2010 Thresholds related to both Air Quality and Climate Change impacts, including GHG emissions, for both project-level and plan-level analysis. The 1999 Thresholds do not address GHG emissions. The proposed 2010 Thresholds related to GHG emissions are as follows:

- Project Level
  - Stationary Sources: 10,000 $MTCO_2e$/year
  - Projects Other than Stationary Sources: a.) Compliance with Qualified GHG Reduction Strategy, OR b.) 1,100 $MTCO_2e$/yr, OR c.) 4.6 $MTCO_2e$ per service population per year (sp/yr). Service population is defined as total residents and employees.
- Plan-Level
  - Compliance with Qualified GHG Reduction Strategy (or similar criteria included in a General Plan), OR

- 6.6 $MTCO_2e$/ sp/yr (residents + employees)

Greenhouse Gas Plan Level Guidance

In May 2012 the BAAQMD issued GHG Plan Level Guidance to assist local governments in developing community scale GHG emission inventories and projections, quantifying emission reductions from various policies and mitigation measures, and developing effective climate protection strategies. The Guidance is based on established methodologies and practices, and is intended to be a set of recommended approaches rather than formal protocol.

Included within the Guidance are qualitative criteria that the BAAQMD will use to judge whether a climate action plan (CAP) or other plan designed to reduce communitywide GHG emissions (e.g. sustainability plan or general plan) will meet the criteria established by the Governor's Office of Planning and Research (OPR) per CEQA Guidelines Section 15183.5. These qualitative criteria are as follows:

- GHG emissions inventory should be complete and comprehensive,
- calculations and assumptions should be transparent,
- GHG reduction strategies should rely primarily on mandatory measures,
- build in a margin of safety,
- measures should address existing as well as new development, and
- implementation and monitoring should be clearly defined.

The Guidance document also provides guidance on developing the quantitative sections of a local CAP, including development of GHG emission inventories, projections, mitigation measures, and implementation and monitoring procedures (BAAQMD 2012c).

Alameda County Climate Protection Project

In 2006 the City of Hayward joined other local governments in Alameda County participating in the Alameda County Climate Protection Project (ACCPP). ACCPP was launched by the Alameda County Waste Management Authority & Recycling Board (also known as StopWaste.org) in partnership with the Alameda County Conference of Mayors and ICLEI USA – Local Governments for Sustainability. All participating jurisdictions agreed to join ICLEI's Cities for Climate Protection Program. ICLEI and StopWaste.Org have provided assistance to each participating jurisdiction in various aspects of the 5-step climate action planning process outlined in this program, which includes conducting a baseline greenhouse gas emissions inventory and forecasts; setting a community-wide GHG emissions reduction target; developing a CAP that consists of polices and measures to meet the GHG reduction target; implementing the CAP; and monitoring and verification of results (StopWaste.org 2013b).

Hayward Climate Action Plan

The City of Hayward adopted a CAP in 2009. The CAP was developed in accordance with ICLEI's Cities for Climate Protection Program 5-step process referenced above. The CAP's primary components are summarized below.

Baseline GHG Inventory and Projections

A GHG emissions inventory was conducted by ICLEI on behalf of the City for the baseline year 2005. Total annual emissions in 2005 were estimated to be approximately 1.18 $MMTCO_2e$ (see Existing Conditions above for a more detailed breakdown and discussion of the inventory). Projections of future emission growth are provided for two scenarios, both of which were based on ICLEI growth rates related to population and employment growth, by sector, for the years 2020 and 2050:

- Scenario 1 estimated that emissions would increase by approximately 0.28 $MMTCO_2e$ (nearly 24 percent) by 2020 and 0.95 $MMTCO_2e$ (over 80 percent) by 2050. This scenario assumed no changes in vehicle fuel economy or statewide renewable portfolio standard (RPS), and is commensurate with projected growth in population and employment by these respective years, therefore representing a truly "business-as-usual" projection.
- Scenario 2 estimated that emissions would increase by a much lower 30,000 $MTCO_2e$ by 2020 (less than 1 percent) and about 80,000 $MTCO_2e$ by 2050 (about 7 percent). This scenario assumed the same base growth rates as Scenario 1, however legislative changes to improve vehicle fuel economy and the statewide RPS over time were also assumed, therefore leading to much lower projected emissions in 2020 and 2050.

Scenario 2 was selected as the basis for estimated future GHG emissions for the CAP, based on legislative changes to State and Federal policy related to vehicle fuel economy and RPS (City of Hayward 2009).

Greenhouse Gas Reduction Targets

The CAP sets a series of GHG emission reduction targets for both communitywide and City operations-specific emissions, expressed as a percentage by which emissions must be reduced below the 2005 baseline, by the target years of 2013, 2020 and 2050. The City aims to reduce emissions by the following amounts:

- 6 percent below 2005 levels by 2013,
- 12.5 percent below 2005 levels by 2020, and
- 82.5 percent below 2005 levels by 2050.

These targets, when viewed against Scenario 2 projections, require that emissions be reduced communitywide by a total of 154,642 $MTCO_2e$ by 2020, and 1.07 $MMTCO_2e$ by 2050 (City of Hayward 2009).

Greenhouse Gas Emission Reduction Plan

The CAP includes nine strategies to guide the City's effort in reducing GHG emissions and addressing climate adaptation issues. Each of these strategies includes a number of specific implementing actions in order to achieve GHG emission reductions and/or other co- benefits. Many of the actions have quantifiable GHG reduction benefits; however, some of the actions could not be quantified but are supportive of the overall strategies they support. The nine strategies are:

- Strategy 1 – Transportation and Land Use: Reduce Vehicle Miles Traveled
- Strategy 2 – Transportation: Decrease the Carbon-Intensity of Vehicles
- Strategy 3 – Energy: Improve Energy Performance of Existing Buildings
- Strategy 4 – Energy: Improve Energy Performance of New Buildings
- Strategy 5 – Energy: Use Renewable Energy
- Strategy 6 – Solid Waste: Increase Waste Reduction and Recycling
- Strategy 7 – Sequester Carbon
- Strategy 8 – Climate Change Adaptation
- Strategy 9 – Engage and Educate Community

The CAP estimates that full implementation of all strategies and associated actions would result in reductions of about 189,000 $MTCO_2e$ by 2020, and 1.084 $MMTCO_2e$ by 2050, thereby meeting the 2020 and 2050 GHG reduction targets (City of Hayward 2009).

Implementation of the Climate Action Plan

The CAP includes a section that sets up various implementation mechanisms and approaches to ensure that meeting the targets under the plan's strategies and numerous actions is successful. These include a number of specific programs and activities, such as management of staff resources (i.e., setting up a Climate Action Management Team, appointing a staff Sustainability Coordinator), ensuring citizen and business participation, prioritization of actions across all strategies, and the creation of a financial plan and development of funding sources to support CAP implementation.

Ongoing Measurement and Verification

The CAP includes a final section that establishes a framework for monitoring progress in meeting the CAP's targets and performance goals, to enable informed decisions about specific CAP-related programs, provide credible and defensible data, and prepare for future reporting requirements. A number of key monitoring and verification programs and activities are recommended, including:

- Completion of a full GHG emissions inventory every three to five years to measure and verify that emissions are actually decreasing over time
- Documentation and evaluation of the effectiveness of the City's climate programs on a regular basis. This includes tracking key indicators relative to each of the GHG emission sectors and GHG Reductions Strategies in the CAP.

In 2012 a full GHG emissions inventory for both communitywide and municipal operations was prepared by StopWaste.org for the year 2010 (see Existing Conditions above in this section for a more detailed discussion and breakdown of the 2010 inventory).

Key Terms

The following key terms used in this chapter are defined as follows:

Carbon dioxide (CO_2). Carbon dioxide is an odorless and colorless GHG. CO_2 is emitted from natural sources, such as the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out-gassing. Anthropogenic (man-made) sources include the burning of fossil and other fuels (e.g., coal, oil, natural gas, wood).

Carbon dioxide equivalent (CO_2e). A unit for describing how much global warming a given type and amount of GHG may cause, normalized to a functionally equivalent amount or concentration of CO_2 as the reference. See Global Warming Potential.

Carbon Sequestration. Carbon storage (sequestration) occurs in forests and soils, primarily through the natural process of photosynthesis. Atmospheric CO_2 is taken up through leaves and becomes carbon in the woody biomass of trees and other vegetation where it is stored.

Climate Action Plan (CAP). A Climate Action Plan is a planning document that lays out a set of strategies and policy recommendations intended to reduce GHG emissions associated with a given entity, agency, or jurisdiction.

Climate Change. Climate change refers to long-term changes in temperature, precipitation, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to GHGs, particularly those generated from the human production and use of fossil fuels.

Global Warming Potential (GWP). GWP is one type of simplified index based upon properties of the GHG that can be used to estimate the effect on the climate system with reference to CO_2. For example, one ton of methane is as potent a GHG as 21 tons of CO_2. Methane has GWP of 21 CO_2e. See also Carbon Dioxide Equivalent.

Greenhouse Effect. The earth's natural warming process is known as the "greenhouse effect." Certain atmospheric gases that trap heat in the atmosphere, causing the greenhouse effect, are referred to as GHGs.

Greenhouse Gases (GHG). Gases that contribute to the greenhouse effect. Some GHGs such as carbon dioxide (CO_2) occur naturally, and are emitted to the atmosphere through natural processes and human activities. Other GHGs (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHGs that enter the atmosphere because of human activities include: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), Chlorofluorocarbons (CFCs), and fluorinated gases (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Greenhouse Gas (GHG) Inventory. A greenhouse gas (GHG) inventory is an accounting of the amount of GHGs emitted to or removed from the atmosphere over a specific period of time (e.g., one year) for a specified area. A GHG inventory also provides information on the activities that cause emissions, as well as background on the methods used to make the calculations. Policy makers use GHG inventories to track emission trends, develop strategies and policies, and assess progress in reducing GHG emissions.

Methane (CH_4). Methane is a GHG with GWP of 21. Anthropogenic (human-caused) sources of methane emissions include agricultural activities, natural gas consumption, landfills, wastewater treatment plants, and mobile sources.

Nitrous oxide (N_2O). N_2O is a GHG with GWP of 310. Nitrous oxide sources include wastewater treatment plants, fertilizer application and soil management in agricultural activities, and mobile sources.

Bibliography

Reports/Publications

Ahrens, D. C. *Meteorology Today; an Introduction to Weather, Climate, & the Environment*. Brooks Cole, Inc. Pacific Grove, CA. 2003.

Bay Area Air Quality Management District. *Source Inventory of Bay Area Greenhouse Gas Emissions*. February 2010a.

Bay Area Air Quality Management District. *Bay Area 2010 Clean Air Plan*. September 2010b.

California Air Pollution Control Officers Association. *Model Policies for Greenhouse Gases in General Plans*. 2009.

California Air Resources Board. *Annual Report to the Joint Legislative Budget Committee on Assembly Bill 32 (Chapter 488, Statutes of 2006): The Global Warming Solutions Act of 2006*. January 2013.

California Natural Resources Agency. *California Climate Adaptation Strategy*. 2009.

Hayward, City of. *Hayward Climate Action Plan*. 2009.

Intergovernmental Panel on Climate Change. 2007 (February). *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC*. Geneva, Switzerland.

Seinfeld, J. H., and S. N. Pandis. *Atmospheric Chemistry and Physics*. John Wiley & Sons, Inc. New York, NY. 1998.

StopWaste.org. *City of Hayward 2010 Community-Wide Greenhouse Gas Emissions Inventory*. January 2013.

Websites

Bay Area Air Quality Management District. Climate Protection Program. 2012a. http://www.baaqmd.gov/Divisions/Planning-and-Research/Climate-Protection-Program.aspx. Accessed January 25, 2013.

Bay Area Air Quality Management District. Updated CEQA Guidelines. 2012b. http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed February 5, 2013.

Bay Area Air Quality Management District. *GHG Plan Level Guidance*. http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Accessed January 23, 2013.

California Air Resources Board. *Cap and Trade Program*. 2012a. http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm. Accessed February 5, 2013.

California Air Resources Board. *Approved Regional Greenhouse Gas Reduction Targets*. 2012b. http://www.arb.ca.gov/cc/sb375/final_targets.pdf. Accessed February 5, 2013.

California Air Resources Board. *Advanced Clean Cars*. 2012c. http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm. Accessed February 5, 2013.

California Air Resources Board. *Greenhouse Gas Emissions Inventory Summary for 2000-2009*. 2011a. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-09_2011-10-26.pdf. Last updated October 26, 2011.

California Air Resources Board. *Status of Scoping Plan Recommended Measures*. 2011b. http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf. Accessed February 5, 2013.

California Air Resources Board. *Greenhouse Gas Inventory - 2020 Emissions Forecast*. 2011c. http://www.arb.ca.gov/cc/inventory/data/forecast.htm. Accessed February 5, 2013.

California Air Resources Board. *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*. 2007. http://www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf. Accessed February 5, 2013.

California Natural Resources Agency. *California Climate Adaptation Strategy: 2012 Update*. http://www.climatechange.ca.gov/adaptation/strategy/index.html. Accessed February 5, 2013.

California Public Utilities Commission. RPS Program Overview. 2012a. http://www.cpuc.ca.gov/PUC/energy/Renewables/overview.htm. Accessed February 5, 2013.

California Public Utilities Commission. *California Solar Initiative Annual Program Assessment*. 2012b. http://www.cpuc.ca.gov/PUC/energy/Solar/2012CASolarLegReport.htm. Accessed February 5, 2013.

Council on Environmental Quality. *Climate Change Adaptation Task Force*. 2011. http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation. Accessed February 5, 2013.

National Highway Traffic Safety Administration. *NHTSA Issues Final Rule for CAFE Standards for Model Years 2017 and Beyond*. August 28, 2012. http://www.nhtsa.gov/fuel-economy. Accessed February 5, 2013.

One Bay Area. *Plan Bay Area*. http://onebayarea.org/regional-initiatives/plan-bay-area.html#.URFObmfC2Cg. Accessed February 5, 2013.

StopWaste.org. *The Alameda County Climate Protection Project*. http://www.stopwaste.org/home/index.asp?page=962. Accessed January 24, 2013.

U.S. Environmental Protection Agency. *Final Rule: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*. 2010. 40 CFR Parts 51, 52, 70, and 71. http://www.epa.gov/nsr/documents/20100413final.pdf. Accessed February 5, 2013.

SECTION 7.5 OPEN SPACE AND AGRICULTURAL RESOURCES

Introduction

This section describes open space and agricultural resources within the city of Hayward.

Major Findings

- The Hayward Planning Area includes 31 square miles of open space in Hayward, including Baylands, Ridgelands, and Water in the San Francisco Bay.
- The Hayward Planning Area includes nine square miles as Baylands. The Hayward Area Shoreline Planning Agency (HASPA) has facilitated the acquisition and restoration of over 3,150 acres of shoreline marsh and wetland areas. The Hayward Regional Shoreline park operated by EBRPD consists of 1,811 acres of salt, fresh, and brackish water marshes, as well as seasonal wetlands and five miles of public trails.
- HASPA has proposed a two-part program to combat the effects of sea level rise: creating armored levees that prevent erosion in areas of the shoreline at the edge of the San Francisco Bay; and realigning levees in the inner areas of the shoreline. Several projects are already under way to strengthen and repair levees along the Hayward Shoreline, including the South Bay Salt Pond Restoration Project at the Eden Landing Ponds and the Hayward Marsh Restoration and Enhancement Project.
- Most of the shoreline area is now in public ownership and most of the public land is preserved and protected as open space.
- The Hayward Planning Area includes five square miles as Ridgelands in Hayward and includes a separate set of policies for the Ridgelands Area.
- There is no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance within the Hayward Planning Area. There are approximately 6,820 acres designated as Grazing land, 9,764 acres designated as Other, and 17,172 acres designated as Urban/Built land.
- Alameda County has 2,505 acres of prime agricultural land and 132,788 acres of non-prime agricultural land enrolled in Williamson Act contracts for a total of 135,293 acres. A few of these parcels are located to the east of the developed portion of the city.
- According to the Alameda County Crop Report (2011), crops were harvested from 171,723 acres in the county. The total value of crops harvested in Alameda County in 2011 was $41,180,000, representing an increase of 17 percent from 2010.

Existing Conditions

Open Space Resources

Natural open space is undeveloped land primarily left in its natural state that provides recreation uses as a secondary objective. Open space may or may not be publicly accessible. This type of land often includes wetlands, steep hillsides, or other similar natural characteristics. In some cases environmentally sensitive areas are considered as open space and can include wildlife habitat, stream and creek corridors, or unique and/or endangered plant and animal species. The Hayward Planning Area includes 31 square miles of open space in Hayward, including Baylands, Ridgelands, and Water in the San Francisco Bay.

Both the shoreline area on the western edge of the city and the foothill area east of the city are significant as regional open space and as ecological resources. These areas are important community amenities because they provide an aesthetic backdrop for the city. The shoreline and hill areas are also of local significance because they help shape the form and boundaries of urban development. The Urban Limit Line serves to define the border between the urbanized area and regional permanent open space (see Figures 7.5-1 through 7.5-2).

Shoreline Area

In the shoreline area efforts over the past 40 years by member agencies of the Hayward Area Shoreline Planning Agency (HASPA) have resulted in the acquisition and restoration of over 3,150 acres (see Figure 7-4). HASPA is a joint powers agency that includes representatives from the Hayward Area Recreation and Park District (HARD), the East Bay Regional Park District (EBRPD), and the City of Hayward. HASPA coordinates regional planning activities and carries out policies improving the Hayward Shoreline.

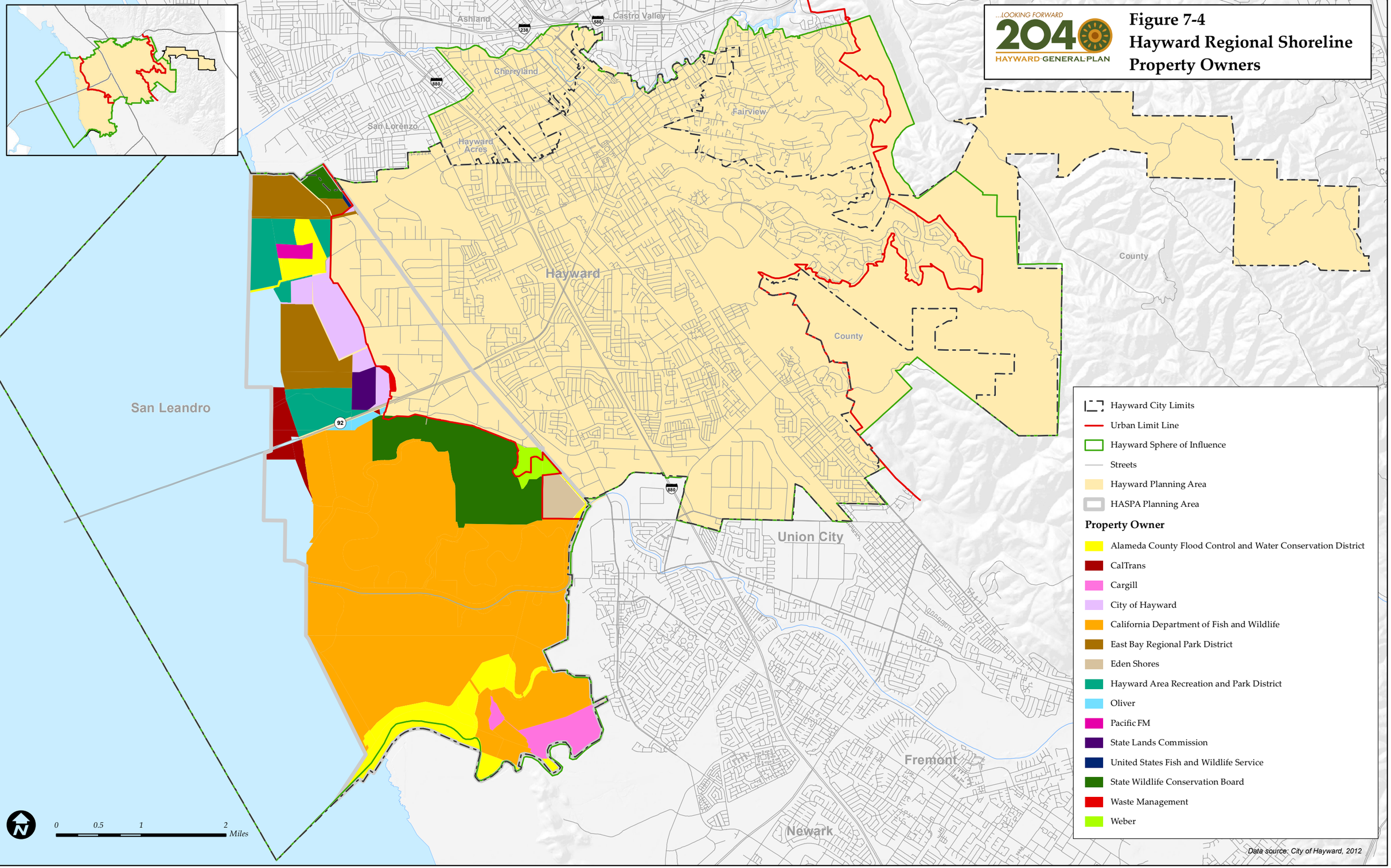
The Hayward Planning Area includes nine square miles as Baylands. The Hayward Regional Shoreline Park operated by EBRPD consists of 1,811 acres of salt, fresh, and brackish water marshes, as well as seasonal wetlands and five miles of public trails (see Figure 7-5). The marshes include the 250-acre Cogswell Marsh, the 145-acre Hayward Marsh, and the 364-acre Oro Loma Marsh. The Cogswell Marsh is a saltwater marsh that EBRPD restored in 1980. The Hayward Marsh, restored in 1985, includes five ponds and 15 islands that provide bird nesting habitat. The Oro Loma Marsh, restored in 1997, includes tidal marsh, and seasonal and transitional wetlands. HARD operates a fourth marsh at the southern edge of the shoreline.

The shoreline area provides critical habitat for plants and animals; storm drainage function for city utilities; sites for landfills and wastewater treatment; access for electric, gas, and cable transmission lines; and right-of-way for recreational trails and the railroad. Due to increasing global temperatures, the sea level at the Hayward coastline is expected to rise 55 inches by 2100. HASPA has proposed a two-part program to combat the effects of sea level rise. The first step is to create armored levees that prevent erosion in the areas of the shoreline at the edge of the San Francisco Bay. The second step is to realign levees in the inner areas of the shoreline by removing large levees at the outer edge and replacing them with smaller levees at the inland

edge, allowing the restored wetland areas to flood. This will allow for gradual steepening from the Bay to the city edge and diffused armoring using gravel or shell berms.

Several projects are already underway to strengthen and repair levees along the Hayward Shoreline. The Hayward Area Recreation and Park District already contracted for repairs to the Hayward Shoreline levee in 2010 to repair storm damage. The Alameda County Flood Control and Water Conservation District, in partnership with several Federal and State agencies, has already initiated the South Bay Salt Pond Restoration Project at the Eden Landing Ponds. The project will breach the outer levees and restore wildlife habitat in the salt ponds, while constructing a new inboard levee to provide flood protection to the surrounding communities. Phase One of the project to restore 630 acres of tidal habitat for endangered species was completed in 2011 and 230 acres of additional habitat is planned for restoration by 2014. The partnership is currently (2013) pursuing funding for the remaining phases. Additionally, the East Bay Regional Park District will begin the Hayward Marsh Restoration and Enhancement Project in September 2013 with an expected completion date of November 2016.

Most of the shoreline area is now in public ownership and most of the public land is preserved and protected as open space. Public shoreline land is owned by the Oro Loma Sanitary District, Alameda County Flood Control and Water Conservation District, Hayward Area Recreation and Park District, East Bay Regional Park District, City of Hayward, US Fish and Wildlife Service, State Department of Fish and Wildlife, State Wildlife Conservation Board, State Lands Commission, and Caltrans.



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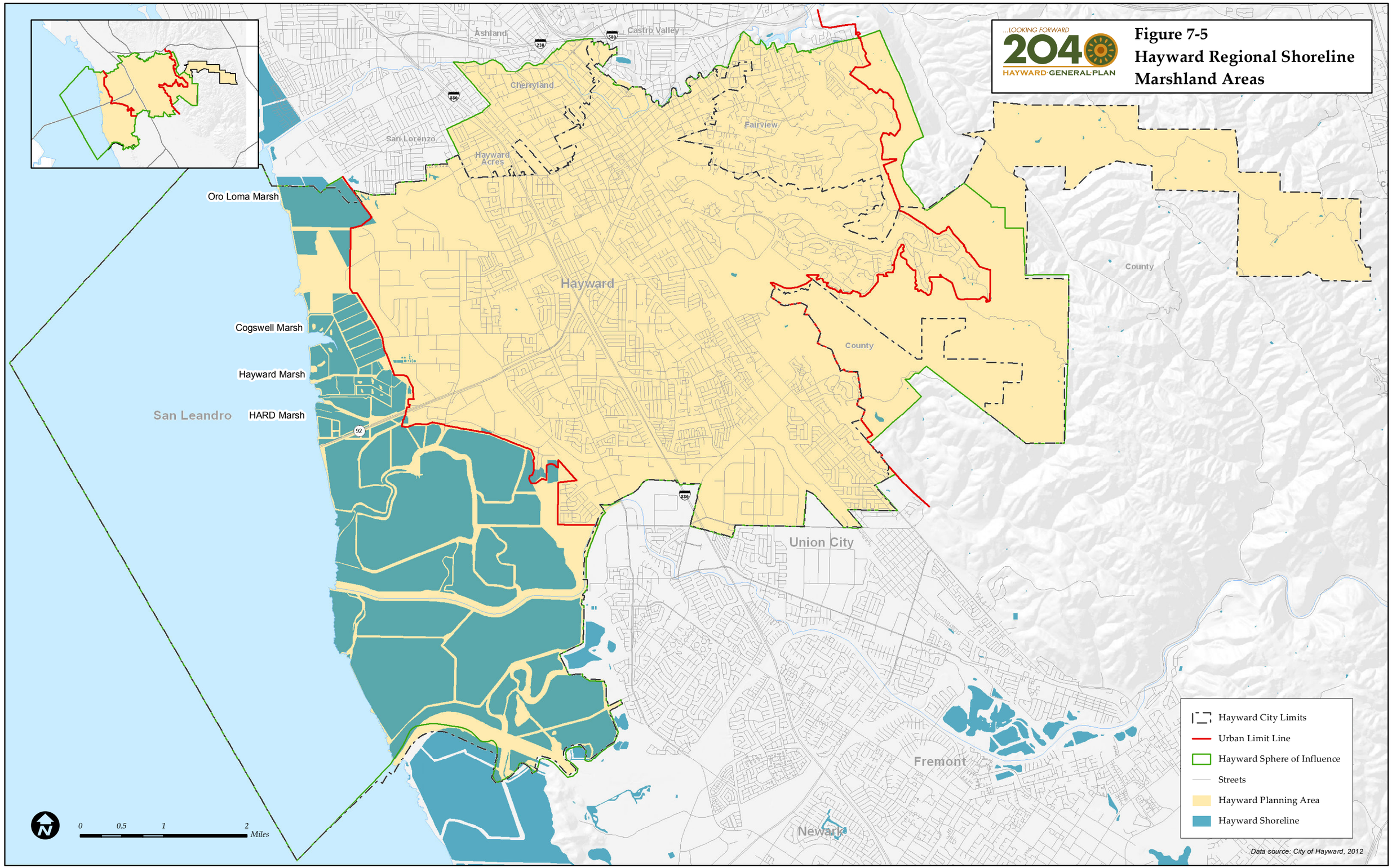

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Only two parcels north of SR 92 are privately-owned, one located at the end of West Winton Avenue and one located at Johnson Road. Several parcels south of SR 92 are privately-owned, including a site adjacent to SR 92, two sites next to the South Pacific Coast Railroad spanning from Arden Road to Alameda Creek, and a site near the south-east edge of the shoreline near Alameda Creek. These areas are discussed briefly below.

West Winton Avenue

The former landfill site at the end of West Winton Avenue includes the parcel owned by Pacific FM, a radio broadcasting company. The landfill site is designated as Parks and Recreation in the 2002 General Plan, and existing land use policies call for the establishment of passive recreational areas that do not interfere with surrounding wetland habitats. These areas could ultimately be developed in a manner similar to the Oyster Bay shoreline park in San Leandro south of the Oakland International Airport. Existing regulations and project conditions of approval allow radio transmission towers to exist on the privately-owned parcel. Perhaps similar towers may be relocated on the City-owned parcel in conjunction with the Russell City Energy Center located on a site farther south.

Johnson Road

The site located at Johnson Road is a vacant site owned by Waste Management, Inc., a solid waste disposal and recycling company. The site is designated as Baylands in the 2002 General Plan.

South of SR 92

The site located south of SR 92 is owned by the Oliver family, former owners of the Oliver Salt Company. The east portion of the site, which contains salt ponds, is designated as Baylands in the 2002 General Plan, and the westernmost portion of the site, which includes a biotechnology business park, is designated as industrial corridor.

South Pacific Coast Railroad

The two sites located next to the South Pacific Coast Railroad are owned by John Weber, a local developer, and by the Eden Shores neighborhood. The Weber site to the north is designated as Baylands in the southern portion of the site and as Industrial Corridor in the northern portion of the site. In 2011 the owners submitted an application for a zone change, from light industrial to planned development and subdivision of the northern parcel. The owner proposed to subdivide the 85-acre parcel into 16 lots to be developed as industrial buildings for light manufacturing purposes. The proposed development includes only 35 acres of the site. HASPA has opposed the project which has yet to be approved. The Eden Shores site to the south is currently (2012) a residential development that includes over 500 single family homes and a community park with sports fields.

Cargill Salt Ponds

The Cargill Salt Ponds site is located at the southeast edge of the shoreline next to Alameda Creek. The Cargill Salt Company ceased operations at this location, as well as other locations in the South Bay, and consolidated its operations around the existing plant in Newark. The State Department of Fish and Wildlife and the State Wildlife Conservation Board purchased the majority of land originally owned by Cargill south of SR 92, and now manage the land as part of the Eden Landing Ecological Reserve and the Don Edwards San Francisco Bay National Wildlife Refuge.

Ridgelands/Hill Area

The Hayward Planning Area includes five square miles of Ridgelands. Many of the hillside areas have been preserved as part of a coordinated planning effort between the City of Hayward, the City of Pleasanton, and Alameda County. Generally, housing is clustered on the flatter areas of land, while the steeper hillside areas are set aside as open space. The Hillside Design and Urban/Wildland Interface Guidelines promote quality design that enhances the aesthetic character of the hillside setting, preserve important environmental resources, and incorporate public safety measures relating to fire defensibility.

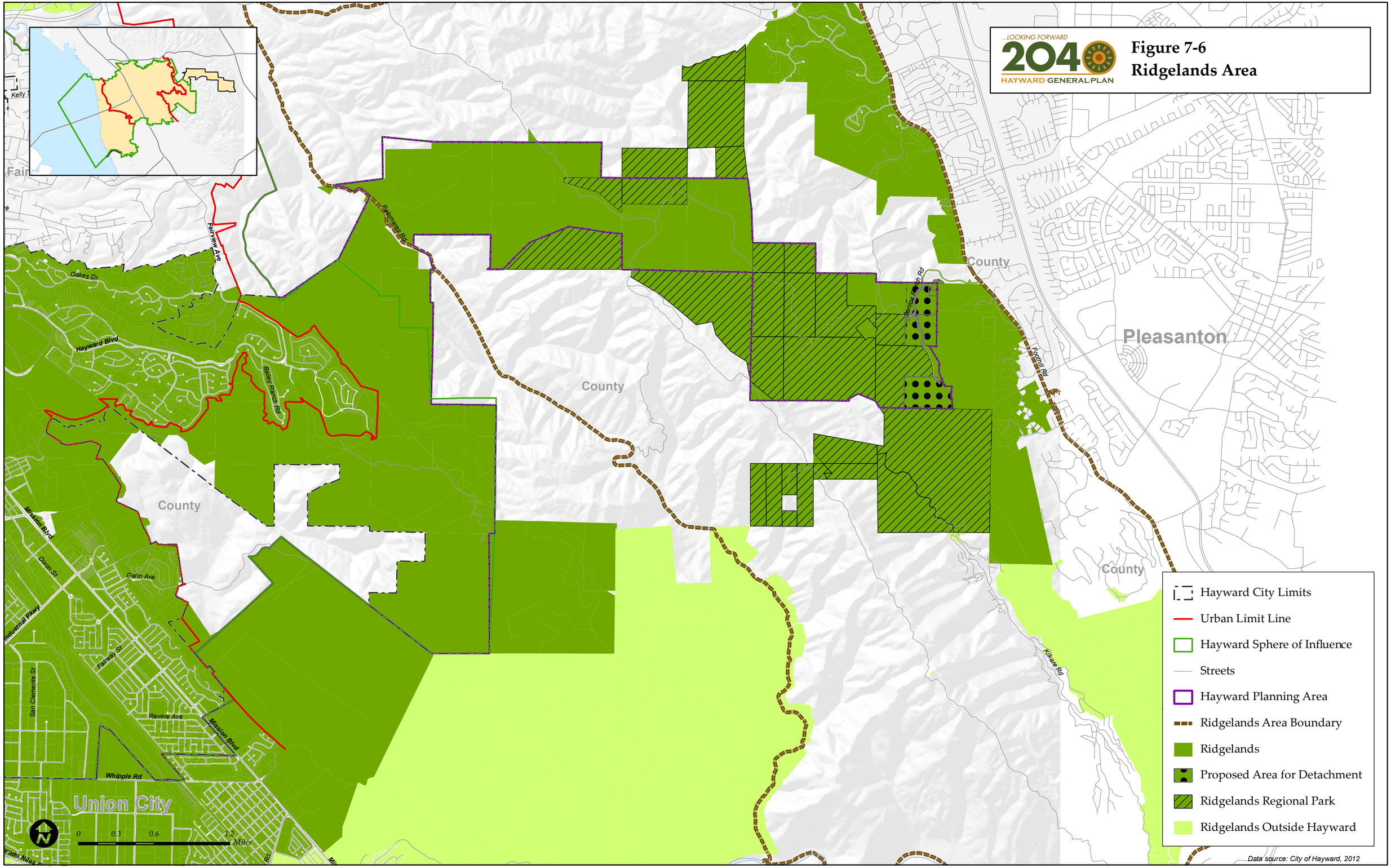
East Hills Annex

In the foothill area the area commonly known as the East Hills Annex extends from Walpert Ridge across Palomares Canyon and three different ridges to the Pleasanton city limits (see Figure 7-6). This area, which covers approximately five square miles, was originally annexed in 1967 to accommodate a proposal for rural home sites. Today, most of the land is designated as Parks and Recreation; Limited Open Space; or Rural Estate, Suburban, or Low Density Residential in the 2002 General Plan. The same areas are also zoned for Agricultural, Floodplain, Open Space, and Residential use.

The East Bay Regional Park District (EBRPD) has also purchased 3,200 acres in the eastern portion of the East Hills Annex for inclusion in the Pleasanton Ridgelands Regional Park. The landscape of the park is characteristic of California's northern coast range and inland valleys with expansive grass-covered grazing lands, steep and rolling hills and valleys, and steep, tree-lined ridges. The topographic diversity of the park affords sweeping, panoramic ridgetop views of the visually prominent peaks and ridgelines of the Diablo, Hamilton, and the Las Trampas/ Pleasanton/Sunol mountain ranges, as well as the East Bay Plain, and San Francisco Bay and Peninsula.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-6
Ridgelands Area



February, 2013

EBRPD has intentionally limited parkland development to preserve the pastoral atmosphere of the Ridgelands. During spring and early summer EBRPD brings herds of cattle, sheep, and goats to the park to graze the grassland and manage vegetation. In 2012 EBRPD adopted a Land Use Plan for Pleasanton Regional Park to evaluate park resources and facilities; document agreements and restrictions related to park use; provide recommendations for managing resources; and identify future recreation uses, programs and service facilities. The Plan presents a vision for the future of the park that balances a comprehensive resource management program with facility and program development directed at creating positive visitor experiences.

The General Plan Ridgelands Area Policies, which were adopted in separate actions by Hayward, Pleasanton, and Alameda County in 1993, call for certain adjustments in the political boundaries of the Ridgelands Area. Specifically, the City of Hayward is to retain its Sphere of Influence west of Palomares Road, and detach the area along Santos Ranch Road while annexing comparable land area from the county. Neither the City nor the County has pursued implementing this policy. However, in November 2000 Alameda County passed Measure D, which applies to all of the unincorporated areas east of Walpert Ridge and requires voter approval of any changes in open space land use policies of the Alameda County General Plan.

Agricultural Resources

In the early 1980s the California Department of Conservation, Division of Land Resource Protection, began a Farmland Mapping and Monitoring Program (FMMP). This program was designed to inventory important farm and grazing lands by preparing Important Farmland Series maps, as shown in Figure 7-7. Its purpose is to monitor conversion of the state's agricultural land to and from agricultural use, and to report such conversion to the Legislature, local governments, and the public. The Department of Conservation published advisory guidelines and preliminary maps in 1984. The current maps are updated based on 2012 data. The guidelines identify five categories of farmland: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Lands. The Department of Conservation defines these five categories as follows:

- Prime Farmland is land that has the best combination of physical and chemical characteristics for the production of crops. Prime Farmland generally consists of Class I and II soils and possesses the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops within the last three years. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.
- Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.

- Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance that is currently used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly-owned lands for which there is an adopted policy preventing agricultural use.
- Farmland of Local Importance is either currently producing crops, or has the capability of production. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. This land may be important to the local economy due to its productivity. It does not include publicly-owned land for which there is an adopted policy preventing agricultural use.
- Grazing Land is defined in California Government Code Section 65570(b)(2) as "...land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock." The minimum mapping unit for Grazing Land is 40 acres.

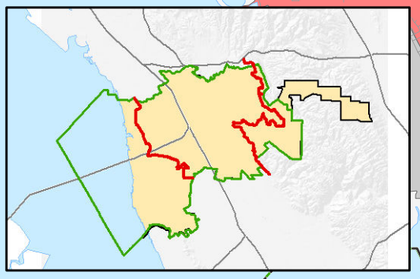
There is no Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance within the Hayward Planning Area. However, there are approximately 6,820 acres designated as Grazing land, 9,764 acres designated as Other, and 17,172 acres designated as Urban/Built, as shown in Figure 7-7. Additionally, Alameda County has 2,505 acres of prime land and 132,788 acres of non-prime land enrolled in Williamson Act contracts for a total of 135,293 acres. A few of these parcels are located to the east of the developed portion of the City.

Agricultural Crops

According to the Alameda County Crop Report (2011), crops were harvested from 171,723 acres in the county. The total value of crops (this includes fruits, nuts, field and vegetable crops, and livestock and poultry) harvested in Alameda County in 2011 was $41,180,000. This represents an increase of 17 percent from the 2010 gross production value of $35,296,000.

Figure 7-7 Important Farmland

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN



Ashland
Castro Valley
Cherryland
San Lorenzo
Hayward Acres
Fairview
Hayward
County
County
San Leandro
Union City
Fremont
Newark

0 0.5 1 2 Miles

Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Streets
Hayward Planning Area
Prime Farmland
Farmland of Statewide Importance
Unique Farmland
Grazing Land
Urban and Built-Up Land
Other Land

Data source: CA Department of Conservation, 2012

February, 2013

Regulatory Setting

Federal

There are no Federal regulations applicable to open space.

State

California Department of Conservation, Division of Land Resource Protection. The California Department of Conservation, Division of Land Resource Protection (DLRP) works with landowners, local governments, and researchers to conserve open space resources statewide. DRLP provides information, maps, funding, and technical assistance to local governments, consultants, Resource Conservation Districts, and non-profit organizations statewide with the goal of conserving the state's agricultural and natural resources.

Sections 65560–65568, Government Code: Open Space Lands. This portion of California planning law defines open space and requires cities and counties to prepare an open space plan as a required element of its General Plan. Building permits, subdivision approvals, and zoning ordinance approvals must be consistent with the local open space plan.

Section 5076, Public Resources Code: Open-Space Elements and Trail Considerations. This law requires that during development of the General Plan, counties shall consider trail-oriented recreational use and shall consider such demands in developing specific open-space programs. Further, cities shall consider the feasibility of integrating their trail routes with appropriate segments of the State system.

Williamson Act. The California Land Conservation Act, better known as the Williamson Act, has been the state's premier agricultural land protection program since its enactment in 1965. Land under a Williamson Act contract is restricted to agricultural uses. The Williamson Act is a non-mandated State policy providing for a preferential assessment of agricultural and open space lands that meet local size and use criteria.

Senate Bill 275. SB 275 created the Agricultural Land Stewardship Program Act of 1995, a California Department of Conservation (DOC) grant program for local governments and nonprofit organizations to aid in the acquisition of agricultural conservation easements. DOC awards grant funding from the Agricultural Land Stewardship Program fund which receives revenue from gifts, donations, proceeds from the sale of general obligation bonds, funds appropriated by the Legislature, Federal grants or loans, or other sources.

Local

Alameda County Measure D. In November 2000 Alameda County passed Measure D, which applies to all of the unincorporated areas east of Walpert Ridge and requires voter approval of any changes in open space land use policies of the Alameda County General Plan.

City of Hayward Design Guidelines. The City of Hayward adopted Design Guidelines in 1993 to establish guidelines for site planning, circulation, architectural design, and landscape design for all development in the city; guidelines for specific land uses; and guidelines specifically for the downtown area and hillside areas. The Hillside Design and Urban/Wildland Interface Guidelines promote quality design that enhances the aesthetic character of the hillside setting, preserve important environmental resources, and incorporate public safety measures relating to fire defensibility. The Hillside Design and Urban Wildland Interface Guidelines regulate development in the portion of the Ridgelands Area within the Hayward city limits. The Planning Director may require proposed developments to submit a topographic survey, preliminary grading plan, soils engineering report, geology report, and visual analysis with the permit application. The Guidelines include recommended design standards for streets, sidewalks, cluster home development, architecture, site design, grading, landscaping, utilities, and signage. The Guidelines include additional fire safety standards for developments in the urban/wildland interface.

Key Terms

The following key terms used in this chapter are defined as follows:

Farmland Mapping and Monitoring Program (FMMP). This program was designed by the state to inventory important farm and grazing lands by preparing Important Farmland Series maps.

Open Space Land. Open space land is any parcel, area, or waterway that is essentially unimproved and devoted to an open space use. Under Section 65560 of the California Government Code, open space land is broadly defined as land designated for the preservation of natural resources (e.g., lakeshore and watershed lands); managed production of resources (e.g., lands for agriculture, forestry, recharge of groundwater); outdoor recreation (e.g., parks, scenic highway corridors, areas with outstanding scenic, historic, and cultural values); or public health and safety (e.g., flood plains, unstable soil areas).

Passive Recreation. A mix of non-motorized or non-consumptive recreational uses, such as wildlife viewing, hiking, biking, and canoeing that typically occur on undeveloped or minimally-improved lands.

Recreational Area. Any public or private space set aside for, or primarily oriented to, recreational use. This includes both parks and community centers.

Wilderness Area. Often known as "wildlands," a wilderness area is a natural environment that has not been significantly modified by human activity. They are typically undisturbed wild natural areas that do not have developed roads or other types of infrastructure.

Williamson Act. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party

files a "notice of nonrenewal," the contract is automatically renewed for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.

Bibliography

Reports/Publications

Alameda County. 2011 Crop Report. 2012.

City of Hayward. General Plan. 2002.

City of Hayward. General Plan. Draft Environmental Impact Report. 2001.

City of Hayward. Hillside Design and Urban/Wildland Interface Guidelines. February 16, 1993.

East Bay Regional Park District. Land Use Plan For Pleasanton Ridge Regional Park. July 17, 2012.

Hayward Area Shoreline Planning Agency. Preliminary Study of the Effect of Sea Level Rise on the Resources of the Hayward Shoreline. March 2010.

Websites

California Department of Conservation. Farmland Mapping & Monitoring Program. http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx, accessed February 2013.

California Department of Conservation. Williamson Act Program. http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx, accessed February 2013.

City of Hayward. Hayward Area Shoreline Planning Agency. http://user.govoutreach.com/hayward/faq.php?cid=11038, accessed February 2013.

City of Hayward. Hayward Area Shoreline Planning Agency. Hayward Area Shoreline Property Ownerships. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/DEVELOPMENT-SERVICES/documents/planning/ShorelineOwners.pdf, accessed February 2013.

City of Redwood City. The Proposed Saltworks Project. http://www.redwoodcity.org/phed/planning/saltworks/, accessed February 2013.

East Bay Regional Park District. Hayward Regional Shoreline. http://www.ebparks.org/parks/hayward, accessed February 2013.

SECTION 7.6 ENERGY RESOURCES AND EFFICIENCY

Introduction

This section provides a description of the existing energy resources found and consumed within Hayward, Alameda County, and the State of California. Energy resources support the expansion of the region's economic base, its agricultural sector, available developable land, its utility base, and infrastructure capacity.

Major Findings

- PG&E maintains three major transmission lines running west to east across Alameda County to substations in Hayward, San Mateo, and Fremont. In order to avoid the need to construct new, large-scale electricity generation facilities as energy demand increases, both the State and regional energy purveyors have focused on reducing the growth in demand through energy conservation and efficiency over the past decade.
- In 2011 California produced 200,636 GWh of power in-state (a decrease since 2006), including 45 percent natural gas, 18 percent nuclear, 17 percent renewable energy (wind, solar, geothermal, biomass, small-scale hydropower), 18 percent large-scale hydropower, and 2 percent coal. Approximately 71 percent of the electricity consumed in California is produced in the state, with the remainder imported from either the Pacific Northwest (8 percent) or the Southwest (21 percent).
- Californians consumed 6,721 kilowatt hours (kWh) per capita of electricity in 2010, which was far below the national average of 12,146kWh and ranked 51st in the nation (including all 50 states and the national average). In 2005 Hayward's per capita electricity consumption was 6.31 MWh, whereas the U.S. average was 12.4 MWh.
- Total electricity consumption in Alameda County, which has decreased since 2006, was 10,937 million kWh total in 2011, including 3,046 million kWh (28 percent) of residential electricity consumption and 7,891 million kWh (72 percent) of non-residential (e.g., commercial, industrial) electricity consumption.
- In 2010 Hayward consumed a total of 910 million kilowatt kWh of electricity, with residential electricity consumption at 252 million kWh and commercial and industrial consumption at 657 million kWh.
- Only 12 percent of the natural gas consumed in California is produced in the state. Most natural gas resources are imported from the Southwest (42 percent), the Rockies (23 percent), or Canada (22 percent). Natural gas consumption in the county decreased from 441 million therms in 2006 to 422 million therms in 2011. In 2011 approximately 245 million therms (58 percent) were consumed by residential uses and 177 million therms (42 percent) consumed by non-residential uses.

- In 2010 Hayward consumed 35 million therms of natural gas with residential consumption at 19 million therms and commercial and industrial consumption at 16 million therms.
- Based on 2011 retail gasoline sales, 548 million gallons of gasoline were sold in Alameda County (a decrease from 2008), or approximately 4 percent of the statewide sales total of 14,596 million gallons.
- Residents and businesses in Alameda County purchased roughly 28 million gallons of diesel fuel in 2011 (a decrease from 2008), ranking 15th in the state.
- Approximately 38 percent of the crude oil consumed in California is produced in the state. The remainder is imported from either Alaska (12 percent) or from overseas (50 percent). The state as a whole currently has about 2,938 million gallons of proven oil reserves. Alameda County produced 14,858 barrels of oil in 2011.
- Hayward uses energy from power generating facilities located in Alameda County, including: 21 wind, five waste-to-energy, one hydroelectric, and one solar power generation facilities. There is currently (2012) one renewable energy production facility within the city: the Hayward Wastewater Solar Facility.
- California has already reduced energy demand by 1,888.69 peak MW, saved 10,406.8 gross annual GWh of energy, and saved 135.29 gross annual Mth of natural gas since 2010.
- With implementation of the California Energy Action Plan, the State expects to experience a 20.4 percent reduction in residential and commercial energy use and a 21.7 percent reduction in residential and commercial peak energy use by 2020.

Existing Conditions

Energy Resources

California has passed legislation to address concerns over energy security, air quality, climate change, and energy demand since 2008. While customers advocate for affordability, many areas within the State lack the implementation of conservation practices and, therefore, still require new energy facilities. Pacific Gas and Electric (PG&E), one of the five largest utilities in the State, is the only purveyor of electricity and natural gas in the city. PG&E has been actively involved in supporting several renewable energy projects as a way to meet increasing energy demands within the region and the State's Renewable Portfolio Standard (RPS).

PG&E maintains three major transmission lines running west to east across Alameda County to substations in Hayward, San Mateo, and Fremont. Because population growth is a key driver for increasing residential and commercial energy demands and for water pumping and other services, and because the city population and energy demand is forecast to grow in the future, energy demands in the county will increase. In order to avoid the need to construct new, large-scale electricity generation facilities, both the State and regional energy purveyors have focused

on reducing the growth in demand through energy conservation and efficiency over the past decade. As such, there has been increasing investment in a range of energy efficiency and conservation programs.

Electricity Use

As shown in Table 7-15, in 2011 California produced 200,636GWh of electricity in-state, which included 45 percent natural gas, 18 percent nuclear, 17 percent renewable energy,18 percent large-scale hydropower, and 2 percent coal. Although in-state electric generation increased from 2005 to 2006, in-state electric generation has since decreased from 2006 to 2011. Additionally, total system power production (including both in-state and out-of-state) decreased from 2010 to 2011.

TABLE 7-15
CALIFORNIA ELECTRIC GENERATIONBY FUEL TYPE
California
2005-2011

Fuel Type	Date						
	2005	2006	2007	2008	2009	2010	2011
Coal	4,283	4,190	4,217	3,977	3,735	3,406	3,120
Biomass	6,030	5,791	5,684	5,858	5,974	5,804	5,824
Geothermal	13,292	13,093	13,029	12,907	12,907	12,740	12,685
Nuclear	36,155	32,036	35,698	32,482	31,509	32,214	36,666
Natural Gas	97,336	109,453	120,510	123,172	117,315	109,846	90,919
Large-scale Hydropower	34,228	41,861	23,071	20,410	24,835	29,315	36,583
Small-scale Hydropower	6,022	6,684	4,031	4,046	4,383	5,012	6,148
Solar	660	616	668	733	850	909	1,097
Wind	4,084	4,902	5,570	5,724	6,249	6,172	7,594
Total	**202,090**	**218,626**	**212,478**	**209,309**	**207,757**	**205,418**	**200,636**

Source: California Energy Commission. Energy Almanac. Electric Generation Capacity & Energy: 2011-2011. http://energyalmanac.ca.gov/electricity/electric_generation_capacity.html, accessed February 2013.

Approximately 71 percent of the electricity consumed in California is produced in the state, with the remainder imported from either the Pacific Northwest (8 percent) or the Southwest (21 percent). As a result, the State is pressed to ensure that public and private utility companies provide adequate electricity supplies and that those supplies are obtained from preferred generation methods. The State has expressed the following preferences for matching energy demand with supply: 1) increasing energy efficiency and reducing demand, 2) implementing renewable energy resource power supplies, and 3) using clean and efficient natural gas-fired power plants.

Californians consumed 6,721 kilowatt hours (kWh) per capita of electricity in 2010. The state's per capita electricity consumption is ranked 51st in the nation (least consumptive or most efficient of all 50 states and the national average). In comparison, the national average is 12,146

kWh of electricity per capita. In 2005 Hayward's per capita electricity consumption was 6.31 MWh, whereas the U.S. average was 12.4 MWh.

In 2006 total Alameda County electricity consumption was 11,097 million kWh, with residential electricity consumption at 3,088 million kWh (28 percent), and non-residential electricity consumption at 8,008 million kWh (72 percent). Total electricity consumption in Alameda County has since decreased to 10,937 million kWh total in 2011, including 3,046 million kWh (28 percent) of residential electricity consumption and 7,891 million kWh (72 percent) of non-residential (e.g., commercial, industrial) electricity consumption. Based on 2011 residential electricity usage and population estimates, residential electricity use in the county was approximately 2,007 kWh per capita.[1] In 2010 Hayward consumed a total of 910 million kWh of electricity, with residential electricity consumption at 252 million kWh and commercial and industrial consumption at 657 million kWh.

A detailed breakdown of electricity consumption between 2005 through 2011 is provided in Table 7-16. The commercial sector consumed the greatest amount of electricity, followed by the residential sector. All sectors increased energy consumed from 2005 to 2009, except for the mining sector. All sectors were also projected to increase energy consumption from 2009 to 2011, except for the agricultural sector.

TABLE 7-16
CALIFORNIA ELECTRICITY CONSUMPTION BY SECTOR
California
2005-2011

Sector	2005	2006	2007	2008	2009	2010*	2011*
Residential	85,319	89,617	89,065	91,473	90,172	90,712	91,542
Commercial	99,641	102,976	105,040	106,569	102,729	103,143	104,478
Industrial	44,484	44,124	44,515	44,142	42,724	42,666	43,279
Mining	6,756	6,753	6,883	7,088	6,812	6,649	6,881
Agricultural	19,112	20,337	23,239	20,705	20,858	20,831	20,794
Other	15,880	16,203	16,631	16,794	16,754	16,842	17,027
Total	**271,192**	**280,010**	**285,373**	**286,771**	**280,049**	**280,843**	**284,001**

*Note: *All dates after 2009 are based on projections made in 2009.*
Source: California Energy Commission. California Energy Demand 2010-2020 Adopted Forecast. Commission Report CEC-200-2009-012-CMF. December 2009.

Natural Gas Use

The state produces only about 12 percent of the natural gas it consumes. Most natural gas resources are imported from the Southwest (42 percent), Rockies (23 percent), or Canada (22 percent). Natural gas consumption in the county decreased from 441 million therms in 2006 to

[1] Per capita energy usage was based on total residential electricity usage in 2011 provided by the California Energy Commission and 2011 population estimates (1,517,756 people in Alameda County) from the Department of Finance, 2012, E-1 Population Estimates for Cities, Counties, and the State — January 1, 2011 and 2012.

422 million therms in 2011. In 2006 there were 236 million therms (54 percent) consumed by residential uses and 206 million therms (46 percent) consumed by non-residential uses. In 2011 there were approximately 245 million therms (58 percent) consumed by residential uses and 177 million therms (42 percent) consumed by non-residential uses. Based on 2011 natural gas usage and population estimates, residential use was approximately 278therms per capita. In 2010 Hayward consumed 35 million therms of natural gas with residential consumption at 19 million therms and commercial and industrial consumption at 16 million therms.

A detailed breakdown of natural gas consumption between 2005 through 2011 is provided in Table 7-17. The residential sector consumed the greatest amount of natural gas, followed by the industrial and mining sectors. All sectors decreased natural gas consumption from 2005 to 2009, except for the agricultural and "other" sectors. All sectors were projected to increase natural gas consumption from 2009 to 2011, except for the agricultural sector which was projected to hold constant.

TABLE 7-17
CALIFORNIA NATURAL GAS CONSUMPTION BY SECTOR
CALIFORNIA
2005-2011

Sector	2005	2006	2007	2008	2009	2010*	2011*
Residential	4,885	5,004	5,034	4,905	4,801	4,847	4,895
Commercial	1,929	2,094	2,009	1,916	1,880	1,894	1,927
Industrial	3,166	3,247	3,072	2,971	2,868	2,816	2,856
Mining	2,763	2,406	2,413	2,340	2,291	2,238	2,299
Agricultural	131	133	152	146	143	143	143
Other	166	209	187	220	223	225	226
Total	**13,040**	**13,093**	**12,867**	**12,498**	**12,206**	**12,163**	**12,346**

*Note: *All dates after 2009 are based on projections made in 2009.*
Source: California Energy Commission. California Energy Demand 2010-2020 Adopted Forecast. Commission Report CEC-200-2009-012-CMF. December 2009.

Retail Gasoline and Diesel Fuel Use

Based on 2011 retail gasoline sales (which does not include commercial fleet, governmental entity, and rental facility sales, 548 million gallons of gasoline were sold in Alameda County, or approximately 4 percent of the statewide sales total of 14,596 million gallons. While Alameda County had the eighth largest sales quantity in the state, retail gasoline sales have actually decreased from a total of 586 million gallons in 2008. Similarly, residents and businesses in the county purchased roughly 28 million gallons of diesel fuel in 2011, a decrease from a total of 39 million gallons in 2008. Diesel fuel sales in Alameda County rank 15th in the state.

The state produces approximately 38 percent of the crude oil its residents consume. The remainder is imported from either Alaska (12 percent) or from overseas (50 percent). The state as a whole has about 2,938 million gallons of proven reserves, with a production of

approximately 229,555 thousand barrels of crude oil in 2011. Alameda County produced 14,858 barrels of oil in 2011.

Renewable Energy Resources

Hayward uses energy from power generating facilities located in Alameda County, including: 21 wind, five waste-to-energy, one hydroelectric, and one solar. There is currently (2012) one renewable energy production facility within the city. The City of Hayward owns the Hayward Wastewater Solar Facility located at the end of Enterprise Avenue in western Hayward. The plant, which also opened in 2011, produces 1MW of energy from a photovoltaic solar array.

Energy Efficiency

In the broadest terms energy efficiency involves using less energy to provide the same level of service. Energy efficiency strategies range from weatherization programs for better home insulation, the installation of compact fluorescent (CFL) or LED lights instead of incandescent lights, and the installation of double-pane windows, to create more innovative power systems that enhance energy productivity through industrial processes. While the intent is to use less energy, energy efficiency strategies also address pollution issues, climate change, energy security, and dependency on fossil fuels.

In 2003 California adopted an energy action plan that focuses on energy efficiency as the primary way in which the state would meet its future energy needs. With implementation of the California Energy Action Plan, the State expects to experience a 20.4 percent reduction in residential and commercial energy use and a 21.7 percent reduction in residential and commercial peak energy use by 2020. According to the Energy Efficiency Groupware Application (EEGA), a public repository of California Investor Owned Utility submitted reports on California energy efficiency programs and savings achievements, California has already reduced energy demand by 1,888.69 peak MW, saved 10,406.8 gross annual GWh of energy, and saved 135.29 gross annual Mth of natural gas since 2010.

Regulatory Setting

Federal

Federal Energy Regulatory Commission. The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines, and licenses hydropower projects. Licensing of hydroelectric under the authority of FERC includes input from State and Federal energy, environmental protection, fish and wildlife, and water quality agencies. The California Energy Commission's Systems Assessment and Facilities Siting Division provides coordination to ensure that needed energy facilities are authorized in an expeditious, safe, and environmentally-acceptable manner.

State

California Energy Commission. The California Energy Commission (CEC) is California's primary energy policy and planning agency. Created by the California Legislature in 1974, CEC has five major responsibilities: 1) forecasting future energy needs and keeping historical energy data; 2) licensing thermal power plants 50 MW or larger; 3) promoting energy efficiency through appliance and building standards; 4) developing energy technologies and supporting renewable energy; and 5) planning for and directing State response to energy emergencies. Under the requirements of the California Public Resources Code, CEC, in conjunction with the California Department of Conservation Division of Oil, Gas, and Geothermal Resources, is required to assess electricity and natural gas resources on an annual basis or as necessary.

Electric Utility Industry Restructuring Act of 1998 (Assembly Bill 1890). Initially intended to deregulate the provision of electric utilities to encourage competition, the Electric Utility Industry Restructuring Act of 1998 primarily focused on public benefits/public goods programs. These programs fund energy efficiency programs and development of renewable resources in the form of rebates, low-income assistance, and research and development programs.

Energy Action Plan (2003). In 2003 California adopted an energy action plan that focuses on energy efficiency as the primary way in which the state would meet its future energy needs.

Energy Efficiency Act of 2006 (Assembly Bill 2021). Assembly Bill (AB) 2021 encourages all investor-owned and municipal utilities to aggressively invest in all achievable, cost-effective energy efficiency programs in their service territories. The results of AB 2021 are expected to reduce forecasted electricity demand by 10 percent over ten years from 2006 through 2016, offsetting the projected need to build 11 new major power plants.

Renewables Portfolio Standard (RPS) (CA Public Utilities Code Section 399.11 et seq., and Public Resources Code Section 25740 et seq.). Effective January 1, 2003, the California Legislature mandated an increase in the percentage of renewable retail electricity sales by publicly regulated electrical utilities by at least 1 percent per year, to reach at least 20 percent by the end of 2010 and 33 percent by the end of 2020.

Collectively, California's three largest service providers served 20.1 percent of their 2011 retail electricity sales with renewable power, with PG&E delivering 19.4 percent renewable electricity sales, Southern California Edison delivering 20.1 percent renewable electricity sales, and San Diego Gas and Electric delivering 20.8 percent renewable electricity sales.

Executive Order S-06-06. Executive Order S-06-06 calls out the benefits and potential of bioenergy in helping meet the future needs of the state for clean, renewable power, fuels, and hydrogen. By 2010 it calls for the production of 20 percent of biofuels in California, an increase of this amount to 40 percent by 2020, and to 75 percent by 2050. It also aims to produce 20 percent of the renewable electricity generated from biomass resources within the state by 2010. This bioenergy action plan is tasked by the CEC through the California Biomass Collaborative to prepare a roadmap for biomass research and development.

Executive Order S-14-08. Executive Order S-14-08 established the goal of reaching 33 percent of renewable retail electricity sales by publicly related electrical utilities by 2020. It was signed to streamline the renewable energy project approval process and to increase the State's Renewable Portfolio Standard. In other words, it increases the development of renewable electricity sources, energy efficiency, and demand response needed to increase the state's renewable portfolio and meet GHG emission reduction goals by 2050.

Executive Order S-21-09. Executive Order S-21-09 increases California's Renewable Portfolio Standard (RPS) to 33 percent by 2020, which was first established by EO S-14-08. It allows the Air Resources Board (CARB) and other agencies such as the Public Utilities Commission (PUC) and California Energy Commission to ensure regulations are adopted that consider approaches to achieve AB 32 and S-14-08.

Senate Bill 375 (2008). Senate Bill (SB) 375, signed into law on September 30, 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation in an effort to reduce energy consumption. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years, but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

Local

Hayward Climate Action Plan. The Hayward Climate Action Plan provides a roadmap for achieving a measurable reduction in GHG emissions, as consistent with State law (i.e., Assembly Bill 32 and Executive Order S-03-05). Hayward has set the target of reducing GHG emissions to 12.5 percent below 2005 emission levels by 2020. Hayward also set an interim goal of 6 percent below 2005 emission levels by 2013, and a long-term goal of 82.5 percent below 2005 emission levels by 2050. The Plan includes three strategies for reducing energy use: improve the energy performance of existing buildings, improve the energy performance of new buildings, and use renewable energy. The Plan also includes two strategies to reduce fuel use: reduce vehicle miles traveled and decrease the carbon intensity of vehicles.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to energy service:

- Through Ordinance 10-15 the City of Hayward adopted the 2010 California Building Code including the 2010 California Green Building Standards Code Part 11, effective January 1, 2011.

- City of Hayward Municipal Code Chapter 10, Article 21 requires that all city-owned buildings meet a minimum LEED Silver rating. Projects using the LEED checklist must earn a minimum of 20 points.
- City of Hayward Municipal Code Chapter 10, Article 22 requires that all new multifamily and single family residential projects are GreenPoint rated and demonstrate full compliance with the California Building Energy Efficiency Standard (Title 24, part 6) at the time of permitting.

Key Terms

The following key terms used in this chapter are defined as follows:

British thermal unit (Btu). The quantity of heat required to raise the temperature of one pound of liquid water by one degree Fahrenheit at the temperature at which water has its greatest density.

Energy Resources. Sources of electricity and natural gas. Electrical generation may come from natural gas, biomass, hydroelectric plants, solar, or wind.

Gigawatthours (GWh). A unit of measurement for electricity equal to one thousand megawatthours or one billion watt hours.

Kilowatthours (kWh). A unit of measurement for electricity equal to one thousand watt hours.

Megawatthours (MWh). A unit of measurement for electricity equal to one thousand kilowattwatt hours or one million watt hours.

Mth. Therm.

MW. Megawatt.

Resources. A concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a location and in such an amount that economic extraction of the commodity is feasible.

Reserve. The part of the resource base that can be economically extracted or produced in the foreseeable future. The term reserve does not imply that extraction facilities are in place and operational.

Therm. A unit of heat energy equal to 100,000 British thermal units (BTU). It is approximately the energy equivalent of burning 100 cubic feet of natural gas.

Bibliography

Reports/Publications

California Energy Commission. California Energy Demand 2010-2020 Adopted Forecast. Commission Report CEC-200-2009-012-CMF. December 2009.

California Department of Finance. E-1 Population Estimates for Cities, Counties, and the State — January 1, 2011 and 2012. May 2012.

Websites

California Department of Conservation.Oil, Gas, and Geothermal. ftp://ftp.consrv.ca.gov/pub/oil/temp/NEWS/Producing_Wells_OilGasWater_11.pdf, accessed February 2013.

California Energy Commission. Energy Almanac. California's Major Sources of Energy. http://energyalmanac.ca.gov/overview/energy_sources.html, accessed February 2013.

California Energy Commission. Energy Almanac. Electric Generation Capacity & Energy: 2011-2011. http://energyalmanac.ca.gov/electricity/electric_generation_capacity.html, accessed February 2013.

California Energy Commission. Energy Almanac. Oil Supply Sources to California Refineries. http://energyalmanac.ca.gov/petroleum/statistics/crude_oil_receipts.html, accessed February 2013.

California Energy Commission.Retail Diesel Sales by County. http://energyalmanac.ca.gov/gasoline/retail_fuel_outlet_survey/retail_diesel_sales_by_county.html, accessed February 2013.

California Energy Commission.Retail Gasoline Sales by County. http://energyalmanac.ca.gov/gasoline/retail_fuel_outlet_survey/retail_gasoline_sales_by_county.html, accessed February 2013.

California Energy Commission. Energy Almanac. Total Electricity System Power. http://energyalmanac.ca.gov/electricity/total_system_power.html, accessed February 2013.

California Energy Commission. Energy Almanac.U.S. Per Capita Electricity Use by State in 2010. http://energyalmanac.ca.gov/electricity/us_per_capita_electricity-2010.html, accessed February 2013.

California Energy Commission. Energy Consumption Data Management System. Electricity Consumption by County. http://www.ecdms.energy.ca.gov/elecbycounty.aspx, accessed February 2013.

California Energy Commission. Energy Consumption Data Management System. Gas Consumption by County. http://www.ecdms.energy.ca.gov/gasbycounty.aspx, accessed February 2013.

California Public Utility Commission. Energy Efficiency Groupware Application. Current Program Cycle Reported Savings as of December 2012. http://eega.cpuc.ca.gov/, accessed February 2013.

US Energy Information Administration. Crude Oil Reserves, Reserves Changes, and Production. http://www.eia.gov/dnav/pet/pet_crd_pres_dcu_SCA_a.htm, accessed February 2013.

SECTION 7.7 MINERAL RESOURCES

Introduction

The following section provides information on mineral resources located within the city of Hayward. Mineral resources include resources such as sand, clay, and gravel.

Major Findings

- The US Geological Survey has identified eleven past, present, or prospective mining sites within the city of Hayward.
- The only State-designated mineral resource "sector" of regional significance in Hayward is the La Vista Quarry. All operations at the site have been terminated and the Surface Mining Permit for the La Vista Quarry issued by Alameda County expired in 2008.

Existing Conditions

Mineral Resources

As shown in Figure 7-8, the US Geological Survey has identified 11 past, present, or prospective mining sites within the city of Hayward. The past and present mining sites include those owned by the American Salt Company, the Oliver Salt Company, East Bay Excavation Company, and Ideal Cement Company, as well as the La Vista Quarry and Mill. These sites contain or contained a variety of mineral resources, including: stone, limestone, clay, fire clay, halite, and salt. There are three sites identified for prospective stone and clay extraction.

The State requires local jurisdictions to protect areas with economically significant mineral resources from incompatible development. In an effort to maintain availability of sand, gravel, and crushed rock for long-term construction needs, the California Division of Mines and Geology (under the authority of the Surface Mining and Reclamation Act of 1975) has classified aggregate mineral zones throughout the state. The only designated mineral resource "sector" of regional significance in Hayward is the La Vista Quarry, located in the area east of Mission Boulevard and Tennyson Road. The quarry is designated as Sector N, a greenstone deposit in the city of Hayward. "Probable" and "potential" resource zones have been designated in the vicinity of the quarry. No other significant aggregate or mineral resources are located in the city.

All operations at the La Vista Quarry site have been terminated due to depletion of the accessible aggregate resource. The Surface Mining Permit for the quarry issued by Alameda County expired in 2008. The City annexed the La Vista Quarry in 2006. The 2002 General Plan designates the quarry site as Parks and Recreation and Limited Open Space which is compatible with the State-mandated reclamation plan.

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Figure 7-8
Past, Present, and Prospective Mining Sites

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Prospective Stone Extraction

Prospective Stone Extraction

East Bay Excavation Co.

American Salt Co.

Oliver Bros. Salt Co.

La Vista Quarry and Mill

Oliver Bros. Salt Co.

Interpace

Prospective Clay Extraction

Ideal Cement Co.

Ashland

Cherryland

San Lorenzo

Hayward Acres

Fairview

Hayward

County

San Leandro

Union City

Fremont

Newark

0 0.5 1 2 Miles

Mines
Hayward City Limits
Urban Limit Line
Hayward Sphere of Influence
Streets
Hayward Planning Area
Sector N

Data source: US Geological Survey, 2005.; CA Department of Conservation, 1982.

February, 2013

Regulatory Setting

Federal

There are no Federal regulations applicable to mineral resources in Hayward.

State

Surface Mining and Reclamation Act (SMARA) of 1975. The California Public Resource Code, Division 2: Geology, Mines and Mining, Chapter 9: The California Surface Mining and Reclamation Act (SMARA) of 1975 mandates that the State Board of Mining and Geology Board (SMGB) and Division of Mines and Geology (DMG) prepare a mineral resource report for each county. SMARA additionally regulates the permitting of mining operations, provides for inspections during the life of the mine, and contains provisions to ensure that remediation occurs after completion of mining operations. SMARA is administered by the California Department of Conservation, Office of Mine Reclamation. SMARA requires cooperative efforts from the California Geological Survey (CGS) and the SMGB to identify and classify mineral areas in the state.

CGS classifies mineral resources in one of four Mineral Resource Zones (MRZ) or as a Scientific Zone (SZ), as described in Table 7-18. Resources of specific significance can be designated by SMGB as having regional or statewide significance.

TABLE 7-18
MINERAL RESOURCE ZONE DEFINITIONS
Statewide

Mineral Resource Zone	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
MRZ-4	Areas where available information is inadequate for assignment to any other MRZ zone.
SZ	Areas containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

Source: Guidelines, Title 14, California Administrative Code, Chapter 8, Subchapter 1, Article II, Section (2).

Local

Alameda County Code of Ordinances, Chapter 6.80 Surface Mining and Reclamation. Chapter 6.80 of the Alameda County Code of Ordinances requires a surface mining permit, reclamation plan, and financial assurances to conduct surface mining operations. Surface mining operators are required to submit an annual surface mining report to the State

Department of Conservation and the Alameda County Planning Director. The County charges an administrative fee of $0.075 per ton of aggregate material sold. The County protects mineral resources by preventing the encroachment of incompatible uses. Chapter 6.80 also includes requirements for slopes, setbacks, fencing, screening, drainage, erosion, noise, groundwater use, traffic access and safety, and hours of operation on mining sites. The County requires intermittent surface mining operators to submit interim management plans and provide 30-day notice before closing and reopening the mine.

City of Hayward Municipal Code Article 18, Surface Mining and Reclamations. Article 18 of the City of Hayward Municipal Code adopts the California SMARA provisions and requires a conditional use permit, reclamation plan, and financial assurances to conduct surface mining operations. Surface mining operators are required to submit an annual surface mining report to the State Department of Conservation and the City of Hayward Planning Division. The City charges an administrative fee of $0.075 per ton of aggregate material sold to the Planning Division to help cover the Division's costs in administering Hayward's surface mining, reclamation and associated programs to help cover the agency's costs in administering Alameda County's surface mining, reclamation, and associated programs. The City protects mineral resources by preventing the encroachment of incompatible uses.

Key Terms

The following key terms used in this chapter are defined as follows:

Aggregate. A resource composed of sand, gravel, and crushed stone used in the construction of buildings, roads, and other structures and facilities.

Mineral Deposit. A mass of naturally occurring mineral material, such as metal ores or nonmetallic mineral, usually of economic value. The mineral material may be of value for its chemical and/or physical characteristics.

MRZ. Mineral Resource Zone.

Resources. A concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in a location and in such an amount that economic extraction of the commodity is feasible. Typical materials with economic value include gold, precious metals, and materials used in construction, such as sand, gravel, and clay.

SMARA. State Mining and Reclamation Act adopted to protect mineral resources.

State Department of Conservation. The State Department of Conservation oversees reclamation requirements and issues pertaining to mineral resources.

Bibliography

Reports/Publications

City of Hayward. General Plan. 2002.

City of Hayward. General Plan. Draft Environmental Impact Report. 2001.

Websites

US Geological Survey. Mineral Resources Data System. 2005. http://mrdata.usgs.gov/mrds/, accessed February 2013.

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SECTION 7.8 HYDROLOGY, WATER QUALITY, AND CONSERVATION

Introduction

This section summarizes and analyzes available hydrologic and water quality information for the City of Hayward. Improving water quality and stream function, and protecting the health of water resources in the city and the Bay are matters of regional concern, and more often than not key challenges defy municipal boundaries and require collaborative solutions. Also, in many cases the best or most recent data is available at the regional level. For these reasons this section casts a wide net and discusses major themes impacting Hayward and the region as a whole. State, regional, county, and municipal resources were consulted to present water quality and hydrologic trends and conditions.

Major Findings

- The majority of rainfall and runoff in Bay Area watersheds occurs on average during the wet season months of October to April, inclusive. Rainfall data collected for Hayward as part of the Regional Monitoring Program also generally follows this pattern. However, most immediately available data reflects years prior to 2008.
- The City of Hayward is located in the Santa Clara Valley Groundwater Basin. Two sub basins coincide with the land within its boundaries: the East Bay Plain Sub basin and the Niles Cone Sub basin. The Niles Cone Sub basin corresponds with southern portions of Hayward, and is bisected by the Hayward fault. The Hayward fault is relatively impermeable and impedes groundwater flow, as demonstrated by the varying water groundwater levels on either side.
- Several creeks and storm drains pass through the city of Hayward. The city does not contain any dams or open reservoirs. Currently, none of Hayward's tributaries are listed as impaired on the Clean Water Act Section 303(d) list of threatened and impaired waters.
- Stormwater management for Hayward was once regulated according to the Alameda Countywide National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit. This County-based permit has been replaced with a new NPDES permit for the entire San Francisco Bay Area. San Francisco Bay Region NPDES Municipal Regional Stormwater Permit was adopted in October 2009 and revised in November 2011.
- Key pollutants of concern for the San Francisco Bay region include copper, mercury, pesticides, and polychlorinated biphenyls (PCBs). Trash has emerged as a major surface water quality issue in the Bay and its tributaries. Central and South Bay shorelines were added to the 2010 Clean Water Act 303(d) List due to the increased presence of trash.

- The Alameda Countywide Clean Water Program is an active participant in the Regional Monitoring Program (RMP) for the San Francisco Estuary. Some data looking at key pollutants of concern has been collected in Hayward, including data from Hayward's Zone 4 Line A drainage channel for Water Year 2007. Monitoring required by the MRP also includes assessment of human impacts on habitats in or adjacent to creeks. The Clean Water Program's first monitoring year in 2012 included biological community sampling from some flood control channels in Hayward; data will be released in early 2013.
- A number of agencies and organizations are involved in water management and conservation in the East Bay. Water resource conservation partners for Hayward include Alameda County, Alameda County Flood Control and Water Conservation District, and all local agency members of the Alameda Countywide Clean Water Program.
- The 2013 update of the Bay Area Integrated Regional Water Management Plan (IRWMP) is an opportunity to receive State grant funding for collaborative, integrated water resource planning and management projects to achieve multiple water resource management objectives for the City and its partners.

Existing Conditions

The health and function of the Bay Area's surface and groundwater resources are of vital importance to community health and quality of life, preservation of key species and habitat, and essential ecosystem services such as flood protection and storage, and availability of clean water resources for multiple community uses. Land use activities traditionally governed or influenced by General Plan policies have over the years substantially impacted the hydrology of local streams and water quality above and below ground.

The information presented here is intended to support the preservation and development of policies that help advance both City and regional goals and that help meet or exceed current standards and practices. Discussion of water quality in this section focuses primarily on surface water quality, primarily because this data is more readily available and accessible and because Federal and State standards related to municipal policies and local actions focus largely on surface waters. Hydromodification, or hydrologic alteration, is largely addressed through controls during new development or redevelopment. For this reason, a brief discussion of this concept is also included.

Overview of Hayward Hydrology

Hayward and the Bay Area are part of the San Francisco Bay/Sacramento-San Joaquin Delta system, the largest estuary on the west coast of North and South America. This environmentally sensitive ecosystem supports over 750 plant and animal species, and is a waterfowl migration and wintering area of international importance. The Bay-Delta also provides drinking water to over two-thirds of Californians, and irrigation water for more than seven million acres of agricultural land.

Surface Waters

Several creeks and storm drains originate or pass through the city of Hayward, ultimately draining into San Francisco Bay. The biggest watershed is San Lorenzo Creek, which drains an area of approximately 44 square miles at the Foothill Blvd crossing. Its branches include Crow, Cull, Castro Valley, Chabot, Eden, Palomares, and upper Sulphur Creeks. Except for the 0.7 square mile watershed of upper Sulfur Creek, the other watersheds are almost completely located outside of Hayward to the north and east.

The Main Outlet Channel (Zone 3A, Line A) watershed encompasses an area of approximately 22 square miles at the Union Sanitary District's treatment plant. It includes tributaries from Ward Creek (Line B), Zeile Creek (Line C), the area draining to the channel along Industrial Parkway West (Line D), and the Old Alameda Creek channel (Line A-1). Ward Creek Dam is located in the hills in the northeast corner of the city. It is operated by the Alameda County Flood Control District strictly for flood control purposes. The other main watershed is the District's Zone 4, Line A channel. It drains generally the west-central portion of Hayward. At the San Francisco Bay outfall the drainage area encompasses approximately 2.5 square miles.

There are no dams or open reservoirs within the city limits of Hayward.

Groundwater

The city of Hayward is located in the Santa Clara Valley Groundwater Basin. Two sub basins coincide with the land within its boundaries: the East Bay Plain Sub basin and the Niles Cone Sub basin. The East Bay Plain is a northwest trending alluvial plain bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rock, and on the south by the Niles Cone Groundwater Basin. The East Bay Plain Basin extends beneath San Francisco Bay to the west. Numerous creeks including San Lorenzo Creek flow from the western slope of the Coast Ranges westward across the plain and into the San Francisco and San Pablo Bays.

The Niles Cone Groundwater Basin comprises the southern portion of the east Bay Area, bounded on the south by the Alameda-Santa Clara County boundary and on the north by the boundary of Alameda County Water District (ACWD), and southern portions of the City of Hayward. The Niles Cone Basin is comprised primarily of the alluvial fan formed by Alameda Creek as it exits the Diablo Range and flows toward the San Francisco Bay. The Niles Cone Basin is bounded on the east by the Diablo Range and on the west by the San Francisco Bay. Alameda Creek, the principal stream in the basin, flows near the eastern and northern margins of the basin.

The Hayward Fault, which cuts across the apex of the Niles Cone alluvial fan, impedes the westward flow of groundwater and separates the Niles Cone into two areas, the Below Hayward Fault (BHF) and the Above Hayward Fault (AHF) s. Large differences in water levels on either side of the fault demonstrate its relatively impermeable nature.

Surface water and groundwater resources are often inextricably linked. Upland areas (known as the forebay of the basin) serve as recharge areas for the Santa Clara Valley Basin, where precipitation infiltrates into the soil and percolates to the groundwater table, before flowing towards the natural discharge points at the margins of and beneath the Bay. Prior to historic land use development, precipitation and recharge in upland areas and discharge in surface springs and beneath the Bay was sufficient to prevent the infiltration of surface water from the Bay. It was when these natural conditions were altered (primarily by increased groundwater extraction) that historical saltwater intrusion of groundwater occurred. Currently, groundwater in the Santa Clara Valley Basin generally flows towards the Bay, preventing salinity intrusion from occurring. Groundwater flow in the area is expected to continue to flow towards the Bay in the future unless there is a significant change in groundwater pumping.

Table 7-19 below includes depth to groundwater information for five wells in Hayward. The most recent well measurements on record with California Department of Water Resources (DWR) were taken in the year 2000 by Alameda County. Based on this data, average depth to groundwater is 22.5 feet.

TABLE 7-19 GROUNDWATER LEVEL DATA Hayward, California				
Well Number	**General Location**	**Depth to Groundwater (feet)[1]**	**Ground Surface Elevation (feet)**	**Date of Measurement**
03S02W08L003M	E. Winton Ave, west of Soto Road	23.6	57.0	03-22-2000
03S02W30G005M	Dunn Road, west of Clawiter Road	8.1	23.0	03-20-2000
03S02W29F004M	Chabot College	13.2	40.0	03-22-2000
03S02W29A003M	North of Malcolm Lane, west of Nimitz Freeway	23.2	57.0	03-17-2000
03S02W27A001M	Holy Sepulchre Cemetery	44.4	87.0	03-20-2000

[1]Measured as distance from ground surface.
Source: California Department of Water Resources Water Data Library, 2006.

Trends in Regional and Local Rainfall

The majority of rainfall (89-91 percent) and runoff (87-99 percent) in Bay Area watersheds occurs on average during the wet season months of October to April inclusive. Rainfall on the Zone 4 Line A watershed in Hayward (for which data has been collected as part of the Regional Monitoring Program) also follows this pattern. At the Hayward rain gauge 541A, on average during the period 2000-2007, 95 percent of rainfall occurred during the wet season months.

Available data shows slight variation in regional rainfall patterns and amounts. Average precipitation in the East Bay Plain ranges from about 17 inches in the southeast to greater than 25 inches along the eastern boundary, most of which occurs between the months of November and March. Average precipitation within the Niles Cone, which includes southern portions of Hayward, is about 18 inches annually, per California Department of Water Resource findings most recently updated in 2006. Hayward's Zone 4 Line A watershed as a whole receives between 14.4 and 14.9 inches per year on average, based on data analyzed in 2007.

More recent County data confirms a 13-year average for the years 2000 thru 2012 of 19.6 inches of rainfall per year, with a high mean annual level of precipitation of 27.7 inches reported in 2005, and a low mean of 13.4 inches in 2012. These numbers are based on daily statistics recorded by three rain gauges located in different parts of the city, reported by fiscal year (July 1-June 30).

Past and current hydrologic data available for Hayward's surface waters from the United States Geologic Survey California Water Science Center includes discharge (cubic feet per second), or

stream flow, as measured at specific stream gauge locations on San Lorenzo and Castro Valley Creeks. Hydrologic data is also available for Crow Creek near Hayward. In this context stream flow data can help serve as a useful index in generally characterizing rainfall patterns over time. However, hydrologic modifications must also be considered (see discussion of "hydromodification" below).

For example, the period of record for San Lorenzo Creek (October 1997 to September 2011) shows average stream flow at its highest in the month of February (61 cfs), and lowest in the month of September (0.75 cfs). Looking at the past five years of data available (2007-2011), March averages are greatest, while September trends hold.

Drinking Water

The East Bay Municipal Utility District provides drinking water to only a northern portion of Hayward; otherwise, the City manages its own drinking water. The City of Hayward purchases all of its water from the San Francisco Public Utilities Commission (SFPUC). The Hetch Hetchy Watershed (Tuolomne River) provides the majority of water delivered by SFPUC to Hayward. Spring snow melt runs down the Tuolumne River and is stored in the Hetch Hetchy Reservoir. SFPUC provides a small amount of water from the Alameda watershed, which is located in the East Bay and stored in the Calaveras and San Antonio Reservoirs. The two local reservoirs hold rain, local runoff, and some Hetch Hetchy water. This surface water source is supplemented by a small amount of ground water from Sunol Filter Galleries near the town of Sunol.

At the regional level water supply agencies manage a number of water resources including surface waters, ground waters, reclaimed water, imported water, and desalted water. As of 2006 regional water supplies are characterized as follows:

- Local supplies, including groundwater and surface water (31%)
- Sierra Nevada supplies, including water from the Tuolumne and Mokelumne Rivers (38 percent)
- Delta supplies, including but not limited to the State Water Project (managed by the State Water Resources Department), Central Valley Project (managed by the U.S. Bureau of Reclamation) (28 percent)
- "Other" sources including recycled water, desalination and water transfers (3 percent)

For a more complete report related to Hayward's drinking water supply, refer to the Utilities Background Report.

Water Quality Issues and Trends

Currently, none of Hayward's tributaries are listed by the State and Federal governments as an impaired water body (see discussion of Clean Water Act Section 303(d) in the Regulatory Setting section below for more information).

The Alameda County Clean Water Program and the Regional Monitoring Program identify the following key pollutants of concern in urban runoff from Bay Area municipalities and as priority to address in Alameda County:

- Mercury
- Polychlorinated Biphenyls (PCBs)
- Pesticides
- Copper
- Trash/litter
- Exotic species

In general, the amounts of these pollutants contributed by urban runoff are a function of urban density, and in some cases land use types. For example, PCBs are typically higher in runoff from industrial areas that were in existence prior to 1980. The Regional Monitoring Program recently monitored a site in western Hayward for most of these pollutants.

Key Pollutants of Concern

The following section presents a general discussion of key pollutants of concern for Alameda County, as well as the city of Hayward, previously outlined above.

Mercury

Mercury enters the environment through landfill leaching, wastewater treatment facilities, or as atmospheric deposition. As atmospheric deposition, mercury mixes with rain and then falls into waterways. According to State water quality officials, Bay Area residents and businesses dispose of approximately 13 million fluorescent lamps in landfills each year, causing the release of an estimated 100 to 130 kilograms per year of mercury vapor into the Bay region atmosphere.

Much of the mercury in the Bay is a remnant of the historic use of mercury in gold mining operations in the Sierra Nevada Mountains. Bacterial and chemical processes in the Bay cause Mercury concentrations to increase or "bioaccumulate" in the bodies of animals high in the food web. As a result, fish consumption advisories suggest that humans, particularly children and pregnant women, limit consumption of fish from San Francisco Bay to avoid harm to developing nervous systems.

Polychlorinated Biphenyls (PCBs)

The United States Environmental Protection Agency (EPA) lists PCBs as a potential carcinogen. In addition, PCBs are suspected of having negative impacts on the human immune system, reproductive system, nervous system, endocrine system, and digestive system. Although their manufacture is now banned in the United States, PCBs continue to pose a serious risk due to their persistence in the environment. PCBs accumulate in fatty tissue; this is important to human health in that several of the more common food fishes in the Bay (e.g., striped bass, white croaker) are marked by relatively high fat content.

The California Office of Environmental Health and Hazard Assessment issued an interim fish consumption advisory for all of San Francisco Bay, partly based on PCB concentrations found in Bay fishes. Urban runoff is highly likely to be a conveyance mechanism associated with the impairment of San Francisco Bay for PCBs.

Pesticides

Between 1950 and 1980 production of synthetic organic pesticides more than tripled in the United States, from about 400 million pounds in 1950 to over 1.4 billion pounds in 1980. Pesticides have been found in streams and storm drains throughout the Bay Area and California, often in concentrations toxic to aquatic life. Although a very small percentage of the pesticide amount that is applied finds its way into urban runoff, this is still enough to raise concerns about impacts to aquatic health.

Although most synthetic pesticides have not been detected in groundwater, a few have become significant contaminants. Twenty-two pesticides have been detected in U.S. wells, and up to 80 are estimated to have the potential for movement to groundwater.

Copper

Copper is a ductile metal with excellent electric and thermal conductivity. At higher concentrations copper can be extremely toxic to aquatic life; this toxicity can occur at levels that are not harmful to humans. This metal finds its way down storm drains through runoff from building materials and roads where copper is released from the brake pads of cars.

Copper is most commonly dissolved into drinking water by the corrosion of copper plumbing. Immediate effects from drinking water that contains elevated levels of copper include vomiting, diarrhea, stomach cramps, and nausea. The seriousness of these effects can be expected to increase with increased copper levels or length of exposure. Children under one year of age are more sensitive to copper than adults. Long-term exposure (more than 14 days) to copper in drinking water has been found to cause kidney and liver damage in infants.

Trash

Trash and litter are a pervasive problem near and in creeks and in San Francisco Bay. The Municipal Regional Permit defines trash to consist of litter and particles of litter. Trash and litter cause particularly major impacts on enjoyment of creeks and the Bay. There are also significant impacts on aquatic life and habitat in those waters and eventually to the global ocean ecosystem, where plastic often floats; persists in the environment for hundreds of years, if not forever; concentrates organic toxins; and is ingested by aquatic life. There are also physical impacts, as aquatic species can become entangled and ensnared and can ingest plastic that looks like prey, losing the ability to feed properly.

In February 2012 the City submitted its Baseline Trash Load and Short-Term Trash Reduction Plan to the Regional Water Quality Control Board (per Provision C.10 of the Municipal Regional Permit), which requires permittees to reduce trash from their Municipal Separate Storm Sewer Systems (MS4s) by 40 percent before July 1, 2014. The purpose of this Plan is to describe current implementation of control measures and best management practices, and identify the type and extent to which new or enhanced control measures and best management practices will be implemented to attain the 40 percent trash load reduction target.

Exotic Species

The Regional Monitoring Program identifies exotic species as a significant threat to Bay Area water quality, with a focus on saltwater aquatic animal species. The region's success in meeting regulatory goals for this identified pollutant are rated "fair to poor" in a 2011 summary of Bay water quality. Aquatic invasive species lists can be found via California Fish and Game's Invasive Species Program. California Invasive Plant Council inventory provides a list of upland and aquatic invasive plant species with priority/importance codes in the Central West portion of the state, including the Bay Area. Future project associated with the General Plan will require relevant review and permitting from the applicable agencies, including the Army Corps of Engineers.

Regional Pollutant Status Updates

Pollutant status updates for the San Francisco Estuary that are of greatest potential relevance to Hayward are as follows:

- A mercury total daily maximum load (TMDL) for the Bay and site-specific objectives were approved in 2008.
- Central and South Bay shorelines were added to the 2010 303(d) List due to the increased presence of trash.
- Revised site-specific water quality criteria for protection of Bay-Delta wildlife by the U.S. EPA is anticipated in 2013.
- A TMDL is under development for dioxins, a group of toxic chemical compounds that share certain biological and chemical characteristics.

- Legacy pesticides (Chlordane, Dieldrin, and DDT) are under consideration for delisting.

Water Quality Monitoring and Available Data

Since 2000 the Alameda County Clean Water Program and other Bay Area stormwater managers have increased efforts to find and address sources of pollutants of concern. Under the Municipal Regional Stormwater Permit (discussed below), the program is collaborating with other Bay Area counties in a comprehensive monitoring program, which started in Fall 2011. The program also participates in the Regional Monitoring Program (RMP) for Water Quality in the San Francisco Estuary. The RMP performs regular monitoring throughout the Bay, and sponsors special studies to address specific water quality problems and information gaps.

Focusing on small tributaries has become an important strategy to reduce contaminant inputs to San Francisco Bay. At the same time the knowledge and information required to address contaminant loading from small tributaries remains limited. The Municipal Regional Stormwater Permit and the Regional Monitoring Program Small Tributary Loading Strategy are important components in the effort to collect needed water quality data at the small tributary level and minimize loading to meet total daily maximum load (TMDL) standards for the San Francisco Bay region.

In response to early recommendations of the RMP's Sources, Pathways and Loading Work Group (SPLWG)[2], Hayward's Zone 4 Line A was selected as one of six observation watersheds to assess inputs of pollutants of concern to the Bay from local tributaries and urban runoff and progress towards achieving TMDL waste load allocations. Specific water quality data for this drainage, collected during Water Year 2007, is available. Monthly rainfall and runoff in the Hayward watershed recorded during the study compared to longer-term averages in Hayward and Oakland. Loads of mercury and other trace elements varied similarly month to month in relation to rainfall. The concentration of mercury associated with suspended sediment was very similar to the average of California soils.

Monitoring required by the Municipal Regional Permit (MRP) also includes assessment of human impacts on habitats in or adjacent to creeks. In the past the Alameda County Clean Water Program has done this type of assessment in Ward Creek (report available on request). Its first monitoring year in 2012 included biological community sampling from some flood control channels in Hayward. Data will be released in early 2013.

The California Water Quality Monitoring Council provides monitoring and assessment data for interested parties to access online. Surface water quality monitoring (focusing on beaches and lakes), drinking water monitoring, and water quality monitoring focused on aquatic health is conducted by city and county health agencies and other groups. No water quality data specific to Hayward tributaries was available at the time of this research. Only bacterial sampling data was available for Alameda County surface waters via the site's surface water monitoring portal, taken by the East Bay Regional Parks District at beach sampling sites in Alameda.

[2] The SFEI SPLWG was formed in early 1999 to produce recommendations for collection, interpretation, and synthesis of data on general sources and loading of trace contaminants to the Estuary (http://www.sfei.org/rmp/splwg, December 28, 2012).

The USGS California Water Science Center provides both surface and groundwater quality data. Available water quality data near Hayward includes sediment discharge and concentrations and water temperature for Cull Creek (period of record from 1999 to 2003). Groundwater data (depth to water level in feet below land surface datum) is available for five sites in Alameda County.

In addition, the State Water Boards website is a resource for tracking the status of specific groundwater contamination sites and related remediation activities, at http://geotracker.waterboards.ca.gov/.

Hydromodification: A Brief Summary

The process of urbanization has the potential to affect stream courses and water quality by altering watershed hydrology and sediment-transport patterns. Development can increase the amount of impervious surfaces in formerly undeveloped landscapes. This reduces the capacity of the remaining pervious surfaces to capture and filter rainfall. As a result, a larger percentage of rainfall becomes runoff during any given storm. Subsequently, runoff reaches stream channels much more quickly, and peak discharge rates are higher than before development for the same size rainfall event. This modification of a stream's hydrograph (i.e., rate of flow over time) has been termed hydromodification.

In the San Francisco Bay watershed urban and agricultural runoff is generally considered to be the largest source of pollutants to aquatic systems. By increasing runoff, bed and bank erosion, sediment transport and deposition, and the potential to carry non-point source pollutants into streams and rivers, hydromodification has direct implications for water quality and efforts to reduce non-point source contamination of Hayward's creeks and streams, which ultimately, drain into the San Francisco Bay.

The loss of habitat and diminished suitability of in-stream and streamside habitat for fish and wildlife is another frequent result of hydromodification. Hydromodification activities, including channel modification, can alter in-stream patterns of water temperature and sediment type, as well as the rates and paths of sediment erosion, transport, and deposition. The erosion of shorelines and stream banks, another hydromodification activity, is a natural process that can have either beneficial or adverse impacts on the creation and maintenance of riparian habitat. Excessively high sediment loads can smother submerged aquatic vegetation, cover shellfish beds and tidal flats, fill in riffle pools, and contribute to increased levels of turbidity and nutrients.

Water Management and Conservation

A number of forward-thinking approaches to water management and conservation are underway, including, but not limited to, the following efforts. The City of Hayward and/or the water management agencies with responsibilities to serve the City and protect City resources are participants in each of these processes.

Clean Water Program Alameda County

The Clean Water Program facilitates compliance with the Federal Clean Water Act (described in the Regulatory Setting section). The Clean Water Program provides technical guidance for all cities in Alameda County as they implement post-construction stormwater control measures for new development and redevelopment projects, in fulfillment of Provision C.3 of the Municipal Regional Stormwater Permit. The guiding document for this work is the C.3 Stormwater Technical Guidance manual, most recently updated in May 2012.

By disseminating best practices and providing other critical information, the Clean Water Program also serves as an important resource for residents, businesses, and schools working to play their role in protecting and improving water quality in the County. Available data and resources address a range of issues, including but not limited to hazardous waste disposal, facility management, construction practices, pollution prevention at home, and hands-on conservation curriculum and opportunities.

Bay Area Integrated Regional Water Management Plan

Water agencies, flood control districts, watershed groups, and land use planning entities representing all nine Bay Area counties jointly developed the Bay Area Integrated Regional Water Management Plan (IRWMP), adopted in 2006. The IRWMP for the Bay Area is a project-based effort to coordinate and improve water supply reliability, protect water quality, manage flood protection, maintain public health standards, protect habitat and watershed resources, and enhance the overall health of the Bay. Voter-approved grant funding provided under Propositions 50, 84 and 1E seeks to fund collaborative water resources projects that achieve multiple benefits and management objectives. The process to update the IRWMP for 2013 is currently underway. In 2012 potential projects for the 2013 IRWMP were scored, and in 2013 select projects will be chosen to receive funding.

Regulatory Setting

Water in California is managed by a complex network of Federal and State regulations. This section outlines and briefly summarizes the various Federal, State, and regional laws and regulatory policies related to domestic water management, water quality, and water resource protection. Section 8.2, Water Supply and Delivery, discusses water supply-related regulations, and briefly describes key regulatory actors.

Federal

The Federal Clean Water Act (1972) is the primary Federal law that protects the quality of the nation's surface waters, including lakes, rivers, aquifers, and coastal areas. The Clean Water Act (CWA) focuses on the protection of surface water, but certain sections also apply to groundwater.

Under the CWA EPA sets national standards and effluent limitations, and delegates many regulatory responsibilities to the California State Water Resources Control Board (SWRCB, or State Water Board). The CWA established a permit system based on the concept that all discharges into the nation's waters are unlawful unless specifically authorized.

The CWA contains several provisions to protect water quality, including Sections 303(c)(2)(B), 303(d), 401, 402(p), and 404, and the Toxics Rule. Section 303(d) is discussed briefly below.

CWA Section 303(d). Section 303(d) of the 1972 Federal Clean Water Act requires that states develop a list of water bodies that do not meet water quality standards, establish priority rankings for waters on the list, and develop action plans, called Total Maximum Daily Loads (TMDLs), to improve water quality. The list of impaired water bodies is revised periodically (typically every two years). Many entities provide data to the SWRCB to compile the 303(d) List and to develop TMDLs.

The process for developing the 303(d) List for the San Francisco Bay includes the following steps:

- Development of a draft List by the San Francisco Bay Regional Water Quality Control Board (Regional Water Board);
- Adoption by the State Water Resources Control Board (State Water Board); and
- Approval by US Environmental Protection Agency (EPA).

In August 2010 the State Water Board adopted the 2010 303(d) List. The 2010 List was approved by EPA in October 2011. At the time of writing, The Regional Water Board and State Water Board were in the process of updating the 303(d) List.

State

State Department of Water Resources. In 1956 the Legislature passed a bill creating the Department of Water Resources (DWR). DWR is responsible for the management and regulation of water usage, including the delivery of water to two-thirds of California's population, through the nation's largest State-built water development and conveyance system, the State Water Project. Working with other agencies and the public, DWR develops strategic goals, and near-term and long-term actions to conserve, manage, develop, and sustain California's watersheds, water resources, and management systems. DWR also works to prevent and respond to floods, droughts, and catastrophic events that would threaten public safety, water resources and management systems, the environment, and property.

State Water Resources Control Board. The State Water Resources Control Board and the nine regional boards protect water quality and allocate surface water rights in California. The City of Hayward is under jurisdiction of the Regional Water Quality Control Board (RWQCB) Region 2 (San Francisco Bay Region) (see below).

Local

Regional Water Quality Control Board Region 2. Regional Water Quality Control Board Region 2 (San Francisco Bay Region) regulates stormwater quality under authorities of the Federal Clean Water Act and California's Porter-Cologne Water Quality Control Act. The Regional Board issues National Pollutant Discharge Elimination System (NPDES) permits to dischargers of municipal and industrial stormwater runoff and operators of large construction sites. In coordination with permittees of the San Francisco Bay Municipal Regional Stormwater Permit, including Hayward, Regional Water Quality Control Board staff performs an annual performance review and evaluation of the County's stormwater management program and NPDES compliance activities.

The San Francisco Bay Water Board also protects groundwater through implementation of its regulatory and planning programs. The key elements of this approach include:

- Identify and update beneficial uses and water quality objectives for each groundwater basin
- Regulate activities that can impact the beneficial uses of groundwater
- Prevent future groundwater impacts through local and regional planning, management, education, and monitoring

San Francisco Bay Region Municipal Regional Stormwater NPDES Permit. Adopted in October 2009 and revised in November 2011, the San Francisco Bay Municipal Regional Stormwater Permit (MRP) issues the Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for the discharge of stormwater runoff from the municipal separate storm sewer systems (MS4s) of over 70 municipalities and local agencies in five Bay Area counties, including the City of Hayward. The MRP replaces the former county-by-county permits, including the former Alameda Countywide Municipal Stormwater Permit, which once fulfilled this role.

Based on monitoring previously conducted by the Clean Water Program and in other counties, the MRP identifies key Pollutants of Concern in urban runoff from Bay Area municipalities. Monitoring required by the MRP also includes assessment of human impacts on habitats in or adjacent to creeks. In the past ACCWP has done this type of assessment in Ward Creek; the first monitoring year in 2012 included biological community sampling from some flood control channels in Hayward but the data will not be released until 2013. Future regulatory changes are expected regarding this topic but at present the MRP has no explicit controls beyond the hydromodification management provision.

Alameda County Flood Control District Hydrology and Hydraulic Manual. The current storm drain design manual is the Hydrology and Hydraulics Criteria Summary (1989) edition. This manual is generally sufficient for most small and medium size developments. However, the District has been developing an expanded and updated version

internally. While not officially adopted, the District applies drainage requirements and criteria developed in 1994 and onwards when reviewing and designing facilities. Always verify with the District for the latest requirements and criteria.

Key Terms

The following key terms used in this chapter are defined as follows:

303(d) Threatened and Impaired Waters List. Under Section 303(d) of the Clean Water Act (CWA) or Act, states, territories, and authorized tribes are required to develop lists of impaired waters every two years (i.e., Section 303(d) list). The states identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards. States are required to establish priorities for development of TMDLs for waters on the 303(d) List (40C.F.R. §130.7(b)(4)).

Alluvial fan. An alluvial fan is a fan or cone-shaped deposit of sediment crossed and built up by streams or debris flows. These flows come from a single point source at the apex of the fan, and over time move to occupy many positions on the fan surface. Fans are typically found where a canyon draining from mountainous terrain emerges out onto a flatter plain.

Discharge. Often synonymous with stream flow, discharge is the volume rate of water flow including any suspended solids (i.e. sediment), dissolved chemical species, and/or biologic material transported through a given cross-sectional area. The units typically used to express discharge include cubic feet or meters per second, or acre-feet per day.

Groundwater. Groundwater is water that exists beneath the Earth's surface. Most groundwater exists and flows within the small openings (pores) between soil and rock particles. Some groundwater may also exist in caverns or fractures within the rock. Either way, groundwater slowly accumulates and generally flows from high to low areas ultimately seeping into rivers, lakes, or the ocean. Groundwater and surface water are inextricably linked by the hydrologic cycle.

Groundwater Basin. Groundwater is found everywhere beneath the ground surface and is especially abundant where soils and sediments occur up to tens, hundreds, or thousands of feet thick. Such areas are called groundwater basins. The permeable and porous soil, sediment, or rock where groundwater accumulates and flows is called an aquifer. Groundwater is tapped through wells placed into an aquifer.

Hydrology. The scientific study of the waters of the earth, especially how rainfall and evaporation affects the flow water in streams and storm drains.

Hydromodification. Hydromodification can be any activity that increases the velocity and volume (flow rate), and often the timing, of runoff. Such activities include construction and maintenance of channels, levees, dams, and other water conveyance structures; alterations to natural land contours for the purposes of new development (including transportation and other

infrastructure) or navigation; development of impervious surfaces such as roadways or buildings; and deforestation or removal of vegetation.

Impervious Surface. Impervious surface is a term used to refer mainly to artificial structures and materials such as roads, sidewalks, driveways, and parking lots that are impenetrable to rain, or that do not allow rain to absorb naturally. Soils compacted by urban development may also be highly impervious.

National Pollutant Discharge Elimination System (NPDES). This Federal permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. In most cases, the NPDES program is administered by authorized states. In the State of California, the program is administered by the State Water Resources Control Board.

Non-Point Source Pollution. Unlike pollution from industrial and sewage treatment plants (i.e. point sources), non-point source (NPS) pollution comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

Point Source Pollution. A point source of pollution is a single, identifiable source of pollution. In the case of water quality, point sources are discrete conveyances such as pipes or man-made ditches.

Runoff. Runoff, or surface runoff, **i**s the water flow that occurs when excess water from rain, meltwater, or other sources flows over the land because soil is infiltrated to full capacity or because impervious surfaces do not allow water to permeate land surface.

Total Maximum Daily Load (TMDL). The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for non-point sources and natural background, and a margin of safety (MOS). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Water Transfer. The sale or exchange of water or water rights among or between individuals or agencies.

Water Year. A term commonly used in hydrology to describe a time period of 12 months. It is defined as the period between October 1st of one year and September 30th of the next.

Bibliography

Reports/Publications

California Department of Water Resources (DWR). California's Groundwater Bulletin 118: Santa Clara Valley Groundwater Basin, East Bay Plain . Updated February 27, 2004.

California DWR. California's Groundwater Bulletin 118: Santa Clara Valley Groundwater Basin, Niles Cone . Updated January 20, 2006.

City of Hayward. Baseline Trash Load and Short-Term Trash Load Reduction Plan.

Clean Water Program Alameda County. C.3 Stormwater Technical Guidance: A Handbook for Developers, Builders and project Applicants. Version 3.1. May 29, 2012.

California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (NPDES Permit No. CAS612008). Revised November 2011.

California Regional Water Quality Control Board San Francisco Bay Region. Alameda Countywide NPDES Municipal Stormwater Permit. Order R2-2003-0021. NPDES Permit No. CAS0029831.

City of Hayward. Annex to 2010 Association of Bay Area Governments Local hazard Mitigation Plan *Taming Natural Disasters.* August 24, 2011.

City of Hayward. 2011 Water Quality Report.

Clean Water Program. Resources for Pollutants of Concern. "Reducing Mercury Pollution" Fact Sheet. December 2011.

McKee, Lester and Alicia Gilbreath. San Francisco Estuary Institute (SFEI). 2012. Regional Monitoring Program Update. SFEI Contribution 678. San Francisco Estuary Institute, Richmond, CA.

RMC. Draft Final Bay Area Integrated Regional Water Management Plan Water Quality and Water Supply Functional Area Document. September 2006.

San Francisco Estuary Institute (SFEI). December 2009. Concentrations and Loads of the Trace Contaminants in the Line 4 Zone A Small Tributary: Hayward, California (Water Year 2007). SFEI Contribution 563. San Francisco Estuary Institute, Richmond, CA.

South Bay Salt Pond Restoration Project Final Environmental Impact Statement/Report. Appendix L: Groundwater Analysis Report. December 2007.

Trautmann, Nancy M., K.S. Porter, R.J. Wagenet. Pesticides: Health Effects in Drinking Water. Natural Resources Cornell Cooperative Extension. www.psep.cce.cornell.edu. Accessed January 2, 2013.

Websites

California DWR. Water Data Library: Groundwater Level Data. http://www.water.ca.gov/waterdatalibrary/ Accessed January 4, 2013.

California Water Quality Monitoring Council. http://www.waterboards.ca.gov/mywaterquality/. Accessed December 24, 2012.

Clean Water Program. "Pollutants of Concern." Published April 12, 2011. http://cleanwaterprogram.org/watersheds-pollutants-of-concern.html. Accessed December 28, 2012.

Hayward and San Leandro Creeks. *www.museumca.org/creeks*. Accessed December 24, 2012.

San Francisco Bay Regional Water Quality Control Board. http://www.waterboards.ca.gov/sanfranciscobay/. Accessed December 26, 2012.

U.S. Environmental Protection Agency (EPA). Water: Total Daily Maximum Loads (303(d)). "Overview" and "Glossary" http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/ Accessed December 28, 2012.

U.S. EPA. National Pollutant Discharge Elimination System (NPDES) Overview. ://cfpub.epa.gov/npdes http /. Accessed January 1, 2013.

U.S. EPA. Polluted Runoff. http://www.epa.gov/owow/NPS/MMGI/hydro.html. Accessed January 4, 2013.

Persons Consulted

Codd, Frank. Alameda County Public Works Agency. April 26, 2013.

Feng, Arleen. (Alameda Countywide) Clean Water Program. December 31, 2012.

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SECTION 7.9 PALEONTOLOGICAL RESOURCES

Introduction

This section identifies known paleontological resources in Hayward.

Major Findings

- A search of the University of California Museum of Paleontology, University of California, Berkeley Database identified 1,563 paleontological resources in Alameda County. Five of these resources were discovered within the city of Hayward.

Existing Conditions

Paleontological Resources

Paleontological resources include any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust, that provide information about the history of life on earth, evolution, and our place as humans in the world. Most of the city of Hayward is located on Quaternary sedimentary deposits which are from the most recent geologic periods (i.e., Holocene, Pleistocene) dating back to 1.6 million years ago. Some of eastern Hayward is located on Mesozoic sedimentary rocks from the Mesozoic period dating back to 245 million years ago, when dinosaurs roamed the earth. Both types of geologic rocks may contain fossils of flora and fauna, particularly marine species.

Fossil remains of land animals have been found at a number of sites in younger and older alluvial deposits in Alameda County from the Holocene and Pleistocene eras (Hay, 1927; Louderback, 1951; Savage, 1951; Jefferson, 1991b). Jefferson (1991a, b) compiled a database of California Late Pleistocene (Rancholabrean) vertebrate fossils from published records, technical reports, unpublished manuscripts, information from colleagues, and inspection of museum paleontological collections at over 40 public and private institutions. He listed more than 50 fossil sites in Alameda County that have yielded Rancholabrean vertebrate fossils, including several localities along the Hayward Shoreline. Other Rancholabrean mammal remains found on the eastern side of San Francisco Bay include mammoth, bison, camel, bear, horse, sea otter, and ground sloth. Marine fossils have also been reported from boreholes in the San Francisco Bay (Atwater et al., 1977). Lawson (1914) noted that several areas in the Alameda Formation, which is made up of mainly sandstone and shale, contained marine shells, and Trask and Rolston (1951) noted the presence of plant fragments in several horizons, particularly in the upper portions of the Alameda Formation.

A search of the University of California Museum of Paleontology, University of California, Berkeley Database identified 1,563 paleontological resources in Alameda County. Five of these resources were discovered within the city of Hayward, including four mammalian fossils (e.g., bison, prehistoric horse) and one gastropod fossil (i.e., marine snail) from the Quaternary period. The Bison fossil was discovered near Interstate 880 (I-880), the two prehistoric horse

fossils were discovered in the Hayward gravel pit, the marine snail was discovered at Hayward Landing, and an additional unidentified mammalian fossil was discovered near the Hayward Motel. Additionally, the Paleobiology Database identified 12 paleotological resources in Alameda County, none of which are located in the city of Hayward.

Regulatory Setting

Federal

Antiquities Act of 1906 (16 U.S.C 431-433). This act provides that penalties shall be assessed against "any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on land owned or controlled by the Government of the United States" except as granted permission by the appropriate secretary of the department having jurisdiction; permits the examination, excavation, or gathering of antiquities from government property by recognized scientific or educational institutions in accordance with uniform rules defined in the act.

BLM Manual 8270 and Handbook H-8270-1. These regulations provide the criteria for permitting, collection, and use of fossils on BLM administered lands, and creates a framework for how geological formations are ranked according to paleontological potential. The BLM considers that the primary cause of damage to paleontological resources occurs as a result of road construction, unauthorized collection, wildfires, and natural weathering and erosions.

National Environmental Policy Act of 1969 (16 U.S.C. 4321, and 4331-4335, as amended). This act establishes guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." All projects that are subject to NEPA are also subject to compliance with Section 106 of the NHPA and all NEPA requirements concerning cultural resources.

Title 43 CAR 8365.1-5. This regulation addresses the collection of invertebrate fossils and, by administrative extension, fossil plants, including the willful disturbance, removal, and destruction of scientific resources or naturals objects, and Subpart 8360.0-7 identified the penalties for such violations.

Title 43 CAR 3802 and 3809. This regulation addresses protection of paleontological resources from operations authorized under the mining laws.

State

California Environmental Quality Act (Public Resources Code 21000 et seq.) (CEQA). Section 15064.5 of the CEQA Guidelines (California Code of Regulations Title 14 Section 15000 et seq.) requires lead agencies to determine whether proposed projects that require discretionary government approval may have a significant effect on archeological or historical resources. This determination applies to cultural resources that meet significance criteria qualifying them as

"unique" or "of importance," and listed or determined eligible for listing on the California Register of Historical Resources (CRHR). If a project has or might have an adverse effect or effects on unique or important cultural or paleontological resources, the project is determined to have a significant effect on the environment, and the effect(s) must be mitigated. If a cultural resource is found not to be significant or unique under the qualifying criteria, it need not be considered further in the planning process.

Local

There are no local regulations applicable to paleontological resources.

Key Terms

The following key terms used in this chapter are defined as follows:

Paleontological Resources. Any fossilized remains, traces, or imprints of organisms preserved in or on the earth's crust, that provide information about the history of life on earth, evolution, and our place, as humans, in the world, with the exception of archeological resource as defined by the Archeological Resources Protection Act of 1979 (16 U.S.C. 470bb [1]), or any cultural item as defined by the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001[2]).

Bibliography

Reports/Publications

Atwater, B. F., Hedel, C. W., and Helley, E. J. 1977. Late Quaternary Depositional History, Holocene Sea-Level Changes, and Vertical Crustal Movement, Southern San Francisco Bay, California. *U. S. Geological Survey Professional Paper.* 1014, 114 p.

City of Hayward. General Plan. 2002.

City of Hayward. General Plan. Draft Environmental Impact Report. 2001.

City and County of San Francisco. Application for Certification for the San Francisco Electric Reliability Project Volume I. California Energy Commission. March 2004.

Hay, O. P. 1927. The Pleistocene of the Western Region of North America and Its Vertebrate Animals.*Carnegie Institute of Washington Publication*. 322(B), 346 p.

Jefferson, G. T. 1991a. A Catalogue of Late Quaternary Vertebrates from California, Part One, Nonmarine Lower Vertebrate and Avian Taxa. *Natural History Museum of Los Angeles County Technical Reports.* Number 5, 60 p.

Jefferson, G. T. 1991b. A Catalogue of Late Quaternary Vertebrates from California, Part Two, Mammals. *Natural History Museum of Los Angeles County Technical Reports*. Number 7, 129 p.

Lawson, A. C. 1914. San Francisco Folio. U. S. Geological Survey Atlas No. 193, 24 p.

Louderback, G. D. 1951. Geologic History of San Francisco Bay. *California Division of Mines Bulletin.*154, P. 75-94.

Savage, D. E. 1951. Late Cenozoic Vertebrates of the San Francisco Bay Region. *University of California Publications, Bulletin of the Department of Geological Sciences*. Vol. 28, No. 10, pp. 215-314.

Trask, P. D., and Rolston, J. W. 1951.Engineering Geology of the San Francisco Bay, California. Geological Society of America Bulletin. Vol. 62, No. 9. pp. 1,079-1,109.

Websites

California Academy of Sciences. Fossil Collection Database. http://research.calacademy.org/redirect?url=http://researcharchive.calacademy.org/research/izg/fossil/index.asp, accessed February 2013.

California Geologic Survey.Generalized Geologic Map of California. http://www.consrv.ca.gov/cgs/information/publications/cgs_notes/note_17/note_17.pdf, accessed February 2013.

Paleobiology Database. http://paleodb.org/cgi-bin/bridge.pl?a=home, accessed February 2013.

The Paleontology Portal. California, Us. http://www.paleoportal.org/index.php?globalnav=time_space&sectionnav=state&state_id=10&period_id=8, accessed February 2013.

University of California Museum of Paleontology. University of California, Berkeley. Specimen Search. http://www. http://ucmpdb.berkeley.edu/, accessed February 2013.

SECTION 7.10 SCENIC RESOURCES

Introduction

This section describes visual and scenic resources within the city of Hayward. This analysis is based on the existing visual character and resources in the county, which are linked to the region's natural topography, open grassland vegetation, and rolling hills. I-580, I-880, and SR 92 are all County-designated scenic highways, and I-580 is also eligible for State scenic highway designation.

Major Findings

- While the city is largely urban, with a relatively dense development pattern that can restrict scenic views, higher elevations in the hills and portions of the shoreline provide scenic vistas of the San Francisco Bay and views to the East Bay hills throughout the city.
- I-580, located just north of Hayward, is included in the California Scenic Highway System as an eligible but not officially-designated State Scenic Highway.
- The Alameda County Countywide Scenic Route Element designates I-580, I-880 (Nimitz Freeway), and SR 92 (Jackson Freeway) as Scenic Routes.
- Alameda County has several proposed scenic freeways and expressways, including an extension of I-580 from I-880 to the city edge, an extension of SR 92 from I-880 to I-580, and a new Shoreline Freeway beginning at Shoreline Drive in the community of Alameda and running through Hayward to the county's southern limit.
- The City of Hayward has designated twelve major streets for streetscape improvements in the Landscape Beautification Plan.

Existing Conditions

Visual and Scenic Resources

Hayward sits among a ring of hillsides covered with natural vegetation surrounding a sloping bowl and contains a variety of topographic, vegetative, and other visual resources. Hayward is bordered by restored marshland in the shoreline region to the west and rolling hills trailing the Coastal Mountain range to the east. While the city is largely urban, with a relatively dense development pattern that can restrict scenic views, the natural setting of hillsides and canyons surrounding the city are an integral part of community character. Higher elevations in the hills and portions of the shoreline provide scenic vistas of the San Francisco Bay. Views to the East Bay hills are available throughout the city, although they are generally restricted by the intensity of development and generally flat topography. Views from the more scenic routes reflect the generally urban context of the city and region; however, some views of the surrounding hills, the San Francisco Bay, and prominent buildings and landscaping remain intact.

Many of the hillside areas have been preserved as part of a coordinated planning effort between the City of Hayward, City of Pleasanton, and Alameda County. Generally, housing is clustered on the flatter areas, while the steeper hillside areas are set aside as open space. The City of Hayward 2002 General Plan includes a separate set of policies for the Ridgelands Area: approximately 13,000 acres at the eastern city edge, generally bounded by I-580, Palomares Road, Niles Canyon Road, Foothill Road, and the Pleasanton General Plan residential/open space boundary (see Figure 7-9).

The Hillside Design and Urban/Wildland Interface Guidelines promote quality design that enhances the aesthetic character of the hillside setting, preserve important environmental resources, and incorporate public safety measures relating to fire defensibility. The Hillside Design and Urban Wildland Interface Guidelines regulate development in the portion of the Ridgelands Area within the Hayward city limits. The Development Services Director may require proposed developments to submit a topographic survey, preliminary grading plan, soils engineering report, geology report, and visual analysis with the building permit or site plan review application. The Guidelines include recommended design standards for streets, sidewalks, cluster home development, architecture, site design, grading, landscaping, utilities, and signage. Development should focus on maintaining natural views, blending in with the natural environment and minimizing visual disturbance. Ridgeline homes should include design features that are compatible with the natural topography, limited heights, and setbacks between structures allowing for view corridors. The Guidelines include additional fire safety standards for developments in the urban/wildland interface.

Scenic Corridors

State Scenic Highways

Highways with scenic view corridors provide an enjoyable travel experience, link urban areas with open space areas, and provide access to recreational areas. Development patterns and land use activities can block vistas or views of local landmarks and reduce scenic qualities, and the exterior appearance of structures (e.g., bulk, height, color) can detract from the natural surroundings. The State recommends that local jurisdictions make an effort to preserve scenic qualities by retaining the character of natural slopes and formations, and preserving and enhancing watercourses, wildlife habitats, and vegetation. As shown in Figure 7-10, I-580, located just north of Hayward, is included in the California Scenic Highway System as an eligible but not officially-designated State Scenic Highway. The portion of I-580 running north-south above Hayward known as MacArthur Freeway has received several aesthetic awards for attractive landscaping.

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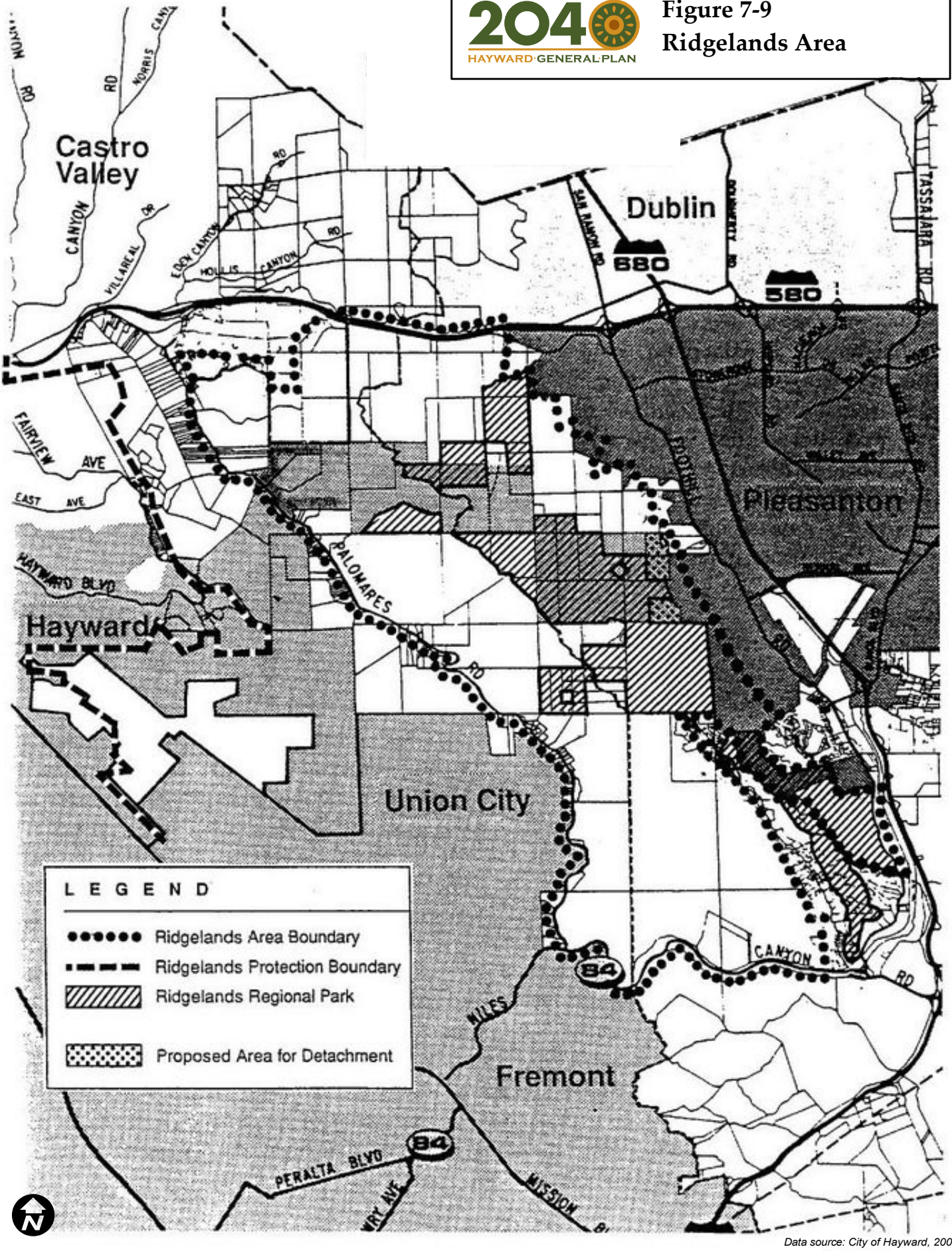
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-9
Ridgelands Area



Data source: City of Hayward, 2002.

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...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-10
State and County Scenic Routes

Ashland
Cherryland
San Lorenzo
Hayward Acres
Castro Valley
Fairview
Hayward
Union City
County

I-580
I-880
I-238
Route 92
880
92
238
580

Castro Valley Blvd
E 14th St
Center St
Redwood Rd
Grove Way
Lewelling Blvd
Foothill Blvd
Mission Blvd
Western Bl
Montgomery St
Main St
B St
D St
6th St
Kelly St
Maud Ave
Five Canyons Pkwy
E St
East Ave
2nd St
Fairview Ave
Palomares Rd
Hathaway Ave
Meekland Ave
A St
C St
Grand St
Hesperian Blvd
W A St
Golf Course Rd
Beckman Rd
Meek Ave
Jackson St
Highland Blvd
Oakes Dr
Carlos Bee Blvd
Hayward Blvd
Bailey Ranch Rd
Skywest Dr
Longwood Av
Winton Ave
Sabre St
W Winton Av
Orchard Ave
Soto Rd
Whitman St
Harder Rd
Santa Clara St
Cabot Blvd
Saklan Rd
Eden Ave
Clawiter Rd
Depot Rd
W Jackson St
Gading Rd
Huntwood Ave
Enterprise Ave
W Tennyson Rd
Tennyson Rd
Dixon St
Garin Ave
Route 92
Investment Blvd
Industrial Blvd
Arf Ave
Folsom Ave
Ruus Rd
Industrial Pkwy
Arden Rd
Baumberg Ave
Industrial Pkwy W
San Clemente St
Fairway St
Revere Ave
Whipple Rd
Union City Blvd
Dyer St
Alvarado Niles Rd
Decoto Rd

0 0.25 0.5 1 Miles

- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Hayward Planning Area
- State Scenic Highways
- County Scenic Freeways/Expressways
- Streets
- County Major Scenic Rural Roads
- County Proposed Scenic Freeways/Expressways

Data source: Alameda County, 2013; CalTrans 2013.

February, 2013

County Scenic Routes

As shown in Figure 7-10, the Alameda County Countywide Scenic Route Element designates I-580, I-880, and SR 92 as scenic routes. Alameda County identifies several proposed scenic freeways and expressways including an extension of I-580 from I-880 to the city edge, an extension of SR 92 from I-880 to I-580, and a new Shoreline Freeway beginning at Shoreline Drive in the community of Alameda and running through Hayward to the county's southern limit. Additionally, Alameda County designates Fairview Avenue, Hayward Boulevard, Campus Drive, Palomares Road, Harder Road, and Mission Boulevard as major scenic rural roads. Several proposed scenic roads connect Fairview Avenue, Mission Boulevard, and Palomares Road. The location of scenic routes corresponds with adjacent public recreation areas such as parks; scenic outlooks; roadside rest area; and cycling, hiking, and riding trails.

County-designated Scenic Routes include three elements: the right-of way, the adjacent scenic corridor, and areas extending beyond the scenic corridor. The right-of-way includes paved roads and adjacent land required for roadway protection, storm drainage, public utilities, pedestrian travel, and roadside planting. Scenic corridors include areas extending beyond the scenic route right-of-way that are of sufficient scenic quality to be acquired by State or local jurisdictions, or areas where development controls should be applied to preserve and enhance nearby views or maintain unobstructed distant views along the scenic route. Areas extending beyond scenic corridors include all other areas of the county.

Alameda County requires that developed areas maintain outstanding views by preserving existing trees, and restricting new landscaping; the location and type of utility and communication towers, poles, and lines; and outdoor advertising signs and structures. Residential development in scenic corridors should have a minimum lot size of 10,000 square feet and a 100-foot setback from the scenic route for single family homes, and a minimum lot size of 5,000 square feet for multifamily development. All structures should have a setback of at least 50 feet from the scenic route and should not include additional stories or ornaments obstructing scenic views. County staff also reviews proposed projects with a proposed height greater than 35 feet in scenic corridors. The County established regulations for grading and natural vegetation removal, preservation of natural streambeds, landscaping, and for the location and type of utility and communication towers, poles and lines, and outdoor advertising signs and structures.

Local Roads

The City of Hayward adopted the Landscape Beautification Plan for streetscape improvements along the major thoroughfares of the city. The Plan furthers the 2002 General Plan goal to develop a positive and distinctive image to be enjoyed by residents and projected to the surrounding region. The Beautification Plan addresses twelve major streets throughout the city (see Figure 7-11), and includes information on resources, issues, and opportunities for city streets. The design elements used in the streetscape improvements reflect the natural and structural setting of the city, including wood, stone, and adobe to reflect Hayward's California

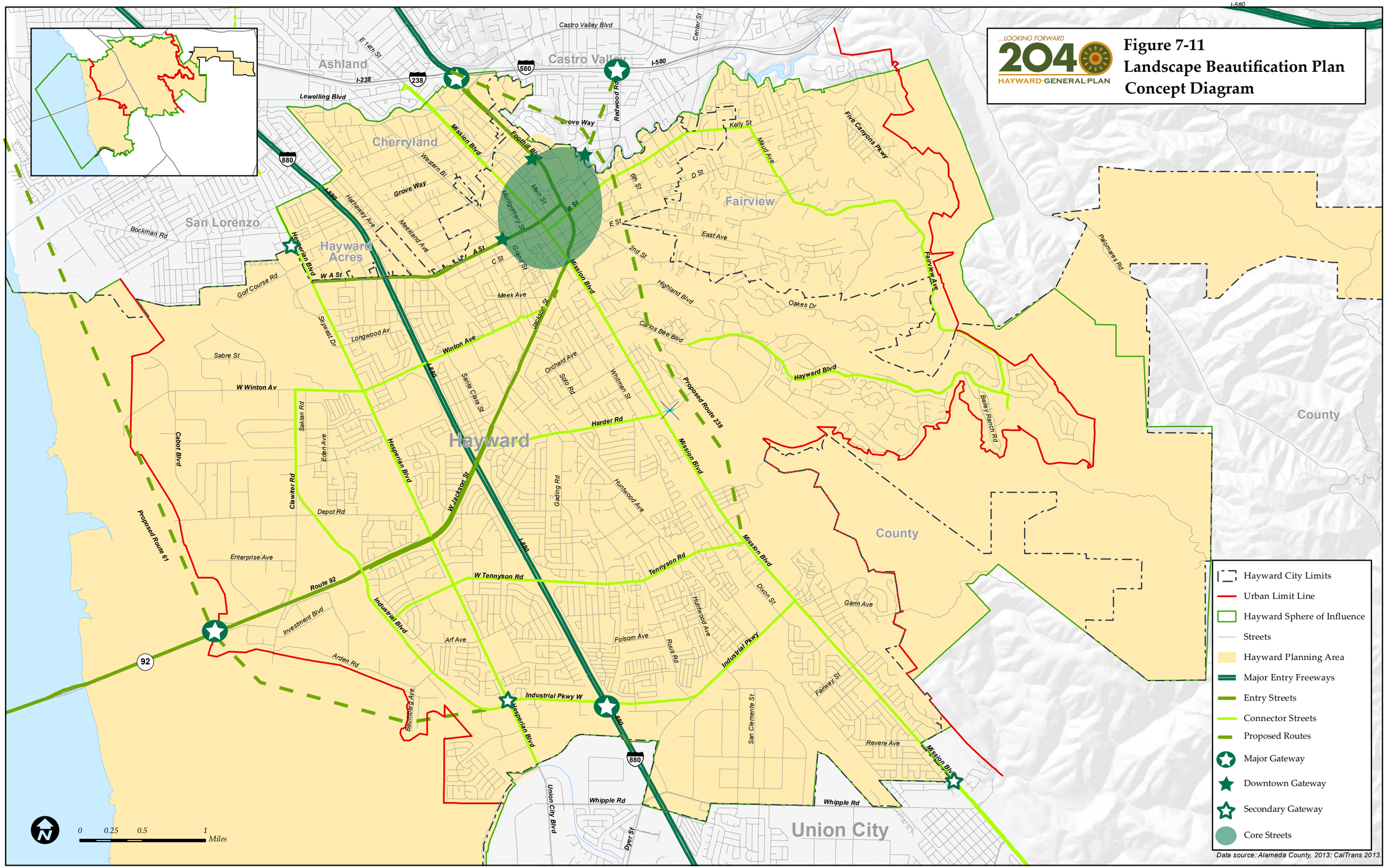
Mission Style architecture, and earth tone colors and rounded shapes to blend in with the oak woodland landscape.

City streets are divided into three categories: entry streets, connectors, and core streets. Entry streets are defined as wide, high-speed, high-traffic volume arterials that pass through the city's industrial and commercial areas. Entry streets act as gateways into Hayward and provide a scenic visual corridor. Jackson Street, A Street, and I-580 are designated as entry streets. Connectors provide connections between the entry streets and the Downtown area and traverse residential neighborhoods as well as industrial and commercial areas. Connectors provide a variety of natural and structural visual resources. Fairview Avenue, Hayward Boulevard, Mission Boulevard, Hesperian Boulevard, Industrial Boulevard, Winton Avenue, Harder Road, Tennyson Road, and Industrial Parkway are designated as connector streets. As part of the Plan the City continues to preserve the existing views, native vegetation, and rural character of Fairview Avenue and Hayward Boulevard. Core streets make up the Downtown grid and include pedestrian as well as vehicular infrastructure. Core streets provide mainly structural visual resources. The Plan also includes SR 61 and SR 238, the proposed CalTrans Routes, as areas of future study.

City gateways are generally distinguished using a dramatic image statement such as a water feature, as well as evergreen trees and annual flower arrangements visible to high-speed traffic. They mark the major city entrances. Jackson Street, I-580, I-880 at A Street and Industrial Parkway, and the proposed Route 238 are designated at major gateways. Additionally, Mission Boulevard and Hesperian Boulevard at A Street and Industrial Parkway are designated as secondary gateways. Downtown gateways are generally distinguished by a type of entry statement piece (e.g., sign, art). I-580, A Street, Jackson Street, Mission Boulevard, and the Proposed Route 238 are all designated as Downtown gateways.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 7-11
Landscape Beautification Plan Concept Diagram



Data source: Alameda County, 2013; CalTrans 2013.

February, 2013

Regulatory Setting

Federal

There are no Federal regulations applicable to open space in Hayward.

State

California Streets and Highways Code (Section 260). Streets and Highways Code Section 260 preserves and protects scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. A California highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. When a City or County nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway, as defined by the motorist's line of vision (a reasonable boundary is selected when the view extends to a distant horizon). The City or County must also adopt ordinances to preserve the scenic quality of the corridor, including: 1) regulation of land use and density of development; 2) detailed land and site planning; 3) control of outdoor advertising (including a ban on billboards); 4) careful attention to and control of earthmoving and landscaping; and 5) careful attention to design and appearance of structures and equipment.

Local

Alameda County General Plan Scenic Route Element. The Alameda County General Plan includes a Scenic Route Element that provides policy direction for protecting and managing scenic routes in the county. The Element includes policies related to the design of scenic roadways and development standards for scenic corridors. There are three existing and one proposed scenic freeways and expressways in the city of Hayward.

Alameda County Code of Ordinances, Section 17.104.070, I-580. Section 17.104.070 of the Alameda County Code of Ordinances designates I-580 from 149th Avenue to I-238 in Hayward as a Scenic Route Corridor. The code establishes the following corridor widths for I-580: 60 feet between the Route 238 interchange and the west Ehle Street right-of-way on the east side and 265 feet between the I-238 north right-of-way and the Los Banos Street southeast right-of-way on the west side.

City of Hayward Design Guidelines. The City of Hayward adopted Design Guidelines in 1993 to establish guidelines for site planning, circulation, architectural design, and landscape design for all development in the city; guidelines for specific land uses; and guidelines specifically for the downtown area and hillside areas. The Hillside Design and Urban/Wildland Interface Guidelines promote quality design that enhances the aesthetic character of the hillside setting, preserve important environmental resources, and incorporate public safety measures relating to fire defensibility. The Hillside Design and Urban Wildland Interface Guidelines regulate development in the portion of the Ridgelands Area within the Hayward city limits. The

Development Services Director may require proposed developments to submit a topographic survey, preliminary grading plan, soils engineering report, geology report, and visual analysis with the permit application. The Guidelines include recommended design standards for streets, sidewalks, cluster home development, architecture, site design, grading, landscaping, utilities, and signage. The Guidelines include additional fire safety standards for developments in the urban/wildland interface.

Hayward Landscape Beautification Plan. The Landscape Beautification Plan is a master plan for streetscape improvements along the major thoroughfares of the city of Hayward. The Plan furthers the General Plan goal to develop a positive and distinctive image to be enjoyed by residents and projected to the surrounding region. The Beautification Plan addresses twelve major streets throughout the city.

Key Terms

The following key terms used in this chapter are defined as follows:

California Scenic Highway Program. The California Scenic Highway Program, created by the State Legislature in 1963 (Streets and Highways Code 260 et seq.), preserves and protects scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways.

Scenic Freeway/Expressway. Scenic freeways and expressways are those that traverse, or those that provide the most efficient routes to or between areas of major, scenic, recreational, and cultural attractions. Freeways, with two to four moving lanes in each direction separated by a median strip, carry the heaviest traffic volumes. Freeways have controlled access and grade separated vehicular or rail crossings. Expressways have two to four moving lanes in each direction, limited access without grade separations, and are designed to be readily converted into freeways.

Scenic Highway Corridor. The visible land area along a transportation corridor (road) right-of-way and generally described as the "view from the road."

Bibliography

Reports/Publications

Alameda County. General Plan. Scenic Route Element. 1994.

City of Hayward. General Plan. 2002.

City of Hayward. General Plan. Draft Environmental Impact Report. 2001.

City of Hayward. Hillside Design and Urban/Wildland Interface Guidelines. February 16, 1993.

City of Hayward. Landscape Beautification Plan. 1987.

Websites

California Department of Transportation. 2007. http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

SECTION 8.1 INTRODUCTION, PURPOSE, AND CONTENTS

This section presents an overview of the public utilities provided by the City of Hayward and other agencies within the planning area. Issues addressed include water supply and distribution, wastewater collection and treatment, stormwater drainage and flood control, solid waste management, energy use and conservation, and telecommunications facilities.

This chapter is divided into the following sections:

- Introduction, Purpose, and Contents (Section 8.1)
- Water Supply and Delivery (Section 8.2)
- Wastewater Collection and Treatment (Section 8.3)
- Stormwater Drainage and Flood Control (Section 8.4)
- Solid Waste, Recycling, and Composting (Section 8.5)
- Gas and Electricity (Section 8.6)
- Telecommunications (Section 8.7)

SECTION 8.2 WATER SUPPLY AND DELIVERY

Introduction

This section describes the existing water supply and delivery systems in Hayward. It includes a summary of existing water treatment, current (2012) demand, storage and distribution systems, and the condition of these facilities.

Major Findings

- The City of Hayward provides water for residential, commercial, industrial, governmental, and fire suppression uses. The City owns and operates its own water distribution system and purchases all of its water from the San Francisco Public Utility Commission (SFPUC).
- Emergency water supplies are available through connections with the Alameda County Water District (ACWD) and the East Bay Municipal Utility District (EBMUD) in case of disruption of delivery from SFPUC.
- The Hayward water system serves about 147,000 residents in all areas within the city limits and a select number of properties outside the city limits through special approvals or utility service agreements.
- A very small portion of north Hayward,containing less than 3 percent of the city, is served by the East Bay Municipal Utility District (EBMUD). EBMUD also serves the community of Fairview in the planning area.
- The water supplied to Hayward is predominantly from the Sierra Nevadas, delivered through the Hetch-Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watershed and facilities in Alameda County.
- All of Hayward's water demand, which was 19,537 acre-feet per year (AFY) in Fiscal Year (FY) 2009-2010, is supplied by SFPUC. By 2015 Hayward expects that about 3,475 acre-feet per year of recycled water will be used by an energy producer, Russell City Energy Center, which represents 12 percent of total estimated demand in that year. By 2035 water demand is expected to increase to 37,390 AFY.
- The City receives water through two aqueducts along Mission Boulevard and Hesperian Boulevard that have a total capacity of 32 million gallons per day. The aqueducts deliver potable water through a pressurized distribution system with over 360 miles of pipelines, 14 water storage reservoirs, seven pump stations, transmission system pressure regulating valves, numerous zonal pressure reducing valves, and two booster pump stations.
- Five water wells, certified by the California Department of Health Services for short duration emergency use only, are located within the city limits and can provide up to 13.6 million gallons of water per day (mgd).
- Major water system projects in the near term focus on replacing and renovating existing water storage reservoirs to increase storage capacity and improve structural reliability. The

City has also made extensive efforts to improve the seismic safety of the water system, including seismic retrofits of several reservoirs and improvements to pipes at fault line crossings.

- Between 2008 and 2010 water use throughout the ABAG region has decreased by more than 10 percent. Hayward's 2010 per capita water use was among the lowest of all 26 wholesale customers of SFPUC.
- Average per capitawater use from FY 2003-04 to FY 2007-08 was 128 gallons per capita per day (gpcd) in Hayward. Hayward set its water use targets at 126 gpcd in 2015 and 122 gpcd in 2020. Reaching a target use of 122 gpcd would require a 4 percent reduction in recent average per-capita use.
- Current (2010) water demand citywide is at 17.5mgd. Single family customers require the greatest quantity of water (6.7 mgd or 38 percent), while multifamily, commercial, and industrial customers each require about the same quantity of water (approximately 3.0 mgdor 17 percent). Overall, water use in Hayward has decreased 6 percent since 2005. The most significant decrease has occurred within the past two years, with a decline of nearly 11 percent.
- The 2010 City of Hayward Urban Water Management Plan estimates the potential maximum day demand for citywide buildout to be 33.9 mgd in 2035. Single family customers are still anticipated to require the greatest quantity of water (12.2 mgd or 36 percent); however, industrial water demands are anticipated to significantly increase (7.4 MGD of potable water and 3.4 mgd of recycled water or 32 percent). Multifamily and commercial water demand is projected to increase slightly (4.6 mgd or 13 percent and 3.4 mgd or 10 percent, respectively).
- The present Hayward water system has enough supply to meet projected demand during a normal precipitation year, but not enough supply to meet projected demand during dry years. During a dry year Hayward is expected to meet only 97 percent of demand in 2015 and 66 percent of demand in 2035.

Existing Conditions

City of Hayward Water System

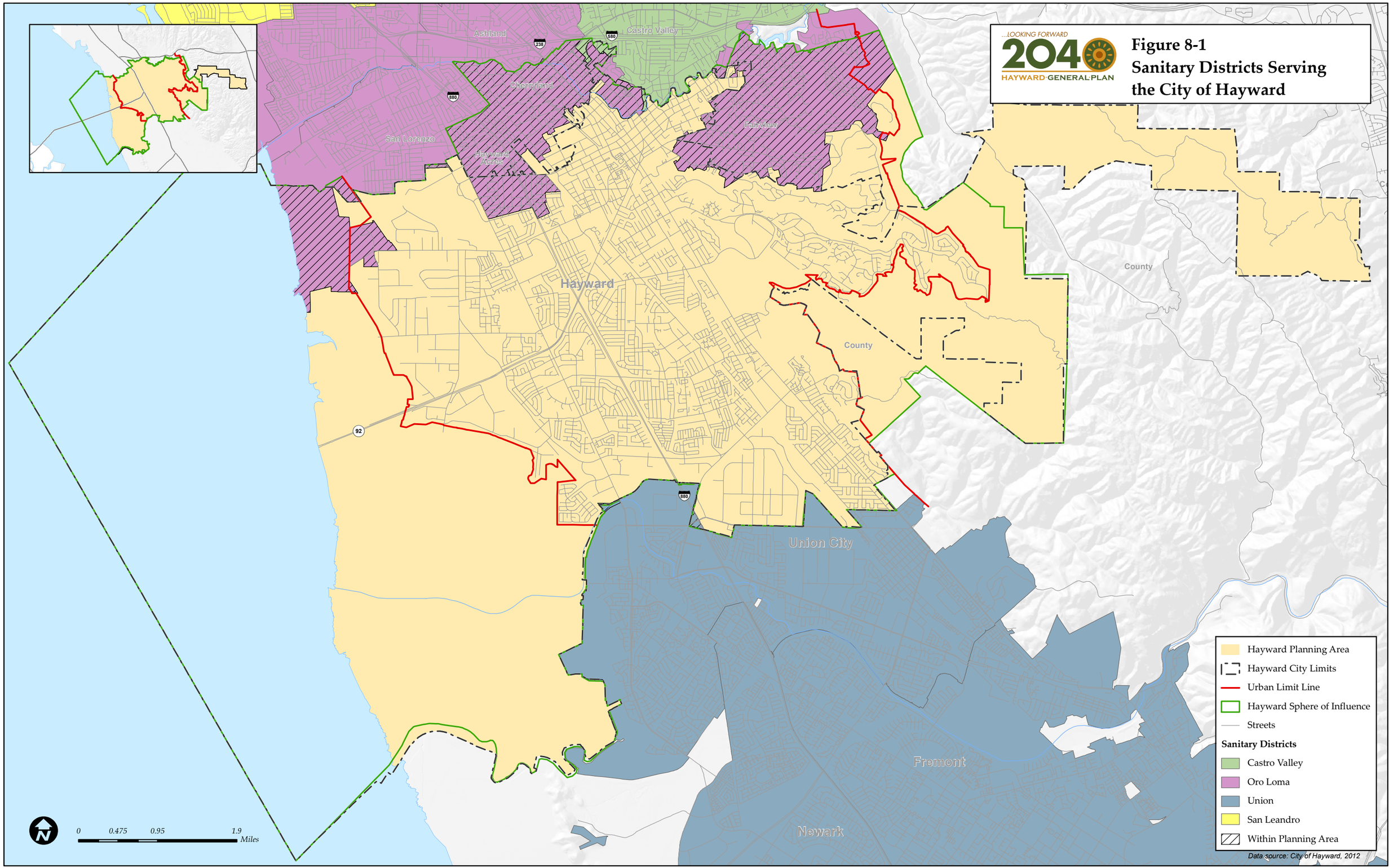
Introduction

Originally, Hayward relied on groundwater to supply city residents with water. During the 1940s and 1950s, groundwater was supplemented by water purchased from the San Francisco Hetch-Hetchy system, owned and operated by the San Francisco Public Utilities Commission (SFPUC). In 1962 Hayward entered into anagreement with the SFPUC to purchase all Hayward water from the agency. Hayward constructed over 20 miles of aqueduct in order to deliver Hetch-Hetchy water and stopped using groundwater in 1963.

Currently (2011), the City of Hayward provides water service for residential, commercial, industrial, governmental, and fire suppression uses. The City owns and operates its own water distribution system. The business relationship between SFPUC and 26 Bay Area water suppliers is largely defined by the Water Supply Agreement, which terminates in 2034. The Water Supply Agreement addresses the rate-making methodology used by the SFPUC in setting wholesale water rates and allows the City of Hayward to buy sufficient water to serve its needs. However, during drought years the City has to reduce water use based on a formula established by SFPUC. The City has emergency water supplies through connections with the Alameda County Water District (ACWD) and the East Bay Municipal Utility District (EBMUD), and short-term use emergency wells, in case of disruption of delivery from SFPUC. Hayward is preparing a Water System Master Plan update in 2013 to assess the system capacity and identify future needed improvements.

Service Area

As shown in Figure 8-1, the Hayward water system serves almost all areas within the city limits and a select few properties outside the city limits through special approvals or utility service agreements. However, a very small portion of north Hayward, containing less than 3 percent of the city, is served by the East Bay Municipal Utility District. In 2010 the Hayward service area consisted of about 147,000 residents.



January, 2013

Water Supply and Distribution

Surface Water

The water supplied to Hayward is predominantly from the Sierra Nevadas, delivered through the Hetch-Hetchy aqueducts, but also includes some treated water produced by the SFPUC from its local watershed and facilities in Alameda County. The main supply comes from reservoirs in the Tuolumne River watershed. Most of the water is soft snow water from the High Sierras. The water is captured in the Hetch-Hetchy watershed and piped, entirely by gravity, one-hundred-and-fifty miles from their reservoirs in northern Yosemite Park to the Bay Area. The Bay Division pipeline runs through Union City and crosses the bay to deliver water to the San Francisco area. In the future Hayward plans to supply recycled water to industrial businesses for irrigation and cooling. As shown in Table 8-1, all of Hayward's current water supply, which was 19,537 acre-feet per year (AFY) in 2010, is currently supplied by SFPUC. Hayward anticipates that recycled water will make up 12 percent of the water supply by 2015, to meet demand from the Russell City Energy Center. By 2035 the water demand is expected to increase to 39,955 AFY.

TABLE 8-1
CURRENT AND PROJECTED WATER SUPPLY
City of Hayward
2010-2035

Water Supply Source	Water Supplies (AFY)					
	2010	2015	2020	2025	2030	2035
SFPUC	19,537	24,200	26,200	28,450	31,000	34,160
Recycled Water	0	3,475	3,760	3,760	3,760	3,760
Total Supply	19,537	29,690	31,980	34,235	36,790	39,955

Source: City of Hayward 2010 Urban Water Management Plan, 2010.

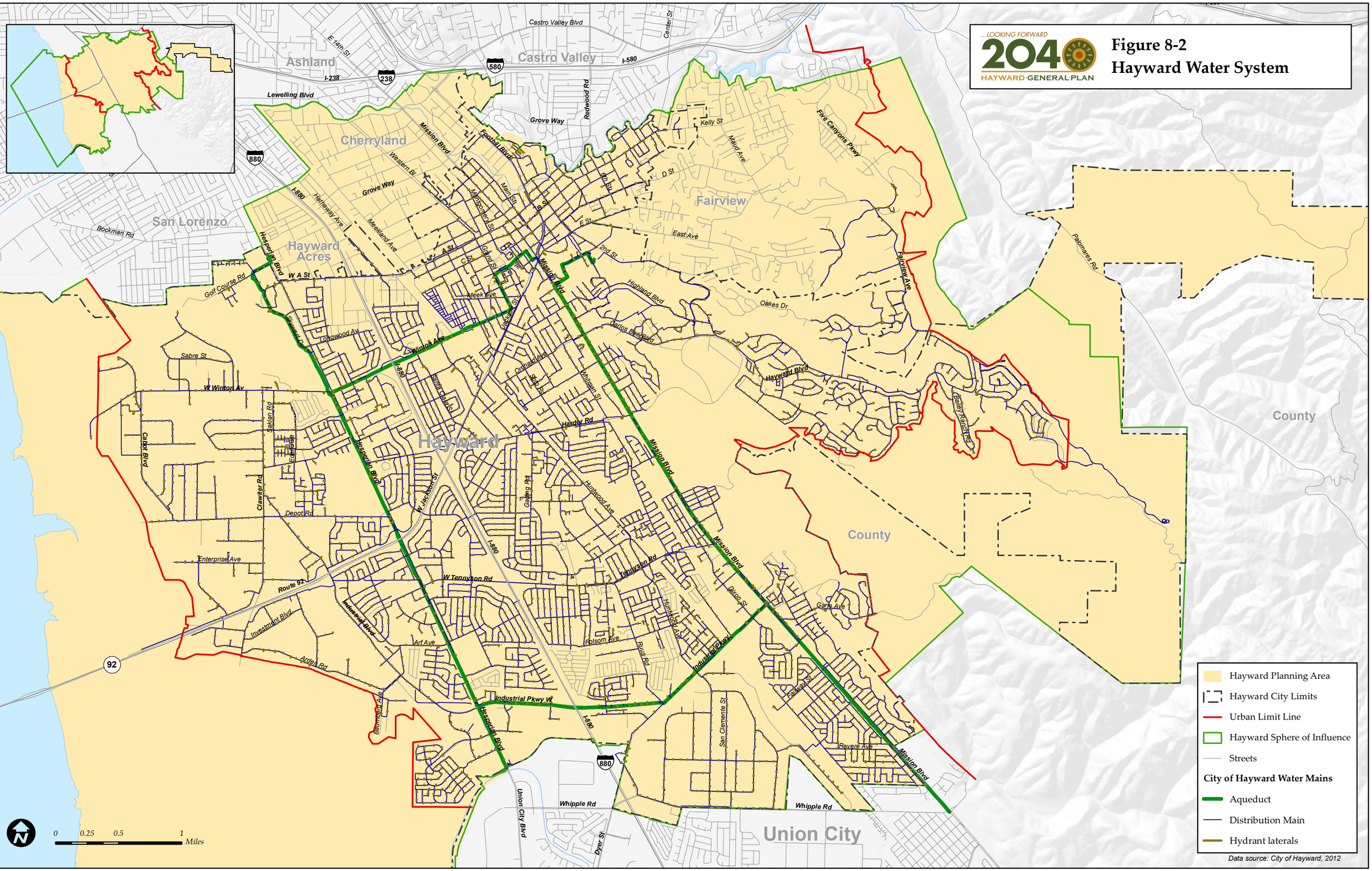
Hayward's sole source of drinking water since 1963 has been the City and County of San Francisco Regional Water System (RWS), operated by SFPUC. Hayward has had past experience with water shortages, most notably in 1977 and again from 1987 to 1992. The amount of imported water available to SFPUC retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints the SFPUC is very dependent on reservoir storage to firm up its water supplies. The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch-Hetchy. In practice the local watershed facilities are operated to capture local runoff.

As shown in Figure 8-2, the Hayward water distribution system consists of a pipe network which lies predominantly beneath the public street right-of-way. The City receives water through two aqueducts along Mission Boulevard and Hesperian Boulevard that have a total capacity of 32 million gallons per day. Using a system of booster pump stations, the capacity can be increased to about 50 million gallons per day. Hayward delivers potable water through a pressurized distribution system of over 360 miles of pipelines, six main pressure Zones, 14 water storage reservoirs, seven pump stations delivering water to the upper pressure Zones, transmission system pressure reducing valves, and zonal pressure regulating valves.The transmission system for the Hetch-Hetchy aqueduct is complemented by two booster pump stations: Decoto pump station, located along the Mission Boulevard 24" transmission main, and the Hesperian pump station, located along the Hesperian Boulevard 42" transmission main. Hayward uses a cross-connection control program to protect the city drinking water distribution system from contamination caused by backflow.

In Fiscal Year (FY) 2010-2011 Hayward completed improvements to the existing one million gallon Highland 1000 Reservoir, off La Mesa Drive with a new 2.2 mgstorage tank to address a storage deficiency. The City also completed work on a seismic retrofit of the D Street Reservoir. The retrofit included installing an aluminum roof and a cast-in-place inner concrete wall. In FY 2012-13 the City completed the replacement of approximately 4,440 feet of 16-inch concrete cylinder pipe with 18-inch welded steel pipe and upgraded the 250 Pump Station piping system to increase reliability of water delivery from the 250 Zone to the 500 Zone. In addition, the Highland 250 and Maitland reservoirs are currently scheduled to undergo seismic upgrades over the next few years (2013-2016).

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 8-2
Hayward Water System



- Hayward Planning Area
- Hayward City Limits
- Urban Limit Line
- Hayward Sphere of Influence
- Streets

City of Hayward Water Mains

- Aqueduct
- Distribution Main
- Hydrant laterals

Data source: City of Hayward, 2012

January, 2013

Groundwater

Hayward no longer uses groundwater to meet day-to-day water demand. The City has developed local emergency wells to provide emergency water sources in the event of a disruption in water supply. Five wells, certified by the California Department of Health Services for short duration emergency use only, are located in the city and may provide up to 13.6 mgd. Table 8-2 shows the capacity of these wells. The City has also developed emergency interties with ACWD and EBMUD, with the capacity to deliver 14 mgd. In addition, SFPUC and EBMUD completed a regional intertie facility located in Hayward with a capacity of 30 mgd.

TABLE 8-2
EMERGENCY WELL CAPACITY
City of Hayward
2013

Well Identification	Capacity
Well A	1.7 mgd
Well B	2.9 mgd
Well C	4.6 mgd
Well D	1.4 mgd
Well E	3.0 mgd

Source: City of Hayward 2010 Urban Water Management Plan, 2010.

Funding and Future Projects

Water service is organized as a service fee-based enterprise fund separate and distinct from the City General Fund, and includes the Water Capital Improvement Fund and Water System Replacement Fund. The City maintains an on-going 10-year Capital Improvement Program (CIP) to ensure system capacity, good performance, and proper maintenance.

Major water system projects in the near term focus on replacing and renovating existing water storage reservoirs to increase storage capacity and improve structural reliability. One project completed in FY 2011-2012 improved the reliability and probability that the 24" Mission aqueduct can return to service after a major earthquake. The City has also made extensive efforts to seismically improve the water system, including seismic retrofits of several reservoirs and improvements to pipes at fault line crossings.

In future years the CIP includes projects to replace the existing 1 mg High School Reservoir, located above City Center Drive, with a 3 mg facility, and to construct a new 2 mg reservoir on Hesperian Boulevard. The CIP also includes various water main replacement and improvement projects to achieve system capacity requirements to maintain optimal operating efficiency. Hayward is also currently developing a recycled water program that could deliver up to 500,000 gpd of tertiary treated wastewater to customers for irrigation and industrial uses. Implementation of the projects involves many factors, including available funding, but could be effective in reducing Hayward's reliance on SFPUC potable water.

Water Demand

Between 2008 and 2010 water use throughout the ABAG region decreased by more than 10 percent. While the specific reasons for this decline are unknown, it may be due to either economic or climate conditions, or recent water conservation initiatives, or a combination of all three.

The current (2010) per capita water use in Hayward is among the lowest of all 26 wholesale customers of SFPUC. Hayward's highest per-capita water use during the last ten years (2000-2001 to 2009-2010) was 136 gpcd in FY 2003-2004. The average for FY 2000-2001 through FY 2009-2010 is 127, excluding an unusually low usage of 114 gpcd in FY 2009-2010.

Hayward is subject to requirements of Senate Bill 7, the Water Conservation Act of 2009, which mandates a statewide reduction in urban per capita use of 20 percent by 2020. Hayward identified its target water use in the 2010 Urban Water Management Plan, using prescribed Department of Water Resources methodologies. Based on California Department of Finance population data and billed water consumption from SFPUC, the average per-capita use from FY 2003-2004 to FY 2007-2008 was 128, as shown on Table 8-3. Using a water use target of 95 percent of the applicable State hydrologic regional targets (144 gpcd in 2015 and 131 gpcd in 2020), Hayward's water use targets would be 137 gpcd in 2015 and 124 gpcd in 2020. However, Hayward is subject to the minimum water use reductions, due to its already low per capita use, and the targets are set at 126 gpcd in 2015 and 122 gpcd in 2020. Assuming a somewhat normal recent per-capita use of 127 gallons, reaching a target use of 122 gpcd would require a 4 percent reduction in current per-capita use.

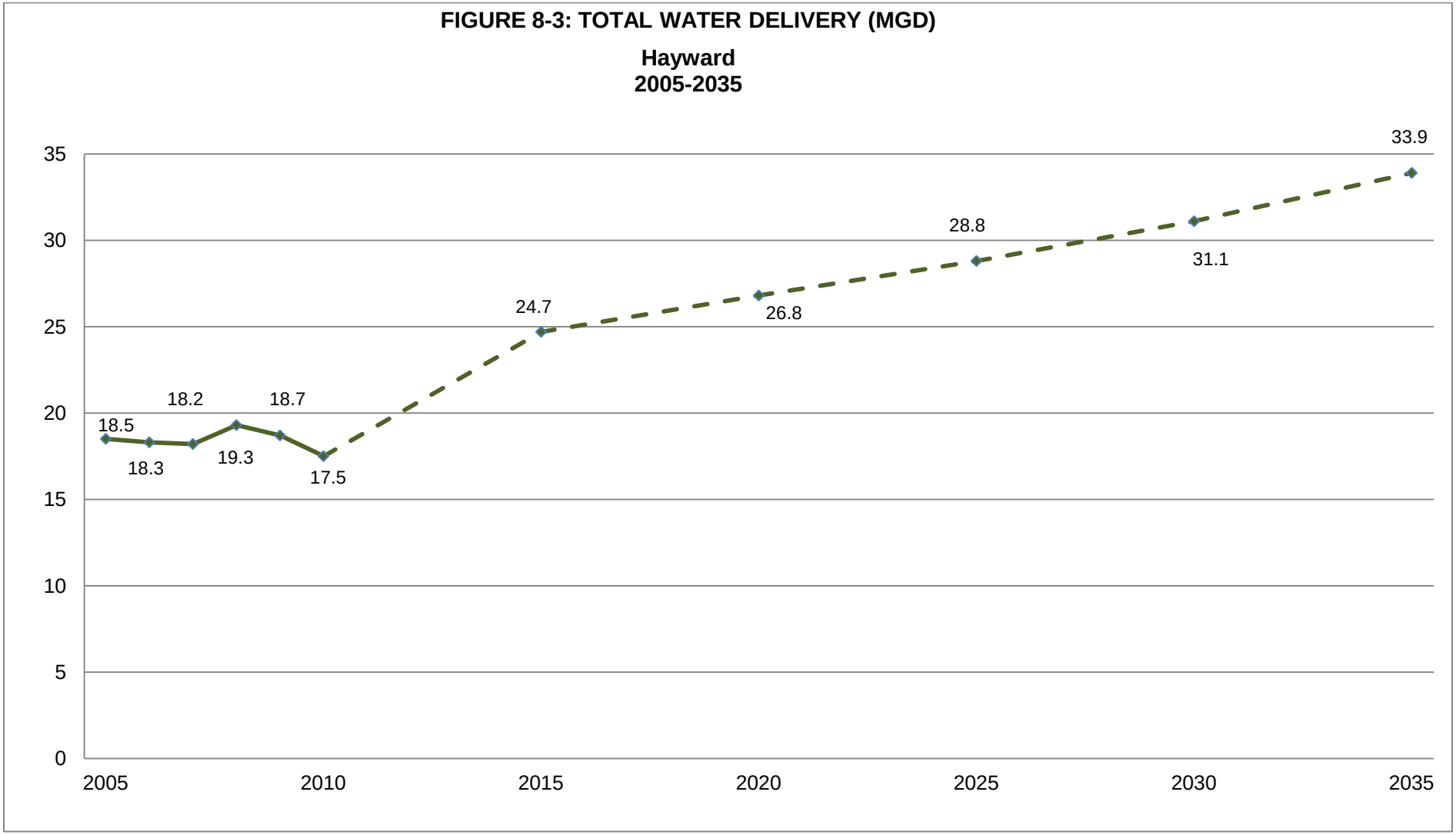
TABLE 8-3
AVERAGE PER CAPITA USE
City of Hayward
2013

Base Period Fiscal Year	Distribution System Population	Daily System Gross Water Use (gpd)	Annual Daily per Capita Water Use (gpcd)
2003-04	144,509	19,647,896	136
2004-05	145,415	18,505,831	127
2005-06	146,216	18,288,217	125
2006-07	147,385	18,241,540	124
2007-08	148,967	19,333,513	130
Base Daily Per Capita Water Use			**128**

Source: City of Hayward 2010 Urban Water Management Plan, 2010.

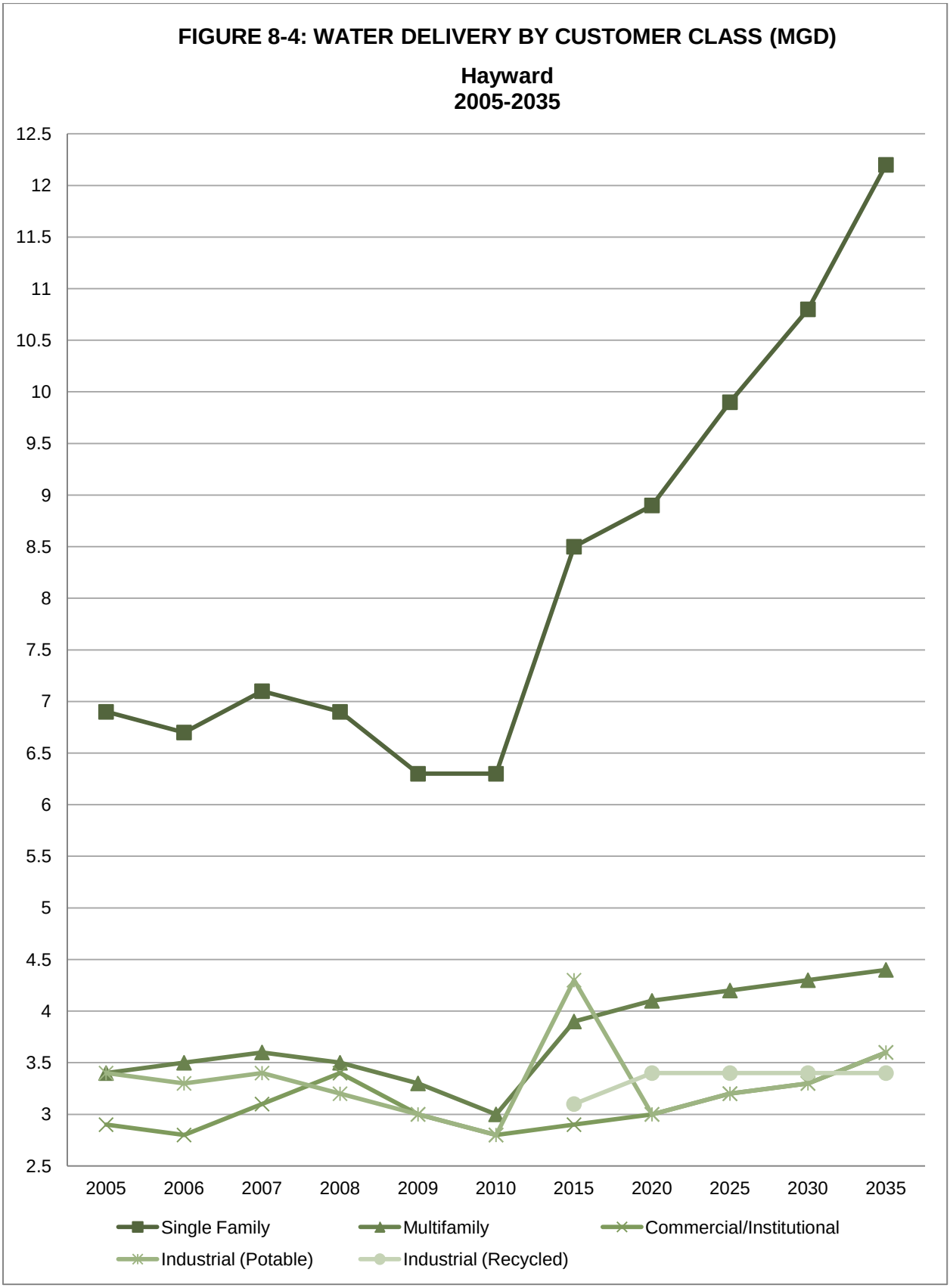
As shown in Figure 8-3, current (2010) water demand is at 17.5mgd. Single family customers require the greatest quantity of water (6.7 mgd or 38 percent), while multifamily, commercial, and industrial customers require about the same amount of water (approximately 3.0 mgd or 17 percent) as shown in Figure 8-4. Overall, water use in Hayward has decreased 6 percent since 2005. The most significant decrease has occurred within the past two years, declining nearly 9 percent.

FIGURE 8-3: TOTAL WATER DELIVERY (MGD)



Source: City of Hayward 2010 Urban Water Management Plan, 2010.

FIGURE 8-4: WATER DELIVERY BY CUSTOMER CLASS (MGD)



Source: City of Hayward 2010 Urban Water Management Plan, 2010.

The 2010 City of Hayward Urban Water Management Plan estimates the potential maximum day demand for citywide buildout to be 33.9 mgd in 2035. Demand projections were developed through an "end use" model that establishes base year demand and forecasts future demand based on land use information and anticipated residential and business growth. Single family customers are still anticipated to require the greatest amount of water (12.2 mgd or 36 percent), however, industrial water demands are anticipated to significantly increase (7.4 mgd of potable water and 3.4 mgd of recycled water or 32 percent) including demand from the Russell City Energy Center. Multifamily and commercial water demand is projected to generally hold constant (4.6 mgd or 13 percent and 3.4 mgd or 10 percent, respectively).

The present system can provide enough water to serve existing needs and still have reserve capacity for protection against fire, peak demands, and other emergencies. The present system has enough supply to meet projected demand during a normal precipitation year, but not enough supply to meet projected demand during dry years. During a dry year Hayward is expected to only meet 97 percent of demand in 2015 and 66 percent of demand in 2035.

Water Quality

The City of Hayward 2013-2014 Operating Biennial Budget identified the goal to deliver drinking water that meets all Federal and State quality standards and the Water System State Department of Health permit requirements 100 percent of the time. The water delivered to Hayward customers since at least 2008 has met or exceeded State and Federal standards. The Hetch-Hetchy reservoir water supply meets all Federal and State requirements for watershed protection, disinfection treatment, bacteriological quality, and operational standards. As a result, the U.S. Environmental Protection Agency and the California Department of Health Services have granted the Hetch-Hetchy water supply an exemption from filtration requirements. The water stored locally in the Calaveras and San Antonio Reservoirs, including stored Hetch-Hetchy water, is treated and filtered. SFPUC adds fluoride to all water delivered to Hayward and disinfects the water with chloramines, a combination of chlorine and ammonia.

Contaminants listed in the following tables (Table 8-4 and 8-5) were detected in 2011 drinking water samples. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goal for public health (PHG), the amount detected, and typical sources of the contamination. Laboratory staff analyzed the water samples for other contaminants which were not detected, including methyl tertiary-butyl ether, perchlorate, arsenic, herbicides, and pesticides.

Hayward water meets all primary drinking water mandatory standards, secondary maximum contaminant levels, and other water quality parameters. Most contaminant levels were very low, usually below 50 percent of the required standard. Trihalomethanes and haloacetic acids recorded the highest contaminant levels, which were still only 75 percent and 81 percent of the standard, respectively. The lowest contaminant levels were recorded at less than 1 percent of the standard and include contaminants such as copper. Radium-226, flouride, chlorine, and copper levels were so low that they also met the ideal goal for public health.

TABLE 8-4
HAYWARD WATER QUALITY – PRIMARY DRINKING WATER STANDARDS MANDATORY HEALTH-RELATED STANDARDS
City of Hayward
2013

Detected Contaminants	Unit	MCL	PHG (MCLG)	Range	Average (Maximum)	Typical Sources in Drinking Water
TURBITITY (SFPUC Treated Water)[1]						
Unfiltered Hetch-Hetchy Water	NTU	TT – 5	N/A	0.2 - 0.7[2]	(2.1)	Soil runoff
Filtered Water – Sunol Valley WTP	NTU	TT – 1[4]	N/A	-	(0.36)	Soil runoff
	%	95% ≤ 0.3[4]	N//A	99.9 -100%	-	Soil runoff
DISINFECTION BY-PRODUCTS AND PRECURSORS (SFPUC Regional System)						
Total Trihalomethanes (TTHMs)	ppb	80	N/A	10 - 84	(45)[5]	By-product of drinking water disinfection
Total Haloacetic Acids	ppb	60	N/A	4 - 59	(33)[5]	By-product of drinking water disinfection
Total Organic Carbon[6]	ppm	TT	N/A	2.6 - 2.9	2.7	Various natural and man-made sources
DISINFECTION BY-PRODUCTS AND PRECURSORS (City of Hayward Distribution System)						
Total Trihalomethanes (TTHMs)	ppb	80	N/A	41.6 - 65.2	(60.1)[5]	By-product of drinking water disinfection
Total Haloacetic Acids	ppb	60	N/A	40.7 - 56.6	(48.4)[5]	By-product of drinking water disinfection
MICROBIOLOGICAL (SFPUC Regional System)						
Giardia Lamblia	cysts/L	TT	(0)	ND - 0.07	(0.07)	Naturally present in the environment
MICROBIOLOGICAL (City of Hayward Distribution System)						
Total Coliform	%	5	(0)	0.0 - 3.6[7]	0.5[7]	Naturally present in the environment
RADIONUCLIDES (SFPUC Regional System)						
Radium-226	pCi/L	N/A	0.05	ND - 1.2	<1	Erosion of natural deposits

INORGANIC CHEMICALS						
Flouride[8]	ppm	2	1	ND - 0.8	0.3[9]	Erosion of natural deposits
DISINFECTANT RESIDUALS (City of Hayward Distribution System)						
Chlorine[10]	ppm	MRDL-4	MRDLG-4	0.1 - 3.2	2.3	Drinking water disinfectant for treatment
LEAD AND COPPER RULE STUDY (City of Hayward Tap Water)						
Copper	ppb	1300 AL[11]	300	1.1 - 178.4	60.1[12]	Corrosion of household plumbing systems
Lead	ppb	15 AL[11]	0.2	<1 - 9.2	2.3[12]	Corrosion of household plumbing systems

Notes: NTU - Nephelometric Turbidity Unit, which is a measurement of the clarity of water; ppb - Parts per billion (or micrograms per liter), which is equivalent to one penny in $10,000,000; ppm - Parts per million (or milligrams per liter), which is equivalent to one penny in $10,000; cysts/L - Cysts per liter, which is a measurement of some microorganisms in water; < - Less than the stated detection limit; µS/cm - MicroSiemens per centimeter; ND - Non-detected; pCi/L - Picocuries per liter, which is a measure of radioactivity; NL - Notification Level.

[1] Turbidity is the water clarity indicator, it also indicates the quality of the water and thetreatment system efficiency.

[2] Turbidity is measured every four hours. These are monthly average turbidity values.

[3] This is the highest turbidity of the unfiltered water served to customers in 2011. This turbidity spike was the result of flow rate change, and it was not observed downstream at Alameda East.

[4] There is no MCL turbidity for filtered water. The limits are based on the TT requirements in the State drinking water regulations.

[5] This is the highest quarterly running annual average value.

[6] Total organic carbon is a precursor for disinfection byproduct formation. The TT requirement applies to the filtered water from SVWTP only. These are compliance data for SVWTP raw water.

[7] Percent of monthly samples that are positive in Hayward tap water.

[8] The SFPUC adds fluoride to the naturally occurring levels to help prevent dental caries in consumers. The CDPH requires our fluoride levels in the treated water to be maintained within a range of 0.8 ppm - 1.5 ppm. In 2011, the range and average of our fluoride levels were 0.6 ppm - 1.3 ppm and 1.0 ppm, respectively.

[9] The naturally occurring fluoride levels in the Hetch-Hetchy and SVWTP raw water are ND and 0.12 ppm, respectively.

[10] Water is disinfected with chloramine, a combination of chlorine and ammonia. Residual chlorine is measured.

[11] The 90th percentile level of lead and copper must be less than the action level.

[12] In 2010, 0 out of 57 sampled residences exceeded the Action Level at consumer taps.

[13] Other Regulatory Level.

[14] The detected chlorate in treated water is a degradation byproduct of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection (90th percentile).

Source: City of Hayward 2011 Water Quality Report, 2012.

TABLE 8-5
HAYWARD WATER QUALITY – SECONDARY MAXIMUM CONTAMINANT LEVELS AND OTHER WATER QUALITY PARAMETERS

CONSUMER ACCEPTANCE LIMITS

City of Hayward
2013

Detected Contaminants	Unit	SMCL/ORL[1]	Range	Average	Typical Sources in Drinking Water
Aluminum	Ppb	200	ND-53	<50	Erosion of natural deposits
Chloride	Ppm	500	3 – 20	11	Runoff/leaching from natural deposits
Color	Unit	15	<5 - 9	<5	Naturally-occurring organic materials
Specific Conductance	µS/cm	1600	39 – 289	181	Substances that form ions when in water
Sulfate	Ppm	500	1.3 – 36	18	Runoff/leaching from natural deposits
Total Dissolve Solids	Ppm	1000	83 – 194	132	Runoff/leaching from natural deposits
Turbidity	NTU	5	0.06 – 0.35	0.16	Soil runoff
Alkalinity (as CaCO3)	Ppm	N/A	10 - 84	49	
Calcium (as Ca)	Ppm	N/A	3 – 24	13	
Chlorate[2]	Ppb	(800) NL	36 – 488	89	
Hardness (as CaCO3)	Ppm	N/A	10 – 98	57	
Magnesium	Ppm	N/A	<0.04 – 8.2	4.9	
pH	Unit	N/A	6.7 – 9.7	8.6	
Sodium	ppm	N/A	3 - 20	13.5	

Notes: NTU - Nephelometric Turbidity Unit, which is a measurement of the clarity of water; ppb - Parts per billion (or micrograms per liter), which is equivalent to one penny in $10,000,000; ppm - Parts per million (or milligrams per liter), which is equivalent to one penny in $10,000; cysts/L - Cysts per liter, which is a measurement of some microorganisms in water; < - Less than the stated detection limit; µS/cm - MicroSiemens per centimeter; ND - Non-detected; pCi/L - Picocuries per liter, which is a measure of radioactivity; NL - Notification Level.

[1] Other Regulatory Level.

[2] The detected chlorate in treated water is a degradation byproduct of sodium hypochlorite, the primary disinfectant used by SFPUC for water disinfection (90th percentile).

Source: City of Hayward 2011 Water Quality Report, 2012

Water Shortage Planning

In July 2009, in connection with the Water Supply Agreement, the SFPUC and wholesale customers adopted a Water Shortage Allocation Plan (WSAP) to allocate available water from the regional water system between SFPUC and wholesale customers in the event of a system-wide shortage of 20 percent or less. Also known as the "Tier One Plan," the WSAP allocates water based on the level of shortage. This Agreement also allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer, and between wholesale customers themselves. Further, the wholesale customers have adopted the "Tier Two Plan," which allocates the collective wholesale customer share among each of the 26 wholesale customers. This allocation is based on agency-specific factors, such as individual supply guarantees, seasonal use of water supplies, and residential per capita use.

The City of Hayward also adopted a Water Shortage Contingency Plan that contains four stages of conservation actions. Stage I actions are triggered by a shortage of 10 percent or less and include voluntary actions to reduce overwatering or overuse of water. Stage II and III actions are mandatory prohibitions triggered by shortages of 10 to 20 percent and 20 to 50 percent, respectively. Stage II actions include prohibiting filling swimming pools, outdoor car washing, and serving water in restaurants (unless requested by the customer). Stage III actions include all Stage II prohibitions, and include prohibiting the use of potable water to irrigate, wash cars, or for street sweeping. State IV actions are triggered by a shortage greater than 50 percent and include intensified rationing efforts such as limited watering days.

In addition to acquiring interties with two neighboring water agencies and implementation of an emergency well system, Hayward has adopted a Catastrophic Water Supply Interruption Plan. The Plan outlines significant steps to plan for and to supplement potable water supplies in the event of a catastrophic interruption in regular water supplies, including interruptions caused by a regional power outage, earthquake, or other disaster.

Water Conservation Programs

Hayward has an active and long-standing commitment to water conservation. The current water conservation program includes:

- Rebates for replacement of high usage toilets with high efficiency models, purchase of water efficient clothes washing machines, and replacement of cooling tower conductivity controllers;
- Distribution of high efficiency water devices, such as showerheads, at no charge to customers;
- Distribution of pre-rinse spray valves, at no charge, to food-related businesses;
- Rebates for approved customers who convert water-thirsty lawns to water-efficient landscapes;
- Programs for school classrooms and assemblies;
- Public education and outreach; and
- Free water-efficient landscaping classes.

New residences and commercial and industrial buildings within the City water and sewer service area must connect to the City water and sewer system prior to occupation of the building. The City must approve all connections to the water and sewer system, and new water meters need to be installed before water service can be activated. Hayward has also adopted indoor water use efficiency standards for new construction and remodels. These standards mandate installation of the most water-conserving fixtures that are available and which have been shown to work effectively.

Hayward has adopted a water efficient landscape ordinance that will assist in effective water use for all new and rehabilitated public and private development projects seeking permits with a landscape area equal to or greater than 2,500 square feet, or homeowner-installed landscapes of 5,000 square feet or more. The Hayward Bay-Friendly Water Efficient Landscape Ordinance incorporates Bay-Friendly landscape practices that enhance the California Department of Water Resources Model Water Efficient Landscape Ordinance, and provides a whole system approach toward planning, design, installation, and maintenance. The City Ordinance includes provisions for water management practices for large existing landscape sites, over one acre in size.

East Bay Municipal Utility District

As mentioned previously, a very small portion of north Hayward, less than 3 percent of the city, is served by the East Bay Municipal Utility District (EBMUD). EBMUD also serves the Fairview community in the planning area. Overall, EBMUD currently treats and delivers water to about 1.99 million customers in Alameda and Contra Costa Counties. The District extends from the city of Crockett in the north, Richmond in the west, along the Bay Shore to San Lorenzo and Castro Valley in the south, and east to Danville, Alamo, and Walnut Creek.

The District currently produces an average of 220 mgd in non-drought years. The main source of the supply is the Mokelumne River in the Sierra Nevada, with a diversion point at Pardee Reservoir in Calaveras and Amador Counties.The EBMUD service area is divided into 123 pressure Zones, ranging in elevation from sea level to 1,450 feet, where storage and distribution facilities are designed to deliver water at a pressure range suitable for customer use. The District is currently (2013) constructing the second phase of the Bayside Groundwater project north of Hayward that will provide an additional 9 mgd.

Regulatory Setting

U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (EPA) is responsible for developing and enforcing regulations that implement environmental laws enacted by Congress. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits, monitoring, and enforcing compliance.

California Safe Drinking Water Act. The Safe Drinking Water Act (SDWA), administered by the United States Environmental Protection Agency (EPA) in coordination with the California Department of Public Health (CDPH), is the main Federal law that ensures the quality of drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. In 1996 Congress amended the Safe Drinking Water Act to emphasize sound science and risk-based standards, small water supply system flexibility and technical assistance, community-empowered source water assessment and protection, public right-to-know, and water system infrastructure assistance, through a multi-billion-dollar Federal revolving loan fund.

California Water Code. The California Water Code, a section of the California Code of Regulations, is the governing law for all aspects of water management in California.

Cortese-Knox-Hertzberg Governmental Reorganization Act of 2000. The Cortese-Knox-Hertzberg Governmental Reorganization Act of 2000 requires each California Local Agency Formation Commission (LAFCO) to conduct municipal service reviews for specified public agencies under their jurisdiction. One aspect of municipal service review is to evaluate an agency's ability to provide public services within its ultimate service area. A municipal service review is required before an agency can update its sphere of influence.

Urban Water Management Planning Act. In 1983 the California Legislature enacted the Urban Water Management Planning Act (Water Code Section 10610–10656). The Act states that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet (AF) annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act requires that urban water suppliers adopt an urban water management plan at least once every five years and submit them to the Department of Water Resources. Noncompliant urban water suppliers are ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the State until the Urban Water Management Plan (UWMP) is submitted and deemed complete pursuant to the Urban Water Management Planning Act.

Senate Bills 610 and 221, Water Supply Assessment and Verification. Senate Bills (SB) 610 and 221 amended State law, effective January 1, 2002, to improve the link between the information on water supply availability and certain land use decisions made by cities and counties. Both statutes require detailed information regarding water availability to be provided to city and county decision-makers prior to approval of specified large (greater than 500 dwelling units) development projects. Both statutes also require this detailed information to be included in the administrative record that serves as the evidentiary basis for an approval action by the city or county on such projects. Under SB 610 water assessments must be furnished to local governments for inclusion in any environmental documentation for certain projects as defined in Water Code 10912 subject to the California Environmental Quality Act (CEQA). Under SB 221 approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply.

Senate Bill 7x7 Statewide Water Conservation. In November 2009 the California State legislature passed and the Governor approved a comprehensive package of water legislation, including Senate Bill (SB) 7x7 addressing water conservation. In general SB 7x7 requires a 20 percent reduction in per capita urban water use by 2020, with an interim 10 percent target in 2015. The legislation requires urban water users to develop consistent water use targets and to use those targets in their UWMPs. SB 7x7 also requires certain agricultural water supplies to implement a variety of water conservation and management practices and to submit Agricultural Water Management Plans in 2012.

California Department of Public Health. A major component of the California Department of Public Health, Division of Drinking Water and Environmental Management is the Drinking Water Program (DWP), which regulates public water systems. Regulatory responsibilities include enforcement of Federal and State Safe Drinking Water acts, regulatory oversight of approximately 8,700 public water systems, oversight of water recycling projects, issuance of water treatment permits, and certification of drinking water treatment and distribution operators. Other functions include supporting and promoting water systems security, providing support for small water systems and for improving technical, managerial, and financial (TMF) capacity, and providing subsidized funding for water system improvements under the State Revolving Fund (SRF) and Proposition 50.

California Department of Water Resources. The California Department of Water Resources is responsible for preparing and updating the California Water Plan, which is a policy document that guides the development and management of State water resources. The plan is updated every five years to reflect changes in resources and urban, agricultural, and environmental water demands. The California Water Plan suggests ways of managing demand and augmenting supply to balance water supply with demand.

Bay Area Water Supply and Conservation Agency. The Bay Area Water Supply and Conservation Agency (BAWSCA), of which Hayward is a member agency, was created in 2003 to represent the interests of the 26 cities, water districts, a water company, and a university that purchase water on a wholesale basis from SFPUC. The BAWSCA water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. BAWSCA is developing the Long-Term Reliable Water Supply Strategy to meet the projected water needs of its member agencies and their customers through 2035, and to increase their water supply reliability under normal and drought conditions.

San Francisco Public Utilities Commission Water Supply Agreement. In 2009 Hayward renewed the Water Supply Agreement with the San Francisco Public Utility Commission (SFPUC). The Water Supply Agreement, which terminates in 2034, includes SFPUC and 26 Bay Area water suppliers. The City owns and operates its own water distribution system and purchases water from SFPUC; however, the Water Supply Agreement addresses the rate-making methodology used by the City in setting wholesale water rates.

San Francisco Public Utilities Commission and Wholesale Customer 2009 Water Shortage Allocation Plan. The Water Shortage Allocation Plan includes a two-tier plan for water conservation. Systemwide shortages of 20 percent or less trigger Tier One reductions, which allow for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. Systemwide shortages above 20 percent trigger Tier Two reductions based on a formula set by SFPUC factoring individual supply guarantee, seasonal use of the water supply, residential per capita use.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to water supply:

- Chapter 10, Article 12, the Bay-friendly Water Efficient Landscape Ordinance establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects.
- Chapter 10, Article 20, the Bay-friendly Landscaping Ordinance requires all new development with landscapes to meet the most recent minimum Bay-friendly Landscape Scorecard points as recommended by StopWaste.org.
- Chapter 10, Article 23, the Indoor Water Efficiency Ordinance includes standards for new construction and remodels mandating the installation of water-conserving fixtures.
- Chapter 11, Article 2, of the City of Hayward Municipal Code establishes a system for service connections, meter maintenance and testing, and fire service connections, and sets standards and installation costs for service connections.

Key Terms

The following key terms used in this chapter are defined as follows:

Acre-foot. An acre-foot (AF) is the volume of water required to cover one acre of land (43,560 square feet) to a depth of one foot. One acre-foot is equal to 325,851 gallons or 1,233 cubic meters. Historically, an acre-foot represents the amount of water typically used by one family during a year.

Cross-connection. A cross-connection is an actual or potential connection between a public or consumer's drinking water system and a non-potable (non-drinkable) source of water or other fluid. Examples of cross-connections are the connections between the drinking water distribution system and irrigation or lawn sprinkler systems, hose bibs, fire sprinkler systems, carbonation units, boilers, and chemical feed equipment.

Gallons of Water Per Capita Per Day. Gallons of water per capita per day (gpcpd) is a unit of measurement calculated as the Net Use allocated to the Water User Group (WUG) in gallons, divided by a Population Estimate, divided by 365 days.

Gallons of Water Per Day (gpd). Gallons of water per day (gpd) is a unit of measurement calculated as the Net Use allocated to the Water User Group (WUG) in gallons, divided by 365 days.

Groundwater. Groundwater is water that occurs beneath the land surface, specifically within pore spaces of saturated soil, sediment, or rock formations. Groundwater does not include moisture held by capillary action in the upper, unsaturated areas of aquifers.

Intertie Facility. An intertie facility is a facility constructed to connect with other facilities owned by partner agencies and include water transmission lines that allow water to flow between the facilities.

Million Gallons of Water Per Day. Million gallons per day (mgd) is a measurement of water flow frequently used in measurement of water consumption. One mgd equals 133,680.56 cubic feet per day, 1.5472 cubic feet per second, or 3.0689 acre-feet per day.

SECTION 8.3 WASTEWATER COLLECTION AND TREATMENT

Introduction

This section summarizes existing (2012) information related to wastewater collection, treatment, and disposal facilities in Hayward. It includes an overview of current wastewater collection and treatment capacities, flow history, treatment processes, reclamation policies, connections to the system, and the general infrastructure conditions.

Major Findings

- The City of Hayward owns and operates the wastewater collection and treatment system that serves almost all of the residential, commercial, and industrial users within the incorporated city limits, and limited portions of the adjacent unincorporated areas of Alameda County by contract. The East Bay Dischargers Authority disposes of the treated wastewater.
- The Hayward collection system includes about 320 miles of sewer mains, nine sewage lift stations, and 4.2 miles of force mains. The city has separate sewage and stormwater collection systems.
- In 2010 the City of Hayward Water Pollution Control Facility (WPCF) treated 12.1 million gallons per day (mgd). The WCPF is permitted to provide primary to advanced secondary treatment for up to 18.5mgd.
- The City of Hayward 2010 Urban Water Management Plan estimates that Hayward will collect and treat 13.5 mgd of wastewater by 2015. By 2035 the amount is expected to increase to 18.5 mgd.
- All wastewater is currently treated to secondary level.
- The Oro Loma Sanitary District (OLSD) provides services to a small area in the northern portion of the city, as well as the community of Fairview, which is part of the Hayward Planning area.

Existing Conditions

City of Hayward Sewer System and Wastewater Treatment

The City of Hayward owns and operates the wastewater collection, treatment, and disposal system that serves almost all of the residential, commercial, and industrial users within the incorporated city limits, and limited portions of the adjacent unincorporated areas of Alameda County by contract. The Oro Loma Sanitary District (OLSD) provides services to a small area in the northern portion of the city, as well as the community of Fairview.

Sewer System

The City is responsible for collection and treatment of wastewater within the community and the East Bay Dischargers Authority (EBDA) is responsible for disposal of the treated wastewater. Wastewater is collected and transported via underground sewer lines to the City of Hayward Water Pollution Control Facility (WPCF) located at the terminus of Enterprise Avenue in western Hayward. As shown in Figure 8-5, the collection system includes about 320 miles of sewer mains, nine sewage lift stations, and 4.2 miles of force mains.

The City has separate sewage and stormwater collection systems. Some elements of the sewage collection system were constructed as early as 1910; however, the major portion of the existing system was developed in the post-World War II years. The system experiences problems common to many sewer systems, such as root intrusion and solid and grease buildup, but operates with little silt buildup or groundwater infiltration. In the 2013-14 Operating Biennial Budget, the City of Hayward includes the goal to limit the number of sanitary sewer overflows to six per year.

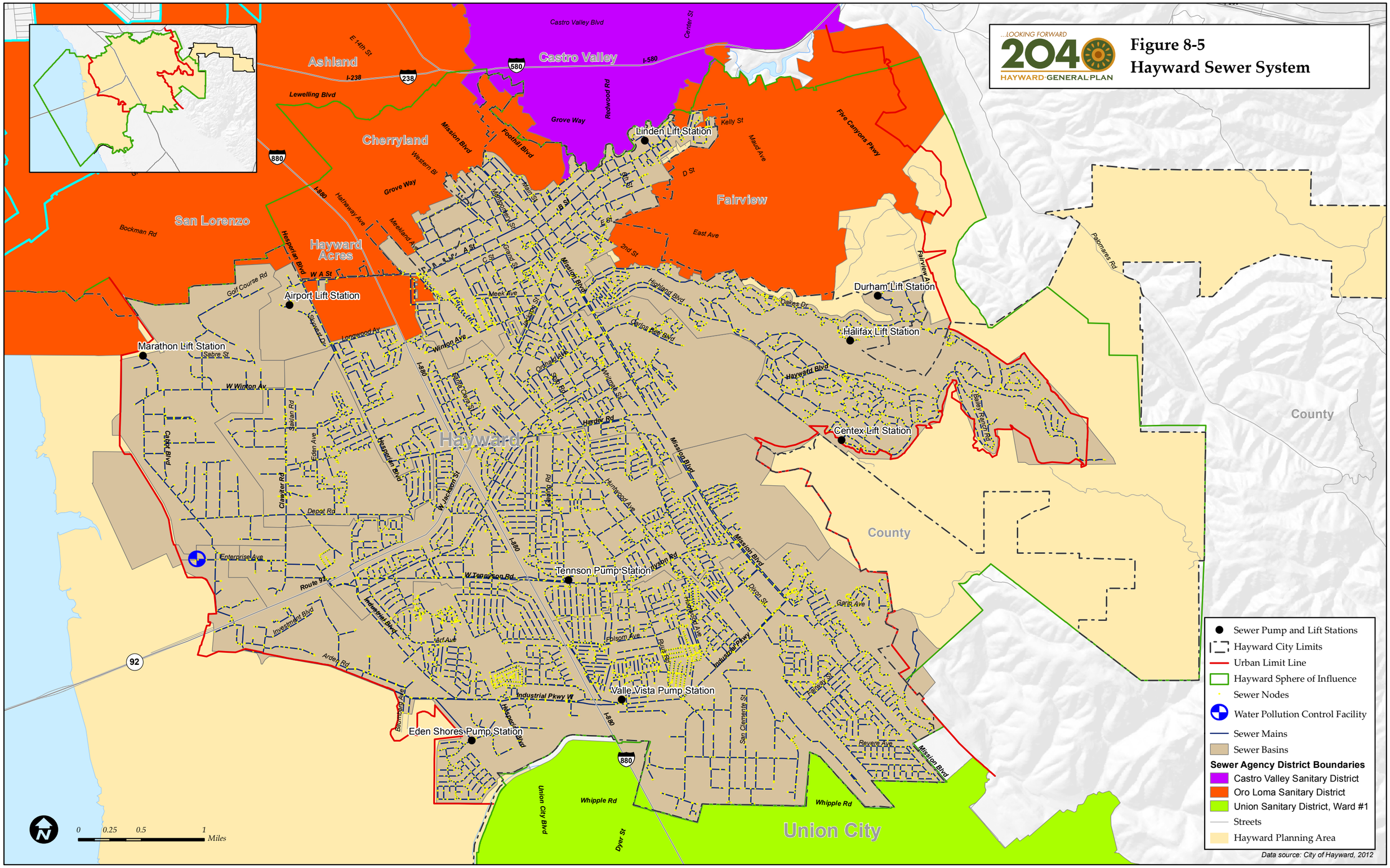
Wastewater service is organized as a service fee enterprise fund separate and distinct from the City General Fund. The City maintains an on-going 10-year Capital Improvement Program (CIP) in order to ensure system capacity, good performance, and proper maintenance. The CIP includes the Sewer Capital Improvement Fund, the Sewer Collection Replacement Fund, and WPCF Replacement Fund. The Sewer Collection System will undergo several pipeline improvements in the next few years (2012-3013). These improvements are planned to either replace pipelines that are showing signs of age and require frequent maintenance and repair, or to upsize undersized mains to increase their hydraulic capacity to handle current and near-term future flows. Many of the projects in future years center around updating technology to most efficiently monitor and maintain facilities, and implementing preventative maintenance and cleaning schedules to keep the facilities operating at optimum efficiency. The City is preparing master plan updates for the WPCF and sewer collection system to assess the capacity of the facilities and to identify future needed improvements.

Wastewater Treatment

The City of Hayward Water Pollution Control Facility (WPCF) provides for the collection and treatment of domestic, industrial, and commercial wastewater from the city. The City constructed its original treatment plant in 1954 to provide primary treatment of wastewater. The WPCF as it currently exists has undergone many improvements and expansions, primarily constructed through a joint powers agreement administered by EBDA. EBDA is comprised of five agencies: City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, and Union Sanitary District.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

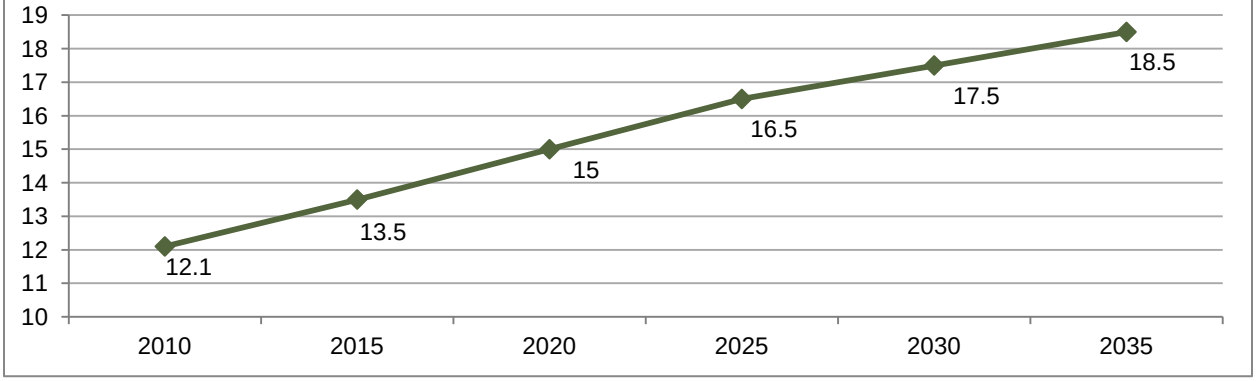
Figure 8-5
Hayward Sewer System



January, 2013

As shown in Figure 8-6, WPCF treated 12.1mgd in 2010. WPCF provides primary to advanced secondary treatment for up to 18.7 mgd. The City of Hayward 2010 Urban Water Management Plan estimates that Hayward will collect and treat 13.5 mgd of wastewater by 2015. By 2035 the amount is expected to increase to 18.5 mgd.

FIGURE 8-6 : WASTEWATER COLLECTED AND TREATED (MGD)



Source: City of Hayward 2010 Urban Water Management Plan, 2010.

The major U.S. power company Calpine Corporation (Calpine), in cooperation with General Electric, recently (2010) constructed the Russell City Energy Center (RCEC), a 600 megawatt combined cycle energy generation facility, on a site adjacent to the WPCF. Calpine anticipates using an average of 3.1 mgd of the tertiary treated recycled water produced at RCEC for cooling purposes, with peak use of 4 mgd during the summer months. Hayward expects to supply Calpine with secondary level treated wastewater, which Calpine will treat to the tertiary level as a new recycled water facility, and further treat at a zero liquid discharge facility to acceptable levels for their cooling system use.

All wastewater at WPCF is currently treated to secondary level. EBDA disposes of the wastewater treated at this facility, and supplies the Skywest Golf Course, located in Hayward, and the Hayward Marsh with recycled water. In 2010 EDBA supplied 251 AFY of treated wastewater, including WPCF effluent, for landscape irrigation and 3,107 AFY for wetlands enhancement. By 2015 WPCF may supply an average of 3,475 AFY for industrial use by Calpine. An additional 65 AFY for other industrial uses, and 220 AFY for irrigation use may be available in future years.

Treated effluent from the WPCF is pumped into the EBDA "Super Sewer" for final disposal in the deeper waters of the San Francisco Bay west of San Leandro. The effluent meets all of the requirements of the EBDA National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972.

In 2008 Hayward completed the first phase of a major upgrade of treatment plant facilities to improve the reliability and redundancy of treatment processes. The new and upgraded

facilities include a second trickling filter, two final clarifiers, a solids contact tank, and solids thickening facilities. The City is making improvements to the plant in order to increase the treatment reliability and unit processes redundancy. Phase II improvements, anticipated to commence in 2013, will enclose the effluent channel and convert an existing gravity thickener to a new primary clarifier. The conversion of the gravity thickener has been delayed to FY 2013, due to other priorities. The City also began replacement of an existing trickling filter that is inefficient and does not meet current seismic standards as part of the WPCF Phase II Improvements.

Oro Loma Sanitary District

The Oro Loma Sanitary District (OLSD) provides water service to a small area in the north portion of the city. OLSD facilities currently collect wastewater flows from an approximately 13 square mile service area serving the communities of San Lorenzo, Ashland, Cherryland, Fairview, portions of Castro Valley, and the cities of Hayward and San Leandro. The District treats flow from its collection system service area as well as flows collected by the Castro Valley Sanitary District (CVSD) to the east. OLSD serves a population of about 127,000, with 46,000 household and 1,100 business customers.

The collection system includes about 280 miles of sewer mains and 14 sewage lift stations. The Oro Loma/Castro Valley Wastewater Treatment Plant in San Lorenzo is jointly owned by OLSD (75 percent) and CVSD (25 percent), has a permitted capacity of 20 mgd, and treats an average dry weather flow of 10.95 mgd. The District treats the wastewater to a secondary level through physical, biological, and chemical processes. An average of 7 million gallons of treated effluent are reused for irrigation on the Skywest Golf Course each month, saving freshwater supplies for residents and businesses. The plant recovers approximately 11 dry tons of biosolids per day. These biosolids are processed for beneficial reuse.

Regulatory Setting

U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (EPA) Office of Wastewater Management (OWM) supports the Federal Water Pollution Control Act (Clean Water Act) by promoting effective and responsible water use, treatment, disposal, and management, and by encouraging the protection and restoration of watersheds. The OWM is responsible for directing the National Pollutant Discharge Elimination System (NPDES) permit, pretreatment, and municipal bio-solids management (including beneficial use) programs under the Clean Water Act. The OWM is also home to the Clean Water State Revolving Fund, the largest water quality funding source, focused on funding wastewater treatment systems, non-point source projects, and estuary protection.

Clean Water Act. The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Section 303 of the CWA requires states to adopt water quality standards for all surface water of the United States. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based on biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the Federal CWA.

State Water Resources Control Board. The State Water Resources Control Board (SWRCB), in coordination with nine RWQCBs, performs functions related to water quality, including issuance of wastewater discharge permits (NPDES and WDR) and other programs regulating stormwater runoff, and underground and above-ground storage tanks.

The CCRWQCB requires all wastewater collection and disposal providers to prepare both a Long-Term Wastewater Management Plan (LTWMP) according to wastewater requirements, and a Sewer System Management Plan (SSMP) according to the Statewide General Order Waste Discharge Requirements for Sanitary Sewer Systems (WQO No. 2006-003-DWQ), which was adopted in 2006 and requires wastewater collection and service providers to report all sanitary sewer overflows and management plans for all sanitary sewer systems.

Title 22 of California Code of Regulations. Title 22 regulates the use of reclaimed wastewater. In most cases only disinfected tertiary water may be used on food crops where the recycled water would come into contact with the edible portion of the crop. Disinfected secondary treatment may be used for food crops where the edible portion is produced above ground and will not come into contact with the secondary effluent. Lesser levels of treatment are required for other types of crops, such as orchards, vineyards, and fiber crops. Standards are also prescribed for the use of treated wastewater for irrigation of parks, playgrounds, landscaping and other non-agricultural irrigation. Regulation of reclaimed water is governed by the nine RWQCBs and the California Department of Public Health (CDPH).

Key Terms

The following key terms used in this chapter are defined as follows:

Disinfection. Disinfection is a process following secondary or tertiary treatment that typically involves the use of chlorine or ultraviolet (UV) radiation to destroy bacteria and other pathogens.

Infiltration. Infiltration is groundwater that enters into the sanitary sewer system.

Effluent. Effluent is treated wastewater that is discharged from a wastewater treatment facility.

Lift Station. A lift station is a pumping facility that conveys wastewater flow from an area that would not naturally drain to the wastewater treatment plant, or into the gravity sewer system for delivery and treatment. (Mintier Harnish)

National Pollutant Discharge Elimination System Permit. A National Discharge Elimination System (NPDES) permit is the regulatory document that defines the discharge requirements, monitoring requirements, and operational requirements for a particular wastewater treatment facility or other discharger to surface water.

Primary Treatment. Primary treatment is wastewater treatment prior to secondary treatment involving screening, settling, and removal of suspended solids.

Sanitary Sewer. Sanitary sewer includes pipes, pump stations, manholes, and other facilities that convey untreated (raw) wastewater from various sources to wastewater treatment facilities.

Secondary Treatment. Treatment of wastewater that typically follows primary treatment, and involves biological processes and settling tanks to remove organic material.

Service Line. Service lines are facilities owned and maintained by property owners that convey waste from a structure to the public system.

Wastewater. Wastewater is sewage (either treated or untreated) from residential, commercial, industrial, and institutional sources.

Wastewater Collection System. A wastewater collection system is the totality of the pipes, pump station, manholes, and other facilities that convey untreated (raw) wastewater from the various sources to a wastewater treatment facility.

Waste Discharge Requirements. Waste discharge requirements are issued by the Regional Water Quality Control Board (Regional Board) to govern wastewater discharges to land.

SECTION 8.4 STORMWATER DRAINAGE AND FLOOD CONTROL

Introduction

This section summarizes existing (2012) information regarding stormwater drainage in Hayward, specifically identifying natural features and constructed facilities and systems that convey stormwater from developed areas to receiving waters.

Major Findings

- The major storm drainage facilities in Hayward are owned and maintained by the Alameda County Flood Control and Water Conservation District (ACFCWCD), and include gravity pipelines predominantly made of reinforced concrete, which discharge to underground storm drain lines or manmade open channels.
- Storm drain pipes smaller than 30 inches are typically owned by the City of Hayward and are generally provided within local streets and easements.
- The City of Hayward has five pump stations that pump stormwater into stormwater collection systems and/or dry creeks immediately downstream, flowing into Mt. Eden and Old Alameda Creeks en route to San Francisco Bay.
- Much of Western Alameda County lies in a floodplain protected by the ACFCWCD.
- The Hayward planning area spans across flood protection Zones 2, 3A, and 4. Zone 2 includes the northernmost area of Hayward, Zone 4 is located in the northwest area of Hayward, and the remaining areas of Hayward are located in Zone 3A.
- The three Zones include a total of 72 miles of natural creeks, 3 miles of improved creeks, 30 miles of earthen channels, 17 miles of concrete channels, and 90 miles of underground pipes. Zone 3A alone contains 17 miles of natural creeks, less than a mile of improved creeks, 19 miles of earth channels, 5 miles of concrete channels, and 32 miles of underground pipes.
- The three Zones also include two drainage canals, eleven pump stations, and two reservoirs. Nine of the pump stations are located in Zone 3A.
- Most major flood control infrastructure in western Alameda County is 50 or 60 years old.

Existing Conditions

The major storm drainage facilities in Hayward are owned and maintained by the Alameda County Flood Control and Water Conservation District (ACFCWCD), which designs and constructs drainage facilities to meet the existing and projected flood control needs. ACFCWCD also owns and operates a stormwater treatment pond in Hayward. Storm drain pipes smaller than 30 inches are typically owned by the City of Hayward and are generally provided within local streets and easements. The storm drain system consists of gravity pipelines predominantly made of reinforced concrete, which discharge to underground storm drain lines or open channels owned by the ACFCWCD. The City of Hayward has five pump stations that pump

stormwater into stormwater collection systems and/or dry creeks immediately downstream. Stormwater flows eventually drain into Mt. Eden Creek and Old Alameda Creek en route to San Francisco Bay.

The City of Hayward implements a Stormwater Management and Urban Runoff Control Program that is a balanced effort of inspection, education, municipal activities, and enforcement. The City of Hayward joined with Alameda County and other jurisdictions to participate in the Alameda Countywide Clean Water Program. Although each agency manages its stormwater program independently, representatives of this consortium meet regularly to discuss issues of common interest and to maintain a uniform approach to the interpretation and administration of Federal regulations. Participation in the Alameda County Program enables the City to be covered by the countywide permit necessary to discharge stormwater and urban runoff into the San Francisco Bay.

The City has also undertaken several municipal activities to minimize the level of pollution in the stormwater. The Hayward City Council adopted the Stormwater Management and Urban Runoff Control Ordinance on May 26, 1992, in response to regulations set forth by the United States Environmental Protection Agency and the San Francisco Bay Regional Water Quality Control Board. The purpose of the ordinance is to protect the water quality of creeks and other water courses, and ultimately the San Francisco Bay and wetland areas, by:

- Eliminating non-stormwater discharges to the municipal storm sewer system;
- Controlling illicit discharges to the storm sewer system from spills, dumping, or disposal of materials other than stormwater;
- Minimizing pollutants as a result of industrial/commercial operations;
- Reducing pollutants in stormwater through improved municipal maintenance activities, such as street sweeping;
- Improving new development and construction site controls; and
- Improving erosion control.

The City of Hayward has a team of Water Pollution Source Control Inspectors who investigate illicit discharge reports. They work to educate residents and explore different ways to dispose of materials. The City of Hayward also requires grading and vegetation clearing permits. To apply for a permit, applicants must submit a description of the grading or clearing activities to take place, a site map or grading plan, an erosion or sediment plan, a work schedule, and other applicable materials.

Flood Protection

Much of Western Alameda County lies in a floodplain. The Alameda County Flood Control and Water Conservation District (ACFCWCD) was created by the State Legislature in 1949. ACFCWCD designed and constructed flood control infrastructure assuming full build-out of the county. Cities and unincorporated areas, grouped by "Zones" corresponding to area watersheds and community boundaries, joined ACFCWCD to gain protection from devastating floods. ACFCWCD flood control infrastructure protects nine Zones in western Alameda County stretching from Emeryville to Fremont through a system of 22 pump stations, as well as erosion control structures, dams, and hundreds of miles of pipeline, channels, levees, and creeks. Most of the pump stations are located in low–lying areas near the Bay. Pump stations receive stormwater by way of creeks, pipes, and channels, and pump stormwater to an elevation high enough to allow it to flow into San Francisco Bay by the force of gravity.

The Hayward planning area spans across Zones 2, 3A, and 4. Zone 2 includes the northernmost area of Hayward. It contains 55 miles of natural creeks, 2 miles of improved creeks, 4 miles of earth channels, 11 miles of concrete channels, and 49 miles of underground pipes. Zone 2 is served by two drainage canals, Bockman and Estudillo; two pump stations, Roberts Landing and Sulphur Creek; and two reservoirs, Cull Canyon and Don Castro. Zone 4 is located in the northwest area of Hayward. It contains less than a mile of natural and improved creeks, 3 miles of earth channels, 1 mile of concrete channels, and 9 miles of underground pipes.

Most of the Hayward planning area is located in Zone 3A. Zone 3A contains 17 miles of natural creeks, less than a mile of improved creeks, 19 miles of earth channels, 5 miles of concrete channels, and 32 miles of underground pipes. Zone 3A includes nine pump stations: Alvarado, Ameron, Besco, Eden Landing, Eden Shores, Industrial, Ruus Road, Stratford, and Westview. The main discharge channels follow Industrial Boulevard, Hesperian Boulevard, and Interstate 880, originating from three creeks in the northern part of the Zone east of Hayward.

Most major flood control infrastructure in western Alameda County is 50 or 60 years old. Even though the District has been maintaining and upgrading its infrastructure over time, there are portions of the system that are nearing the end of their useful service life and will require major upgrades or replacement. ACFCWCD continues to upgrade or replace aging equipment, keep flood control channels clear of silt and debris, and evaluate impacts of new development on county creeks and channels. In 2009 ACFCWCD began construction of the first phase of a project in the Russell City neighborhood of Hayward to restore and stabilize channel along Line A between Cabot Boulevard and the Union Pacific Railroad and between the confluence of Line E and the Cabot Boulevard crossing. The project, spanning across Zones 3A and 4, increased channel capacity to contain a 100-year flood event. In 2012 ACFCWCD completed a major levee improvement project to raise the levee height to allow for greater freeboard and reinforce eroded levee embankments along the south levee along Sulphur Creek between the Sulphur Creek Pump Station and the Union Pacific Railroad in Hayward. In 2010 ACFCWCD earmarked $7.4 million to conduct detailed levee studies in Zones 2, 3A, 4, 5, 6, and 12. The

evaluations will include subsurface field exploration, soil testing, stability, and other technical analyses, as well as developing operation and maintenance plans.

In 2010 ACFCWCD developed the Zone 3A Drainage Master Plan Study to outline nearly $75 million worth of improvement projects and expected maintenance activities to improve 100-year flood protection. The improvement projects are planned for completion during the next 30 to 50 years. Most projects will increase the flood-carrying capacity of channel repairs to levees to meet new FEMA levee standards. Hayward is also currently (2013) removing the levees at Eden Landing to provide wildlife and bird habitat in the tidal marsh wetlands, as well as improved flood protection. The restored salt marshes will act as a buffer between Bay water and the shore to lessen the possible impact of storm surge by allowing water to dissipate throughout the marshes. ACFCWCD will replace the old levees with a new inboard earthen levee spanning approximately 6.5 miles between the newly formed salt marshes and the developed areas of Hayward.

The City of Hayward has participated in the National Flood Insurance Program since March 1980. In 1981 the City Council adopted the Flood Plain Management Ordinance which requires the City to continue to participate in the National Flood Insurance Program. The City updates their Flood Plain Management Ordinance periodically to assure FEMA compliance. In addition to FEMA maps, the City GIS includes flood hazard area information that can be accessed on the website.

Regulatory Setting

Clean Water Act. The Clean Water Act (CWA) was amended in 1972 to provide that the discharge of pollutants to water of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges, including discharges associated with construction activities, under the NPDES program.

U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (EPA) is responsible for developing and enforcing regulations that implement environmental laws enacted by Congress. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits, monitoring, and enforcing compliance.

In 1990 the EPA published final regulations that establish stormwater permit application requirements. The regulations, also known as Phase I of the NPDES program, provide that discharges of stormwater to waters of the United States from construction projects that encompass five or more acres of soil disturbance, are effectively prohibited unless the discharge complies with a NPDES permit. Phase II of the NPDES program expands the requirements by requiring operators of small Municipal Separate Storm Sewer Systems (MS4) in urbanized areas

and small construction sites to be covered under an NPDES permit, and to implement programs and practices to control polluted stormwater runoff.

The National Pollutant Discharge Elimination System. The National Pollutant Discharge Elimination System is the NPDES Program directed at stormwater has been implemented in two phases, and has permits under three categories of potential pollutant sources. Construction projects may choose to obtain individual NPDES permits or coverage under a State General Permit. All dischargers are subject to narrative effluent limitations. There are General Permits for 10 categories of industrial activities. All permit holders are required to implement BMPs under a site-specific SWPPP, and to conduct monitoring and annual reporting. An individual municipal permit is tailored for a specific discharge and a general municipal permit is developed and issued by a State or Regional Water Quality Control Boards to cover multiple facilities within a specific category.

Alameda County Flood Control and Water Conservation District. The Alameda County Flood Control and Water Conservation District (ACFCWCD) was created by the State Legislature in 1949 at the request of county residents. ACFCWCD designed and constructed flood control infrastructure assuming full buildout of the county. Cities and unincorporated areas, grouped by "Zones" corresponding to area watersheds and community boundaries, joined ACFCWCD to gain protection from devastating floods.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to stormwater drainage and flood control:

- City of Hayward Municipal Code Chapter 9, Article 4, implements building standards to comply with the Cobey-Alquist Flood Plain Management Act (Water Code Section 8400, et seq.) and National Flood Insurance Program established pursuant to Federal law (42 U.S.C. Section 4001, et seq.).
- City of Hayward Municipal Code Chapter 10, Article 8, requires a permit for grading or clearing activities. Applicants must submit a description of the grading or clearing activities to take place, a site map or grading plan, an erosion or sediment plan, a work schedule, and other applicable materials.
- City of Hayward Municipal Code, Chapter 11, Article 5, protects water quality by eliminating non-stormwater discharges, controlling illicit discharges, minimizing industrial and commercial pollutants, reducing municipal pollutants, improving construction site controls, and improving erosion control.

Key Terms

The following key terms used in this chapter are defined as follows:

Concrete-lined channels. Concrete lined channels are channels built from concrete. They can be found in many spots throughout western Alameda County, and date back to the 1960s.

Drainage. Drainage includes the surface or subsurface features or structures that collect and remove excess rainfall runoff or high groundwater.

Drainage Channel. A drainage channel is an open channel such as a swale, constructed channel, or natural drainage course that conveys, stores, and/or treats runoff.

Earthen channels. Earthen channels are channels constructed with natural materials.

Erosion. Erosion is the removal of soil and/or sedimentby wind, water, or glacial ice. Erosion occurs naturally, but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Flood. A flood is a temporary rise in flow rate and/or stage (elevation) of any watercourse or stormwater conveyance system that results in runoff exceeding normal flow boundaries and inundating adjacent, normally dry areas.

Flood Control. Flood control includes regulations and practices that reduce or prevent the damage caused by stormwater runoff.

Floodplain. A floodplain is any land area susceptible to inundation by stormwater from any source. FEMA defines the floodplain to be the area inundated by the 100-year flood.

General Permit. A general permit is a permit issued under the NPDES program to cover a certain class or category of stormwater discharges. These permits reduce the administrative burden of permitting stormwater discharges.

Levee. A levee is a dike or embankment constructed to confine flow to a stream channel and to provide protection to adjacent land. A levee designed to provide 100-year flood protection must meet FEMA standards.

Non-Point Source Pollutants. Non-point source (NPS) pollutants are pollutants from many diffuse sources. Rainfall or snowmelt moving over and through the ground causes NPS pollution. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing the pollutants into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water.

National Pollutant Discharge Elimination System. The National Pollutant Discharge Elimination System (NPDES) is the surface water quality program authorized by Congress as part of the 1987 Clean Water Act. This is EPA's program to control the discharge of pollutants to waters of the United States.

One-Hundred Year Flood. The one-hundred year (100-year) flood is a flood event that has a 1 percent chance of occurring in any given year.

Point Source Pollutant. Point source pollutants are pollutants from a single, identifiable source such as a factory, refinery, or place of business.

Runoff. Runoff is drainage or flood discharge that leaves an area as surface flow or as pipeline flow.

Stormwater. Stormwater is precipitation that accumulates in natural and/or constructed storage and stormwater systems during and immediately following a storm event.

Stormwater Facilities. Stormwater facilities are systems such as watercourses, constructed channels, storm drains, culverts, and detention/retention facilities that are used for conveyance and/or storage of stormwater runoff.

Stormwater Management. Stormwater management includes functions associated with planning, designing, constructing, maintaining, financing, and regulating the facilities (both constructed and natural) that collect, store, control, and/or convey stormwater.

Stormwater System. The stormwater system includes the entire assemblage of stormwater facilities located within a watershed.

Surface Water. Surface water is water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, and estuaries.

Urban Runoff. Urban Runoff is stormwater from urban areas that tends to contain heavy concentrations of pollutants from vehicles and industry.

Watercourse. A watercourse is a lake, stream, creek, channel, stormwater conveyance system, or other topographic feature, over which stormwater flows at least periodically.

Watershed. A watershed is a geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as a drainage area, catchment, or river basin).

Wetlands. Wetlands are land with wet, spongy soil, where the water table is at or above the land surface for at least part of the year. Wetlands are characterized by a prevalence of vegetation that is adapted for life in saturated soil conditions. Examples include swamps, bogs, fens, marshes, and estuaries.

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SECTION 8.5 SOLID WASTE RECYCLING AND COMPOSTING

Introduction

This section describes the existing (2012) solid waste and hazardous waste disposal services within Hayward.

Major Findings

- The City of Hayward Department of Public Works, Utilities and Environmental Services Division, provides weekly garbage collection and disposal services through a Franchise Agreement with Waste Management, Inc. (WMI), a private company. WMI subcontracts with a local non-profit, Tri-CED Community Recycling, for residential collection of recyclables.
- Altamont Landfill is the designated disposal site in the City's Franchise Agreement with WMI. The Agreement will expire on June 1, 2014, and may be extended for three additional years.
- In 2001 Altamont Landfill received County approval to increase capacity, adding 25 years to the life of the landfill and extending the expected closure date to the year 2040.
- In 2007 Hayward has exceeded the State population and employee per capita diversion targets established by SB 1016. Additionally, the city has recorded diversion rates of 67 to 71 percent for each of the past four years in an effort to achieve the countywide goal of diverting 75 percent of all generated waste from the landfill by 2010.

Existing Conditions

Solid Waste Collection

The City of Hayward Department of Public Works, Utilities and Environmental Services Division provides weekly collection and disposal of solid waste through a Franchise Agreement with WMI. WMI subcontracts with a local non-profit, Tri-CED Community Recycling, for residential collection of recyclables. The Franchise Agreement between the City of Hayward and WMI became effective June 1, 2007,and will terminate on May 31, 2014. The City may extend the Agreement for three additional years. In addition to the franchisee, contracted collectors and individuals haul minor amounts of solid waste. The Hayward area is served by the Davis Street Transfer Station, which is located in San Leandro and owned and operated by WMI.

WMI provides Hayward residents in single family and multifamily units with weekly collection of a variety of recyclables, including newspaper, mixed paper, glass jars and bottles, aluminum and steel containers, plastic containers with a resin #1-7, and cardboard. Single family homes also receive weekly curbside collection of food scraps, food-soiled paper, and yard trimmings; common household batteries; and used motor oil and used motor oil filters. During the first

two weeks of January, WMI collects Christmas trees from all residential units. WMI collects a wide variety of bulky household items, including appliances, furniture, mattresses, tires televisions, computer monitors, and other similar electronic products from single family homes, duplexes, tri-plexes, and four-plexes. Eligible households schedule an appointment at their convenience and place the items curbside for removal and later recycling. WMI also offers Sharps Disposal by Mail™ in an approved sharps container through a partnership with Rite Aid.

Other services available to all residents at no additional charge include safe disposal of all unwanted hazardous waste, including paints, adhesives, and pesticides, for example. Residents may deliver their hazardous waste to any of the four facilities located in Alameda County and operated by the Alameda County Household Hazardous Waste Program.

WMI also provides collection of recyclables at all City buildings, including household batteries; a wide variety of paper types; containers made of metal, plastic, and glass; tires from the City Equipment Maintenance Division; and biosolids from the City Water Pollution Control Facility.

Landfills Serving the City

WMI disposes of solid waste from the city of Hayward at Altamont Landfill, which is also owned and operated by WMI and located in the eastern part of the county near Greenville Road. Altamont Landfill was one of the nation's first landfills to install turbines to convert landfill gas to electricity in 1987. Built in 2009, the LNG plant features a state-of-the-art vacuum extraction system and network of wells to capture the gas, convert it to green power, and flare any residue to prevent it from entering the atmosphere. It is designed to produce 13,000 gallons of clean-burning natural gas and use of this near-zero carbon fuel eliminates nearly 30,000 tons of carbon dioxide emissions annually. Based on the current amount of landfilled organic waste, it is estimated that the liquefied natural gas plant will generate fuel for the next 30 years.

Altamont Landfill is a Class II facility that accepts municipal solid waste from the following Alameda County municipalities: Alameda, Albany, Berkeley, Castro Valley, Dublin, Emeryville, Fremont, Hayward, Newark, Oakland, the Oro Loma Sanitary District, and unincorporated Alameda County, as well as wastes imported from the city and county of San Francisco and San Ramon. As shown in Table 8-6, the landfill occupies a 2,170-acre site of which 472 acres are permitted for landfill. In 2001 the landfill received County approval to increase capacity, adding 25 years to the life of the landfill and extending the anticipated closure date to the year 2040.

Vasco Road Landfill is the other disposal site located in Alameda County with remaining capacity. The City has no contractual relationship with Vasco Road Landfill. However, tonnage is self-hauled to that disposal site by individuals and businesses residing in the city of Hayward. Vasco Road Landfill is owned by Republic Industries, Inc., and is also located in the eastern part of the county about three miles north of Interstate 580. In 2005 the landfill was at 70 percent capacity. The estimated closure date for Vasco Road Landfill is 2022.

The Tri-Cities Landfill, located in the city of Fremont, was closed in 2011. The Tri-Cities Landfill only accepts solid waste residue from the Fremont Recycling and Transfer Station located in the city of Fremont and will not accept direct-hauled waste except in the event of an emergency. The Fremont Recycling and Transfer Station processes solid waste delivered from the cities of Fremont, Newark, and Union City to Altamont Landfill.

TABLE 8-6
SOLID WASTE DISPOSAL SITES
Alameda County
July 2012

Landfill	Location	Permitted Landfill Area (Acres)	Expected Closure Date
Altamont Landfill	10840 Altamont Pass Road, Livermore	472	2040
Vasco Road Landfill	4001 Vasco Road, Livermore	246	2022

Source: Alameda County Integrated Waste Management Plan: Countywide Element; Amended December 2011; link to Plan: http://www.stopwaste.org/docs/coiwmp_revised_12-2011.pdf

Solid Waste Diversion

In 2011 the city of Hayward generated 111,523 tons of solid waste disposed of at landfills. As shown in Table 8-7, the City has consistently met the State population target of disposing less than 7.0 pounds of waste per person per day and the employment target of disposing less than 14.7 pounds of waste per person per day since 2007 (set at 50 percent of 1995 levels). Hayward's diversion rates increased from 41 percent in 1995 to 65 percent in 2006 before falling to 56 percent in 2007 and rising to 68 percent in 2008 and 2009. In 1998 the Alameda County Waste Management Authority (ACWMA) set the countywide goal of reducing by 75 percent all waste sent to landfills by 2010. In the 2009 Climate Action Plan, the City of Hayward committed to this goal and implemented several strategies in an effort to achieve the goal. The city has recorded diversion rates of 67 to 71 percent for 2009, 2010, and 2011 in an effort to achieve the countywide goal of reducing by 75 percent all waste sent to landfill by 2010.

In 2012 ACWMA authored another countywide diversion goal whereby no more than 10 percent of waste disposed in landfills be readily recyclable or compostable by 2020. In the city of Hayward about 60 percent of waste disposed in landfills is recyclable or compostable as of 2012. The City also plans to eliminate greenhouse gas emissions associated with waste disposal by 2050, reducing approximately 68,798 metric tons of CO_2e per year.

TABLE 8-7 HISTORICAL SOLID WASTE DISPOSAL RATES City of Hayward						
Year	Total Disposal Rate (tons)	Calculated Disposal Rate (pounds/person/day)				Total Diversion Rate
		Population		Employment		
		Number	Annual Rate	Number	Annual Rate	
2007	177,383.73	147,501	6.4	73,994	12.9	56
2008	145,293.94	148,935	5.2	74,207	10.5	68
2009	126,529.68	150,878	4.5	69,093	9.8	68
2010	122,848.79	143,844	4.6	60,329	10.9	67
2011	111,523.12	145,839	4.1	63,204	9.5	71

Source: CalRecycle. Solid Waste Information System. http://www.calrecycle.ca.gov/, January 8, 2013; StopWaste.org, Five (5) Year Financial and Compliance Audit for the Alameda County Source Reduction and Recycling Board Fiscal Years 2006/7 to 2010/11, November 26, 2012.

Waste Management and Recycling Initiatives

Alameda County

The State of California requires that integrated waste management plans be developed for every county in the state. In Alameda County the responsibility for preparing that plan is accorded the ACWMA, pursuant to a Joint Exercise of Powers Agreement between the County of Alameda, the incorporated cities in the county, and the two special districts in the county. The ACWMA prepared the Alameda County Integrated Waste Management Plan: Countywide Element to comply with AB 939 and more recently SB 1016. The Plan is the primary tool for designing waste reduction and recycling programs that are countywide in scope and the only means of addressing the county's landfill needs in a comprehensive way. It set the countywide goals for reducing waste sent to landfills by 75 percent by 2010, and the goal to reduce the amount of readily recyclable and compostable materials sent to landfill to no more than 10 percent by 2020. Alameda County regulations also stipulate that all plant debris in the county must be separated and recycled.

City of Hayward

In February 2012 the Hayward City Council determined that the City would participate in an ordinance proposed by ACWMA in which all multifamily developments and businesses with four cubic yards or more of weekly garbage service are required to have recycling services by July 1, 2012. The ACMWA ordinance is more stringent than the State legislation because it specifies which materials are targeted for collection, establishes compliance provisions for regulated haulers, transfer stations, and landfills, and includes enforcement protocols. Recyclables required for collection include a variety of types of paper, recyclable food and beverage containers made of glass and metal, and plastic bottles. The City provides multifamily developments and businesses with plastic indoor storage containers and labels at no charge. Under the City program, WMI offers recyclables collection to businesses at no additional charge, and collection of food scraps, food-soiled paper, and other organics is available at half

the price of regular garbage service. Although not always the case, numerous businesses, including restaurants and food processors, have been able to reduce garbage service and cost after implementing one or both services.

The City provides informational materials in garbage bills to residents and businesses, and offers businesses technical assistance to implement recycling services. Outreach materials are disseminated by the Chamber of Commerce to its members and literature is available on the City's website. City staff makes presentations to local business groups, including the Latino Business Roundtable, and recognizes businesses who have implemented comprehensive waste reduction and recycling programs during special presentations to the City Council in conjunction with Earth Day activities. City staff also supports the Bay Area Green Business Program which distinguishes businesses that protect, preserve, and sustain the environment. Since August 2009 business participation in the recycling program has more than doubled, increasing from about 650 businesses to nearly 1,900. As of February 2013, 70 percent of all businesses in the city and 98 percent of all multifamily complexes had implemented programs to collect recyclables.

City regulations require recycling of construction and demolition debris (Hayward Municipal Code Chapter 5, Article 10). The City requires that applicants for all construction, demolition, and/or renovation projects valued at $75,000 or more recycle 100 percent of all asphalt and concrete, and 50 percent of remaining materials, including wood and metal, for example. To obtain a building permit, applicants must complete a Debris Recycling Statement and obtain signature approval from the City's Solid Waste Manager. City regulations also stipulate that applicants submit a Debris Recycling Summary Report, along with all weigh tags, at the conclusion of the project. The Summary Report must indicate actual quantities recycled and disposed of, and be signed by the City's Solid Waste Manager. City staff estimates that about 90 percent of all building permit applicants comply with the ordinance. All Public Works projects recycle all materials, including dirt, concrete, and asphalt, for example, generated as a result of their project.

In February 2012 the Hayward City Council determined that the City would participate in a countywide ordinance authored by ACWMA, regulating the use of carryout bags, including single-use plastic and paper bags in grocery stores (effective January 1, 2013, Alameda County Reusable Bag Ordinance). Additionally, the City of Hayward has banned polystyrene foam food service containers from retail food vendors (effective July 1, 2011, Hayward Municipal Code Chapter 5, Article 11).

Funding

Alameda County voters approved the Waste Reduction and Recycling Initiative Charter Amendment ("Measure D") in November 1990. Measure D requires that a per ton disposal surcharge be imposed at the Altamont and Vasco Road Landfills in order to provide the necessary funds to design and implement municipal recycling programs for residents and

businesses. Additional information regarding the Charter Amendment is included in the next Regulatory Setting section.

Regulatory Setting

Title 40 of the CFR. Title 40 of the Code of Federal Regulations (CFR), Part 258 (Resource Conservation and Recovery Act RCRA, Subtitle D) contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the Federal landfill criteria. The Federal regulations address the location, operation, design, groundwater monitoring, and closure of landfills.

California Department of Resources Recycling and Recovery (CalRecycle; formerly the California Integrated Waste Management Board). CalRecycle oversees, manages, and monitors waste generated in California. It provides limited grants and loans to help California cities, counties, businesses, and organizations meet the State waste reduction, reuse, and recycling goals. It also provides funds to clean up solid waste disposal sites and co-disposal sites, including facilities that accept hazardous waste substances and non-hazardous waste. CalRecycle develops, manages, and enforces waste disposal and recycling regulations, including AB 939 and SB 1016, both of which are described below.

Assembly Bill 939. Assembly Bill 939 (AB 939) (Public Resources Code 41780) requires cities and counties to prepare integrated waste management plans (IWMPs) and to divert 50 percent of solid waste from landfills beginning in calendar year 2000 and each year thereafter. AB 939 also requires cities and counties to prepare Source Reduction and Recycling Elements (SRRE) as part of the IWMP. These elements are designed to develop recycling services to achieve diversion goals, stimulate local recycling in manufacturing and stimulate the purchase of recycled products.

Senate Bill 1016. Senate Bill (SB) 1016 requires that the 50 percent solid waste diversion requirement established by AB 939 be expressed in pounds per person per day. SB 1016 changed the CalRecycle review process for each municipality's integrated waste management plan. After an initial determination of diversion requirements in 2006 and establishing diversion rates for subsequent calendar years, the Board reviews a jurisdiction's diversion rate compliance in accordance with a specified schedule. Beginning January 1, 2018, the Board will be required to review a jurisdiction's source reduction and recycling element and hazardous waste element once every two years.

The Alameda County Waste Reduction and Recycling Initiative Charter Amendment (Measure D). Alameda County residents approved Measure D in November 1990. Measure D requires that a per ton disposal surcharge be imposed at the Altamont and Vasco Road Landfills in order to provide the necessary funds to design and implement municipal recycling services for residents and businesses. The Alameda County Recycling Board collects an $8.17 per ton landfill disposal fee imposed by Measure D to support waste reduction efforts. The distribution of Measure D funds is as follows: 50 percent to cities for recycling programs; 15 percent

discretionary (to supplement the other categories and for administration); 10 percent grants to non-profits; 10 percent for source reduction; 10 percent for market development; and 5 percent for recycled product procurement price preference. The purpose of Measure D is to provide the necessary funding to enable Alameda County agencies to meet the State diversion rate standard.

Alameda County Integrated Waste Management Plan. Countywide Element. The ACWMA prepared the Alameda County Integrated Waste Management Plan: Countywide Element to comply with AB 939 and more recently SB 1016. This Plan is further described in the Waste Management and Recycling Initiatives section of this document.

Alameda County Mandatory Recycling Ordinance. The Alameda County Mandatory Recycling Ordinance requires all multifamily developments and businesses with four cubic yards or more of weekly garbage service to arrange for recycling services by July 1, 2012, and is similar to the State law. Additional provisions of this ordinance are included in the section, Waste Management and Recycling Initiatives, of this document.

Alameda County Reusable Bag Ordinance. The objective of this countywide ordinance is to reduce the use of single-use carryout bags and to promote the use of reusable bags. As of January 1, 2013, grocery stores and other stores in Alameda County that sell packaged food can no longer provide single-use plastic carryout bags, nor can they distribute paper bags or reusable bags for free at checkout.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to waste disposal and diversion:

- Section 201 of the Hayward City Charter gives the City the power to contract with any competent public or private body or agency for the performance of any municipal function.
- City of Hayward Municipal Code Chapter 5, Article 10 requires that applicants for all construction, demolition, and/or renovation projects valued at $75,000 or more recycle 100 percent of all asphalt and concrete, and 50 percent of remaining materials, including materials such as wood or metal.
- City of Hayward Municipal Code Chapter 5, Article 11 bans polystyrene food containers from retail food vendors. The City requires that retail food vendors use recyclable or compostable food service ware instead.

Hayward Climate Action Plan. The Hayward Climate Action Plan provides a plan to achieve a measurable reduction in GHG emissions, consistent with State law (i.e., Assembly Bill 32 and Executive Order S-03-05). The Plan includes the countywide goal to reduce waste sent to landfills by 75 percent by 2010.

Key Terms

The following key terms used in this chapter are defined as follows:

Disposal. Disposal includes all waste created by all sources within each jurisdiction (including businesses, government agencies, and residents) which is disposed at CalRecycle-permitted landfills or CalRecycle-permitted transformation facilities, or is exported from the state. CalRecycle records tons of waste disposed by each jurisdiction using its disposal reporting system.

Disposal Site. A disposal site is the place, location, tract of land, area, or premises in use, intended to be used, or which has been used for the disposal of solid wastes.

- A Class I disposal site may include a landfill, waste pile, surface impoundment, or land treatment unit for hazardous waste. A Class I landfill must have a variance permit from CalRecycle and is regulated by the Enforcement Agency (EA).
- A Class II disposal site may include a landfill, waste pile, surface impoundment, or land treatment unit for designated waste which threatens water quality. A Class II disposal site must have a solid waste facilities permit from CalRecycle and is regulated by the Enforcement Agency (EA).
- A Class III disposal site is a landfill that accepts non-hazardous resources such as household, commercial, and industrial waste resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facility permit from CalRecycle and is regulated by the Enforcement Agency (EA).

Diversion. Diversion refers to the amount of solid waste that is prevented from being deposited into a landfill and instead is able to be reused or recycled as another product. Diversion is typically expressed as a percentage of total solid waste.

Organics. Organics are discarded materials that will decompose and/or that the City Municipal Code permits, directs, and/or requires generators to separate from solid waste and recyclable materials for collection in specially-designated containers for organic materials collection. Organic materials include yard trimmings, food scraps, and food-soiled paper.

Private Hauler. A private hauler is any privately-owned waste hauler that collects, disposes, or destroys, or any combination thereof, garbage, waste, or debris.

Recycling. Recycling is the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products that meet the quality standards necessary to be used in the marketplace.

Solid Waste. Solid waste is non-hazardous solid discarded items from households and industry. Solid waste includes primarily waste paper and food organic waste. Other common waste items are plastic, cloth, metal cans, and yard trimmings.

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SECTION 8.6 GAS AND ELECTRICITY

Introduction

This section summarizes existing (2012) information on the level of utilities provided in Hayward by quasi-public and private companies, focusing on electrical and natural gas systems. Utilities are important services that support the expansion of the city's economic base, serve available developable land, and maintain or increase infrastructure capacity.

Major Findings

- Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the Hayward planning area.
- In 2011 Alameda County used about 10,938 gigawatt hours of energy (GWh) of energy or 7.2 kWh per person. By comparison, Santa Clara and Sacramento Counties, the two counties closest in population to Alameda, used 9.1 and 7.5 kWh per capita, respectively.
- PG&E maintains three major transmission lines running west to east across Alameda County to substations in Hayward, San Mateo, and Fremont.
- In 2011 PG&E reported that 19.4 percent of its 2011 electricity sales were produced from renewable sources, such as wind, solar, geothermal, biomass, and hydroelectric power. Currently (2012), 12 renewable energy projects for PG&E's clean energy portfolio are under construction.
- Alameda County is home to 21 wind, nine oil/gas, five waste-to-energy, one hydroelectric, and one solar power generation facility. Almost all of these facilities are located in the northeastern portion of the county; however, two of these sites are located within the Hayward planning area – the CSU East Bay Fuel Cell Station and the Hayward Wastewater Solar Facility.

Existing Conditions

Pacific Gas & Electric

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the Hayward planning area through State-regulated public utility contracts. The utility company is bound by contract to update its systems to meet any additional demands.

Regional Gas and Electricity Service

PG&E provides electricity and natural gas distribution, electricity generation, transportation and transmission, natural gas procurement, transportation, and storage. PG&E provides service within 48 counties in California, with a total service area of approximately 70,000 square miles in northern and central California. The PG&E service area stretches from Eureka in the north to Bakersfield in the south, to the Pacific Ocean in the west, and the Sierra Nevada to the east. The

utility has 141,215 circuit miles of electric distribution lines and 18,616 circuit miles of interconnected transmission lines. The utility provides services with 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines. PG&E serves approximately 5.1 million electricity distribution customers and approximately 4.3 million natural gas distribution customers.

Local Gas and Electricity Service

According to the PG&E Corporate Responsibility Report, retail customers purchased 74,864 gigawatt hours of energy (GWh) of electricity in 2011. Of that total 35,353 GWh were generated by PG&E's own generation facilities. The remainder was purchased under contracts or from the open market. In 2011 Alameda County used about 10,938 GWh of energy or 7.2 kWh per person. By comparison, Santa Clara and Sacramento Counties, the two closest counties in population to Alameda, used 9.1 and 7.5 kWh per capita, respectively. Additionally, PG&E facilitated the throughput of 804,255 million cubic feet of natural gas.

PG&E maintains three major transmission lines running west to east across Alameda county to substations in Hayward, San Mateo, and Fremont. PG&E has recently (2012) completed the Russell City Energy Center (RCEC) interconnection project in Hayward. The project upgraded power lines and existing substations to connect the RCEC to the grid in three phases. Phase I, which was completed in October 2011, consisted of the installation of 1.3 miles of new lines between the new Russell City Energy Center and the Eastshore Substation in Hayward. Phase 2, completed in December 2011, consisted of modifying several towers and replacing about 14 miles of wire on the power line spanning from the Eastshore Substation in Hayward to the San Mateo Substation in San Mateo. Phase 3, completed in March 2012, consisted of modifying several towers and replacing 6.8 miles of wire on the power line spanning from the Eastshore Substation in Hayward to the Dumbarton Substation in Fremont. These improvements will improve service reliability for PG&E customers in the greater Bay Area.

In 2012 PG&E created a comprehensive roadmap of natural gas safety actions to comply with the requirements of SB 705. The safety roadmap includes creating a "safety first" culture within the company; building a new advanced training facility; ensuring the company workforce is highly skilled; hiring additional workers to focus on safety; and increasing system awareness by combining the gas transmission control center, distribution control center, and dispatch center into one facility for a tightly coordinated front line. PG&E has completed critical gas safety work to validate maximum allowable operating pressure, to automate pipeline valves, to conduct strength testing, and to establish real-time operating data as a trigger for 911 notification. Electric and natural gas distribution lines in new development will also be placed underground in accordance with California Public Utility Commission rules.

Senate Bill X1-2, signed by Governor Brown in April 2011, requires all electricity retailers in the state, including publicly-owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators, to adopt new RPS goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

In 2011 PG&E reported that 19.4 percent of its 2011 electricity sales were produced from renewable sources, such as wind, solar, geothermal, biomass, and hydroelectric power. Currently (2012), 12 renewable energy projects for PG&E's clean energy portfolio are under construction. On April 24, 2012, PG&E announced a new Green Energy Program to give electric customers an opportunity to purchase 100 percent renewable energy for a small fee. PG&E expects that participating residential customers will pay on average about $6.00 each month. Program costs will be borne only by customers who volunteer to participate.

Generation Facilities

The California Energy Commission maintains a power plant database of operating power plants in the state by county. Alameda County is home to 21 wind, nine oil/gas, five waste-to-energy, one hydroelectric, and one solar power generation facilities. Most of these facilities are located in the northeastern portion of the county. However, two of these sites are located within the Hayward planning area. PG&E owns the CSU East Bay Fuel Cell Station located at the Hayward Campus. The plant, which opened in 2011, produces 1.4 megawatts (MW) of energy from two hydrogen fuel cells. The plant provides the grid with enough electricity to power about 1,400 homes. The City of Hayward owns the Hayward Wastewater Solar Facility located at the end of Enterprise Avenue in western Hayward. The plant, which opened in 2010, produces 1MW of energy from photovoltaic solar array. The plant provides the city with enough electricity to power about 250 homes. The City of Hayward 2013-2014 Biennial Operating Budget includes the goal to ensure that 50 percent of electric energy used at the wastewater treatment plant is generated through renewable sources, such as solar and bio-gas.

The City also operates a co-generation facility at the Water Pollution Control Facility. The facility uses bio-gas, a renewable energy source, to produce both electrical energy and heat using internal combustion engines. Current capacity of the facility is about 500kW. The City is in the design stage to replace the co-generation system with a new one which can produce more than 1MW of power.

Local Energy Regulations

The City of Hayward adopted the 2010 California Building Code, effective January 1, 2011, in Ordinance 10-15 on November 16, 2010. The Hayward building code is modeled on the State Code and other State-required energy conserving features. The Code specifies minimum insulation and weather-stripping requirements, heating and cooling appliance requirements, and maximum glazing areas in new residential construction, so that new construction meets a defined standard of energy efficiency.

The 2010 California Building Codes include significant changes. Changes include the adoption of green building standards which are known as CALGreen. CALGreen is California's first green building standards code and a first-in-the-nation State-mandated green building code. It is formally known as the California Green Building Standards Code, Title 24, Part 11, of the California Code of Regulations. CALGreen establishes mandatory minimum green building standards and includes more stringent optional provisions known as Tier 1 and Tier 2. Cities

and counties, at their discretion, may adopt Tier 1 or Tier 2 as mandatory, or adopt and enforce other standards that are more stringent than the CALGreen Code.

The City has also adopted its own Municipal and Private Green Building Standards. The Municipal Green Building Standards require that all City-owned buildings meet a minimum LEED Silver rating. All projects must have a LEED-accredited professional as a principal member of the design team. Minor City projects are required to complete and submit the LEED checklist as a way of documenting the green building practices incorporated into the project. Projects using the LEED checklist must earn a minimum of 20 points. The Private Green Building Standards require that all new multifamily and single family residential projects are GreenPoint rated and demonstrate full compliance with the California Building Energy Efficiency Standard (Title 24, part 6) at the time of permitting. Applicants for single or multifamily remodels and/or additions greater than 500 square feet must submit the Green Point Rated Existing Homes Checklist. All new commercial projects must exceed the 2008 Building Energy Efficiency Standards (Title 24, Part 6) of the California Building Code requirements by at least 15 percent.

Hayward residents passed Measure A in 2009, which imposed a tax on every person in the city using telecommunication, video, electricity, and gas services at the rate of 5.5 percent of the charges made for such services. The City has implemented various programs to reduce municipal energy consumption. All City facilities have been enrolled in the EPA Portfolio Manager benchmarking tool. The benchmarking tool will allow the City to compare historic and current building energy data as the first step in assembling the information to support a clear understanding of a building's energy performance. The second step is to secure audits of facilities to help building managers design a data-driven implementation plan. In 2012 staff made additional improvements to City facilities with lighting retrofit projects. City staff is also currently (2013) developing a strategic plan to retrofit all City streetlights with LEDs. Additionally, through its membership in the East Bay Economic Development Alliance (East Bay EDA), City staff is engaged in a regionwide pilot program to standardize solar permitting processes and develop "best in class" tools to speed the solar development process. The City is also a participant in the Alameda County Regional Renewable Energy Procurement Project (R-REP). Under the direction of Alameda County, Joint Venture Silicon Valley Network, and the Contra Costa Economic Partnership, this initiative will use collaborative procurement to purchase renewable energy systems for public agencies throughout the East Bay and Silicon Valley. Two rooftop solar projects have already been completed (2012).

Extending beyond its own facilities, the City has developed programs to promote energy conservation for residents. On January 25, 2011, the City Council endorsed an energy efficiency incentive program for single family homes funded by Energy Efficiency and Conservation Block Grant funds as part of the American Recovery and Reinvestment Act (ARRA). Seventeen homeowners signed up to receive incentives from the City to help pay for energy efficiency upgrades to their homes. Two homeowners received incentives to get an energy assessment of their homes and two homeowners received complete free energy efficiency upgrades to their

homes. Hayward residents and businesses are also able to take advantage of programs offered through PG&E.

Regulatory Setting

Federal Energy Regulatory Commission. Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines, and licenses hydropower projects. The Energy Policy Act of 2005 gave FERC additional responsibilities, including: promoting the development of a strong energy infrastructure; open access transmission tariff reform; and preventing market manipulation.

California Public Utilities Commission. The California Public Utilities Commission (CPUC) is a State agency created by constitutional amendment to regulate privately-owned telecommunications, electric, natural gas, water, railroad, rail transit, passenger transportation, and in-state moving companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility services at reasonable rates while also protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas (CPUC Decision 95-08-038). The CPUC also regulates rates and charges for basic telecommunication services, such as how much you pay for the ability to make and receive calls.

Renewables Portfolio Standard. The Renewables Portfolio Standard (RPS) program was established in 2002 by SB 1078 and later accelerated by Executive Order S-14-08 in 2008. RPS requires an annual increase in renewable energy generated by electric utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2010 (which was accomplished), 25 percent by 2016, and 33 percent by 2020. The CPUC is tasked with implementing the RPS through entities like the California Energy Commission.

California Energy Commission. The California Energy Commission (CEC) is California's primary energy policy and planning agency. Created in 1974, it is charged with six major responsibilities:

- Energy forecasting;
- Promoting energy efficiency and conservation through the appliance and building efficiency standards;
- Financially supporting public interest energy research;
- Developing green energy resources and technologies for buildings, industry, and transportation;
- Licensing large thermal power plants; and
- Planning for State response to energy emergencies.

AB 1890 (1996) restructured California's electricity market to open the generation of electricity to competition (transmission and distribution systems remain a regulated monopoly). AB 1890 requires utilities to purchase electricity from the wholesale market. AB 1890 gives customers of investor-owned utilities the ability to choose who provides their electricity.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to energy service:

- Through Ordinance 10-15 the City of Hayward adopted the 2010 California Building Code, including the 2010 California Green Building Standards Code Part 11, effective January 1, 2011.
- City of Hayward Municipal Code Chapter 8, Article 18, through voter approval of Measure A, establishes a tax on every person in the city using telecommunication, video, electricity, and gas services at the rate of 5.5 percent of the charges made for such services.
- City of Hayward Municipal Code Chapter 10, Article 21, requires that all City-owned buildings meet a minimum LEED Silver rating. Projects using the LEED checklist must earn a minimum of 20 points.
- City of Hayward Municipal Code Chapter 10, Article 22, requires that all new multifamily and single family residential projects are Green Point rated and demonstrate full compliance with the California Building Energy Efficiency Standard (Title 24, part 6) at the time of permitting.

Key Terms

The following key terms used in this chapter are defined as follows:

Easement. An easement is a limited right to make use of a property owned by another; for example, a right of way across the property for an electricity or gas line.

Electricity. Electricity is a natural phenomenon, either through lightning or the attraction and repulsion of protons and electrons to create friction that in turn forms an electric current or power.

Gigawatt hours. Gigawatt hours (GWh) are a unit of measurement for electricity equal to one thousand megawatt hours or one billion watt hours.

Kilowatt hours. Kilowatt hours (kWh) unit of measurement for electricity equal to one thousand watt hours.

Megawatt hours. A unit of measurement for electricity equal to one thousand kilowatt hours or one million watt hours.

Natural Gas. Natural gas is a hydrocarbon gas mixture that is widely used as an energy source in a variety of applications, including heating buildings, fueling vehicles, and generating electricity.

Power Plants. Power plants are sources for generating electricity.

Renewable Energy. Renewable energy is energy that comes from natural resources that are naturally replenished, such as solar, wind, rain, tides, geothermal, and biomass sources.

Transmission and Distribution Lines. Transmission and distribution lines are distribution networks for electricity and natural gas.

Watt. A watt is an electrical unit of power equal to the rate of energy transfer produced in a circuit by one volt acting through a resistance of 1 ohm; a unit of measurement of resistance.

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SECTION 8.7 TELECOMMUNICATIONS

Introduction

This section summarizes existing (2012) information on the communications systems utilities provided in Hayward by public and private companies. Utilities are important services that support the expansion of the city's economic base, serve available developable land, and maintain/increase infrastructure capacity.

Major Findings

- Cellular phone service in Hayward is available from several national providers, including AT&T, MetroPCS Wireless, Sprint Nextel Corporation, T-Mobile, and Verizon Communications, Inc. Hayward also receives cable and broadband services from Comcast Corporation; Etheric Networks, Inc.; Level 3 Communications, LLC; Earthlink Business; Platinum Equity, LLC; and Sonic Telecom, LLC.
- The City of Hayward currently (2012) operates a free Wi-Fi network in the Downtown area that uses a standard IEEE 802.11b setup. The downtown Wi-Fi network extends out from City Hall to A Street behind the Lucky's Shopping Center, down B Street almost to Foothill Boulevard, down Mission Boulevard past the Hayward Main Library, and back to City Hall past the City Walk Townhomes and Bart Station.
- The City of Hayward has installed two major fiber optic routes: one running north to south along Hesperian Boulevard from the golf course to Industrial Parkway West and another running generally east to west along Winton Avenue from Mission Boulevard turning south at Clawiter Road and terminating at the end of Enterprise Avenue. The existing routes currently serve the city's public and quasi-public areas and major industrial corridor.
- Within the city of Hayward all residents have access to wireline or wireless providers. About 97 percent of the population has access to two or more wireline providers, which is much higher than the national average (85.2 percent). All Hayward residents have access to five or more wireless providers compared to only 58 percent nationally, and nearly 98 percent have access to 6 providers compared to 16.9 percent nationally.
- Hayward residents generally have better access to DSL, cable, and wireless technology as compared to the nation. However, only 0.3 percent of people in the city have access to fiber optic lines, compared to 17.8 percent nationally.

Existing Conditions

Introduction

Telephone service is available from several national providers, including AT&T, MetroPCS Wireless, Sprint Nextel Corporation, T-Mobile, and Verizon Communications, Inc. Hayward receives cable and broadband services from Comcast Corporation, Etheric Networks Inc.; Level

3 Communications, LLC; Earthlink Business; Platinum Equity, LLC; and Sonic Telecom, LLC. Many residents bundle their phone, internet, and sometimes cable television with the same provider. Telecommunications providers usually complete improvements for an area as the need arises to meet customer demand.

AT&T

In 2005 SBC acquired AT&T and kept the AT&T company name and branding for the merged entity. AT&T Local Services supplies data communications, 911 service, high-speed local, and long distance telephone service to most of the Hayward planning area through Terrestrial Mobile Wireless and Asymmetric DSL.

MetroPCS Wireless, Inc.

MetroPCS Wireless, Inc. provides high speed phone service to most of the Hayward planning area. MetroPCS Wireless, Inc. provides residential and commercial 4G LTE wireless services through a Terrestrial Mobile Wireless network.

Sprint

Sprint supplies Asymmetric DSL service to select sites within central Hayward.

T-Mobile

T-Mobile provides high speed phone service to the entire Hayward planning area. T-Mobile provides residential and commercial wireless services through a Terrestrial Mobile Wireless network.

Verizon Communications, Inc.

Verizon Communications, Inc. provides high speed phone service to all but Garin Regional Park in the Hayward planning area. Verizon provides residential and commercial wireless services through a Terrestrial Mobile Wireless network.

Comcast Corporation

Comcast Corporation provides local and long distance phone, high-speed internet, and cable television service to the Hayward planning area. Comcast Corporation serves the Hayward planning area with copper coaxial cable receiving a signal from a Digital Access Carrier system (DAC) in Denver and distributed to seven main hub sites throughout the service area.

Etheric Networks, Inc.

Etheric Networks, Inc. provides high speed internet service to all but the very eastern edge of the Hayward planning area. Etheric Networks, Inc. provides residential and commercial wireless services through a Terrestrial Fixed Wireless Network.

Level 3 Communications, LLC

Level 3 Communications, LLC provides high speed phone and internet services to only a few areas at the western edge of Hayward. Level 3 Communications, LLC provides commercial broadband technology fiber optic cable services.

Earthlink Business

Earthlink Business provides high speed internet services to select businesses throughout the central Hayward planning area. In 2006 Earthlink Business acquired New Edge Holding Company to provide virtual private network (VPN) services to commercial customers. Earthlink Business provides Asymmetric DSL broadband access technologies in Hayward.

Platinum Equity, LLC

Platinum Equity, LLC provides high speed phone and internet services to all but the most eastern and western portions of the Hayward planning area. Platinum Equity, LLC provides commercial broadband technology Asymmetric DSL, Symmetric DSL, and other copper wireline services.

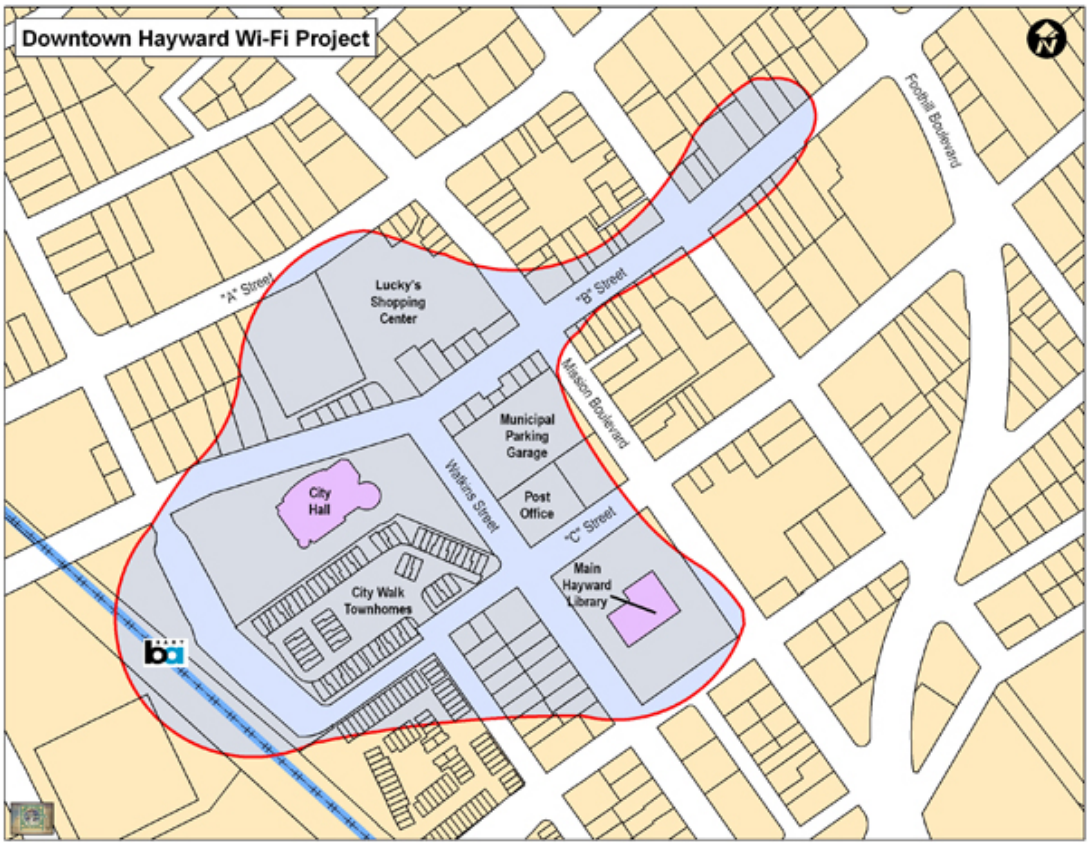
Sonic Telecom, LLC

Sonic Telecom, LLC provides high speed phone and internet services to only a few scattered spots in the Hayward planning area. Sonic Telecom, LLC provides commercial broadband technology Asymmetric DSL, Symmetric DSL, and other copper wireline services.

Wireless Network

Wireless (Wi-Fi) networks allow an electronic device to exchange data wirelessly over a computer network. Networks can be citywide or just accessible in scattered hotspots. Many homes have access to their own private Wi-Fi network that they purchase from a private provider. Additionally, private businesses provide free and fee-based wireless internet access on their premises. The City of Hayward currently (2012) operates a free Wi-Fi network in the Downtown area that uses a standard IEEE 802.11b setup. As shown in Figure 8-7, the downtown Wi-Fi network extends out from City Hall to A Street behind the Lucky's Shopping Center, down B Street almost to Foothill Boulevard, back down Mission Boulevard past the Hayward Main Library, and back to City Hall past the City Walk Townhomes and Bart Station.

FIGURE 8-7: DOWNTOWN HAYWARD WI-FI NETWORK



Fiber Optic Communication

Fiber optic installations are important to the overall economic competitiveness of the city, and especially to the continued development of the Industrial Corridor. Fiber is the fastest form of communications infrastructure, but requires the laying of underground fiber cables as opposed to traditional copper that may be installed above-ground. Direct connections to fiber optic networks have typically been limited to large urban areas where demand supports the

expensive upfront costs of installing the fiber. Broadband providers have generally viewed small towns and rural areas as poor investments due to a lack of demand.

Since 1995 staff has been tracking installation of fiber optic conduits throughout the city. The location of existing and proposed City-owned fiber optic routes is shown in Figure 8-8. Currently (2012), the City has installed three major fiber optic routes: running north to south along Hesperian Boulevard from the golf course to Industrial Parkway West, running generally east to west along Winton Avenue from Mission Boulevard turning south at Clawiter Road and terminating at the end of Enterprise Avenue, and running north to south across the city limits along Foothill and Mission Boulevards. The existing routes currently serve public and quasi-public areas, major industrial corridor, and main clusters of commercial, office, and higher density and mixed use development in Hayward. As noted below, only 0.3 percent of Hayward residents have access to existing fiber optic cables.

Additional fiber optic routes are planned for locations throughout the central city, serving the remainder of the major industrial and commercial corridors, public buildings, and residential areas. Several east-west routes are planned for areas throughout the city. Major routes are planned for West A Street from Mission Boulevard to Hesperian Boulevard, Harder Road from Mission Boulevard to West Jackson Road, Tennyson Road from Mission Boulevard to Industrial Boulevard, Industrial Parkway from Dixon Street to Depot Road, and along Harder and Clawiter Road from Industrial Boulevard to Enterprise Avenue. Additionally, smaller routes are planned for Huntwood Avenue below Industrial Parkway and along Carlos Bee Boulevard from Mission Boulevard circling around California State University, Hayward.

As identified in the 2012 Capital Improvement Plan, the City installed extended fiber optic cable service to the Water Pollution Control Facility. In addition, the developments at 25599 Huntwood Avenue, 26521 Whitman Street, South Hayward BART Station TOD project, and Eden Commons Residential Development have been required to install the appropriate facilities to provide for a fiber optic cable network as a condition of approval.

On October 11, 2005, the Hayward City Council voted to enter into an agreement with NextG Networks for the use of City-owned streetlight poles and right-of-ways for installation of antennas for cell phone coverage and a fiber connection network. In return, the City will receive exclusive use of one gigabite (GB) of capacity in the network. The primary candidates for antenna installations are the Tennyson Road/Weekes Memorial Park Area, the Hayward Hills Area (between Fairview and Dobbel Avenues), and the area near the south end of Hesperian Boulevard. A total of 183 poles may be used to cover the 61 miles within the city of Hayward. While the agreement is still in place, as of 2007 these improvements have not been completed. NextG plans to install antennas on an as-needed basis.

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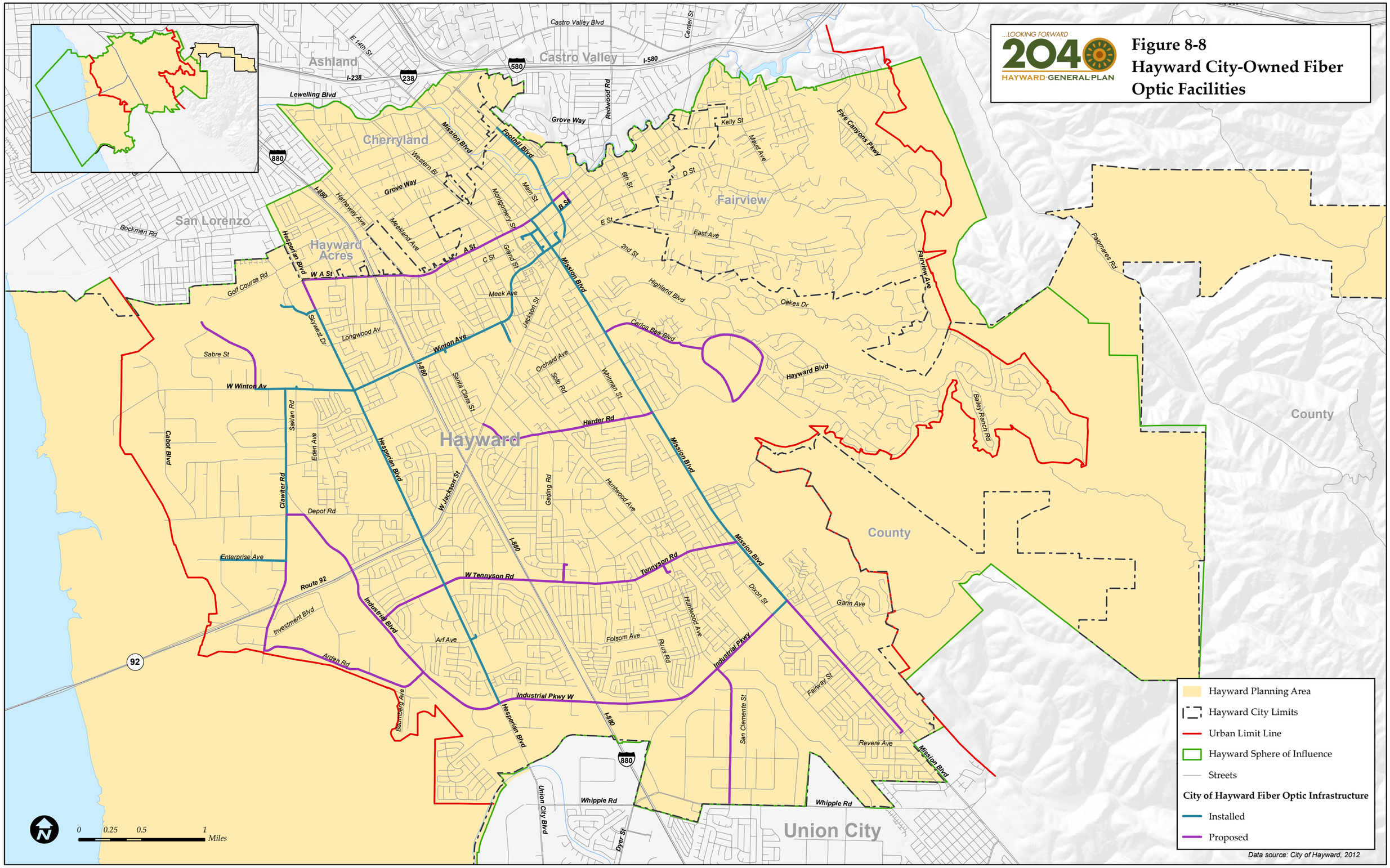
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 8-8
Hayward City-Owned Fiber Optic Facilities

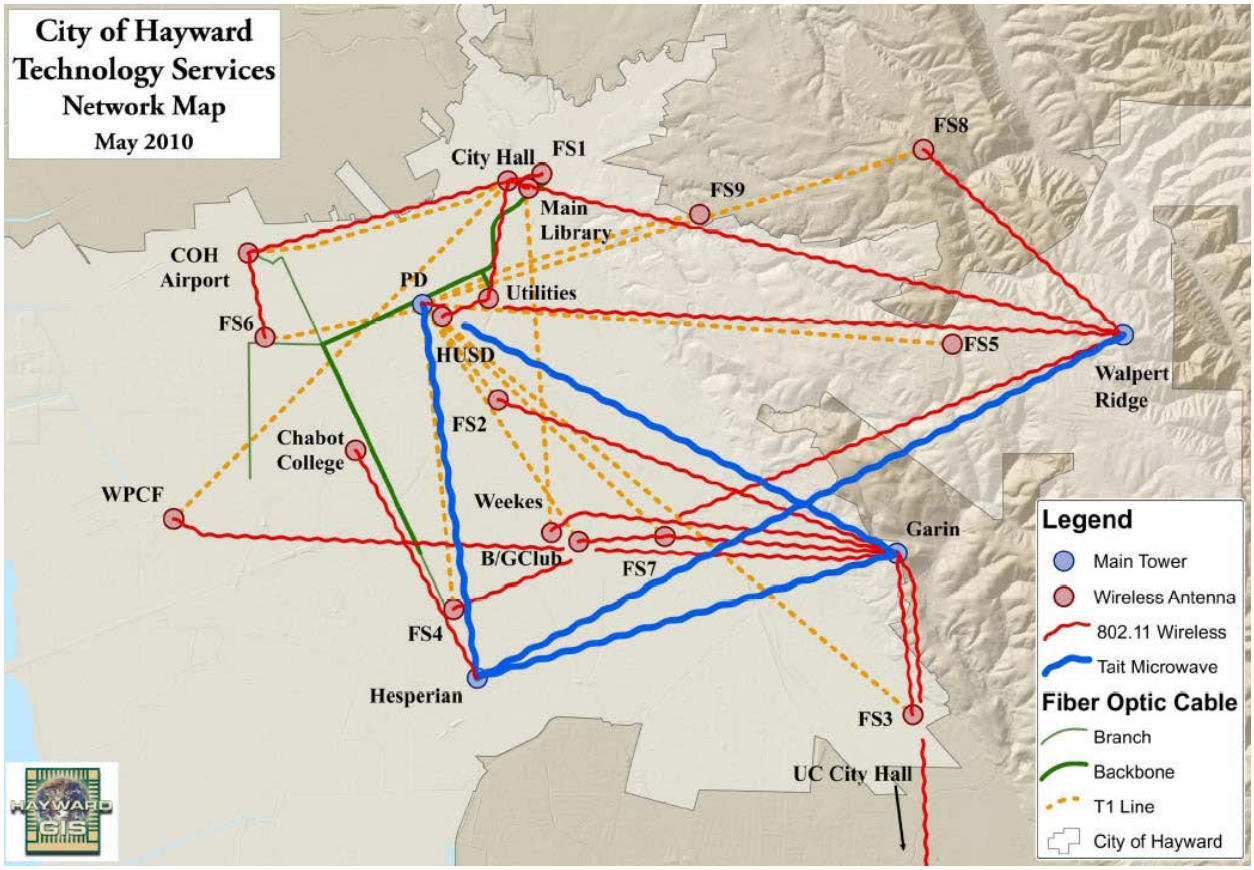


Data source: City of Hayward, 2012

January, 2013

To prepare Hayward in the event of an emergency, such as an earthquake, the City worked with Cisco Systems, Inc. to connect 19 geographical locations and city sites through an 802.11 wireless bridge point-to-point backbone connectivity. Figure 8-9 shows the service area of the wireless network. The City also erected new towers to house a wireless and public safety radio network and interlink via specialized microwave channels. Buildings and offices throughout the city now use the network for general, day-to-day wireless activities. The fire and police departments, airport, library, and water pollution control plant are just a few of the sites that currently leverage the city wireless network. The next phase of the project calls for the deployment of a satellite dish on the roof of City Hall that will integrate with the 802.11 wireless bridging backbone. The self-correcting satellite will include a global position system that can alert authorities if the building shifts during an earthquake or other natural disaster. The City also is considering deploying telepresence technology on the network, as well in the fire department's nine stations and the City's emergency operations center to provide advanced video conferencing service for briefings, trainings, and emergency updates.

FIGURE 8-9: CITY OF HAYWARD TECHNOLOGY SERVICES NETWORK MAP



Broadband Services

Broadband internet service is becoming an increasingly important aspect of community infrastructure. It can be used to promote social and economic development as well as human and technological capacity building. A community that is well-served can result in widespread

access and foster participation in emerging economic sectors dependent on high speed internet access. Broadband internet networks are now viewed as basic infrastructure and there is a public interest for communities to ensure that their residents and businesses have appropriate access.

Assessing a community's broadband capacity and infrastructure is challenging because it requires data that is not yet widely available. This is due in part to the evolving nature of the broadband market. Unlike other infrastructure that is publicly owned or is provided by one or two quasi-public companies, broadband is provided by multiple private sector providers. The quality of broadband networks is also measured using multiple technical characteristics, but there is no consensus on which of these characteristics combine to define "good" or "adequate" broadband service.

Common characteristics used to measure the quality of broadband service in a community are the number of wireline and wireless providers, the type of broadband available (e.g., DSL, Fiber, Cable), and the data rate (download/upload speed). The National Telecommunications and Information Administration, in collaboration with the FCC, created the National Broadband Map to provide readily available data on broadband availability. The National Broadband Map compiles broadband data on for Census Designated Places in the United States as of December 31, 2011.

Table 8-8 summarizes access to different wireline (i.e., hard-line telephone) and wireless providers in the city of Hayward. No Hayward residents are without access to wireline or wireless service providers. About 97 percent Hayward residents have access to two or more wireline providers, which is much higher than the national average (85.2 percent). About 82 percent of the Hayward residents have access to three providers and almost 14 percent have access to four or more providers, compared nationally to 30.5 percent and 10.2 percent, respectively. However, less than 1 percent of Hayward residents have access to five or more providers, compared to 3 percent nationally.

Everyone in Hayward has access to one or more wireless providers. A total of 100 percent of the population has access to five or more providers, compared to only 58 percent nationally, and nearly 98 percent have access to six providers compared to 16.9 percent nationally.

TABLE 8-8
ACCESS TO WIRELINE AND WIRELESS INTERNET PROVIDERS
City of Hayward and United States
December 2011

Number of Providers	Wireline Providers		Wireless Providers	
	Hayward[1]	Nationwide Average	Hayward[1]	Nationwide Average
0	0.0%	3.7%	0.0%	0.4%
1	3.0%	11.3%	0.0%	1.6%
2	1.1%	41.5%	0.0%	4.1%
3	82.1%	30.5%	0.0%	7.2%
4	13.6%	10.2%	0.0%	28.8%
5	0.2%	2.1%	2.1%	26.6%
6	0.0%	0.5%	97.9%	16.9%
7	0.0%	0.3%	0.0%	6.3%
8+	0.0%	0.1%	0.0%	8.2%
Total	100.0%	100.0%	100.0%	100.0%

Source: National Broadband Map December 2011. http://www.broadbandmap.gov, January 8, 2013.
[1]Represents the percent of the population within the city of Hayward with access to the specified number of providers.

Table 8-9 summarizes access to broadband technology types in the city of Hayward. Hayward residents generally have better access to DSL, cable, and wireless technology types compared to the nation. However, only 0.3 percent of people in the city have access to fiber optic lines, compared to 17.8 percent nationally.

TABLE 8-9
ACCESS TO TECHNOLOGY TYPES
City of Hayward and United States
December 2011

Technology Type	Hayward[1]	Nationwide Average
DSL	98.2%	88.9%
Fiber	0.3%	17.8%
Cable	96.0%	85.2%
Wireless	99.6%	98.7%

Source: National Broadband Map December 2011. http://www.broadbandmap.gov, January 8, 2013.
[1]Represents the percent of the Population within the city of Hayward with access to the specified broadband technology type

Table 8-10 summarizes average broadband speed measurements (megabits per second) at different facilities in the city of Hayward. The fastest broadband speeds occurred at schools, libraries, and community centers by far. The median download speed of 38.5 mbps was more than seven times that of residential homes (4.9 mbps), the second fastest speed.

TABLE 8-10 BROADBAND SPEED MEASUREMENTS City of Hayward and United States December 2011	
Broadband Speed Test (mbps)	**Median Speed (mbps)**
Home	4.9
Schools/Libraries/Community Centers	38.5
Medium/Large Business	1.2
Small Business	2.0
Mobile	4.7

Source: National Broadband Map December 2011. http://www.broadbandmap.gov, January 8, 2013.

Telecommunications Regulations

The Hayward General Plan includes two strategies related to fiber optic networks and telecommunications:

- Policy E 1.B: Ensure there is adequate infrastructure (i.e., streets and roads, energy, water, sewer, fiber optic networks, telecommunication services, etc.) to support existing and new development.
- Policy E 2.4: Work with the public and private sectors to ensure that the city is adequately served by fiber optic networks and other telecommunications facilities.

The Hayward Municipal Code requires telecommunications carriers and providers to register with the City. The City requires telecommunications carriers and providers to apply for permit for all proposed Class 1, 2, or 3 facilities. Class 1 facilities must apply for a Telecommunications Site Review, Class 2 facilities must apply for an Administrative Use Permit, and Class 3 facilities must apply for a Use Permit. Telecommunications providers may also submit a letter to the Development Services Director for approval of co-location facilities. The Hayward Municipal Code also requires underground wiring in 30 districts throughout the central city and downtown area. In these areas all poles and overhead wires must be removed by December 1, 2014.

Regulatory Setting

Federal, State, and local regulations apply to telecommunications service in Hayward. Major regulatory policies pertaining to telecommunications service are summarized below:

Federal Communications Commission. The Federal Communications Commission(FCC) regulates interstate and international communications by radio, television, wire, satellite, and cable in the United States. The FCC was founded through the Communications Act of 1934, and operates as an independent agency overseen by the United States Congress. The Federal Advisory Committee Act of 1972 put in place a process for establishing, operating, overseeing, and terminating FCC advisory committees for specific aspects of communications. The FCC is

made up of six separate bureaus: Consumer & Governmental Affairs, Enforcement, Media, Public Safety & Homeland Security, Wireless Telecommunications, and Wireline Competition. Together, these bureaus are responsible for adopting and modifying rules/regulations that govern business practices. These can include interpretive rules, policy statements, substantive legislative rules, and organizational/procedural rules.

California Public Utilities Commission. The California Public Utilities Commission (CPUC) is a State agency created by constitutional amendment to regulate privately owned telecommunications, electric, natural gas, water, railroad, rail transit, passenger transportation, and in-state moving companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility services at reasonable rates while also protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas (CPUC Decision 95-08-038). The CPUC also regulates rates and charges for basic telecommunication services, such as how much you pay for the ability to make and receive calls.

California Government Code 4216.9 Protection of Underground Infrastructure. The responsibilities of persons excavating in the vicinity of underground utilities are detailed in Section 1, Chapter 3.1 "Protection of Underground Infrastructure," Article 2 of California Government Code 4216.9. This law requires that an excavator must contact a regional notification center at least two days prior to excavation of any subsurface installation. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to telecommunications:

- City of Hayward Municipal Code, Chapter 10, Article 13 requires telecommunications carriers and providers to register with the City. The City requires telecommunications carriers and providers to apply for permits for all proposed Class 1, 2, or 3 facilities.
- City of Hayward Municipal Code, Chapter 11, Article 4 requires underground wiring in 30 districts throughout the central city and downtown area. In these areas all poles and overhead wires must be removed by December 1, 2014.

Key Terms

The following key terms used in this chapter are defined as follows:

Antenna. An antenna is any system of wires, poles, rods, reflecting discs, or similar devices used for the transmission or reception of electromagnetic waves when such system is either external to or attached to the exterior of a structure.

Cellular Telephone. A mobile telephone operated through a cellular radio network.

Co-location. Co-location means a wireless telecommunications facility comprising a single telecommunications tower, monopole, or building supporting antennas owned or used by more than one telecommunications carrier. Co-location shall also include the location of wireless telecommunications facilities with other facilities such as water tanks, light standards, and other utility facilities and structures.

Digital Subscriber Line. A digital subscriber line (DSL) is internet technology that uses existing two-wire copper telephone wiring to deliver high-speed data services at speeds greater than basic internet dial-up.

Easement. An easement is a limited right to make use of a property owned by another; for example, a right-of-way across the property for an electricity or gas line.

Fiber Optic Cable. A fiber optic cable is a cable containing multiple optical fibers. The individual fibers are coated with flexible, transparent glass or plastic and contained in a cable tube suitable to the environment where the cable is being deployed. The fibers transmit light between the two ends of the cable, allowing for high speed transmission of information over long distances.

Internet. The internet is a network that links computer networks all over the world by satellite and telephone, connecting users with service networks such as e-mail and the World Wide Web.

Public Right-of-Way. Public right-of-way means and includes all public streets and utility easements, now and hereafter owned by the City, but only to the extent of the City's right, title, interest, or authority to grant a license to occupy and use such streets and easements for telecommunications facilities.

Telecommunications Facility. A telecommunications facility is a wireless facility that transmits and/or receives electromagnetic signals. It includes antennas, microwave dishes, horns, and other types of equipment for the transmission or receipt of such signals, telecommunications towers, or similar structures supporting said equipment, equipment buildings, parking area, and other accessory development.

Telecommunications Tower. A telecommunications tower is a structure more than 10 feet tall, built primarily to support one or more telecommunications antennas.

Wi-Fi. Wi-Fi is a technology that allows an electronic device to exchange data wirelessly over a computer network.

Bibliography

Reports/Publications

Alameda County Flood Control and Water Conservation District. Changing Decades, New Challenges: Fiscal Year 20120 Report to the Community. 2011.

Alameda, County of. Alameda County Integrated Waste Management Plan: Countywide Element. Adopted February 26, 2003 and amended December 14, 2011.

California Energy Commission, 2011 Integrated Energy Policy Report. http://www.energy.ca.gov/2011_energypolicy/index.html, February 15 2012.

California Energy Commission/California Public Utilities Commission. Energy Action Plan. http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF, September 2005.

California Legislature. The Electric Utility Industry Restructuring Act, Senate Bill 1890, 1996.

California Regional Water Quality Control Board. Tentative Order, Updated Waste Discharge Requirements. 2008.

Cisco Systems, Inc. City Implements Disaster Recovery Plan to Keep Citizens Connected. http://www.cisco.com/web/strategy/docs/gov/hayward_cs.pdf, 2010.

Fountain, Matt. New Times. "Come on Baby, Light my Fiber." September 8, 2010.

Fremont, City of. Solid Waste Collection Rates, Transfer Station Service Fees and Landfill Disposal Fees for 2012 and 2013. Staff Report 1251 to the City Council. http://fremontcityca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&ID=1251&CssClass=, December 2012.

Hayward, City of. Comprehensive Emergency Management Plan. 2004.

Hayward, City of. 2010 Urban Water Management Plan. June 21, 2011.

Hayward, City of. 2011 Water Quality Report. 2012.

Hayward, City of. Business Recycling and Organics Collection Services. Spring 2011.

Hayward, City of. Climate Action Plan Update. Report to the City Council. April 4, 2012.

Hayward, City of. Municipal Code. Updated December 27, 2012.

Hayward, City of. Recycled Water Facility Plan. September 2009.

Hayward, City of. What Hayward Residents and Businesses Should Know About Stormwater Management and Urban Runoff Control. http://www.hayward-ca.gov/BROCHURES-&-HANDOUTS/Stormwater_Management_and_Urban_Runoff_Control_Flyer.pdf.

Kurhl, Eric. Levees Broken, Levees Built at Eden Landing in Hayward. Oakland Tribune. August 18, 2010.

Payne, Larry. Urgent Communications. Shaking Things Up: A California city on a major fault line implements a wireless bridging network to ensure continuity of operations should an earthquake strike. http://urgentcomm.com/networks-amp-systems-mag/shaking-things, August 31, 2011.

Pacific Gas and Electric. Corporate Responsibility Report. http://www.pgecorp.com/corp_responsibility/reports/2011/index.html/bu02_overview.jsp, 2011.

StopWaste.org. Fall 2012 Update. http://stopwaste.org/home/index.asp?page=33&recordid=318, January 8, 2013.

StopWaste.org, Five (5) Year Financial and Compliance Audit for the Alameda County Source Reduction and Recycling Board Fiscal Years 2006/7 to 2010/11, November 26, 2012.

Waste Management Inc., Annual Clean-Up Days Service Guide 2012-2013. 2012.

Websites

Alameda County Flood Control and Water Conservation District. http://acfloodcontrol.org, January 11, 2013.

Cal Recycle. Jurisdiction Diversion/Disposal Rate Summary. http://calrecycle.ca.gov/LGCentral/DataTools/Reports/DivDispRtSum.htm, January 8, 2013.

California Public Utilities Commission. http://www.cpuc.ca.gov/puc/, January 9, 2013.

Federal Communications Commission. http://www.fcc.gov/, January 9, 2013.

Federal Energy Regulatory Commission. http://www.ferc.gov/, January 9, 2013.

Hayward, City of. http://www.hayward-ca.gov, December 17, 2012.

Hayward, City of. Public Works – Utilities. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/PUBLIC-WORKS-UES/, January 8, 2013.

National Broadband Map. http://www.broadbandmap.gov/, January 8, 2013.

Pacific Gas and Electric. http://www.pge.com/about/company/, January 9, 2013.

Pacific Gas and Electric. Hayward: More Clean Power After Fuel Cell Dedication on Cal State-East Bay Campus. http://www.pgecurrents.com/2011/10/14/hayward-more-clean-power-after-fuel-cell-dedication-on-cal-state-east-bay-campus/, October 14, 2011.

Pacific Gas and Electric. Russell City Energy Center (RCEC) Interconnection Project. http://www.pge.com/myhome/edusafety/russellcityenergyproject/index.shtml, January 9, 2013.

StopWaste.org. http://stopwaste.org, January 8, 2013.

9.1 INTRODUCTION, PURPOSE, AND CONTENTS

This chapter describes the existing conditions related to hazards in the city of Hayward. It provides an overview of location specific issues relating hazardous materials, geologic and seismic materials, and hazards associated with floods, airports, and noise. As a community in the San Francisco Bay Area, geologic and seismic conditions present unique challenges. This report identifies and discusses issues resulting from Hayward's location in an Earthquake Fault Zone and a Seismic Hazard Zone. It identifies and examines the existing noise sources in the city and includes a discussion of relevant acoustical background information and the existing community noise environment. It also identifies potential challenges and opportunities in the context of global climate change and the impacts of rising sea levels.

This report is organized into the following sections:

- Introduction, Purpose, and Contents (Section 9.1)
- Geologic and Seismic Materials (Section 9.2)
- Flood Hazards (Section 9.3)
- Airport Hazards (Section 9.4)
- Hazardous Materials (Section 9.5)
- Climate Change Impacts (Section 9.6)
- Noise (Section 9.7)

9.2 GEOLOGIC AND SEISMIC MATERIALS

Introduction

This section describes the existing conditions and regulatory framework related to geology, seismicity, and soils in Hayward.

Major Findings

- A portion of the active Hayward fault, including an Earthquake Fault Zone designated by the State Department of Conservation, traverses the city. The fault has a 31 percent probability of experiencing a 6.7-magnitude earthquake in the next three decades.
- Approximately 50 percent of Hayward is included in Seismic Hazard Zones for liquefaction as designated by the State Department of Conservation Earthquake Zones of Required Investigation--Hayward Quadrangle map (September 21, 2012).
- The hilly, eastern portion of Hayward contains approximately 15 percent officially designated Landslide Zones, in the State Department of Conservation Earthquake Zones of Required Investigation--Hayward Quadrangle map (September 21, 2012).
- The City of Hayward implements regulations and programs to minimize the risk of geologic and seismic hazards. These regulations and programs include, among others, the City Building Code and building permit process, the City Grading and Clearing Permit process, the Multi-Jurisdictional Local Hazard Mitigation Plan with City of Hayward Annex document, the City of Hayward Comprehensive Emergency Management Plan, and the Community Emergency Response Team program.

Existing Conditions

Geologic Environment

Hayward is located on the eastern side of San Francisco Bay, a region of varied geographic composition and topography. Hayward contains three distinct geologic zones: (1) properties near the Bay in the western portion of the community (bay lands); (2) the primarily urbanized portion of the community below the elevation of 500 feet above sea level (bay plain); and (3) the Hayward Hills, which are part of the Diablo Range and have elevations of up to 1,500 feet, in the eastern portion of Hayward.

Geologic materials beneath Hayward include bedrock, Bay Mud near estuarine areas, semi-consolidated and unconsolidated alluvium along streams and beneath flat-lying areas, colluvium on slopes derived from bedrock, and artificial fill (especially along the Bay margins).

Seismic Environment

Hayward is located within the seismically active San Francisco Bay region. Several major earthquake faults in the region are capable of generating strong earthquakes (magnitude of 6.0+

on the Richter scale). Major earthquake faults in the Bay Area include the San Andreas, Hayward, and Calaveras. Figure 9-1 depicts the Earthquake Fault Zone, as designated by the State Department of Conservation, and fault traces for the seismically active Hayward fault. Fault zones have been designated under the Alquist-Priolo Earthquake Fault Zoning Act to prevent the construction of human-occupied buildings on the surface trace of active faults. The Hayward fault is defined as an "active" fault, which means it has shown evidence of fault rupture within the past 11,000 years, as defined by the State Department of Conservation.

The Hayward fault traverses the city, for example, adjacent to Mission Boulevard, and has generated a large, surface-rupturing earthquake in historic time (magnitude 6.8, 1868). The fault is one of the most dangerous faults in the United States due to its (1) high slip rate (about two inches every ten years), (2) historical activity, and (3) location through the highly urbanized San Francisco East Bay area. The Hayward fault, which is approximately 60 miles long, is the southern portion of an extensive fault system that includes the Hayward, Rodgers Creek-Healdsburg, and Maacama faults.

The Chabot and Carlos Bee faults generally parallel the Hayward fault and are located about 0.6 mile and 0.2 mile, respectively, east of the Hayward fault. Both of these faults traverse the hilly topography in the East Bay Hills. Though these two faults are considered inactive because there has been no evidence of fault rupture within the past 35,000 years and, therefore, present a low fault rupture hazard, other unnamed faults east of the Hayward fault in the East Bay Hills are considered potentially active, especially if a moderate to large earthquake occurs on an active fault, such as the Hayward fault.

United States Geological Survey (USGS) data suggest a 31 percent probability of a 6.7-magnitude earthquake on the Hayward fault in the next three decades. An earthquake with an 8.0+ magnitude on the Bay Area segments of the San Andreas fault is expected every 100 years.

Seismic Hazards

Potential seismic hazards in Hayward include surface rupture, ground shaking, liquefaction, lateral spreading, and fault creep. The degree of hazard depends on the location of the seismic epicenter, the magnitude and duration of ground shaking, topography, groundwater conditions, and type of building construction. Hayward is developed, in part, on soft alluvial soils and artificial fill along the San Francisco Bay margin and on slopes in the Hayward Hills. During large earthquakes, fill conditions are susceptible to strong ground shaking and liquefaction-associated hazards and the slopes are susceptible to landslides.

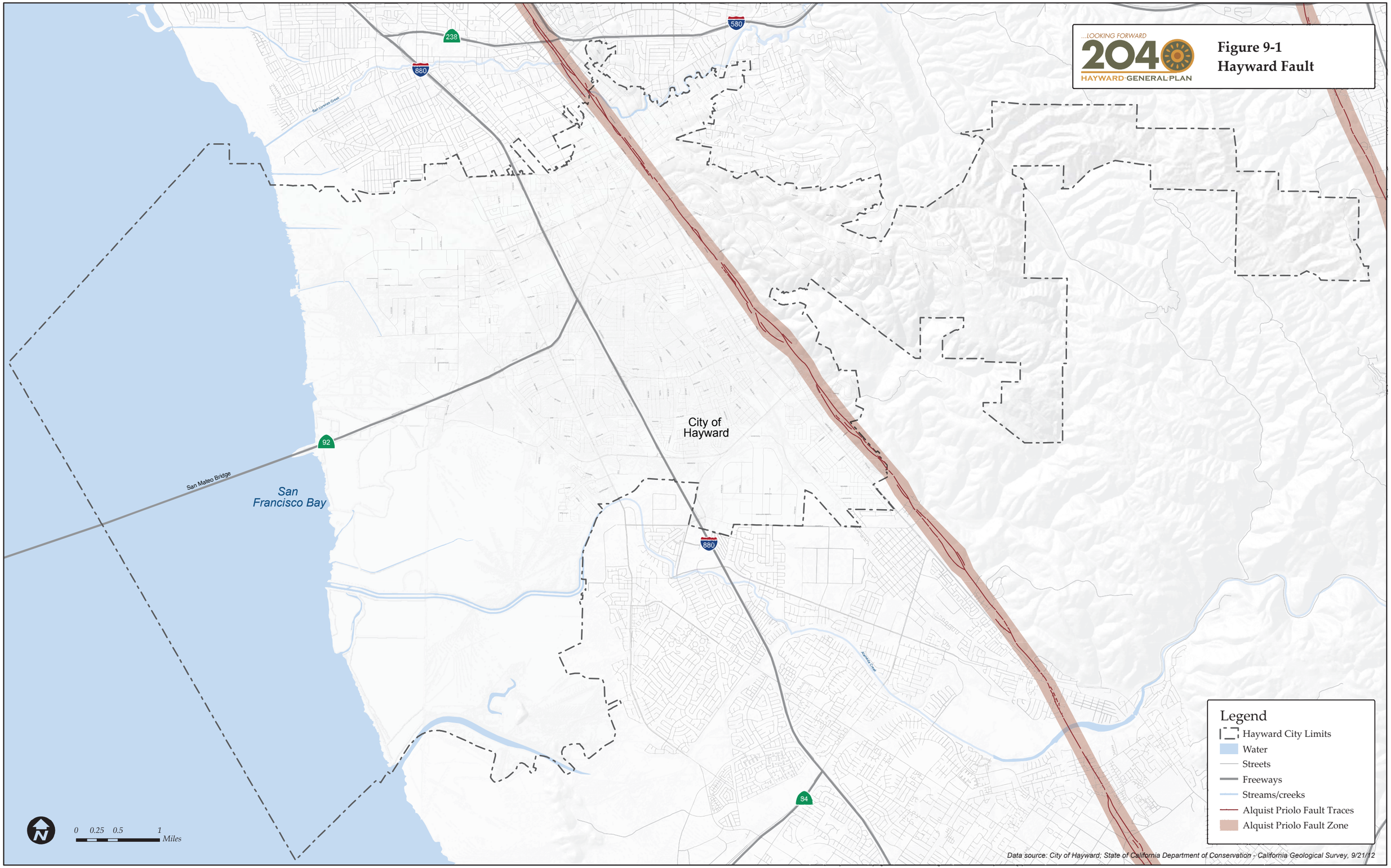
Surface Rupture

Surface rupture is the actual breaking apart of the ground during an earthquake and generally occurs in the area directly above an active fault trace. Areas within a State-designated Earthquake Fault Zone (a subcategory of Earthquake Zones of Required Investigation) require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault. Figure 9-1 (Hayward

Fault) depicts the Earthquake Fault Zone in Hayward. The Hayward fault experienced surface rupture from Oakland to Fremont in the 1868 earthquake, including in Hayward, and is expected to rupture again. Surface displacement during a large earthquake could range from approximately three feet to eight feet.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-1
Hayward Fault



May, 2013

Ground Shaking

Ground shaking is the most widespread cause of earthquake damage. Most loss of life and injuries during an earthquake are related to the collapse of buildings and structures, with older buildings constructed of unreinforced masonry being among the most vulnerable. The intensity of the ground shaking at a particular site depends on characteristics of the earthquake source (magnitude, location, and area of causative fault surface), distance from the fault, and amplification effect of local geologic deposits. Magnitude is a measure of the energy released by an earthquake; it is assessed by seismographs. Intensity is a subjective measure of the perceptible effects of seismic energy at a given point and varies with distance from the epicenter and local geologic conditions.

Earthquake intensity in a given locality is typically measured using the Modified Mercalli Intensity Scale (MMI), with values ranging from I to XII. The most commonly used adaptation covers the range of intensities from I, which would be felt by very few people, to XII, which would be total damage with objects thrown into the air. While an earthquake has only one magnitude, it can have several intensities, which typically decrease with distance from the epicenter. The Hayward fault could produce a magnitude 6.7 earthquake that could result in very strong (MMI IX) ground shaking in Hayward. Table 9-1 defines these intensities in more detail.

Liquefaction

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state ("quicksand") as a result of seismic ground shaking. In the process the soil undergoes temporary loss of strength, which commonly causes ground displacement or ground failure. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths.

Similar to Earthquake Fault Zones, the State requires site-specific geotechnical investigations within designated Seismic Hazard Zones to accurately characterize site-specific seismic hazards and formulate mitigation measures prior to permitting development designed for human occupancy. Collectively, the State Department of Conservation refers to Earthquake Fault Zones and Seismic Hazard Zones as Earthquake Zones of Required Investigation.

Figure 9-2 depicts the Seismic Hazard Zones related to liquefaction in Hayward.

Lateral Spreading

Lateral spreading is a form of horizontal displacement of soil toward an open channel or other “free” face, such as an excavation boundary. Lateral spreading can result from either the slump of low-cohesive and unconsolidated material or more commonly by liquefaction of either the soil layer or a subsurface layer on a slope. Earthquake shaking leading to liquefaction of saturated soil can result in lateral spreading where the soil undergoes a temporary loss of strength. Portions of Hayward that are highly susceptible to liquefaction hazards would also be considered susceptible to lateral spreading (see Figure 9-2).

Table 9-1 APPROXIMATE RELATIONSHIPS BETWEEN EARTHQUAKE MAGNITUDE AND INTENSITY		
Richter Scale Magnitude	**Maximum Expected Intensity (MM)[1]**	**Effects**
1.0 – 3.0	I	Not felt except by a very few under especially favorable conditions.
3.0 – 3.9	II – III	Felt only by a few persons at rest, especially on upper floors of buildings. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 – 4.9	IV – V	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 – 5.9	VI – VII	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6.0 – 6.9	VIII – IX	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0 and higher	VIII or higher	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

[1] Modified Mercalli Intensity Scale.

Source: United States Geologic Survey, Earthquake Intensity Zonation and Quaternary Deposits, Miscellaneous Field Studies Map 9093, 1977.

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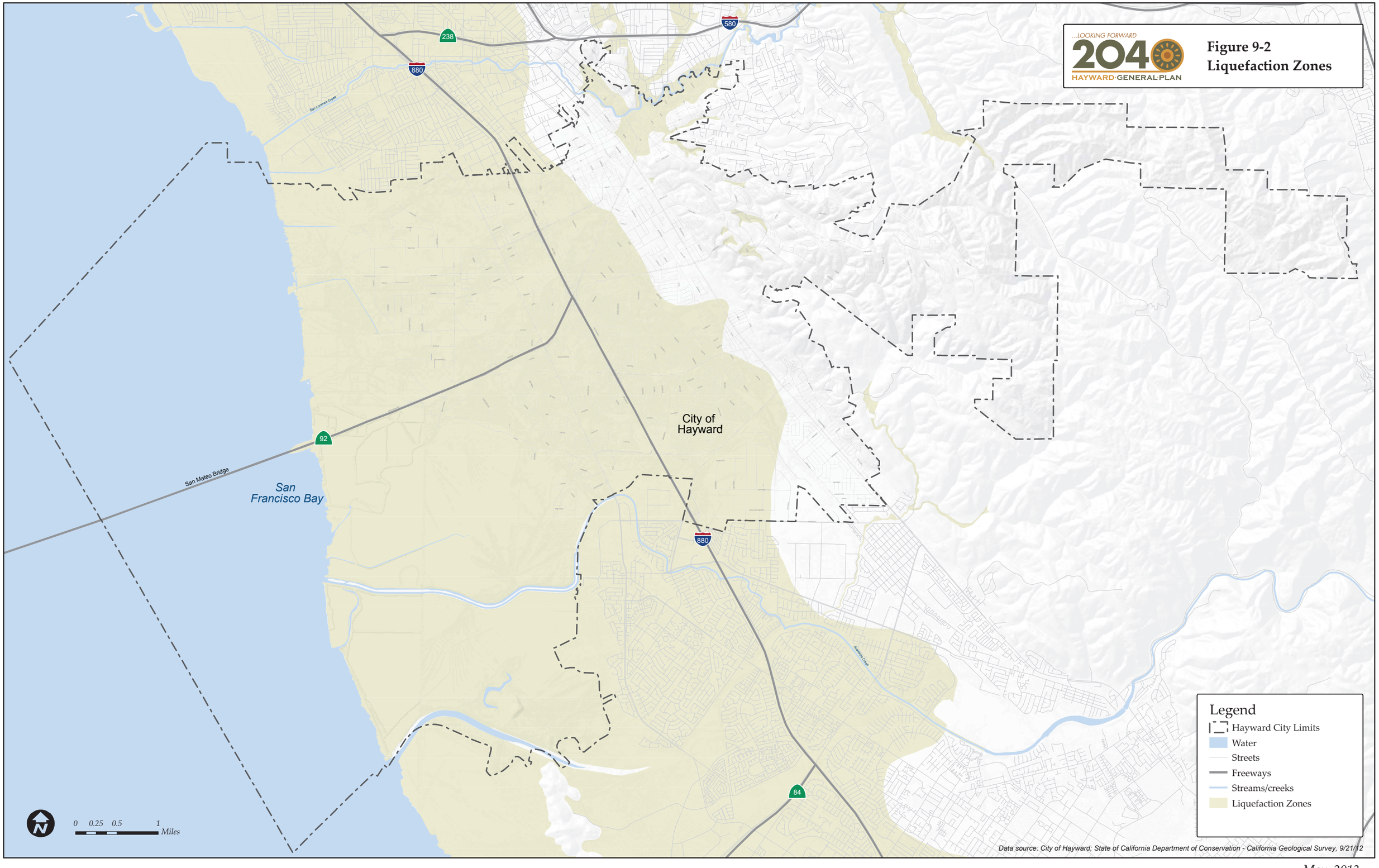
Figure 9-2
Liquefaction Zones



May, 2013

Fault Creep

Fault displacement may occur through slow, persistent movement called "fault creep," which occurs over time outside of actual earthquake events on the identified fault. Damage by fault creep usually is expressed by breaks or bends in walls, fences, railways, pipelines, or other linear structures; cracks in roads or sidewalks; or tilting, cracking, or rotation of buildings. This situation is observable in Hayward, where fault creep along the Hayward fault has offset some buildings, curbs, and roadways. "Co-seismic creep" can occur when an earthquake on another fault triggers creep on the identified fault.

Soil Constraints

Soil characteristics affect suitability for buildings, structures, infrastructure, paving, and landscaping. As explained above, soil constraints and seismic hazards are often interrelated. Soil-related limitations can include expansive soils, erosion, settlement, subsidence, and slope instability.

Expansive Soils

Expansive soils are composed largely of clays, and can undergo significant volume change with changes in moisture content. They shrink and harden when dried, and expand and soften when wetted ("shrink/swell potential"). If not properly engineered, this expansive nature can damage building foundations and other construction, such as sidewalks and concrete.

Soil Erosion

Soil erosion is the process by which soil particles are removed from a land surface by wind, water, or gravity. Most natural erosion occurs at slow rates; however, excavation or grading may increase the rate of erosion during construction activities, even where buildings and pavement previously existed at the construction site, because bare soils are exposed and could be eroded by wind or water. Eroded soils can be entrained in stormwater runoff and discharged to surface waters, thereby affecting the water quality of receiving waters.

Settlement and Differential Settlement

Differential settlement can occur if buildings or other improvements are built on low-strength foundation materials (e.g., imported fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native soil and fill). Although differential settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time. Portions of Hayward that contain loose or uncontrolled (non-engineered) fill may be susceptible to differential settlement. Areas near the Bay are expected to be susceptible to settlement due to low-strength native soil and potential unconsolidated fill, and to differential settlement where fill abuts native soil.

Subsidence

Subsidence can occur where subsurface materials such as limestone rock or salt deposits are dissolved by fluid flow, creating subsurface voids that can collapse. Subsidence can also occur where groundwater is extracted and soil grains compact. Decomposition of highly organic soils and seasonal drying of expansive clay soils can also result in subsidence. The organic and expansive soils within Hayward are subject to subsidence.

Slope Instability

The eastern portion of Hayward is located on steep, hilly terrain underlain by geologic materials prone to slope instability during large earthquakes. Slope instability can also result from wet weather, weak soils, improper grading, improper drainage, steep slopes, adverse geologic structure, or a combination of these factors. Slope instability can occur in the form of landslides, mudflow, debris flow, slope creep, slumps, rockfall, or erosion. Structures constructed on steep terrain, even on stable or flat ground, can experience slope instability hazards if they are sited in the path of mudflow, debris flow, or rockfall. Construction on slopes steeper than 20 percent typically requires special grading, special foundation design, or site modifications to reduce the potential for slope instability.

Figure 9-3 depicts areas of landslide potential in Haywood.

Regulatory Setting

This section describes the State and local regulatory setting related to existing and potential geologic and seismic hazards.

State

Alquist-Priolo Earthquake Fault Zoning Act

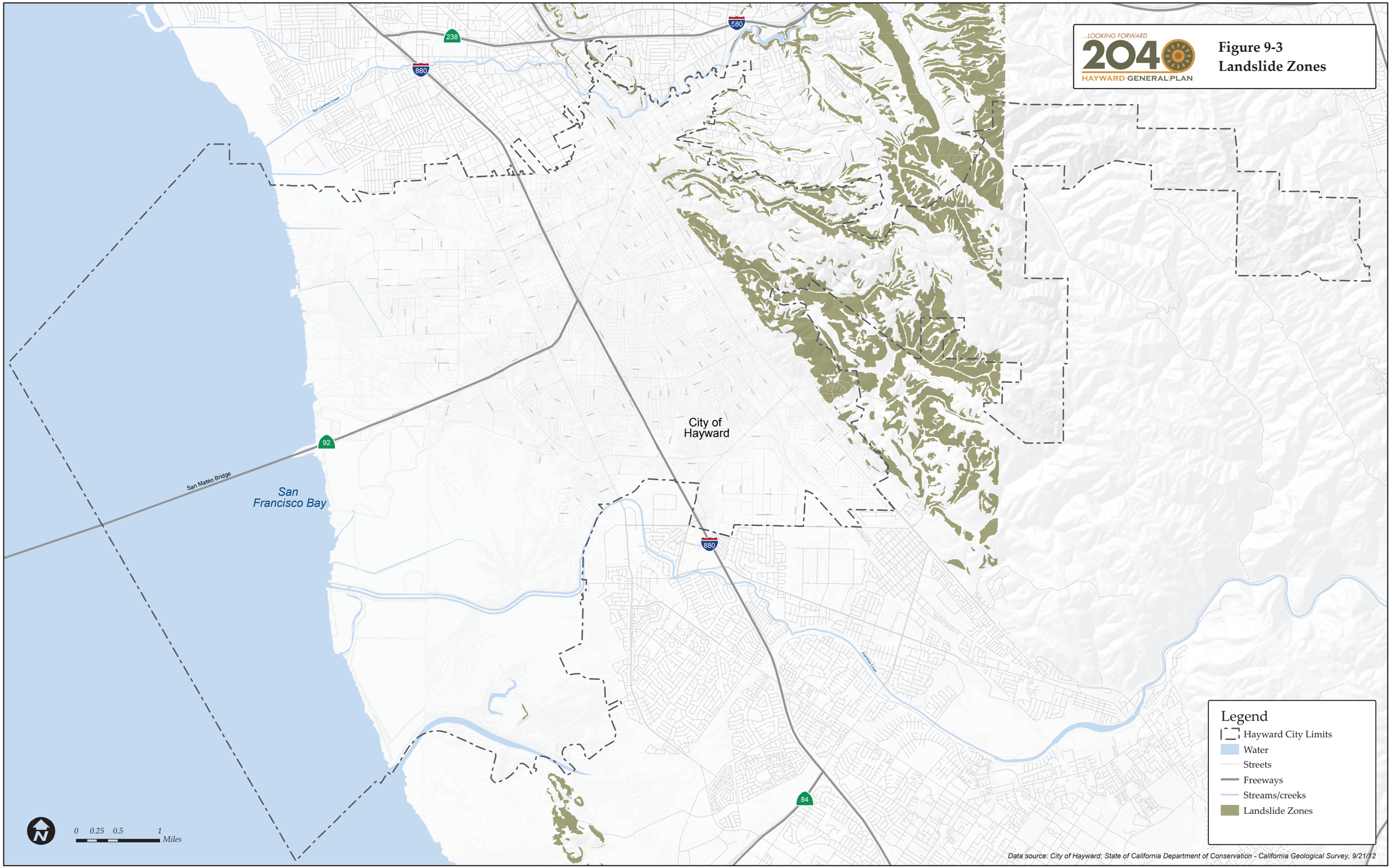
The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the potential hazard of surface faults to structures for human occupancy. The main purpose of the Act is to prevent the construction of human-occupied buildings over active faults. The Act only addresses the hazard of fault rupture and is not directed toward other earthquake hazards.

The Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue maps to all affected Cities, Counties, and State agencies for their use in planning and controlling development. Local agencies must regulate most development projects within the zones, and there generally can be no construction for human occupancy within 50 feet of an active fault zone.[1]

[1]California Geological Survey, Alquist-Priolo Earthquake Fault Zoning Act, www.conservation.ca.gov/cgs/rghm/ap/Pages/main.aspx, viewed January 3, 2013.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-3
Landslide Zones



May, 2013

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic Hazard Zones are mapped by the State Geologist to assist local governments in land use planning. The purpose of the Act is to "reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigation these seismic hazards."

The California Geological Survey map "Earthquake Zones of Required Investigation, Hayward Quadrangle, 2012" (released September 21, 2012) shows the location of Alquist-Priolo Earthquake Zones and Seismic Hazard Zones, collectively referred to as Earthquake Zones of Required Investigation. These zones are delineated to assist cities and counties in fulfilling their responsibilities for protecting the public from the effects of surface fault rupture and earthquake-triggered ground failure as required by the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Sections 2621-2630) and the Seismic Hazards Mapping Act (Public Resources Code Sections 2690-2699.6). Further information on Fault-Rupture Hazard Zones and Seismic Hazard Zones is available from the California Geological Survey (CGS). The Geographic Information System (GIS) digital files of these regulatory zones released by the California Geological Survey (CGS) are the "official maps." GIS files are available at the CGS website www.conservation.ca.gov/cgs/.[2]

California Building Code

The California Building Code (CBC) is contained in the California Code of Regulations (CCR), Title 24. Title 24 is assigned to the California Building Standards Commission, which is responsible for coordinating building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of building and structures. The 2010 CBC is based on the 2009 International Building Code (IBC) published by the International Code Council. The CBC also contains amendments specific to California which are based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 specifies requirements for general structural design and includes methods of determining earthquake loads as well as other loads (flood, snow, wind, etc.) in building codes. The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls, and site demolition. It also regulates grading activities, including drainage and erosion control.[3]

The California Building Code is updated every three years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority

[2]Seismic Hazards Zonation Program, www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx, viewed January 3, 2013.

[3]International Code Council, www.iccsafe.org/gr/Pges/CA.aspx, viewed January 3, 2013.

to various state agencies, boards, commissions and departments to create building regulations to implement the State's statutes. A city, county or city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological or topographical conditions. State law mandates that local government enforce the California Building Code as published by the California Buildings Standards Commission in Title 24 of the California Code of Regulations.

Local

City of Hayward Building Permit Process

A building permit is required for almost all construction related work in Hayward. When a building permit is required, the City will determine during the pre-application process what information needs to be provided to staff for their review and, depending on the extent of the project, whether or not public and/or environmental or other review is required. Once the pre-application process is complete, a building permit application may be submitted to Building Division Staff along with appropriate fees (set by the Master Fee Schedule). The application will be reviewed by staff, and if deemed incomplete, the project applicant will be required to submit any missing and/or revised information to Building Division Staff. Once the application is deemed complete, a building permit will be issued. The project applicant will then be required to pay permit fees before construction can commence; additional inspections will be required as noted on the permit card. Before the City will issue a certificate of occupancy, all permitted work must be completed, a final inspection must occur, and all remaining fees must be paid.

City of Hayward Grading and Clearing Permit Process

The City of Hayward requires a permit for most types of grading in the city. Permit requirements vary depending on the extent and nature of the earthwork proposed. A Grading and Clearing Permit is required prior to performing any of the following:

- Excavation, fill, or rearrangement of 300 or more cubic yards of earth materials on any site;
- Grading of an area where the average slope of the area to be excavated or filled exceeds 5:1 (20 percent);
- Excavation or fill of any portion of a site that increases or decreases its elevation by a height of 5 feet or more at any point following the completion of grading;
- Diversion of rainwater runoff from an area 15,000 square feet or larger;
- Blockage or alteration of a waterway or drainage way that has a capacity of greater than two cubic feet per second;
- Repair of earth material slides involving 300 or more cubic yards of earth material;

- Clearing of any area one acre in size or larger OR clearing of an area greater than 7,500 square feet with an average slope exceeding 5:1 (20 percent); or.
- To comply with Cleanwater Program requirements (MRSP Order No. R2-2009-0074), all development projects that create and/or replace more than 2,500 square feet to less than 10,000 square feet of impervious surface.

Association of Bay Area Governments (ABAG) Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area

The City of Hayward has adopted the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan ("Taming Natural Disasters") as the City's Local Hazard Mitigation Plan (LHMP). The ABAG Plan involves local agencies throughout its nine-county Bay Area jurisdiction, with an overall strategy to maintain and enhance disaster response of the region, as well as to fulfill the requirements of the Federal Disaster Mitigation Act of 2000. Each partner jurisdiction (including Hayward) has submitted an "Annex" document that contains jurisdiction-specific hazard mitigation strategies to attach to the Multi-Jurisdictional Plan. The Plan, which focuses on mitigation *before* rather than after disasters, (1) identifies natural hazards the community and region face (e.g., earthquakes, severe weather), (2) assesses the community's and region's vulnerability to these hazards, and (3) identifies specific preventive actions that can be taken to reduce the risk from the hazards. Adoption of the Multi-Jurisdictional Plan allows the City of Hayward to become eligible for Federal Disaster assistance.

Hayward Fire Department

The Hayward Fire Department implements the City of Hayward Comprehensive Emergency Management Plan. The Plan addresses the City's responsibilities in emergencies associated with natural disaster, human-caused incidents, and technological incidents, including earthquakes and their seismic-related results (e.g., liquefaction). It defines the primary and support roles of City of Hayward agencies and departments in after-incident damage assessment and reporting requirements.

The Plan also provides a framework for response and recovery coordination between the City and local, State, and Federal agencies. The Plan: (1) conforms to the State-mandated Standardized Emergency Management System (SEMS) and restructures emergency response in compliance with the Federal Emergency Management Agency (FEMA) Incident Command System (ICS); (2) establishes response policies and procedures to provide the City clear guidance for planning; (3) details steps necessary to protect lives and property; (4) outlines coordination requirements; and (5) provides the basis for unified training and response exercises. The Plan also meets the requirements of Alameda County's policies on Emergency Response and Planning.

The Hayward Fire Department also operates the Community Emergency Response Team (CERT) program. The program trains and certifies members of the public in basic emergency response and organizational skills, including light fire suppression, hazardous materials awareness, first aid, light search and rescue techniques, and disaster response assistance.

Key Terms

The following key terms are used in this section.

Differential Settlement. Uneven settlement of buildings and infrastructure due to low-strength foundation materials (e.g., imported fill) or where improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native soils and fill).

Expansive Soils. Soils composed largely of clays that can undergo significant volume change with changes in moisture content. Also see "Shrink/Swell Potential."

Fault. A fault is a fracture or zone of fractures between two blocks of rock that allows the blocks to move relative to each other. This movement may occur rapidly, in the form of an earthquake, or may occur slowly, in the form of creep. Most faults produce repeated displacements over geologic time. During an earthquake the rock on one side of the fault suddenly slips with respect to the other. The fault surface can be horizontal or vertical or some arbitrary angle in between.

Fault Creep. Fault displacement through slow, persistent movement, which occurs over time outside of actual earthquake events on the identified fault.

Ground Shaking. The vibration which radiates from the epicenter of an earthquake.

Groundwater. The water beneath the surface of the earth within the zone below the water table, in which the soil is completely saturated with water, whether or not flowing through known and defined channels.

Landslide. A landslide is any down-slope movement of soil and rock under the direct influence of gravity and often categorized by slope movement: falls, topples, slides, spreads, and flows. Landslides can be further described by the type of geologic material (bedrock, debris, or earth). For instance, debris flows (commonly referred to as mudflows or mudslides) and rock falls are examples of common landslide types. Landslides can be initiated in slopes already on the verge of movement by rainfall, snowmelt, changes in water level, stream erosion, changes in ground water, earthquakes, volcanic activity, disturbance by human activities, or any combination of these factors. Landslides can move slowly (millimeters per year), or can move quickly and disastrously, as is the case with debris flows.

Lateral Spreading. A form of horizontal displacement of soil toward an open channel or other "free" face, such as an excavation boundary.

Liquefaction. The loss of soil strength due to seismic forces acting on water-saturated granular soils. This can lead to a “quicksand” condition, which causes many types of ground failure. Liquefaction typically occurs in areas underlain by soils containing unconsolidated, saturated, clay-free sands, and silts.

Modified Mercalli Intensity (MMI) Scale. A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. Effects range from those that are detectable typically only by seismicity recording instruments (I) to total destruction (XII).

Richter Scale. A logarithmic scale developed by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude (M) by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials. Each whole number on the Richter scale represents a 10-fold increase in amplitude of the waves recorded on a seismogram and about a 32-fold increase in the amount of energy released by the earthquake.

Seismic. Related to earthquakes.

Slip Rate. How fast the two sides of a fault are slipping relative to another. The Hayward fault has a slip rate of about two inches every ten years.

Shrink/Swell Potential. A soil's potential to shrink and swell depending on the amount and types of clay in the soil. Soils with these properties expand when wet and disproportionately shrink when dry. Also see "Expansive Soils."

Subsidence. The sinking of land, usually occurring over broad areas, which typically results from extraction of groundwater, gas, oil, and geothermal energy, or hydrocompaction, peat oxidation, and fault rupture.

Surface Rupture. A crack or breaking of the ground along a fault during an earthquake.

Bibliography

Reports/Publications

Association of Bay Area Governments. Taming Natural Disasters: Multi-Jurisdictional Local Hazard Mitigation Plan for the San Francisco Bay Area. 2010 Update of 2005 Plan.

California Department of Conservation. Memo re. Official Map of Earthquake Fault Zones as of September 21, 2012. John G. Parish, PhD, State Geologist. September 18, 2012.

Hayward, City of. Ordinance No. 10-15, "An Ordinance Establishing a Building Code for the City of Hayward; Regulating the Construction, Alteration, Repair, and Maintenance of Structures; Providing for the Issuance of Permits and Collection of Fees; and Repealing Ordinance No. 07-17, and All Amendments Thereto." January 1, 2011.

Hayward, City of. City of Hayward General Plan. Conservation and Environmental Protection. 2002.

Hayward, City of. Comprehensive Emergency Management Plan. Undated.

Hayward, City of. GIS maps. November 8, 2012.

Hayward, City of. Hayward General Plan Update Draft Environmental Impact Report. Geology, Soils and Seismicity. November 2001.

Hayward, City of. Memo re. Adoption of the Association of Bay Area Governments' (ABAG's) Multi-Jurisdictional-Local Hazard Mitigation Plan ("Taming Natural Disasters") as the City of Hayward's Local Hazard Mitigation Plan, and Approval of Amendments to the Conservation and Environmental Protection Element of the General Plan Associated with the City of Hayward's Annex Document to ABAG's Plan (General Plan Amendment No. PL-2011-0301). Director of Development Services. October 25, 2011.

Hayward, City of. Multi-Jurisdictional Local Hazard Mitigation Plan. PowerPoint presented at City Council Hearing, October 25, 2011, by David Rizk, Development Services Director.

Hayward, City of. Route 238 Bypass Land Use Study Draft Environmental Impact Report. Prepared by Jerry Haag--Urban Planner, and Dowling Associates. February 2009.

Hayward, City of. Route 238 Corridor Improvement Project Draft Environmental Impact Report. Prepared by Jones & Stokes. March 2007.

Websites

California Geological Survey, Alquist-Priolo Earthquake Fault Zoning Act. www.conservation.ca.gov/cgs/rghm/ap/Pages/main.aspx. January 3, 2013.

International Code Council. www.iccsafe.org/gr/Pages/CA.aspx. January 3, 2013.

Seismic Hazards Zonation Program. www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx. January 3, 2013.

State of California, Department of Conservation, Hayward Fault Fact Sheet. http://www.conservation.ca.gov/index/Pages/HaywardFaultFactSheet.aspx. May 21, 2013.

SECTION 9.3 FLOOD HAZARDS

Introduction

This section summarizes and analyzes available information related to flood hazards in the City of Hayward and the regulatory environment that guides local, regional, and Federal policy implementation. Information and data presented here is taken primarily from the 2010 Local Hazard Mitigation Plan City of Hayward Annex Document, the Association of Bay Area Government's Earthquakes and Hazards Program, and Federal Emergency Management Agency resources.

Major Findings

- Roughly 14 percent of the city's 21,760 acres of urban land is located within the 100-year flood plain, compared to 6.4 percent of all urban land in the Bay Area. The Association of Bay Area Governments (ABAG) reports that 10.4 percent of total residential land (5,642 acres as of 2005), including mixed-use residential/commercial, is located within the 100-year floodplain, and roughly 3.6 percent is located within the 500-year floodplain.
- The marsh and salt evaporation ponds adjacent to San Francisco Bay comprise the majority of the area in the 100-year flood zone. For planning purposes the City does not consider this land to be urban land, as most of it is under Federal control and will not be developed in the future.
- Hayward is served by a system of municipal storm drains, most of which are managed by the Alameda County Flood Control and Water Conservation District. The District designs and constructs drainage facilities to meet existing and projected flood control needs. The City of Hayward provides local storm drains, which enter the District system and ultimately San Francisco Bay.
- While the city does not contain dams or open reservoirs, the potential for water inundation as a result of upstream dam or inundation failure exists, based on the ABAG Dam Failure Inundation Areas map (1995). According to ABAG approximately 16 percent of Hayward's residential land is located in a dam inundation area. Areas in the city most likely to be inundated by water rise from a tsunami include marshlands, tidal flats, and former bay margin lands. There are no published maps or hazard information on seiche hazards in the Bay Area.
- The City has a number of flood-related plans and regulations in place, most notably, the Multi-Jurisdictional Local Hazard Mitigation Plan (adopted by the City in October 2011), and the City of Hayward Flood Plain Management Ordinance (Chapter 9, Article 4, adopted September 23, 2008). The Alameda County Flood Control and Water Conservation District Permit Ordinance prohibits access or trespass into Alameda County Flood Control and Water Conservation District right-of-way without first obtaining the appropriate permit.

Existing Conditions

Second only to fire, floods are the most common and widespread of all natural disasters in the United States. Though there are no available records of flood-related deaths in Hayward, flooding has caused the deaths of more than 10,000 people nationwide since 1900 and for the past 30 years have averaged 95 deaths nationwide per year. Property damage from flooding now totals over $1 billion each year in the

United States. In California frequent winter storms from January to March, 1995 (upwards of 20 to 70 inches of rainfall in some areas) produced periodic flooding across much of the state. There were 27 deaths, and estimated damages totaled $3.0 billion. Barely two years later, torrential rains in the winter of 1996-1997 caused flooding along the west coast, including portions of California, and resulted in 36 deaths and total estimated damages of approximately $3.0 billion. Flooding associated with severe storms has been among the most common disaster in the Bay Area during the period from 1950 to 2010, occurring on average 1.3 times a year over the past 60 years. Severe weather events, including the El Niño storm events of 1986 and 1997, wrought extensive property damage, and loss of life, to communities throughout Northern California.

The potential for flooding is real, and the consequences of and loss resulting from flood events can be serious. At the same time, commonly applied development standards and mitigation strategies to minimize flood risk and impact exist; Hayward has adopted many of these as part of its own flood management policy framework. The findings of fact presented in the City's Flood Plain Management ordinance succinctly characterize local flood hazards at a high level:

> "The flood hazard areas of the city of Hayward are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which can adversely affect the public health, safety, and general welfare. Such flood losses are caused by uses which are inadequately elevated, flood-proofed, or protected from flood damage and by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and contribute to the flood loss (Article 4 Section 9-4.01)."

The following section provides an overview of flood threats and hazards to serve as a reference over the course of the General Plan environmental review and update process.

Flood Hazards in Hayward

Overview of the Flood Management System

The city of Hayward is served by a system of municipal storm drains, most of which are governed by the Alameda County Flood Control and Water Conservation District (ACFC&WCD) Zones 3A and 4. ACFC&WCD designs and constructs drainage facilities to meet existing and projected flood control needs. The City of Hayward provides local storm drains, generally located within local streets and easements, which, ultimately, enter the ACFC&WCD system. All city stormwater ultimately enters the San Francisco Bay.

Levees along the Hayward Regional Shoreline in Hayward and San Lorenzo were originally built to create land for salt production, and were subsequently maintained to protect the area from possible storm surge flooding. Today, as part of the South Bay Salt Pond Restoration Project, the Alameda County Flood Control and Water Conservation District and partners are working to transform 5,500-acres of salt ponds at Eden Landing. The salt ponds will be removed by deconstructing the dikes and levees that separated the ponds from San Francisco Bay.

Areas and Facilities Subject to Flooding

According to the Association of Bay Area Governments (ABAG), approximately 10.4 percent of the city's urban land is located within the 100-year flood plain, and approximately 3.6 percent is located within the 500-year floodplain. In comparison, ABAG reports that of all urban land in the Bay Area roughly 6.4 percent and 10.7 percent is located in the 100-year and 500-year flood zones, respectively.

Areas in the city potentially subject to flooding in the event of a 100-year flood include various low-lying areas and areas adjacent to creek channels, as mapped by the Federal Emergency Management Agency (FEMA). The marsh and salt evaporation ponds adjacent to the San Francisco Bay comprise the majority of the area in the 100-year flood zone. FEMA maps indicate that certain portions of the industrial corridor are subject to flooding. As indicated in the City's 2010 Local Hazard Mitigation Plan (LHMP) Annex Document, approximately 4 percent of total city roadways are located within the 100-year floodplain, and approximately 12 percent are located within the 500-year floodplain.

ABAG conducted a detailed assessment of the hazard exposure of Hayward's schools and critical health care facilities. In addition to flood hazards, this assessment included facilities susceptible to earthquake shaking, liquefaction, faulting, wildfires, landslides, dam inundation, sea level rise, tsunamis and drought. These numbers are presented in the City's 2010 Local Hazard Mitigation Plan (LHMP) Annex Document. ABAG found that, as of 2010, six of the city's 51 schools and four of its 74 critical facilities were located within the 500-year floodplain. No hospitals, schools, or locally-owned critical facilities were identified within the 100-year floodplain. Per data outlined in the LHMP Annex document, a number of schools, facilities, and locally owned bridges and interchanges may be at risk to dam inundation; only one locally owned facility is located in a potential tsunami inundation area.

As part of the National Flood Insurance Program (NFIP), FEMA keeps data on repetitive loss properties. According to ABAG 2011 Repetitive Flood Loss Property Data, there is one residential property in the city that is located outside an identified flood plain that has sustained repetitive loss.

FEMA Flood Zones

The City of Hayward has participated in the NFIP since March 1980. FEMA's Flood Insurance Rate Maps (FIRMs) are the basis for the establishing premium rates for flood coverage offered through the NFIP.

Figure 9-4 presents FEMA flood zones in Hayward. This map is based on the updated and improved FEMA digital Flood Insurance Rate Maps (D-FIRMs) released in 2009. The primary risk classifications used are the 100-year flood event (i.e., one-percent-annual-chance flood event), the 500-year flood event (0.2-percent-annual-chance flood event), and areas of minimal flood risk. FIRMs identify a series of Special Flood Hazard Areas (SFHAs); FEMA provides technical guidance for managing floodplain development within each SFHA.

FEMA Zone A areas are areas subject to inundation by the 100-year flood event, (1-percent-annual-chance flood event), generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Zone AE replaces Zone A1-30 on new format FIRMs; they are also areas subject to inundation by the 100-year flood event, though boundaries for these zones have been determined using detailed methods and BFEs are provided. Other FEMA-determined high risk areas include Zones AH, AO, AR, and A99. Definitions and management guidance for all SFHAs are accessible online (http://www.fema.gov/national-flood-insurance-program-2/flood-zones).

Floodway areas are channels of a river or other watercourse, and the land areas adjacent to them that must be reserved in case of a flood. They can be extremely hazardous areas due to the potential velocity of flood waters, which can carry debris and potential projectiles, as well as erosion potential. Special City provisions for construction and improvements located in or near a floodway area are listed in the Flood Plain Management Ordinance (Chapter 9, Article 4, Section 9-4.160--Floodways).

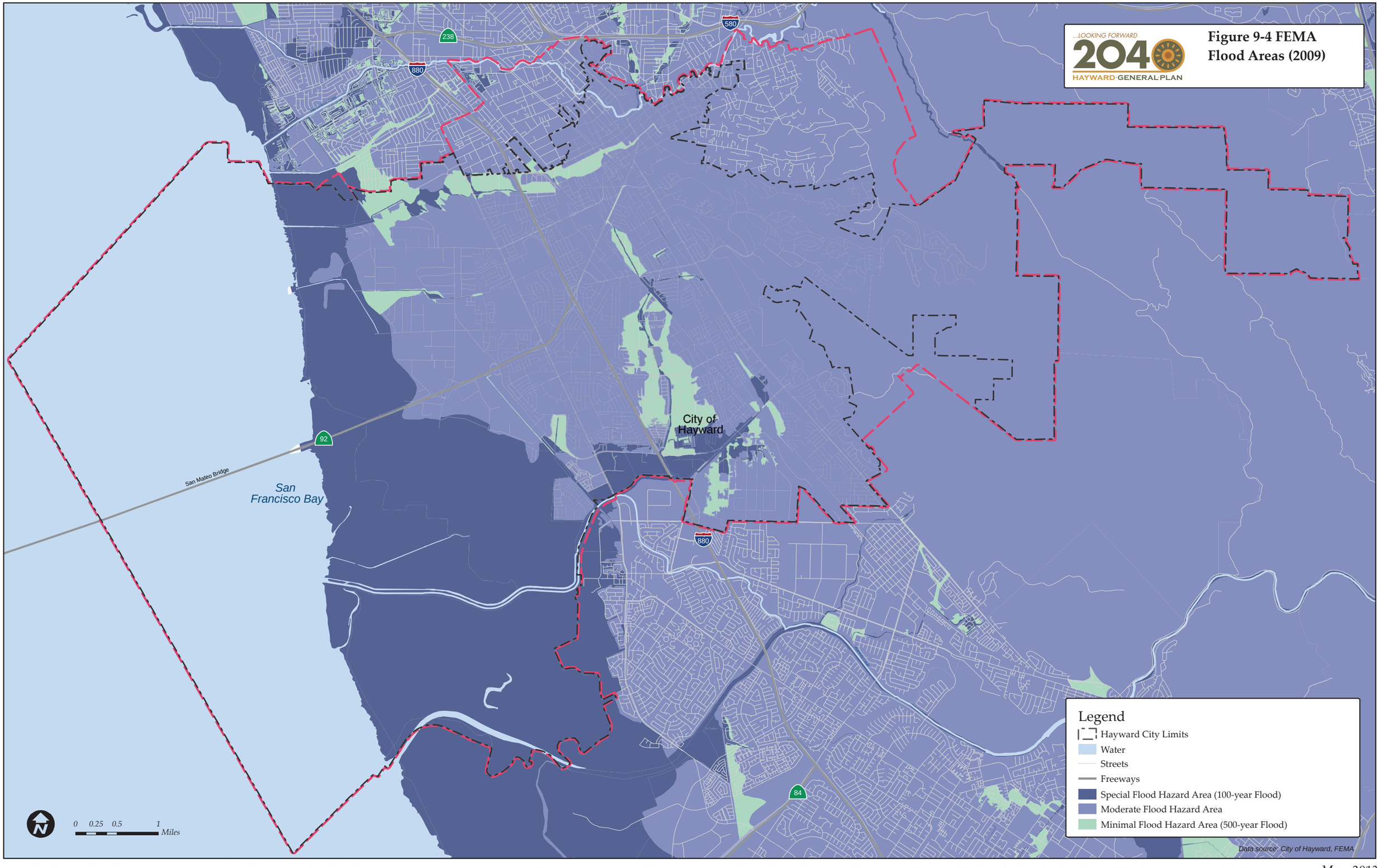
Dam and Water Inundation Areas

Water inundation is a hazard associated with earthquakes that may result from dam failure or a tsunami. While the city does not contain dams or open reservoirs, the potential for water inundation as a result of upstream dam or inundation failure exists, as indicated on the ABAG Dam Failure Inundation Areas map (ABAG, 1995). The South Reservoir in Castro Valley, shown on the ABAG map, has recently been emptied in anticipation of demolition scheduled for Fall 2013 as part of the East Bay Municipal Utility District's South Reservoir Replacement Project. The original embankment dam reservoir will be replaced by a new pre-stressed concrete tank within the existing reservoir basin, designed to perform up to industry standards during a seismic event. Inundation resulting from failure of dams along Alameda Creek would be limited to the shoreline salt evaporation ponds located south of Old Alameda Creek.

Tables 9.3-1 and 9.3-2 below present the total acreage of existing land uses and the total mileage of existing city infrastructure located in dam inundation areas.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-4 FEMA Flood Areas (2009)



Note: The Special Flood Hazard Area is defined by FEMA as the Base Flood Area and inlcudes all areas within a 100-year flood instance. SFHAs include the FEMA Flood Zones A, AO, AH, A1-A30, AE, A99, AR, AR/AE, AR/AO, AR/A1-A30, AR/A, V, VE, and V1-V30. Moderate Flood Hazard Areas, between the 100 year and 500 year limits, include Zone X. Areas of Minimal Flood Hazard include areas higher than the elevation of the 0.2-percent-annual-chance flood, difine the 500-year flood area and inlcude Zone C.

May, 2013

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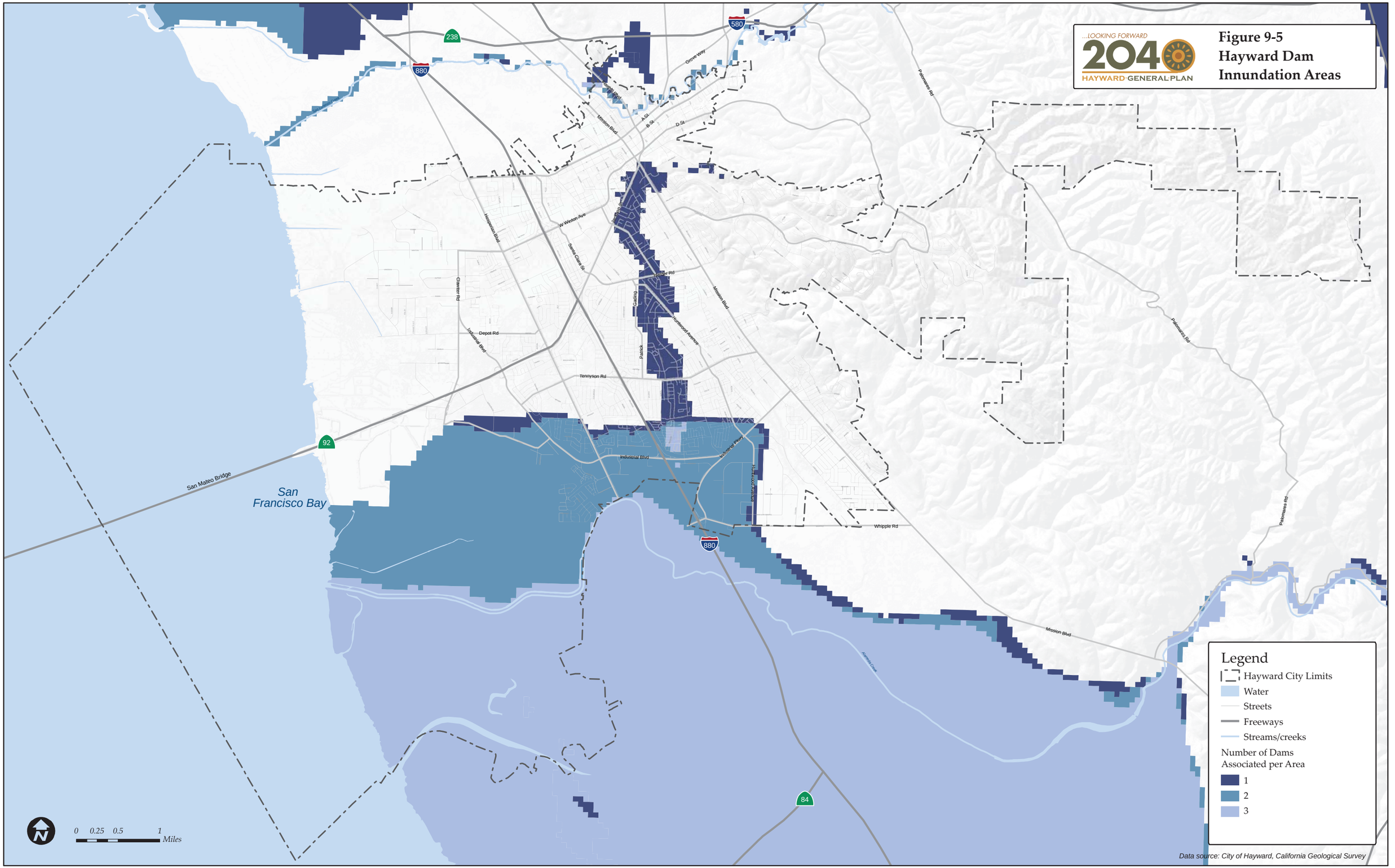
Figure 9-5
Hayward Dam Innundation Areas



Data source: City of Hayward, California Geological Survey

January, 2013

TABLE 9-2
EXISTING LAND USES WITHIN DAM INUNDATION AREAS, 2005, USING 2009 HAZARD MAPPING
Hayward, California

Land Use	Total Acres	Within Dam Inundation Area
Residential Land (excluding mixed use)	5,629	949
Mixed Residential/Commercial	13	1
Mixed Commercial/Industrial	180	64
Industrial (excluding mixed)	2,763	708
Commercial – Retail/Wholesale	1,002	165
Commercial – Research/Office	147	18
Education Services	764	37
Hospitals and Health Care Services	46	2
Urban Open (i.e., parks, golf courses, vacant undeveloped, etc.)	4,088	1,737
Range Land (i.e., shrub and brush, mixed range, etc.)	2,905	232
Wetlands	5,733	4,333
Forest Land	1,731	16
Total[1]	**25,001**	**8,262**

[1]Totals presented here do not add up to ABAG's grand totals for the city, as this table presents select land use categories and does not include all categories inventoried by ABAG.
Source: Association of Bay Area Governments, 2009.

TABLE 9-3
EXISTING INFRASTRUCTURE WITHIN DAM INUNDATION AREAS
Hayward, California

Infrastructure	Total Miles	Within Dam Inundation Area
Roads	436	76
Transit	12	1
Rail	28	6
Pipelines	362	68
Total	**838**	**175**

Source: Association of Bay Area Governments, 2009.

The Bay Area does not have a notable history of tsunami occurrences. In 1859 a tsunami generated by an earthquake in Northern California generated 4.6 m wave heights near Half Moon Bay. The Great 1868 earthquake on the Hayward fault is reported to have created a local tsunami in the San Francisco Bay. However, damage from all of these tsunamis has been virtually non-existent and data are extremely limited. Areas in the city most likely to be inundated by water rise from a tsunami include marshlands, tidal flats, and former bay margin lands.

There are no published maps or hazard information on seiche hazards in the Bay Area. A minor rise in the Bay resulting from climate change is anticipated, and analysis indicates effects would likely occur in the same areas of the city that would be affected by a tsunami. Climate change impacts are discussed in more detail in Section 9.6.

Regulatory Setting

This section outlines and briefly summarizes the various Federal, State, and regional laws and regulatory policies related to flood management, protection, and control. It also briefly describes key regulatory actors.

Federal

National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973. In response to increasing losses from flood hazards nationwide, the Congress of the United States passed the National Flood Insurance Act of 1968, which established the National Flood Insurance Program (NFIP). The 1968 Act provided for the availability of flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas.

As a result of the 1972 Hurricane Agnes flooding along the East coast, the 1968 Act was expanded by the Flood Disaster Protection Act of 1973. The 1973 Act added the mandatory flood insurance purchase requirement and increased the awareness of floodplain mapping needs throughout the country. The responsibility for administration of the NFIP falls with the Federal Insurance Administration of the Federal Emergency Management Agency (FEMA).

National Flood Insurance Program. FEMA's National Flood Insurance Program (NFIP) provides insurance to homeowners in declared flood areas. The NFIP was established by the 1968 Act and provided for the availability of flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas. On July 6, 2012, President Obama signed the Biggert-Waters Flood Insurance Reform Act of 2012, extending the NFIP's authority through September 30, 2017.

Federal Emergency Management Agency (FEMA). Using the results of flood insurance studies required by the 1973 Act, FEMA prepares Flood Insurance Rate Maps (FIRMs) that depict the spatial extent of Special Flood Hazard Areas (SFHAs) and other features related to flood risk assessment. FEMA is responsible for maintaining the FIRMs as communities grow, and as new or better scientific and technical data concerning flood risks becomes available.

The Federal Disaster Mitigation Act of 2000. The Federal Disaster Mitigation Act of 2000 seeks to "reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters; and to provide a source of pre-disaster hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster." The Disaster Mitigation Act outlines a process for the development of Local Hazard Mitigation Plans (LHMP) on the part of cities, counties and special district governments. Development of an LHMP is required to be eligible to receive certain benefits from FEMA and the California Emergency Management Agency (CalEMA).

Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10). For FEMA to continue to accredit Hayward levees with providing protection from the base flood, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems." On August 22, 2005, FEMA issued "Procedure Memorandum No. 34 - Interim Guidance for Studies Including Levees." The purpose of the memorandum was to help clarify the responsibility of community officials seeking recognition of a levee by providing information identified during a study/mapping project. Often, documentation regarding levee design, accreditation, and the impacts on flood hazard mapping is outdated or missing altogether. To remedy this, Procedure Memorandum No. 34 provides interim guidance on procedures to minimize delays in near-term studies/mapping projects, to help our mapping partners properly assess how to handle levee mapping issues.

Local

Multi-Jurisdictional-Local Hazard Mitigation Plan (MJ-LHMP). The goal of the Association of Bay Area Government's (ABAG) MJ-LHMP is to maintain and enhance a disaster-resistant region by reducing the potential for loss and damage resulting from natural disasters, including flooding. The purpose of the MJ-LHMP is to serve as a catalyst for dialogue on public policies needed to mitigate the effects of natural hazards that affect the San Francisco Bay Area. The plan includes a number of hazard mitigation strategies, including strategies specifically related to flood hazard mitigation.

In 2010 the City of Hayward adopted the MJ-LHMP as its Local Hazard Mitigation Plan and adopted the City's Annex document as part of its General Plan. The Annex Document includes discussion and analysis specific to Hayward, as well as a number of mitigation strategies (many specific to flood events). Adoption of the MJ-LHMP allows the State to waive Hayward's match requirement associated with public assistance damage reimbursement. It also ensures the city's eligibility in the FEMA's Hazard Mitigation Grant Program and Pre-Disaster Mitigation, and its continued eligibility for Severe Repetitive Loss and Flood Mitigation Assistance flood grants.

Alameda County Flood Control and Water Conservation District Permit Ordinance. This permit ordinance prohibits access or trespass into Alameda County Flood Control and Water Conservation District right-of-way without first obtaining the appropriate encroachment permit. The ordinance establishes the rules covering the issuance of the permits required by the District's ordinance.

City of Hayward Flood Plain Management Ordinance (Article 4 of Chapter 9 of the Hayward Municipal Code). In 1981 the City Council adopted the Flood Plain Management Ordinance. In 2008 the City Council adopted the revised Flood Plain Management Ordinance that meets current FEMA requirements. The City Flood Plain Management Ordinance is intended to establish regulations consistent with Federal and State requirements and set development standards and restrictions for

publicly and privately owned land within flood prone, mudslide, or flood related erosion areas. The Ordinance requires the City to participate in the NFIP.

The Flood Plain Administrator for the City of Hayward, the City Engineer, is responsible for making determinations in accordance with the Flood Plain Management Ordinance. Responsibilities include ensuring that development applications comply with ordinance requirements, that required State and Federal permits have been obtained, that a proposed development site is reasonably safe from flooding, that the proposed development does not adversely affect area carrying capacity, and that building permits for flood control projects meet requirements.

Key Terms

The following key terms used in this chapter are defined as follows:

100-Year Flood Event. A 100-year flood is an event that would occur on average every 100 years, or that has a one percent probability of occurring in any given year.

500-Year Flood Event. A 500-year flood is an event that would occur on average every 500 years, or that has a 0.2 percent chance of occurring in any given year.

Base Flood. Base flood means a flood having a one percent chance of being equaled or exceeded in any given year. This term is synonymous with the term "100-year flood". Base flood is the term used throughout the City's floodplain management ordinance.

Base flood elevation (BFE). Base flood elevation refers to the elevation shown on the Flood Insurance Rate Maps that indicate the water surface elevation resulting from a flood that has a one-percent or greater chance of being equaled or exceeded in any given year.

Flood Insurance Rate Map (FIRM). The FIRM is the basis for floodplain management, mitigation, and insurance activities of the National Flood Insurance Program (NFIP). Uses of the FIRM for insurance activities include enforcement of the mandatory purchase requirement of the 1973 Act. The risk zones shown on the FIRMs are the basis for the establishment of premium rates for flood coverage offered through the NFIP. At present, FIRMs have been published for virtually all communities in the nation having flood risks.

Floodway. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. This term is synonymous with the term "regulatory floodway."

Repetitive Loss Property. Repetitive Loss Properties are properties that have submitted claims for flood reimbursement at least twice in the last 10 years under the National Flood Insurance Program.

Special Flood Hazard Areas (SFHAs). SFHAs are areas subject to inundation by a flood having a one-percent or greater probability of being equaled or exceeded during any given year. This flood, which is referred to as the 1 percent annual chance flood (or base flood), is the national standard on which the floodplain management and insurance requirements of the NFIP are based.

Bibliography

Reports/Publications

Association of Bay Area Governments (ABAG). Multi-Jurisdictional Local Hazard Mitigation Plan (MJ-LHMP) Appendix C: Natural Hazard Risk Assessment. 2010.

Hayward, City of. Annex to 2010 Association of Bay Area Governments Local hazard Mitigation Plan *Taming Natural Disasters.* August 24, 2011.

Hayward, City of. Memo re. Adoption of the Association of Bay Area Governments' (ABAG's) Multi-Jurisdictional-Local Hazard Mitigation Plan ("Taming Natural Disasters") as the City of Hayward's Local Hazard Mitigation Plan, and Approval of Amendments to the Conservation and Environmental Protection Element of the General Plan Associated with the City of Hayward's Annex Document to ABAG's Plan (General Plan Amendment No. PL-2011-0301). Director of Development Services. October 25, 2011.

Hayward, City of. Resolution Adopting ABAG's 2010 Multi-Jurisdictional Local Hazard Mitigation Plan *(abbrev)*. October 25, 2011.

Websites

Association of Bay Area Governments (ABAG) Earthquakes and Hazards Program. Flood Maps and Information. http://quake.abag.ca.gov/floods/. Accessed January 3, 2013.

ABAG Earthquake and Hazards Program. Land Use and Infrastructure in Hazard Areas. http://quake.abag.ca.gov/mitigation/landuse/. Accessed January 4, 2013.

Alameda County Flood Control and Water Conservation District. Laws and Regulations. http://acfloodcontrol.org/floodplain-management/laws-and-regulations. Accessed January 3, 2013.

Alameda County Public Works Agency. Ordinances and Policies. http://www.acgov.org/pwa/about/construction/land/permits/ordinance.htm. Accessed January 3, 2013.

City of Hayward. Access Hayward: Floodplain Administration. http://user.govoutreach.com/hayward/. Accessed January 3, 2013.

Federal Emergency Management Agency (FEMA). Alameda County, California Digital Flood Insurance Rate Map Database, Alameda County, California. Published August 3, 2009(?).

Federal Emergency Management Agency (FEMA). http://www.fema.gov/. Accessed January 3, 2013.

FEMA Map Service Center. https://msc.fema.gov/. Accessed January 3, 2013.

SECTION 9.4 AIRPORT HAZARDS

Introduction

This section summarizes existing information related to potential airport hazards and safety issues for people and property within the overflight zones of Hayward Executive Airport (HWA) and Oakland International Airport (OAK). The concept of risk is central to the assessment of airport safety in Hayward, as the location, time, and consequences of an aircraft accident cannot be predicted. The objective of air safety planning is to minimize the risks associated with a potential airport accident that would harm people and property on the ground or the occupants of the aircraft. In addition to discuss airport hazards and safety, this section also summarizes the various agencies that regulate airport operations at the Federal, State, regional, and local level. (Note: see Section 2.9 for information about aviation transportation services, and Section 9.7 for information about airport-related noise issues).

Major Findings

- Portions of the General Plan Planning Area are located within the influence area zones of both Hayward Executive Airport and Oakland International Airport (OAK). However, only the Hayward Executive Airport has defined Overflight Safety Zones within the Planning Area. These zones identify areas of potential hazard from aircraft takeoff and landings, and cover a wide portion of southwestern Hayward.
- The basic strategy for minimizing risks to people on the ground near airports is to limit the number of people who might gather in areas most susceptible to potential aircraft accidents by prohibiting/limiting certain non-compatible land uses. This generally includes limiting: buildings that serve people with limited mobility (e.g., children's schools, hospitals, nursing homes); sensitive industrial uses; residential uses; public uses; and uses that process/store hazardous or flammable materials (e.g., oil refineries, chemical plants).
- While the potential for aircraft crash hazards within the Planning Area is low, any such incident could result in a substantial hazard to people and property in Hayward. This is due to the location of Hayward Executive Airport near many existing industrial, commercial, and residential neighborhoods in the southwestern portion of the city.

Existing Conditions

Both the Hayward Executive Airport (HWA) and the Oakland International Airport (OAK) have FAA adopted influence area zones that cover some portion of the General Plan Planning Area (Figure 9-6). As such, operations at these airports pose a potential safety risk for people and property in Hayward. The concept of risk is central to the assessment of airport safety, as the location, time, and consequences of an aircraft accident cannot be predicted. The objective of air safety planning is to minimize the risks associated with a potential airport accident that would harm people and property on the ground or the occupants of the aircraft.

There are three main components of aircraft accident risk: the spatial distribution of accidents relative to airport runways; the frequency of accident occurrence; and the potential consequences of an accident. These components vary depending upon the types of aircraft that use a runway, the types of flight procedures available, other airport characteristics, and the nature of land uses surrounding an airport.

The basic strategy for minimizing risks to people on the ground near airports is to limit the number of people who might gather in areas most susceptible to potential aircraft accidents. For example, certain land uses represent special safety concerns regardless of the number of people associated with those uses. These particularly include uses where occupants have reduced effective mobility or are unable to respond to emergency situations, such as schools, hospitals, nursing homes, and other similar uses where the majority of occupants are children, elderly, or disabled. Other types of land use sensitive to airport risks include an industrial, residential or public uses where the consequences of an accident will affect a wide geographical area. The third category of risks sensitive land uses is those that process or store hazardous materials (e.g., oil refineries, chemical plants). Materials that are flammable, explosive, corrosive, or toxic pose special safety compatibility concerns to the extent that an aircraft accident could cause release of the materials, and thereby pose dangers to people and property in the vicinity.

The principal means of minimizing hazards to occupants of aircraft is to preclude land use features that create physical, visual, or electronic hazards to flight, or cause a loss in airport utility. Airspace protection includes several different land use characteristics, such as limitations on the height of structures, lighting features, smoke or glare generation, attractiveness to birds, adverse effects on runway approach, and other operational restrictions.

The following is a summary of the characteristics and potential safety risks of the two airports within the Planning Area. This section also includes a brief discussion of the one private aviation facility in the Planning Area, which is a helipad located at Saint Rose Hospital (Note: see Section 2.9 for information about aviation transportation services, and Section 9.7 for information about airport-related noise issues).

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...LOOKING FORWARD
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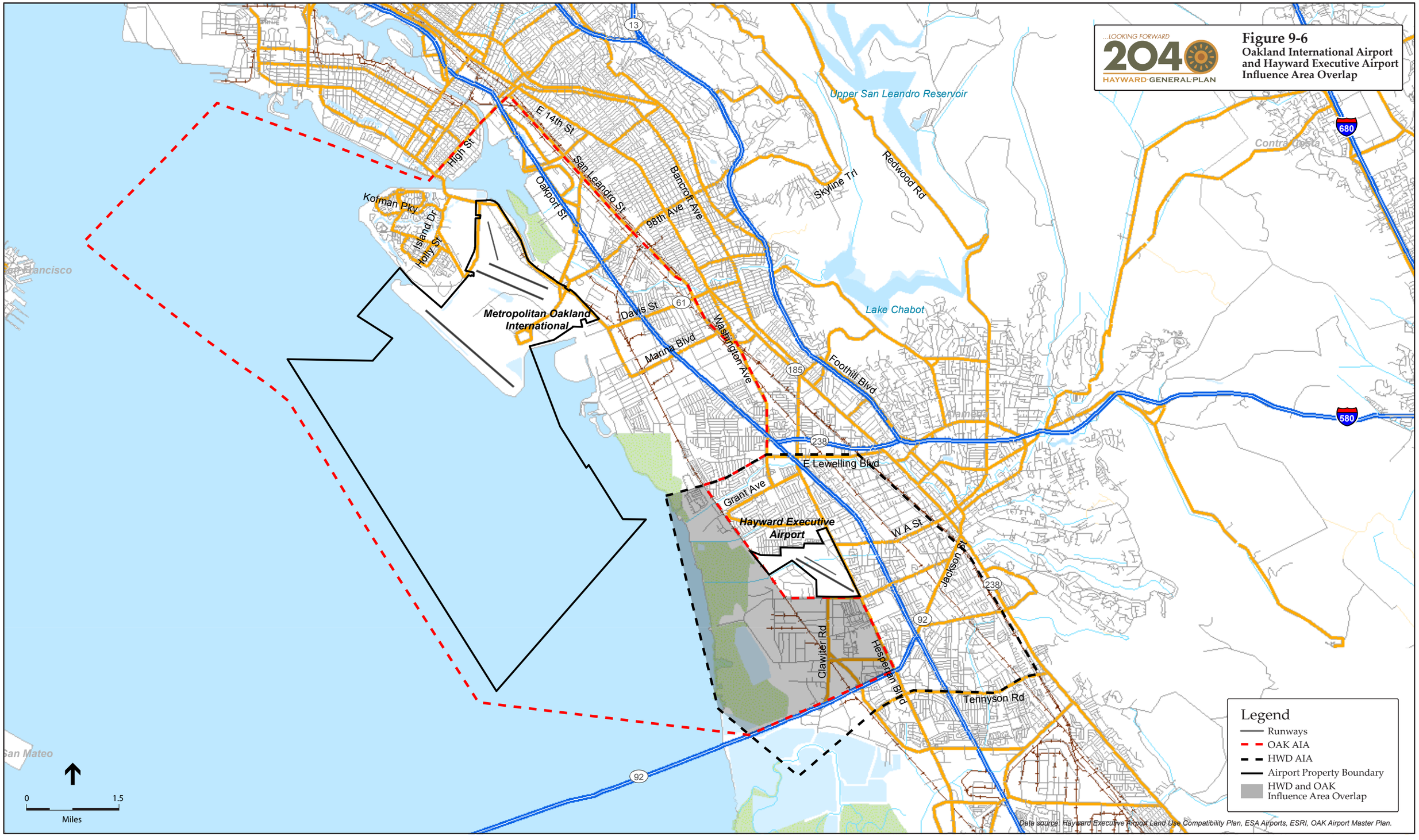
HAYWARD GENERAL PLAN

Figure 9-6
Oakland International Airport and Hayward Executive Airport Influence Area Overlap



January, 2013

Oakland International Airport Overview

Oakland International Airport (OAK) is located in at the southwestern edge of the City of Oakland. Construction of OAK began in June of 1927; part of which included the building of a 7,020 foot runway, the longest in the world for its day. Over the next 15 years leading up to World War II, multiple additions were made to the airport, including five hangars, passenger terminal/administrative offices, and a restaurant. During World War II, Oakland Municipal Airport was used as the marshalling point for all planes bound for the U.S. forces in the Pacific. In 1945 a parallel 6,200-foot east-west runway was constructed.

After World War II, OAK was returned to the Port of Oakland. In 1960 construction began on a new 10,000 foot jet runway and facilities complex south of the OAK's existing facilities. The new 600-acre complex would consist of a passenger terminal topped by a ten-story control tower, a separate air cargo building, and a jet hangar. In 1962 the new OAK facilities opened to the public. Since all the renovation in the 1960s, OAK has continued to grow, establishing itself as an important transportation and economic resource in the Bay Area. A second passenger terminal was completed in 1985 and expanded in 2007. OAK handled 14.5 million passengers and nearly 700,000 tons of air cargo in 2007.

Adjacent Land Uses

Because OAK is a major urban airport, there are many different adjacent land uses. This includes residential, commercial and industrial neighborhoods of Alameda, Oakland, San Leandro, and unincorporated Alameda County. While the airport is not within Hayward city limits, portions of the influence area zones do cover parts of the Planning Area. This includes some single-family residential, commercial, and planned development uses in Hayward.

Hayward Executive Airport Overview

Hayward Executive Airport (HWD) is located on the west side of Hayward, and is owned and operated by the City of Hayward as a division of the Public Works Department. All airport facilities are located within the city limits.

The U.S. Army constructed Hayward Army Airfield in 1942 as a fighter base during World War II. In 1946 the Federal government declared the airport as "surplus property" and transferred the property to the City of Hayward in 1947 when it became known as Hayward Municipal Airport. From 1947 to 1962 the facility was expanded to include an administration building, control tower, and 20 additional acres bringing the total airport property to 710 acres. In 1962, the City Council adopted the first airport layout and land use plan for Hayward Municipal Airport.

Over the next 40 years the demand on Hayward Municipal Airport as a general aviation facility increased, and the surrounding population also grew. The airport reached its peak in 1978 with 421,048 operations, making it one of the busiest general aviation airports in the country. Operations have decreased since that time, and HWD's operations in 2009 totaled 132,000. In 1999, the name of the facility changed to Hayward Executive Airport.

Adjacent Land Uses

Land uses in the vicinity of HWD include industrial, commercial, residential and recreational uses. Industrial land uses predominate west and southwest of the airport. To the northwest is residential San

Lorenzo, which is a part of the Eden Planning Area. Commercial and residential uses are located east and south of the airport along West A Street, Hesperian Boulevard, and Southland Drive. Beyond the industrial areas to the west are natural areas and the San Francisco Bay. The Skywest Golf Course and John F. Kennedy Memorial Park are located along the northern boundary of the airport on airport property. Beyond San Lorenzo and the Eden Planning Area is the city of San Leandro. Northwest of the San Lorenzo Creek, the boundary between San Lorenzo and the City of San Leandro, are the residential neighborhoods of Manor and Bonaire.

In addition, the Longwood-Winton Grove residential neighborhood is located east of Hesperian Boulevard and north of Winton Avenue. Additional residential land uses, referred to as the Southgate neighborhood, are located east of Hesperian Boulevard and south of Winton Avenue. The Mount Eden neighborhood, located west of Hesperian Boulevard and south of West Winton Avenue, includes a mobile home park known as Eden Gardens Estates and other residential uses south of the mobile home park.

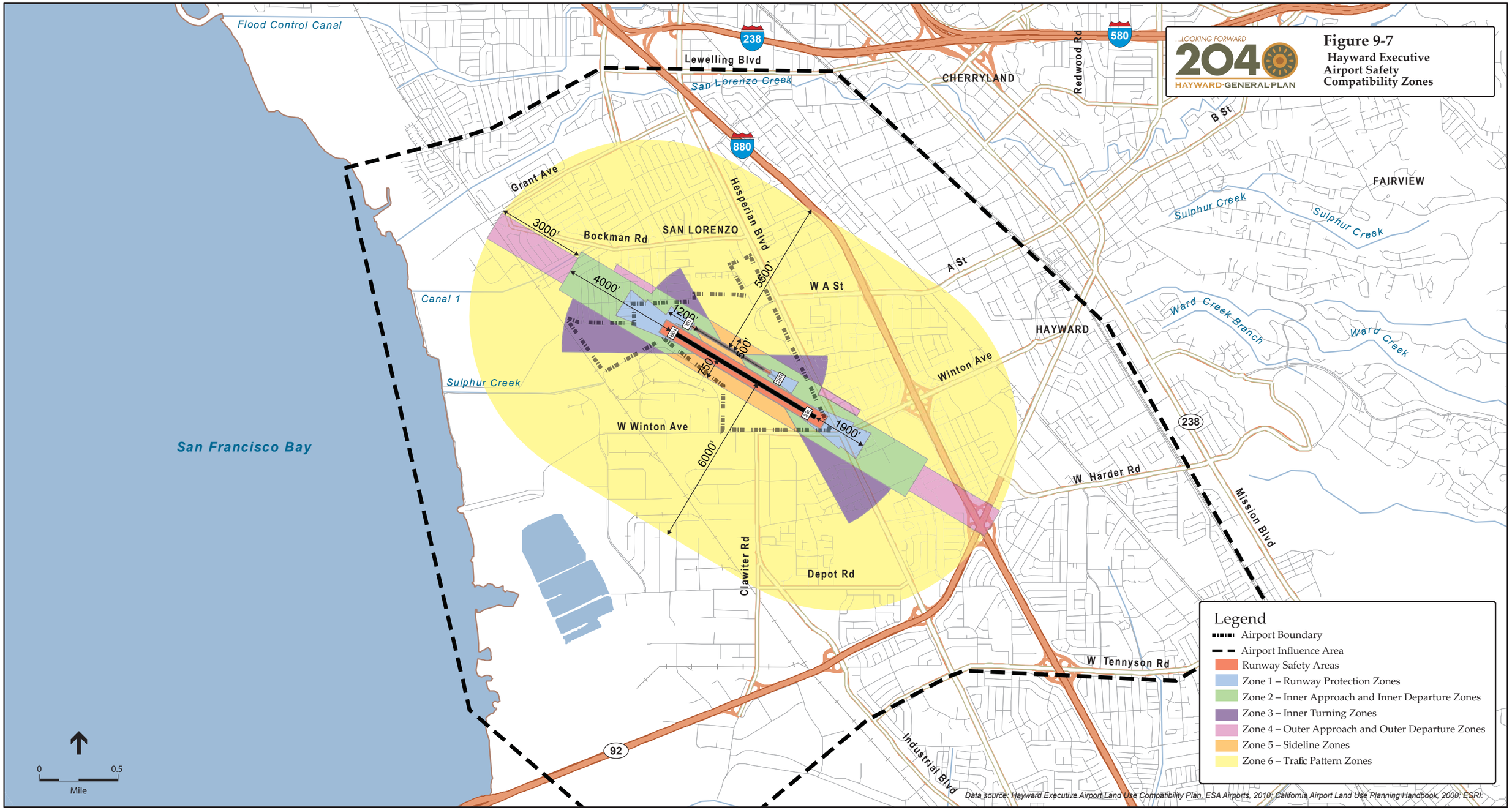
Safety Compatibility Zones

To depict the relative risks of aircraft accidents, the California Airport Land Use Planning Handbook provides guidance for developing Safety Compatibility Zones and the risk contours upon which they are based. The risk contours are derived from the accident location database described in the Handbook and show the relative concentrations of accidents near the ends of runways of different lengths. These zones are developed using this data and are created for varying runway lengths and operational characteristics, while at the same time taking into account aeronautical factors that affect where aircraft accidents are most likely to occur. While the Oakland International Airport does have an influence area that extends into the Planning Area, it does not have any Safety Compatibility Zones within Hayward. Only the Hayward Executive Airport has Safety Compatibility Zones in the Planning Area.

A total of seven different safety zones are shown in Figure 9-7 for the Hayward Executive Airport. The choice of safety zone criteria appropriate for a particular zone is primarily a function of risk acceptability. For example, some land uses represent intolerable risks when located near aircraft operation areas and are prohibited (e.g., schools and hospitals). Where the risks associated with a particular land use are considered significant but tolerable, restrictions may be established to reduce the risk.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-7
Hayward Executive Airport Safety Compatibility Zones



Data source: Hayward Executive Airport Land Use Compatibility Plan, ESA Airports, 2010; California Airport Land Use Planning Handbook, 2000; ESRI.

Note: All dimensional lines depicted are in feet.

January, 2013

Other Aviation Facilities

There are no private airstrips within the vicinity of the Planning Area. However, Saint Rose Hospital does include a private helicopter pad that is used at variable times to transport emergency medical patients. This facility does not need an operating permit from the California Department of Transportation. Few safety compatibility guidelines and standards exist for these types of facilities and safety compatibility concerns are primarily addressed through the City's permit process.

Regulatory Setting

Federal

Federal Aviation Regulations (FAR). Federal Aviation Regulations (FAR) are rules prescribed by the Federal Aviation Administration (FAA) governing all aviation activities in the United States. FARs are part of Title 14 of the Code of Federal Regulations (CFR). A wide variety of activities are regulated, such as airplane design and manufacturing, how aircraft are flown, pilot training activities, hot air ballooning, and obstruction lighting and marking. The rules are designed to promote safe aviation to protect pilots, passengers, and the general public from unnecessary risk.

Part 77, Federal Aviation Regulation. Part 77 of the FAR, Objects Affecting Navigable Airspace, establishes standards for determining obstructions to navigable airspace, and the effects of such obstructions on the safe and efficient use of that airspace. The regulations require that the FAA be notified of proposed construction or alteration of objects—whether permanent, temporary, or of natural growth—if those objects would be of a height that exceeds the FAR Part 77 criteria. The height limits are defined in terms of imaginary surfaces in the airspace extending from two to three miles around airport runways and approximately 9.5 miles from the ends of runways with a precision instrument approach.

Section 44718(d), 49 United States Government Code. This section prohibits new "municipal solid waste landfills" within six miles of airports that receive FAA grants, and that primarily serves general aviation aircraft and scheduled air carrier operations using aircraft with less than 60 passenger seats. A landfill can only be built within six miles of this class of airport if the FAA concludes that its construction and operation would have no adverse effect on aviation safety.

Federal Aviation Administration. The FAA's Airport Safety Program ensures that public-use airports are operated in a safe and efficient manner. The FAA Airport Safety and Operations Division has primary responsibility for the safety and certification of airports and aircraft. The FAA establishes and enforces standards, specifications, and recommendations for the safe operation and design of commercial and general aviation airports. For example, the FAA prepares Advisory Circulars (AC) for airport facilities that provide recommendations for airport design, describe acceptable requirements to develop airports, and establish standards for determining when man-made objects are an obstruction to air navigation. AC applies to all applicants proposing to construct or activate an airport or a heliport.

Land use safety compatibility guidance from the FAA is limited to the immediate vicinity of the runway, the runway protection zones at each end of the runway, and the protection of navigable airspace. Additionally, the FAA criteria apply only to property controlled by the airport proprietor. The FAA has no authority over off-airport land uses; its role focuses on the safety of aircraft operations. The FAA's only leverage in promoting compatible land use planning is through grant assurances, which airport proprietors must sign in order to obtain Federal funding for airport improvements.

The Federal requirement that notification be submitted to the FAA prior to construction is the principal strategy of mitigating hazards within the vicinity of an airport. In accordance with FAR Part 77, the FAA conducts an aeronautical study of proposed construction and determines whether the use would be a hazard to air navigation. The evaluation considers only the height of a proposed structure. The FAA may recommend removal, marking, or lighting the obstruction(s). In addition, FAR Part 157, Notice of Construction, Alteration, Activation and Deactivation of Airports require any entity that intends to construct or establish a new airport or heliport to submit an FAA Form 7480-1 to the FAA at least 90 days prior to construction. This triggers the FAA to issue an "Airspace Determination" based on the safe and efficient use of airspace, existing and contemplated traffic patterns, airspace structure, and effects on man-made objects and terrain within an airport facility.

The FAA also provides advice on avoiding certain land uses on or near an airport that could endanger or interfere with the landing, taking off, or maneuvering of an aircraft at an airport. Specific land use characteristics to be avoided include:

- Attractiveness to birds and other wildlife
- Creation of glare, dust, steam, or smoke which may impair pilot visibility
- Lights that can be mistaken for airport lights
- Production of electronic interference with aircraft communications or navigation

Because the FAA has no authority over local land use, mitigating potential hazards falls within the control of State and local land use authorities, including the Airport Land Use Commission (ALUC).

State

Section 17215, State Education Code. This section requires that, before acquiring title to property for a new school site situated within two miles of an airport runway, a school district must notify the Department of Education (DOE). DOE then notifies the Department of Transportation, which is required to investigate the site and prepare a written report. If the Department of Transportation report does not favor acquisition of the site for a school, no State or local funds can be used for site acquisition or building construction on that site.

Section 81033, State Education Code. This section establishes the same requirements as Section 17215, but for the acquisition of community college sites.

Section 21001 et seq., State Public Utilities Code, State Aeronautics Act. The State Aeronautics Act provides for the right of flight over private property, unless conducted in a dangerous manner or at altitudes below those prescribed by Federal authority (Section 21403(a)). The act also gives the State Department of Transportation and local governments the authority to protect the airspace defined by FAR Part 77 criteria. It prohibits any uses in the airspace above a property which would interfere with the right of flight, including established approaches to a runway (Section 21402). The act also prohibits any person from constructing any structure or permitting any natural growth of a height which would constitute a hazard to air navigation as defined in FAR Part 77 unless the department issues a permit (Section 21659). The permit is not required if FAA has determined that the structure or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. The act also gives the State Department of Transportation (Caltrans), Division of Aeronautics, the authority to

regulate airports and issue airport site approval permits and operating permits to airports meeting airport standards prescribed under California Code of Regulations Title 21, Sections 3525 through 3560, Airports and Heliports.

California Airport Land Use Planning Handbook (2011). The California Airport Land Use Planning Handbook (Handbook) provides examples of safety zones for five types of general aviation runways, an air carrier runway, and a military runway. These safety zones subdivide the airport vicinity into as many as six safety zones. The shapes and sizes of the zones are largely based on the spatial distribution of aircraft accidents. Each safety zone is characterized by a risk level that is distinct from the other zones. The Handbook provides a qualitative description of the land use characteristics considered acceptable or unacceptable within each of the six basic safety zones. The Handbook also presents a set of specific safety compatibility criteria guidelines formulated to limit the number of people residing and working in areas exposed to greater risk of an aircraft accident.

California Aeronautics Act (Public Utilities Code, Section 21670 et seq.). The Aeronautics Act requires Airport Land Use Commissions to prepare an Airport Land Use Compatibility Plan (ALUCP) for nearly all public-use airports in the State (Section 21675). The intent of the ALUCP is to encourage compatibility between airports and the various land uses that surround them. Alameda County has established an airport land use commission (ALUC), in accordance with State law, to prepare land use compatibility plans for all public-use airports in the county and to review general plans, proposed changes to zoning codes and ordinances, land use actions and development projects, and airport development plans for consistency with compatibility policies.

FAA Advisory Circular (AC) 150/5390-2B, "Heliport Design." The FAA Heliport Design guidelines provide recommendations for heliport design and describe the Federal requirements associated with heliport development. Alameda County encourages those with heliport proposals to implement the guidance set forth in the AC to the greatest extent practicable. The complete AC is available online in several files that can be downloaded upon request from the FAA website at: www.faa.gov. For more information pertaining to this FAA guidance, please refer to Appendix G, "Heliport Design." For heliport permitting requirements, contact Caltrans' Division of Aeronautics. Also see Section 2.7.4 for ALUC review criteria for new heliports, or heliport master/development plans.

Local Regulations

City of Hayward 2002 General Plan (Existing)

The City of Hayward 2002 General Plan includes the following airport land use compatibility related policies:

Guidelines for the Review of New Development:

- A.1 Indoor noise level shall not exceed an Ldn of 45 dB in new housing units.
- A.3 If the primary noise source is aircraft or a railroad, noise levels in new residential development exposed to an exterior Ldn of 60 dB or greater should be limited to a maximum instantaneous noise level in bedrooms at night of 50 dB(A). Maximum not exceed 55 dB (A).

- C. Locate noise-sensitive uses away from noise sources unless mitigation measures are included in development plans. Protect schools, hospitals, libraries, churches, convalescent homes, and other noise sensitive uses from noise levels exceeding those allowed in residential areas.

Noise Element Policies

The Noise Element states that "other significant sources of noise in the community, including aircraft operations in the vicinity of the Hayward Executive Airport and at Oakland International Airport, railroad train operations along the Union Pacific Railroad lines, and the Bay Area Rapid Transit system, are expected to remain essentially as they are today." The Noise Element also includes several policies that are related to aircraft and airport noise. These include the following:

- Policy: The City will seek to protect the public health, safety and welfare against the adverse effects of excessive noise.

    1. Provide educational materials and assistance to the community regarding noise mitigation, and promote the full disclosure of potential noise impacts within new infill development.

    2. Continue to review new development to assure compatibility with surrounding land uses and compliance with accepted noise standards.

    3. Encourage mitigation of noise through appropriate site planning, building orientation, and building materials.

    4. Cooperate with adjacent jurisdictions and other agencies involved in noise mitigation, and work with transportation companies and/or agencies to mitigate noise impacts.

    8. Continue to monitor the effectiveness of noise control programs at the Hayward Executive Airport.

City of Hayward Ordinance 91-16: Airport Noise Ordinance

The City adopted Hayward Ordinance 91-16, the Airport Noise Ordinance on February 1, 1992, in an effort to reduce noise impacts from aircraft operations without impairing the ability of the airport to serve the aviation needs of the community and national air transportation system. The City maintains a system of four permanent noise monitors that record actual sound levels 24 hours per day. The ordinance specifies maximum noise levels associated with each monitoring location. Aircraft operators who exceed the specified noise levels may be cited, fined, or penalized through restricted access to and operating privileges at the airport. Exceptions are provided for Oakland International Airport operations, ambulance operators, Stage III aircraft, operations for safety or those directed by air traffic control, and military aircraft.

Alameda County, Eden Area General Plan (2010)

The Eden Area General Plan, adopted by Alameda County in 2010, encompasses the unincorporated communities of San Lorenzo, Hayward Acres, Ashland, Fairview, and Cherryland. These communities are located immediately northwest of the Hayward Executive Airport. The Plan includes the following airport related safety and noise policies:

- Policy P6: New residential development affected by noise from railroad, BART, freeway or aircraft operations shall be designed to limit typical maximum instantaneous noise levels to 50 dBA in bedrooms and 55 dBA in other rooms. These maximum instantaneous noise levels are compatible with airport noise regulations of 45-dBA CNEL, which is an average day/night level.

- Goal N-4: Minimize noise impacts created by the operations of the Hayward Executive Airport and the Oakland International Airport.

- Policy P1: Mitigation of airport noise impacts shall be pursued to the fullest extent possible through advocacy for better operational practices, new quieter technologies and physical improvements to airports that would reduce the number of properties in the Eden Area impacted by aircraft noise.

- Policy P2: The County shall actively participate in forums and discussions regarding operations and expansion plans for the Hayward Executive Airport and the Oakland International Airport.

- Policy P3. The County shall seek local representation on task forces, commissions, and advisory boards established to guide airport policies and programs.

- Policy P4. The County shall encourage the Port of Oakland and the City of Hayward to undertake noise abatement and mitigation programs that are based not only on the airport noise contour maps, but that consider other factors such as the frequency and single event noise levels for aircraft overflights, standard flight path deviations, the altitude of aircraft and the hours of operation.

- Action A1: Work with the Hayward Executive Airport and the Oakland International Airport to ensure that any changes to airport operations that would potentially result in higher noise levels in the Eden Area incorporate comprehensive noise mitigation measures.

City of San Leandro 2002 General Plan

The City of San Leandro General Plan was updated in 2002. No significant land use changes to land use patterns are proposed as part of the General Plan, and, therefore, there will only be limited cases where noise levels will exceed those considered normally acceptable for the intended use. The General Plan designates land uses in the vicinity of the airport as commercial uses, light industrial, and residential. The predominant zoning in the vicinity of HWD is industrial. The City of San Leandro General Plan states the following airport land use compatibility related policies:

- 3.10 Conversion of Non-Residential Land to Housing and Public Uses. Encourage the development of new housing on underutilized commercial and industrial sites which meet the following criteria: Sites which are not constrained by external environmental factors, including freeway, railroad, and airport noise.

- 37.01 Monitoring of Airport Plans. Actively and aggressively participate in forums and discussions regarding operations and expansion plans for Oakland International Airport. Seek local representation on task forces, commissions, and advisory boards established to guide airport policies and programs.

- 37.02 Mitigation of Airport Noise. Pursue mitigation of airport noise impacts to the fullest extent possible. Support and advocate for operational practices, changes to aircraft, new technologies, and physical improvements that would reduce the number of properties in San Leandro that are impacted by noise.

- 37.06 Airport Safety Zones. Regulate land uses within designated airport safety zones, height referral areas, and noise compatibility zones to minimize the possibility of future noise conflicts and accident hazards.

Alameda County Airport Land Use Commission

The Alameda County Airport Land Use Commission (ALUC) has the authority "to coordinate planning at the State, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare"; to prepare and adopt airport land use plans; and to review and make recommendations concerning specified plans, regulations and other actions of local agencies and airport operators. The ALUC ensures compatible land uses around the Hayward Executive, Oakland International, and Livermore Municipal Airports through the implementation of their respective Comprehensive Land Use Plans (CLUP). In addition, ALUC reviews plans for proposed new airports or heliports. Under this statute, ALUC serves four primary functions:

- Develop and adopt land use standards to minimize public exposure to safety hazards and excessive levels of noise;

- Prevent encroachment of incompatible land uses around public-use airports; specifically within the Airport Influence Area (AIA) for each airport;

- Prepare an Airport Land Use Compatibility Plan (ALUCP) for the each airport's AIA defining compatible land uses for Safety, Noise, Airspace Protection, and Overflight;

- Perform land use consistency determinations for proposed projects within each airport's AIA, as described in the airport's ALUCP.

Hayward Executive Airport Land Use Compatibility Plan (2012)

The State of California requires the Alameda County Airport Land Use Commission (ALUC) to prepare an airport land use compatibility plan (ALUCP) for all public-use airports in the county. The intent of each ALUCP is to encourage compatibility between the airport and the various land uses that surround them. The Hayward Executive Airport Land Use Compatibility Plan, adopted in 2012, is the primary document used by the ALUC to ensure compatibility between Hayward Executive Airport and its environs. More specifically, the ALUCP acts as a guide for the ALUC and the City of Hayward to use in order to safeguard the general welfare of the public as the airport expands. The document also serves as a tool for the ALUC to fulfill its duty to review airport and land use development proposals within the airport influence area (AIA) or referral area associated with the airport.

In addition to evaluating development proposals, the ALUC and local jurisdictions also use the ALUCP when they prepare and amend land use plans and ordinances. State law requires Alameda County and affected cities to modify their general and specific plans to be consistent with the ALUCP, or to take steps to overrule the ALUCP. The AIA for HWD includes portions of both the cities of Hayward and San Leandro, and unincorporated areas of Alameda County (San Lorenzo, Eden Area). As such, the

document is applicable to both cities and Alameda County as they prepare land use plans and review development proposals within the AIA. The ALUCP also applies to any future area that may be incorporated within any part of the AIA, as well to school districts, community college districts and special districts, whenever these entities consider the development of new facilities or expansion of existing ones.

Key Terms

The following key terms used in this section are defined as follows:

Aeronautics Act: Sections 21670 et seq. of the California Public Utilities Code.

Airport: An area of land that is used or intended to be used for the landing and taking off of aircraft, including its buildings and support facilities.

Airport Influence Area (AIA): The area in which current or future airport-related noise, overflight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. In most circumstances, the airport influence area is designated by the ALUC as its planning area boundary for the airport and the two terms can be considered synonymous.

Airport Land Use Commission (ALUC): A commission authorized under the provisions of the California Public Utilities Code, Sections 21670 et seq. and established (in any county within which a public-use airport is located) for the purpose of promoting compatibility between airports and the land uses surrounding them.

Airport Land Use Compatibility Plan (ALUCP): As used herein, a plan, usually adopted by an ALUC, which sets forth policies for promoting compatibility between airports and the land uses which surround them. This document is sometimes referred to as an Airport Land Use Policy Plan (ALUPP).

Aviation-Related Use: Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. Such uses specifically include runways, taxiways, and their associated protected areas defined by the Federal Aviation Administration (FAA), together with aircraft aprons, hangars, fixed base operations facilities, terminal buildings, etc.

Avigation Easement: A type of easement that typically conveys the following rights:

- A right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above a surface specified in the easement (usually set in accordance with the FAR Part 77 criteria).
- A right to subject the property to noise, vibrations, fumes, dust, and fuel particle emissions associated with normal airport activity.
- A right to prohibit the erection or growth of any structure, tree, or other object that would enter the acquired airspace.
- A right-of-entry onto the property, with proper advance notice, for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace.

- A right to prohibit electrical interference, glare, misleading lights, visual impairments, wildlife hazards, or other hazards to aircraft flight from being created on the property.

Compatibility Zone: Any of the airport influence area zones set forth in this ALUCP for the purposes of determining land use compatibility.

Federal Aviation Regulations (FAR) Part 77: The part of the Federal Aviation Regulations that addresses objects affecting navigable airspace.

Height Review Overlay Zone: The area around an airport where the ground lies above a FAR Part 77 surface or less than 35 feet beneath a FAR Part 77 surface.

Helipad: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

Heliport: A facility used for operating, basing, housing, and maintaining helicopters.

Bibliography

Reports/Publications

Alameda, County of. Hayward Executive Airport Land Use Compatibility Plan. Prepared for the County by ESA. Adopted August 2012.

Alameda, County of. Oakland International Airport Land Use Compatibility Plan. Prepared for the County by ESA. Adopted December 15, 2010

Websites

City of Hayward Executive Airport. http://www.hayward-ca.gov/CITY-GOVERNMENT/DEPARTMENTS/PUBLIC-WORKS-ET/HEA/index.shtm. December 2012.

County of Alameda Community Development Agency. http://www.acgov.org/cda/planning/generalplans/airportlandplans.htm, December 2012.

Federal Aviation Administration, Aviation Safety Information Analysis and Sharing System. http://www.asias.faa.gov/portal/page/portal/asias_pages/asias_home/welcome_tab. December 2012.

Oakland International Airport. http://www.flyoakland.com/contact_us.shtml. December 2012

9.5 HAZARDOUS MATERIALS

Introduction

This section addresses the potential presence of hazardous materials within Hayward and analyzes the potential risk these materials pose. Existing and potential problems related to hazardous materials include water and soil contamination, health hazards from existing or historical land uses that use or generate hazardous materials, and the improper disposal of hazardous materials by business, industry, and individual households.

Major Findings

- The City of Hayward Fire Department is a Certified Unified Program Agency (CUPA) and has been certified by the State to implement the Unified Hazardous Materials and Hazardous Waste Management Program (CUPA Program) in the city. The CUPA Program coordinates the administrative requirements, permits, inspections, and enforcement activities for a wide range of environmental and emergency management programs.
- Two hundred-and-twenty-six sites in Hayward are undergoing hazardous materials remediation or may require remediation pending further testing. Of these sites 100 are listed as associated with underground storage tanks (UST Sites), 16 are listed as leaking underground fuel storage tanks (LUST Sites) and 56 are related to other types of spills, leaks, investigations, and cleanups (SLIC Sites). The sites are monitored by either the State Department of Toxic Substances Control (DTSC) (57 sites), the Regional Water Quality Control Board (RWQCB) (91 sites), the Hayward Fire Department (HFD) (38 sites), the Alameda County Water District (ACWD) (18 sites), or the Alameda County Department of Environmental Health (ACEH) (22).
- The Hayward Fire Department implements the City of Hayward Comprehensive Emergency Management Plan. This Plan addresses the City's responsibilities in emergencies associated with natural disaster, human-caused incidents, and technological incidents, including hazardous materials vulnerability and hazardous materials transport.

Existing Conditions

General Concerns

For the purposes of this analysis, a material is considered hazardous if it appears on a list of hazardous materials prepared by a Federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as: any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the

environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that meets the Title 22 definition according to the handler or the administering agency. Chemical and physical properties of a substance are directly related to the degree of hazard it poses, including properties of toxicity, ignitability, corrosiveness, and reactivity, as defined in the CCR, Title 22, Sections 66261.20-66261.24. The health effects of hazardous materials exposure are influenced by the dose to which a person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

Hazardous materials can pose a substantial present or future hazard to human health or the environment if improperly handled, stored, disposed, remediated, or otherwise managed. If improperly handled, hazardous materials can result in public health hazards through direct human contact with contaminated soils or groundwater, or through airborne releases in vapors, fumes, or dust. There is also the potential for accidental or unauthorized releases of hazardous materials that would pose a public health concern (e.g., drinking water contamination).

"Hazardous wastes" (a subset of hazardous materials) refer to hazardous materials that are to be abandoned, discarded, or recycled. Regulations for the disposal of such wastes are stringent today but were more lax in the past. A number of programs have been created at the Federal, State, County, and local level to clean up contaminated sites and facilitate their safe reuse (see upcoming Regulatory Setting).

Accidents or spills during transport of hazardous materials or wastes can also expose the general public and the environment to these substances. If contamination at a site remains undetected, workers and the public may be at risk of exposure if precautions are not taken during site development.

Hazardous material releases can result in both short- and long-term effects on the local population and environment. Hazardous materials are governed by regulations that require proper storage and handling, business/environmental management plans, spill contingency plans, employee and public noticing, and other emergency preventative and response measures to minimize the risk of accidental releases and associated environmental impacts. Latent chemicals and other materials found in soils of agricultural land or industrial sites as a result of past activity are also a concern. Such sites are evaluated when considered for development and identified as potentially hazardous through the Phase I and/or Phase II environmental site assessment review (see upcoming Regulatory Setting).

Existing Hazardous Materials Conditions in Hayward

Hayward contains a wide variety of industrial, commercial, and residential land uses, and these uses generate, use, store, transport, and dispose of a wide range of hazardous materials. The City of Hayward Fire Department is a Certified Unified Program Agency (CUPA), which means the City of Hayward Fire Department has been certified by the State to implement its own Unified Hazardous Materials and Hazardous Waste Management Program (CUPA Program). The Hayward Fire Department administers the City's entire CUPA Program. As part of the CUPA Program, the Hayward Fire Department administers the Hazardous Materials Business

Plan (HMBP), which consolidates the reports required from businesses by State and Federal community right-to-know laws, and the Hazardous Materials Management Plan (HMMP) and Hazardous Materials Inventory Statement (HMIS) required by the California Fire Code.

Businesses that store hazardous materials in quantities that meet or exceed reporting limits are required to submit an individual HMBP to the Hayward Fire Department. Each HMBP consists of business and facility information, a chemical inventory, a site map, a detailed facility plan, emergency response procedures, and an emergency response training plan for employees. The HMBP must be recertified for completeness and accuracy each year, or updated and revised as necessary.

The City of Hayward Fire Department enforces other hazardous materials regulations through the California Fire Code as amended by the City of Hayward Fire Department.

The State of California Hazardous Waste and Substances List (also known as the "Cortese List") is a planning document used by State and local agencies and developers to comply with California Environmental Quality Act (CEQA) requirements for providing information about the location of hazardous materials sites. Government Code Section 65962.5 requires the California Environmental Protection Agency (Cal-EPA) to annually update the Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for providing a portion of the Cortese List information, while other State and local agencies provide the remaining information. The EnviroStor database, managed by DTSC, lists Brownfield sites (a US EPA program for contaminated properties), sites undergoing hazardous materials mitigation, sites with known contamination that may require further investigation, Federal Superfund sites, State response sites, voluntary cleanup sites, and school cleanup sites.

The leaking Underground Fuel Tank Information System (LUFT) and Spills/Leaks, Investigations, and Cleanups (SLIC) databases, managed by the Regional Water Quality Control Board (RWQCB), comprise the GeoTracker information system.

Table 9-4 lists hazardous materials sites in Hayward, according to the agency that monitors them, and as identified by the DTSC EnviroStor database and the RWQCB GeoTracker database. The "Status" and "Project Name" (site) terms are defined at the end of the table. Depending on the status of a listed project, the site does not necessarily pose a threat to public health or the environment. The following Status labels indicate that a site is not considered to pose a threat based on the contamination criteria of the oversight agency: No Further Action, No Action Required, Permitted, and Open-Eligible for Closure. The following Status labels indicate that a site does or might pose a threat, depending on past or future testing and remediation: Refer: RWQCB; Inactive-Needs Evaluation; Certified/Operation & Maintenance; Active; Refer: Other Agency; Inactive-Action Required; Voluntary Cleanup; RCRA; and all Open cases except Eligible for Closure. In a few cases that have more than one Status, a site is listed more than once.

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
State Department of Toxic Substances Control (DTSC)			
26569-75 Corporate Avenue Site	26569-75 Corporate Avenue	Evaluation	Refer: RWQCB
Alameda Newspaper Grp.	116 W. Winton Avenue	Tiered Permit	Inactive - Needs Evaluation
Alien Technology Corporation	2606 Barrington Ct.	Tiered Permit	Inactive - Needs Evaluation
Baxter Healthcare Corp., Hyland Div.	1978 W. Winton Avenue	Tiered Permit	No Further Action
Big Al's Waste Hauling	4125 Breakwater Avenue	Evaluation	Inactive - Needs Evaluation
Blue Rock Elementary School	Hayward Boulevard/Fairview Avenue	School Investigation	No Action Required
Burbank Elementary School/ Hayward Joint Use Park	222 Burbank Street	School Cleanup, SLIC	Certified / Operation & Maintenance
Burbank Elementary School/ Hunts Cannery	B Street and Filbert Street	Voluntary Cleanup	Active
Canterbury Site	Olympic and Taylor Avenue	Voluntary Cleanup	No Further Action
Chemetal, Inc., Hayward	21031 Alexander Ct.	Tiered Permit	No Further Action
Davis Wire (former)	31775 Hayman Street	SLIC	Open
Denova Homes	22815 Sutro Street	SLIC	Open
Eden Housing/ Santos Produce	Intersection of Grand and C Street	SLIC	Open
Electro Plating Specialties, Inc.	2436 American Avenue	Tiered Permit	Inactive - Needs Evaluation
Electro-Forming Co.	3435 Enterprise Avenue	Tiered Permit, SLIC	Active
Electrochem	25020 Viking Street	Tiered Permit	No Action Required
Etec Systems, Inc.	26460/26415 Corporate Avenue	Tiered Permit	No Action Required
Fuji Truecolor, Inc.	27105 Industrial Boulevard	Tiered Permit	Refer: Other Agency
Fujicolor Processing	27105 Industrial Boulevard	Voluntary Cleanup	Certified O&M - Land Use Restrictions Only
Garin Vista	Intersection of Bodega Street and Woodland Avenue	Voluntary Cleanup; SLIC	Open - Action Required
Grand Place, LLC	22815 Sutro Street	Voluntary Cleanup	Active
Hayward ANGS, Hayward CA	1525 West Winton Avenue	State Response	Active
Hayward Army Airfield	20301 Skywest Drive	Military Evaluation	Inactive - Action Required
Highland Trails	25329 Second Street	Voluntary Cleanup	No Further Action
Jackson Street Lumber Company	73 West Jackson Street	Evaluation	No Further Action
Kem-Mil-Co.	3468 Diablo Avenue	Tiered Permit	Inactive - Needs Evaluation
La Vista Quarry	28806 Mission Blvd.	Voluntary Cleanup; SLIC	Open - Action Required
LaVista LLC / Pickle Factory	22958 Saklan Road	Voluntary Cleanup, SLIC	Certified O&M - Land Use Restrictions Only
Montgomery Street Project	21659 Mission Boulevard	Evaluation	Inactive - Needs Evaluation
Owens Brockway Glass Containers, Inc.	22302 Hathaway Avenue	Non-Operating	RCRA
Perry & Key Body Shop	28901, 28937, and 28953 Mission	Voluntary Cleanup	Active

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
	Blvd.		
Photo Milling, Inc.	2437 Radley Ct.	Tiered Permit	No Further Action
Platron Co. West	26260 Eden Landing Road	Tiered Permit	Inactive - Needs Evaluation
Thermonics Metal Processing, Inc.	3124 Depot Road	Tiered Permit	Inactive - Needs Evaluation
Trimac Transportation Svcs., Inc.	3751 Breakwater Avenue	Tiered Permit	Inactive - Needs Evaluation
Western Drums, Inc.	21301 Cloud Way	Tiered Permit	Inactive - Needs Evaluation
Western Drums, Inc.	21301 Cloud Way	Evaluation	No Action Required
Hayward Air National Guard Base (20 cases on-site)	1525 Winton Avenue West	Defense	Open
Regional Water Quality Control Board (RWQCB)			
Servo Gas & Snack	22810 Foothill Blvd.	Underground Storage Tank (UST)	Permitted
Western Dealer Holdings/Al's 76	21494 Foothill Blvd.	UST	Permitted
Chavez Management Group	22301 Foothill Blvd.	UST	Permitted
HUSD - Maintenance Yard	24400 Amador St.	UST	Permitted
Moa's Service Center	486 A St.	UST	Permitted
Pacbell Tel Co DBA AT&T Cal (P5096)	221 Winton Ave. West	UST	Permitted
Pacbell Tel Co DBA AT&T Cal (P5008)	1129 B Street	UST	Permitted
Chevron/Bana Assoc. DBA Mission Chevron	24086 Mission Blvd.	UST	Permitted
Bedrock Oil Inc, DBA Foothill Chevron	21501 Foothill Blvd.	UST	Permitted
Arco # 01319 - BP West Coast Products	365 Jackson St.	UST	Permitted
Hayward Gas Mart Inc.	22690 Foothill Blvd.	UST	Permitted
AT&T Corporation - CAK147	1391 B St.	UST	Permitted
H A R D Administration Ofc & Corp Yard	1099 E St.	UST	Permitted
Hutch's Quik Lube	1360 B St.	UST	Permitted
World Oil Marketing Company Sta #76	22253 Foothill Blvd.	UST	Permitted
ARCO #09541 Thrifty Oil Co/BP West	207 A St.	UST	Permitted
ARCO #09536 Thrifty Oil Co/BP West	25225 Mission Blvd.	UST	Permitted
COH - Fire Station #1	22700 Main St.	UST	Permitted
COH - Police Department	300 Winton Ave West	UST	Permitted
East Winton Valero	193 Winton Ave.	UST	Permitted
A & A Gas (Via Gas)	138 Jackson St.	UST	Permitted
Alameda County GSA - Fueling Station Winton	224 Winton Ave West	UST	Permitted
Fast & Easy Mart #45	898 A St.	UST	Permitted
New Raja Enterprises	391 A St. West	UST	Permitted
22695 Foothill Blvd.	22695 Foothill Blvd.	Other Cleanup Sites	Open - Remediation
Lincoln Cannery Property	21 & 24 Cannery Court	Other Cleanup Sites	Open - Verification Monitoring
Owens Brockway Glass Containers	22302 Hathaway Avenue	Other Cleanup Sites	Open - Remediation
Jackson-Amador Shopping Center	215 Jackson Street	Other Cleanup Sites	Open - Verification Monitoring
Atlantic Richfield Company Station	365 Jackson St.	Leaking Underground	Open - Site

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
#1319		Storage Tank (LUST)	Assessment
Chevron #9-0260	21995 Foothill	LUST	Open - Remediation
Sears Auto Center #1248	660 Winton Ave. W	LUST	Open - Remediation
Bigham Taylor Roofing	22721 Alice St.	LUST	Open - Inactive
Hayward Toyota Property	24773 Mission Blvd.	LUST	Open - Verification Monitoring
Hayward Unified School District	24400 Amador St.	LUST	Open - Verification Monitoring
Hutch's Car Wash	1367 A St.	LUST	Open - Inactive
Moa's Service Station	486 A St.	LUST	Open - Remediation
Former Hayward Ford	25501 Mission Blvd.	LUST	Open - Inactive
Former Exxon RAS #70105	193 Winton Ave.	LUST	Open - Eligible for Closure
Unocal Station #3791	391 A St. W	LUST	Open - Assessment & Interim Remedial Action
Former Unocal Station 6049 - Chevron Facility No. 351746	898 A St.	LUST	Open - Verification Monitoring
Hayward Dodge Inc.	25601 Mission Blvd.	LUST	Open - Site Assessment
Former Jeri's Beacon Station	21501 Foothill Blvd.	LUST	Open - Remediation
Hayward Gas & Mart	22690 Foothill Blvd.	LUST	Open - Site Assessment
EZ Clean	54 Moran Ct.	Other Cleanup Sites	Open - Inactive
Albertsons #7138 (Formerly #7088)	22555 Mission Blvd.	Other Cleanup Sites	Open - Inactive
Former Tidewater Service Station #35-2704	1191 B Street	LUST	Open - Assessment & Interim Remedial Action
Grand and B Street	581, 585, 597 B Street	Other Cleanup Sites	Open - Verification Monitoring
Airport Alliance	20450 Hesperian Blvd.	UST	Open
Alameda Co. Bldg. Maintenance	951 Turner Ct.	SLIC	Open
East Bay Oil Company	3111 Depot Rd.	UST	Open
Excel Moving Services	3503 Breakwater Ct.	UST, SLIC	Open
Beacon #12546 / Holiday Bowl Project	29705 Mission Blvd.	UST	Open
Hayward Air National Guard Base (8 cases on-site)	1525 Winton Ave W.	UST	Open
Pick Your Part Auto Wrecking	2885 Winton Ave. W	UST	Open
Winton Auto Wreckers W	2711-2851 Winton Ave. W	SLIC	Open
Thermofusion	2342 American Ave.	SLIC	Open
Hayward Gateway Center	Arden Rd. X Danti Ct.	SLIC	Open
MDC Vacuum Products	23842 Cabot Blvd.	SLIC	Open
Lincoln Cannery Property	21 & 24 Cannery Ct.	SLIC	Open
Continental White Cap Facility	24493 Clawiter Rd.	UST, SLIC	Open
Mildred Burnham Property	23481 Connecticut St.	SLIC	Open
Wachovia Bank Property	26545-26563 Corporate Ave.	SLIC	Open
East Bay Oil Company	3111 Depot Rd.	SLIC	Open
Quala Systems Inc.	3629-3643 Depot Rd.	SLIC	Open
Russell City Energy Center	3878-3862 Depot Rd.	SLIC	Open

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
Herning Underground Supply	3135 Diablo Ave.	SLIC	Open
Hayward Ind'l Park / Lincoln Property	23541 Eichler St.	SLIC	Open
Runnels Industries	3590 Enterprise Ave.	SLIC	Open
Albertson's Supermarket (Former)	22695 Foothill Blvd.	SLIC	Open
Town & Country Cleaners	456 Harder Rd. W	SLIC	Open
Art's Cleaners	27312 Hesperian Blvd.	SLIC	Open
Breakwater Business Park	Hwy 92 & Clawiter Rd.	SLIC	Open
Eden Plaza Property	3521-3583 Investment Blvd.	SLIC	Open
Mack Trucks, Inc.	20201 Mack St.	SLIC	Open
AC Transit	20234 Mack St.	SLIC	Open
ASPI (Albertsons at B St./Watkins)	22555 Mission Blvd.	SLIC	Open
Former Holiday Bowl	29705 Mission Blvd.	SLIC	Open
Foster Enterprises	168 Orchard Ave./Soto Rd.	SLIC	Open
Narom Development	45-89 Review Way	SLIC	Open
EKC Technology	1751/1753 Sabre St.	SLIC	Open
Frank Fragomeni Property	1100 Tennyson Rd. W	SLIC	Open
Rohm & Haas Inc	25500 Whitesell St.	SLIC	Open
EJ Auto Wreckers	2851 Winton Ave. W	SLIC	Open
Pick Your Part Facility	2885 Winton Ave. W	UST	Open
Alameda County Department of Environmental Health			
EZ Serve	525 A St. W	Underground Storage Tank (UST)	Open
Jardine Pipeline	2315 Dunn Rd.	UST	Open
Chevron	21995 Foothill Blvd.	UST	Open
Arco	20200 Hesperian Blvd.	UST	Open
Weber Auto Supply	20372 Hesperian Blvd.	UST	Open
Abe Petroleum	17715 Mission Blvd.	UST	Open
Ras Co Manufacturing Co.	413 Sunset Blvd. W	UST	Open
Five Star Auto Care Facility	1220 Tennyson Rd. W	UST	Open
Union Pacific Railroad	Western Blvd.	UST	Open
Union Pacific Railroad	C St. & Sutro St.	Spills, Leaks, Investigations, Cleanups (SLIC)	Open
Concise Casting Corporation	3197 Depot Rd.	SLIC	Open
Forni Corp	3600 Depot Rd.	SLIC	Open
Hayward RV Storage	3636 Depot Rd.	SLIC	Open
Hayward RV Storage	3636 Depot Rd.	SLIC	Open
All Good Pallets Co.	3862 Depot Rd.	SLIC	Open
AAA Truck Parts Company	3884 Depot Rd.	SLIC	Open
Electrolyte Supply Company / Mueller Prop.	2474 Dunn Rd.	SLIC	Open
Discount Auto Sales	21153 Foothill Blvd.	SLIC	Open
City of Hayward Oliver Property	SW Corner Industrial Blvd @ Hesperian	SLIC	Open
Richard's Roofing Service	19356 Meekland Ave.	SLIC	Open
Ventura Properties	23836 Saklan Rd.	SLIC	Open
George's Industrial Catering	2430 Whipple Rd.	SLIC	Open

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
Hayward Fire Department			
Moa's Service Station	486 A St.	Underground Storage Tank (UST)	Open
Former Unocal Station 6049 (Chevron)	898 A St.	UST	Open
Hutch's Car Wash	1367 A St.	UST	Open
Chevron Facility No. 351749	391 A St. W	UST	Open
Prime Properties	580 A St. W	UST	Open
Bigham Taylor Roofing	22721 Alice St.	UST	Open
Hayward Unified School District	24400 Amador St.	UST	Open
Mckenzie Property	29700 Bodega St .	UST	Open
Yellow Freight System, Inc.	25555 Clawiter Rd.	UST	Open
Fire Fab, Inc.	23315 Connecticut St.	UST	Open
Westland Metal Inc	3149 Depot Rd.	UST	Open
City Of Hayward Water Poll. Control Fac	3700 Enterprise Ave.	UST	Open
Former Jeri's Beacon Station	21501 Foothill Blvd.	UST	Open
Hayward Gas & Mart	22690 Foothill Blvd.	UST	Open
City of Hayward Fire Station #2	360 Harder Rd. W	UST	Open
Harder Road Beacon	392 Harder Rd. W	UST	Open
Mervyn's	25001 Industrial Blvd.	UST	Open
Atlantic Richfield Company Station #1319	365 Jackson St.	UST	Open
Hayward Toyota Property	24773 Mission Blvd.	UST	Open
Former Hayward Ford	25501 Mission Blvd.	UST	Open
Hayward Dodge Inc	25601 Mission Blvd.	UST	Open
Former Hayward Nissan Property	25995 Mission Blvd.	UST	Open
Haymont Village Shopping Center	26699 Mission Blvd.	UST	Open
Pestana Property	29234 Mission Blvd.	UST	Open
Plank Company	29220 Pacific St.	UST	Open
Hayward Pallet Company Facility	29270 Pacific St.	UST	Open
Former Duncan and Son Petroleum	29303 Pacific St.	UST	Open
Gordon Everett Property	1693 Sabre St.	UST	Open
AC Transit - Division 6	1758 Sabre St.	UST	Open
Lambertson Industries	1742-1752 Sabre St.	UST	Open
American Aircraft Sales Company	21015 Skywest Dr.	UST	Open
Former Hayward Jet Center	21889 Skywest Dr.	UST	Open
Former Beacon Station No. 3718	438 Tennyson Rd. W	UST	Open
76 (Former BP) Service Station No. 11112	1109 Tennyson Rd. W	UST	Open
Alameda County Corp Yard Fueling Station	951 Turner Ct.	UST	Open
Former Exxon Ras #70105	193 Winton Ave.	UST	Open
Sears Auto Center #1248	660 Winton Ave. W	UST	Open
Walker's Concrete	1844 Winton Ave. W	UST	Open
Alameda County Water District			
Conway Western Express	2200 Claremont Ct.	Underground Storage Tank (UST)	Open
Unocal #5487	28250 Hesperian Blvd.	UST	Open

Table 9-4
HAZARDOUS MATERIALS SITES IN HAYWARD

Site Name	Address	Project Type[1]	Status[2]
Master Halco, Inc.	30120 Industrial Pkwy. SW	UST	Open
U-Save Rockery	30132 Industrial Pkwy. SW	UST	Open
Golden Gate Petroleum	1565 Industrial Pkwy. W	UST	Open
Overnite Transportation Co.	2348 Industrial Pkwy. W	UST	Open
Shell Station - 31235 Mission Blvd	31235 Mission Blvd.	UST	Open
Old Oliver Salt Plant	4150 Point Eden Way	UST	Open
International Window	30526 San Antonio St.	UST	Open
Former Matheson Fast Freight	30542 San Antonio St.	UST	Open
A.J. Cable Company	30616 San Antonio St.	UST	Open
Reynolds Metals Company	2425 Whipple Rd.	UST	Open
Crescent Truck Lines	2480 Whipple Rd.	UST	Open
Mobil 10-LD2 / BP 11269	2492 Whipple Rd.	UST	Open
Chemcentral	31702 Hayman St.	Spills, Leaks, Investigations, Cleanups (SLIC)	Open
Target Store T-1472	30150 Industrial Pkwy. SW	SLIC	Open
Foam Distributors, Inc.	30994 San Benito St.	SLIC	Open
Reynolds Metals Company	2425 Whipple Rd.	SLIC	Open

[1]Project Type:

Evaluation: Identifies suspected, but unconfirmed, contaminated sites that need or have gone through a limited investigation and assessment process. If a site is found to have confirmed contamination, it will change from Evaluation to either a State Response or Voluntary Cleanup site type. Sites found to have no contamination at the completion of the limited investigation and/or assessment process result in a No Action Required (for Phase I assessments) or No Further Action (for PEAs or Phase II assessments) determination.

Tiered Permit: California's five-tier permitting program. The tiers, in descending order of regulatory oversight, are:

Full Permit Tier - *Facilities requiring an RCRA permit, plus selected non-RCRA activities pursuant to Title 22, California Code of Regulations.*

Standardized Permit Tier - *Facilities that manage waste not regulated under RCRA, but regulated as a hazardous waste by the State of California.*

Permit by Rule Tier - *A California-only (non-RCRA) onsite treatment permit for specific waste streams and treatment processes where wastes that are generated at the facility are treated onsite.*

Conditional Authorization Tier - *A California-only (non-RCRA) onsite treatment authorization for specifically defined waste streams.*

Conditional Exemption Tier - *A California-only (non-RCRA) onsite treatment authorization for small-quantity treatment and other low-risk treatment.*

School Investigation: School investigation sites are proposed for existing school sites that are being evaluated by DTSC for possible hazardous materials contamination where no remedial action has occurred based on completed activities.

School Cleanup: Identifies proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. School sites are further defined as "Cleanup" (remedial actions occurred) or "Evaluation" (no remedial action occurred) based on completed activities. All proposed school sites that will receive State funding for acquisition or construction are required to go through a rigorous environmental review and cleanup process under DTSC's oversight. For more information, go to: http://www.dtsc.ca.gov/Schools/index.cfm.

Voluntary Cleanup: Identifies sites with either confirmed or unconfirmed releases, and the project proponents have requested that DTSC oversee evaluation, investigation, and/or cleanup activities and have agreed to provide coverage for DTSC's costs.State Response: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Military Evaluation: Military evaluation sites are military facilities where no remedial action has occupied, based on the completed activities. These can include Open Bases, Closed Bases and FUD sites.

Non-Operating: A Treatment, Storage, Disposal or Transfer Facility (TSDTF) with no operating hazardous waste management unit(s).

UST (underground storage tank): Any one or combination of tanks, including pipes connected thereto, that is used for the storage of hazardous substances and that is substantially or totally beneath the surface of the ground.

Other Cleanup Sites: Spills, leaks, aboveground tanks, or other discharges.

LUST (Leaking Underground Storage Tanks): Underground storage tanks (USTs) that leak petroleum and other hazardous substances into soil and groundwater, thereby posing a risk to drinking water quality and human health.

SLIC: Spills, Leaks, Investigations, Cleanups

[2]Status:

Refer RWQCB: Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by the California Regional Water Quality Control Boards (RWQCBs) (see GeoTracker list).

Inactive –Needs Evaluation: Identifies non-active sites where DTSC has determined a Preliminary Endangerment Assessment (PEA) or other evaluation is required.

No Further Action: Identifies completed sites where DTSC determined after investigation, generally a PEA (initial assessment), that the property does not pose a problem to public health or the environment.

No Action Required: Identifies sites where a Phase I Environmental Assessment was completed and resulted in a No Action Required determination.

Certified/Operation & Maintenance: Identifies sites that have certified cleanups in place but require ongoing Operation and Maintenance (O&M) activities. The Certified O&M status designation means that all planned activities necessary to address the contamination problems have been implemented. However, some of these remedial activities (such as pumping and treating contaminated groundwater) must be continued for many years before complete cleanup will be achieved. Prior to the Certified O&M designation, all institutional controls (e.g., land use restrictions) that are necessary to protect public health must be in place.

Inactive–Action Required: Identifies non-active sites where, through a PEA (initial assessment) or other evaluation, DTSC has determined that a removal or remedial action or further extensive investigation is required.

Referred Other Agency: Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by another state or local environmental regulatory agency.

RCRA: Identifies sites that, based on limited information available to DTSC, appear to be more appropriately addressed by DTSC's Hazardous Waste Management Program and are identified as Resource Conservation and Recovery Act (RCRA).

Permitted: For DTSC, facilities/sites that were required to obtain a permit or have received a hazardous waste facility permit from DTSC or U.S. EPA in accordance with Section 25200 of the Health and Safety Code or the Resource Conservation and Recovery Act (RCRA). For RWQCB, a permit has been issued by an authorized local agency to the owner or operator of an underground storage tank (UST) (or a unified program facility permit has been issued by an authorized local agency to the owner or operator of a unified program facility on which the UST is located) that allows operation of the UST for the storage of hazardous substances pursuant to State regulations.

Open–Remediation: An approved remedy or remedies that has/have been selected for the impacted area at the site and is being implemented by the responsible party under an approved cleanup plan for the site. This includes any ongoing remedy that is either passive or active, or uses a combination of technologies.

Open–Verification Monitoring: Remediation phases that are essentially complete, and a monitoring/sampling program is occurring to confirm successful completion of cleanup at the site--e.g., no "active" remediation is considered necessary or no additional "active" remediation is anticipated as needed; or an active remediation system has been shut-off and the potential for a rebound in contaminant concentrations is under evaluation.

Open–Site Assessment: Site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring at the site. Examples of site assessment activities include, but are not limited to, the following: (1) identification of the contaminants and the investigation of their potential impacts; (2) determination of the threats/impacts to water quality; (3) evaluation of the risk to humans and ecology; (4) delineation of the nature and extent of contamination; (5) delineation of the contaminant plume(s); and (6) development of the Site Conceptual Model.

Open–Inactive: No regulatory oversight activities are being conducted by the Lead Agency.

Open–Eligible for Closure: Corrective action at the site has been determined to be completed and any remaining petroleum constituents from the release are considered to be a low threat to human health, safety, and the environment.

Open–Assessment & Interim Remedial Action: An "interim" remedial action is occurring at the site and additional activities such as site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring.

Source: Department of Toxic Substances Control (DTSC) EnviroStor website, www.envirostor.dtsc.ca.gov,viewed December 6 and 18, 2012; Regional Water Quality Control Board (RWQCB) GeoTracker website, http://geotracker.waterboards.ca.gov, viewed December 14, 2012; City of Hayward Fire Department, Hazardous Materials Office, May 20, 2013.

Residences are another source of hazardous materials. Many common household items such as batteries, fluorescent light bulbs, televisions, and computers contain hazardous materials and cannot be collected with recyclables or trash. Household hazardous waste disposal is managed by the Alameda County Department of Environmental Health (ACEH) through the Household and Small Business Hazardous Waste Collection Program. The program includes three permanent waste collection facilities, one of which is in Hayward at 2091 West Winton Avenue.

Other Hazardous Materials Commonly Found in Buildings

Structural building components, particularly in older buildings, sometimes contain hazardous materials such as asbestos, polychlorinated biphenyls (PCBs), lead, and mercury.

Asbestos

"Asbestos" is a general name for a group of naturally occurring minerals composed of small fibers. Structures built or remodeled between 1930 and 1981 could contain asbestos-containing building materials (ACBM), including, for example, floor coverings, drywall joint compounds, acoustic ceiling tiles, piping insulation, electrical insulation, and fireproofing materials. The presence of ACBM in a building does not mean that the building is a health hazard; as long as ACBM remains in good condition and is not disturbed or damaged, exposure is unlikely. Exposure is most likely to result during demolition. Many buildings in Hayward were constructed prior to 1981 and, therefore, may contain ACBM.

Regulations formulated by the Bay Area Air Quality Management District (BAAQMD) and California Division of Occupational Safety and Health (CalOSHA) restrict asbestos emissions from building demolition and renovation activities, and specify safe work practices to minimize the potential for release of asbestos fibers. These regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, and construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos; and require notice to Federal and local government agencies prior to beginning building demolition or renovation activity that could disturb asbestos. CalOSHA and the EPA define any material with one percent or more asbestos by weight as an ACBM.

PCBs

The manufacture and import of polychlorinated biphenyls (PCBs) have been banned in the U.S. since 1978. If manufactured before then, sources of PCBs generally include fluorescent light ballasts, electric transformers, and televisions, all of which are presumed to be present in Hayward. Such items are regulated as hazardous waste and must be transported and disposed of accordingly. DTSC classifies PCBs as hazardous waste when concentrations exceed 5 parts per million (ppm) in liquids or 50 ppm in non-liquids.

Lead

Lead is a highly toxic metal that was used in products found in and around residences. Lead exposure from vintage paint is possible when the paint peels or is removed, and the lead can contaminate dust and soil. Construction workers can be exposed to airborne lead during demolition, renovation, or maintenance work. Although lead-based paints were banned from production in the 1970s, many buildings in Hayward were constructed prior to that and may still contain lead. In addition to residences, areas along older, major roadways may contain aerially deposited lead (ADL), which could have been deposited from vehicle exhaust until the 1990s, when lead-based gasoline was banned from production.

CalOSHA standards establish a maximum safe exposure level for types of construction work where lead exposure may occur, including demolition of structures where materials containing lead are present; removal or encapsulation of materials containing lead; and new construction, alteration, repair, or renovation of structures with materials containing lead. Inspection, testing, and removal of lead-containing building materials must be performed by State-certified contractors who comply with applicable health and safety and hazardous materials regulations.

Mercury

Spent fluorescent light tubes and bulbs, thermostats, and other electrical equipment may contain heavy metals such as mercury that, if disposed of in landfills, can leach into soil or groundwater. Lighting tubes typically contain concentrations of mercury that may exceed regulatory thresholds for hazardous waste and, as such, must be managed in accordance with hazardous waste regulations. Elemental mercury waste is considered hazardous. Mercury can also be present in traps in the plumbing of older buildings in which mercury-containing equipment has been used. Items containing mercury must be disposed of according to applicable hazardous waste regulations.

Regulatory Setting

This section describes the Federal, State, and local regulatory setting related to existing and potential hazardous materials. Table 9-5 summarizes hazardous materials regulatory authority.

Federal

Federal agencies that regulate hazardous materials include the U.S. Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), the United States Department of Transportation (DOT), and the National Institute of Health (NIH). The following Federal laws and guidelines govern hazardous materials storage, handling, and remediation in Hayward:

- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Guidelines for Carcinogens and Biohazards
- Superfund Amendments and Reauthorization Act Title III
- Resource Conservation and Recovery Act
- Toxic Substances Control Act.

Table 9-5
SUMMARY OF HAZARDOUS MATERIALS REGULATORY AUTHORITY

Regulatory Agency	Authority
Federal Agencies	
Environmental Protection Agency (EPA)	• Federal Water Pollution Control Act (Clean Water Act) • Clean Air Act • Resource Conservation and Recovery Act (RCRA) • Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) • Superfund Amendments and Reauthorization Act (SARA) • Federal Insecticide, Fungicide and Rodenticide Act
Occupational Safety and Health Administration (OSHA)	• Occupational Safety and Health Act and CFR 29
U.S. Department of Transportation (DOT)	• Hazardous Materials Transport Act – Code of Federal Regulations (CFR) 49
State Agencies	
California Environmental Protection Agency (Cal/EPA)	• Environmental protection laws (air, water, soil, pesticides, waste recycling and reduction)
Department of Toxic Substances Control (DTSC)	• California Code of Regulations (CCR)
Department of Industrial Relations (CalOSHA)	• California Occupational Safety and Health Act, CCR Title 8
State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB)	• Porter-Cologne Water Quality Act • Underground Storage Tank Law
Health and Welfare Agency	• Safe Drinking Water and Toxic Enforcement Act
Air Resources Board and Air Pollution Control District	• Air Resources Act
Office of Emergency Services (OES)	• Hazardous Materials Release Response Plans/Inventory Law
Department of Food and Agriculture	• Food and Agriculture Code

State Fire Marshal	• Uniform Fire Code, CCR Title 19
Local Agencies	
Bay Area Air Quality Management District (BAAQMD)	• BAAQMD airborne pollutant regulations
Alameda County Department of Environmental Health (ACEH)	• Household and Small Business Hazardous Waste Collection Program
Alameda County Water District (ACWD)	• Regulates groundwater resources in the southern Alameda County including south Hayward
City of Hayward Fire Department	Certified Unified Program Agency (CUPA) • Hazardous Materials Release Response Plans and Inventories (Hazardous Materials Business Plans - HMBP) • California Accidental Release Prevention (CalARP) Program • Underground Storage Tank (UST) Program • Aboveground Petroleum Storage Act (APSA) Program including Spill Prevention, Control, and Countermeasure (SPCC) Plans • Hazardous Waste Generator Program • Onsite Hazardous Waste Treatment (Tiered Permit) Program • California Fire Code Hazardous Material Management Plans (HMMP), Hazardous Materials Inventory Statements (HMIS) Hayward Fire Code • The California Fire Code as amended by the City of Hayward Fire Department (also known as the "Hayward Fire Code") includes sections for the safe storage, use and handling of hazardous materials. The Hayward Fire Department screens for Building Occupancy Classification related to hazardous materials under the Hayward Fire Code as well as the Hayward Building Code. The Hayward Fire Department responds to and investigates incidents and environmental crimes involving hazardous materials. Hayward Hazardous Materials Storage Ordinance • Under Chapter 3 Article 8 of the City of Hayward's Municipal Code the City of Hayward Fire Department regulates the safe use and storage of hazardous materials. Hayward Zoning Ordinance • The City of Hayward Fire Department evaluates and screens proposed businesses for hazardous materials types and quantities to ensure that the triggers for administrative and conditional uses are identified. Additionally, the City of Hayward Fire Department provides conditions of approval to projects that use, store or handle hazardous materials. Contamination Screening and Cleanup Programs • Under the direction of RWQCB the City of Hayward Fire Department oversees the cleanup of leaking underground fuel storage tanks as a Local Implementing Agency (LIA). • The Hayward Fire Department also makes sure that contaminated sites are identified and addressed by the appropriate governmental agency. The Hayward Fire Departments screens for potential contamination from past use and storage of hazardous materials during property development.

Source: MIG, December 2012.

U.S. Environmental Protection Agency

The Environmental Protection Agency (EPA) is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and local government's responsibility for issuing permits and monitoring and enforcing compliance. EPA Region IX has authority in the Bay region, regulating chemical and hazardous materials use, storage, treatment, handling, transport, and disposal practices; protects workers and the community (along with CalOSHA, see below); and integrates the federal Clean Water Act and Clean Air Act into California legislation.

Federal Occupational Safety and Health Administration

The Federal Occupational Health and Safety Administration (OSHA) establishes and enforces Federal regulations related to health and safety of workers exposed to toxic and hazardous materials. In addition, OSHA sets health and safety guidelines for construction activities and manufacturing facility operations.

State

The management of hazardous materials and waste within California is under the jurisdiction of the California Environmental Protection Agency (Cal/EPA) and the Department of Toxic Substances Control (DTSC). Cal/EPA was created to establish a cabinet level voice for the protection of human health and the environment and to assure the coordinated deployment of State resources. The DTSC regulates hazardous waste, cleanup of existing contamination, and emergency planning, and identifies alternatives to reduce the hazardous waste produced in California. Additionally, the nine Regional Water Quality Control Boards (RWQCBs) regulate the quality of water within California, including contamination of State waters as a result of hazardous materials or waste.

California Environmental Protection Agency/Office of Emergency Services

The California Environmental Protection Agency (Cal/EPA) establishes regulations governing the use of hazardous materials in the state in order to protect air, water, and soil. The Office of Emergency Services (OES) coordinates State and local agencies and resources for educating, planning, and warning citizens of hazardous materials and hazardous materials emergencies, including organized response efforts in case of emergencies.

California Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates hazardous substances and wastes, oversees remedial investigations, protects drinking water from toxic contamination, and warns public exposed to listed carcinogens.

California Highway Patrol/Caltrans

The California Highway Patrol (CHP) and California Department of Transportation (Caltrans) have primary regulatory responsibility for the transportation of hazardous wastes and materials.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (CalOSHA) is responsible for promulgating and enforcing State health and safety standards and implementing Federal OSHA laws. For example, CalOSHA's regulatory purview includes provisions to minimize the potential for release of asbestos and lead during construction and demolition activities (see Asbestos and Lead above).

Regional Water Quality Control Board

One of nine regional boards in the state, the San Francisco Bay Regional Water Quality Control Board (RWQCB) protects surface and groundwater quality from pollutants discharged or threatened to be discharged to the Waters of the State. The RWQCB issues and enforces National Pollutant Discharge Elimination System (NPDES) permits and regulates leaking underground storage tanks and other sources of groundwater contamination.

Local

Local agencies that coordinate and implement hazardous materials regulations and protocols in Hayward include the Bay Area Air Quality Management District (BAAQMD), Alameda County Department of Environmental Health (ACEH), City of Hayward Fire Department.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) regulates the demolition of buildings and structures that may contain asbestos. The BAAQMD is vested with authority to regulate airborne pollutants through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work. The provisions that cover these operations are found in BAAQMD Regulation 11, Rule 2: Hazardous Materials; Asbestos Demolition, Renovation and Manufacturing. Individual project contractors are required to implement standard State and Federal procedures for asbestos containment and worker safety. The rule requires special handling of asbestos-containing building materials (ACBM) (e.g., by keeping materials continuously wetted). The Rule prohibits any visible emissions of ACBM to outside air. Individual project applicants are required to consult with the BAAQMD's Enforcement Division prior to commencing demolition of a building containing ACBM.

Alameda County Department of Environmental Health

The Alameda County Department of Environmental Health (ACEH) operates the Household and Small Business Hazardous Waste Collection Program.

City of Hayward Fire Department

The City of Hayward Fire Department is a Certified Unified Program Agency (CUPA) and has been certified by the State to implement the Unified Hazardous Materials and Hazardous Waste Management Program (Certified Unified Program Agency – CUPA Program) in the city. The City of Hayward Hazardous Materials Office administers the CUPA Program. The CUPA Program coordinates the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs:

- Hazardous Materials Release Response Plans and Inventories (Hazardous Materials Business Plans - HMBP)
- California Accidental Release Prevention (CalARP) Program
- Underground Storage Tank (UST) Program
- Aboveground Petroleum Storage Act (APSA) Program, including Spill Prevention, Control, and Countermeasure (SPCC) Plans
- Hazardous Waste Generator Program
- Onsite Hazardous Waste Treatment (Tiered Permit) Program
- California Fire Code Hazardous Material Management Plans (HMMPs), and Hazardous Materials Inventory Statements (HMISs)

In addition to performing responsibilities under the CUPA Program, the Hayward Fire Department implements the California Fire Code with local amendment (known as the "Hayward Fire Code")

The Hayward Fire Department implements the City of Hayward Comprehensive Emergency Management Plan. This Plan addresses the City's responsibilities in emergencies associated with natural disaster, human-caused incidents, and technological incidents, including hazardous materials vulnerability and hazardous materials transport. It defines the primary and support roles of City of Hayward agencies and departments in after-incident damage assessment and reporting requirements. The Plan also provides a framework for response and recovery coordination between the City and local, State, and Federal agencies. The Plan: (1) conforms to the State-mandated Standardized Emergency Management System (SEMS) and restructures emergency response in compliance with the Federal Emergency Management Agency (FEMA) Incident Command System (ICS); (2) establishes response policies and procedures to provide the City clear guidance for planning; (3) details steps necessary to protect lives and property; (4) outlines coordination requirements; and (5) provides the basis for unified training and response exercises. The Plan also meets the requirements of Alameda County's policies on Emergency Response and Planning.

The Hayward Fire Department also operates the Community Emergency Response Team (CERT) program. The program trains and certifies members of the public in basic emergency

response and organizational skills, including light fire suppression, hazardous materials awareness, first aid, light search and rescue techniques, and disaster response assistance.

Environmental Site Assessment (ESA) Procedures

A Phase I ESA is the initial investigation phase of a process established by the American Society for Testing and Materials Standards (ASTM),[4] sanctioned by U.S. courts, and underscored (cited) by the Superfund Clean-Up Act of 1998, as adequate due diligence by new purchasers of properties or their lenders prior to site development. Phase I ESAs must be completed prior to property development by private parties to establish that the buyer has exercised due diligence in purchasing the site.

The State of California and the U.S. Environmental Protection Agency (EPA) have established registration requirements and procedures for preparers of Phase I and Phase II ESAs. All ESAs in the state must be prepared by an associated Registered Environmental Assessor. EPA has also established substantive standards for the information to be included in Phase 1 ESAs. Under this environmental assessment process, a Phase I ESA report prepared for a real estate holding would identify existing or potential environmental contamination liabilities. The Phase I ESA typically addresses both the underlying land as well as physical improvements to the property. The Phase I ESA site examination typically includes a jurisdictional agency file search for any reported issues, and may also include definition of any evident signs of possible asbestos- or lead-containing building materials or chemical residues in existing structures; identification of possible hazardous substances stored or used onsite; assessment of possible mold and mildew; and discussion of other relevant hazardous materials issues. Actual sampling of soil, air, groundwater, or building materials typically is not conducted during a Phase I ESA. The Phase I ESA generally is considered the first step in the environmental due diligence process.

If a Phase I ESA indicates evidence of site contamination, a Phase II ESA would be required prior to site development. The Phase II ESA includes collection of original samples of soil, groundwater, or building materials to measure and analyze quantities of various contaminants. The most frequent substances tested for are petroleum hydrocarbons, heavy metals, pesticides, solvents, asbestos, and mold. Appropriate cleanup levels for each contaminant, based on current and planned land use, would be determined in accordance with professional procedures adopted by the lead jurisdictional agency (e.g., DTSC, RWQCB, BAAQMD, CUPA). At sites near ecological receptors, such as sensitive plant or animal species that could be exposed to hazardous materials, cleanup levels would be determined according to the jurisdictional agency's adopted standards.

Key Terms

The following key terms are used in this section. Also see the notes at the end of Table 9-4, which define the specific terms used in the table.

[4]ASTM Standard E1527-05.

Biohazard. An infectious agent or hazardous biological material that presents a risk or potential risk to the health of humans, animals, or the environment. The risk can be direct through infection or indirect through damage to the environment.

Brownfield. Abandoned, idled, or under-used real property where expansion or redevelopment is complicated by the presence or potential presence of environmental contamination.

Carcinogen. Any substance that can cause or aggravate cancer.

Corrosiveness. The ability to eat away materials and destroy human and animal tissue by chemical action (e.g., oven cleaner).

Exposure Pathway. The route through which a chemical can enter the body (e.g., through the skin, inhaling, ingesting).

Groundwater. Water that exists beneath the land surface in openings between soil and rock. Does not include water residue from underground mining.

Heavy Metal. An individual metal or metal compound that can negatively affect people's health. Though in very small amounts certain heavy metals are necessary to support life (e.g., iron, copper, manganese, zinc), heavy metals can become toxic when they are not metabolized by the body and accumulate in the soft tissues.

Ignitability. The ability to catch fire; flammable (e.g., lighter fluid, paint remover).

Leach. The process by which soluble substances are dissolved and transported down through the soil and may result in hazardous substances entering surface water, groundwater, or soil.

Petroleum Hydrocarbons. The primary constituents in oil, gasoline, diesel, and a variety of solvents.

Polychlorinated Biphenyls (PCBs). Manufactured chemicals formerly used as coolants and lubricants in transformers and other electrical equipment (e.g., fluorescent light ballasts, old televisions). In 1978, PCB production was banned in the U.S. because they may accumulate in the environment and may cause harmful health effects, including cancer.

Reactivity. The ability to create an explosion or produce deadly vapors (e.g., bleach mixed with ammonia cleaner).

Release/Occurrence. Any means by which a substance could harm the environment (e.g., spilling, leaking, dumping).

Remediate. The act or process of removing pollution or contaminants from the soil, groundwater, sediment, or surface water to protect human health and the environment.

Solvent. A substance that dissolves another substance (or substances) to form a solution. Solvents are usually, but not always, liquids. Liquid solutions that do not have water as a solvent are called non-aqueous solutions. For example, solvents can be used to dissolve greases, oils, and paints or thin or mix pigments, paints, glues, pesticides, and epoxy resins.

Toxicity. The ability to produce injury, illness, or damage to people, domestic animals, or wildlife through ingestion, inhalation, or absorption through the body (e.g., cleaning fluids, pesticides, bleach, drain cleaner).

Bibliography

Reports/Publications

Hayward, City of. Comprehensive Emergency Management Plan. Undated.

Hayward, City of. Route 238 Corridor Improvement Project Draft Environmental Impact Report. Prepared by Jones & Stokes. March 2007.

Websites

Alameda County Environmental Health. Household and Small Business Hazardous Waste Collection Program. http://www.acgov.org/aceh/household/index.htm. December 14, 2012.

California Department of Toxic Substances Control (DTSC), EnviroStor database. http://www.envirostor.dtsc.ca.gov/public/. December 6 and 18, 2012.

Hayward, City of. CERT: Community Emergency Response Team. http://www.ci.hayward.ca.us/CITY-GOVERNMENT/DEPARTMENTS/FIRE/DISASTER-PREPAREDNESS. December 18, 2012.

Hayward, City of. HMBP: Hazardous Materials Business Plan. http://user.govoutreach.com/hayward/faq.php?cid=10937. December 7, 2012.

Hayward, City of. Unified Hazardous Materials and Hazardous Waste Management Program (CUPA Program). http://user.govoutreach.com/hayward/faq.php?cid=10923. December 10, 2012.

Regional Water Quality Control Board (RWQCB). GeoTracker database. http://geotracker.waterboards.ca.gov/map. December 14, 2012.

SECTION 9.6 CLIMATE CHANGE IMPACTS

Introduction

This section summarizes the impacts from climate change that Hayward can expect to experience over the coming decades. It includes a discussion of the cause of climate change impacts, the effects of climate change, and how those effects will impact the city.

Major Findings

- Temperatures in Hayward have historically averaged about 57.3°F and are projected to rise between 3.6 and 6.0°F by 2100. Additionally, Hayward is projected to experience 90 extreme heat days per year and an increase of about 1.8°F in the temperature of extreme heat days by 2100. Hayward has historically experienced an average of four extreme heat days per year.
- Hayward is expected to generally experience a decrease in annual precipitation from an average of 24 inches in 2010 to 18 inches in 2100. However, Hayward precipitation is expected to become more variable, with an increase in the number of long dry spells in the summer, as well as a 20 to 30 percent increase in precipitation in the spring and fall.
- The spring snowpack in the Sierra Nevada, which provides 80 percent of the state's water, has decreased by 10 percent in the last century and may decrease up to 80 percent by 2100. For each 1.8°F increase in Earth's average temperature, the Sierra snowpack will retreat 500 feet in elevation.
- In 2011 Alameda County did not meet the California attainment standards for ozone, PM2.5, or PM10 pollutants, or the Federal attainment standards for ozone or PM2.5 pollutants.
- California sea level has risen by about seven inches over the 20th century and is predicted to rise between 19 to 55 inches by the end of the 21st century, depending on the emissions scenario. Most of the Hayward coastline west of the Pacific Railroad, as well as the area extending east along Tennyson Road to Mission Boulevard, is at risk of a 100-year flood caused by sea level rise.
- By 2100, 34,390 acres of Bay Area coastland (an increase of 44 percent), 66,000 county residents (an increase of 450 percent), 73,000 employees (an increase of 300 percent), 468 miles of transportation infrastructure, and $3.3 billion worth of buildings are anticipated to be vulnerable to a 100-year flood with a rise in sea level.
- Over 70 square miles of wetland in Alameda County may be impacted by a 55-inch rise in sea level. Floods also threaten ruderal areas, California annual grassland, exotic vegetation areas, and a few small agricultural parcels near the San Francisco Bay.
- In the Hayward planning area, 82 percent of Census tracts experience either high or medium level vulnerability to climate change. The majority of the remaining seven tracts that are less vulnerable to climate change are located almost entirely in the western portion of the city, which is mostly grassland.

Existing Conditions

Climate change is expected to affect us all, threatening to harm our health and safety. In particular, climate change will affect physical and mental health, economic stability, and overall quality of life. It will affect our access to, and the quality of, basic goods and services such as water, shelter, and food; as well as other key priorities for well-being such as education, employment, and crime rates. According to the U.S. Global Change Research Program, climate change is already reshaping the United States, and warns that global warming could have serious consequences for how Americans live and work.

Causes of Climate Change

The greenhouse effect naturally regulates the Earth's temperature. However, human activity has increased the intensity of the greenhouse effect by releasing increasing amounts of greenhouse gasses (GHGs) into the atmosphere. GHGs can remain in the atmosphere for decades. The GHG emissions that are already in the atmosphere will continue to cause climate change for years to come, just as the warming we are experiencing now is the result of emissions produced in the past. Climatic changes are happening now and are projected to increase in frequency and severity before the benefits of GHG emission reductions will be realized. Increased concentrations of GHGs in the atmosphere result in increased air, surface, and ocean temperatures. Many of the effects and impacts of climate change stem from resulting changes in temperature and meteorological responses to those changes.

The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, estimated that over the last century, global temperatures have increased by about 1.3 degrees Fahrenheit (°F).[5] IPCC forecasts indicate that global temperatures can be expected to continue to rise between 2.5 and 10°F over the next century. According to the California Climate Adaptation Strategy (ARB 2009), average state temperatures are currently predicted to increase 1.8 to 5.4°F by 2050 and 3.6 to 9°F by 2100.[6] Some regional models show average temperatures in California increasing as much as 10.8°F.

Temperature increase predictions are based on ranges of global GHG emissions expected within the next century. The IPCC temperature ranges mentioned above reflect a variety of low, medium, and high scenarios for emissions. Global GHG emissions are being monitored annually and they continue to increase. As a result, achieving the low emission scenarios has become unlikely, while the probability of reaching the medium and high scenarios is believed to be more likely. For purposes of this discussion, the focus is mostly on the effects of the medium- or high-range emissions scenario, although information about low ranges is also presented where relevant or available.

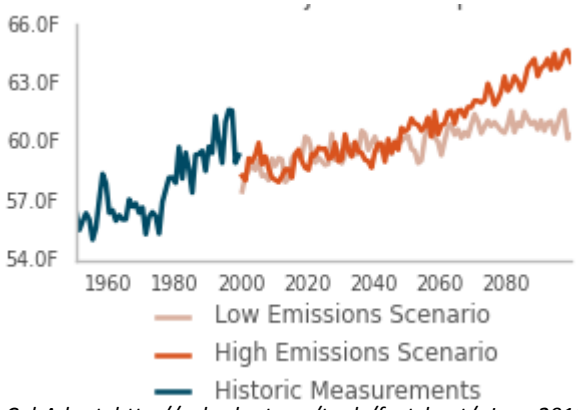
Hayward's Rising Temperatures

Hayward has already experienced a rise in average temperatures. According to the U.S. Global Change Research Program, winters are now shorter and warmer than they were 30 years ago. Temperatures in California have already risen 1°F on average.[7] According to Cal-Adapt, a climate change projection modeling tool developed by California Energy Commission, temperatures in Hayward have historically

[5]IPCC Fourth Assessment Report, 2007.
[6]California Climate Adaptation Strategy.Adopted, 2009.
[7]DWR. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

averaged about 57.3°F. As shown in Figure 9-8, temperatures are projected to rise between 3.6 and 6.0°F by 2100, based on average low and high emissions scenarios.

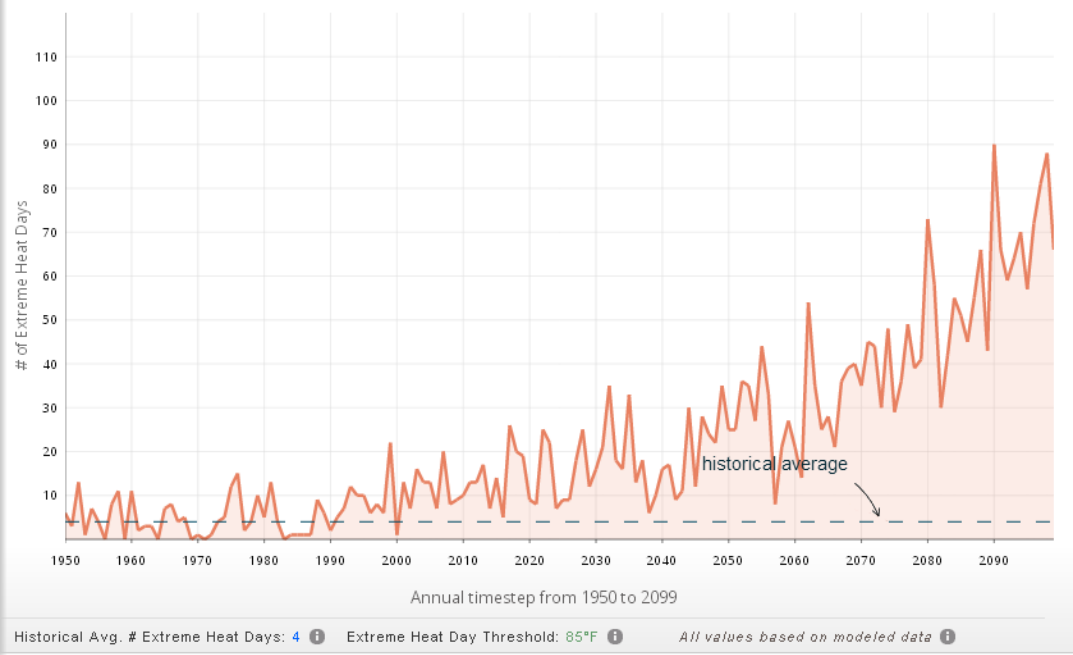
FIGURE 9-8: OBSERVED AND PROJECTED AVERAGE TEMPERATURES IN THE CASTRO VALLEY AREA FROM 1960 TO 2100



Source: Cal-Adapt, http://cal-adapt.org/tools/factsheet/, June 2011.

While temperatures are relatively low in Hayward compared to other areas in the state, Hayward will still experience temperature changes related to climate change. As shown in Figure 9-9, Hayward has historically experienced four extreme heat days per year (over 85°F), but by 2010 this number increased to 10 extreme heat days per year and is projected to increase to 90 extreme heat days per year by 2100. While Hayward does not currently (2010) experience heat waves, the city could experience up to 7 heat waves per year by 2100.

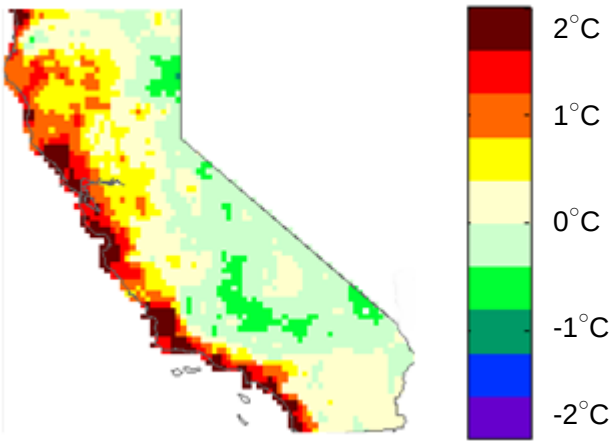
FIGURE 9-9: EXTREME HEAT DAYS IN THE CASTRO VALLEY AREA OBSERVED AND PROJECTED AVERAGE 1950 TO 2100



Source: Cal-Adapt, http://cal-adapt.org/tools/factsheet/, June 2011.

Figure 9-10 shows the projected increase in temperature for extreme heat days as compared to the projected warmer average temperatures in the state. Areas along the coast are expected to experience the greatest increase in extreme heat days. Hayward is expected to experience an increase of about 1.8°F in the temperature of extreme heat days by 2100.

FIGURE 9-10: EXTREME HEAT DAYS RELATIVE TO AVERAGE TEMPERATURES 2070-2099



Source: Scripps Institution of Oceanography. California Climate Extremes Workshop Report. December 13, 2011.

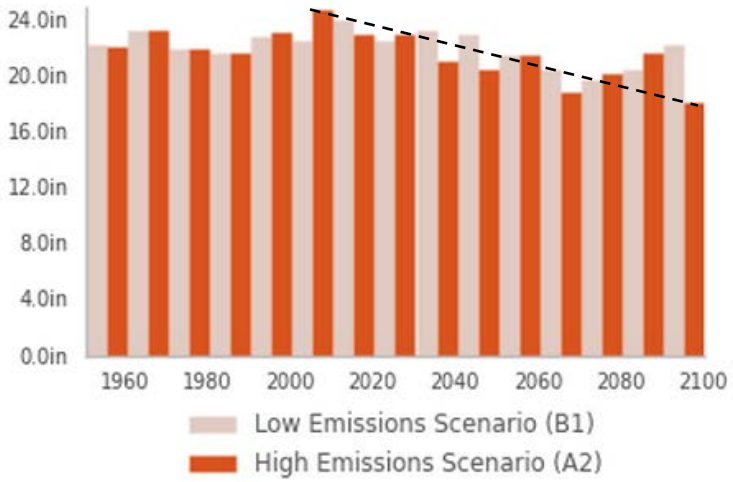
Anticipated Climate Change Effects in Hayward

Variable Precipitation Patterns

Precipitation levels are difficult to predict compared to other indicators of climate change. Annual rain and snowfall patterns vary widely from year to year, especially in California. Generally, higher temperatures increase evaporation and decrease snowfall, resulting in a drier climate. A majority of scientific models have shown that northern California precipitation is expected to decrease after 2030. Precipitation may decrease as much as 12 to 35 percent.[8] Additionally, more precipitation is expected to fall as rain rather than as snow.

According to Cal-Adapt, Hayward is expected to generally experience a decrease in annual precipitation by 2100. As shown in Figure 9-11, while precipitation is projected to fluctuate each decade and varies depending on the emissions scenario, annual precipitation could decrease from an annual average of 24 inches in 2010 to 18 inches in 2100 under the high emissions scenario. Other climate models predict more variable precipitation patterns for Hayward, with an increase in the number of long dry spells in the summer, as well as a 20 to 30 percent increase in precipitation in the spring and fall.[9]

FIGURE 9-11: CASTRO VALLEY AREA PRECIPITATION DECADAL AVERAGES OBSERVED AND PROJECTED 1960 TO 2100



Source: Cal-Adapt, http://cal-adapt.org/tools/factsheet/, June 2011.

Reduced Snowpack and Snowline at Higher Elevations

The Sierra Nevada snowpack acts as a large natural reservoir that stores water during the winter and releases it into Hetch Hetchy in the spring and summer. It is expected that there will be less snowfall in the Sierra Nevada and that the elevations at which snowfalls will rise. Coincidentally, there will be less snowpack water storage to supply runoff water in the warmer months. It has already been documented that California's snow line is rising. According to Cal-Adapt, more precipitation is expected to fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack (see Figure 9-12).

[8]California Natural Resources Agency. California Climate Adaptation Strategy. Adopted, 2009.
[9]City of Hayward. Hayward Climate Action Plan. October 8, 2009.

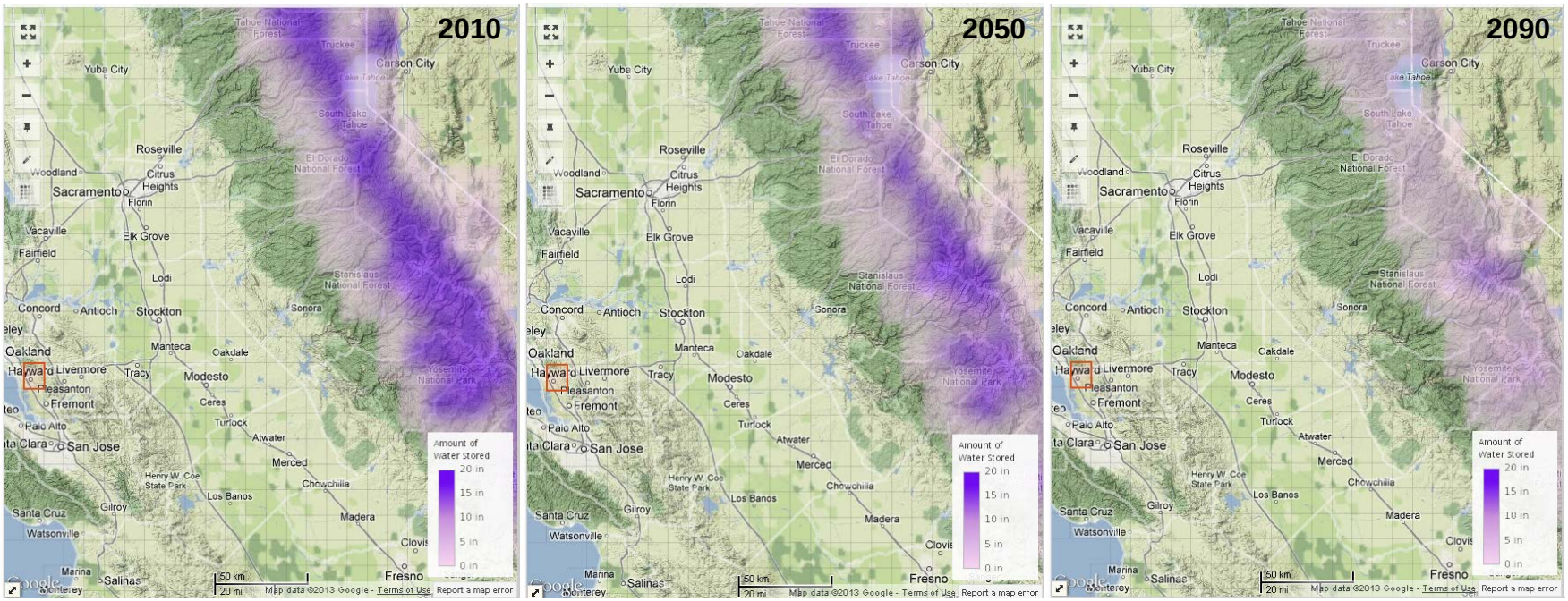
The spring snowpack in the Sierra Nevada decreased by 10 percent in the last century and may decrease up to 80 percent by 2100.[10] DWR also estimates that for each 1.8°F increase in Earth's average temperature, the Sierra snowpack will retreat 500 feet in elevation. According to DWR, the Sierra Nevada can expect to experience a decrease in snowpack at lower elevations and an overall reduction of 25 to 40 percent reduction in snowpack by 2050.

The Sierra Nevada snowpack provides approximately 80 percent of California's annual water supply, and it is the origin of the Tuolumne River, the primary source of water for the San Francisco regional water system. The water supplied to Hayward comes from reservoirs in the Tuolumne River watershed and delivered 150 miles from northern Yosemite Park to Hayward through the Hetch Hetchy aqueducts.

[10]DWR. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

FIGURE 9-12

SIERRA NEVADA SNOWPACK DECADAL AVERAGES OBSERVED AND PROJECTED 2010 TO 2090



Source: Cal-Adapt, http://cal-adapt.org/tools/factsheet/, June 2011.

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More Frequent and Extreme Storm Events

Extreme weather is expected to become more common throughout California. More extreme storm events are expected to increase water runoff to streams and rivers during the winter months, heightening flood risks. Warmer ocean surface temperatures have caused warmer and wetter conditions in the Sierra Nevada, increasing flood risk. Strong winter storms may produce atmospheric rivers that transport large amounts of water vapor from the Pacific Ocean to the California coast. They often last for days and drop heavy rain or snow for days. Many areas in the state, including Hayward, experienced 12 to 20 inches of rain in a three-day period sometime between 1950 and 2008.[11] As the strength of these storms increase and transport increased amounts of precipitation, the risk of flooding is increased.

California coastal areas like Hayward are expected to experience sustained flooding, landslides, and wind damage from regular large storm events. While most precipitation from these storms falls on the mountain ranges as clouds are pushed higher into the atmosphere and the water vapor they carry is cooled and condensed, the massive amount of snow and rain runoff from the Sierra Nevadas may flood the Central Valley and the surrounding areas on its way to exit into the San Francisco Bay. A massive 200-year flood event caused by an extreme storm (last occurring in 1861) is expected to flood the San Francisco Bay and the entire Central Valley by 2061, potentially causing $700 billion in damages.[12] A flood of this size may pose a greater risk than a large magnitude earthquake.

Diminished Air Quality

Climate change is expected to exacerbate air quality problems by increasing the frequency, duration, and intensity of conditions conducive to air pollution formation. Higher temperatures and increased ultraviolet radiation from climate change are expected to facilitate the chemical formation of more secondary air pollutants from ground-level sources. Conversely, decreased precipitation is expected to reduce the amount of particulates cleansed from the air.[13]

Californians experience the worst quality air in the nation. More than 90 percent of California's population lives in an area that has ozone or particulate matter levels above the State air quality standard.[14] Incidents of wildfires in nearby foothills and mountain regions are expected to increase and further contribute to air quality problems. In 2011 Alameda County did not meet the California attainment standards for ozone, PM2.5, or PM10 pollutants, or the Federal attainment standards for ozone or PM2.5 pollutants.[15]

Sea Level Rise

Rising sea levels are expected to occur in the future due to temperature increases that cause ocean water to expand, Arctic and glacial ice to melt, and increased amounts of snowpack runoff to enter the sea.

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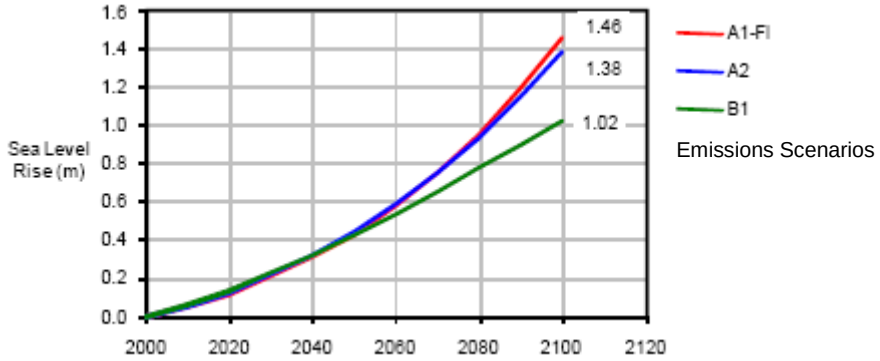
[11]F.M. Ralph and M.D. Dettinger. Historical and National Perspectives on Extreme West Coast Precipitation Associated with Atmospheric Rivers During December 2010. American Meteorological Society. June 2012.
[12]Michael D. Dettinger and B. Lynn Ingram. The Coming Megafloods.Scientific American. January 2013.
[13]Luers, Amy L. et al. (2006). Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center.CEC-PIER Report, CEC-500-2006-077, Sacramento, CA.
[14]Luers, Amy L. et al. (2006). Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center.CEC-PIER Report, CEC-500-2006-077, Sacramento, CA.
[11] California Air Resources Board. Area Designations Maps/State and National. 2011. http://www.arb.ca.gov/desig/adm/adm.htm, January 2013.

California's ocean surface temperature patterns have been warmer than normal for the past decade, a condition known as Pacific Decadal Oscillation.[16] California sea level appears to have risen by about seven inches over the 20th century and is predicted to rise between 19 to 55 inches by the end of the 21st century, depending on the emissions scenario (see Figure 9-13).[17]

FIGURE 9-13: OBSERVED AND PROJECTED CALIFORNIA SEA LEVEL RISE



Source: Scripps Institution of Oceanography, 2012.

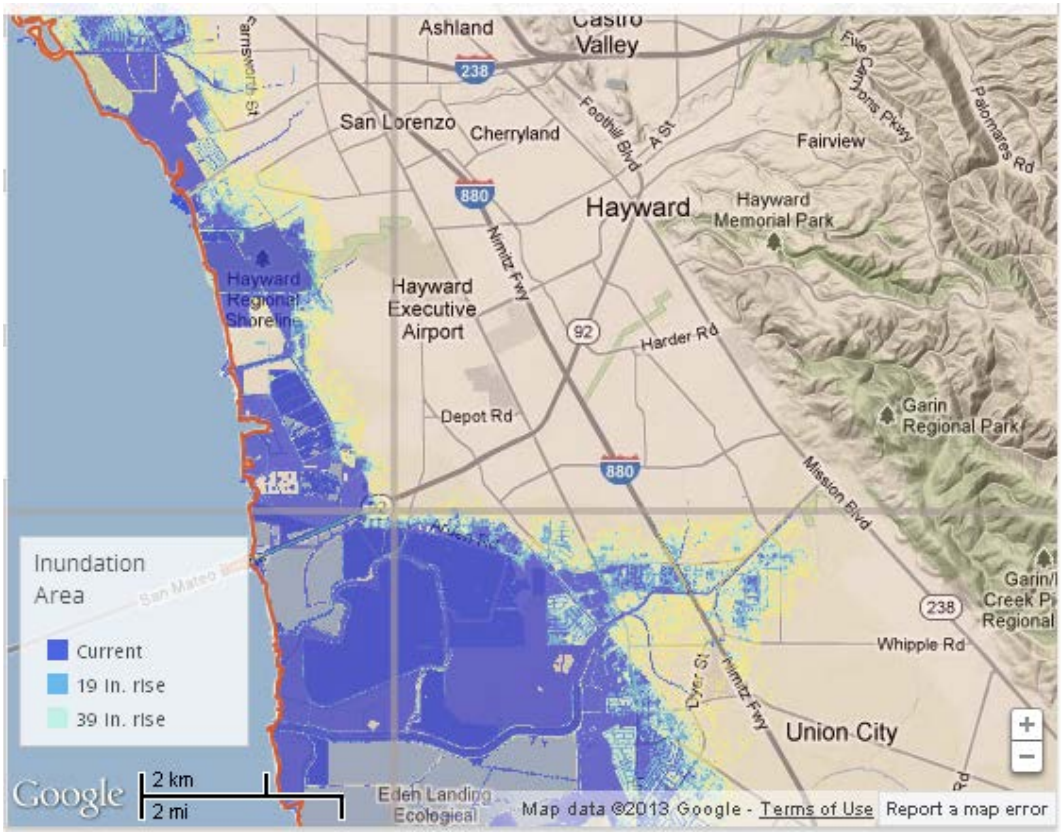
Hayward is located adjacent to the San Francisco Bay. As shown in Figure 9-14, most of Hayward's western edge past the Pacific Railroad, as well as the area extending east along Tennyson Road to Mission Boulevard, are at risk of a 100-year flood with a rise in sea level as of 2000 or by 2100.[18] In 2000, 19,410 acres of Bay Area coastland is vulnerable to a 100-year flood with a rise in sea level, and the amount of land at risk could increase by 44 percent to 34,930 acres by 2100.

[16]Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

[17]California Natural Resources Agency. California Climate Adaptation Strategy. Adopted, 2009. Resolution of the California Ocean Protection Council on Sea-Level Rise, Adopted on March 11, 2011.

[18]Pacific Institute. Impacts of Sea Level Rise on the California Coast. 2012. http://www.pacinst.org/reports/sea_level_rise/gmap.html, January 17, 2013.

FIGURE 9-14: HAYWARD AREAS SUBJECT TO A 100-YEAR FLOOD EVENT



Note: Areas in yellow are at risk with 5 foot 7 inch sea level rise, equivalent to the 2100 year flood event area in Table 9-6 above.

Source: Cal-Adapt, http://cal-adapt.org/tools/factsheet/, June 2011.

Sea level rise in the San Francisco Bay as of 2000 put 12,000 Alameda County residents at risk of flooding and could put up to 66,000 Alameda County residents, or about four-and-the-half times as many, at risk of flooding by 2100 (see Table 9-6).[19] In 2000, 19,000 employees are also at risk of flooding, and this number could increase by almost three times to 73,000 by 2100.[20] Of all the counties in the Bay Area, only San Mateo County has a greater number of residents at risk of flooding at 100,000 people.

[19] Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

[20] Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

TABLE 9-6 POPULATION AND EMPLOYMENT VULNERABLE TO A 100-YEAR FLOOD EVENT ALAMEDA COUNTY 2000					
Unit	**0" Rise**	**20" Rise**	**40" Rise**	**55" Rise**	**Percent Change (0" to 55")**
Population	12,000	22,000	43,000	66,000	450%
Employees	19,000	27,000	48,000	73,000	284%

Source: Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

Anticipated Climate Change Impacts on Hayward

According to the 2009 California Climate Change Adaptation Strategy, Hayward can expect to experience increased average temperatures with overall hotter and drier conditions, reductions in winter snow, increases in winter rains, accelerating sea-level rise, and more extreme weather events. The Cal Adaptation Strategy indicates that extreme weather events (e.g., heat waves), wildfires, droughts, and floods are likely to be some of the earliest climate impacts. However, there is some uncertainty about when, where, and to what extent these impacts will affect Hayward's residents, businesses, and natural environments.

Water Supply and Quality

Climate change is expected to increase pressure on and competition for water resources, further exacerbating already stretched water supplies. Decreasing snowpack and spring stream flows and increasing demand for water from a growing population and hotter climate could lead to increasing water shortages. Water supplies are also at risk from rising sea levels.

The San Francisco Bay Area is expected to experience hotter and drier conditions and reduced snowpack that could cause reduced reservoir supplies and river flows. The region may experience more intense rainfall events that could increase demand for reservoir capacity to provide for water capture and storage. As a result, water supply is expected to decrease and water yields from reservoirs are expected to become more unreliable. As Earth's temperature rises, water demands are expected to increase and could result in a longer season of peak treated water demands. Competition for water is expected to increase among cities, farmers, and the environment.

Changes to air and land temperatures will have an impact on the timing, amount, type, and location of precipitation and runoff. This will impact the quantity of water supplies, the management of those quantities, the quality of the source water, and the demand for treated drinking water. DWR has identified anticipated changes to the source water conditions in the watershed that will likely impact the quality of the source waters, including more intense storm events, longer drought periods, reduced snowpack at lower elevations, and earlier spring runoff.[21]

[21]Department of Water Resources. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

Changes in source water quantity and quality may impact the treatment necessary to produce potable drinking water. These changes could result in additional treatment processes required and increased costs for treated drinking water in order to avoid potential for human health risk via drinking water consumption.

Health and Safety

Respiratory Illness

As temperatures rise from global warming, the frequency and severity of heat waves will grow and increase the potential for bad air days, which can lead to increases in illness and death due to dehydration, heart attack, stroke, and respiratory disease. Presently, poor air quality results in 8,800 deaths per year across California.[22] In Summer 2006, the Bay Area Air Quality Management District (BAAQMD) registered 11 "Spare the Air" days and exceeded the California one-hour standard for ozone (set at 90 ppb) 18 times. Additionally, dry conditions can lead to a greater number of wildfires producing smoke that puts people with asthma and respiratory conditions at risk of illness or death.

Heat-related Illness

Higher temperatures and the increased frequency of heat waves associated with climate change are expected to significantly increase heat-related illnesses, such as heat exhaustion and heat stroke, while also exacerbating conditions associated with cardiovascular and respiratory diseases, diabetes, nervous system disorders, emphysema, and epilepsy.

In California heat waves have killed more people than all other disaster events in the last 15 years, usually affecting vulnerable populations such as infants, the sick, the elderly, or those of low incomes who lack access to air conditioning or work outdoors.[23] An increase of every 10°F in average daily temperature is associated with a 2.3 percent increase in mortality.[24] During heat waves mortality rates can increase to about 9 percent. By 2100 Hayward could experience up to a 6 percent increase in average temperature and up to seven heat waves per year. While temperatures in Hayward are relatively low compared to other areas in the state, vulnerable populations such as children, the elderly, people with existing illnesses, and people who work outdoors will face the greatest risk of heat-related illness.

[22]Sacramento Metropolitan Air Quality Management District." Air Quality Information for the Sacramento Region." 2010. http://www.airquality.org/aqdata/attainmentstat.shtml.
[23]California Department of Water Resources.Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.
[24]Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

Vector-borne Diseases

As climate change affects the temperature, humidity, and rainfall levels across California, some areas could become more suitable habitats for insects (especially mosquitoes), ticks, and mites that may carry diseases. Wetter regions are typically more susceptible to vector-borne diseases, especially human hantavirus cardiopulmonary syndrome, Lyme disease, and West Nile virus.[25]

The amount and pattern of precipitation, as well as warmer winter weather, affects the abundance of vector habitat and food supply. Hayward is projected to have wetter and warmer winters that may attract vector populations (e.g., mosquito inhabited still-water pools may become more prolific).

Floods can also increase the food supply available to rodents that may transmit Lyme disease, plague, tularemia, and rickettsial infections.[26] In each of these cases the increase in vector-borne disease occurrences is expected to impact public health and increase demand on health care systems.

Health Care Systems

Finally, increased health and safety impacts are expected to cause a corresponding demand for health care and place additional strain on health care systems by overloading emergency rooms and medical facilities. As a result, residents and businesses may experience increased health care costs and higher insurance premiums.

Flood Risk

Increased flood frequency and elevated flood risk are expected in California as a result of sea level rise, more intense storm events, and shifts in the seasonal timing of rainfall and snowpack runoff. Hayward is protected by a system of levees that will be further strained to meet the challenges expected from sea level rise and more extreme storm events. Additionally, more frequent and heavier precipitation may cause flooding and landslides, which would result in considerable costs in damages to property, infrastructure, and even human life.

Most of the Hayward city edge west of the Pacific Railroad, as well as the area extending east along Tennyson Road to Mission Boulevard, are at risk of a 100-year flood with a rise in sea level either as of 2000 or by 2100.[27] As shown in Table 9-7, a 100-year flood would damage a great deal of Hayward infrastructure.[28] In 2000, 1.1 miles of existing highways, 76 miles of existing roadways, and 9.1 miles of existing railways are threatened by a 100-year flood. With a 55-inch rise in sea level projected by 2100, 23 miles of highways, 410 miles of roadways, and 35 miles of railways are expected to be threatened by a 100-year flood. As shown in Figure 9-15, Hayward commute times across the San Mateo Bridge could increase by four to five times the existing (2011) commute. Additionally, a 2100 100-year flood threatens water and sewer infrastructure at the western city edge from Hayward Shoreline all the way inland to Huntwood Avenue.

[25]Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

[26]Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

[27] Pacific Institute. Impacts of Sea Level Rise on the California Coast. 2012. http://www.pacinst.org/reports/sea_level_rise/gmap.html, January 17, 2013.

[28] Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

TABLE 9-7 MILES OFINFRASTRUCTURE VULNERABLE TO A 100-YEAR FLOOD EVENT ALAMEDA COUNTY 2000					
Unit	**0" Rise**	**20" Rise**	**40" Rise**	**55" Rise**	**Percent Change (0" to 55")**
Highways	1.1	4.8	14	23	1,991%
Roadways	76	160	280	410	439%
Railways	9.1	17	35	49	438%

Source: Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

FIGURE 9-15: BAY AREA FREEWAYS IMPACTED BY PROJECTED COASTAL FLOODING (2012)

Source: Scripps Institution of Oceanography. California Climate Extremes Workshop Report. December 13, 2011.

Overall, $3.3 billion worth of buildings are at risk of flood damage in Alameda County as of 2000. This number could increase to $15 billion with a 55-inch rise in sea level. Residential buildings face the greatest flood risk, making up 51 percent of the total. Commercial and industrial buildings follow, making up 32 and 14 percent of the total, respectively. Government buildings face the least flood risk, making up only 1 percent of the overall total.

As shown in Figure 9-16, many of Hayward's public resources are at risk. The City's Water Pollution Control Facility and the San Mateo Bridge, which connects Hayward to San Mateo across the San Francisco Bay, are both located within the 2100 100-year flood zone. Two health care facilities in Hayward are located within the 2100 100-year flood zone: Crescent Health Care, Inc. Hospice Agency and

Kaiser Foundation Hospital. Alvarado Middle School in the New Haven Unified School District, located outside the planning area but providing services to Hayward, is located in the 2100 100-year flood zone. Several parks are threatened by the 2100 100-year flood, including: Shoreline Interpretive Center, Hayward Shoreline, Skywest Golf Course, Alden E. Oliver Sports Park, Christian Penke Park, and Gorden E. Oliver/Eden Shores.

Additionally, there are 10 EPA-regulated hazardous materials sites located within the 2100 100-year flood zone. Three of these sites are also currently (2000) at-risk of a 100-year flood. Three other EPA-regulated hazardous materials sites are located in Union City at Hayward's southern border adjacent to the Eden Landing Ecological Reserve. Inundation at these sites puts Hayward at risk for exposure to toxic chemicals. With a 55-inch rise in sea level by 2100, up to 63 hazardous material sites in Alameda County as a whole will be at risk.

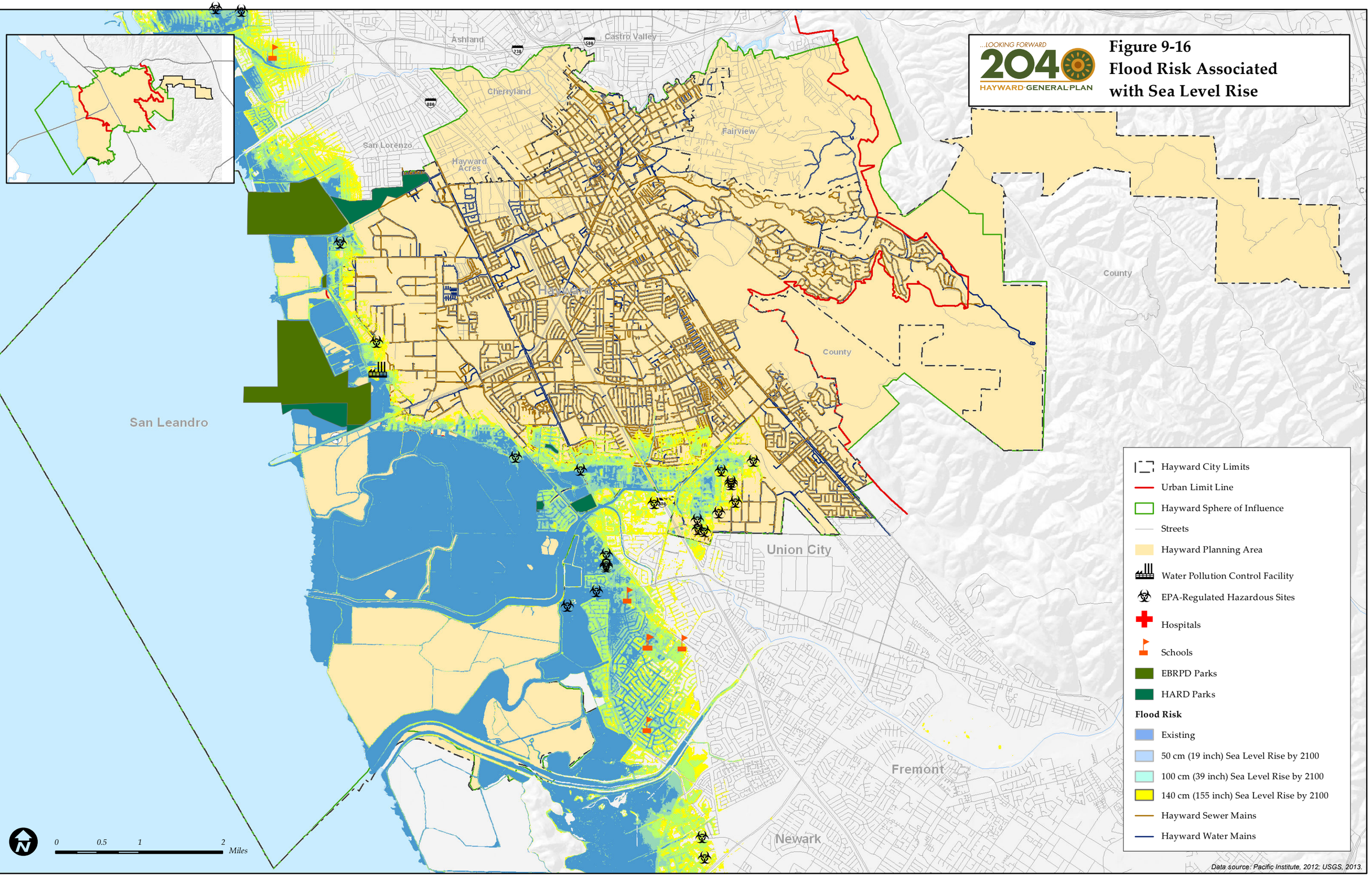
Fire Risk

Recent practice of wildfire suppression has resulted in large fuel loads accumulating in many grassland ecosystems, leading to a dramatic increase in large-scale wildfires in the western United States. Fire season has also become longer in duration due to warmer, earlier springs that dry out vegetation, and more serious as drought and temperature increases intensify the drying effect of the season. The eastern Hayward planning area boundary is surrounded by fielded or wooded regional parkland and open space located in the Garin and Pleasanton Regional Parks. As shown in Figure 9-17, the areas adjacent to Hayward in Alameda County are subject to increasing fire risk by 2100.[29]

[29]California Climate Change Center. Our Changing Climate. 2012.

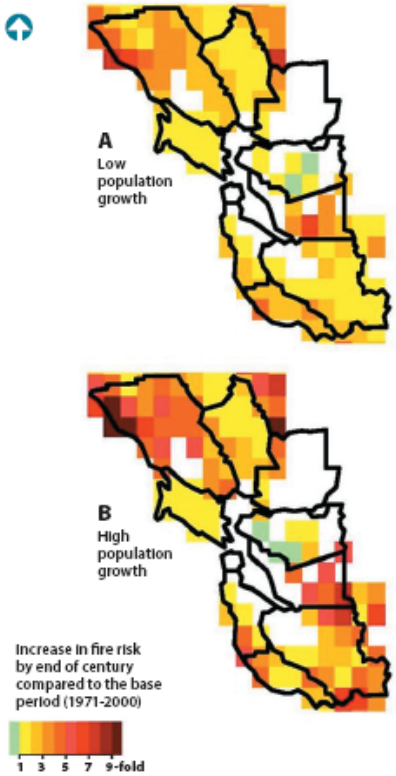
Figure 9-16
Flood Risk Associated with Sea Level Rise

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN



February, 2013

FIGURE 9-17: WILDFIRE RISK IN THE SAN FRANCISCO BAY



Source: California Climate Change Center. Our Changing Climate. *2012.*

Economic Growth and Stability

Economic impacts due to climate change will likely affect all sectors of the economy with negative consequences. A study conducted in 2008 by the University of California, Berkeley, and Next10, estimated that if no action is taken, potential statewide direct costs due to climate change-induced damage could exceed tens of billions of dollars annually, with even higher direct economic costs and placing trillions of dollars of real estate at risk. Consequently, the economic well-being of communities declines with higher risk and greater uncertainty about the future. Residents, businesses, and public agencies will likely see everyday costs for food and services increase. Costs will increase to cover energy, water, food, and health related issues, leaving less money for discretionary household spending, business investment and profits, and government services.

Overall energy demand could increase 6 percent by 2020[30] and electricity demand by residential dwellings could increase by up to 55 percent by 2100.[31] Energy costs are expected to rise as demand increases to cool buildings due to higher temperatures and extreme heat waves. Energy prices may also be affected due to more variable energy supplies locally and from increased competition for electricity, natural gas, and oil.

Water is crucial for the economy, as virtually every industry relies on it to grow and ultimately sustain their business. Water costs will likely rise due to increased demands for potable, landscaping, and

[30]California Energy Commission. Climate Change Impacts and Adaptation in California. June 2005.

[31]Impact of Climate Change on Residential Electricity Consumption.

irrigation water use (e.g., metered water cost increases) and scarcity of and competition for water supplies. Some businesses claim water availability is a bigger challenge than energy security, and that we may run out of water before we run out of fuel.[32] Water shortages and reduced water quality may result in regulatory caps for water use and conflicts between local businesses and communities.

Food prices are expected to increase as the agricultural sector experiences lower yields or crop patterns shift due to higher temperatures and droughts, crops are damaged from extreme weather events, and/or operation costs increase (e.g., irrigation water costs). The amount of irrigated land may increase by as much as 40 percent by 2080.[33]

Workforce productivity may be more frequently disrupted by climate change-induced health impacts to residents and employees due to vector- and water-borne disease; heat related illness; and increased demand for and costs of health care. Outdoor labor and industries (e.g., construction) may be at even higher risk as more frequent, unhealthy working conditions become more common (e.g., higher temperatures, poorer air quality, heat waves, extreme weather events). Workers may be harmed when climate-related events, such as floods, cause them to lose their jobs and incomes. The indirect effects of climate change also may lead to similar outcomes, as businesses move away from areas affected by climate change impacts to less affected areas.

Finally, climate change impacts will likely result in property damage due to hotter temperatures, more extreme weather events, and flooding. Damages to development in the western United States due to extreme weather and storm events have already exceeded $1 billion in six of the past 15 years (1981 to 2006).[34] Preparation for and adaptation to new and changing conditions will likely generate new costs that were not necessary to address similar concerns in the past. Residents, businesses, and the City can expect increased costs for maintenance and upgrades to address these issues, or to make repairs in the event of damage. As climate change generates conditions not experienced in the past, preparation and adaptation will be more costly in terms of requiring new information, institutions, infrastructure, and behaviors.

Environmental Protection

Climate change effects will have broad impacts on local and regional ecosystems, habitats, and wildlife as average temperatures increase, precipitation patterns change, and more extreme weather events occur. Although species have adapted to environmental changes for millions of years, a quickly changing climate could require adaptation on larger and faster scales than in the past. Similarly, the timing of many natural events, such as growing seasons and migrations, are linked to temperature, moisture availability, and amount of daylight. Changes in weather patterns and extreme events associated with climate change will disrupt these natural patterns. Species that cannot adapt are at risk of extinction. Even the loss of a single species can have subsequent impacts on other species connected through food webs and other relationships. Climate change is expected to radically and quickly change the ecosystems that many plants and animals rely on for survival.

[32] Pacific Institute. Water Scarcity and Climate Change: Growing Risks for Businesses and Investors. Ceres. February 2009.
[33] Pacific Institute. Water Scarcity and Climate Change: Growing Risks for Businesses and Investors. Ceres. February 2009.
[34]NOAA National Climatic Data Center. 2006. 1980-2006 Billion Dollar Weather Disasters. www.ncdc.noaa.gov/img/reports/billion/disasters2006.pdf.

Some species will be able to adapt to changing habitats by shifting their range or altitudes in order to adjust to rising temperatures. However, others might not be able to adapt fast enough to keep pace with the rate of climate change. Climate change may even allow some species to increase the range of habitat where they can live; however, plants and animals that need to move to survive may find wildlife corridors blocked or face competition from other species.

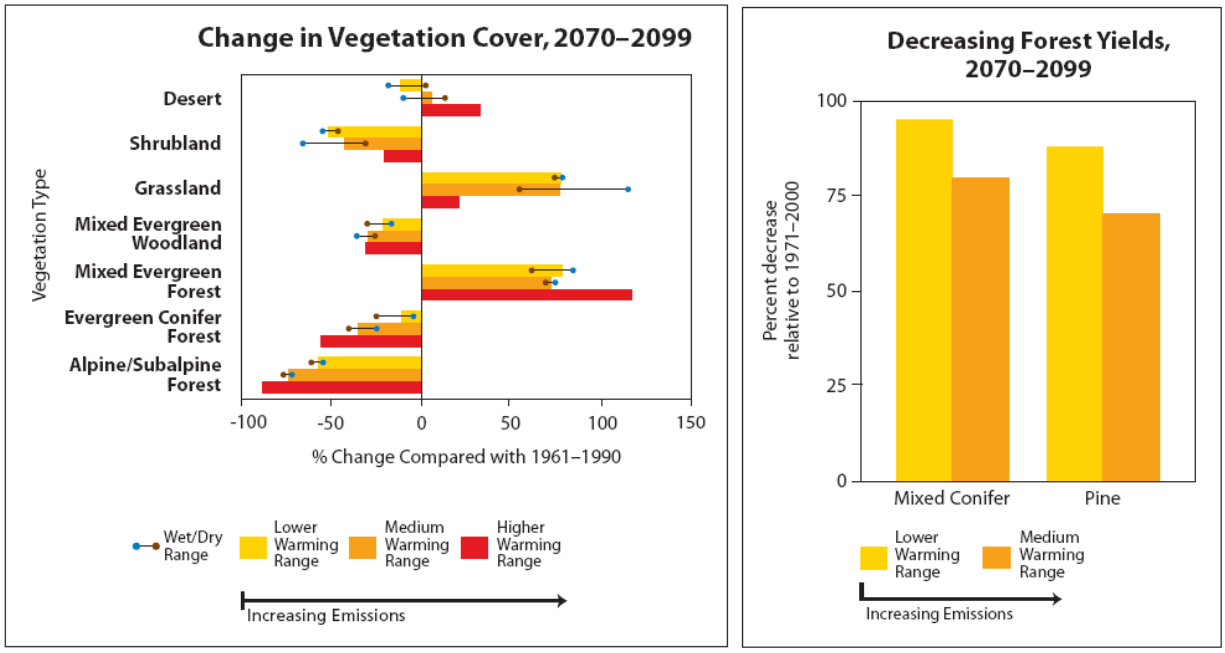
The risk of extinction could increase for many species, especially those that are already endangered or at risk due to isolation by geography or human development, low population numbers, or a narrow temperature tolerance range. Additionally, as species move to more favorable areas, new competitions for food and resources may form. Some species that thrive may be invasive (not native to a region) and could gradually drive out or even kill native species.

As temperatures increase, California vegetation is expected to change. As shown in Figure 9-18, desert and grassland vegetation is projected to increase while forest vegetation is projected to generally decline. The natural cycle of plant flowering and pollination, as well as the temperature conditions necessary for a thriving locally adapted agriculture, may also be affected. Perennial crops, such as grapes, may take years to recover. Increased temperatures also provide a foothold for invasive species of weeds, insects, and animals.

The increased flow and salinity of water resources could seriously affect habitat and food sources for fish that are of both economic and recreational interest to residents. Native fish such as salmon are vulnerable to floods, which deposit silt on their eggs. Freshwater fish such as coho salmon and steelhead trout are at risk of extinction as water temperatures rise with global temperatures. Other animals are affected by changing weather patterns and events. Sparrow chick populations coincide with precipitation levels and extreme heat waves negatively impact the breeding pattern of Cormarant seabirds.[35]

[35]Scripps Institution of Oceanography. California Climate Extremes Workshop Report. December 13, 2011.

FIGURE 9-18: CHANGE IN VEGATATION COVER 2070-2099



Source: California Climate Change Center. Our Changing Climate: Assessing the Risks to California. July 2006.

Sea level rise would result in the erosion of beaches, bay shores, river deltas, marshes, and wetlands, and would increase the salinity of estuaries, marshes, rivers, and aquifers. This increased salinity has the potential to damage or destroy crops in low-lying farmlands, and has serious impacts on water supplies. Flooding also threatens natural resources. Over 70 square miles of wetland in Alameda County are expected be impacted by a 55-inch rise in sea level. Floods also threaten ruderal areas, California annual grassland, exotic vegetation areas, and a few small agricultural parcels in Hayward near the San Francisco Bay.

Hayward vegetation is also threatened by fire. The eastern Hayward planning area boundary is adjacent to the very high fire hazard severity areas in Garin and Pleasanton Regional Parks. These areas are mostly made up of central and southern California mixed evergreen woodland, chaparral and scrub, oak woodland savannah, California annual grassland, and ruderal areas.

Social Vulnerability to Climate Change

The impacts of climate change will not affect us equally. Some people are more likely to be impacted than others. People exposed to the most severe climate-related hazards are often those least able to cope with the associated impacts, due to their limited adaptive capacity. Globally, climate change is expected to have a greater impact on a larger population living in poorer and developing countries. People in these areas have lower incomes and rely on natural resources and agricultural systems that will likely be affected by changing climates. These countries also often lack the technology and social systems needed to address and adapt to climate change on a large scale.

Certain groups in developed countries like the United States will also experience more impacts from climate change than others. People in rural areas are more likely to be affected by climate change impacts, such as droughts or severe storms, compared to their urban counterparts. However, certain groups living in cities will also be at higher risk than others. Hayward residents who are at greatest risk for the impacts

described earlier in this section include children, the elderly, those with existing health problems (i.e., obese youth), the socially and/or economically disadvantaged (i.e., people of color, foreign born population, households speaking little English, low income households, unemployed, population without a high school diploma), those who are less mobile (i.e., living in group quarters, women giving birth in the last 12 months, households without a vehicle), and those who work outdoors.[36] Place of residence is another vulnerability indicator, as renters, households without air conditioning, households lacking access to grocery stores, households in treeless areas, and households on impervious land cover are also more vulnerable to climate change impacts.

As shown in Figure 9-19, 15 of the 39 Census tracts (38 percent) in the Hayward Planning Area are considered highly vulnerable to the impacts of climate change. These tracts are concentrated within the central city area. Another 16 tracts are considered to be relatively vulnerable to the impacts of climate change, meaning that 82 percent of tracts within the Hayward planning area experience either high- or medium-level vulnerability to climate change. The majority of the remaining seven tracts that are less vulnerable to climate change are located almost entirely in the eastern portion of the city, which is mostly grassland.

However, the presence of vulnerable populations by type is varied in Hayward. Vulnerability was calculated by z-scores, which measure a variable's distance from the mean (average). Many tracts in the central area have a high percentage (over 60 percent) of renters. All tracts in the city are 55 percent or more non-white and tracts in most of the city are more than 38 percent foreign born. Many tracts throughout Hayward include 6.5 percent or more unemployed residents, while many others include 12.5 percent or more outdoor workers. Many tracts have over 8 percent of women who gave birth in the last 12 months, and quite a few more have over 50 percent of obese youth.

Tracts at the city edge, especially in the east included 27 percent or more residents without easy access to a grocery store. Most tracts on the western side of the city included less than 1 percent of land covered by a tree canopy, and tracts on either side of the intersection of SR 92 and I-880 included 61 percent or more impervious land cover.[37]

[36] Pacific Institute. Mapping Social Vulnerability to Climate Change in California. 2012. http://pacinst.org/reports/climate_vulnerability_ca/maps/, January 17, 2013.
[37] Pacific Institute. Mapping Social Vulnerability to Climate Change in California. 2012. http://pacinst.org/reports/climate_vulnerability_ca/maps/, January 17, 2013; Multi-Resolution Land Characteristics Consortium (2001) National Land Cover Data.

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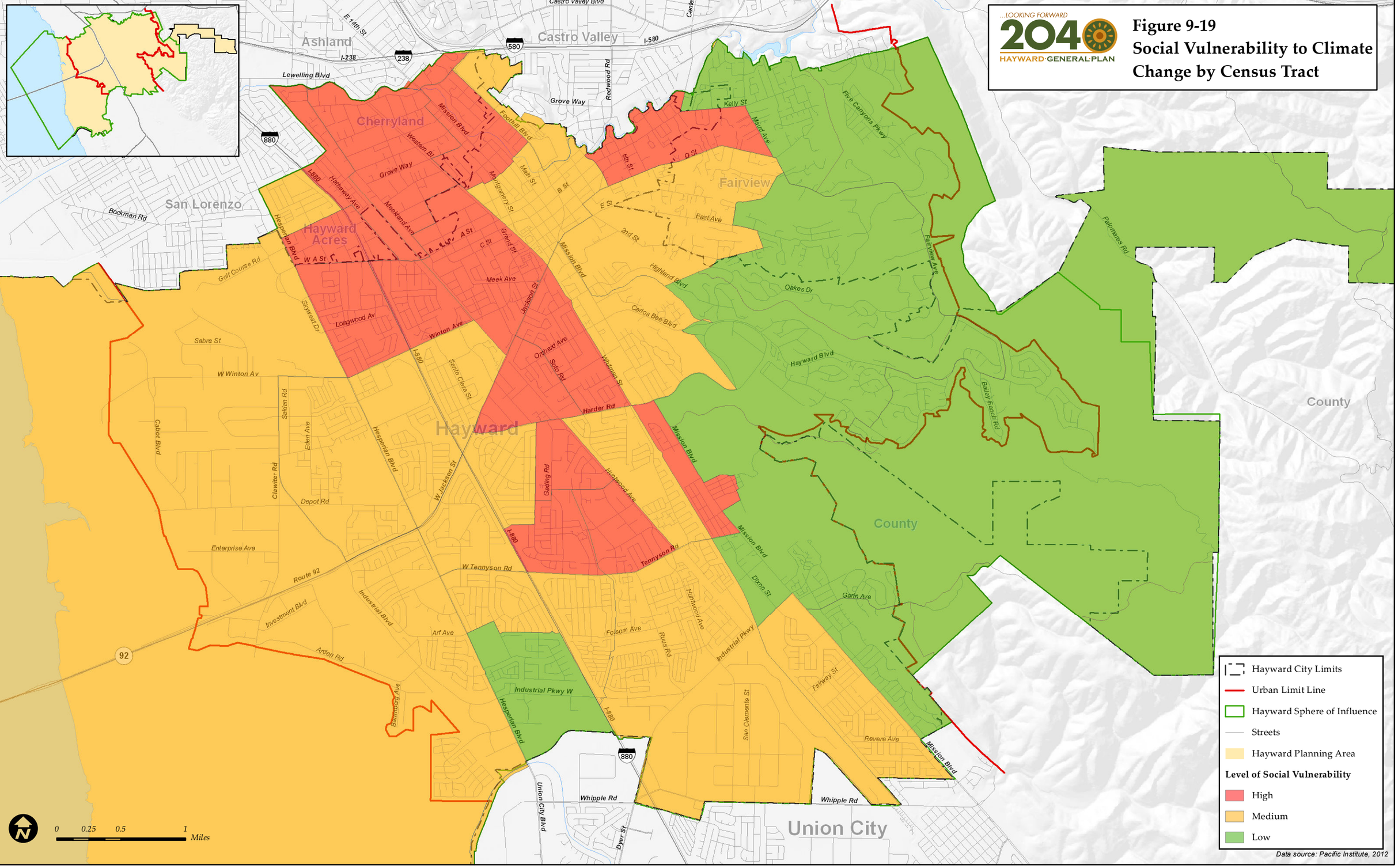
Figure 9-19
Social Vulnerability to Climate Change by Census Tract



Data source: Pacific Institute, 2012

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State and Local Climate Change Initiatives

Executive Order S-13-08, signed by Governor Arnold Schwarzenegger in 2008, requires development of a Climate Adaptation Strategy that directs statewide management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events. The California Natural Resources Agency (CNRA) adopted the California Climate Change Adaptation Strategy in 2010. The Strategy is grouped into seven subject areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. CNRA also adopted updated CEQA guidelines that provide direction on addressing GHG emissions in environmental review documents.

In November 2009 the California State legislature passed and the Governor approved a comprehensive package of water legislation, including SB 7x7 addressing water conservation. In general SB 7x7 requires a 20 percent reduction in per capita urban water use by 2020, with an interim 10 percent target in 2015. The legislation requires urban water users to develop consistent water use targets and to use those targets in their Urban Water Management Plans (UWMPs). SB 7x7 also requires certain agricultural water supplies to implement a variety of water conservation and management practices and to submit Agricultural Water Management Plans in 2012.

City of Hayward

Hayward has adopted several plans with policies guiding the city to adapt to climate change impacts. The Urban Water Management Plan (UWMP) supports long-term water resource planning and determines the availability of water supplies to meet current and future demand. The UWMP set targets for reducing urban per-capita usage and achieve reductions by 2015 and 2020 to comply with SB 7x7, formally known as the Water Conservation Bill of 2009. The City of Hayward also adopted a Water Shortage Contingency Plan that contains four stages of conservation actions. Stage I voluntary actions are triggered by a shortage of 10 percent or less. Stage II and III actions are mandatory prohibitions triggered by shortages of 10 to 20 percent and 20 to 50 percent, respectively. State IV actions are triggered by a shortage greater than 50 percent and include rationing efforts.

The City of Hayward has also adopted several programs to help reduce greenhouse gas emissions and adapt to the impacts of climate change:

- **Bay-friendly Water Efficient Landscape Ordinance.** The Bay-friendly Water Efficient Landscape Ordinance establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects. It includes provisions for water management practices and water waste prevention for existing landscapes and uses Bay-friendly Landscaping as a whole systems approach to the design, construction, and maintenance of the landscape. The Ordinance also adopts the Bay-friendly Landscape Guidelines, Bay-friendly Landscape Scorecards, and the Bay-friendly Gardening Guide.
- **Indoor Water Efficiency Ordinance.** The Indoor Water Efficiency Ordinance includes standards for new construction and remodels and the efficient landscaping ordinance. These standards mandate installation of the most water-conserving fixtures that are available and which have been shown to work effectively.

Regulatory Setting

Federal Emergency Management Agency. In March 2003 the Federal Emergency Management Agency (FEMA) became part of the U.S. Department of Homeland Security. FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage Federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration.

U.S. Environmental Protection Agency (EPA). The U.S. Environmental Protection Agency (EPA) is responsible for developing and enforcing regulations that implement environmental laws enacted by Congress. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits, monitoring, and enforcing compliance.

California Department of Public Health. A major component of the California Department of Public Health, Division of Drinking Water and Environmental Management is the Drinking Water Program (DWP), which regulates public water systems. Regulatory responsibilities include enforcement of Federal and State Safe Drinking Water acts, regulatory oversight of approximately 8,700 public water systems, oversight of water recycling projects, issuance of water treatment permits, and certification of drinking water treatment and distribution operators. Other functions include supporting and promoting water systems security, providing support for small water systems and for improving technical, managerial, and financial (TMF) capacity, and providing subsidized funding for water system improvements under the State Revolving Fund (SRF) and Proposition 50.

California Department of Water Resources. The California Department of Water Resources is responsible for preparing and updating the California Water Plan, which is a policy document that guides the development and management of the State's water resources. The plan is updated every five years to reflect changes in resources and urban, agricultural, and environmental water demands. The California Water Plan suggests ways of managing demand and augmenting supply to balance water supply with demand.

California Public Utilities Commission (CPUC). The California Public Utilities Commission (CPUC) is a State agency created by constitutional amendment to regulate privately owned telecommunications, electric, natural gas, water, railroad, rail transit, passenger transportation, and in-state moving companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility services at reasonable rates while also protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas (CPUC Decision 95-08-038). The CPUC also regulates rates and charges for basic telecommunication services, such as how much you pay for the ability to make and receive calls.

Executive Order S-13-08. Executive Order S-13-08, signed by Governor Arnold Schwarzenegger in 2008, requires development of a Climate Adaptation Strategy that directs statewide management of climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events.

Senate Bill (SB) 7x7 Statewide Water Conservation. In November 2009 the California State legislature passed and the Governor approved a comprehensive package of water legislation, including Senate Bill

(SB) 7x7 addressing water conservation. In general SB 7x7 requires a 20 percent reduction in per capita urban water use by 2020, with an interim 10 percent target in 2015. The legislation requires urban water users to develop consistent water use targets and to use those targets in their UWMPs. SB 7x7 also requires certain agricultural water supplies to implement a variety of water conservation and management practices and to submit Agricultural Water Management Plans in 2012.

City of Hayward 2010 Urban Water Management Plan. The Urban Water Management Plan (UWMP) supports long-term water resource planning and determines the availability of water supplies to meet current and future demand. The UWMP quantifies current and future water demands over a 25-year planning horizon, assesses the reliability of water supplies in normal and dry years, describes water shortage contingency plans, and describes current and planned demand management and water conservation efforts. The UWMP also set targets for reducing urban per-capita usage and achieve reductions by 2015 and 2020 to comply with SB7, formally known as the Water Conservation Bill of 2009.

City of Hayward Water Shortage Contingency Plan. The City of Hayward also adopted a Water Shortage Contingency Plan that contains four stages of conservation actions. Stage I voluntary actions are triggered by a shortage of 10 percent or less. Stage II and III actions are mandatory prohibitions triggered by shortages of 10 to 20 percent and 20 to 50 percent respectively. State IV actions are triggered by a shortage greater than 50 percent and include rationing efforts.

City of Hayward Municipal Code. The City of Hayward Municipal Code includes regulations related to climate change impacts:

- City of Hayward Municipal Code Chapter 10, Article 12, Bay-friendly Water Efficient Landscape Ordinance establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects.
- City of Hayward Municipal Code Chapter 10, Article 20, Bay-friendly Landscaping Ordinance requires all new development with landscapes to meet the most recent minimum Bay-friendly Landscape Scorecard points as recommended by StopWaste.org.
- City of Hayward Municipal Code Chapter 10, Article 23, Indoor Water Efficiency Ordinance includes standards for new construction and remodels and the efficient landscaping ordinance.
- Resolution 11-170 adopted the Association of Bay Area Governments (ABAG) 2010 Multi-Jurisdictional Local Hazard Mitigation Plan, including the City of Hayward Annex.

Key Terms

The following key terms used in this chapter are defined as follows:

Adaptation. Adaptation is preparing for climate change impacts that are expected to occur, by making adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects that are aimed at minimizing harm or taking advantage of beneficial opportunities.

Atmospheric River. An atmospheric river is a meteorological phenomenon that draws water vapor from the Pacific Ocean near the equator and transports it to the U.S. West Coast.

Carbon dioxide equivalent (CO_2e). Carbon dioxide equivalent (CO_2e) is adistinct measure for describing how much global warming a given type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of CO_2 as the reference.

Climate Change. Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.

Climate Impacts. Climate impacts are the consequences of climate change on natural and human systems.

Electricity. Electricity is a natural phenomenon, either through lightening or the attraction and repulsion of protons and electrons to create friction, that in turn forms an electric current or power.

Emissions Scenario. An emissions scenario is a plausible representation of the future development of emissions of substances that are potentially radiatively active (e.g., greenhouse gases, aerosols), based on a coherent and internally consistent set of assumptions about driving forces (e.g., demographic and socio-economic development, technological change) and their key relationships. Concentration scenarios, derived from emissions scenarios, are used as input into a climate model to compute climate projections.

Environmental Protection Agency (EPA)-regulated Hazardous Materials Sites. Environmental Protection Agency (EPA)-regulated hazardous materials sites includes facilities generating or transporting hazardous waste, or recycling, treating, storing, or disposing (TSD) of hazardous waste.

Erosion. Erosion is the process of removal and transport of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, winds, and underground water.

Extreme Heat Days. An extreme heat day is a day in April through October where the maximum temperature exceeds the 98thhistorical percentile of maximum temperatures based on daily temperature data between 1961-1990.

Extreme Storm Events. Extreme storm events refer to the increase in precipitation intensity and variability, increase in wind speed, and increase in ocean temperatures that increase the number and intensity of tropical cyclones and hurricanes that can increase the risk of flooding, drought, erosion, turbidity, debris in reservoirs, nutrient and pollutant loading, and wildfires.

Flood. A flood is a temporary rise in flow rate and/or stage (elevation) of any watercourse or stormwater conveyance system that results in runoff exceeding normal flow boundaries and inundating adjacent, normally dry areas.

Fuel Load. Fuel load is the buildup of easily ignited dry vegetation in grassland areas or on the forest floor.

Global Warming. Global warming is the recent and ongoing global average increase in temperature near the Earth's surface.

Greenhouse Effect. The greenhouse effect describes the warming of the Earth's atmosphere due to accumulated carbon dioxide and other gases in the upper atmosphere. These gases absorb energy radiated from the Earth's surface, "trapping" it in the same manner as glass in a greenhouse traps heat.

Greenhouse Gases (GHG). Greenhouse gases are gases that contribute to the greenhouse effect. Some GHGs such as carbon dioxide occur naturally, and are emitted to the atmosphere through natural processes and human activities. Other GHGs (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHGs that enter the atmosphere because of human activities include: water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), Chlorofluorocarbons (CFCs), and fluorinated gases (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)).

Heat-related Illness. Heat-related illnesses are a group of physically related illnesses caused by prolonged exposure to hot temperatures, restricted fluid intake, or failure of temperature regulation mechanisms of the body. Disorders of heat exposure include heat cramps, heat exhaustion, and heat stroke.

Heat Waves. Heat waves are a prolonged period of excessive heat, often combined with excessive humidity. A heat wave is defined as 5 or more consecutive extreme heat days.

Invasive Species. An invasive species is an introduced species that invades natural habitats.

Landslide. Landslide is a general term for a falling mass of soil or rocks.

Levee. A levee is a dike or embankment constructed to confine flow to a stream channel and to provide protection to adjacent land. A levee designed to provide 100-year flood protection must meet FEMA standards.

Mortality Rate. The mortality rate is the rate of occurrence of death within a population within a specified time period; calculation of mortality takes account of age-specific death rates, and can thus yield measures of life expectancy and the extent of premature death.

Native Species. A native species is a species indigenous to a natural habitat.

Natural Gas. Natural gas is a hydrocarbon gas mixture that is widely used as an energy source in a variety of applications including heating buildings, fueling vehicles, and generating electricity.

One Hundred Year (100-year) Flood. The one-hundred year (100-year) flood is a flood event that has a 1 percent chance of occurring in any given year.

Pacific Decadal Oscillation (PDO). Pacific Decadal Oscillation is the pattern and time series of the first empirical orthogonal function of sea surface temperature over the North Pacific north of 20°N. PDO broadened to cover the whole Pacific Basin is known as the Inter-decadal Pacific Oscillation (IPO). The PDO and IPO exhibit virtually identical temporal evolution.

Precipitation. Precipitation is the amount of rain, snow, hail, etc., that has fallen at a given place within a given period, usually expressed in inches or centimeters of water.

Reservoir. A reservoir is an artificial or natural storage place for water, such as a lake, pond, or aquifer, from which the water may be withdrawn for such purposes as irrigation, water supply, or irrigation.

Sea-level rise. Sea level rise is an increase in the mean level of the ocean. Eustatic sea-level rise is a change in global average sea level brought about by an alteration to the volume of the world ocean.

Relative sea level rise occurs where there is a net increase in the level of the ocean relative to local land movements. Climate modelers largely concentrate on estimating eustatic sea-level change. Impact researchers focus on relative sea-level change.

Silt. Silt is unconsolidated or loose sedimentary material whose constituent rock particles are finer than grains of sand and larger than clay particles.

Snowline. The snowline is the lower altitudinal boundary of a snow-covered area, especially of one that is perennially covered, such as the snowcap of a mountain.

Storm Runoff. Storm runoff is the surplus surface water generated by rainfall that does not seep into the earth but flows overland to flowing or stagnant bodies of water.

Snowpack. Snowpack is a seasonal accumulation of slow-melting snow.

Ultraviolet Radiation (UV). Ultraviolet radiation (UV) is the energy range just beyond the violet end of the visible spectrum. UV radiation is the major energy source for the stratosphere and mesosphere, playing a dominant role in both energy balance and chemical composition.

Vector. A vector is an organism, such as an insect, that transmits a pathogen from one host to another.

Vector-borne Diseases. Vector-borne diseases are diseases transmitted between hosts by a vector organism such as a mosquito or tick (e.g., malaria).

Vulnerability. Vulnerability is the degree to which a system is exposed to, susceptible to, and (un)able to cope with and adapt to the adverse effects of climate change, including climate variability and extremes.

Watershed. A watershed is the total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake, or reservoir.

Wildland Fire. Any fire occurring on undeveloped land.

Z-score. A Z-Score is a statistical measure that tells how a single data point compares to normal data and describes not only whether a point was above or below average, but how unusual the measurement is.

Bibliography

Reports/Publications

Aroonruengsawat, Anin and Maximilian Auffhammer. Impacts of Climate Change on Residential Electricity Consumption: Evidence from Billing Data. California Climate Change Center. CEC-PEIR Report, CEC-500-2009-018-D. Draft 2009.

California Climate Adaptation Strategy. Adopted, 2009.

California Energy Commission. Climate Change Impacts and Adaptation in California. June 2005.

California Natural Resources Agency. California Climate Adaptation Strategy. Adopted, 2009.

Cayan, Dan, and Mary Tyree, Mike Dettinger, Hugo Hidalgo, Tapash Das, Ed Maurer, Peter Bromirski, Nicholas Graham, and Reinhard Flick. Climate Change Scenarios and Sea Level Rise Estimates for the California Climate Change Scenarios Assessment. Climate Change Center, CEC-PEIR Report, CEC-500-2009-014-F. 2009.

Department of Water Resources. Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water. October 2008.

Dettinger, Michael D. and B. Lynn Ingram. The Coming Megafloods. Scientific American. January 2013.

Hayhoe, K., D. Cayan, C.B. Field, P.C. Frumhoff, E.P. Maurer, N.L. Miller, S.C. Moser, S.H. Schneider, K.N. Cahill, E.E. Cleland, L. Dale, R. Drapek, R.M. Hanemann, L.S. Kalkstein, J. Lenihan, C.K. Lunch, R.P. Neilson, S.C. Sheridan, and J.H. Verville, Emissions pathways, climate change, and impacts on California. Proceedings of the National Academy of Sciences of the United States of America, 2004. 101(34): p. 12422-12427.

IPCC Fourth Assessment Report, 2007.

Luers, Amy L. et al. Our Changing Climate: Assessing the Risks to California. The 2006 Summary Report from the California Climate Change Center. CEC-PIER Report, CEC-500-2006-077, Sacramento, CA. 2006.

Office of Environmental Health Hazard Assessment. Indicators of Climate Change in California. April 2009.

Pacific Institute. The Impacts of Sea Level Rise on the San Francisco Bay. Prepared for the California Energy Commission CEC-500-2012-014, July 2012.

Pacific Institute. Water Scarcity and Climate Change: Growing Risks for Businesses and Investors. Ceres. February 2009.

Ralph, F.M. and M.D. Dettinger. Historical and National Perspectives on Extreme West Coast Precipitation Associated with Atmospheric Rivers During December 2010. American Meteorological Society. June 2012.

Resolution of the California Ocean Protection Council on Sea-Level Rise, Adopted on March 11, 2011.

Scripps Institution of Oceanography. California Climate Extremes Workshop Report. December 13, 2011.

Websites

California Air Resources Board. Area Designations Maps/State and National. 2011. http://www.arb.ca.gov/desig/adm/adm.htm, January 2013.

California Energy Commission. http://cal-adapt.org/. Public Interest Energy Research (PIER) Program. January 17, 2013.

Pacific Institute. Impacts of Sea Level Rise on the California Coast. 2012. http://www.pacinst.org/reports/sea_level_rise/gmap.html, January 17, 2013.

Pacific Institute. Mapping Social Vulnerability to Climate Change in California. 2012. http://pacinst.org/reports/climate_vulnerability_ca/maps/, January 17, 2013.

United States Geological Survey. Potential Inundation due to Rising Sea Levels in the San Francisco Bay Region. 2013. http://cascade.wr.usgs.gov/data/Task2b-SFBay/, January 17, 2013.

9.7 NOISE

This section includes a description of relevant acoustical background information, including fundamental principles of acoustics; a description of the existing community noise environment in the Hayward General Plan Update Study Area; applicable federal, state and local regulations; and key terms.

Major Findings

- Based on ambient noise level measurements throughout the City of Hayward, the predominant sources of noise include traffic noise on major roadways, freight and passenger trains, and aircraft.
- Roadway traffic is the most significant source of noise affecting sensitive land uses in Hayward. Freeways and major arterial roadways are the most significant sources of traffic noise. Based on the traffic-noise modeling, the roadways in the Planning Area with the greatest modeled traffic-noise levels are listed below:
  - I-880
  - I-580
  - I-238
  - SR-92
  - Foothill Boulevard
  - Mission Boulevard
  - Hesperian Boulevard
  - Jackson Street
  - Winton Avenue
  - Industrial Boulevard
  - Industrial Parkway West
- Of the road segments modeled, the 60 dBA traffic noise contour ranges from 137 feet to 23,045 feet from the centerline. Residential land uses located within the 60 dBA contour along these road segments are currently exposed to noise levels above the 60 dBA CNEL standard for residential land uses.
- In addition to traffic noise on local roadways, freight and passenger trains operating along three north-south rail lines contribute to community noise levels. Based on the modeling conducted, the 60 dBA CNEL railroad noise contour is approximately 950 to 1,120 feet from the centerline of these three railroads. Residential land uses located within the 60 dBA contour along these railroad lines are currently exposed to noise levels above the 60 dBA CNEL standard for residential land uses.
- The Hayward Executive Airport Land Use Compatibility Plan (2012) establishes noise compatibility policies and criteria for sensitive land uses within the 60 dBA and higher CNEL noise contours. The plan restricts extremely noise sensitive land uses within the 60 dBA CNEL

contour and requires mitigation measures for moderately sensitive land uses within the 60 dBA CNEL contour.

- Noise generated by industrial facilities and other stationary sources contribute to the ambient noise environment in their immediate vicinities.

Existing Conditions

Acoustics Fundamentals

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Common sources of environmental noise and noise levels are presented in Table 9-8.

TABLE 9-8
TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet	100	
Gas lawnmower at 3 feet	90	
Diesel truck moving at 50 mph at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet

Commercial area, Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large conference room (background)
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall (background)
Quiet rural nighttime	20	Broadcast/Recording Studio
Threshold of Human Hearing	0	Threshold of Human Hearing

Sound Properties

A sound wave is initiated in a medium by a vibrating object (e.g., vocal chords, the string of a guitar, the diaphragm of a radio speaker). The wave consists of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variation cycles occurring per second is referred to as the frequency of the sound wave and is expressed in hertz.

Directly measuring sound pressure fluctuations would require the use of a very large and cumbersome range of numbers. To avoid this and have a more useable numbering system, the decibel scale was introduced. A sound level expressed in decibels (dB) is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure. For sound pressure in air the standard reference quantity is generally considered to be 20 micropascals, which directly corresponds to the threshold of human hearing. The use of the decibel is a convenient way to handle the million-fold range of sound pressures to which the human ear is sensitive. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100 fold increase in acoustical energy.

The loudness of sound perceived by the human ear depends primarily on the overall sound pressure level and frequency content of the sound source. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. The standard weighting networks are identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels (dBA). For this reason the dBA can be used to predict community response to noise from the environment, including noise from transportation and stationary sources. All sound levels discussed in this section are A-weighted decibels unless otherwise noted.

Noise can be generated by a number of sources, including mobile (i.e., transportation) sources such as automobiles, trucks, and airplanes; and stationary (i.e., non-transportation) sources such as construction sites, machinery, and commercial and industrial operations. As acoustic energy spreads through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Noise generated from mobile sources generally attenuate at a rate of 4.5 dB per doubling of distance. Stationary noise sources spread with more spherical dispersion patterns that attenuate at a rate of 6 to 7.5 dB per doubling of distance.

Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may additionally alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a large object (e.g., barrier, topographic features, and intervening building façades) between the source and the receptor can provide significant attenuation of noise levels at the receiver. The amount of noise level reduction (i.e., shielding) provided by a barrier primarily depends on the size of the barrier, the location of the barrier in relation to the source and receivers, and the frequency spectra of the noise. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may be used as noise barriers.

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides a minimum exterior-to-interior noise reduction of 25 dB with its windows closed, whereas a building constructed of a steel or concrete frame, a curtain wall or masonry exterior wall, and fixed plate glass windows of one-quarter-inch thickness typically provides an exterior-to-interior noise reduction of 30–40 dB with its windows closed (Caltrans 2009).

Effects of Noise on Humans

Excessive and chronic exposure to elevated noise levels can result in auditory and non-auditory impacts to humans. Auditory effects of noise on people are those related to temporary or permanent hearing loss caused by loud noises. Non-auditory effects of exposure to elevated noise levels are those related to behavioral and physiological effects. The non-auditory behavioral effects of noise on humans are associated primarily with the subjective effects of annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning. The non-auditory physiological health effects of noise on humans have been the subject of considerable research attempting to discover correlations between exposure to elevated noise levels and health problems, such as hypertension and cardiovascular disease. The mass of research infers that noise-related health issues are predominantly the result of behavioral stressors and not a direct noise-induced response. The extent to which noise contributes to non-auditory health effects remains a subject of considerable research, with no definitive conclusions.

The degree to which noise results in annoyance and interference is highly subjective and may be influenced by several non-acoustic factors. The number and effect of these non-acoustic environmental and physical factors vary depending on individual characteristics of the noise environment such as sensitivity, level of activity, location, time of day, and length of exposure. One key aspect in the prediction of human response to new noise environments is the individual level of adaptation to an existing noise environment. The greater the change in the noise levels that are attributed to a new noise source, relative to the environment an individual has become accustom to, the less tolerable the new noise source will be perceived.

With respect to how humans perceive and react to changes in noise levels, a 1 dB increase is imperceptible, a 3 dB increase is barely perceptible, a 6 dB increase is clearly noticeable, and a 10 dB increase is subjectively perceived as approximately twice as loud (Egan 2007). These subjective reactions to changes in noise levels was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dB, as this is the usual range of voice and interior noise levels. For these reasons, a noise level increase of 3 dB or more is typically considered substantial in terms of the degradation of the existing noise environment.

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, level of the noise, and the exposure time (Caltrans 2009).

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency (relative to displacement), velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006). This is based on a reference value of 1 micro (μ) in/sec.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate ground vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006).

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by events such as blasting, impact pile driving, and wrecking balls. Continuous vibrations result from activities such as vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 9-9 describes the general human response to different levels of ground vibration-velocity levels.

TABLE 9-9 HUMAN RESPONSE TO DIFFERENT LEVELS OF GROUND NOISE AND VIBRATION	
Vibration-Velocity Level	**Human Reaction**
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Note: VdB = vibration decibels referenced to 1 µ inch/second and based on the RMS velocity amplitude.
Source: FTA 2006

Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship, hotels and transient lodging, and other places where low interior noise levels are essential are also considered noise-sensitive. Those noted above are also considered vibration-sensitive land uses in addition to commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

The following sensitive land uses have been identified in the Planning Area:

- Residential areas: All residential dwellings, including single-family units, multi-family units, and mobile homes;
- Schools: elementary, middle, and high schools; and colleges and universities
- Hospitals and Care Facilities
- Parks, Recreation, and Open Space Areas
- Hotels and Transient Lodging
- Places of Worship and Libraries

Existing Community Noise Environment

The predominant noise sources within the Planning Area are mobile sources, including motor vehicles on roadways, freight and passenger trains, and aircraft. Stationary sources from existing land uses also contribute to the existing noise environment. A total of nine ambient noise level measurements, including two long-term 24-hour and seven short-term measurements, were conducted to characterize the existing noise environment at different locations within the city of Hayward. Figure 9-20 shows the locations of each sound level measurement and Table 9-10 summarizes the measured sound level at each location.

TABLE 9-10
SUMMARY OF AMBIENT NOISE LEVEL MEASUREMENTS
City of Hayward

Measurement Location[1]	Start (Date/Time)	Stop (Date/Time)	A-Weighted Sound Level (dBA)					
Short-Term			L_{eq}	L_{max}		L_{min}		
ST-1	February 12, 2013/3:25 PM	February 12, 2013/3:40 PM	59.2	77.5		44.1		
ST-2	February 12, 2013/2:40 PM	February 12, 2013/2:55 PM	51.3	64.2		40.1		
ST-3	February 12, 2013/11:25 AM	February 12, 2013/11:40 AM	59.4	74.5		48.3		
ST-4	February 12, 2013/2:10 PM	February 12, 2013/2:25 PM	64.2	81.6		46.2		
ST-5	February 12, 2013/12:35 PM	February 12, 2013/12:50 PM	62.6	82.4		41.4		
ST-6	February 12, 2013/1:35 PM	February 12, 2013/1:50 PM	51.7	64.7		41.5		
Long-Term			**CNEL/L_{dn}**	**Daytime**			**Nighttime**	
				L_{eq}	L_{max}	L_{min}	L_{eq}	L_{max}	L_{min}
LT-1	February 12, 2013/11:00 AM	February 13, 2013/11:00 AM	63.9/63.7	58.1	89.3	41.2	55.0	89.3	55.0
LT-2	February 13, 2013/1:00 PM	February 14, 2013/1:00 PM	62.0/61.7	60.2	77.1	47.1	53.5	74.6	43.9
LT-3	February 14, 2013/3:00 PM	February 15, 2013/3:00 PM	61.8/61.6	57.2	89.6	40.5	48.6	84.0	37.4

[1]Refer to Figure 9-20 for ambient noise level measurement locations.
Source: Field data collected by Ascent Environmental, Inc., February 2013.

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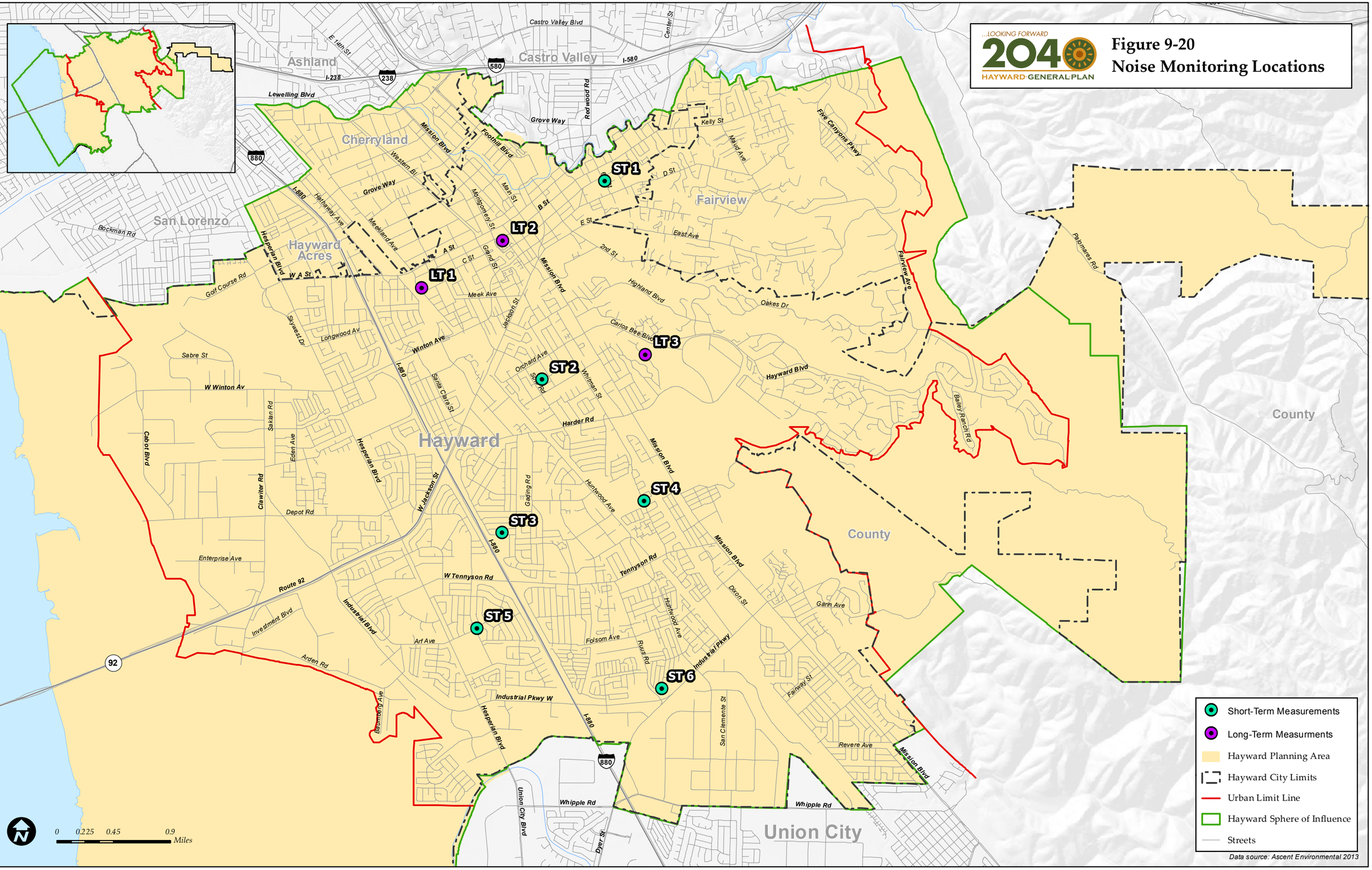
...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-20
Noise Monitoring Locations



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Existing Traffic Noise

Major freeways in the Planning Area include I-880, I-580, Interstate 238, and SR 92. There are also several major urban arterials, including (but not limited to) Foothill Boulevard, Mission Boulevard, Hesperian Boulevard, and Industrial Parkway.

Traffic noise was modeled for 80 roadway segments (including 64 local road and 16 freeway segments) within the City of Hayward and adjacent areas. Table 9-11 summarizes the modeled existing traffic noise levels at 50 feet from the centerline of each major roadway and lists distances from each roadway centerline to the 70 dBA, 65 dBA, 60 dBA, and 55 dBA CNEL/Ldn traffic noise contours. Traffic noise modeling results are based on existing average daily traffic (ADT) volumes and speeds as indicated by a traffic study conducted by Kittleson & Associates and supplemented by Caltrans data for freeway segments (Caltrans 2011). Traffic noise modeling was conducted based on Caltrans' traffic noise analysis protocol and the technical noise supplement (Caltrans 2006 and 2009). The modeling does not account for any natural or human-made shielding (e.g., the presence of topography, vegetation, berms, walls, or buildings) and; consequently, represents worst-case noise levels on a horizontal plain.

TABLE 9-11
SUMMARY OF MODELED EXISTING TRAFFIC NOISE LEVELS
City of Hayward

Roadway Segment	Location	CNEL (dB) at 50 feet from Roadway Centerline	Distance to Noise Contours (Feet from Roadway Centerline)			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55 CNEL (dBA)
SR-92	Bridge Toll Plaza to Clawiter Road	82	779	2,463	7,788	24,629
SR-92	Clawiter Road to Industrial Boulevard	82	829	2,620	8,285	26,201
SR-92	Industrial Boulevard to Hesperian Boulevard	82	812	2,568	8,120	25,677
SR-92	Hesperian Boulevard to I-880	83	911	2,882	9,114	28,821
SR-92	I-880 to Santa Clara Street	79	387	1,224	3,869	12,236
SR-238	I-580- to Mission Boulevard	85	1,717	5,429	17,169	54,293
I-580	Crow Canyon Road to Redwood Road	85	1,548	4,896	15,483	48,962
I-580	Redwood Road to Strobridge Avenue	85	1,673	5,291	16,732	52,911
I-580	Strobridge Avenue to I-238	85	1,573	4,975	15,733	49,752
I-880	Alvarado-Niles Road to Whipple Road	85	1,571	4,967	15,708	49,672
I-880	Whipple Road to Industrial Parkway West	85	1,569	4,961	15,689	49,613
I-880	Industrial Parkway West to Tennyson Road	85	1,695	5,360	16,950	53,602
I-880	Industrial Parkway West to	85	1,695	5,360	16,950	53,602

TABLE 9-11
SUMMARY OF MODELED EXISTING TRAFFIC NOISE LEVELS
City of Hayward

Roadway Segment	Location	CNEL (dB) at 50 feet from Roadway Centerline	Distance to Noise Contours (Feet from Roadway Centerline)			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55 CNEL (dBA)
	Tennyson Road					
I-880	Tennyson Road to SR-92	86	1,845	5,834	18,448	58,336
I-880	SR-92 to Winton Avenue	86	2,033	6,430	20,333	64,299
I-880	Winton Avenue to A Street	87	2,304	7,287	23,045	72,874
I-880	A Street to City Limits	86	2,225	7,035	22,247	70,352
Center Street	City Limits to Kelly Street	64	14	43	137	432
B Street	Center Street to Second Street	65	17	53	166	526
B Street	Second Street to Foothill Boulevard	65	16	51	163	515
Foothill Boulevard	Mattox Road to Grove Way	73	96	303	957	3,027
Foothill Boulevard	Grove Way to City Center Drive	72	82	261	825	2,609
Foothill Boulevard	City Center Drive to A Street	72	78	246	778	2,460
Foothill Boulevard	A Street to B Street	73	111	351	1,110	3,510
Foothill Boulevard	B Street to C Street	74	126	397	1,255	3,970
Foothill Boulevard	C Street to D Street	74	123	389	1,229	3,886
Foothill Boulevard	D Street to Mission Boulevard/Jackson Street	74	122	387	1,224	3,871
Jackson Street	Mission Boulevard/Foothill Boulevard to Soto Road	75	143	452	1,430	4,521
Jackson Street	Soto Road to Santa Clara Street	76	196	621	1,964	6,210
Mission Boulevard	Grove Way to Sunset Boulevard	68	34	108	342	1,080
Mission Boulevard	Sunset Boulevard to A Street	72	85	269	849	2,686
Mission Boulevard	A Street to B Street	75	155	489	1,547	4,891
Mission Boulevard	B Street to C Street	75	152	481	1,519	4,805
Mission Boulevard	C Street to D Street	75	149	471	1,491	4,715
Mission Boulevard	D Street to Jackson Street/Foothill Boulevard	74	122	384	1,215	3,843
Mission Boulevard	Jackson Street/Foothill Boulevard to Fletcher Lane/Walpert Street	72	87	275	871	2,754
Mission Boulevard	Fletcher Lane/Walpert Street to Carlos Bee Boulevard	72	84	265	838	2,648
Mission Boulevard	Carlos Bee Boulevard to Harder Road	72	74	234	739	2,337

TABLE 9-11
SUMMARY OF MODELED EXISTING TRAFFIC NOISE LEVELS
City of Hayward

Roadway Segment	Location	CNEL (dB) at 50 feet from Roadway Centerline	Distance to Noise Contours (Feet from Roadway Centerline)			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55 CNEL (dBA)
Mission Boulevard	Harder Road to Jefferson Street	72	83	263	832	2,631
Mission Boulevard	Jefferson Street to Tennyson Road	72	73	231	730	2,307
Mission Boulevard	Tennyson Road to Industrial Parkway	72	71	223	707	2,234
Mission Boulevard	Industrial Parkway to Fairway Street	72	80	254	803	2,539
Mission Boulevard	Fairway Street to City Limits	71	59	185	586	1,852
A Street	Mission Boulevard to Santa Clara Street / Hathaway Street	67	28	89	281	887
A Street	Santa Clara Street to I-880	68	30	94	298	942
A Street	I-880 to Hesperian Boulevard	70	45	141	447	1,412
A Street	Mission Boulevard to Foothill Boulevard	65	16	51	160	507
A Street	Foothill Boulevard to City Limits	70	47	147	465	1,472
Winton Ave	Clawiter Road to Hesperian Boulevard	74	119	376	1,189	3,760
Winton Ave	Hesperian Boulevard to I-880	71	63	199	628	1,986
Winton Ave	I-880 to Soto Road/ D Street	71	68	216	682	2,156
Santa Clara Street	Winton Avenue to Jackson Street	66	21	67	211	667
Santa Clara Street / Harder Road	Jackson Street to Mission Boulevard	65	14	45	143	453
Tennyson Road	I-880 to Hesperian Boulevard	67	26	84	265	838
Tennyson Road	Hesperian Boulevard to Industrial Boulevard	67	26	83	261	825
Tennyson Road	I-880 to Mission Boulevard	69	42	133	422	1,333
D Street	Winton Avenue/Soto Road to Mission Boulevard	64	13	41	129	407
D Street	Mission Boulevard to Foothill Boulevard	67	23	72	228	722
D Street	Foothill Boulevard to City Limits	67	22	71	223	706
Carlos Bee Boulevard	Mission Boulevard to CSU-East Bay/Hayward Boulevard	67	25	80	254	804

TABLE 9-11
SUMMARY OF MODELED EXISTING TRAFFIC NOISE LEVELS
City of Hayward

Roadway Segment	Location	CNEL (dB) at 50 feet from Roadway Centerline	Distance to Noise Contours (Feet from Roadway Centerline)			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55 CNEL (dBA)
Harder Road	Mission Boulevard to CSU-East Bay	65	17	54	172	545
Harder Road	Mission Boulevard to Soto Road	67	23	71	226	714
Harder Road	Soto Road to Jackson St/SR-92	68	31	98	310	981
Hesperian Boulevard	City Limits to A Street	71	69	217	685	2,167
Hesperian Boulevard	A Street to Winton Avenue	71	66	210	664	2,101
Hesperian Boulevard	Winton Avenue to La Playa Drive	70	51	160	505	1,597
Hesperian Boulevard	La Playa Drive to SR-92	71	59	187	592	1,874
Hesperian Boulevard	SR-92 to Tennyson Road	72	80	253	801	2,532
Hesperian Boulevard	Tennyson Road to Industrial Parkway West	71	68	216	682	2,156
Hesperian Boulevard	Industrial Parkway West to City Limits	71	59	187	591	1,867
Clawiter Road	SR-92 to Depot Road	69	36	112	355	1,123
Industrial Boulevard	SR-92 to Depot Road	71	58	185	584	1,848
Eden Landing Road	SR-92 to Arden Road	66	20	64	202	638
Industrial Boulevard	SR-92 to Baumberg Avenue	71	61	194	615	1,943
Industrial Boulevard	Baumberg Avenue to Hesperian Boulevard	72	79	249	787	2,489
Industrial Parkway West	Hesperian Boulevard to I-880	75	149	471	1,489	4,708
Industrial Parkway West	I-880 to Industrial Parkway Southwest	75	159	503	1,590	5,029
Industrial Parkway West	Industrial Parkway Southwest to Huntwood Avenue	76	178	564	1,785	5,644
Industrial Parkway West	Huntwood Avenue to Mission Boulevard	74	139	441	1,394	4,408
Industrial Parkway	Industrial Parkway West to	72	78	247	782	2,474

TABLE 9-11
SUMMARY OF MODELED EXISTING TRAFFIC NOISE LEVELS
City of Hayward

Roadway Segment	Location	CNEL (dB) at 50 feet from Roadway Centerline	Distance to Noise Contours (Feet from Roadway Centerline)			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55 CNEL (dBA)
Southwest	Whipple Road					
Whipple Road	I-880 to Huntwood Avenue	73	108	340	1,076	3,403

Source: Ascent Environmental, Inc. 2013. Based on Caltrans Technical Noise Supplement, 2009; and FHWA Traffic Noise Model Technical Manual, 1998.

Existing Railroad Noise

Noise from railroads is generated primarily by diesel locomotive engines, warning horns, and gate bells at railroad crossings. Other components of noise include diesel exhaust, cooling fans, and railroad car wheel/rail interaction.

There are three primary shared freight and passenger railroad corridors in the Planning Area. These can be summarized as follows:

- The Santa Clara branch line, owned by Union Pacific, runs parallel to and west of Industrial Boulevard. Approximately 19 freight trains per day and 2 passenger trains per day (Amtrak's Coast Starlight) travel on this railroad line within the Planning Area. There are no Amtrak passenger stations on this line within the city of Hayward.
- The Niles branch line, owned by Union Pacific, runs parallel to and east of I-880. Approximately 22 freight trains per day and 14 passenger trains per day (Amtrak's Capitol Corridor) travel on this railroad within the Planning Area. The Hayward Amtrak station is located on this line at Meekland Avenue south of A Street.
- The Canyon Subdivision branch line, owned by Union Pacific, runs parallel to and west of Mission Boulevard. Approximately 15 freight trains per day travel on this railroad line. Within this right-of-way, parallel and adjacent to the freight railroad line, is a separate dedicated heavy rail line for the Bay Area Rapid Transit system (BART) that runs on an elevated aerial structure in the Downtown Hayward area, and at-grade south of downtown to the southern end of the Planning Area. The Hayward BART Station is located at Montgomery Ave south of B Street. The South Hayward BART Station is located on the west side of Dixon Street to the south of Tennyson Road. Approximately 256 BART trains per day travel on this BART line in the Planning Area. The BART Hayward Maintenance Yard is also accessed from this line, and is located south of Industrial Parkway West, north of Whipple Road, and west of the Fairway Park neighborhood.

Railroad noise along these three corridors was modeled based on Noise Impact Assessment Guidelines for assessing railroad and transit noise (FTA 2006). Table 9-12 summarizes the modeled existing railroad noise levels at 50 feet from the railroad centerline, along with approximate distances from the railroad centerlines to the 70 dB, 65 dB, 60 dB, and 55 dB CNEL/L_{dn} noise contours. The values shown in Table 9-

12 assume that the receiver category is residential with no natural or human-made noise shielding or barriers (e.g. topography, vegetation, berms, walls, or buildings or other attenuation measures), and are, therefore, considered "worst case" railroad noise conditions along the length of each corridor.

TABLE 9-12
SUMMARY OF MODELED EXISTING RAILROAD NOISE LEVLES
City of Hayward

Railroad Line	Location	CNEL/L_{dn} (dBA) at 50 feet from Railroad Centerline	Distance (feet) from Railroad Centerline to Noise Contours			
			70 CNEL (dBA)	65 CNEL (dBA)	60 CNEL (dBA)	55
UP Santa Clara Branch/ Amtrak Coast Starlight	West of Industrial Boulevard	80	225	480	1,050	2,240
UP Niles Branch / Amtrak Capitol Corridor	East of Interstate 880	81	240	520	1,120	2,400
UP Canyon Branch / Bay Area Rapid Transit (BART)	West of Mission Boulevard	80	210	440	950	2,030

Source: Ascent Environmental, Inc., 2013. Based on FTA, 2006

Existing Airport Noise

Hayward Executive Airport, located in the northwestern portion of the city, also generates noise from flight operations. Additional aircraft over-flight noise from Oakland International Airport and other airports in the region may also contribute to the existing noise environment. A complete discussion of existing and future airport-related noise as described in the Hayward Executive Airport Land Use Compatibility Plan is discussed below under the Regulatory Setting.

Existing Stationary Source Noise

Stationary noise sources are also present in the Planning Area, including warehouse, industrial, and manufacturing land uses in the western and southern portions of the city; school and university campuses with outdoor sports/recreation facilities, including California State University-East Bay, Chabot College, and several high schools, middle schools and elementary schools throughout the city. Major retail and business-related districts in the city may also have existing land uses that are considered stationary sources of noise, including Downtown Hayward, and commercial corridors such as Mission Boulevard and Hesperian Boulevard. Noise measurements and modeling were not conducted for existing stationary noise sources.

Regulatory Setting

Federal

The Federal Noise Control Act of 1972

The Federal Noise Control Act of 1972 established a requirement that all Federal agencies must comply with applicable Federal, State, interstate, and local noise control regulations. Federal agencies also are

directed to administer their programs in a manner that promotes an environment free from noise that jeopardizes public health or welfare.

U.S. Department of Transportation

To address the human response to ground borne vibration, the Federal Transit Administration (FTA) of the U.S. Department of Transportation (DOT) has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. Among these guidelines are the following:

- 65 vibration velocity decibels (VdB), referenced to 1 μin/sec and based on the RMS velocity amplitude, for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities)
- 80 VdB for residential uses and buildings where people normally sleep
- 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

State

The California Governor's Office of Planning and Research (OPR) publishes the *State of California General Plan Guidelines* (OPR 2003), which provide guidance for the acceptability of projects within specific Community Noise Equivalent Level (CNEL) contours. Generally, residential uses are considered to be acceptable in areas where exterior noise levels do not exceed a CNEL type standard. Residential uses and schools are normally unacceptable in areas exceeding 70 dBA CNEL and conditionally acceptable within 55–70 dBA CNEL. Commercial uses are normally acceptable in areas up to 70 dBA CNEL. Between 67.5 and 77.5 dBA CNEL, commercial uses are conditionally acceptable, depending on the noise insulation features and the noise reduction requirements. The guidelines also present adjustment factors that may be used to arrive at noise-acceptability standards that reflect the particular community's noise-control goals, sensitivity to noise, and assessment of the relative importance of noise issues. The City of Hayward has used these guidelines to develop their own community noise exposure levels.

Caltrans

In 2004 the California Department of Transportation (Caltrans) published the Transportation-and Construction-Induced Vibration Manual (Caltrans 2004), which provides general guidance on vibration issues associated with construction and operation of projects in relation to human perception and structural damage.

Table 9-13 presents recommended levels of vibration that could result in damage to structures exposed to continuous vibration.

TABLE 9-13 CALTRANS RECOMMENDED VIBRATION LEVELS	
PPV (in/sec)	**Effect on Buildings**
0.4-0.6	Architectural damage and possible minor structural damage
0.2	Risk of architectural damage to normal dwelling houses
0.1	Virtually no risk of architectural damage to normal buildings
0.08	Recommended upper limit of vibration to which ruins and ancient monuments should be subjected
0.006-0.019	Vibration unlikely to cause damage of any type

Source: Caltrans 2004

Local

City of Hayward General Plan

The Noise Element in the 2002 Hayward General Plan sets forth land use compatibility standards for community noise environments. It also outlines adjustments to the measured day/night average noise levels to obtain the normalized L_{dn} for comparison to the compatibility standards, and sets forth design objectives for maximum interior noise levels at different land uses. Guidelines are also proposed that describe the process to be used in evaluating development proposals with respect to noise levels. These standards and guidelines are summarized below.

A. New development projects shall meet acceptable noise level standards. The "acceptable" noise standards for new land uses are shown in Table 9-14 (Land Use Compatibility Standards for Community Noise Environments).

TABLE 9-14 HAYWARD GENERAL PLAN: LAND USE COMPATIBILITY STANDARDS FOR COMMUNITY NOISE ENVIRONMENTS				
Land Use Category	**Community Noise Exposure (L_{dn} or CNEL, dB)**			
	Normally Acceptable[1]	**Conditionally Acceptable[2]**	**Normally Unacceptable[3]**	**Clearly Unacceptable[4]**
Residential[5,6,7,8] – Low Density Single Family, Duplex, Mobile Homes	<60	55-70	70-75	75-85
Residential[5,6,7,8] – Multi-Family	<65	60-70	70-75	75-85
Transient Lodging – Motels, Hotels	<65	60-70	70-80	80-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	80-85
Auditoriums, Concert Halls, Amphitheaters	-	<70	65-85	-
Sports Arena, Outdoor Spectator Sports	-	<75	70-85	-
Playgrounds, Neighborhood Parks	<70	-	67.5-75	72.5-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75	-	70-80	80-85

TABLE 9-14
HAYWARD GENERAL PLAN: LAND USE COMPATIBILITY STANDARDS FOR COMMUNITY NOISE ENVIRONMENTS

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dB)			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Office Buildings, Business Commercial and Professional[9]	<70	67.5-77.5	75-85	-
Industrial, Manufacturing, Utilities, Agriculture[9]	<75	70-80	75-85	-

[1] *Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*
[2] *New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*
[3] *New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*
[4] *New construction or development should generally not be undertaken.*
Source: City of Hayward General Plan, Appendix N, 2002

In addition to the standards identified in Table 9-14 above, the following also apply:

1. The maximum acceptable exterior noise level in residential areas is an L_{dn} of 55 dB for single-family development, and an L_{dn} of 60 dB for mutifamily development. These goals are to be applied to both new and existing development, and where outdoor use is a major consideration (e.g. backyards in single-family developments and recreation areas in multi-family housing projects.) The outdoor standard is to be normally applied to any area considered to be useable open space, including decks and balconies with apartments and condominiums.
2. Indoor noise levels shall not exceed an L_{dn} of 45 dB in new housing units.
3. If the primary noise source is aircraft or a railroad, noise levels in new residential development exposed to an exterior L_{dn} of 60 dB or greater should be limited to a maximum instantaneous noise level in bedrooms at night of 50 dBA. Maximum instantaneous noise levels in bedrooms during the daytime and in other rooms should not exceed 55 dBA.
4. If the primary noise source is a commercial or industrial land use, new residential development shall not be allowed where the ambient noise level due to commercial or industrial sources will exceed the recommended adjustments to ambient noise levels for periodic noise events (shown in Table 9-15 below). Each of the noise level standards specified in these land use compatibility standards shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

TABLE 9-15 HAYWARD NOISE AND LAND USE COMPATIBILITY STANDARDS: ADJUSTMENTS TO AMBIENT NOISE LEVELS FOR PERIODIC NOISE EVENTS		
Maximum Cumulative Duration of Noise Event in Any One-Hour Period	**Residential Exterior Noise Level Standards (dBA)**	
	Daytime (7 a.m.–10 p.m.)	**Nighttime (10 p.m.–7 a.m.)**
30 Minutes+	+5	0
15 Minutes+	+10	+5
5 Minutes+	+15	+10
1 Minute+	+20	+15
0-1 Minute	=25	=20

5. Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space and shall be evaluated on a case-by-case basis. Interior noise levels in office buildings generally should be maintained at 52 L_{eq} (hourly average) or less.

B. Protect the noise environment in existing residential areas. The guidelines are not intended to be applied reciprocally. In other words, if an area currently is below the desired noise standards, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of the potential for adverse community response based on a significant increase in existing noise levels, regardless of the compatibility guidelines.

   In general, the City will require the evaluation of mitigation for projects that would cause the L_{dn} to increase by 3 dBA or more at an existing residential area.

C. Locate noise sensitive uses away from noise sources unless mitigation measures are included in development plans. Protect schools, hospitals, libraries, churches, convalescent homes, and other noise sensitive uses from noise levels exceeding those allowed in residential areas.

D. Design city streets to reduce noise levels in adjacent areas. Continue to require sound walls earth berms, and other noise reduction techniques (e.g., "open grade" or "rubberized" asphalt) as conditions of development approval.

The 2002 General Plan Noise Element also includes standards and guidelines for potential increases in transportation noise. If the implementation of the General Plan would cause a substantial increase in noise levels at sensitive receptors along roadways in Hayward, this would be considered a significant impact. The General Plan identifies a 3 dBA increase in the L_{dn} as substantial impact.

City of Hayward Noise Regulations

Hayward Municipal Code, Chapter 4, Article 1 (Public Nuisances) contains the City's Noise Regulations (as amended by Ordinance 11-03, adopted March 22, 2011). The Regulations are applicable to all noise sources in the city limits, with the exception of Hayward Executive Airport, which is regulated separately under the City's Airport Noise Ordinance (addressed separately in this section below); and from animals,

which are administered under the City's Animal Control Ordinance. The Regulations establish quantitative noise limits based on measured dBA for activities occurring on residential, commercial and industrial, and public property; noise from vehicles; construction, alteration of structures and landscaping activities; . The Regulations also establish a separate and independent qualitative method of determining "unreasonable noise" emanating from private property. Categorical Exemptions to the Regulations are specified for certain activities or source categories, including Alarms and Warning Devices, Emergency Response Activities, Special Events, Generators Required for Medical Purposes and Power Outages, and so forth. In some cases, a permit from the City is required to qualify for an exemption.

A summary of the noise limits established in the regulations is shown in Table 9-16

TABLE 9-16
SUMMARY OF HAYWARD NOISE REGULATIONS

Noise Source	Noise Limits	Applicable Hours of Limitation
Residential Property	Day: 70 dBA Night: 60 dBA	Day 7:00 am – 9:00 pm Night 9:00 pm – 7:00 am
Commercial & Industrial Property	Abutting Residential: Subject to Residential Property Limits (see above) Not Abutting Residential: 70 dBA	Abutting Residential: Subject to Applicable Hours of Limitation for Residential Property (see above) Unspecified (all)
Public Property	60 dBA at a distance of 25 feet (Noise from activities of the City of Hayward is exempt)	Unspecified (all)
Vehicles	Music from in-vehicle devices more than 25 feet from vehicle (applies to public and private property)	Unspecified (all)
Construction and Alteration of Structures; Landscaping Activities	Individual devices/pieces of equipment: 83 dBA at a distance of 25 feet from the source AND 86 dBA at any point outside of the property plane	Monday-Saturday: 7:00 a.m. – 7:00 pm Sunday: 10:00 a.m. – 6:00 p.m. All other hours: Residential, Commercial & Industrial, and Public Property noise limits apply (see above)

Source: Hayward Municipal Code, Chapter 4, Article 1, March 2011

City of Hayward Aircraft Noise Ordinance

Hayward Municipal Code, Chapter 2, Article 6 contains the Hayward Executive Airport Code. Sections 2-6.119 through 2-6.128 contain Aircraft Noise Restrictions applicable to flight operations at the Airport. Section 2-6.120 sets maximum Single Event Noise Exposure Level (SENEL) limits based on time of day, as measured at any of the noise monitoring terminals (NMTs) on the airport runways. These limits are summarized in Table 9-17 below.

TABLE 9-17 AIRCRAFT NOISE LIMITS (SENEL DB)[1]				
Noise Monitoring Terminal (NMT)	Runways 28L/28R		Runways 10R/10L	
	7 am – 11 pm	11 pm – 6:59 am	7 am – 11 pm	11 pm – 6:59 am
NMT #1	98	95	98	95
NMT #2	98	95	98	95
NMT #3	98	95	100	97
NMT #4	98	95	99	96

[1] *The Single Event Noise Exposure Level (SENEL), measured in decibels (dB), is the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of a single event exceeds a given threshold noise level. The values shown in the table depict that maximum SENEL dB values permitted during a specific time period, as measured at specific noise monitoring terminals on the runway.*
Source: Hayward Municipal Code, Chapter 2, Article 6, Section 2.6-120

In addition to the SENEL limits described above, additional standards in Section 2-6.121 apply for "Presumption of Aircraft Noise Violation" as follows:

- Between the hours of 7:00 a.m. and 11:00 p.m., any aircraft which exceeds 77 on the dBA scale on take-off as listed in the Federal Aviation Administration (FAA) Advisory Circular 36-3F, shall be presumed to be in violation of the maximum single event noise levels established in section 2-6.120;
- Between the hours of 11:01 p.m. and 6:59 a.m., any aircraft which exceeds 73 on the dBA scale on take-off as listed in the FAA Advisory Circular 36-3F, shall be presumed to be in violation of the maximum single event noise levels established in section 2-6.120; and
- Aircraft types and models which are not listed in Advisory Circular 36-3F will be allowed to operate at the Hayward Air Terminal only if:
  - The Federal Aviation Administration determines that the specific aircraft type and model would meet the FAA Advisory Circular 36-3F noise limits stated above if it were tested according to Federal Aviation Administration procedures; and
  - The operator performs a flight test to the reasonable satisfaction of the Airport Director using operating procedures which indicate an ability to comply with the maximum noise levels established in section 2-6.120.

Section 2-6.123 includes categorical exemptions from the above-referenced standards for certain types of aircraft, including:

- All aircraft classified as Stage 3 aircraft by the FAA;
- Aircraft operated by the United States of America or the State of California;
- Law enforcement, emergency, fire, or rescue aircraft operated by any county, city, subdivision or special districts of the state when those aircraft are operating in emergency situations including emergency aircraft flights for medical purposes;
- Aircraft used for emergency purposes during an emergency which has been officially proclaimed by competent authority pursuant to the laws of the United States, the State of California, Alameda County, or the City of Hayward;

- Civil Air Patrol aircraft when engaged in actual search and rescue missions;
- Aircraft which are being operated under a declared in-flight emergency;
- Aircraft operating as a declared air ambulance emergency flight for medical purposes pursuant to Public Utilities Code section 21662.4; and
- Aircraft engaged in takeoffs or landings while conducting tests under the direction of the Airport Director in an attempt to rebut the presumption of aircraft noise violation pursuant to the provisions of sections 2-6.121 and 2-6.122.

Hayward Executive Airport Land Use Compatibility Plan

The State Aeronautics Act (Public Utilities Code, Section 21670 et seq.) requires the preparation of an airport land use compatibility plan (ALUCP) for nearly all public-use airports in the state. The intent of an ALUCP is to encourage compatibility between an airport and the various land uses surrounding it (Caltrans 2011).

Alameda County (the County) has established an airport land use commission (ALUC), in accordance with state law, to prepare land use compatibility plans for all public-use airports in the County and to review general plans, proposed changes to zoning codes and ordinances, land use actions and development projects, and airport development plans for consistency with compatibility policies. California State law also dictates that the County and affected cities modify their general and specific plans to be consistent with the ALUC's plan, or to take steps to overrule the ALUC (Alameda County ALUC 2012).

The Hayward Executive Airport ALUCP is the primary document used by the Alameda County ALUC to help promote compatibility between Hayward Executive Airport (HWD) and its environs. Included within the ALUCP are a series of compatibility factors, zones and policies related to noise, safety, airspace protection, and over-flight activity (Alameda County ALUC 2012). For the purposes of this section, noise-related impact zones and compatibility policies in the HWD ALUCP are discussed below.

The HWD ALUCP includes a map (Figure 9-21) showing noise contours depicting the greatest annualized noise impact, measured in terms of CNEL, anticipated to be generated by the airport over a 20 year or greater planning timeframe. The mapped noise contours were created based on existing and forecasted aircraft operations in the most recently adopted HWD Master Plan. According to the ALUCP, all proposed land use changes beyond the 60 CNEL contour are considered consistent with the noise compatibility policies set forth in the ALUCP. For any proposed land use changes within the 60 CNEL or greater, specific noise compatibility criteria apply based on corresponding land use categories and subcategories. The HWD ALUCP noise compatibility criteria are shown in Table 9-18.

TABLE 9-18
HAYWARD EXECUTIVE AIRPORT LAND USE COMPATIBILITY PLAN: NOISE COMPATIBILITY CRITERIA

Land Use Category[1]	Exterior Noise Exposure (dB CNEL)				
	<60	60-64	65-69	70-75	>75
Agricultural, Recreational, and Animal-Related					
Outdoor amphitheaters	P	P	X	X	X
Zoos; animal shelters; neighborhood parks; playgrounds	P	P	X	X	X
Regional parks; athletic fields; golf courses; outdoor spectator sports; water recreation facilities	P	P	C	X	X
Nature preserves; wildlife preserves; livestock breeding or farming	P	P	P	P	P
Agriculture (except residences and livestock); fishing	P	P	P	P	P
Residential, Lodging, and Care					
Residential, (including single-family and mobile homes)	P	P	X	X	X
Residential,(multi-family; retirement homes; residential; residential hotels)	P	P	X	X	X
Residential hotels; retirement homes; hospitals; nursing homes; intermediate care facilities	P	P	X	X	X
Hotels; motels; other transient lodging	P	P	C	X	X
Public					
Schools; libraries	P	C	X	X	X
Auditoriums; concert halls; indoor arenas; places of worship; cemeteries	P	C	C	X	X
Commercial and Industrial					
Office buildings; office areas of industrial facilities; medical clinics; clinical laboratories; commercial - retail; shopping centers; restaurants; movie theaters	P	P	P	X	X
Commercial - wholesale; research and development	P	P	P	X	X
Industrial; manufacturing; utilities; public rights-of-way	P	P	P	X	X

Land Use	Acceptability	Interpretation/Comments
P	Permitted	*Indoor Uses:* Standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL). *Outdoor Uses:* Activities associated with the land use may be carried out with essentially no interference from aircraft noise. * The maximum acceptable noise exposure for new residential development in the vicinity of HWD is set at 55 dB CNEL (see Policy 3.3.1.2 (b).)
C	Conditional	*Indoor Uses:* Building structure must be capable of attenuating exterior noise to the indoor CNEL indicated by the number; standard construction methods will normally suffice. *Outdoor Uses:* CNEL is acceptable for outdoor activities, although some noise interference may occur; caution should be exercised with regard to noise-sensitive uses.
X	Incompatible	*Indoor Uses:* Unacceptable noise interference if windows are open; at exposures above 65 dB CNEL, extensive mitigation techniques are required to make the indoor

TABLE 9-18
HAYWARD EXECUTIVE AIRPORT LAND USE COMPATIBILITY PLAN: NOISE COMPATIBILITY CRITERIA

Land Use Category[1]	Exterior Noise Exposure (dB CNEL)				
	<60	60-64	65-69	70-75	>75
environment acceptable for performance of activities. *Outdoor Uses:* Severe noise interference makes outdoor activities unacceptable.					

Note: The layout of this table was created using the framework developed in previous compatibility plans (Mead & Hunt 2006).
Source: ESA 2007, California Airport Land Use Compatibility Handbook (Caltrans 2002).

Within the city of Hayward, the Longwood-Winton Grove neighborhood is located adjacent to and east-southeast of HWD. While most of this area is outside of the 60 CNEL contour, there are portions of the neighborhood near the airport that are within the 60 CNEL, and a few very small portions within the 65 CNEL contours along Hesperian Boulevard between West A Street and Winton Avenue, and southwest of the intersection of Winton Avenue and Hesperian Boulevard. Any proposed land use changes in this vicinity may be subject to the Noise Compatibility Criteria. According to the Criteria, a small number of land use subcategories within the 60 CNEL contour are identified as "Conditional," including schools/libraries, and auditoriums/concert halls/ indoor arenas/places of worship/cemeteries. Within the 65 CNEL, a significant number of land uses are considered to be "Conditional" (e.g. parks, hotels, auditoriums, places of worship, etc.), and all residential uses, schools and libraries are deemed to be "Incompatible."

In addition to the Noise Compatibility Criteria, the ALUCP includes the following Noise Compatibility Policies:

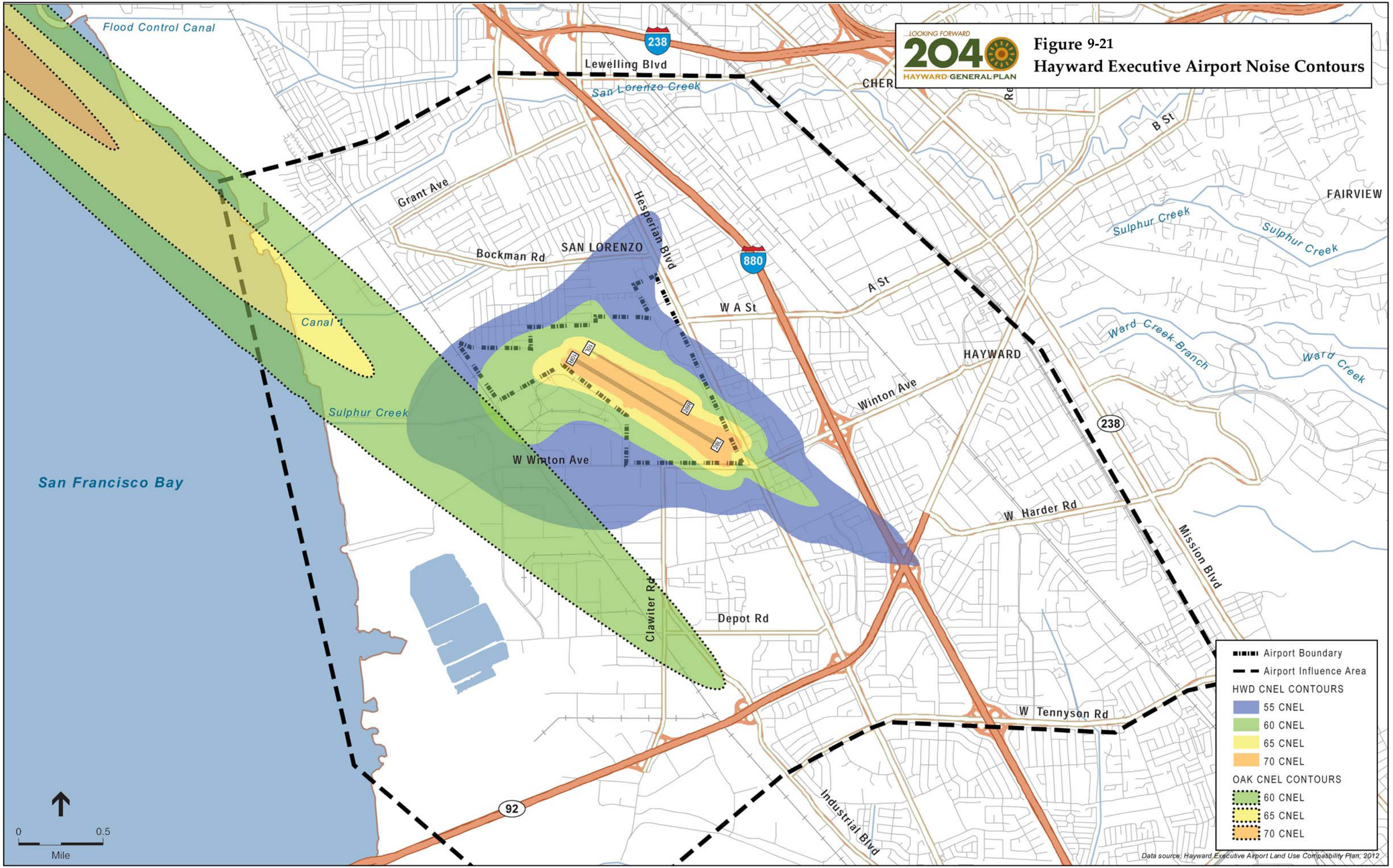
- The maximum CNEL considered acceptable for new residential uses in the vicinity of HWD is 65 dB.
- The compatibility of new nonresidential development with noise levels generated by the Airport are defined by the Noise Compatibility Criteria.
- Within all identified noise contours, land uses for which interior activities may be easily disrupted by noise shall be required to comply with the following interior noise level criteria:
  - The maximum, aircraft-related, interior noise level which shall be considered acceptable for land uses within the Airport Influence Area (AIA) is 45 dB CNEL in (calculations should assume windows are closed):
    - Living and sleeping areas of single- or multi-family residences;
    - Hotels and motels;
    - Hospitals and nursing homes;
    - Churches, meeting halls, office buildings, and mortuaries; and
    - Schools, libraries, and museums.
  - The maximum, aircraft-related, interior noise level which shall be considered acceptable for the following land uses is 50 dB CNEL in (calculations should assume windows are closed):
    - Office environments;
    - Eating and drinking establishments; and

- Other miscellaneous commercial facilities.

- When reviewed as part of a general plan or zoning ordinance amendment or as a major land use action, evidence that proposed structures will be designed to comply with these criteria shall be submitted to the ALUC under the following circumstances:
  - Any mobile home within HWD's 55-dB CNEL contour.
  - Any single- or multi-family residence within HWD's 55-dB CNEL contour.
  - Any hotel or motel, hospital or nursing home, church, meeting hall, office building, mortuary, school, library, museum, or other noise-sensitive non-residential use within HWD's 65-dB CNEL contour.

...LOOKING FORWARD 2040 HAYWARD GENERAL PLAN

Figure 9-21
Hayward Executive Airport Noise Contours



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April, 2013

Key Terms

A-Weighted Sound Level. An A-weighted sound level is the frequency-response adjustment of a sound level meter that conditions the output signal to approximate human hearing response.

Airport Land Use Compatibility Plan (ALUCP). The California State Aeronautics Act (Public Utilities Code, Section 21670 et seq.) requires the preparation of an airport land use compatibility plan (ALUCP) for nearly all public-use airports in the state. The intent of the ALUCP is to encourage compatibility between airports and the various land uses that surround them.

Community Noise Equivalent Level (CNEL). A CNEL is similar to the L_{dn} with an additional 5 dB penalty applied during the noise-sensitive hours from 7 p.m. to 10 p.m., which are typically reserved for relaxation, conversation, reading, and watching television.

Day-Night Noise Level (L_{dn}). L_{dn} is the 24-hour L_{eq} with a 10 dB penalty applied during the noise-sensitive hours from 10 p.m. to 7 a.m., which are typically reserved for sleeping.

Decibel (dB). A dB is a sound level expressed in decibels which is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure.

Equivalent Noise Level (L_{eq}). An L_{eq} is the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level).

Maximum Noise Level (L_{max}). The L_{max} is the highest instantaneous noise level during a specified time period.

Minimum Noise Level (L_{min}). The L_{min} is the lowest instantaneous noise level during a specified time period.

Noise Exposure Contours. Noise exposure contours are noise exposure levels as a function of distance from the noise source.

Noise-Sensitive Area. A noise-sensitive place in a place where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Examples include residences, cemeteries, churches, and hospitals.

Peak Particle Velocity (PPV). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings.

Root-Mean-Square (RMS). RMS is the average of the squared amplitude of a vibration signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration. Because the human body responds to average vibration amplitude, RMS velocity values as measured in VdB are used to estimate vibration effects on humans.

Single-Event Noise Exposure Level (SENEL). The single event noise exposure level, in decibels (dB), is the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval

between the initial and final times for which the noise level of a single event exceeds a given threshold noise level.

Vibration Decibels (VdB). Average vibration amplitude is a more appropriate measure for human response as it takes time for the human body to respond. Average particle velocity over time is zero, so the root-mean-square (RMS) amplitude velocity level, measured in VdB, is used to quantify annoyance.

Bibliography

Reports/Publications

Alameda County Airport Land Use Commission. Hayward Executive Airport Land Use Compatibility Plan. Prepared by Environmental Science Associates, August 2012.

California Governor's Office of Planning and Research (OPR). State of California General Plan Guidelines. 2003.

Caltrans, Division of Aeronautics. California Airport Land Use Planning Handbook. Sacramento, CA. October 2011.

Caltrans, Division of Environmental Analysis. Technical Noise Supplement. Sacramento, CA. Prepared by ICF Jones & Stokes, November 2009.

Caltrans, Office of Noise, Vibration and Hazardous Waste Management. Transportation-and Construction-Induced Vibration Guidance Manual. Sacramento, CA. Prepared by Jones & Stokes, 2004.

City of Hayward. City of Hayward General Plan. 2002.

City of Hayward. Hayward Municipal Code, Chapter 2, Article 6: Hayward Executive Airport Code. 1992.

City of Hayward. Hayward Municipal Code, Chapter 4, Article 1: Noise Regulations, March 2011.

Egan, M. David. Architectural Acoustics. J. Ross Publishing. Fort Lauderdale, FL. 2007.

Federal Transit Administration (FTA). Transit Noise and Vibration Impact Assessment. Washington, D.C. 2006.

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