



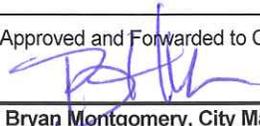
Agenda Date: 02/09/2016

Agenda Item: 4.1

STAFF REPORT

Date: February 9, 2016
To: Bryan Montgomery, City Manager
From: Joshua McMurray, Planning Manager

Approved and Forwarded to City Council:


Bryan Montgomery, City Manager

SUBJECT: Proposed Amendments to the Oakley 2020 General Plan for the purposes of complying with recent Flood Protection Legislation (GP 02-15)

Summary and Recommendation

The proposed Flood Protection General Plan Amendment (GPA 02-15) project is a City-initiated amendment to bring the General Plan into compliance with State flood protection law. The project will amend the Oakley General Plan 2020 Open Space and Conservation Element and the Health and Safety Element consistent with the requirements of the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments, which requires cities and counties to amend their general plans to strengthen the linkage between land use planning and floodplain management practices and provide new requirements and standards for floodplain protection.

Staff recommends the City Council adopt the Resolution approving the various amendments to the Oakley General Plan 2020 as outlined above.

Background and Analysis

State Flood Protection Law requires local governments to provide specific information in their General Plans related to areas susceptible to flooding and flood control measures as identified by FEMA or the California Department of Water Resources. The Open Space and Conservation Element and the Health and Safety Element were adopted, in part, with the Oakley General Plan 2020 in December of 2002. The Open Space and Conservation Element expresses community goals to protect environmental resources, open space, and scenic resources. The Health and Safety Element identifies, among other things, information regarding flood hazards and establishes a set of comprehensive goals, policies and programs for the protection of public safety from the risk to life and property from flooding.

Below is a summary of changes that are proposed to be made to the Open Space and Conservation Element as well as the Health and Safety Element. The entirety of the changes are represented in a strike-out/underline format within the attachment of this Staff Report.

Summary of Changes to the Open Space and Conservation Element:

- Added background narrative on groundwater recharge.
- Added new Figure 6-3 to identify the water bodies in Oakley.

Summary of Changes to the Health and Safety Element:

- Updated background information on flooding and dam inundation.
- Updated the FEMA Flood Zone Figure 8-3.
- Modified two existing policies and one existing program.
 - Policies 8.2.1 and 8.2.6.
 - Program 8.2C.
- Added two new policies and two new figures.
 - Policies 8.2.9 and 8.2.10.
 - Figures 8-5 and 8-6.

Environmental Review

This project was analyzed in an Initial Study pursuant to CEQA Guidelines, to which a Negative Declaration was made available to the public and all requesting parties, and posted with the Contra Costa County Clerk and Governor's Office of Planning and Research for at least 30-days prior to the date of this hearing. The Planning Division found the project described above will not have a significant effect on the environment.

Findings

Proposed findings to support the amendment are included in the attached resolution.

Recommendation

Staff recommends the City Council adopt the Resolution approving the amendments to the Oakley General Plan 2020 as outlined above.

Attachments

1. Proposed Resolution with attached "Exhibit A"

CITY OF OAKLEY

RESOLUTION NO. XX-16

A RESOLUTION OF THE CITY OF OAKLEY CITY COUNCIL MAKING FINDINGS AND APPROVING THE VARIOUS GENERAL PLAN AMENDMENTS (GP 02-15) TO THE OPEN SPACE AND CONSERVATION ELEMENT AND HEALTH AND SAFETY ELEMENT

FINDINGS

WHEREAS, on July 1, 1999, the incorporation of the City of Oakley took effect; and

WHEREAS, after incorporation, the City adopted the Contra Costa County General Plan for the Oakley Area as its general plan, the County's subdivision ordinance as its subdivision ordinance, and the County's zoning ordinance as its zoning ordinance (Ordinance Nos. 1-99, 17-99, 22-99). Since that time, the City has prepared its own general plan, as required by Government Code Section 65360; and

WHEREAS, in December 2002, the Oakley City Council adopted the Oakley 2020 General Plan; and

WHEREAS, the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments, requires local governments to provide specific information in their General Plans related to areas susceptible to flooding and flood control measures as identified by FEMA or the California Department of Water Resources. This requires an amendment to the Health and Safety Element of the General Plan; and

WHEREAS, the City initiated a General Plan Amendment to comply with requirements of the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments; and

WHEREAS, this project was analyzed in an Initial Study pursuant to CEQA Guidelines, to which a Negative Declaration was made available to the public and all requesting parties, and posted with the Contra Costa County Clerk and Governor's Office of Planning and Research for at least 30-days prior to the date of this hearing. The Planning Division found the project described above will not have a significant effect on the environment; and

WHEREAS, on January 29, 2016, the Notice of Public Hearing for the project was posted at Oakley City Hall located at 3231 Main Street, outside the gym at Delta Vista Middle School located at 4901 Frank Hengel Way, outside the library at Freedom High School located at 1050 Neroly Road, and at the project site. The notice was also mailed out to outside agencies, and to parties requesting such notice. IN addition the notice was published in the East County Times newspaper; and

WHEREAS, on February 9, 2016, the City Council opened the public hearing at which it received a report from City Staff, oral and written testimony from the public, and deliberated on the project. At the conclusion of its deliberations, the City Council took a vote and adopted this resolution to approve the project, as revised by the City Council during its deliberations; and

WHEREAS, these Findings are based on the City's General Plan, the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments, and the information submitted to the City Council at its February 9, 2016 meeting, both written and oral, as reflected in the minutes of such meetings, together with the documents contained in the file for the General Plan Amendment (GP 02-15) (hereafter the "Record").

NOW, THEREFORE, on the basis of the above findings of fact and the entire Record, the City Council makes the following findings regarding the various General Plan Amendments as shown in "Exhibit A" of this resolution in support of the recommended approvals:

1. **The proposed project conforms to the provisions and standards of the General Plan** in that the proposed amendment is internally consistent with all other provisions of the General Plan and does not conflict with any of the previously adopted Goals, Policies, and Programs of the General Plan; and
2. **The proposed project is necessary to implement the goals and objectives of the General Plan** in that changes to State Law, specifically the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments require such amendments to the General Plan. These amendments ensure that the Oakley General Plan is externally consistent with the applicable requirements of the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments; and
3. **The proposed Amendment will not be detrimental to the public interest, convenience, and general welfare of the City** in that the amendment facilitates a project that has incorporated requirements outlined in the Central Valley Flood Protection Act of 2008 (SB 5, 2007) and its subsequent amendments; and
4. **The proposed project will not cause environmental damage** in that this project was analyzed in an Initial Study pursuant to CEQA Guidelines, to which a Negative Declaration was made available to the public and all requesting parties, and posted with the Contra Costa County Clerk and Governor's Office of Planning and Research for at least 30-days prior to the date of this hearing. The Planning Division found the project described above will not have a significant effect on the environment.

BE IT FURTHER RESOLVED THAT, on the basis of the foregoing Findings and the entire Record, the City Council hereby approves the various amendments to the General Plan as shown in "Exhibit A" of this resolution.

PASSED AND ADOPTED by the City Council of the City of Oakley at a meeting held on the 9th of February, 2016 by the following vote:

AYES:
NOES:
ABSENT:
ABSTENTIONS:

APPROVED:

Kevin Romick, Mayor

ATTEST:

Nancy Ortenblad, City Clerk

Date

Exhibit A
City Council Resolution No. XX-16

**General Plan Amendments to the Open Space
and Conservation and Health and Safety
Elements**

CHAPTER

6

OPEN SPACE AND CONSERVATION

INTRODUCTION

Valuable resources in the City of Oakley include agricultural resources, air quality, biological resources, historic and cultural resources, open space resources, and scenic resources. The Open Space and Conservation Element focuses on the protection and enhancement of such resources to ensure a high quality living environment for years to come.

The Open Space and Conservation Element expresses community goals to protect environmental resources, open space, and scenic resources. Specifically, resources addressed in this element include:

- Agricultural resources, including quantity and quality of agricultural lands within the Planning Area.
- Air quality in terms of local and regional compliance with air pollutant standards;
- Biological resources, including significant habitat areas and special status plant and animal species;
- Water resources, including streams, wetlands, and riparian habitat;
- Cultural resources in terms of known and potential archaeological and paleontological resources;
- Historic resources that are nationally designated, recognized by the State of California, or locally significant;

- Open space resources, including natural and improved open space areas that are physical, functional, and visual; and
- Scenic resources as predominant physical characteristics of the community.

Organization of the Element

The Open Space and Conservation Element is organized into three main sections; 1) an Introduction section that includes an overview of the element and its consistency with State law; 2) a Goals, Policies, and Implementation Programs section addressing agricultural, air quality, biological, cultural, historic, open space, and scenic resources; and 3) a Settings section that describes existing conditions in each of the seven categories described above.

Consistency with State Law

The Open Space and Conservation Element meets the state requirements for Open Space and Conservation Elements as defined in Sections 65301, 65302(d), 65302(e), and 65560 of the Government Code, respectively. According to these requirements, the Open Space Element must contain goals and policies to manage open space areas, including undeveloped lands and outdoor recreation areas. Specifically, the Open Space Element must

address several open space categories such as those used for the preservation of natural resources and managed production of resources, as well as open space maintained for public health and safety reasons. Open Space for outdoor recreation is addressed within the Parks and Recreation Element. The Conservation Element must contain goals and policies to protect and maintain natural resources such as water, soils, wildlife and minerals, and prevent wasteful resource exploitation, degradation and destruction.

In adopting the requirement that all jurisdictions must prepare an Open Space Element, the Legislature found that the preservation of open space land is necessary not only for the maintenance of the economy of the State, but also for the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation, and for the use of natural resources. The legislature further found that discouraging premature and unnecessary conversion of open space land to urban uses is in the public interest because it discourages non-contiguous development patterns that tend to increase the costs of community services to community residents. Finally, the legislature found that the anticipated increase in the population of the State demands that cities, counties, and the State make plans at the earliest possible date for the preservation of valuable open space land and take positive action to carry out such plans by the adoption and strict administration of laws, ordinances, rules and regulations.

While air quality is not a state-mandated element, the Bay Area Air Quality Management District (BAAQMD) requires air quality to be addressed in General Plans. The purpose of the air quality inclusion is to reduce pollutant levels through stationary source, mobile source, transportation and land use control, and energy conservation measures.

Internal Consistency

The General Plan must fully integrate its separate parts and relate them to each other without conflict. Internal consistency applies as much to figures and diagrams as to the General Plan text, including data, analysis, and policies. All adopted portions of the General Plan, whether required by state law or not, have equal weight. No single element may supercede another, so the General Plan must resolve conflicts among the provisions of each element.

Relationship to Other General Plan Elements

According to state planning law, the Open Space and Conservation Element must be consistent with the other General Plan elements. While all of the elements are interdependent, they are also interrelated to a degree. Certain goals and policies of one element may also address issues that are primary subjects of other elements. This integration of issues throughout the General Plan creates a strong basis for the implementation of plans and programs and achievement of community goals. The Open Space and Conservation Element is most directly related to the Land Use, Circulation, and Parks and Recreation Elements.

GOALS, POLICIES, AND PROGRAMS

The following are the Goals, Policies, and Implementation Programs for each of the natural resource topic areas addressed within the General Plan. Additional supporting information for these topics is provided in the setting section of this element. The goals, which are overall statements of the community's desires, are comprised of broad statements of purpose and direction. The policies serve as guides for working with local and regional agencies protecting and maintaining the City's resources. Implementation programs identify specific actions to achieve particular goals and policies.

Agricultural Resources

Oakley has historically been an agricultural community, with a wide variety of agricultural crops. While much of the land used for agriculture has been developed into urban uses, there are remaining private parcels that continue in agricultural production. These agricultural areas help to preserve the traditional rural character of the community, maintain open space, and reduce congestion within the City. While the City recognizes the historic role of agriculture within the Oakley community and supports continued agriculture, the transition from agriculture to urban uses limits the potential for large-scale commercial agriculture within Oakley.

Goal 6.1 Allow agriculture to continue as a viable use of land that reflects the community's origins and minimizes conflicts between agricultural and urban uses.

Policies

- 6.1.1 Participate in regional programs that promote the long-term viability of agricultural operations within the City.
- 6.1.2 Reduce the negative impacts resulting from urban uses and neighboring agricultural uses in close proximity.

6.1.3 Encourage the promotion and marketing of locally grown agricultural products.

6.1.4 Incorporate parks, open space and trails between urban and agricultural uses to provide buffer and transition between uses.

Programs

6.1.A Identify and map those properties that include prime productive agricultural soils (Class I and II capability according to the U.S. Soil Conservation Service) for use in the review of development applications.

6.1.B Encourage consolidated development; with appropriate land use buffers of parks, open space and trails, for proposed major subdivisions adjacent to prime agricultural lands

6.1.C Modify the land use classifications and allowed use provisions and development standards to reflect current agricultural uses and land use compatibility.

6.1.D Require adequate setbacks for any non-agricultural structures adjacent to cultivated agriculture.

6.1.E Continue to implement (and refine as necessary) a Right to Farm Ordinance, which protects ranchers and farmers within an historically agricultural district from nuisance complaints and unreasonable restrictions and regulations on farm structures or farming practices.

6.1.F Encourage agricultural landowners to work closely with the U.S. Soil Conservation Service and local Resource Conservation Districts to reduce soil erosion and to encourage soil restoration.

Air Quality

Oakley is located within the Bay Area Air Quality Management District, which is considered a non-attainment air basin because it exceeds some of the allowable levels for various air pollutants. Cooperation among all agencies in

6.0 – OPEN SPACE AND CONSERVATION

the district is necessary to achieve desired improvements to air quality. The City can participate and contribute its share in those efforts through proper planning for land use and transportation and through educational outreach.

Goal 6.2 Maintain or improve air quality in the City of Oakley.

Policies

- 6.2.1 Support the principles of reducing air pollutants through land use, transportation, and energy use planning.
- 6.2.2 Encourage transportation modes that minimize contaminant emissions from motor vehicle use.
- 6.2.3 Interpret and implement the General Plan to be consistent with the regional Bay Area Air Quality Management Plan (AQMP), as periodically updated.
- 6.2.4 Ensure location and design of development projects so as to conserve air quality and minimize direct and indirect emissions of air contaminants.
- 6.2.5 Encourage air quality improvement through educational outreach programs, such as *Spare the Air Day*.

Programs

- 6.2.A Minimize impacts of new development by reviewing development proposals for potential impacts pursuant to CEQA and the BAAQMD Air Quality Handbook. Apply land use and transportation planning techniques such as:
 - Incorporation of public transit stops;
 - Pedestrian and bicycle linkage to commercial centers, employment centers, schools, and parks;
 - Preferential parking for car pools and van pools;
 - Traffic flow improvements; and
 - Employer trip reduction programs.

6.2.B Control dust and particulate matter by implementing the AQMD's fugitive dust control measures, including:

- Restricting outdoor storage of fine particulate matter;
- Requiring liners for truck beds and covering of loads;
- Controlling construction activities and emissions from unpaved areas; and
- Paving areas used for vehicle maneuvering.

6.2.C Work with the Bay Area Air Quality Management District (BAAQMD) and the Association of Bay Area Governments (ABAG) and, to the extent feasible, meet federal and State air quality standards for all pollutants. To ensure that new measures can be practically enforced in the region, participate in future amendments and updates of the AQMP.

Biological Resources

The City's Plan Area supports a diverse assemblage of plant and wildlife species throughout several habitat types. Sensitive habitat areas in Oakley (irrigated pastures and marshes/sloughs) contain valuable biological resources. Efforts to identify and preserve these valuable resources will improve the quality of the environment for Oakley residents.

Goal 6.3 Encourage preservation of important ecological and biological resources.

Policies

- 6.3.1 Encourage preservation of important ecological and biological resources as open space.
- 6.3.2 Develop open space uses in an ecologically sensitive manner.
- 6.3.3 Use land use planning to reduce the impact of urban development on important ecological and biological resources identified during application review and analysis.

- 6.3.4 Encourage preservation and enhancement of the natural characteristics of the San Joaquin Delta and Dutch Slough in a manner that encourages public access.
- 6.3.5 Encourage preservation and enhancement of Delta wetlands, significant trees, natural vegetation, and wildlife populations.
- 6.3.6 Encourage preservation of portions of important wildlife habitats that would be disturbed by major development, particularly adjacent to the Delta.
- 6.3.7 Preserve and expand stream corridors in Oakley, restoring natural vegetation where feasible.

Programs

- 6.3.A Prior to development within identified sensitive habitat areas, the area shall be surveyed for special status plant and/or animal species. If any special status plant or animal species are found in areas proposed for development, the appropriate resource agencies shall be contacted and species-specific management strategies established to ensure the protection of the particular species. Development in sensitive habitat areas should be avoided or mitigated to the maximum extent possible.
- 6.3.B Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.
- 6.3.C Investigate and implement as appropriate a tree-planting program. Consider similar existing programs such as the Sacramento Tree Foundation.
- 6.3.D Continue to implement (and update as needed) the City’s Heritage Tree Preservation Ordinance.
- 6.3.E As funding becomes available, prepare a detailed inventory of ecological resource areas, along with detailed maps showing the location of significant resources. Resources should include, but not be limited to, unique natural areas, wetland areas, habitats of rare, threatened,

endangered, and other uncommon and protected species.

- 6.3.F As funding becomes available, prepare a Wetland Protection Ordinance.
- 6.3.G Evaluate the feasibility of expanding drainage easements along waterways and modifying banks and/or levees to increase the width of stream corridors.
- 6.3.H Investigate and implement as appropriate City Zoning regulations requiring expanded setbacks, and land dedications along waterways to allow expansion and enhancement of waterways.

Cultural Resources

There have been few archeological or paleontological finds in the City of Oakley. However, given the rich history of the Plan Area and region, the City will continue to require site evaluation prior to development of undeveloped areas, as well as required procedures if artifacts are unearthed during construction.

Goal 6.4 Encourage preservation of cultural resources within the Plan Area.

Policy

- 6.4.1 Preserve areas that have identifiable and important archaeological or paleontological significance.

Program

- 6.4.A Assess development proposals for potential impacts to significant archaeological resources pursuant to Section 15064.5 of the CEQA Guidelines. Require a study conducted by a professional archaeologist for projects located near creeks or identified archaeological sites to determine if significant archaeological resources are potentially present and if the project will significantly impact the resources. If significant impacts are identified, either require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may

involve archeological investigation or recovery.

Historic Resources

While some historic structures and land uses within the community date back to the late 1800s, most of the City's historic resources date from the period of Oakley's growth and development, roughly from 1901 to 1955. While there are no officially designated historic structures in Oakley, there are numerous buildings, primarily in the old town area, that may be eligible for such designation or listing. The City intends to evaluate such resources and establish preservation policies and practices for qualified historic resources.

Goal 6.5 Encourage preservation and enhancement of selected historic structures and features within the community.

Policies

- 6.5.1 Promote the compatibility of new development located adjacent to existing structures of historic significance with the architecture and site development of the historic structure.
- 6.5.2 Respect the character of the building and its setting during the remodeling and renovation of facades of historic buildings.
- 6.5.3 Encourage the use of the State Historic Building Code for historic buildings and other structures that contribute to the City's historic character. Use flexibility when applying zoning regulations to historic sites and buildings.
- 6.5.4 Recognize the value of Oakley's historic resources as an economic development tool.
- 6.5.5 Ensure that the integrity of historic structures and the parcels on which they are located are preserved through the implementation of applicable design, building, and fire codes.
- 6.5.6 Work with property owners to preserve historic features within the community.

Programs

- 6.5.A Encourage owners of eligible historic properties to apply for State and Federal registration of these sites and to participate in tax incentive programs for historic restoration.
- 6.5.B Identify funding mechanisms, including funding from the City to the extent possible, to support programs to preserve, restore, and enhance unique historic sites.
- 6.5.C Assess development proposals for potential impacts to significant historic resources pursuant to Section 15064.5 of the CEQA Guidelines. For structures that potentially have historic significance, require a study conducted by a professional archaeologist or historian to determine the actual significance of the structure and potential impacts of the proposed development. Require modification of projects to avoid significant impacts, or require mitigation measures. Protect historical buildings and sites to the extent possible, including modifications to Uniform Code requirements for historic structures.

Open Space Resources

Open space resources in Oakley consist of designated parkland, natural and recreational open space areas, and waterways (Delta and creeks). Generally, open space land is unimproved land (and water) used for preservation, recreation, public safety, and/or managed production of resources. Most of the City's open space resources are addressed in other sections of this Plan and element. For example, additional goals, policies, and programs for parklands and recreational open space are discussed in the Park and Recreation Element. Similarly, natural habitat areas are discussed in the biological resource section of this element and agricultural lands are discussed in the Land Use Element and agricultural resource section of this element. Goals, policies, and programs in this section address the City's desire to preserve, enhance, and expand open space resources to

maintain the natural physical and visual quality of Oakley.

Goal 6.6 Encourage preservation and enhancement of existing open space resources in and around Oakley and balance open space and urban areas to meet the social, environmental and economic needs of the City now and for the future.

Policies

- 6.6.1 Encourage public access in multiple forms and improvements along the City’s waterways, particularly the San Joaquin Delta, Marsh Creek and Dutch Slough.
- 6.6.2 Establish buffers from adjoining land uses to protect the natural open space resources in the City.
- 6.6.3 Encourage preservation and enhancement of the watershed, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations.
- 6.6.4 Where feasible and desirable, major open space components shall be combined and linked to form a visual and physical system in the City.

Programs

- 6.6.A Adopt land use controls that prevent incompatible uses for parcels adjacent to existing open space resources.
- 6.6.B Pursue opportunities for additional open space land in the form of parkland dedication, and public open space easements, leaseholds, land donations/dedications, and gift annuities.

6.6.C Participate with regional, state and federal entities and agencies to establish open space areas that include wildlife habitat and provide passive recreational opportunities.

Scenic Resources

Scenic resources in Oakley include predominant natural landscape features of the Delta waterways and views of Mount Diablo to the west. The City supports the preservation of these valuable scenic resources.

Goal 6.7 Seek to preserve the scenic qualities of the Delta Waterway, Marsh Creek, and views of Mount Diablo.

Policies

- 6.7.1 Encourage preservation and enhancement of views of the Delta and Mount Diablo to the extent possible.
- 6.7.2 New development and redevelopment along the Delta, adjacent to Marsh Creek and throughout the City should take advantage of view opportunities and visual impacts to the waterway and Mount Diablo, respectively.

Programs

- 6.7.A Develop guidelines, as funding becomes available, for development along scenic waterways to maintain the visual quality of these areas.
- 6.7.B Review development applications for discretionary actions to determine aesthetic impacts and visual compatibility with surrounding property.

SETTING

The Setting section of the Open Space and Conservation Element describes existing conditions of the City's valuable natural resources, including agricultural resources, air quality, biological resources, cultural and historic resources, open space resources, and scenic resources. This information provides the background for development of goals, policies, and implementation programs that reflect the community's vision for the future of Oakley.

Agricultural Resources

Overview of Agricultural Resources Setting

Oakley has historically been an agricultural community with a wide variety of agricultural crops. The City recognizes the many inherent benefits of maintaining agricultural land uses in the community. Agriculture contributes to the rural character of the community, maintains land as primarily open space, and reduces further degradation of the natural environment. Within Oakley, agricultural uses include various equestrian and livestock enterprises, as well as more typical practices such as row crops, vineyards and orchards.

Related Plans and Programs

A number of plans and programs exist that directly relate to the goals of the Open Space and Conservation Element. Enacted through state and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

Land Preservation Plan (65/35)

The Land Preservation Plan was adopted by Contra Costa County, limiting urban development outside the Urban Limit Line (ULL) to no more than 35 percent. The remaining 65 percent of the land shall be preserved for agriculture, open space, wetlands, parks and other non-urban uses.

Contra Costa County Agricultural History

Agriculture has been a predominant industry in Contra Costa County for decades. Agricultural lands and corresponding production have decreased due to urbanization since 1940. Both rangelands and field crops have been reduced by more than half since that time. Converted lands occurred mostly on the outskirts of incorporated cities, such as Walnut Creek and Concord. However, new tree crops were planted on irrigated lands in the East County (including the City of Oakley, the SOI, and other unincorporated areas to the east and south of the Plan Area). While fruit, vegetable, and nut crops have all decreased over the years, increases in agricultural productivity have offset the loss of agricultural acreage.

The new suburban environment in the County has created demand for nursery products, which is now the largest income producing agricultural operation in Contra Costa County. In the eastern portion of the County, which includes the Plan Area, vegetable row crop farms (tomato, asparagus, sweet corn, squash, and beans) produce significant annual sales, as do wine grapes. The East County has the largest concentration of small and medium-sized orchards, with apricot, apple, and walnut crops.

In order to address the increasing concern over the loss of prime agricultural lands, Contra Costa County adopted a program to allow for the transfer or purchase of development credits (TDR/PDR). Other strategies for the continued viability of agricultural pursuits included preservation agreements with the County, granting conservation easements, direct purchase, leasebacks, tax benefits for agriculture open space land, purchase or transfer of development rights, clustering development, establishment of an agricultural soils trust fund, and agricultural mitigation fees or land dedication (in-lieu-fee). In response to the proliferation of 5-acre "ranchettes", the County adopted a Resolution establishing rural residential development of ranchettes as an inappropriate use of prime agricultural land. Finally, the Contra Costa County General Plan incorporates an Urban Limit Line (ULL) and has

established a minimum 40-acre lot size for prime agricultural lands outside the Urban Limit Line.

Agriculture in Oakley

The City of Oakley is on very flat land that gently slopes north to the Delta. There are no significant hillsides or ridges. Oakley is comprised primarily of lowland soil associations, with some tidal flat-delta-marsh lowland along the northern boundary of the City. The lowland soil associations are slowly to very slowly permeable, highly expansive and corrosive with slight erosion hazards. The tidal flat-delta-marsh lowland soils are highly expansive, very highly corrosive and moderately to slowly permeable. Most of Oakley is composed of Class II Delhi sand, described by the U.S. Soil Conservation Service as “excessively drained soils” where runoff is slow or very slow. Delhi sand is used to grow irrigated almonds, vineyards and other fruit crops, and some walnuts.

Table 6-1
AGRICULTURAL LANDS IN THE PLAN AREA

	Acreage	Percentage of Area
City Limits		
Orchards	282.8	3.5%
Vineyards	662.7	8.2%
Row Crops	1,503.5	18.6%
Total	2,449.0	30.4%
Expansion Area		
Orchards	19.4	0.9%
Vineyards	0	0.0%
Row Crops	1,069.7	51.7%
Total	1,089.1	52.6%
Planning Area Total	3,538.1	34.9%

Source: Pacific Municipal Consultants, August 2002

Agricultural lands in the City of Oakley are planned for and accommodated in three General Plan land use designations as described below.

Agriculture. The purpose of this designation is to provide locations for continued commercial agriculture or similar land uses. Limited residential uses are allowed in this designation.

Agricultural Limited. The purpose of this designation is to provide locations for agricultural and very low density residential uses.

Delta Recreation. This land use designation encompasses the lowlands of the San Joaquin Delta at the City’s northern edge, most of which is located within the 100-year flood plain. The most appropriate land uses in this designation include agriculture, low intensity recreation and wildlife habitat.

The City encourages the preservation of prime agricultural lands and lands with viable agricultural production. Prime agricultural lands are lands with prime soil classifications (Class I or II) as determined in the Soil Conservation Service Land Use Capability Classifications. While the City of Oakley does not contain any lands with Class I or II soil classifications, the Sphere of Influence (SOI) and outside the Urban Limit Line (ULL) to the east of the City does contain prime agricultural lands, most of which are under active cultivation of intensive row crops.

In an effort to preserve the agricultural and rural character of the community, the City allows keeping of horses within several of the City’s land use classifications and allows commercial equestrian facilities within the Agriculture Limited designation. As described in the Land Use Element, appropriate uses in the Agricultural Limited land use designation include modified agricultural practices that minimize impacts on adjacent land uses, along with equestrian and livestock uses, subject to limits.

Air Quality

Overview of Air Quality Setting

Oakley is located at the eastern boundary of the San Francisco Bay Area Air Basin, which is regulated by the Bay Area Air Quality Management District (BAAQMD). The BAAQMD is currently designated as a non-attainment air basin for the exceeding air quality standards for ozone. Improvement to air quality is a regional issue and the City’s cooperation among all agencies in the district is necessary to achieve desired improvements. The City can

participate and contribute its share in those efforts by proper planning for land use and transportation consistent with the most recent Air Quality Management Plan.

Related Plans and Programs

A number of existing plans and programs relate directly to the goals of the Open Space and Conservation Element. Enacted through federal, state, and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Air quality is considered an environmental impact under CEQA.

Federal Clean Air Act

The Federal Clean Air Act established National Ambient Air Quality Standards (NAAQS) in 1970 for six pollutants: carbon monoxide, ozone, particulates, nitrogen dioxide, sulfur dioxide, and lead. The Act requires states with air pollution that exceeds the NAAQS to prepare air quality plans demonstrating how the standards would be met (State Implementation Plans-SIPs). In 1990, amendments to the Act established categories of severity for non-attainment areas (“marginal” to “extreme”). In 1994, the California Air Resources Board adopted a revised State Implementation Plan for ozone to meet the requirements of the 1990 amendments.

California Clean Air Act

The California Clean Air Act (CCAA) was enacted in 1988 requiring attainment of California’s ambient air quality standards. Amended in 1992 and 1996, the State’s ambient air quality standards are more stringent than the

national standards. In general, the CCAA requires regions whose air quality exceeds State standards to reduce pollutants by five percent or more per year, or to implement all feasible measures to meet the state air quality standards as expeditiously as possible.

Bay Area Air Quality Management District (BAAQMD)

The Bay Area Air Quality Management District (BAAQMD) was created by the California Legislature in 1955 as a regional agency responsible for regulating air quality. The District's jurisdiction encompasses nine counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma). The District is governed by a 21-member Board of Directors, which has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction.

Air Quality in Oakley

Oakley is located on the south side of the San Joaquin River delta, east of the Carquinez Straits. Its location between the greater Bay Area and the Central Valley has great influence on the climate and air quality of the area. The City is located at the eastern boundary of the nine-county San Francisco Bay Area Air Basin, near the eight-county San Joaquin Valley Air Basin.

Oakley has a relatively low potential for air pollution given the persistent and strong winds typical of the area. The predominant westerly winds dilute pollutants and transport them away from the area, so that emissions released in the project area have more influence on air quality in the Sacramento and San Joaquin valleys than they do locally. However, air quality in Oakley is degraded by its location downwind of the metropolitan Bay Area. There are, however, several major stationary sources in upwind cities that can influence local air quality and the project's location downwind of the greater Bay Area also means that pollutants from other areas are transported to the area.

Air pollutants regulated by the BAAQMD include:

- Particulate matter
- Organic compounds
- Nitrogen oxides
- Sulfur dioxide/oxides
- Carbon monoxide
- Hydrogen sulfide
- Photochemical smog
- Acid deposition

Of these pollutants, the Bay Area experiences problems with ozone, carbon monoxide, particulate matter, and toxic air contaminants (TACs), due either to the strength of the emission or the climate of the region. The Bay Area was initially classified as a federal non-attainment area (standards are not attained) for carbon monoxide and ozone. Ambient levels of carbon monoxide have been steadily declining in the Bay Area since the 1970's, and in 1998 the entire Bay Area was re-designated as an attainment area for this pollutant.

Ozone levels also have been declining since the 1970's, but in a less consistent manner. Based on monitoring data from 1990 to 1992 the Bay Area was re-designated as a federal attainment area for ozone in 1995. However, violations of the ozone standard in 1995 and 1996 lead the U.S. Environmental Protection Agency to re-designate the Bay Area back to non-attainment status, requiring preparation of an updated air quality plan. The Bay Area is considered to have attained all the NAAQS with the exception of the standard for ozone.

The Bay Area was initially determined to be a state non-attainment area for carbon monoxide, ozone and PM10. The Bay Area was reclassified as attainment for carbon monoxide, but remains an ozone non-attainment area. The California Legislature, when it passed the California Clean Air Act in 1988, recognized the relative intractability of the PM10 problem with respect to the state ambient standard and excluded it from the basic planning requirements of the Act.

The BAAQMD has for many years operated a multi-pollutant monitoring site in nearby Bethel Island. During the 1995 to 1999 five-year

monitoring period, all federal ambient air quality standards were met in the Oakley area, with the exception of ozone. However, during this same period, the more stringent state ambient standards of ozone and PM10 were regularly exceeded.

While there are no air quality standards for toxic air contaminants (TACs), impacts are evaluated by calculating the health risks associated with a given exposure. Diesel exhaust has been found to be the most dangerous and ubiquitous TAC in the Bay Area. The state of California has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. Particular attention should be paid to projects that might result in sensitive receptors being exposed to high levels of diesel exhaust. In Oakley, this includes high volume traffic on Highway 4 and other major arterial roadways with high levels of diesel traffic. Participation in the state's plan and compliance with these standards will help reduce this regional impact.

Sensitive Receptors

The BAAQMD defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals and medical clinics. The major sensitive receptors in Oakley are schools and residences.

Pollution Sources

The BAAQMD maintains inventories of stationary sources of both criteria pollutants and TACs. The BAAQMD inventory lists only one major emitting facility for criteria pollutants in Oakley, a petroleum products storage facility. Sources of toxic air contaminants are also inventoried and maintained by the district. The current inventory identifies three dry cleaners, Tonka Energy Inc. and the Ironhouse Sanitary District as sources of TACs in Oakley. The sanitary district facility would also be a potential source of odors.

Biological Resources

Overview of Biological Resource Setting

The City's Plan Area supports a diverse assemblage of plant and wildlife species throughout several habitat types. The potential for a particular habitat to support special-status species depends on numerous factors including microhabitat, human disturbance levels, and current site conditions. This section identifies the regulatory setting, habitat areas, and potential biological values for each habitat in the Plan Area.

Figure 6--2-1 provides a generalized map of biological sensitivity within the Oakley Planning Area. The exhibit is not based upon detailed site-specific investigations and is intended to guide the City in determining the need for detailed biological analysis as development projects are proposed.

Related Plans and Programs

A number of plans and programs exist which directly relate to the goals of the Open Space and Conservation Element. Enacted through federal, state, and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

Federal Endangered Species Act

The Federal Endangered Species Act (ESA), administered by the U.S. Fish and Wildlife Service, applies to impacts to federally listed species, or habitat occupied by federally listed species. ESA Section 9 forbids specified acts that directly or indirectly harm listed species. Section 9 also prohibits "taking" any species of wildlife or fish listed as endangered. These restrictions apply to all federal agencies and all persons subject to United States jurisdiction.

California Endangered Species Act

The California Endangered Species Act (CESA) is a state program similar in scope and nature to the Federal ESA, but focused on plant and wildlife species identified as threatened and endangered within the State of California. The

California Department of Fish and Game administers the CESA regulations.

U.S Fish and Wildlife Service and California Department of Fish and Game Regulations

Both the U.S. Fish and Wildlife Service and California Department of Fish and Game have regulations to protect wildlife resources. Special permits are required for the alteration, dredging, or activity in any lake or stream, as well as other activities that may affect fish and game habitat. Both agencies also regulate impacts to sensitive plant and animal species. Future development in Oakley potentially affecting wildlife habitat will be subject to the regulations of both of these federal and state agencies.

Waters of the U.S.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadow. The U.S. Army Corps of Engineers (Corps) regulates discharge of dredged or fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Biological resources are considered an environmental impact under CEQA.

Figure 6-1 General Biological Sensitivity
11x17

Back of Fig 6-1

Heritage Tree Preservation Ordinance

The City's Heritage Tree Preservation Ordinance was adopted as part of the Contra Costa County zoning provisions. The ordinance protects designated heritage trees, preventing the removal of such trees without approval of a tree permit.

Vegetation and Wildlife

The City of Oakley is located within Contra Costa County (east San Francisco Bay Area), east of the City of Antioch and directly north of the City of Brentwood. Elevations within the plan area range from sea level to approximately 120 feet above mean sea level (MSL). Vegetation within the plan area includes agricultural and ruderal fields, perennial and seasonal marsh, orchard, drainage/canal, and landscaped (developed) vegetation communities as shown on Figure 6-2. Common plant and wildlife species occurring, or expected to occur, within these habitats are listed below.

Agricultural and Ruderal Field

The western and southern portions of the plan area support several agricultural and ruderal fields. A majority of the agricultural fields appear to be routinely plowed or disked, supporting cultivated crops. Weedy invasive vegetation typically associated with ruderal (fallow) fields was also found in this habitat throughout the plan area. Plant species observed or expected to occur in this community include wild oats (*Avena* sp.), yellow star thistle (*Centaurea solstitialis*), russian thistle (*Salsola tragus*), filaree (*Erodium botrys*), and bristly ox-tongue (*Picris echioides*).

Agricultural and ruderal fields provide foraging habitat and shelter opportunities for a wide variety of common wildlife species. Species expected to utilize these habitats within the Plan Area include red-tailed hawk (*Buteo jamaicensis*), deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), western meadowlark (*Sturnella neglecta*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), white-crowned sparrow

(*Zonotrichia leucophrys*), coyote (*Canis latrans*) and fox (*Vulpes* sp.).

Irrigated Pasture

The majority of the northeastern portion of the Plan Area consists of irrigated pasture. Weedy species tolerant of year-round wet conditions are associated with this habitat. The frequent irrigation of these areas has resulted in the establishment of areas of seasonal and perennial wetland conditions in several of the pastures. Common wetland vegetation observed in these areas, includes species such as cattail (*Typha latifolia*), bulrushes (*Scirpus* spp.), sedge (*Carex* spp.), and spikerush (*Eleocharis* spp.).

Irrigated fields support foraging habitat for numerous avian and small mammal species and the wetland areas interspersed throughout these habitats likely support a wide variety of wildlife. Species observed or expected to occur within these habitats in the Plan Area include red-winged blackbird (*Agelaius phoeniceus*), red-tailed hawk, pacific chorus frog (*Pseudacris regilla*), bullfrog (*Rana catesbeiana*), great egret (*Ardea alba*), and great blue heron (*Ardea herodias*).

Marsh

Deltaic marsh, associated with the San Joaquin River, is found along the northwestern border of the Plan Area, with one area of isolated marsh occurring in close proximity to the extreme northwestern border of the plan area. This area is bounded by an existing marina to the north. These habitats support a wide diversity of common wetland plant species and potential habitat for a number of listed and special-status plants. Plant species observed in marsh habitat in the planning area include cattails, California bulrush (*Scirpus californicus*), giant reed (*Arundo donax*), coyote brush (*Baccharis pilularis*), arroyo willow (*Salix lasiolepis*), cottonwood (*Populus fremontii*), reed grass (*Calamagrostis* sp.), and goldenbush (*Isocoma* sp.). Additionally, plant species such as pacific blackberry (*Rubus ursinus*), rabbit's foot grass (*Polypogon monspeliensis*), dallis grass (*Paspalum dilatatum*), white sweetclover (*Melilotus alba*), and saltgrass (*Distichlis spicata*) were also identified here.

Marsh habitats support a wide range of common and special-status wildlife species. Species diversity in these habitats, particularly in deltaic marsh habitat, is high. Species likely to utilize these habitats include song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), common yellowthroat (*Geothlypis trichas*), yellow warbler (*Dendroica petechia*), pacific chorus frog, great blue heron, bullfrog, and numerous waterfowl species. Mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), northern harrier (*Circus cyaneus*), and great egret were observed in these habitats in the planning area during field reconnaissance. The San Joaquin Delta is an important component of the Pacific Flyway, a major waterfowl migration route in North America.

Orchard

Several areas within the City of Oakley are currently utilized for orchard production. Because the orchard habitat onsite is regularly maintained, it is relatively devoid of other vegetation. Orchards are considered low value habitat for wildlife species. Burrowing mammals and foraging avian species including California ground squirrel, black-tailed jackrabbit, American crow (*Corvus brachyrhynchos*), red-tailed hawk, and coyote (*Canis latrans*) likely utilize this habitat within the Plan Area.

Waterways, Drainages, and Canals

Waterways through Oakley include the Contra Costa Canal, Marsh Creek, ~~and the Dutch Slough, and East Antioch Creek as shown on Figure 6-3.~~ The Contra Costa Canal runs east to west almost through the middle of the City. Marsh Creek runs south to north on the east side of the City and empties into the Delta. The Dutch Slough borders the northeast City boundary and the north and east boundary of the easternmost Sphere of Influence area with two fingers reaching south towards the Contra Costa Canal within Oakley. East Antioch Creek borders the southwest City boundary and empties into the Delta.

The City of Oakley also includes a number of areas that directly facilitate or indirectly accommodate groundwater recharge. Many of

the agricultural or very-low density residential areas in the city allow for the rainwater infiltration that contributes to groundwater recharge. Additionally, a number of drainage basins also detain stormwater and runoff for the purposes of flood control. A number of these basins occur in new residential subdivisions on the eastern side of the city, with Holly Creek Park, on the west side of the city serving as both a stormwater detention basin and a recreation area.

Open water drainages and canals flow through the northern and southern portions of the plan area. These water features are predominantly devoid of vegetation, however, the associated banks support hydrophytic vegetation, with the exception of a portion of the Contra Costa Canal beginning at Pumping Plant No. 1 near the BNSF Railroad and extending westward through the City of Oakley, which is a concrete-lined feature devoid of vegetation. Both vegetated and concrete lined channels serve as stormwater drainage, and channels with natural permeable bottoms and banks also provide opportunities for groundwater recharge. Predominant species associated with these habitats include cattails, bulrush, smartweed (*Polygonum* spp.), and curly dock. Some riparian vegetation is associated with Dutch Slough, which is located in the northeastern portion of the plan area. The woodland canopy, comprised of scattered oaks (*Quercus* sp.), some willows (*Salix* spp.), and cottonwoods (*Populus fremontii*) is relatively sparse and the understory consists predominantly of hydrophytic plant species.

Numerous resident and migratory wildlife species utilize open water canal habitats for foraging and shelter opportunities. Species expected to occur within these habitats in the Plan Area include aquatic species such as pacific chorus frog and bullfrog in addition to avian species such as great egret, great blue heron, and mallard. Additionally, raptors and numerous other resident and migratory birds utilize riparian vegetation and isolated oaks for nesting and roosting opportunities.

Figure 6-2 Vegetation Types

11x17

Figure 6-3 Waterbodies

11x17

[fig 6-3 can be printed on back of fig 6-2]

Landscaped/Developed

The developed regions of the Plan Area are planted with common landscape plant species such as oleander (*Nerium oleander*), Italian cypress (*Cupressus sempervirens*), and sweetgum (*Liquidambar styraciflua*).

The landscaped/developed areas constitute marginal habitat for common resident and migratory wildlife species. Species found in, or expected to occupy these areas include American crow, rock dove (*Columba livia*), mourning dove, California ground squirrel, and Brewer's blackbird (*Euphagus cyanocephalus*).

Special Status Species

According to the U.S. Fish and Wildlife Service species list for the City's representative USGS quadrangle, there are numerous special status plant and animal species known or expected to occur in the Plan Area. Those plant and animal species most likely to occur in the Plan Area are listed below.

Special Status Plants

Special-status plant species including Delta mudwort, Mason's lilacopsis, rose mallow, and Suisun marsh aster have the highest potential to occur within the plan area. In general, habitat for these species includes the marsh habitat along the northern border of plan area. Other species that have a low or unlikely potential to occur in the Plan Area include big tarplant, Diablo helianthella, heartscale, showy madia, and soft bird's beak. Habitats supporting conditions suitable for these plant species should be considered sensitive.

Special-Status Wildlife

Invertebrates. One invertebrate species, curved-foot hygrotus diving beetle has the highest potential to occur within the Plan Area. Habitat for this species in the area includes the sloughs. One record is listed in the CNDDDB from the plan area. Other species that have a low potential to occur in the Plan Area include vernal pool fairy shrimp, vernal pool tadpole shrimp, and longhorn fairy shrimp. These

species could occur in the potential seasonal wetlands in the Plan Area.

Amphibians and Reptiles. California red-legged frog, San Joaquin coachwhip, Giant garter snake, California horned lizard, silvery legless lizard, and Northwestern pond turtle have the highest potential to occur in the Plan Area. Generally, these species occur in aquatic habitats (the marshes and sloughs in the plan area), with the exception of the horned and legless lizards, which may occur in association with sandy soils in the Plan Area. Other species that have a low potential to occur in the plan area include California tiger salamander, western spadefoot toad, and Alameda whipsnake.

Fish. A number of anadromous fishes and other aquatic species have a high potential to occur within the Plan Area. Habitat for these species in the area include the sloughs connected to the Delta waterways. Projects having the potential to affect the water quality of these water features could affect this species.

Mammals. Special-status mammal species include San Joaquin kit fox, San Joaquin pocket mouse, and several species of bats have the highest potential to occur in the Plan Area. Generally, the pocket mouse and kit fox could occur in the open upland habitats in the Plan Area, with the exception of bats, which are likely to frequent the upland areas closer to water. Other species that have a low potential to occur in the Plan Area include San Joaquin Valley woodrat, salt marsh harvest mouse, and Suisun ornate shrew.

Birds. Special-status avian species including California black rail, Suisun song sparrow, tricolored blackbird, species of herons, ibis, and egrets, mountain plover, Greater sandhill crane, Swainson's hawk, western burrowing owl, and other raptors including ferruginous hawk and Cooper's hawk have the highest potential to occur in the Plan Area. These species could potentially occur in undeveloped portions of the Plan Area. The nests of raptors as well as the nests of migratory bird species are protected under the MBTA. Active raptor nests are also afforded additional protection in the CFG Code 3503.5.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act.

Irrigated Pasture

As discussed, irrigated pasture occurs in the northeastern portion of the Plan Area. Because these fields appear to support extensive areas of seasonal wetland vegetation, several areas within these fields may be considered wetlands. As such, these areas would be protected as wetlands as well as potential habitat for special-status species. A formal wetland delineation would be needed to determine the actual extent of wetlands.

Marsh/Sloughs

Marsh habitats are found in association with Delta frontage property along the northern edge of the Plan Area. Because of the diversity of native plant and wildlife species as well as the high potential for special-status species occurrences, these areas are considered sensitive habitats. In addition, the sloughs and canals within the Plan Area likely support special-status species, accommodate flood water and groundwater recharge, and also may function as wildlife corridors, which are important for the movement of migratory wildlife populations. Corridors provide foraging opportunities and shelter during migration. The California Fish and Game Code Section 1600 protects riparian vegetation associated with rivers and drainage ways. The riparian vegetation associated with Dutch Slough is likely considered a sensitive habitat to the CDFG.

These water features have not been delineated and additional jurisdictional wetlands or Waters of the U.S. may occur within the Plan Area. Consequently, a wetland delineation must be conducted and verified by the Corps prior to the development of any project proposed within the Plan Area.

Cultural Resources

Overview of Cultural Resource Setting

There have been few archeological or paleontological finds in the City of Oakley. However, given the rich history of the Plan Area and region, the City will continue to require site evaluation prior to development of undeveloped areas, as well as required procedures if artifacts are unearthed during construction. The historic resource section of this element includes additional information regarding the history of the area.

Related Plans and Programs

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Cultural resources are considered an environmental impact under CEQA.

Prehistoric Resources and Settlement of Oakley

Archeologists have found few prehistoric sites in the Oakley area. One substantial shell mound was discovered early in the twentieth century near what is now the east edge of town. The Northwest Information Center of the California Historical Resources Information System now keeps track of archeological investigations undertaken in Oakley. Around three-dozen such projects have been completed in the past 25 years, yielding only four prehistoric sites in the City. However, the information center believes there is a high possibility that other prehistoric sites remain within the City.

The first settlers in the west delta were the Bay Miwoks, who occupied the region between 1100 and 1770 A.D. The Bay Miwok people, usually called the Julpunes or Pulpunes by European explorers, were organized into “tribelets”—political units that included several fairly

permanent villages and a set of seasonal campsites arrayed across a well-defined territory.

Historic Resources

Overview of Historic Resource Setting

While some historic structures and land uses date back to the late 1800s, most of the City's historic resources date from the period of Oakley's growth and development, roughly from 1901 to 1955. While there are no officially designated historic structures in Oakley, there are numerous buildings, primarily in the old town area, eligible for such designation or listing. The City intends to evaluate such resources and establish preservation policies and practices for qualified historic resources.

Related Plans and Programs

A number of existing plans and programs relate directly to the goals of the Open Space and Conservation Element. Enacted through federal, state, and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Historic resources are recognized as environmental impacts under CEQA.

National Historic Preservation Act (NHPA)

Establishes laws for historic resources 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. The Historic Sites Act of 1935 established national policy to preserve historic sites, buildings, and objects of national, state and local significance.

National Register of Historic Places

The National Register of Historic Places is maintained by the National Park Service and the State Historic Preservation Offices. Structures and sites are eligible for listing on the National Register when they are a minimum of 50-years-old.

State Office of Historic Preservation

The State Office of Historic Preservation implements preservation laws regarding historic resources, and is responsible for the California Historic Resources Inventory (CHRI), which uses the National Criteria for listing resources significant at the national, state, and local level.

History and Settlement of Oakley

As identified in the Cultural Resources section of this element, the first settlers in the west delta were the Bay Miwoks, who occupied the region between 1100 and 1770 A.D. Spanish incursions into the Oakley area began in the 1770s. The first to enter what are now the City limits was the De Anza expedition of 1775-76. However, after a failed attempt to find a route through the tule swamps to the Sierra, the De Anza expedition returned to Monterey. Subsequent expeditions by the Spanish did not result in colonization. Europeans settled in the Delta in the 1800s, but were killed by malaria and smallpox.

American settler John Marsh successfully farmed the land in the 1830s, bringing other American immigrants to the region. By 1862, the population of the Oakley region was large enough to support a school. A store on the Dutch Slough brought vessels into the canal for commerce. In the 1860s, farmers created swampland districts through reclamation of delta lands for new farming opportunities. Construction of the railroad along the City's southern boundary in 1879 introduced a shipping alternative for farmers.

The town of Oakley was founded in 1897, when the transcontinental railroad arrived and agriculture shifted from grains to orchard crops. Growth was slow in the early 1900s, with expanding agricultural industry and local

services. Civic institutions and activities expanded after WWI, followed by the depression. Floods and levee breaks altered the land area, resulting in the expansion of agriculture and tourism for recreation in the 1930s. Opportunities and inexpensive land brought about a population boom in the 1970s. New rooftops attracted industrial and commercial uses to the community. The population quadrupled in the 1980s to 16,000 persons. Discontent with the way the county government was handling growth in Oakley led to the founding of an official advisory council in 1983 and eventual incorporation in 1999.

The Portuguese in the area began observing the Holy Ghost Festival (which involves a parade, a feast and a religious service) in 1926 and built the Flor Do Oakley Hall in 1928. Oakley pioneers John Augusto and Joesph Augusta were both instrumental in the promotion of this annual event. John Augusto moved to Oakley in 1900 and purchased the first business lot in town. His blacksmith shop quickly became a favorite gathering place for early settlers. Unfortunately, the shop was lost in the Oakley Fire of 1924, which also burnt most of downtown, including the Oakley Hotel. Joesph Augusta, John's brother, moved to Oakley in 1913 and was a lumberyard manager. He is credited with fighting the County for much needed improvements in Oakley, like curbs and gutters, and he also was instrumental in the formation of the Oakley Sanitary District.

Historic Resources

By far the largest number of historic resources date from the period of Oakley's growth and development, roughly from 1901 to 1955. The largest concentration of potential historic resources from this period is in "old town." This area contains commercial, institutional, and residential buildings. It extends across the original town plat and O'Hara's 1909 addition, from Main Street to south of Home Street between Norcross Lane and Fifth Street. The area today contains more than 200 buildings, most of which were constructed before 1955. Old town, however, covers only about two percent of the land area in the City. Its buildings do not reflect the history of the surrounding

area, which was primarily agricultural until after World War II. There are approximately 100 farm buildings within the City limits. Additionally, there are as many as 200 more buildings, constructed between 1945 and 1955, remaining in the City, most of which are residential structures concentrated in the Sand Hill area.

Old Town

Thirty-three buildings along Main Street show the commercial development of Oakley. Five of the buildings in the center of the zone are architecturally significant. All five buildings were constructed or remodeled from 1925 to the early 1930s and have not been substantially altered since. Large display windows and lack of setback signal a time when most customers were pedestrians. The most prominent building in the group is the Oakley Hotel, which has four storefronts facing Main Street. The hotel is the most carefully designed structure on the street and the only one with two stories. Across Main Street is a trio of adjacent masonry structures with false fronts that typify small-scale commercial construction across California during the period.

The west part of the old commercial district is less cohesive and more oriented toward automobile traffic. Several of the buildings there are nevertheless more than 50 years old. Most notable is a collection of seven small dwellings opposite O'Hara Street that once formed an auto court. Four units, designed in the Tudor Revival Style, date from around 1930, while the former manager's building, originally a house, appears to have been constructed around 1910. The rest of the court appears to have been put up after World War II.

Missing from old town are many of the buildings that defined Oakley as a shipping point on the Sante Front elevation Railroad. The depot, which once was located beyond the end of Fourth Street, has disappeared, as have the Miller Cumming packinghouse and the Sesnon warehouse. Two other packing house buildings, constructed around 1915, remain north of the tracks from Sixth Street to Rose Avenue, although they have been somewhat altered. The old almond growers' warehouse on Fifth Street

has been more substantially changed. The lumber shed across the street also remains.

South of Main are three buildings that represent institutions important in the early development of Oakley. The Crossroads Community Church at 132 O'Hara Avenue, which was constructed for a Methodist congregation in 1908. With its 30-foot tower, the church is one of the town's most striking buildings. A block to the south at 210 O'Hara is the old Oakley Grammar School (later the county building). Although not highly ornamented, its wide facade, arched openings, and engaged Corinthian columns make the structure one of the City's most impressive public buildings. The oldest is the Oakley Women's Club building, located a block to the east at 204 Second Street. Constructed around 1905 as a church but looking more like a Craftsman bungalow, the building served as a clubhouse from 1916 to 1999. Although the institutional buildings are within a block of each other, they do not form a cohesive district.

The residential section of old town lies south of Acme Street. The houses vary considerably in age, with a few constructed before 1910 and a few after 1960. In the area east of O'Hara Avenue the houses are usually quite small, often containing (at least by outward appearances) only two bedrooms and one bath. Most homes in this area defy architectural classification. However, in the 1920s, many California Bungalow style homes were constructed in Oakley. Few residential units were constructed during the 15 years (1930-45) that marked the Great Depression and World War II. After that time, residential design had a horizontal emphasis with very little ornamentation.

The oldest buildings in the area, dating from 1905 to 1910, furnish clear links to the earliest days of Oakley. Among the most impressive is the two-story house, the former Walker House at 514 O'Hara, which has a classical portico with a pediment gable and four columns. More impressive because of their detailing and corner locations are two other residences developed around 1910. Both border Second Street—one at the southwest corner of Ruby, the other at the northwest corner of Star. Their bay windows

and half-width front porches are particularly noteworthy.

Outlying Areas

By the early 1930s the number of farm structures within the present city limits might well have reached 500. Due to the small-scale nature of most of local agriculture in the twentieth century, the buildings were generally small and simple. Few farmsteads, containing a house, auxiliary buildings, and surrounding open land, remain today. Exceptions are the Emerson and former Burroughs dairies in the northeast corner of the City. Individual farm buildings, not always houses, are more common. Several trends have diminished the number of farm structures: the abandonment of ranching, the replacement of old houses with newer ones, and the conversion of land from farming to residential tracts.

Other reminders remain of the era between the world wars. Those associated with the Contra Costa Canal (canal and pumping plants) are especially important. The opening of the state highway led to residential construction on the outskirts of town along the road. Then, after WWII, the subdivision of land for residential development was popular throughout the region. By far the largest concentration of new construction occurred at "Sand Hill," about a mile south of old town on State Route 4 at or near the site of a depression-era migrant labor camp. Building took place along six intersecting streets, each of which came to a dead end. By 1954 over 130 houses and a few other structures had gone up. Most of the buildings remain today.

Historic Preservation Issues

Oakley's historic resources are generally in need of official recognition. Additionally, different groups of potentially significant old buildings raise different preservation issues. The downtown commercial strip suffers from the underutilization of some buildings and the scarcely interrupted flow of traffic along Main Street. Some of the houses in the nearby residential area need maintenance, while others are losing architectural details as they undergo renovation. Original windows, in particular, are

vulnerable to inappropriate replacements. Insensitive rehabilitation may also become more prevalent in Sand Hill if the effects of economic good times begin to make an appearance there. Consideration of old ranch buildings, of critical importance because of Oakley's agricultural heritage, forms part of a larger question of continued suburban development.

Designated Historic Resources

In 1999, the federal government designated the route of the De Anza expedition as a National Historic Trail. The California Department of Transportation has begun a program to place signs along the autoroute of the trail, which is State Highway 4 through the City of Oakley. Nothing of the actual trail continues to exist in town.

Open Spaces Resources

Overview of Open Space Setting

Open space is an important community amenity. Oakley's open space resources include public and private open space and recreation facilities, lands, waterways, habitat areas, and agricultural lands. In addition to providing opportunities for recreation and leisure, open space and parkland enhance aesthetics and community character. This section describes the City's existing open space resources and strategy to maintain and enhance such resources. Refer to the Park and Recreation Element and the Biological and Scenic Resources Sections of this element for additional goals, policies, and programs affecting the City's open space resources.

Related Plans and Programs

A number of plans and programs exist which directly relate to the goals of the Open Space and Conservation Element. Enacted through state and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough

environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Open space resources are considered an environmental impact under CEQA.

Park and Recreation Master Plan

The City has developed a Park and Recreation Master Plan identifying all existing and proposed park and recreation facilities within the City and surrounding areas. This document will serve as an implementation tool for the General Plan, consistent with the goals and policies of the Park and Recreation, Land Use, and Open Space and Conservation Elements.

Designated Open Space

Open space lands in the City of Oakley are included in several General Plan land use designations as listed below. For more detailed information regarding these land use designations, refer to the Land Use Element and corresponding land use map.

- ❑ Agriculture. This land use designation is primarily intended for agricultural uses, but allows limited residential uses.
- ❑ Agriculture Limited. This designation includes agriculture and low-density (rural) residential land use.
- ❑ Delta Recreation. This land use designation encompasses the lowlands of the San Joaquin Delta at the City's northwestern edge, most of which is located within the 100-year flood plain.
- ❑ Parks and Recreation. This designation includes publicly owned city, county, and regional parks facilities, as well as publicly or privately owned golf courses.
- ❑ Waterways. Waterways through Oakley include the Contra Costa Canal, Marsh Creek, and the Dutch Slough.

San Joaquin Delta

The predominant physical feature in Oakley is the San Joaquin Delta. This waterway serves as an open space area, sensitive plant and wildlife habitat, and recreational opportunity for the City. At the General Plan Vision Workshop on December 4, 2000, the participants expressed the desire to ensure that open space and natural landscapes remain a major component of lands near the Delta. Additionally, participants requested a focus on recreational development of the Delta to provide a center for tourism and a base for recreational activity.

Dutch Slough

The Dutch Slough area is a contiguous block of land that includes agricultural lands, ruderal lands and Delta frontage, providing riparian habitat, foraging and shelter opportunities for several resident and migratory wildlife species. For purposes of this General Plan, the term Dutch Slough refers not only to the Slough, but also the surrounding lands that are situated north of the Contra Costa Canal.

Dutch Slough is located along the northern boundary of Oakley, an area formerly identified by Contra Costa County as the M-8 Planning Area. This area is bisected by the Contra Costa Canal and is located east of Marsh Creek, west of Jersey Island Road and includes a portion of the land located between Cypress Avenue and the Contra Costa Canal. While the County designation of M-8 no longer applies to this land, a development agreement authorizing 4,000 homes on this property will remain valid until year 2006.

Private property owners have made an application to CALFED to establish a substantial wetland restoration area within the Dutch Slough area. Based upon this application and presentations by the property owner's representative, the City has removed the urban land use designations from lands located north of the Contra Costa Canal within the Dutch Slough area. This land has been designated as Delta Recreation by the City, a designation that will ensure the preservation of open space within the area, while providing the opportunity for

enhancement of biological resources and development of passive recreational activities.

Open Space and Conservation Plan Implementation Efforts

In order to preserve and enhance the City's open space resources, the City will continue to implement existing tree preservation ordinances, implement the Parks and Recreation Master Plan, expand recreation trails and access to the Delta, and establish restoration programs for areas such as Dutch Slough. The City will also support the joint-venture use of open space areas to reduce City maintenance costs, and participate/cooperate with other jurisdictions in the region to enhance regional open space resources.

Scenic Resources

Overview of Scenic Resource Setting

Scenic resources in Oakley include predominant natural landscape features such as the Delta, Dutch Slough, Marsh Creek, agricultural and other open space lands, as well as the views of Mount Diablo to the west. The City wants to protect and preserve these valuable scenic resources.

Related Plans and Programs

A number of existing plans and programs relate directly to the goals of the Open Space and Conservation Element. Enacted through state and local action, these plans and programs are administered by agencies with responsibility for their enforcement.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Aesthetics (visual character) is recognized as an environmental impact under CEQA.

6.0 – OPEN SPACE AND CONSERVATION

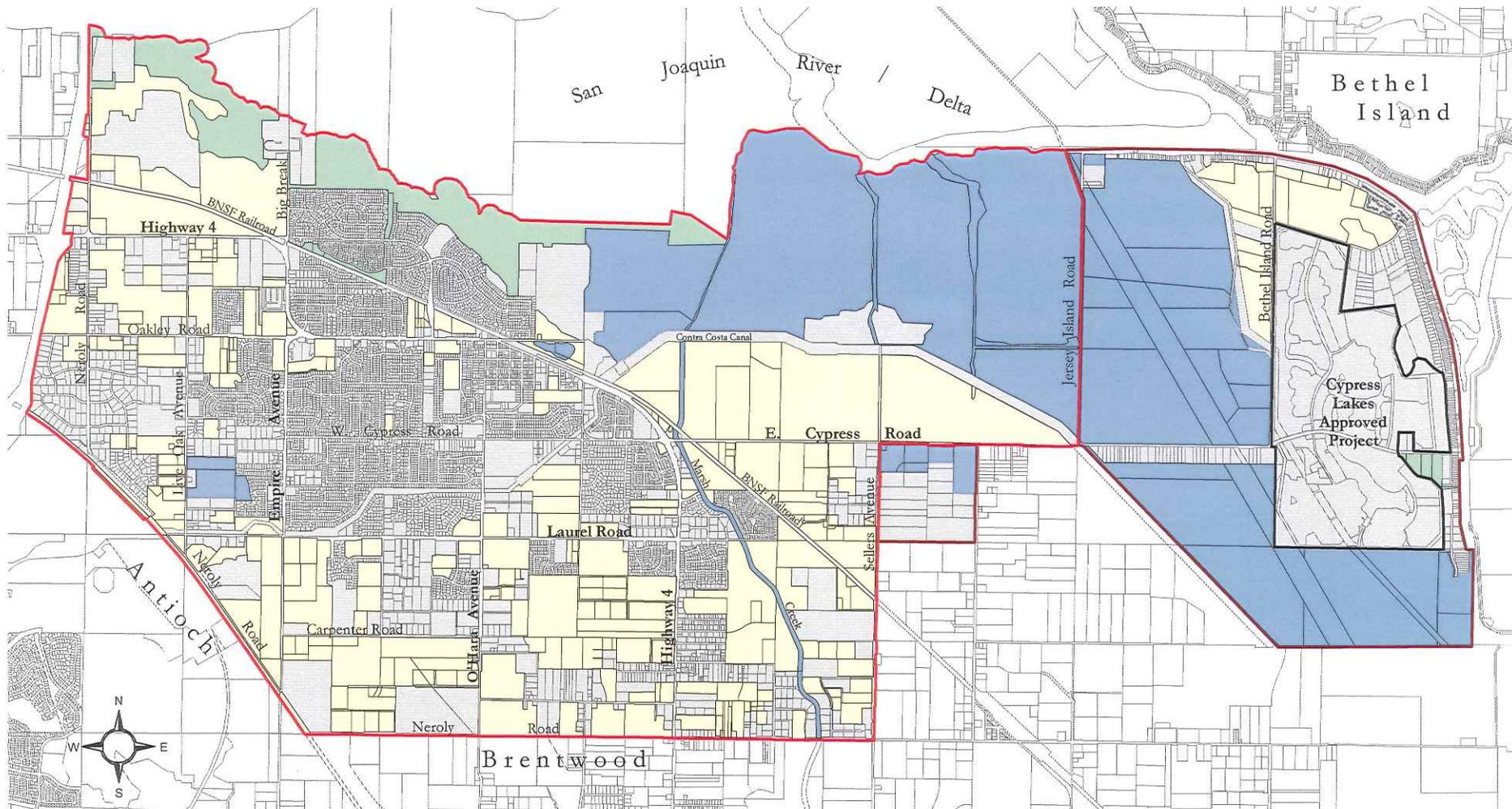
Heritage Tree Preservation Ordinance

The City's Heritage Tree Preservation Ordinance was adopted as part of the Contra Costa County zoning provisions. The ordinance protects designated heritage trees, preventing the removal of such trees without approval of a tree permit.

Individual Scenic Resource Topic Areas

The City's predominantly flat landscape is rich in scenic resources. Oakley's scenic resources include the waterways of the Delta, Dutch Slough, Marsh Creek, and Contra Costa Canal, habitat areas, and open space land. Other scenic resources include the view of Mount Diablo west of the City. At the General Plan Vision Workshop on December 4, 2000, one of the key issues identified was to preserve scenic resources and view corridors within Oakley.

Views of the Delta are only visible from the waterfront marinas and a public space located in a residential zone. Mt. Diablo can be seen from almost anywhere in the City, but mostly from those streets running east and west. The rural small town character is evident throughout the City, both in the historic downtown area along Main St. and in the agricultural areas to the south. For scenic areas that are planned for some amount of development, the application review process shall consider the feasibility of preserving or protecting the scenic qualities of the site.

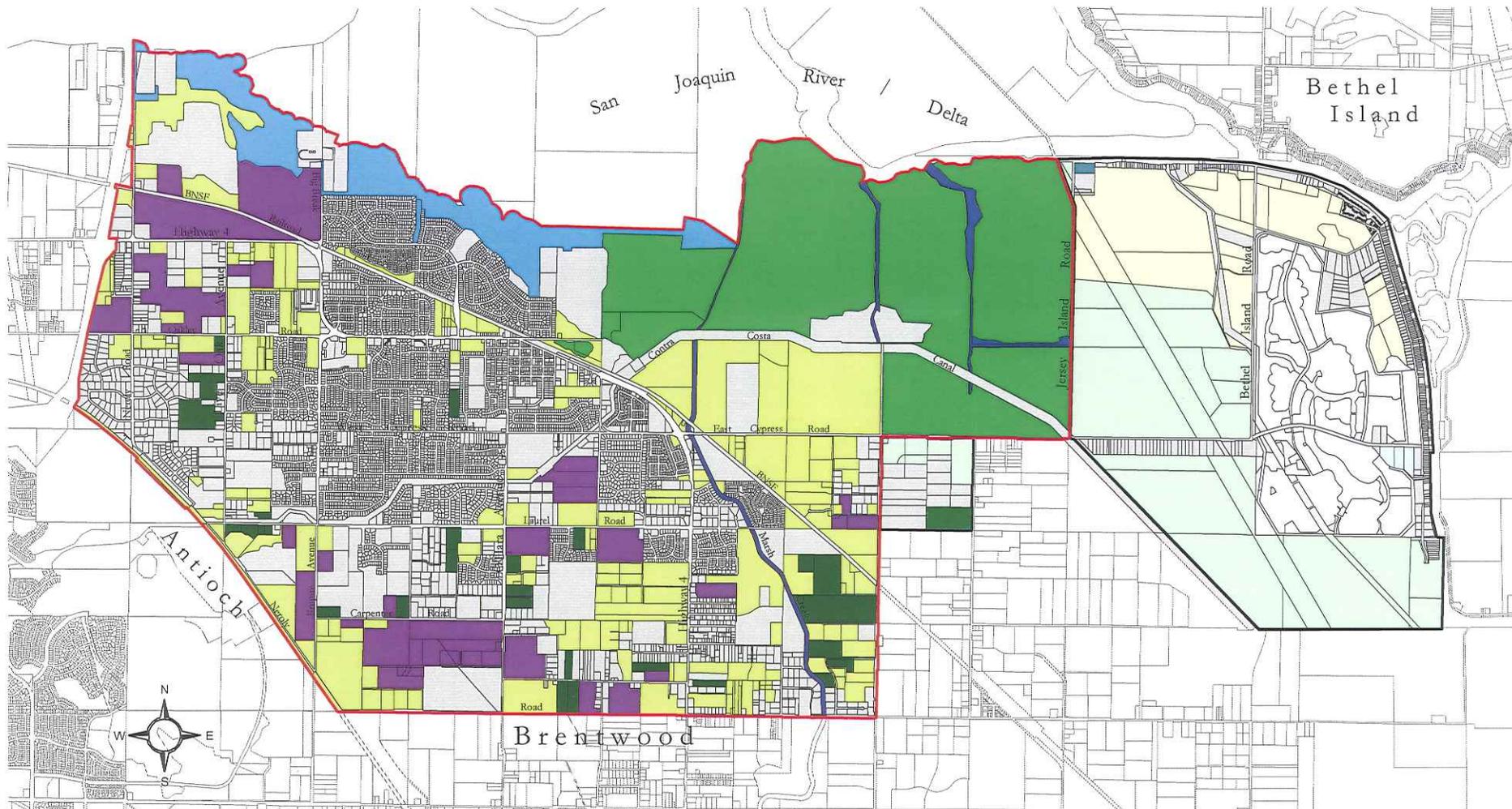


- L
 - E
 - G
 - E
 - N
 - D
- City Boundary
 - Expansion Area Boundary
 - Cypress Lakes Boundary
 - High
 - Medium
 - Low
 - Minimal

City of Oakley
General Plan 2020

Figure 6-1
Biological Sensitivity

Source: Foothill & Associates

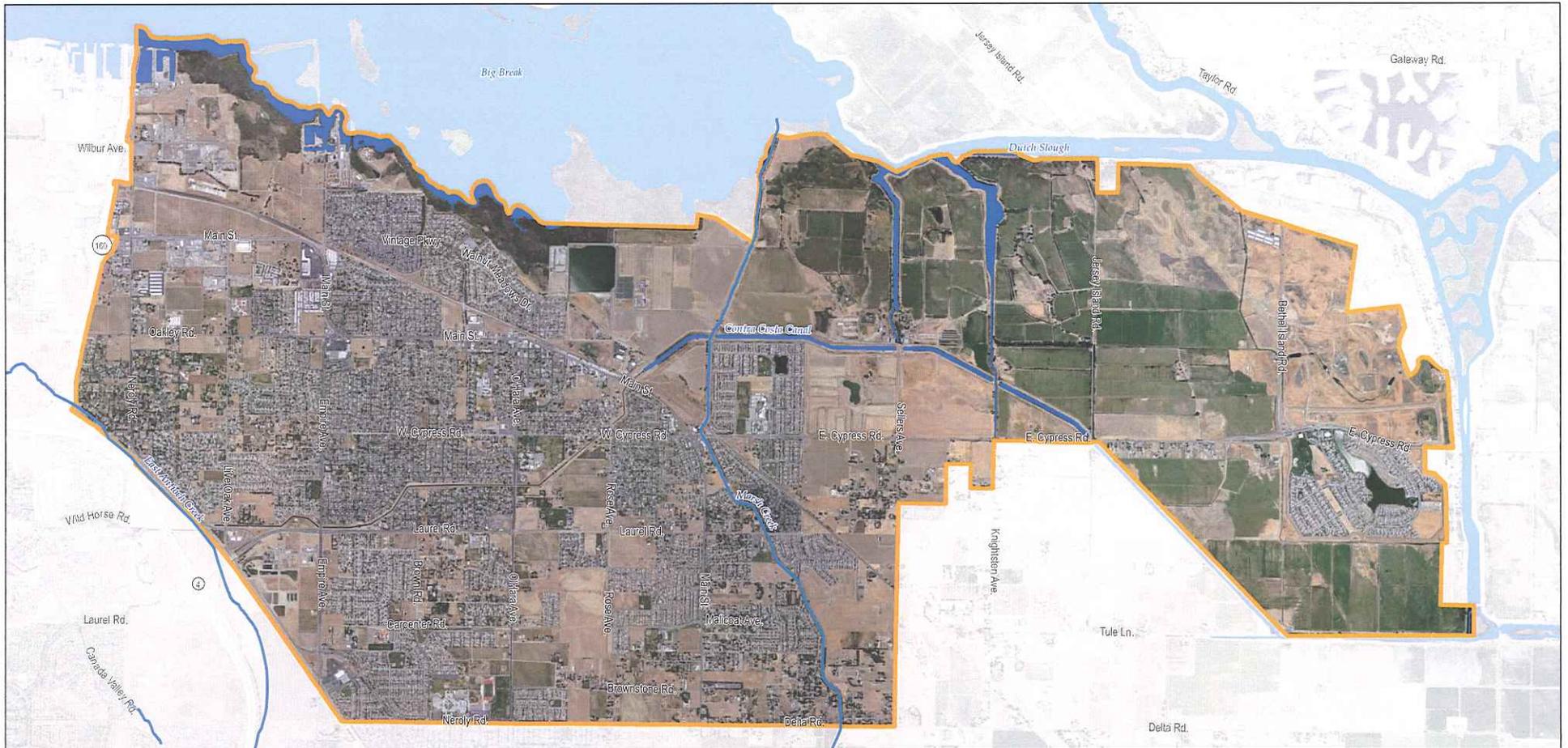


- | | | |
|---|----------------------|-------------------------|
| L | Developed | City Boundary |
| E | Agricultural/Ruderal | Expansion Area Boundary |
| G | Irrigated pasture | Cypress Lakes Project |
| E | Marsh | County |
| N | Orchard | |
| D | Riparian | |
| | Vineyard | |

City of Oakley
General Plan 2020

Figure 6-2
Vegetation Types

Source: Foothill & Associates



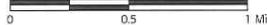
Sources: City of Oakley, 2015; FEMA, 2015; Contra Costa County, 2015; PlaceWorks, 2015.

This map is shown for informational purposes but is not adopted as part of the General Plan.

- Oakley City Limit
- Waterbodies



Date: 12/17/2015



City of Oakley
 General Plan 2020
 Figure 6-3
 Waterbodies - Oakley
 Contra Costa County, California

CHAPTER

8

HEALTH AND SAFETY

INTRODUCTION

This Element addresses issues related to geologic and seismic hazards, flooding, hazardous materials, public protection and disaster planning, and fire hazards.

General Description of the Element and Various Components/Sections

A Health and Safety Element is a required element of the General Plan. It establishes a framework of objectives, policies and implementation programs that will be the basis for proficient land use planning to reduce unreasonable risks and protect public health and welfare.

In accordance with the State General Plan Guidelines, the Health and Safety Element includes maps of known hazards including seismic and geologic hazards, floodplains, and other hazards. This chapter addresses ground shaking, fault displacement, liquefaction, subsidence, levee and dam failure, tsunamis, hazardous materials, fire hazards, and public protection and disaster planning.

Organization of the Element

The Health and Safety Element is organized into three main sections; 1) an Introduction section that includes an overview of the element and its consistency with State law; 2) a Goals, Policies and Implementation Programs section covering the following four categories: geologic and

seismic hazards, flooding, hazardous materials, and public protection and disaster planning; and 3) a Settings section that describes existing conditions in each of the four categories described above.

Consistency with State Law

California Government Code Section 65302(g) requires that a Health and Safety element be included in a General Plan, and more specifically mandates that the element address the following:

"...the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, tsunami, seiches, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified geologic and fire hazards...."

[Section 65302\(g\) also contains additional directing municipalities to include a variety of more specific information and policies regarding flood hazards.](#)

8.0 – HEALTH AND SAFETY ELEMENT

This element has been prepared in conformance with all mandatory requirements of state law. Specific topics addressed include:

- Geologic formations and soil types
- Seismic hazards, including surface faulting, seismic shaking, ground failure, and liquefaction
- ~~100-Year floodplain locations~~
- Locations of flood hazard areas, including the 100-year and 500-year floodplains identified by the Federal Emergency Management Agency (FEMA), ; dam failure inundation areas mapped by the California Emergency Management Agency (CalEMA); and “Awareness” and 200-year floodplain locations mapped by the California Department of Water Resources (DWR).
- Flood hazards, including stormwater and tidal inundation, tsunami and seiches, subsidence, and canal, dam and levee failure
- Wildland, Peat soil, and urban fire hazards
- Risk of upset, including propane, at Randall Bold Water Treatment Plant and along railroad tracks
- Miscellaneous hazards, including agricultural spraying, hazardous cargo, and disaster planning

Relationship to Other Elements of the General Plan

The Health and Safety Element is expected to affect land use policies and hence is coordinated with the Land Use Element. Health and safety considerations may affect the Open Space and Conservation and Public Services and Facilities Elements, and may present additional justification for lowering density in conjunction with land use decisions, based partly on seismic and flood risk. The Health and Safety Element is also related to the Housing and Circulation Elements in that it discusses hazards that may affect decision-making in these issue areas.

GOALS, POLICIES AND PROGRAMS

The following are the Goals, Policies, and Implementation programs for each of the eight sections listed above in the Setting section of this Element.

GEOLOGY AND SEISMIC HAZARDS

Goal 8.1 Protect human life, reduce the potential for serious injuries, and minimize the risk of property losses from the effects of earthquakes, including fault rupture, ground shaking, and liquefaction - induced ground failure.

Seismic Hazard Policies

- 8.1.1 Recognize that a severe earthquake hazard exists and reflect this recognition in the City's development review and other programs .
- 8.1.2 Include a thorough evaluation of geologic-seismic and soils conditions at risk in all significant land use decisions (General Plan amendment, rezoning, etc., affecting 10 acres or more).
- 8.1.3 Require the design of structures for human occupancy for satisfactory performance under earthquake conditions.
- 8.1.4 Prohibit the erection of critical structures and facilities whose loss would substantially affect the public safety or the provision of needed services, in areas where there is a high risk of severe damage in the event of an earthquake unless appropriate engineering and construction practices are applied to ensure structural stability.

Ground Shaking Policies

- 8.1.5 In areas susceptible to high damage from ground shaking (Modern sediment Zone identified on Figure 8-1, Faults and Seismic Stability), geologic-seismic and soils studies shall be required prior

to authorizing public or private construction.

Faults and Fault Displacement Policies

- 8.1.6 Prohibit construction of structures for human occupancy, and structures whose loss would affect the public safety or the provision of needed services, within 50 feet of known active faults as referenced in the Alquist/Priolo Act.
- 8.1.7 In areas where active or inactive earthquake faults have been identified, the location and/or design of any proposed buildings, facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.

Liquefaction Policies

- 8.1.8 To the extent practicable, the construction of critical facilities, structures involving high occupancies, and public facilities should not be sited in areas identified as, or underlain by deposits classified as, having a high liquefaction potential (Figure 8-2), unless appropriate engineering and construction practices are applied to ensure structural stability.
- 8.1.9 Any structures permitted in areas of high liquefaction potential (Figure 8-2) shall be sited, designed and constructed to minimize the dangers from damage due to earthquake-induced liquefaction. Approval of public and private development projects shall be contingent on geologic and engineering studies which: 1) define and delineate potentially hazardous geologic and/or soils conditions, 2) recommend means of mitigating these adverse conditions; and 3) provide implementation of the mitigation measures.

Programs

- 8.1.A Require that structures intended for human occupancy are adequately setback from active and potentially

active faults. Ensure that minimum setbacks take into account the varying degree of seismic risk and the consequences of failure.

8.1.B Utilize the land in the setback zones along active and potentially active faults for open forms of land use that could experience displacement without endangering large numbers of people or creating secondary hazards. Examples are yards, greenbelts, parking lots, and non-critical storage areas.

8.1.C Through the environmental review process, require comprehensive geologic, seismic, and/or soils and engineering studies for any critical structure proposed for construction in areas subject to groundshaking, fault displacement, ground failure, or liquefaction.

8.1.D Adopt ordinance code provisions related to the repair or replacement of unreinforced masonry structures.

FLOOD HAZARDS

Goal 8.2 Protect public safety and minimize the risk to life and property from flooding.

Policies

8.2.1 Applications for development at urban or suburban densities in 100-year floodplain areas, 200-year floodplain areas, and/or other flood-prone areas where there is a serious risk to life and property (see Figure 8-3) shall demonstrate appropriate solutions or be denied.

8.2.2 In mainland areas along the creeks and bays affected by water backing up into the watercourse, it shall be demonstrated prior to development that adequate protection exist through levee protection or change of elevation.

Flooding

8.2.3 Buildings in urban development near the shoreline of the Delta and in flood-

prone areas shall be protected from flood dangers, including consideration of rising sea levels.

8.2.4 Habitable areas of structures near the shoreline of the Delta and in flood-prone areas shall be sited above the highest water level expected during the life of the project, or shall be protected for the expected life of the project by levees of an adequate design

8.2.5 Rights-of-way for levees protecting inland areas from tidal flooding shall be sufficiently wide on the upland side to allow for future levee widening to support additional levee height.

8.2.6 Review flooding policies and attendant geographic data in the General Plan every ~~five~~ years in order to incorporate any new scientific findings, revised geographic information, or federal and State requirements regarding the potential for flooding and projected increases in sea levels.

8.2.7 Review flooding policies as they relate to properties designated by FEMA as within the 100-year floodplains.

8.2.8 Development proposals near the shoreline of the Delta and within flood-prone areas shall be reviewed by the Flood Control District, as an advisory agency, prior to approval by the City.

8.2.9 Avoid placement of public facilities (including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities) in flood-prone areas, especially public facilities that provide essential public services and/or would be located in areas at greatest risk for flooding, such as the FEMA-identified 100-year floodplain.

8.2.10 Require public facilities that are or must be located in flood-prone areas to be designed such that access and operations will not be disrupted by flooding in the surrounding area, where feasible; if such design is not feasible, require public facilities to develop plans to ensure that equivalent operations can

be carried out by a comparable facility outside of flood-prone areas.

Subsidence

~~8.2.9~~8.2.11 Development of lands subject to subsidence shall take into account and fully mitigate the potential impacts of flooding based on the best currently available techniques.

~~8.2.10~~8.2.12 Any development approvals for areas subject to subsidence shall include conditions that account for the need to support Delta reclamation and irrigation districts, and to strengthen weak and low levees prior to development.

~~8.2.11~~8.2.13 The pumping of substantial quantities of water, oil, and gas in an area protected by levees is inconsistent with new major development approvals.

Levee, Dam Failure, or Tsunami

8.2.12 In order to protect lives and property, intensive urban and suburban development shall not be permitted in reclaimed areas subject to 100-year flooding, unless flood protection in such areas is constructed. Typically, levees shall meet the standards of the U.S. Army Corps of Engineers, although 'Dry levees' that supplement existing levees may be allowed at the discretion of the City.

8.2.13 Levees shall be properly engineered and designed to ensure protection against earthquakes, tsunamis and seiches.

Programs

8.2.A Encourage the County Flood Control District to proceed with drainage improvements in areas subject to flooding from inadequate County flood control facilities.

8.2.B Draft and adopt a city drainage master plan to address localized areas affected by creeks, in accordance with the guidelines contained in the Health and Safety Element and the Open Space and

Conservation Element of this General Plan.

8.2.C ~~Establish~~Maintain a uniform set of flood damage prevention standards in cooperation with appropriate County, State, and federal agencies, and update the Floodplain Management Ordinance, Chapter 6.12 of the Municipal Code, to reflect the most recent federal and State standards relating to flood prevention and protection.

8.2.D Through the environmental review process, ensure that potential flooding impacts, due to new development, including on-site and downstream flood damage, subsidence, dam or levee failure, and potential inundation from tsunamis and seiches, are adequately addressed. Impose appropriate mitigation measures (e.g., flood proofing, levee protection, Delta reclamations, etc.).

8.2.E Participate in Delta levee rehabilitation plans in cooperation with County, State, federal agencies, and the private sector.

8.2.F Prohibit new structures that would restrict maintenance or future efforts to increase the height of the levees from being constructed on top of or immediately adjacent to the levees.

8.2.G All analysis of levee safety shall include consideration of the worse case situations of high tides coupled with storm-driven waves.

HAZARDOUS MATERIALS

Goal 8.3 Provide protection from hazards associated with the use, transport, treatment, and disposal of hazardous substances.

Policies

8.3.1 Hazardous waste releases from both private companies and public agencies shall be identified and eliminated.

8.3.2 Storage of hazardous materials and wastes shall be strictly regulated.

- 8.3.3 Secondary contaminant and periodic examination shall be required for all storage of toxic materials.
- 8.3.4 Industrial facilities shall be constructed and operated in accordance with up-to-date safety and environmental protection standards.
- 8.3.5 Industries which store and process hazardous materials shall provide a buffer zone between the installation and the property boundaries sufficient to protect public safety. The adequacy of the buffer zone shall be determined by the Community Development Department.

Programs

- 8.3.A Encourage the State Department of Health Services and the California Highway Patrol to review permits for radioactive materials on a regular basis and to promulgate and enforce public safety standards for the use of these materials, including the placarding of transport vehicles.
- 8.3.B Request that State and Federal agencies with responsibilities for regulating the transportation of hazardous materials review regulations and procedures, in cooperation with the City, to determine means of mitigating the public safety hazard in urbanized areas.

PUBLIC PROTECTION AND DISASTER PLANNING

- Goal 8.4** Provide for a continuing high level of public protection services and coordination of services in a disaster.

Policies

- 8.4.1 The Office of Emergency Services, in cooperation with the City and public protection agencies, shall delineate evacuation routes and, where possible, alternate routes around points of congestion or where road failure could occur.
- 8.4.2 In order to ensure prompt public protection services, address numbers shall be required to be easily seen from the street or road.
- 8.4.3 Require adequate access for medical emergency equipment in high-occupancy buildings over two stories in height.
- 8.4.4 Design and construct all buildings greater than two-stories to provide for the evacuation of occupants and/or for the creation of a safe environment in case of a substantial disaster, such as a severe earthquake or fire.

Programs

- 8.4.A In cooperation with adjacent cities and public protection agencies, delineate evacuation routes, emergency vehicle routes for disaster response and, where possible, alternative routes where congestion or road failure could occur.
- 8.4.B Major developments will not be approved if fire-fighting services are not available or are not adequate for the area.
- 8.4.C Adopt a City of Oakley Emergency Response Plan that identifies specific response procedures and responsibilities for responding to emergency situations and includes regular testing of the Plan at appropriate intervals.
- 8.4.D Include guidelines within development standards for to be adopted for residential, commercial and industrial land uses that require visible addresses for all future structures constructed in Oakley.

Figure 8-1

Mapped Earthquake Faults

Figure 8-2

Estimated Liquefaction Potential

Figure 8-3

100-Year Floodplain Locations

Flood Hazard Areas, as identified by Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) maps.

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Figure 8-4

Hazardous Areas Locations

Figure 8-5

Dam Inundation Areas



Figure 8-6

Oakley Land Uses and Essential Facilities in Flood Hazard Zones

S

SETTING

This section provides background information and the current condition for the City of Oakley and both proposed Expansion Areas. Topics discussed below include Geology, Seismic Hazards, Flood Hazards, Fire Hazards, Hazardous Materials and Waste, and Public Protection and Disaster Planning.

STRUCTURAL COMPATIBILITY

Among the most basic strategies for reducing risk of property damage and injuries to persons is ensuring land uses are sited in appropriate locations. Specifically, sensitive land uses and critical public facilities should not be located in areas that are highly susceptible to damage due to seismic events, ground failure, flooding or other known hazards.

Table 8-1 provides guidelines for siting of critical facilities. In reviewing development proposals, the City will consider the compatibility of proposed uses, and the known risk of hazards as documented on Figures 8-1 through 8-4 and other available sources of information.

Table 8-1
CRITICAL STRUCTURES COMPATIBILITY

Level of Acceptable Risk	Types of Structures	Siting Criteria
1. Extremely Low	Structures whose continued functioning is critical, or whose failure might be catastrophic; power inter-tie systems, plants manufacturing or storing explosives or toxic materials, etc.	Not in critical areas
2. Slightly Higher than in level 1	Structures whose use is critically needed after a disaster: important utility centers: hospitals, police stations, emergency communication facilities, fire stations, small dams, and critical transportation elements such as bridges and overpasses.	Not recommended in critical areas
3. Lowest Possible Risk to Occupants of the Structure	Structures of high occupancy, or whose use after a disaster would be particularly convenient: schools, churches, theaters, large hotels, and other high-rise buildings housing large numbers of people, other places normally attracting large concentrations of people, civic buildings such as fire stations, secondary utility structures, large commercial enterprises, most roads, alternative or non-critical bridges and overpasses.	In critical area with proper mitigation
4. An "Ordinary" Level of risks to occupants of the structure	The vast majority of structures: most commercial and industrial buildings, small hotels and apartment buildings, and single-family residences.	In all areas, built to appropriate design standards.

Source: Contra Costa County Safety Element, July 1996.

GEOLOGY

The majority of the Oakley area is comprised of Quaternary Alluvium, with small amounts of modern sediments of San Francisco Bay Estuary and Delta lowlands in the northeast. Quaternary Alluvium is characteristically consolidated and unconsolidated sediment. Localized problems for building include expansive clays, hillside earthflows, and unstable cut slopes. Modern sediments of San Francisco Bay Estuary and Delta lowlands are soft, water saturated muds, peat and loose sands. The muds and peats are subject to differential settlement under load. Some local areas may slump and slide. The muds may contain expansive clays and some sands may liquefy under earthquake stresses.

Geologic Formations

The geology of Contra Costa County is dominated by several northwest trending fault systems that divide the County into large blocks

of rock. Within a particular block the rock sequence consists of (1) a basement complex of broken and jumbled pre-Tertiary sedimentary, igneous and metamorphic rocks; (2) a section of younger Tertiary sedimentary rock and some volcanic rocks (flows and tuffs) which locally intertongue with and overlie the sedimentary section; and (3) surficial deposits including stream alluvium, colluvium (slopes wash deposits at the foot of steeper slopes), slides, alluvial fans, and Bay Plain deposits. The character of each of these categories of rocks is summarized in Table 8-2 Generalized Stratigraphic Section and Lithologic Characteristics.

From the perspective of seismic safety planning, the older, coarser, and well-drained materials tend to be stable during earthquakes, while younger, fine-grained and water-saturated deposits tend to be less stable. Colluvium is often marginally stable to unstable. A disproportionate share of landslides originates in colluvium.

**Table 8-2
GENERALIZED STRATIGRAPHIC SECTION AND LITHOLOGIC CHARACTERISTICS**

Formation Name	General Lithologic Description
Alluvium	Includes all types of alluvial deposits. In Central Coast Range, it is separated from Contra Costa Group by an angular unconformity.
Contra Costa Group Bald Peak Basalt Siesta Formation Moraga Formation Orinda Formation	Conglomerate, sandstone, siltstone with minor amounts of limestone and tuff; rapid facies changes. Some basalt and andesite (volcanic) flows. Clastics are semi-consolidated and contain montmorillonite clay. Topographic form highly variable.
San Pablo Group (Diablo Range) Neroly Sandstone Cierbo Sandstone Briones Sandstone	Predominantly marine sandstone with interbeds of shale, siltstone and minor conglomerate. Upper part includes some non-marine beds (e.g., Diablo Formation of Weaver, 1944)
Monterey Group (Briones Hills) Rodeo Shale Hambre Sandstone Tice Shale Claremont Shale Sobrante Sandstone	Siliceous shale and fine-grained sandstone. Some zones of rhythmically bedded chert and shale. Bituminous in places. Underlies moderately steep, to steep hillsides in Briones Hills.
San Ramon Formation	Tuffaceous sandstone, tuff, minor conglomerate and siltstone.
Markley Formation Nortonville Shale Domengine Sandstone Meganos Formation	Predominately indurated bedrock including shale, siltstone and sandstone. Montmorillonitic clay shales, unstable.
Martinez Formation	Marine, Glauconite sandstone and shale. Shale similar to the Markley, Nortonville, Domengine, and Meganos as listed above.
Great Valley Sequence	Massive beds of sandstone alternating with siltstone and shale. Minor conglomerate, limestone and lignite. Complex folding and faulting. Crops out in Briones Hills and Diablo Range.
Franciscan Assemblage	Rhythmically bedded greywacke Jurassic Assemblage sandstone, shale, siltstones, radiolarian chert, greenstone. Minor amounts of limestone and schist. Partially recrystallized and intruded by serpentine and associated igneous rocks. Strongly deformed.

Source: Contra Costa County General Plan, July 1996.

Soil Types

The City of Oakley is mostly made up of lowland soil association soils, with some tidal flat-delta-marsh lowlands soils in the northeast corner of the City. The Sellers Avenue SOI Area is made up entirely of lowland soil association soils, while the Cypress Lakes SOI Area is made up entirely of tidal flat-delta-marsh lowlands soils. The lowland soil association soils are slowly to very slowly permeable, highly expansive and corrosive with slight erosion hazards. The tidal flat-delta-marsh lowlands soils

are highly expansive, very highly corrosive and moderately to slowly permeable.

Soil information is primarily from maps and reports that were generated by the United States Soil Conservation Service (SCS), which is now the Natural Resource Conservation Service (NRCS). The classification system used by the NRCS classifies soils into eight categories that categorize the capability of the soil. These classes are designated by roman numerals I through VIII. Class I and II soils have few limitations, the widest range of use and the least

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amount of soil deterioration. Class III, and IV soils are those that are considered suitable for limited cultivation. Class V, VI, and VII soils are those soils that have been considered suitable for range woodlands, or habitat environments. Class VIII soils are those that have severe land use limitations and can only be used for habitat, water supply or aesthetic purposes.

Most of Oakley is composed of Class II Delhi sand, described by the U.S. Soil Conservation Service as “excessively drained soils” where runoff is slow or very slow. Delhi sand is used to grow irrigated almonds, vineyards, and some walnuts.

Physical and chemical characteristics of soils may limit construction/development. The following soil types are within areas currently designated for urban development in Oakley:

Lowland soil associations. Slowly to very slowly permeable, highly expansive and corrosive with slight erosion hazard.

Tidal flat-delta-marsh lowland. Highly expansive, very highly corrosive, and moderately to slowly permeable.

Class II Delhi sand. Excessively drained soils where runoff is slow or very slow.

These soils vary moderately regarding erosion potential, drainage, and suitability for fill.

SEISMIC HAZARDS

Every resident and developer in Oakley assumes seismic risk because the City is within the San Francisco Bay Area, an area of high seismicity. The San Francisco Bay Area has been impacted by more than 10 severe earthquakes throughout historic time.

The major effects of earthquakes are ground shaking and ground failure. Severe earthquakes are characteristically accompanied by surface faulting and less commonly by tsunamis and seiches. Flooding may also be triggered by dam

or levee failure resulting from an earthquake, or by seismically induced settlement or subsidence. All of these geologic effects are capable of causing property damages and risks to life and safety of persons.

A major earthquake could have the potential to cause the failure of the dam structure at the Los Vaqueros Reservoir south of Oakley. Upon failure, water would spill out quickly and head generally northeast to the Delta through low-lying land. However, according to a 1995 ABAG Hazard Map, Oakley is not in an inundation area.

Oakley has been subjected to numerous seismic events, originating both on faults within Contra Costa County and in other locations in the region. Six major Bay Area earthquakes have occurred since 1800 that have affected the County, and at least two of the faults that produced them run through or into the County, but not through or into the Planning Area. These earthquakes, and the originating faults, include the 1836 and 1868 earthquakes on the Hayward fault, and the 1861 earthquake on the Calaveras fault. Two earthquakes, in 1838 and 1906, originated on the San Andreas fault, west of the County near San Francisco, while one earthquake that caused some damage in the County occurred in 1872 and was centered north of Contra Costa County in the Vacaville-Winters area of Solano County. A smaller earthquake, centered near Collinsville in Solano County on a fault of uncertain identity, occurred in 1889.

The maximum credible earthquake anticipated in the Oakley area in a 50-year time period is from the San Andreas Fault or the Antioch Fault. The San Andreas Fault is likely to produce a magnitude 7.0-8.5 earthquake, while the Antioch Fault is likely to produce a magnitude 5.0-6.0 earthquake with a less likely possibility of producing a magnitude 6.0-7.0 earthquake. The following Table 8-3 Richter Magnitude Scale and Effects defines the scale of an earthquake and the possible effects at each scale.

Table 8-3
RICHTER MAGNITUDE SCALE AND EFFECTS

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt, but recorded.
3.5 - 5.4	Often felt, but rarely causes damage.
5.5 – 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 - 6.9	Can be destructive in areas up to about 100 Kilometers (62 miles).
7.0 - 7.9	Major earthquake. Can cause serious damage over larger areas.
8.0 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Nevada Seismological Laboratory at the University of Nevada, Reno, October 1996.

The City of Oakley is underlain by one fault that is inferred active on the basis of scattered small magnitude earthquakes near the trace of the fault. This inferred active fault is the Brentwood Fault. Other inferred active faults just west of Oakley are the Davis and Antioch Faults. These fault locations can be seen in Figure 8-1 Mapped Earthquake Faults.

Ground Shaking

Areas of the County would react differently to ground shaking, depending on the type of soil or bedrock underneath a structure. The possible damage caused by ground shaking is categorized as low to moderate to high damage susceptibility.

Areas situated on hard bedrock may be expected to perform satisfactorily under earthquake conditions, provided that ground materials near the surface do not fail. Areas underlain by weakly consolidated sedimentary rock are considered to possess a moderately low to moderate damage susceptibility.

The characteristics of ground motion in alluvial areas will differ somewhat from nearby bedrock areas. These differences may be important when considering the design of sophisticated structures. Areas underlain by firm, dry alluvium are considered to possess a moderate damage susceptibility.

Areas underlain by young bay mud and deposits of the Sacramento-San Joaquin delta are considered to possess the highest damage susceptibility. Most of the County's development and population are located in areas of moderate to moderately low damage susceptibility.

The City of Oakley is dominated by the Younger (Holocene) Alluvium that is susceptible to moderate damage during ground shaking. Areas of Oakley along the shoreline, in northeast Oakley, and in the Cypress Lakes SOI Area are susceptible to high damage because of the modern sediments of San Francisco Bay Estuary and Delta lowlands. A small section of Oakley near the Sellers Ave./East Cypress Ave. intersection and the Sellers Avenue SOI Area are susceptible to moderately low damage because of Pliocene Bedrock and Older (Pleistocene) Alluvium. See Figure 8-1, Faults and Seismic Stability for the locations of the above geologic units and their descriptions.

Liquefaction

Liquefaction is a specialized form of ground failure caused by earthquake ground motion. It is a "quicksand" condition occurring in water-saturated, unconsolidated, relatively clay-free sands and silts caused by ground motion forcing apart soil particles and forcing them into quicksand-like liquid suspension. In the process, normally firm, but wet, ground materials take on the characteristics of liquid.

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Catastrophic ground failures may result from liquefaction that pose a major threat to the safety of structures. Major landslides, settling and tilting of buildings on level ground, and failure of water retaining structures have all been observed as a result of this type of ground failure. Large earthquakes anywhere in the Bay Area are capable of triggering liquefaction in the Planning Area.

Historically, ground failure in its various forms, including liquefaction, has been a problem in areas of continually wet, unconsolidated soils. In the Planning Area, the areas which are most susceptible to ground failure include the geologically young sediments of the San Francisco Bay estuary, including the Delta lowlands.

Liquefaction presents the potential for the most serious consequences in the Delta. Several pre-development studies have confirmed that a high potential for liquefaction exists below levees and proposed developments. This potential presents the possibility that several failures can occur simultaneously on a single levee, possibly preventing access for repairs. Flooding of protected islands would then be unpreventable and would make emergency access and later repair very difficult.

The Planning Area is mostly in an area of generally high liquefaction potential, with a small portion in an area of generally moderate to low liquefaction potential. Generally high liquefaction means that substantial ground shaking has a high potential to trigger liquefaction in the soils. Generally low liquefaction potential means that in the event of substantial ground shaking, the soils have a very low to almost none potential to liquefy. See Figure 8-2 Estimated Liquefaction Potential for areas of liquefaction potential in the Planning Area.

FLOOD HAZARDS

Substantial areas within the City are subject to flooding, especially areas along the coast and northeast of the Contra Costa Canal. According to the Federal Emergency Management Agency

(FEMA), Marsh Creek, the majority of the City's shoreline areas, and the entire Cypress Lakes SOI Area are within the 100-year floodplain (i.e., an area subject to flooding in a storm that is likely to occur once every 100 years). Figure 8-3 ~~100-Year Floodplain Locations~~ shows the ~~100-year floodplain~~ locations within the Planning Area ~~of Flood Hazard Areas, as identified by Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) maps.~~

The most serious flood hazards existing in the Planning Area are related to the system of levees that protect the islands and adjacent mainland. Levee failure often occurs in areas where levees rest on soft mud, silt, or peat. Peat soils exist along the shorelines in the central and northeast portions of the Planning Area (see Figure 8-4 Hazardous Area Locations). Flooding problems have been exacerbated by boat movement on the waterways, which creates waves that accelerate the natural process of levee erosion.

Existing Flood Conditions

Floodplain management generally refers to the 100-year floodplain, ~~and~~ but may also include other areas with flood risk, such as 200-year or 500-year floodplains, or areas that are at risk of flooding from levee failure.

Floodplain management is concerned with both potential structural ~~damages~~ damage within the floodplain and floodway, as well as changes to the configuration of the floodplain brought about by flood protection measures or construction activities. The 100-year floodplain delineates the inundation area from a flood having a one percent chance of occurring in any given year. Similarly, the 200-year and 500-year floodplains delineate, respectively, the areas with a 0.5 percent and 0.2 percent change of flooding in any given year. A floodway, a smaller area within the floodplain, is comprised of a river or stream plus the area within immediate proximity of a river or stream that is capable of conveying the 100-year flood with no more than a 1-foot rise in water.

There are numerous 100-year flood hazard areas throughout the Planning Area. The majority exists along the shorelines of the Delta, within the Cypress Lakes SOI Area, and along Marsh Creek, with pockets of flood areas scattered throughout the City (see Figure 8-3). [Figure 8-5 shows the Oakley land uses and essential facilities that are located within the 100-year and 500-year floodplains.](#)

While much of Oakley is outside the 100-year floodplain, there are issues of localized flooding within the City and in the entire Cypress Lakes SOI Area. These conditions result from the undulating topography of the City that is generally level with isolated drainage basins and the proximity to the Delta. The solution for providing drainage and flood control to such areas is discussed further in the drainage section of the Growth Management Element. [There are additional areas within the Oakley that fall within 200-year and 500-year floodplains, as well as “Awareness Floodplain” areas established by DWR. For which similar drainage and flood control strategies may be appropriate.](#)

Dam Inundation

[All dams pose the potential risk of failure, most likely from seismically-induced ground shaking or another seismic event, which threatens the area below the dam with inundation of water spilling from the dam. Since 1972, the State has required inundation maps for most dams, showing those areas within the potential dam failure inundation zone. As illustrated in Figure 8-6, the north/northeastern portion of Oakley is subject to potential dam inundation by the New Melones Lake, Folsom Lake, or San Luis Reservoir. The inundation map shows the area likely to flood should the dam\(s\) fail. The California Environmental Quality Act requires that agencies like the City of Oakley take into consideration risks from dam failure when approving development that would place people or structure in dam inundation areas.](#)

Contra Costa County Flood Control and Water Conservation District

The Contra Costa County Flood Control and Water Conservation District (CCCFWD) is empowered to control flood and storm waters throughout the County. Even though the District has no direct influence over the City regarding land use and planning matters, the District does develop drainage plans for entire watersheds that cross-jurisdictional boundaries. These drainage plans specify the flood control improvements needed to serve planned development in the area and are used to set drainage fees assessed against new development.

Flood control drainage areas have been categorized by the CCCFWD according to the status of adopted drainage plans and fees required for new development in each area. The drainage areas with established fees have undergone sufficient study by CCCFWD for development of a drainage plan. The plan has been adopted and fees have been established. Approved development projects in these drainage areas are assessed a fee based upon the impervious surface created, or the number of acres that are developed. Additional information on drainage issues is provided within the Growth Management Element.

FEMA Provisions & Disaster Relief

The Federal Emergency Management Agency (FEMA) conducts hazard mitigation through disaster-specific Programmatic Environmental Assessments (PEAs). Through the PEA for Typical Recurring Actions Resulting from Flood Disasters in California (1998), FEMA proposes to administer Federal disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 93-288, as amended (the Act), its implementing regulations in 44 Code of Federal Regulations (CFR) Part 206 (Federal Disaster Assistance) and the National Flood Insurance Reform Act of 1994 (PL 103-325). FEMA must comply with the National Environmental Policy Act of 1969 (NEPA) prior to funding disaster assistance or mitigation actions (projects), for which NEPA usually requires an Environmental Assessment (EA). The PEAs allow typical recurring actions to be grouped and assessed by location or type of action, so that FEMA is not required to

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produce a separate EA for each project. FEMA administers three programs that fund such disaster assistance and mitigation projects:

Public Assistance Program (Act Section 406). This program is dedicated to the restoration of damaged facilities to pre-disaster conditions, and assists local governments and private non-profit organizations with the costs of disaster response and recovery;

Hazard Mitigation Grant Program (Act Section 404). This program provides cost-share funds to communities to reduce the long-term risk of disaster impacts;

Flood Mitigation Assistance Program (Title V of the National Insurance Reform Act of 1994). This program administers cost-share funding of community projects that can mitigate flood-related impacts.

Local utilization of FEMA program 1 would require either a flood, fire, or other disaster, but programs 2 and 3 may provide means by which flood impacts could be mitigated. Examples of such mitigation could include the expansion of detention structures or the construction of new flood control projects designed to reduce peak flows.

Other State, Regional, and Local Agencies

A variety of additional State, regional, and local agencies are responsible for disaster and flood-protection planning, as well as for providing coordination and relief services in the event of a flood or another natural disaster. These agencies include: the California Office of Emergency Services; the Department of Water Resources Division of Flood Management; the Contra Costa County Office of Emergency Services; the Contra Costa County Sheriff's Office; the East Contra Costa Fire Protection District; the City of Oakley Emergency Management Organization; and the Oakley Police Department.

FIRE HAZARDS

Fire hazards threaten lives, property, and natural resources, and present a considerable problem to vegetation and wildlife habitats throughout the Planning Area. Grassland fires are easily ignited in dry seasons. These fires are relatively easily controlled if they can be reached by fire equipment. Peat fires, once ignited, are extremely difficult to extinguish. These types of fires have the potential to occur on soils above the high water line and adjacent to the Delta due to the marshy origin of the soils there.

Wildland and Urban Fire Hazards

A fire hazard severity scale has been devised which characterizes areas throughout the County by the number of days of moderate, high and extreme fire hazard. The City of Oakley is entirely within the boundaries of critical Fire Weather Class 3, which correlates to 9 ½ or more days per year of moderate, high and extreme fire hazard. The Class 3 category is the highest in the County, with Class 1 having less than 1 day per year, and Class 2 having 1 to 9 ½ days per year.

A small portion of the Planning Area along the Delta contains peat soils. See Figure 8-4 Hazardous Areas Locations for areas of Peat Soils within the Planning Area. Peat fires represent a special hazard in that once ignited, they are extremely difficult to extinguish. In some instances, islands have been flooded in order to extinguish peat fires.

State Responsibility Areas (SRAs)

Pursuant to California Public Resources Code Section 4125 et seq., commonly known as the State Fire Responsibility Act, the State Board of Forestry classifies all lands within the State of California based on certain factors. Examples of these factors include cover, beneficial use of water from watersheds, probable damage from erosion, and fire risks and hazards. Next, the State Board of Forestry determines those areas for which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State of California. The prevention and suppression of fires in all areas that are not within a state responsibility area

(SRA) becomes primarily the responsibility of the local or federal agencies, as applicable. Oakley and the SOI Areas are not within a SRA and fire protection is the sole responsibility of the local agencies. See the Growth Management Element for fire protection in the Planning Area.

HAZARDOUS MATERIALS AND WASTE

Solid, liquid, and hazardous materials and waste by area residents and businesses contribute to environmental and human health hazards that have become an increasing public concern. Toxicity and contamination of soils, water, air, and organisms present hazards of varying severity that can be controlled and minimized by proper waste management and disposal.

Title 22 of the California Code of Regulations (CCR) defines a hazardous material as follows:

... a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed” (California Code of Regulations, Title 22, Section 66260.10).

Known Sources of Contamination

Heavy industrial land uses centered on the northwest portion of Oakley have the potential to present significant risk to public safety because of the hazardous nature of some petroleum and chemical materials. Potential hazards include explosion and flammability of petroleum products and other chemicals, and chemical toxicity. A chemical plant (former DuPont Chemical Plant) existed in the northwest corner of the city adjacent to the BNSF railroad. Dupont is closed and is in the process cleaning the site. Notwithstanding industrial safety procedures, the presence of large quantities of hazardous materials within the Planning Area and the County, particularly close

to and/or upwind of populated areas, poses a potential safety hazard at all times.

Many miles of pipelines for the transportation of natural gas, crude oil, and refined petroleum products traverse the Planning Area, including residential and commercial areas. See Figure 8-4 Hazardous Areas Locations for the approximate locations of pipelines in the Planning Area. These pipelines may cross-areas with active fault lines, landslide deposits, unstable slopes, and areas underlain by soft mud and peat. The public safety hazard from a pipeline break would depend on the proximity of the accident to populated areas as well as the nature of the event that produced it.

In general, natural gas is believed to be less hazardous to the public than petroleum because it is transported at lower pressures and, when released, rises and dissipates into the atmosphere. Petroleum products, on the other hand, are pumped at pressures up to 200 pounds per square inch and, when released, flow along the ground. Petroleum fires are more likely to spread to nearby properties than vertical-burning natural gas fires.

There are several active gas and oil wells in the Planning Area, most of which are far from populated areas in the eastern portion of the City and the northwestern portion of the Cypress Lakes SOI Area. See Figure 8-4 for approximate location of wells. Although there is the risk of a well catching on fire, such incidents have been very few and the risk of such a fire causing a general disaster is remote. There is the possibility of increased public safety hazards if rural residential areas are permitted to encroach on the gas producing area.

In addition to the hazardous materials noted above, agriculture presents the potential for exposure of sensitive land uses to hazardous chemicals. Activities such as application of fertilizers, pesticides and insecticides can present health and safety concerns. Applications of such chemicals are governed by various state and federal standards, and application of such chemicals is generally regulated by the County Agricultural Commissioner. The Land Use

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Policies 2.2.4 and 2.2.13 of the Land Use Element seek to minimize this hazard by requiring setbacks, buffers and vegetation, as appropriate, to protect residential land uses from adjacent and potentially incompatible uses, including agriculture.

Risk of Upset

Gas storage facilities, treatment plants, and railroads have the potential of being significant safety hazards. Accidental explosions or spills can result in fires, noxious gases, bad odors, and pollution. The following are areas of the City that have the potential to be safety hazards should a catastrophe of any kind occur.

Propane

Suburban Propane operates a propane distribution facility at 30 Delta Road (at the intersection of Delta Road and Northeast Main Street) within the City. The facility has been operated by Suburban since the 1950's. This site has one 29,920-gallon storage tank that was installed in early 2001. Propane is delivered to this facility by large tank trucks and is distributed to uses by smaller delivery tank trucks. Suburban operates two delivery trucks from this site that are filled once per day on weekdays, although generally only one truck runs each day. Propane deliveries are made on weekdays only. All propane is brought in or exported via truck, there are no propane lines extending into or out of the Suburban Propane property.

Due to the combustible nature of propane, this facility presents potential hazards associated with fire and explosion. Considerable investigation has been completed on the potential for fire and explosion in conjunction with propane facilities. The following data was compiled by Quest Consults, Inc. for propane facilities in the City of Elk Grove that include 60,000 gallon pressurized propane tanks. The catastrophic failure of a non-refrigerated pressure vessel is generally referred to as a BLEVE (Boiling Liquid Expanding Vapor Explosion).

BLEVE events generally occur under one of two circumstances, events occurring during the

transfer of propane between the storage tank to a transport tank truck and events caused by a fire in the vicinity of the storage tank. The following data is based on extensive historic records both in the U.S. and in other countries and characterizes the likelihood of a BLEVE incident at an individual facility.

According to data published by the U.S. Census Bureau [USCB, 1999] approximately 10.4 billion gallons of flammable gases were transported in the United States in 1997, involving an estimated two million transfer events (transfer between storage tank and truck tanker). Based on documented events, during the past 30 years, there have been only three BLEVEs of pressurized tank trucks in the United States. Based upon statistical estimates, the likelihood of a BLEVE event during a transfer operation is approximately five BLEVEs for every one billion transfer operations. It is estimated that 400 transfer operations occur at the Suburban facility annually.

The second type of BLEVE event involves external conditions acting upon the storage tank to cause tank failure. Studies of tank failures have been completed in the United State, the U.K. and the Netherlands. The results of studies in the U.S. anticipate a likelihood of a catastrophic event occurring between 1-3 events for every one million years of service at a given tank facility.

Overall, the potential for a catastrophic failure at the Suburban Propane facility is extremely low, with an overall likelihood of failure of approximately 2 or 3 catastrophic events for every one million years of service. While this is numerically a very low potential for event, the nature of the event would be devastating to the immediate vicinity of the facility.

Compatibility of this facility with future uses should be considered within the General Plan process. Due to Suburban's long presence on the site and its recent investment of installing a new tank on the site, it is assumed that Suburban intends to continue providing service from this site for the foreseeable future.

Randall Bold Water Treatment Plant

The Randall Bold Water Treatment Plant is located on Neroly Road in Oakley. The water treatment plant handles supplies filtered and disinfected water to the general public for drinking and other uses.

There are a number of chemicals that are transported, stored, and used at the water treatment plant. Chemicals used may include chlorine, chlorine dioxide, aqueous ammonia, and others. Chlorine is a flammable gas that can explode on heating. Chlorine dioxide is a strong oxidant and its vapors can result in explosive decomposition. Aqueous ammonia is a gas that is lighter than air, and a strong base that can react violently with acid.

However, water treatment plants are considered of such low risk with regard to significant chemical spills that they are frequently sited within or near residential areas. Also, water treatment plants have to comply with a variety of state regulations to insure their safe operation.

Railroad

The BNSF Railroad line traverses through Oakley, running east and west. The Southern Pacific Railroad traverses along the southwest

Transportation to relocate the existing, unsignalized, at-grade public crossing of the tracks of the BNSF Railroad at Oakley Road to an existing crossing located at Rose Avenue that will be upgraded to a signalized, at-grade public crossing with automated safety gates. The four local agencies will be responsible for the costs of providing access from State Route 4 to the crossing, and the roads from the crossing to their facilities.

PUBLIC PROTECTION AND DISASTER PLANNING

Hospitals, ambulance companies, and fire districts provide medical emergency services. Considerable thought and planning have gone into efforts to improve responses to day-to-day

boundary of the City paralleling Neroly Road. Safety hazards related to these rail lines could be significant if a train were to derail or collide with a pedestrian or vehicle.

Hazardous materials are regularly shipped via rail line and, while unlikely, an incident involving a derailment of a train could result in the spillage of cargo that the train is transporting. The spillage of hazardous materials could have devastating results. The railroad companies do transport munitions to the Concord Naval Weapons Station, which could be an explosive hazard. The City has no control over the types of materials shipped via a rail line because the content of shipments may be confidential for reasons of security.

There is also a safety concern of pedestrians along the tracks and vehicles utilizing at-grade crossings. The design and operation of at-grade crossings allows the City some control over rail related hazards. Ensuring proper gate operation at the crossings is the most effective strategy to avoid collision and possible derailments.

Ironhouse Sanitary District, Diablo Water District, Contra Costa Water District and the East Bay Regional Park District are seeking federal funding under the Section 130 Program administered by the California Department of emergencies and planning for a general disaster response capability.

Identification of streets, house numbers, and townhouse and apartment units is a major factor hampering emergency medical response. Design of multi-story buildings rarely includes elevators or stairways that can accommodate gurneys. In the event of a disaster, many people could be affected.

Generally, disaster planning is conducted at a countywide, multi-county, or regional level, with comprehensive programs established to protect persons from natural or human-caused disasters. Contra Costa County, through the Safety Element of the County General Plan (1995), has identified various hazards and has designed appropriate programs to address disaster planning and public protection. The programs

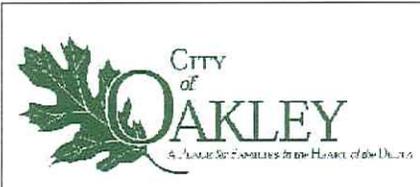
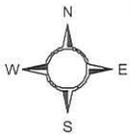
~~8.0 HEALTH AND SAFETY ELEMENT~~

for public relief and safety are generated at this countywide level and, in combination with State and Federal agencies, will accommodate the City

of Oakley should a significant natural or human-caused disaster occur.

~~8.0—HEALTH AND SAFETY ELEMENT~~





L	City Boundary		Pliocene Bedrock (Moderately low damage susceptibility)
E	Expansion Area Boundary		Younger Alluvium (Moderate damage susceptibility)
G	Earthquake Faults		Modern sediments (Highest damage susceptibility)
E	Inferred Active		
N	Location Unknown		
D			

City of Oakley
General Plan 2020

Figure 8-1
Faults and Seismic Stability

Source: Contra Costa County General Plan 1995-2010, July 1996

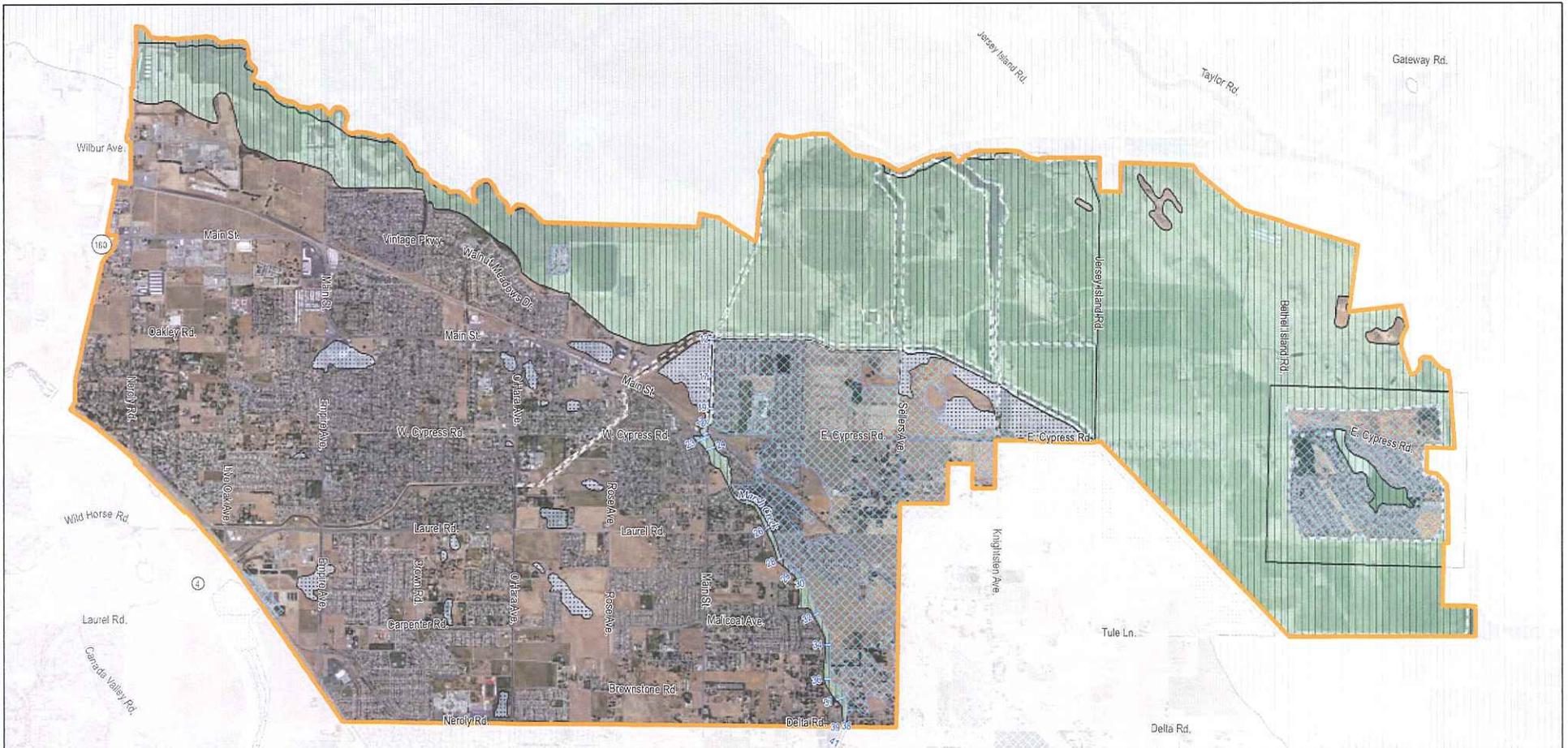


- L** City Boundary
E Expansion Area Boundary
G Liquefaction Potential
E Generally High
N Generally Moderate to Low
D

City of Oakley
General Plan 2020

Figure 8-2
Estimated Liquefaction Potential

Source: Contra Costa County General Plan 1995-2010, July 1996



Sources: City of Oakley, 2015; FEMA, 2015; Contra Costa County, 2015; PlaceWorks, 2015.

This map is shown for informational purposes but is not adopted as part of the General Plan.

- | | |
|--|---|
| FEMA-Identified Flood Hazard Area | |
|  A - 100-year flood plain (No Base Flood Elevations Determined) |  Oakley City Limit |
|  AE - 100-year flood plain (Base Elevations determined) |  Base Flood Elevations |
|  X - 500-year floodplain |  Levees |

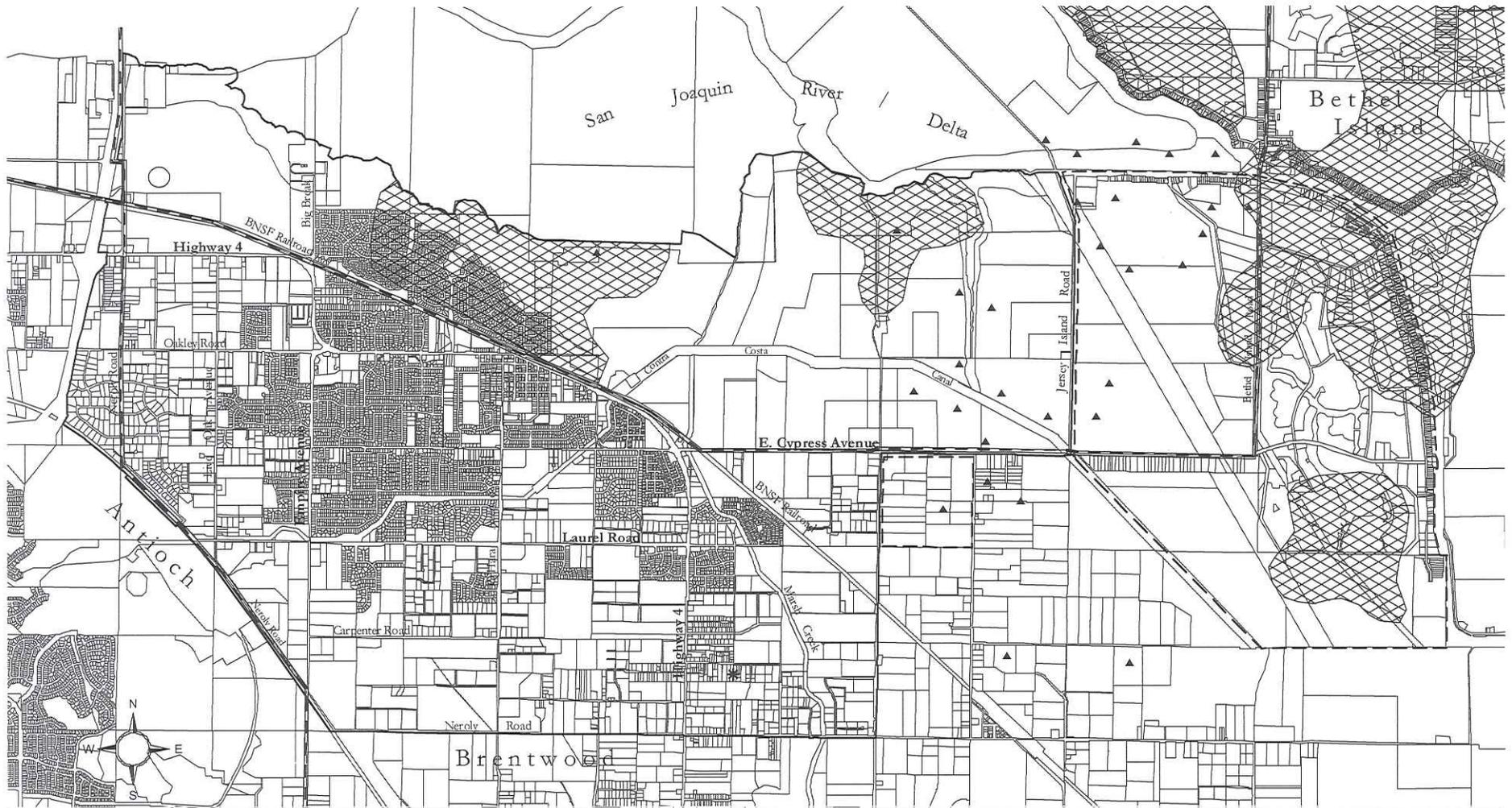
City of Oakley General Plan 2020

Figure 8-3
Flood Hazard Areas

Date: 8/18/2015

FEMA-Identified Flood Hazards — Oakley Contra Costa County, California





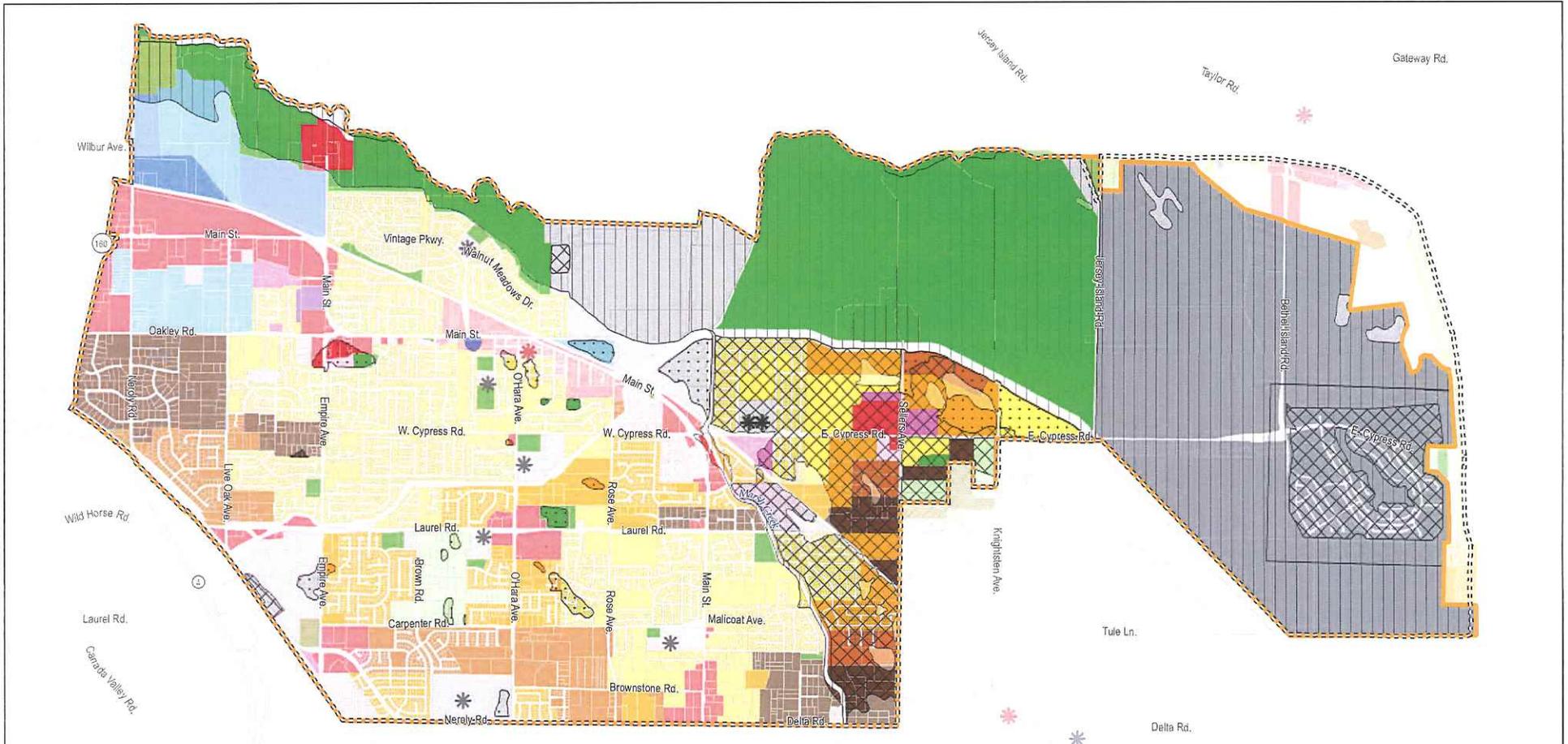
LEGEND

-  City Boundary
-  SOI Boundary
-  Peat Soils
-  Oil & Gas Wells
-  DuPont Plant (former site)
-  Natural Gas Lines
-  Contaminated Site (batteries)

City of Oakley
General Plan 2020

Figure 8-4
Hazardous Area Locations

Source: Contra Costa County General Plan 1995-2010, July 1996



Sources: City of Oakley, 2015; FEMA, 2015; Contra Costa County, 2015; PlaceWorks, 2015.

This map is shown for informational purposes but is not adopted as part of the General Plan.

- | | | | |
|----------------------|------------------------|-----------------------|------------------------|
| Agriculture | Single Family Very Low | Commercial Downtown | Public and Semi-Public |
| Agricultural Limited | Multi-Family Low | Commercial Recreation | Delta Recreation |
| Single Family High | Multi-Family High | Business Park | Parks and Recreation |
| Single Family Medium | Mobile Home | Light Industrial | SP-4 |
| Single Family Low | Commercial | Utility Energy | |

- FEMA Flood Hazard Zones**
- A - 100-year flood plain (No Base Flood Elevations Determined)
 - AE - 100-year flood plain (Base Elevations determined)
 - X - 500-year floodplain

- Oakley Police Department
- Fire Stations (per Contra Costa County data)
- Schools (per Contra Costa County data)

- Oakley City Limit
- Oakley Sphere of Influence

Oakley Land Uses and Essential Facilities in Flood Hazard Zones
Contra Costa County, California

City of Oakley
General Plan 2020

Figure 8-5

Date: 8/18/2015



