The City of Martinez and the surrounding areas possess numerous visual resources, many of which are found in the natural areas within the unincorporated areas of Contra Costa County. These resources enhance the quality of life for Martinez residents, and provide for outdoor recreational, agricultural, and tourist-generating uses. Landscapes can be defined as a combination of four visual elements: landforms, water, vegetation, and man-made structures. Visual resource quality is an assessment of the uniqueness or desirability of a visual element.

This section was prepared based on general observations, and existing reports and literature for Martinez and the surrounding areas in Contra Costa County. Additional sources of information included the California Department of Transportation's (Caltrans) Designated Scenic Route map for Contra Costa County.

This section provides a background discussion of the scenic highways and corridors, and natural scenic resources such as rivers, wildlife areas, and prominent visual features found in the Martinez Planning Area. This section is organized with an existing setting, regulatory setting, and impact analysis. One comment was received during the public review period or scoping meeting for the Notice of Preparation regarding this topic. The San Francisco Bay Conservation and Development Commission provided written comments on June 25th 2015 and stated the EIR should include a discussion of impacts to aesthetics and viewsheds in the bay and shoreline areas.

CONCEPTS AND TERMINOLOGY

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1983). Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

Visual Character. Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (U.S. Forest Service 1974; Federal Highway Administration 1983).

Visual Quality. Visual quality is evaluated using the well-established approach to visual analysis adopted by Federal Highway Administration, employing the concepts of vividness, intactness, and unity (Federal Highway Administration 1983), which are described below.

- Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

Viewer Exposure and Sensitivity. The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related, in part, to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1983). To identify the importance of views of a resource, a viewshed must be broken into distance zones of foreground, middle ground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic regions, or types of terrain, the standard foreground zone is 0.25–0.5 mile from the viewer, the middle ground zone is from the foreground zone to 3–5 miles from the viewer, and the background zone is from the middle ground to infinity (U.S. Forest Service 1974).

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking, or camping, and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1974; Federal Highway Administration 1983; U.S. Soil Conservation Service 1978). Commuters and non-recreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based in a regional frame of reference (U.S. Soil Conservation Service 1978). The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but have very little significance in mountainous terrain.

Scenic Highway Corridor. The area outside of a highway right-of-way that is generally visible to persons traveling on the highway.

Scenic Highway/Scenic Route. A highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and human-made scenic resources and access or direct views to areas or scenes of exceptional beauty (including those of historic or cultural interest). The aesthetic values of scenic routes often are protected and enhanced by regulations governing the development of property or the placement of outdoor advertising. Until the mid-1980's, General Plans in California were required to include a Scenic Highways Element.

3.1.1 ENVIRONMENTAL SETTING

NATURAL ENVIRONMENT

The City of Martinez is located in the north-central part of Contra Costa County. The city is bordered by Carquinez Strait/Solano County to the north, the Cities of Pleasant Hill and Concord to the southeast, and unincorporated Contra Costa County to the west and northeast. The city is located mostly west of the Interstate 680 (I-680), which runs north-south, and is bisected by State Route 4 (SR 4), which runs east-west.

Martinez is largely defined by its open spaces to the north, west, and south of the city. These open spaces provide city and community identity by providing visual relief from continuous urbanization. The seasonally changing hills along the western border of the city, wetlands adjacent to the Carquinez Strait, Alhambra Creek and many other visual features and resources provide attractive visual characteristics to the area.

The Carquinez Strait Shoreline

Located in the northwest part of the city, the Martinez Regional Shoreline offers shoreline views of the Carquinez Strait, and the Benicia Martinez Bridge. The Carquinez Strait Shoreline comprises 1,415 acres of bluffs and shoreline along Carquinez Scenic Drive between the town of Crockett and the hillsides overlooking Martinez. This parkland provides a gateway to the Delta region along the northern edge of Contra Costa County. The coastal hills rise steeply up to 750 feet above Carquinez Strait. From the highest elevations the view includes the marshland of Benicia State Recreation Area to the north across Carquinez Strait. From atop Franklin Ridge along the Franklin Ridge Loop Trail and the California Riding and Hiking Trail, the horizon is pierced by the peaks of Mt. Tamalpais to the west and Mt. Diablo to the east. Looking south from this high point are the ridges of Briones and Las Trampas regional parks.

Alhambra Valley

Alhambra Valley is a semi-rural area of approximately 1,000 acres located in the southwesterly portion of Martinez. Portions of the Valley were annexed into the City in 2012. Alhambra Valley is characterized by its natural creeks, visually prominent hillsides, scenic vistas, and areas of significant topographic variation of the landscape seen throughout the Alhambra Valley. Views of ridgelines and hills form the backdrop for most of the Alhambra Valley. These views help reinforce the rural feeling of the area and provide expansive viewsheds.

Alhambra Creek

Alhambra Creek originates at Briones Regional Park south of Martinez and meanders through the city. At the mouth, Alhambra Creek meets the Carquinez Strait, where salt marshes in this brackish zone provide additional aesthetic viewing opportunities. Riparian vegetation generally represents a valuable scenic resource within any area. However, much of the naturally occurring riparian vegetation along the creeks in the Martinez Planning Area has been reduced or eliminated due to flood control measures. Through Recent revitalization efforts, residents enjoy views of the creek and riparian communities near the Amtrak Station, and downtown between Main and Green Streets.

BUILT ENVIRONMENT

The Downtown Core is the cultural and historic heart of Martinez. Downtown Martinez has a unique geographic setting. To the north, between the Downtown and the Carquinez Strait, lies 344 acres of passive and active open space in the Martinez Regional Shoreline and the City's Waterfront Park. The quality of the Downtown's heritage helps to maintain the character and uniqueness of the city. The positive image of the Downtown is strongly influenced by this character. Today, the Downtown includes a mix of retail, office, residential, governmental, entertainment, and visitor serving uses. The Downtown Core area includes mixed use activities that include commercial, office and second story residential along Main and Ferry Streets, and north of Ward Street. The area also includes the County Civic Center at Court Street, other existing government institutions and supporting uses, and the Intermodal Transit Station. The Downtown Core is an essential part of ensuring Martinez's future economic health and growth. The Downtown Core encourages a concentration of uses that generate activity during weekdays, evenings, and weekends.

The Martinez Downtown Specific Plan establishes a framework to guide development and improvements for the area over several decades. The purpose of the Downtown Specific Plan is to guide public and private investment to ensure that future development and infrastructure projects help realize the Martinez community goals and visions for the future of Downtown. The principal goals are:

1. To enhance the quality of life for Martinez residents, and;
2. To bring back commercial dynamism to the downtown business area.

Furthermore, the Specific Plan is intended to promote smart growth and sustainable development in Downtown Martinez, by:

1. Providing for compact, pedestrian-oriented development;
2. Providing for denser housing within walking distance of transportation centers;
3. Taking advantage of existing infrastructure;
4. Providing for mixed land uses, and;
5. Requiring attractive, distinctive design for new development

Agricultural Lands

Agricultural land is predominately intended to be used for production of food and fiber. Though Martinez does not have any Prime Farmland, or Farmland of Statewide Importance, there is a small amount of Unique Farmland within the Planning Area, which is used for viticulture. Specifically, the Viano Vineyards located east of Morello Avenue and south of the Burlington Northern @ Sante Fe (BNSF) railroad tracks near Marie Avenue. In addition, the hills in the western part of Martinez provide a significant amount of space for cattle grazing.

Agricultural lands within Martinez define the visual character of many periphery areas of the city. The open space from agriculture, creates a visual contrast between rural areas and the suburban land uses that have emerged during the past decades. While the visual effects of agriculture as a resource is up to individual preference, many people find enhanced agricultural landscapes to be a visually pleasing environment.

SCENIC HIGHWAYS AND CORRIDORS

According to the California Scenic Highway Mapping System administered by Caltrans, there are no officially designated State Scenic Highways in the vicinity of the City of Martinez. There are two officially designated scenic highway corridors in Contra Costa County: Interstate 680, from the Alameda County line to the junction with State Route 24; and State Route 24 from the east portal of the Caldecott tunnel to Interstate 680 near Walnut Creek. Neither of these officially designated scenic highway corridors provide views of Martinez or the immediate surrounding areas.

Additionally, there is one Eligible State Scenic Highway Corridor within Contra Costa County that has not yet been officially designated. State Route 4, west of the junction with Byron Highway to the junction with State Route 160 in Antioch is designated as an Eligible State Scenic Highway Corridor. The section of highway lies approximately 12 miles east of the Planning Area and does not provide views of Martinez.

Local Scenic Roadways

The Existing Martinez General Plan identified the Carquinez Scenic Drive as a scenic roadway within the Planning Area. This road offers views of the Carquinez Strait, expansive hillsides and vegetation, and the Benicia-Martinez Bridge. The Carquinez Scenic Drive is located on the northern

border of the Downtown area. Currently this scenic roadway is closed to automobile traffic and is undergoing restoration to convert 1.7 miles of the Scenic Drive into a hiking and riding trail between Martinez and the town of Port Costa, across from Benicia. The roadway was closed by the County in 1983 because of erosion and stability issues. In 2012, the East Bay Regional Park District acquired the right-of-way from Contra Costa County. In 2013, the Park District began to repair the landslides, reconstruct the drainage structures, and repurpose the corridor as a paved Class-1 segment of the Bay Trail.

LIGHT AND GLARE

During the day, sunlight reflecting from structures is a primary source of glare, while nighttime light and glare can be divided into both stationary and mobile sources. Stationary sources of nighttime light include structure illumination, interior lighting, decorative landscape lighting, and streetlights. The principal mobile source of nighttime light and glare is vehicle headlamp illumination. This ambient light environment can be accentuated during periods of low clouds or fog.

The varieties of urban land uses in the Planning Area are the main source of daytime and nighttime light and glare. They are typified by single and multi-family residences, commercial structures, industrial areas, and streetlights. These areas and their associated human activities (inclusive of vehicular traffic) characterize the existing light and glare environment present during daytime and nighttime hours in the urbanized portions of the Planning Area. Areas outside of the city limits near the fringes of the Planning Area are characterized by agricultural uses, open spaces, and scattered low intensity residential development, and generally have lower levels of ambient nighttime lighting and daytime glare.

Sources of glare in urbanized portions of the Planning Area come from light reflecting off surfaces, including glass, and certain siding and paving materials, as well as roofing materials with a high reflective index. The urbanized areas of Martinez contain sidewalks and paved parking areas which reflect street and vehicle lights. The existing light environment found in the project area is considered typical of suburban areas.

Sky glow is the effect created by light reflecting into the night sky (also referred to as Light Pollution). Sky glow is of particular concern in areas surrounding observatories, where darker night sky conditions are necessary, but is also of concern in more rural or natural areas where a darker night sky is either the norm, or is important to wildlife. Due to the urban nature of the city limits, a number of existing light sources affect areas and illuminate the night sky. Isolating impacts of particular sources of light or glare is therefore not appropriate or feasible for the Project Area as a whole.

3.1.2 REGULATORY SETTING

FEDERAL

There are no federal aesthetics regulations applicable to the Project Area.

STATE

California Department of Transportation – California Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change, which would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq.

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code. A list of California's scenic highways and map showing their locations may be obtained from the Caltrans Scenic Highway Coordinators.

If a route is not included on a list of highways eligible for scenic highway designation in the Streets and Highways Code Section 263 et seq., it must be added before it can be considered for official designation. A highway may be designated scenic depending on the extent of the natural landscape that can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

When a local jurisdiction nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. A scenic corridor is the land generally adjacent to and visible from the highway. A scenic highway designation protects the scenic values of an area. Jurisdictional boundaries of the nominating agency are also considered, and the agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

To receive official designation, the local jurisdiction must follow the same process required for official designation of State Scenic Highways. The minimum requirements for scenic corridor protection include:

- Regulation of land use and density of development;
- Detailed land and site planning;
- Control of outdoor advertising (including a ban on billboards);
- Careful attention to and control of earthmoving and landscaping; and
- Careful attention to design and appearance of structures and equipment.

California Trails Act

This law requires every city and county to consider trail-oriented recreational uses, and consider such demands in developing specific open space programs in their General Plan. Every city, county, and district must also consider the feasibility of integrating trail routes with appropriate segments of the state trail system.

LOCAL

City of Martinez Tree Preservation Ordinance

Trees add scale and comfort to streets and their colors, shapes, and textures enhance the atmosphere and the identity of the city. The trees in the Planning Area can be thought of as an "urban forest," and can be a diverse mixture of tree species. There are many growth characteristics and tree forms in street trees, and attention needs to be made to the trees chosen for individual projects. Street trees will grow for many years, and they must be properly placed and intelligently managed to maximize effects and minimize problems.

The City has adopted a Tree Preservation Ordinance to provide for protection of trees by controlling tree removal, recognizing in particular that mature trees and native species trees have a profound aesthetic beauty and are a key component of the ecosystem.

The City of Martinez has been recognized since 2003 as a "Tree City USA" by the Arbor Day Foundation for its commitment to urban forestry and promoting the benefits of trees. This recognition requires four standards established by The Arbor Day Foundation and the National Association of State Foresters. The standards include:

- A Tree Board, Department, or Commission
- A Tree Care Ordinance
- A Community Forestry Program With an Annual Budget of at Least $2 Per Capita
- An Arbor Day Observance and Proclamation

City of Martinez Development Review, and Design Review Committee

The purpose of these oversight functions is to allow design and site development review of developments, signs, buildings, structures, and other facilities constructed or modified in any zone where design and site development review is required, in order to foster a good design character through consideration of aesthetic and functional relationships to surrounding development, and in order to further enhance the city's appearance, and the livability and usefulness of properties.

The design review process is to promote quality architectural design, good site relationships, attractive landscaping, and other aesthetic considerations of development in the City. Design review is a tool to help buildings "fit in" a neighborhood and reflect the community's vision for how an area should look. Design review regulates the design of structures, signage, and other elements on property. All elements of a project can be reviewed such as choice of building

materials, architectural style, window details, grading, drainage, and finishes such as color, railings, and hardware.

Design review approval is required for single-family residence projects when:

- the slope or natural grade under the proposed structure is 10% or greater;
- When an undeveloped parcel adjoining one or more undeveloped parcels is under the same ownership;
- When the structure is located in a visually significant area, and;
- When it is located within a seismic or geologic hazard area.

Design review approval is also required for projects to alter the exterior of an office, commercial, and industrial building; non-residential projects; multi-family residential developments (planned unit developments, subdivisions, etc.); signage, and some conditional use permits.

City of Martinez General Plan

The adopted City of Martinez General Plan provides policy guidance regarding aesthetics and visual character in the Land Use and Open Space Elements and provides policy framework for scenic roadways in the Scenic Roadways Element.

3.1.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on aesthetics if it will:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

IMPACTS AND MITIGATION MEASURES

Impact 3.1-1: General Plan implementation could result in substantial adverse effects on scenic vistas (Significant and Unavoidable)

While the Martinez Planning Area contains numerous areas and viewsheds with relatively high scenic value, there are no officially designated scenic vista points in the Planning Area. Significant

views in the Planning Area include views of the Mount Diablo, the Alhambra Valley, Carquinez Strait Shoreline, agricultural lands to the south and west of the city, wildlife habitat areas and natural riparian areas along Alhambra Creek, rolling hillsides with natural grasslands, and oak tree habitats to the west of the city. Views of scenic areas can be viewed from numerous public and private vantage points throughout the city and Planning Area, including highways, roads, open space areas, and private residences and businesses.

Buildout of the proposed General Plan would allow for new development to occur in areas that have historically been undeveloped, which remain in a semi naturalized condition. Additionally, new development may result in changes to the skyline throughout the Planning Area, which could obstruct or interfere with views of the surrounding hillsides, Mount Diablo, the Carquinez Strait, and the foothill areas surrounding the Martinez Planning Area.

The Martinez General Plan has been developed to preserve expansive areas of open space to ensure that new development is located in and around existing urbanized areas, thus ensuring that new development is an extension of the existing urban landscape and minimizes interruption of views of Mount Diablo, local hillsides, waterways, natural resources, riparian areas, open space, the build environment, and agricultural lands.

The General Plan Land Use Map identifies approximately 1,921 acres of land within the city limits, and an additional 445.2 acres in the SOI as OS-P: Open Space Preservation. This land use designation is intended to ensure that these areas remain preserved and undeveloped throughout the planning horizon, and assists in preserving the scenic value of the lands within the city limits and SOI. Any development in an area designated for OS-P would require an amendment to the General Plan.

While the proposed General Plan Land Use Map identifies extensive land areas for open space, the project would designate existing open space lands for development, including residential, industrial, and government. Undeveloped and rural areas in the eastern portion of the SOI would be designated r I-M, G, and HRR. Some of the land designated open space by the adopted General Plan on the east side of Alhambra Ave and along Morello Ave would be designated for residential uses by the proposed General Plan. In addition, lands that are currently vacant or rural in nature would be developed with commercial, industrial, residential, and other uses as envisioned by the proposed General Plan Land Use Map.

All future development would be required to be consistent with the General Plan. A central theme of the General Plan is to preserve and protect the City's natural resources, open spaces, and character by concentrating new growth in and around existing urbanized areas, and protecting the existing visual character of the Planning Area. This is expressed in the Land Use Element Goal LU-G-3 that aims to protect environmentally sensitive sites, hillsides and natural resources, and Goal LU-G-8 which establishes the preservation of areas with high scenic value and the rural-residential atmosphere in the Alhambra Valley area. Goals LU-G-3 and LU-G-8 are supported by various policies including: LU-P-6.1b that only allows development which is sensitive to available natural resources and features and states that new development shall generally conform to natural contours and avoid excessive grading. LU-P-6.1c ensures the design of new projects preserves

hilltop ridges, rock outcroppings, mature stands of trees and other natural features to the greatest extent possible. LU-P-8.1 encourages, scenic features to be protected or maintained through land dedication to a public agency or through the granting of scenic or conservation easements. LU-P-8.2 requires the engineering of slopes to avoid damage to the visual quality of hillsides. LU-P-8.5 discourages the construction of new structures on the top of scenic ridges or within 50 feet of the ridgeline. LU-P-8.6 encourages the enhancement of and the protection of access to established scenic routes through the development of trails and other facilities. LU-P-8.8 requires that new buildings that are proposed in highly visible areas, such as on hillsides, shall be sited, designed, and landscaped so that supporting columns, piers, and building undersides are not visually dominant. LU-P-8.9 encourages the use of scenic easements to protect agricultural and park lands which abut land with urban land use designations such as residential and commercial uses allowing for visual relief in urbanized areas.

Goals and policies in the Open-Space and Conservation Element also promote the protection and preservation of open space lands and natural resources (including visual amenities) throughout the Planning Area. Goal OSC-G-1 aims to maintain and enhance the integrity of Martinez's visual environment. Many policies in the general plan support Goal OSC-G-1, and call for the preservation and enhancement of the area's visual resources. Specifically, OSC-P-1.1 encourages the preservation of visually significant skyline vegetation, including major woodlands and ridgelines. OSC-P-1.2 encourages the City to explore opportunities for maintaining and enhancing major scenic routes, including the official designation of scenic routes. OSC-P-1.4 encourages the protection and enhancement of riparian vegetation along the drainage channels designated as Riparian Conservation Zones. OSC-P-1.5 Supports open space acquisition efforts by the East Bay Regional Parks District, the Martinez Land Trust, and other organizations. Land use policy and design review policy OSC-P-1.6 ensures that minimal or no impact to the City's ridgelines will occur. OSC-P-1.7 requires the city to continue to coordinate with residents, developers, East Bay Regional Parks, and other groups to provide visual continuity between natural vegetation and developed areas through the use of landscaping, planting street trees, and other "natural" buffers along natural areas. OSC-P-1.8 encourages new development near watercourses to include riparian corridor restoration. OSC-P-1.11 Supports programs to preserve lands in public ownership through a variety of methods, including fee simple purchase, secured options for the future purchase, installment contracts, purchase and lease-back, purchase (or acquire) less-than-fee interests, easements, development rights, rights of entry, land trades, or assistance by a land trust.

Future development would be required to be consistent with the proposed General Plan and the General Plan Land Use Map. The implementation of the policies contained in the Land Use, and Open Space and Conservation Elements listed above are intended to ensure that new urban residential and non-residential development in the Martinez Planning Area is located in and around existing urbanized areas to the extent possible. Additionally, these policies strive to achieve visual compatibility with nearby open space resources to the extent possible. This approach would reduce impacts to visual resources, including scenic views, by maximizing opportunities for open space preservation outside of established urban areas. Additionally, the implementation of the General Plan policies would further ensure that new development is designed in a way that enhances the visual quality of the community, compliments the visual

character of the city, and that adverse effects on public views are minimized or avoided to the extent possible.

However, even with the implementation of mitigation measure Vis-1 and the goals, policies, and implementation measures in the General Plan, the potential for new development to interrupt scenic views, including views of Mount Diablo, the Carquinez Strait, open space areas within and to the west of the city, and development of currently undeveloped natural lands, would remain. Existing scenic views have the potential to be diminished or obscured as the General Plan is buildout. While the General Plan policies and actions would ensure that impacts are reduced, the only method to completely avoid impacts to aesthetic and visual resources would be to severely limit the development potential on all undeveloped lands, including development of jobs-generating uses near the interstate 680 corridor east of the city limits. However, Therefore, the impact would be **significant and unavoidable**.

GENERAL PLAN GOALS, POLICIES, AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Land Use Element

Goal

LU-G-3 *Protect environmentally sensitive sites, hillsides and natural resources wherever feasible.*

LU-G-8 *Preserve areas of high scenic value and the rural-residential atmosphere in the area within Alhambra Valley.*

Policy

LU-P-3.3 *To the extent possible, retain the channels, floodplains, riparian corridors (including suitable setbacks from top of bank) such as Alhambra Creek and its tributaries as significant open space areas. These areas should be maintained in their natural state to function as appropriate open space areas and to support a riparian habitat where feasible. Require where possible development within the Creek watersheds preserve watershed integrity, including natural vegetation, soil and slope stability, water quality, scenic values and potential archaeological resources.*

LU-P-6.1b *Only allow development which is sensitive to available natural resources and features. New development shall generally conform to natural contours and avoid excessive grading.*

LU-P-6.1c *Hilltop ridges, rock outcroppings, mature stands of trees and other natural features shall be preserved to the greatest extent possible in the design of new projects.*

LU-P-8.1 *To the extent feasible, scenic features should be protected or maintained, either through land dedication to a public agency or through the granting of scenic or conservation easements.*

LU-P-8.2 *High quality engineering of slopes shall be required to avoid soil erosion, downstream flooding, slope failure, loss of vegetative cover, high maintenance costs, property damage, and damage to visual quality.*

LU-P-8.3 *In order to conserve the scenic beauty of Alhambra Valley, developers shall generally be required to restore the natural contours and vegetation of the land after grading and other land disturbances. Public and private projects shall be designed to minimize damage to significant trees and other visual landmarks.*

LU-P-8.4 *Extreme topographic modification, such as filling in canyons or removing hilltops shall be avoided. Clustering and planned development approaches to development shall be encouraged. All future development plans, whether large-scale or small-scale, shall be based on identifying safe and suitable sites for buildings, roads, and driveways.*

LU-P-8.5 *The construction of new structures on the top of scenic ridges or within 50 feet of the ridgeline shall be discouraged.*

LU-P-8.6 *Enhance and protect access to established scenic routes through the development of trails and other facilities.*

LU-P-8.7 *New projects shall be designed to blend in with the rural setting of Alhambra Valley as much as possible. The use of fire resistant materials shall be encouraged.*

LU-P-8.8 *New buildings which are proposed in highly visible areas, such as on hillsides, shall be sited, designed, and landscaped so that supporting columns, piers, and building undersides are not visually dominant.*

LU-P-8.9 *The use of scenic easements shall be encouraged to protect agricultural and park lands which abut land with urban land use designations such as residential and commercial uses.*

Implementation

LU-3.1a *Consider zoning ordinance amendments to require that all new development along a creek or adjacent to a natural watercourse prepare a creek/watercourse preservation and protection plan.*

LU-3.1b *Consider the formulation of regulations to include required setbacks from the streams, creeks and watercourses to protect the resource, habitat and any recreation value associated therewith.*

LU-3.5a *Require review of plans by both the Design Review Committee and Planning Commission to ensure that each proposed development has been designed in a sensitive manner to the existing natural terrain.*

LU-3.5b *Consider an Ordinance that restricts development in environmentally sensitive areas such as constrained sites, hillsides and natural resources thereby protecting the scenic beauty and natural terrain.*

LU-I-6.1a *Strengthen design guidelines to require development proposals to include an environmentally-superior design alternative as part of the environmental review process.*

Open Space and Conservation Element

Goal

OSC-G-1 Maintain and Enhance the Integrity of Martinez's Visual Environment.

Policy

OSC-P-1.1 Where feasible and appropriate, preserve visually significant skyline vegetation, particularly major woodlands and ridgelines.

OSC-P-1.2 Explore opportunities for maintaining and enhancing major scenic routes, including the official designation of scenic route.

OSC-P-1.3 Develop large-scale landscaping where appropriate along a visual relationship between adjacent parcels to create an overall sense of continuity.

OSC-P-1.4 Protect and enhance riparian vegetation along the drainage channels designated as Riparian Conservation Zones.

OSC-P-1.5 Support open space acquisition efforts by the East Bay Regional Parks District, the Martinez Land Trust, and other organizations.

OSC-P-1.6 Through land use policy and design review, evaluations of impacts that new development has minimal or no impact to the City's ridgelines will occur.

OSC-P-1.7 Continue to coordinate with residents, developers, East Bay Regional Parks, and other groups to provide visual continuity between natural vegetation and developed areas through the use of landscaping, planting street trees, and other "natural" buffers along natural areas. Encourage open shade structures, trees, white roofs, green roofs, and specialized paving materials in the downtown and other highly paved and highly built up areas to reduce the heat island effect.

OSC-P-1.8 During plan review and where appropriate, development proposals should include riparian corridor restoration.

OSC-P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats.

OSC-P-1.10 Encourage future designation of park and open space sites well in advance of an area's development, even if the sites do not presently lie within the incorporated City boundaries, and acquire them as funds become available.

OSC-P-1.11 Support programs to preserve lands in public ownership; consider a variety of methods, including fee simple purchase, secured options for the future purchase, installment contracts, purchase and lease-back, purchase (or acquire) less-than-fee interests, easements, development rights, rights of entry, land trades, or assistance by a land trust.

Impact 3.1-2: General Plan implementation could substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway (Less than Significant)

While the Martinez Planning Area contains numerous scenic resources, there are no officially designated scenic highways located in the vicinity of Martinez. There are two officially designated

scenic highway corridors in Contra Costa County: Interstate 680, from the Alameda County line to the junction with State Route 24; and State Route 24 from the east portal of the Caldecott tunnel to Interstate 680 near Walnut Creek. Neither of these officially designated scenic highway corridors provide views of Martinez or the immediate surrounding areas. Additionally, there is one Eligible State Scenic Highway Corridor within Contra Costa County that has not yet been officially designated. State Route 4, west of the junction with Byron Highway to the junction with State Route 160 in Antioch is designated as an Eligible State Scenic Highway Corridor. The section of highway lies approximately 12 miles east of the Planning Area and does not provide views of Martinez.

Buildout under the proposed General Plan and implementation of the General Plan Land Use Map has the potential to result in new and expanded development along highway corridors with scenic values, even though these corridors are not officially designated as State Scenic Highways. Interstate 680 is the principal highway corridor through the Martinez Planning Area. Development under the proposed General Plan and the land use designations identified on the Land Use Map, would allow for industrial and manufacturing land uses along the Interstate 680 corridor, including the development of lands to the west and east of Interstate 680, which are primarily undeveloped. Mount Diablo is a prominent and visually stunning natural feature visible from several locations within the city and the Planning Area, and is located to the southeast of Martinez. New development within the Planning Area, including development east of Interstate 680 has the potential to interrupt views of Mount Diablo and the surrounding foothills and hillsides from several view points within Martinez.

All future development would be required to be consistent with the General Plan. While there are no designated scenic highways in Martinez, a central theme of the General Plan is to preserve and protect the City's natural resources, open spaces, and character by allowing new development which is sensitive to available natural resources and features, and protecting the existing visual character of the Planning Area. This is expressed in the Policies, in the Land Use Element and Open Space and Conservation Element. LU-P-6.1b allows development which is sensitive to available natural resources and features and shall generally conform to natural contours and avoid excessive grading. OSC-P-1.1 supports the preservation of visually significant skyline vegetation, particularly major woodlands and ridgelines. OSC-P-1.2 supports opportunities for maintaining and enhancing major scenic routes, including the official designation of scenic route. Through application of land use policy and design review, OSC-P-1.6 requires evaluation of new development to ensure minimal impact to the City's ridgelines.

The implementation of the Goals, Policies, and Implementation contained in the Land Use Element and Conservation and Open Space Element listed below are intended to ensure that new urban residential and non-residential development in the Martinez Planning Area is located in and around existing urbanized areas to the extent possible. Additionally, these policies strive to achieve visual compatibility with nearby open space resources to the extent possible. This approach would reduce impacts to visual resources by maximizing opportunities for open space preservation outside of established urban areas. Additionally, the implementation of the General Plan policies would further ensure that new development is designed in a way that enhances the

visual quality of the community, compliments the visual character of the city, and that adverse effects on public views are minimized or avoided to the extent possible.

Impacts to scenic views are discussed under Impact 3.1-1. As previously described, the General Plan includes measures to reduce potential impacts along corridors with scenic values. As there are no officially designated scenic highways located in the vicinity of Martinez, implementation of the General Plan would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a designated state scenic highway. Therefore, the impact would be **less than significant**.

GENERAL PLAN GOALS, POLICIES, AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Land Use Element

LU-P-6.1b *Only allow development which is sensitive to available natural resources and features. New development shall generally conform to natural contours and avoid excessive grading.*

Open Space and Conservation Element

OSC-P-1.1 *Where feasible and appropriate, preserve visually significant skyline vegetation, particularly major woodlands and ridgelines.*

OSC-P-1.2 *Explore opportunities for maintaining and enhancing major scenic routes, including the official designation of scenic route.*

OSC-P-1.6 *Through application of land use policy and design review, evaluate impacts of new development to ensure minimal or no impact to the City's ridgelines will occur.*

Impact 3.1-3: General Plan implementation could substantially degrade the existing visual character or quality of the Planning Area and its surroundings (Significant and Unavoidable)

The Martinez Planning Area contains numerous areas that are deemed to have relatively high visual character and quality. As previously discussed, significant visual aspects of the Planning Area include views of Mount Diablo, the Alhambra Valley, Carquinez Strait Shoreline, agricultural lands to the south and west of the city, wildlife habitat areas and natural riparian areas along Alhambra Creek, rolling hillsides with natural grasslands, and oak tree habitats to the west of the city. The visual character and quality of the Planning Area includes public and private lands throughout the city and Planning Area, including highways, roads, open space areas, and private residences and businesses.

Buildout of the proposed General Plan would allow for new development to occur in areas that have historically been undeveloped, which remain in a semi naturalized condition. Additionally, new development could result in removal of trees, rocks, structures, or changes to the skyline throughout the Planning Area, which could obstruct or interfere with views of the surrounding hillsides, Mount Diablo, the Carquinez Strait, and the foothill areas surrounding the Martinez Planning Area.

The proposed General Plan would designate existing open space lands for development, including residential, industrial, and government. Undeveloped and rural areas in the eastern portion of the SOI would be designated r I-M, G, and HRR. Some of the land designated open space by the adopted General Plan on the east side of Alhambra Ave and along Morello Ave would be designated for residential uses by the proposed General Plan. In addition, lands that are currently undeveloped could be developed with commercial, industrial, residential, and other uses as envisioned by the proposed General Plan Land Use Map.

The proposed General Plan has been developed to preserve expansive areas of open space to ensure that new development is primarily located in and around existing urbanized areas, thus ensuring that new development is an extension of the existing urban landscape and minimizes interruption of views of Mount Diablo, local hillsides, natural resources (including trees and rocks), riparian areas, open space, the build environment, and agricultural lands. This is expressed in the Goals, Policies, and Implementation Measures presented in the Land Use Element and Open Space and Conservation Element. The implementation of the Goals, Policies, and Implementation Measures contained in the Land Use Element and Conservation and Open Space Element are intended to ensure that new urban residential and non-residential development in the Martinez Planning Area is located in and around existing urbanized areas to the extent possible. Additionally, these policies strive to achieve visual compatibility with nearby open space resources to the extent possible. This approach would reduce impacts to visual resources by maximizing opportunities for open space preservation outside of established urban areas. Additionally, the implementation of the General Plan policies would further ensure that new development is designed in a way that enhances the visual quality of the community, compliments the visual character of the city, and that adverse effects on public views are minimized or avoided to the extent possible. All future development would be required to be consistent with the General Plan.

While the proposed General Plan has been developed to be largely consistent with adopted plans and regulations, the General Plan Land Use Map designates lands for residential development that are identified as open space, including an existing Open Space-Private parcel at 635 Vine Hill Way (APN 162420003). In 1976 an EIR was prepared as part of the development of Pine Meadows and Muir Heights residential subdivisions. The 1976 EIR for Tract 4744 Pine Meadows and Tract 4774 Muir Heights identified an area along Vine Hill Way as a scenic and open space area that would mitigate adverse visual impacts along Vine Hill Way associated with residential development. The proposed change in the land use designation to the property located along Vine Hill Way would modify the mitigation adopted in association with the 1976 EIR. Currently the site has one single family residence in the northeast area of the property. The proposed General Plan would designate an approximately 3-acre portion of the scenic open space area as RVL. With the RVL designation, this site could accommodate two additional residential units. As part of the proposed General Plan discussions regarding this site, it was determined that additional residences could be accommodated on a portion of the site without significantly impacting public views of the existing open space from Vine Hill Way. Figures 3.1-1 through 3.1-3 depict views of APN 162420003 from Vine Hill Way under existing conditions and with residential development. The simulated views with landscaping were prepared prior to completion of the proposed General Plan and do not reflect siting, massing, and landscaping requirements included in the proposed General Plan.

Policy LU-P-6.1 would ensure that structures blend into, rather than dominate, the natural setting and that massing of new structures is compatible with the natural setting. Implementation measure LU-P-6.1c requires hilltop ridges, rock outcroppings, mature stands of trees, and other natural features to be preserved to the greatest extent possible in the design of new projects; this policy would ensures that existing trees would be preserved and provide for shielding of development beyond that depicted in Figures 3.1-1 through 3.1-3. Future residential development on this site would be required to be consistent with the proposed General Plan as well as mitigation measure Vis-1, which would reduce potential impacts to existing visual character by ensuring that new development is compatible with the natural setting, that existing features are preserved to the greatest extent feasible, and that new development is designed, massed, and landscaped to minimize visual impacts.

Mitigation measure Vis-1 has been added to ensure that new development is designed, landscaped, and sited to reduce impacts associated with the loss of open space and changes in visual character. Mitigation measure Vis-1 would apply to all development under the General Plan, including the 635 Vine Hill Way site. However, even with the implementation of the policies and implementation measures in the General Plan, the potential for new development to substantially degrade the existing visual character or quality of the Planning Area and its surroundings would remain. The existing visual character or quality of the Planning Area and its surroundings would be diminished or obscured as the General Plan is builtout. While the General Plan policies and actions would ensure that impacts are reduced to the greatest extent feasible, the only method to completely avoid impacts to the visual character and quality of the Planning Area would be to severely limit the development potential on all undeveloped lands, including development of jobs-generating uses near the Interstate 680 corridor east of the city limits. Therefore, the impact would be **significant and unavoidable**.

MITIGATION MEASURES

Mitigation Measure Vis-1: The City shall add a policy and supporting implementation measure that specifically address the potential for new development to impact existing views and scenic resources.

- *Policy: New buildings which are proposed in highly visible and scenic areas, such as on hillsides, shall be sited, designed, and landscaped so that the building mass, supporting columns, piers, and building undersides, and paved site improvements such as private roads and driveways are not visually dominant.*

- *Implementation Measure: New development should complement the existing environment in terms of form, scale, and physical appearance. Structures shall complement the existing topography to the greatest extent possible while reducing visual impacts of such development through the use of landscaping, screening, and siting techniques.*

Impact 3.1-4: General Plan implementation could result in the creation of new sources of substantial light or glare which would adversely affect day or nighttime views of the area (Less than Significant with Mitigation)

The primary sources of daytime glare are generally sunlight reflecting from structures and other reflective surfaces and windows. Implementation of the proposed General Plan would introduce new sources of daytime glare into previously undeveloped areas of the Planning Area and increase the amount of daytime glare in existing urbanized areas. The General Plan Land Use Map identifies areas for the future development of residential, commercial, industrial, recreational, and public uses. Such uses may utilize materials that produce glare. Daytime glare impacts would be most severe in areas that have been previously undisturbed, and in areas that receive a high level of daily viewership, such as the State Route 4 and Interstate 680 corridors, and areas around existing residential development.

The primary sources of nighttime lighting are generally from exterior building lights, street lights and vehicle headlights. Exterior lighting around commercial and industrial areas may be present throughout the night to facilitate extended employee work hours, ensure worker safety, and to provide security lighting around structures and facilities. Nighttime lighting impacts would be most severe in areas that do not currently experience high levels of nighttime lighting. Increased nighttime lighting can reduce visibility of the night sky, resulting in fewer stars and planets being visible and generally detracting from the visual quality of the area.

Future development would be required to be consistent with the General Plan. The proposed General Plan contains Land use implementation measure LU-1.4a, which supports the effort to amend the Zoning Ordinance and develop design guidelines as part of the Zoning Ordinance revision. Design guidelines can serve as a planning tool to ensure that development projects incorporate design features and materials that will reduce lighting and glare impacts. However, neither implementation measure LU-1.4a, nor any other policy in the General Plan specifically address potential light and glare impacts.

The buildout of the proposed general plan would essentially result in the construction of new commercial and manufacturing facilities in areas that are underdeveloped or undeveloped and in a semi natural state. In terms of nighttime views, the change could be significant because large areas with relatively little existing lighting sources could be replaced with buildings that would emit light and glare. In addition to building lighting, street lights will be installed in accordance with City standards, along with the security and parking lot lighting, outdoor signage, etc. The proposed Martinez General Plan has the potential to increase impacts from light and glare, and there are no policies in the General Plan that specifically address potential light and glare impacts. This is a potentially significant impact. It is recommended that the City add a policy specifically relating to light and glare to reduce these potential effects to insignificant levels. With the implementation of the following mitigation measure, this potential impact would be reduced to a **less than significant** level**.**

MITIGATION MEASURES

Mitigation Measure Vis-2: The City shall add a policy that specifically addresses the potential for new and/or existing development to increase light pollution and/or glare impacts within the Planning Area. An example of policy and implementation measure language is provided below:

- *Policy: Review all development proposals, planning projects, and infrastructure projects to ensure that open space and scenic resource impacts are reduced by maximizing design features that preserve a sense of open space and by minimizing off-site and night sky impacts of outdoor lighting. The review should include the construction and operation of the project.*

- *Implementation Measure: Amend the Zoning Ordinance to require that light or glare from interior or exterior lighting, industrial, mechanical or chemical processes, or from reflective materials used or stored on a site shall be shielded or modified to prevent emission of light or glare beyond the property line. The amendment shall address placement of exterior light sources to eliminate spillover illumination or glare into the night sky and onto adjoining properties to the maximum extent feasible, and not interfere with the normal operation or enjoyment of adjoining properties.*

	View 1 Existing Site - View from Vine Hill Way/Ashwood Drive
	View 1 Simulated View of Site with Residential Development - View from Vine Hill Way/Ashwood Drive
	View 1 Simulated View of Site with Residential Development and Landscaping - View from Vine Hill Way/Ashwood Drive

Figure 3.1-1 – Existing and Simulated Views of Vine Hill Way Site – View 1

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	View 2 Existing Site - View from private road along eastern border of site at Vine Hill Way
	View 2 Simulated View of Site with Residential Development – View from private road along eastern border of site at Vine Hill Way
	View 2 Simulated View of Site with Residential Development and Landscaping - View from private road along eastern border of site at Vine Hill Way

Figure 3.1-2 – Existing and Simulated Views of Vine Hill Way Site – View 2

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	View 3 Existing Site - View from Vine Hill Way
	View 3 Simulated View of Site with Residential Development – View from Vine Hill Way
	View 3 Simulated View of Site with Residential Development and Landscaping - View from Vine Hill Way

Figure 3.1-3 – Existing and Simulated Views of Vine Hill Way Site – View 3

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This section provides a background discussion of agricultural lands, agricultural resources found in the Martinez Planning Area. This section is organized with an existing setting, regulatory setting, and impact analysis.

3.2.1 ENVIRONMENTAL SETTING

AGRICULTURAL RESOURCES

Important Farmlands

The California Department of Conservation, as part of its Farmland Mapping and Monitoring Program (FMMP), prepares Important Farmland Maps indicating the potential value of land for agricultural production. The Contra Costa County Important Farmland Map identifies five agriculture-related categories and three non-agricultural categories:

Prime Farmland: Prime farmland is land with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance: Farmland of statewide importance is farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. The land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Unique Farmland: Unique farmland is farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Farmland of Local Importance: Farmland of local importance is considered land important to the local agricultural economy but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Farmland of local importance in Contra Costa County is defined as the lands within the Tassajara area, extending eastward to the county boundary and bordered on the north by the Black Hills, the Deer, Lone Tree, and Briones Valleys, the Antioch area, and the Delta. These lands are typically used for livestock grazing. They are capable of producing dryland grain on a two year summer fallow or longer rotation with volunteer hay and pasture. The farmlands in this category are included in the U.S. Natural Resources Conservation Service's Land Capability Classes I, II, III, and IV, and lack some irrigation water.

Grazing Land: Grazing land is land on which the existing vegetation is suitable for the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for this category is 40 acres.

Urban and Built-up Land: This category consists of non-agricultural land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

Other Land: Other land is non-agricultural land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

Water Area: This category consists of bodies of water.

Table 3.2-1 summarizes the farmland and other classifications by the FMMP for the city and the Planning Area. Figure 3.2-1 identifies Important Farmlands and other lands in the city and the Planning Area based on FMMP classifications. As shown in Table 3.2-1, there are 4.36 acres of Unique Farmland within the city limits. There is no Prime Farmland, Farmland of Statewide Importance, or Locally Important Farmland located within the city limits. Farmland within the Planning Area includes: 1.5 acres of Prime Farmland, and 30.47 acres of Unique Farmland as delineated by the California Department of Conservation Farmland Monitoring Program.

TABLE 3.2-1: FMMP FARMLAND CLASSIFICATION AND LAND USE CATEGORIES

FARMLAND CLASSIFICATION CATEGORIES	CITY (ACRES)	SOI (ACRES)	PLANNING AREA (ACRES)
Urban/Built-Up	5,645.87	2,654.75	8,300.62
Grazing	1,553.48	795.86	2,349.34
Local	0	0	0
Prime	0	1.5	1.5
Unique	4.36	30.47	34.83
Water	667.13	52.16	719.29
Other	913.25	520.61	1433.86
Total Area Inventoried	**8,784.09**	**4,055.4**	**12,839.49**

SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, AND DE NOVO PLANNING GROUP 2015.

Farmland Preservation

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965 to encourage the preservation of the state's agricultural lands and to prevent their premature conversion to urban uses. The Williamson Act is described in greater detail under the Regulatory Setting section of this chapter.

There are 253.68 acres, within the Martinez Planning Area that are currently under Williamson Act contracts. Of these 253.68 acres, 151.58 acres are located within the city limits, and 151.10 acres are located within the SOI.

Figure 3.2-2 depicts the distribution of Williamson Act Contract lands in the city and the Planning Area.

Local Agricultural Resources

The General Plan includes two designations that allow agricultural use, both active (i.e. crop production) and passive (i.e. grazing). These land use designations include the Alhambra Valley Agricultural Lands (AV/AL), and Agricultural Lands (AG). The primary purposes of the Alhambra Valley Agricultural Lands (AV/AL) designation is to preserve and protect lands capable of and generally used for the production of food, fiber and plant materials, while providing opportunities for rural residential single family homes. The agricultural land (AG) designation is specific to areas currently used for agricultural production (specifically the Viano Vineyards located east of Morello Avenue and south of the Burlington Northern @ Santa Fe (BNSF) railroad tracks near Marie Avenue). While similar to the Open Space categories in that Agricultural Lands have scenic value, structures for agricultural production and residential use are permitted and integral to the desirable preservation of viable agricultural uses.

In addition to the two agricultural land use designations described above, the Open Space Preservation (OS/P) land use designation allows agricultural plantings with the condition it is consistent with the intent of preserving the intended scenic resource. This designation also allows for vast areas that provide for grazing opportunities within the Planning Area.

Table 3.2-2 below shows land within the Planning Area (city limits and SOI) that have land use designations consistent with agricultural operations.

TABLE 3.2-2: GENERAL PLAN LAND USE DESIGNATIONS THAT SUPPORT AGRICULTURAL ACTIVITIES

Land Use Designation	*City*	*Sphere of Influence*	*Total*
Agricultural Lands	0	135.8	135.8
Alhambra Valley Agricultural Lands	132.1	281.2	413.3
Open Space Preservation	1,920.8[1]	445.2	2,365.9

NOTE:

[1] THERE IS A 99-LOT SUBDIVISION (VINE HILL SUBDIVISION) ON 25.9 ACRES THAT WAS APPROVED BY CITY COUNCIL, BUT IS CURRENTLY UNDER REFERENDUM. THE VINE HILL SUBDIVISION HAD PROPOSED TO CHANGE THE LAND USE DESIGNATION FROM OPEN SPACE PRESERVATION TO RESIDENTIAL LOW BEFORE IT WAS PLACED UNDER REFERENDUM. THE TABLE ABOVE REFLECTS THE 25.9 ACRES VINE HILL SUBDIVISION SITE UNDER THE OPEN SPACE PRESERVATION DESIGNATION. IF THE REFERENDUM WAS NOT PASSED, THE RESIDENTIAL LOW ACREAGE WITHIN THE CITY LIMITS WOULD INCREASE BY 25.9 ACRES AND THE OPEN SPACE PRESERVATION DESIGNATION WOULD DECREASE BY 25.9 ACRES.

SOURCE: CITY OF MARTINEZ, 2014; PSOMAS, 2014

Agricultural Land Use Designations

Alhambra Valley Agricultural Lands (AV/AL) - This land use designation includes privately owned rural lands, generally in hilly areas that are used for grazing livestock or dry grain farming. The primary purposes of the Agricultural Lands designation is to: a) preserve and protect lands capable of and generally used for the production of food, fiber and plant materials; and b) provide opportunities for rural residential single family homes.

> *Residential Development Density: Maximum density equivalent to a minimum 5 acres per dwelling unit*
>
> *Applicable Zoning Districts: AV/A-5 (Alhambra Valley Agricultural District, Minimum lot size 5 acres).*

Open Space Preservation (OS/P) - Designation for public and private lands preserved as a scenic or environmental resource, either by public or common interest ownership, or through dedication of scenic open space or other easements or through conditions of development approval or previous designation and zoning action. While alteration of such properties for active recreation is typically not envisioned, naturalistic and agricultural plantings, and trails, may be possible if consistent with the intent of preserving the intended scenic resource and as may be permitted by any easements.

Non-Residential Floor Area Ratio: Up to 0.1

Applicable Zoning Districts: OS (Open Space District); All R – and RR- (Residential and Rural Residential Districts, with use restrictions as prescribed by applicable scenic easements and/or final subdivision map dedications).

Agricultural Lands (AG) - The Agricultural Lands designation is specific to areas currently used for agricultural production (specifically the Viano Vineyards located east of Morello Avenue and south of the Burlington Northern @ Santa Fe (BNSF) railroad tracks near Marie Avenue). While similar to the Open Space categories in that Agricultural Lands have scenic value, structures for agricultural production and residential use are permitted and integral to the desirable preservation of viable agricultural uses.

Non-Residential Floor Area Ratio: Up to 0.2

Residential Development Density: 20 acres per unit

Applicable Zoning Districts: A-4 (Agricultural Preserve District).

FOREST RESOURCES

Forest land is defined by Public Resources Code Section 12220(g), and includes "*land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."*

Timber land is defined by Public Resources Code Section 4526, and means *"land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis."*

There are no forest lands or timber lands located within the Martinez Planning Area.

3.2.2 REGULATORY SETTING

FEDERAL

Farmland Protection Policy Act

The Natural Resources Conservation Service (NRCS), an agency within the U.S. Department of Agriculture, is responsible for implementation of the Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize Federal programs' contribution to the conversion of farmland to non-agricultural uses by ensuring that Federal programs are administered in a manner that is

compatible to state, local, and private programs designed to protect farmland. The NRCS provides technical assistance to Federal agencies, state and local governments, tribes, or nonprofit organizations that desire to develop farmland protection programs and policies. The NRCS summarizes FPPA implementation in an annual report to Congress.

Farm and Ranch Lands Protection Program

The NRCS administers the Farm and Ranch Lands Protection Program (FRPP), a voluntary program aimed at keeping productive farmland in agricultural uses. Under the FRPP, the NRCS provides matching funds to state, local, or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements. According to the 1996 Farm Bill, the goal of the program is to protect between 170,000 and 340,000 acres of farmland per year. Participating landowners agree not to convert the land to non-agricultural use and retain all rights to use the property for agriculture. A conservation plan must be developed for all lands enrolled based upon the standards contained in the NRCS Field Office Technical Guide. A minimum of 30 years is required for conservation easements and priority is given to applications with perpetual easements. The NRCS provides up to 50 percent of the fair market value of the easement being conserved (NRCS, 2004). To qualify for a conservation easement, farm or ranch land must meet several criteria. The land must be:

- Prime, Unique, or other productive soil, as defined by NRCS based on factors such as water moisture regimes, available water capacity, developed irrigation water supply, soil temperature range, acid-alkali balance, water table, soil sodium content, potential for flooding, erodibility, permeability rate, rock fragment content, and soil rooting depth;
- Included in a pending offer to be managed by a nonprofit organization, state, tribal, or local farmland protection program;
- Privately owned;
- Placed under a conservation plan;
- Large enough to sustain agricultural production;
- Accessible to markets for the crop that the land produces; and
- Surrounded by parcels of land that can support long-term agricultural production.

STATE

California Department of Conservation

The Department of Conservation (DOC) administers and supports a number of programs, including the Williamson Act, the California Farmland Conservancy Program (CFCP), the Williamson Act Easement Exchange Program (WAEEP), and the Farmland Mapping and Monitoring Program (FMMP). These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. The DOC has authority for the approval of agreements entered into under the WAEEP. Key DOC tools available for land conservation planning are conservation grants, tax incentives to keep land in agriculture or open space, and farmland mapping and monitoring.

Williamson Act

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965 to encourage the preservation of the state's agricultural lands and to prevent their premature conversion to urban uses. In order to preserve these uses, the Act established an agricultural preserve contract procedure by which any county or city taxes landowners at a lower rate, using a scale based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. In return, the owners guarantee that these properties remain under agricultural production for a 10-year period. The contract is self-renewing; however, the landowner may notify the county or city at any time of the intent to withdraw the land from its preserve status. There are two means by which the landowner may withdraw the land from its contract preserve status. First, the landowner may seek to cancel the contract. This takes the land out of the contract quickly with a minimal waiting period but the landowner pays a statutory penalty to the State. Second, the landowner may notice a non-renewal or seek a partial non-renewal of the contract. Land withdrawal through the non-renewal process involves a 9 or 10-year period (depending on the timing of the notice) of tax adjustment to full market value before protected open space can be converted to urban uses.

Williamson Act subvention payments to local governments have been suspended since the fiscal year 2009-10 due to the State’s fiscal constraints. The Williamson Act contracts between landowners and local governments remain in force, regardless of the availability of subvention payments.

Farmland Security Zones

A Farmland Security Zone is an area created within an agricultural preserve by a board of supervisors (board) or city council (council) upon request by a landowner or group of landowners. An agricultural preserve defines the boundary of an area within which a city or county will enter into contracts with landowners. The boundary is designated by resolution of the board or council having jurisdiction. Agricultural preserves must generally be at least 100 acres in size. Farmland Security Zone contracts offer landowners greater property tax reduction. Land restricted by a Farmland Security Zone contract is valued for property assessment purposes at 65% of its Williamson Act valuation or 65% of its Proposition 13 valuation, whichever is lower.

Forest Practices Rules

The California Department of Forestry and Fire Protection (CalFire) implements the laws that regulate timber harvesting on privately-owned lands. These laws are contained in the Z'berg-Nejedly Forest Practice Act of 1973 which established a set of rules known as the Forest Practice Rules (FPRs) to be applied to forest management related activities (i.e., timber harvests, timberland conversions, fire hazard removal, etc.). They are intended to ensure that timber harvesting is conducted in a manner that will preserve and protect fish, wildlife, forests, and streams. Under the Forest Practice Act, a Timber Harvesting Plan (THP) is submitted to CalFire by the landowner outlining what timber is proposed to be harvested, harvesting method, and the steps that will be taken to prevent damage to the environment. If the landowner intends to convert timberland to non-timberland uses, such as a winery or vineyard, a Timberland Conversion Permit (TCP) is required in addition to the THP. It is CalFire's intent that a THP will not be approved which fails to adopt feasible mitigation measures or alternatives from the range of measures set

out or provided for in the Forest Practice Rules, which would substantially lessen or avoid significant adverse environmental impacts resulting from timber harvest activities. THPs are required to be prepared by Registered Professional Foresters (RPFs) who are licensed to prepare these plans (CalFire, 2007). For projects involving TCPs, CalFire acts as lead agency under CEQA, and the county or city acts as a responsible agency.

LOCAL

Martinez General Plan

The adopted City of Martinez General Plan addresses agricultural resources in the Land Use and Open Space Elements.

3.2.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on land use and planning if it will:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmlands), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use;

There are no lands within or adjacent to the city or the Planning Area that are Forest Land as defined by Public Resources Code Section 12220(g), or Timber Land as defined by Public Resources Code Section 4526. There are also no parcels that are currently zoned as forest land, timber, or timber production. Therefore, implementation of the proposed General Plan would have no impact on forest land, timber, or timber production and this impact will not be discussed further.

IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: General Plan implementation would result in the conversion of farmlands, including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (significant and unavoidable)

As shown in Table 3.2-1 summery of the farmland for the city and the Planning Area, and Figure 3.2-1, there are 4.36 acres of Unique Farmland within the city limits. There is no Prime Farmland, Farmland of Statewide Importance, or Locally Important Farmland located within the city. Farmland within the Planning Area includes: 1.5 acres of Prime Farmland, and 30.47 acres of Unique Farmland as delineated by the California Department of Conservation Farmland Monitoring Program.

As shown in Table 3.2-1, there are approximately 36.33 acres of Important Farmlands located within the Planning Area, including 4.36 acres of Unique Farmland within the city limits, and 1.5 acres of Prime Farmland, and 30.47 acres of Unique Farmland within the Planning Area.

Table 3.2-3 identifies the proposed land use designation for the Important Farmland acres located in the Planning Area. Of the 36.33 acres of Important Farmlands located within the Planning Area, 31.97 acres (approximately 88%) are designated as agricultural land on the General Plan Land Use Map, which would protect the agricultural viability of the land. However, 4.36 acres (approximately 12%) of Unique Farmland is designated for residential uses on the General Plan Land Use Map, which would result in the loss of the agricultural viability of the land. It is noted that the 4.36 acres of Unique Farmland is currently designated for residential uses in the existing General Plan.

TABLE 3.2-3: FMMP FARMLAND CLASSIFICATION AND LAND USE DESIGNATIONS IN THE PLANNING AREA

LAND USE DESIGNATION	PRIME FARMLAND (ACRES)	FARMLAND OF STATEWIDE IMPORTANCE (ACRES)	UNIQUE FARMLAND (ACRES)	FARMLAND OF LOCAL IMPORTANCE (ACRES)	TOTAL (ACRES)
LAND USE DESIGNATIONS THAT PRESERVE IMPORTANT FARMLAND					
Agricultural Lands	1.5	0	30.47	0	31.97
Residential Low	0	0	4.36	0	4.36
Total Important Farmland Preserved	**1.5**	**0**	**30.47**	**0**	**31.97**
Total Important Farmland at Risk of Conversion	**0**	**0**	**4.36**	**0**	**4.36**

SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, AND DE NOVO PLANNING GROUP, 2015.

The Martinez General Plan includes a wide range of goals, policies and implementation measures aimed at protecting and preserving agricultural lands within the Planning Area. For example, OSC-P-3.1 supports the preservation of productive agricultural lands. Policy OSC-P-3.2 encourages the preservation of productive agricultural lands by establishing programs which secure permanent agricultural use on lands so designated in the City and/or Contra Costa County General Plan. Policy OSC-P-3.4 aims to minimize impacts of development on agricultural uses by requiring new

development to provide appropriate buffers of open areas and/or landscaping between the new urban uses and the existing agricultural uses, and Implementation Measure OSC-I-3.5b considers the adoption of a Right to Farm Ordinance, which protects ranchers and farmers within a historically agricultural district from nuisance complaints and unreasonable restrictions and regulations on farm structures or farming practices. These policies are largely reflected in the General Plan Land Use Map, which designates the vast majority of Important Farmlands within the Planning Area as Agricultural Lands with the exception of 4.36 acres of Unique Farmland (currently vineyard) that is designated for residential uses.

The General Plan designates agricultural lands within the Planning Area to preserve and protect lands capable of, and generally used for agriculture and grazing activities. These designations include 135.8 acres of designated Agricultural Land, and 413.3 acres of designated Alhambra Valley Agricultural Land. The Open Space Preservation land use designation also allows agricultural plantings with the condition it is consistent with the intent of preserving the intended scenic resource. The Open Space Preservation designation preserves 2,365.9 acres within the Planning Area that allow for grazing activities.

The Martinez General Plan has taken a proactive approach towards focusing new growth and development towards infill locations, and protecting open space areas and agricultural lands throughout the Planning Area. The applicable policies and actions that provide protection and preservation of agricultural lands are identified below. The existing adopted Martinez General Plan designates 4.36 acres of Important Farmlands located within the city limits for residential uses. The proposed General Plan does not change the existing residential designation on the 4.36 acres; therefore, the proposed general plan would have no greater impact than the currently adopted General Plan. The policies and actions listed below are intended to mitigate this impact to the greatest extent feasible; however, a loss of the only designated Important Farmlands within the city limits is considered a **significant and unavoidable** impact.

GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Open Space and Conservation Element

Goal

OSC-G-3 Preserve productive agricultural lands

Policy

OSC-P-3.1 Support preservation of productive agricultural lands.

Implementation

OSC-I-3.1.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.

OSC-I-3.1.b Though the subdivision entitlement process, encourage consolidated development; with appropriate land use buffers of parks, open space and trails, for proposed major subdivisions adjacent to agricultural lands

Policy

OSC-P-3.2 Encourage the preservation of productive agricultural lands by establishing programs which secure permanent agricultural use on lands so designated in the City and/or Contra Costa County General Plan.

OSC-P-3.3 Foster the fiscal viability of existing viticulture operations by continuing to accommodate small scale commercial winery operations.

OSC-P-3.4 Minimize impacts of development on agricultural uses by requiring new development to provide appropriate buffers of open areas and/or landscaping between the new urban uses and the existing agricultural uses.

OSC-P-3.5 Reduce the potential for conflicts between existing agricultural uses and new urban development, by requiring homebuyer notification of agricultural operations on nearby sites.

Implementation

OSC-I-3.5a Though the subdivision and site development entitlement process require adequate setbacks for any nonagricultural structures adjacent to cultivated agriculture.

OSC-I-3.5b Consider Adoption of a Right to Farm Ordinance, which protects ranchers and farmers within a historically agricultural district from nuisance complaints and unreasonable restrictions and regulations on farm structures or farming practices.

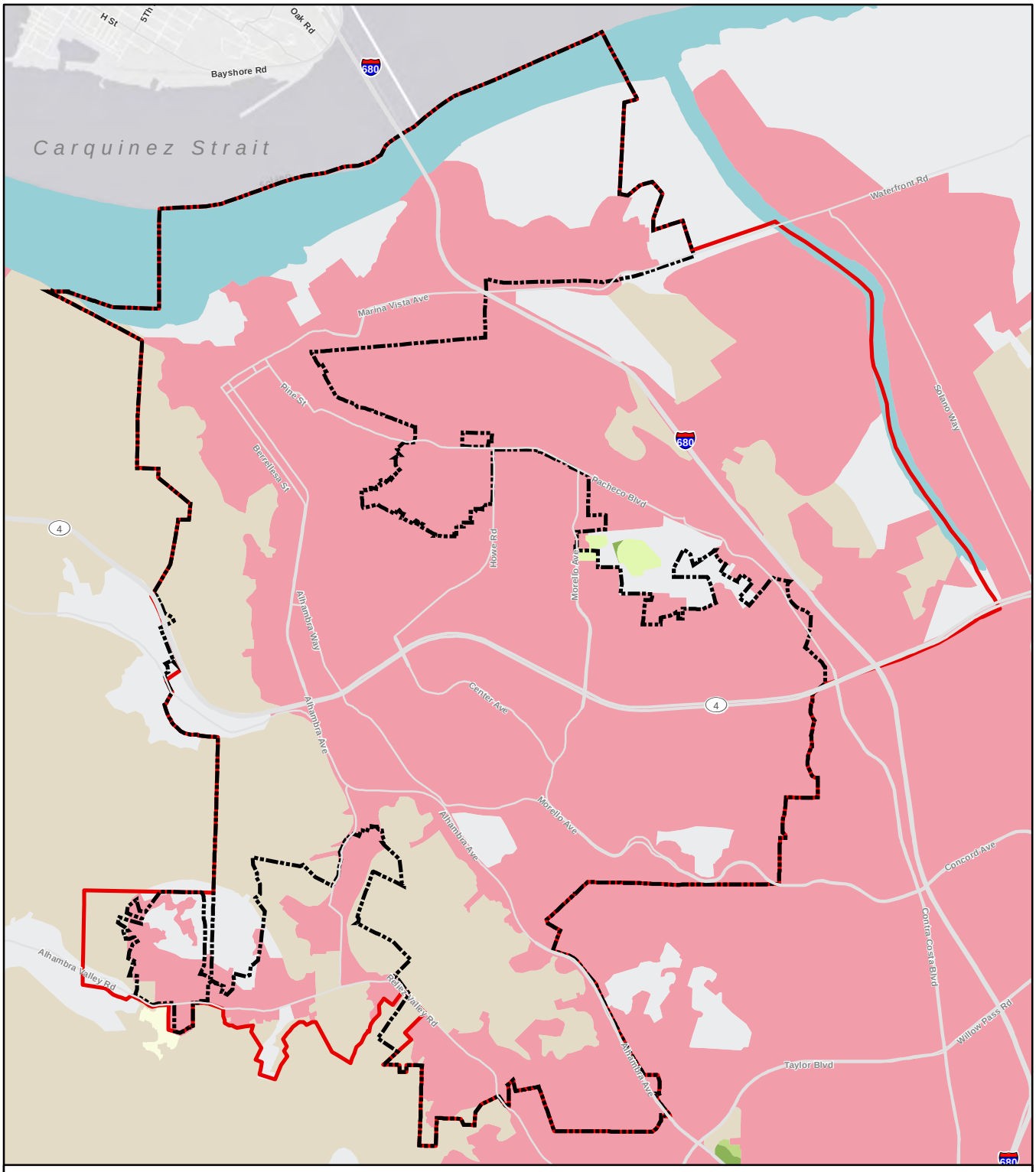
Impact 3.2-2: General Plan implementation may result in conflicts with existing zoning for Agricultural uses, or a Williamson Act Contract (no impact)

There are 253.68 acres, within the Martinez Planning Area that are currently under Williamson Act contracts. Of these 253.68 acres, 151.58 acres are located within the city limits, and 151.10 acres are located within the SOI. Figure 3.2-2 depicts the distribution of Williamson Act Contract lands in the city and the Planning Area.

Within the city limits, the 151.58-acres under a Williamson Act Contract (Contract Number 1-85 on Figure 3.2-2) is designated OS-AH: Open Space-Alhambra Hills SP. This land use designation does not conflict with the Williamson Act Contract on this parcel.

Within the Planning Area, two contracts (Contract Number 5-69 and 1-94, as shown on Figure 3.2-2) are just outside the city limits, but within the SOI. These contracts have a proposed General Plan land use designation of AG: Agricultural Lands. This land use designation does not conflict with the Williamson Act Contract on these parcels.

As described in greater detail under Impact 3.2-1 above, the Martinez General Plan includes a comprehensive set of policies and actions aimed at protecting, enhancing, and preserving agricultural lands and agricultural resources throughout the Planning Area. Implementation of the proposed General Plan, and Land Use Map, would assign compatible land uses to land under a Williamson Act Contracts within the city limits and SOI. Therefore, there would be **no impact** to existing agricultural zoning and Williamson Act Contracts



Farmland Category

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Grazing Land
- Farmland of Local Importance
- Other Land
- Urban and Built-Up Land
- Water Area

Planning Areas

- City Limits
- Sphere of Influence

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.2-1: Important Farmlands

N

0 ½ 1

Miles

Data sources: California Department of Conservation Farmland Mapping and Monitoring Program, Contra Costa County 2012; City of Martinez GIS; Contra Costa County GIS; ESRI StreetMap North America; ArcGIS Online Basemap Service. Map date: August 12, 2015.

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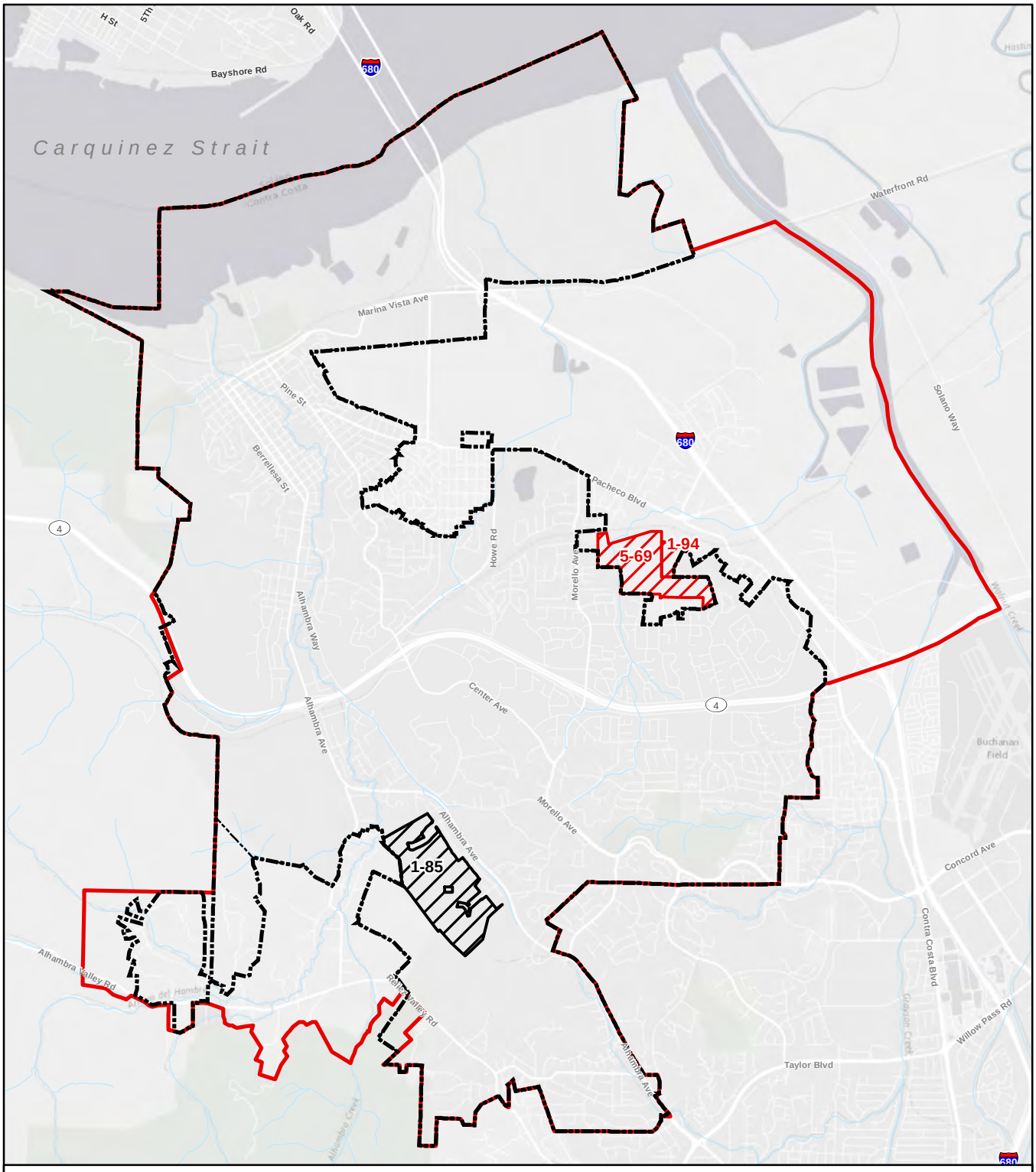

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.2-2: Williamson Act Contracts

Williamson Act Lands

- Within City (151.58 ac)
- Within Sphere of Influence (102.10 ac)

Planning Areas

- City Limits
- Sphere of Influence

N

0 ½ 1

Miles

Data sources: Contra Costa County Department of Conservation and Development; Contra Costa County GIS; City of Martinez GIS; ESRI StreetMap North America; ArcGIS Online Basemap Service. Map date: August 12, 2015.

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This section describes the regional air quality, current attainment status of the air basin, local sensitive receptors, emission sources, and air quality impacts that are likely to result from project implementation.

The primary sources of data referenced for this section is derived from the following:

- Association of Bay Area Governments, Metropolitan Transportation Commission, 2013. *Draft Plan Bay Area Environmental Impact Report*. State Clearinghouse No. 2012062029. April.
- Bay Area Air Quality Management District. 2010. Bay Area 2010 Clean Air Plan Adopted September 15, 2010.
- Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May.
- Bay Area Air Quality Management District. 1999. BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans.
- Illingworth & Rodkin, 2015. Martinez General Plan Update Draft Air Quality and Greenhouse Gas Emissions Assessment. June.
- Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan Technical Memorandum 4a: Conditions, Configuration & Traffic on Existing System*. November 15.

3.3.1 ENVIRONMENTAL SETTING

The Bay Area Air Quality Management District (BAAQMD) is the regional air quality agency for the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

CLIMATE, TOPOGRAPHY, AIR POLLUTION POTENTIAL

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

High Pressure Cell

During the summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high pressure cell centered over the northeastern Pacific Ocean. This high pressure cell keeps storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow on shore out of the north/northwest.

The steady northwesterly flow induces upwelling of cold water from below. This upwelling produces a band of cold water off the California coast. When air approaches the California coast, already cool and moisture-laden from its long journey over the Pacific, it is further cooled as it crosses this bank of cold water. This cooling often produces condensation resulting in a high incidence of fog and stratus clouds along the Northern California coast in the summer.

Generally in the winter, the Pacific high weakens and shifts southward, winds tend to flow offshore, upwelling ceases and storms occur. During the winter rainy periods, inversions (layers of warmer air over colder air; see below) are weak or nonexistent, winds are usually moderate and air pollution potential is low. The Pacific high does periodically become dominant, bringing strong inversions, light winds and high pollution potential.

Topography

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortion occurs when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summer time.

The only major break in California's Coast Range occurs in the SFBAAB. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies San Francisco Bay. The gap in the western coast range is known as the Golden Gate, and the gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the SFBAAB and the Central Valley.

Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3 p.m. to 4 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result.

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

Temperature

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold ocean bottom water along the coast. On summer afternoons the temperatures at the coast can be 35ºF cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10º.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

Precipitation

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up.

Air Pollution Potential

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The topographic and climatological factors discussed above influence the atmospheric pollution potential of an area. Atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors described below.

WIND CIRCULATION

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commute traffic (early morning) and wood burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants upvalley during the day, and cold air drainage flows move the air mass downvalley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

INVERSIONS

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

There are two types of inversions that occur regularly in the SFBAAB. One is more common in the summer and fall, while the other is most common during the winter. The frequent occurrence of elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. Elevated inversions are caused by subsiding air from the subtropical high pressure zone, and from the cool marine air layer that is drawn into the SFBAAB by the heated low pressure region in the Central Valley.

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. Mixing depths under these conditions can be as shallow as 50 to 100 meters, particularly in rural areas. Urban areas usually have deeper minimum mixing layers because of heat island effects and increased surface roughness. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

Although each type of inversion is most common during a specific season, either inversion mechanism can occur at any time of the year. Sometimes both occur simultaneously. Moreover, the characteristics of an inversion often change throughout the course of a day. The terrain of the SFBAAB also induces significant variations among subregions.

SOLAR RADIATION

The frequency of hot, sunny days during the summer months in the SFBAAB is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone.

Because temperatures in many of the SFBAAB inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution.

In late fall and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the SFBAAB during these seasons.

SHELTERED TERRAIN

The hills and mountains in the SFBAAB contribute to the high pollution potential of some areas. During the day, or at night during windy conditions, areas in the lee sides of mountains are sheltered from the prevailing winds, thereby reducing turbulence and downwind transport. At night, when wind speeds are low, the upper atmospheric layers are often decoupled from the surface layers during radiation conditions. If elevated terrain is present, it will tend to block pollutant transport in that direction. Elevated terrain also can create a recirculation pattern by inducing up valley air flows during the day and reverse down valley flows during the night, allowing little inflow of fresh air.

The areas having the highest air pollution potential tend to be those that experience the highest temperatures in the summer and the lowest temperatures in the winter. The coastal areas are exposed to the prevailing marine air, creating cooler temperatures in the summer, warmer temperatures in winter, and stratus clouds all year. The inland valleys are sheltered from the marine air and experience hotter summers and colder winters. Thus, the topography of the inland valleys creates conditions conducive to high air pollution potential.

POLLUTION POTENTIAL RELATED TO EMISSIONS

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends upon the amount of air pollutant emissions in the surrounding area or transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use and/or industrialization. These contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor chemicals.

Carquinez Strait Climatological Subregion

There are 11 climatological subregions within the SFBAAB. Martinez is located within the Carquinez Strait subregion. The Carquinez Strait runs from Rodeo to Martinez. It is the only sea-level gap between the Bay and the Central Valley. The subregion includes the lowlands bordering the strait to the north and south, and includes the area adjoining Suisun Bay and the western part of the Sacramento-San Joaquin Delta as far east as Bethel Island. The subregion extends from Rodeo in the southwest and Vallejo in the northwest to Fairfield on the northeast and Brentwood on the southeast.

Prevailing winds are from the west in the Carquinez Strait. During the summer and fall months, high pressure offshore coupled with low pressure in the Central Valley causes marine air to flow eastward through the Carquinez Strait. The wind is strongest in the afternoon. Afternoon wind speeds of 15 to 20 mph are common throughout the subregion. Annual average wind speeds are 8 mph in Martinez, and 9 to 10 mph further east. Sometimes atmospheric conditions cause air to flow from the east. East winds usually contain more pollutants than the cleaner marine air from the west. In the summer and fall months, this can cause elevated pollutant levels to move into the central SFBAAB through the strait. These high pressure periods are usually accompanied by low wind speeds, shallow mixing depths, higher temperatures, and little or no rainfall.

Summer mean maximum temperatures reach about 90F in the subregion. Mean minimum temperatures in the winter are in the high 30's. Temperature extremes are especially pronounced in sheltered areas farther from the moderating effects of the strait itself (e.g., in Fairfield).

Many industrial facilities with significant air pollutant emissions — e.g., chemical plants and refineries — are located within the Carquinez Strait subregion. The pollution potential of this area is often moderated by high wind speeds. However, upsets at industrial facilities can lead to short-term pollution episodes, and emissions of unpleasant odors may occur at any time. Receptors downwind of these facilities could suffer more long-term exposure to air contaminants than individuals elsewhere. It is important that local governments and other lead agencies maintain buffer zones around sources of air pollution sufficient to avoid adverse health and nuisance impacts on nearby receptors. Areas of the subregion that are traversed by major roadways (e.g., Interstate 80), may also be subject to higher local concentrations of carbon monoxide and particulate matter, as well as certain toxic air contaminants such as benzene.

EXISTING AMBIENT AIR QUALITY: CRITERIA AIR POLLUTANTS

The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, particulate matter (PM), nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health, they are commonly referred to as "criteria air pollutants." Sources and health effects of the criteria air pollutants are summarized in Table 3.3-1.

TABLE 3.3-1 COMMON SOURCES OF HEALTH EFFECTS FOR CRITERIA AIR POLLUTANTS

POLLUTANTS	*SOURCES*	*HEALTH EFFECTS*
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Aggravation of respiratory and cardiovascular diseases; reduced lung function; increased cough and chest discomfort
Fine Particulate Matter (PM_{10} and PM2.5)	Stationary combustion of solid fuels; construction activities; industrial processes; atmospheric chemical reactions	Reduced lung function; aggravation of respiratory and cardiovascular diseases; increases in mortality rate; reduced lung function growth in children
Nitrogen Dioxide (NO2)	Motor vehicle exhaust; high temperature stationary combustion; atmospheric reactions	Aggravation of respiratory illness
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; natural events, such as decomposition of organic matter	Aggravation of some heart diseases; reduced tolerance for exercise; impairment of mental function; birth defects; death at high levels of exposure
Sulfur Dioxide (SO2)	Combination of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ore; industrial processes	Aggravation of respiratory diseases; reduced lung function
Lead	Contaminated soil	Behavioral and hearing disabilities in children; nervous system impairment

SOURCE: BAY AREA AIR QUALITY MANAGEMENT DISTRICT (2012)

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NOx) in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NOX and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the SFBAAB. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 mph, then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it

can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

Particulate Matter refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less. Some particulate matter, such as pollen, is naturally occurring. In the SFBAAB most particulate matter is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM_{10} is of concern because it bypasses the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The EPA and the state of California revised their PM standards several years ago to apply only to these fine particles. $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health. Motor vehicles are currently responsible for about half of particulates in the SFBAAB. Wood burning in fireplaces and stoves is another large source of fine particulates.

Nitrogen Dioxide (NO_2) is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Carbon Monoxide (CO) is an odorless, colorless gas. It is formed by the incomplete combustion of fuels. The single largest source of CO in the SFBAAB is motor vehicles. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. New findings indicate that CO emissions per mile are lowest at about 45 mph for the average light-duty motor vehicle and begin to increase again at higher speeds. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.

Sulfur Dioxide (SO_2) is a colorless acid gas with a pungent odor. It has potential to damage materials and it can have health effects at high concentrations. It is produced by the combustion of sulfur-containing fuels, such as oil, coal and diesel. SO2 can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions.

The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Ambient Air Quality Standards and Designations

The current federal and state ambient air quality standards and attainment standards are presented in Table 3.3-2.

TABLE 3.3-2 AMBIENT AIR QUALITY STANDARDS AND DESIGNATIONS

POLLUTANT	AVERAGING TIME	CALIFORNIA		NATIONAL STANDARDS [A]		
		STANDARDS [B, C]	ATTAINMENT STATUS [D]	PRIMARY [C,E]	SECONDARY [C,F]	ATTAINMENT STATUS [G]
Ozone	1-hour	0.09 ppm (180 µg/m3)	N (Serious)	–[h]	Same as Primary Standard	–[h]
	8-hour	0.070 ppm (137 µg/m3)	–	0.075 ppm (147 µg/m3)		N
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m3)	A	35 ppm (40 mg/m3)	–	U/A
	8-hour	9 ppm (10 mg/m3)		9 ppm (10 mg/m3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	–	0.053 ppm (100 µg/m3)	Same as Primary Standard	U/A
	1-hour	0.18 ppm (339 µg/m3)	A	–		–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	–	0.030 ppm (80 µg/m3)	–	A
	24-hour	0.04 ppm (105 µg/m3)	A	0.14 ppm (365 µg/m3)	–	
	3-hour	–	–	–	0.5 ppm (1300 µg/m3)	
	1-hour	0.25 ppm (655 µg/m3)	A	–	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m3	N	– h	Same as Primary Standard	U
	24-hour	50 µg/m3		150 µg/m3		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m3	N	15 µg/m3	Same as Primary Standard	N[j]
	24-hour	–	–	35 µg/m3		
Lead[i]	30-day Average	1.5 µg/m3	A	–	–	–
	Calendar Quarter	–	–	1.5 µg/m3	Same as Primary Standard	–
Sulfates	24-hour	25 µg/m3	A	No National Standards		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m3)	U			

POLLUTANT	AVERAGING TIME	CALIFORNIA		NATIONAL STANDARDS [A]		
		STANDARDS [B, C]	ATTAINMENT STATUS [D]	PRIMARY [C,E]	SECONDARY [C,F]	ATTAINMENT STATUS [G]
Vinyl Chloride [i]	24-hour	0.01 ppm (26 µg/m3)	–			
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

[a] National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[b] California standards for ozone, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[c] Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m3)]. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.

Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[h] The 1-hour ozone NAAQS was revoked on June 15, 2005 and the annual PM_{10} NAAQS was revoked in 2006.

[i] ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for this pollutant.

[j] U.S EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m3 to 35 µg/m3 in 2006. EPA issued attainment status designations for the 35 µg/m3standard on December 22, 2008. EPA has designated the Bay Area as nonattainment for the 35 µg/m3 $PM_{2.5}$ standard. The EPA designation will be effective 90 days after publication of the regulation in the Federal Register.

SOURCE: BAY AREA AIR QUALITY MANAGEMENT DISTRICT (2012)

Monitoring Data

The BAAQMD operates a regional air quality monitoring network that regularly measures the concentrations of the five major criteria air pollutants. Air pollutant monitoring data is available at http://www.arb.ca.gov/adam/welcome.html. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. Ambient concentrations and the number of days on which the region exceeds standards have declined dramatically. Neither Federal nor State

ambient air quality standards have been violated in recent decades for nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and vinyl chloride.

Emissions Inventory

The BAAQMD estimates emissions of criteria air pollutants from approximately nine hundred source categories. The estimates are based on BAAQMD permit information for stationary sources (e.g., manufacturing industries, refineries, dry-cleaning operations), plus more generalized estimates for area sources (e.g., space heating, landscaping activities, use of consumer products) and mobile sources (e.g., trains, ships and planes, as well as on-road and off-road motor vehicles). BAAQMD emissions inventory data is available at:

http://www.arb.ca.gov/ei/maps/statemap/dismap.htm.

EXISTING AMBIENT AIR QUALITY: TOXIC AIR CONTAMINANTS

In addition to the criteria air pollutants listed above, another group of pollutants, commonly referred to as toxic air contaminants (TACs) or hazardous air pollutants can result in health effects that can be quite severe. Many TACs are confirmed or suspected carcinogens, or are known or suspected to cause birth defects or neurological damage. Secondly, many TACs can be toxic at very low concentrations. For some chemicals, such as carcinogens, there are no thresholds below which exposure can be considered risk-free.

Industrial facilities and mobile sources are significant sources of TACs. The electronics industry, including semiconductor manufacturing, has the potential to contaminate both air and water due to the highly toxic chlorinated solvents commonly used in semiconductor production processes. Sources of TACs go beyond industry. Various common urban facilities also produce TAC emissions, such as gasoline stations (benzene), hospitals (ethylene oxide), and dry cleaners (perchloroethylene). Automobile exhaust also contains TACs such as benzene and 1,3-butadiene. Diesel particulate matter has also been identified as a TAC by the Air Resources Board (ARB). Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. BAAQMD research indicates that mobile-source emissions of diesel PM, benzene, and 1,3-butadiene represent a substantial portion of the ambient background risk from TACs in the SFBAAB.

EXISTING AMBIENT AIR QUALITY: ODORS AND DUST

Other air quality issues of concern in the SFBAAB include nuisance impacts of odors and dust. Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries and chemical plants. Similarly, nuisance dust may be generated by a variety of sources including quarries, agriculture, grading and construction. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to anger and concern over possible health effects among the public. Each year the BAAQMD receives thousands of citizen complaints about objectionable odors. Dust emissions can contribute to increased ambient concentrations of PM_{10}, and can also contribute to reduced visibility and soiling of exposed surfaces.

3.3.2 REGULATORY SETTING

Air quality with respect to criteria air pollutants and TACs within the SFBAAB is regulated by such agencies as the BAAQMD, ARB, and the Environmental Protection Agency (EPA). Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the EPA regulations may not be superseded, both state and local regulations may be more stringent.

FEDERAL AIR QUALITY REGULATIONS

U.S. Environmental Protection Agency

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary national ambient air quality standards (NAAQS). The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.

Federal Hazardous Air Pollutant Program

Title III of the FCAA requires the EPA to promulgate national emissions standards for hazardous air pollutants (NESHAPs). The NESHAP may differ for major sources than for area sources of hazardous air pollutants (HAPs) (major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources). The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. For area sources, the standards

may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards. The FCAA required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, §219 of the FCAA required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions.

STATE AIR QUALITY REGULATIONS

In 1992 and 1993, the California Air Resources Board requested delegation of authority for the implementation and enforcement of specified New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPS) to the following local agencies: Bay Area and South Coast Air Quality Management Districts. EPA's review of the State of California's laws, rules, and regulations showed them to be adequate for the implementation and enforcement of these federal standards, and EPA granted the delegations as requested.

California Air Resources Board

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the California ambient air quality standards (CAAQS) by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

ARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. The ARB is primarily responsibility for statewide pollution sources and produces a major part of the SIP. Local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. The ARB combines this data and submits the completed SIP to EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

California Clean Air Act

The California Clean Air Act, Section 39610 (a), directs the ARB to “identify each district in which transported air pollutants from upwind areas outside the district cause or contribute to a violation of the ozone standard and to identify the district of origin of transported pollutants.” The

information regarding the transport of air pollutants from one basin to another was to be quantified to assist interrelated basins in the preparation of plans for the attainment of State ambient air quality standards. Numerous studies conducted by the ARB have identified air basins that are impacted by pollutants transported from other air basins (as of 1993). Among the air basins affected by air pollution transport from the SFBAAB are the North Central Coast Air Basin, the Mountain Counties Air Basin, the San Joaquin Valley Air Basin, and the Sacramento Valley Air Basin. The SFBAAB was also identified as an area impacted by the transport of air pollutants from the Sacramento region.

State Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) (Tanner Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) (Hot Spots Act). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the ARB list of TACs. Once a TAC is identified, ARB's then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technology (BACT) to minimize emissions. None of the TACs identified by ARB have a safe threshold.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level:

1. Prepare a toxic emission inventory;
2. Prepare a risk assessment if emissions are significant;
3. Notify the public of significant risk levels;
4. Prepare and implement risk reduction measure.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Notable milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that

diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL AND REGIONAL AIR QUALITY REGULATIONS

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, FCAAA, and the CCAA.

The BAAQMD has regulated TACs since the 1980s. At the local level, air pollution control or management districts may adopt and enforce CARB's control measures. Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. In addition, the BAAQMD has adopted Regulation 11 Rules 2 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos containing serpentine.

BAAQMD Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans for the national ozone standard and clean air plans for the California standard both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

With respect to applicable air quality plans, the BAAQMD prepared the 2010 Clean Air Plan to address nonattainment of the national 1-hour ozone standard in the SFBAAB. The purpose of the 2010 Clean Air Plan is to:

1. Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
2. Consider the impacts of ozone control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;

3. Review progress in improving air quality in recent years;
4. Establish emission control measures to be adopted or implemented in the 2009-2012 timeframe.
5. Similarly, the BAAQMD prepared the 2010 Clean Air Plan to address nonattainment of the CAAQS.

BAAQMD CARE Program

The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San Jose, Redwood City/East Palo Alto, and Eastern San Francisco.

BAAQMD CEQA Guidelines

The BAAQMD CEQA Air Quality Guidelines[1] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their CEQA Guidelines. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the 2011 BAAQMD CEQA Air Quality Guidelines. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment).

[1] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May.

Toxic Air Contaminants Regulation

The BAAQMD has regulated TACs since the 1980s. At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. In addition, the BAAQMD has adopted Regulation 11 Rules 2 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos containing serpentine.

3.3.3 IMPACTS AND MITIGATION MEASURES

Long range plans (e.g., general plan, etc.) present unique challenges for assessing impacts because they contain development strategies for 20-year, or longer, time horizons. Due to the SFBAAB's nonattainment status for ozone and PM, and the cumulative impacts of growth on air quality, these plans almost always have significant, unavoidable adverse air quality impacts. CEQA requires the lead agency to evaluate individual as well as cumulative impacts of general plans, and all feasible mitigation measures must be incorporated within the proposed plan to reduce significant air quality impacts.

The BAAQMD CEQA Guidelines provide guidance on how to evaluate air quality change impacts of long-range plans prepared within the SFBAAB pursuant to CEQA. Air quality impacts from future development pursuant to general plans can be divided into construction-related impacts and operational-related impacts. Construction-related impacts are associated with construction activities likely to occur in conjunction with future development allocated by the plan. Operational-related impacts are associated with continued and future operation of developed land uses, including increased vehicle trips and energy use.

The *Martinez General Plan Update Air Quality and Greenhouse Gas Emissions Assessment* was prepared by Illingsworth & Rodkin, Inc. on June 19, 2015. The report provides an assessment of General Plan Update air quality and greenhouse gas impacts. Air quality impacts are addressed in the *Impacts and Mitigation Measures* section below.

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines and BAAQMD recommendations, air quality impacts are considered significant if implementation of the General Plan Update would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

(Note: Greenhouse gas emissions are addressed in a separate chapter of this EIR.)

IMPACTS AND MITIGATION MEASURES

Impact 3.3-1: Project implementation could conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant)

The BAAQMD is the regional agency responsible for overseeing compliance with State and federal laws, regulations, and programs within the SFBAAB. The BAAQMD, with assistance from ABAG and MTC, has prepared and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2010 Clean Air Plan*.[2] The BAAQMD has also developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHG.

The General Plan Update could result in an estimated additional 7,138 residents by 2040. Annual vehicle miles traveled (VMT) for 2010 and 2040 was provided from the project traffic consultant. Table 3.3-3 identifies the vehicle miles traveled and population for the General Plan Update. Using 2010 as a baseline year, VMT attributable to the General Plan Update is anticipated to increase 16 percent. The increase in population is estimated to be 16 percent. As a result, VMT would not increase at a higher rate than population with implementation of the General Plan Update and this impact would be **less than significant**.

TABLE 3.3-3 VEHICLE MILES TRAVELED

METRIC/ VARIABLE	*2010*	*2040 GP BUILD-OUT*	*INCREASE WITH GP UPDATE*
VMT	402,967	469,448	16%
Population	44,166	51,304	16%

SOURCE: OMNI MEANS, 2015, AND CITY OF MARTINEZ.

Consistency of the Specific Plan with Clean Air Plan control measures is demonstrated by assessing whether the proposed Plan implements all of the applicable Clean Air Plan control measures. The 2010 Clean Air Plan includes about 55 control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. The control measures are divided into five categories that include:

- 18 Measures to reduce stationary and area sources;

[2] Bay Area Air Quality Management District (BAAQMD), 2010. *Bay Area 2010 Clean Air Plan.*

- 10 Mobile source measures;
- 17 Transportation control measures;
- Six land use and local impact measures; and
- Four energy and climate measures.

In developing the control strategy, BAAQMD identified the full range of tools and resources available, both regulatory and non-regulatory, to develop each measure. Implementation of each control measure will rely on some combination of the following:

- Adoption and enforcement of rules to reduce emissions from stationary sources, area sources, and indirect sources;
- Revisions to the BAAQMD's permitting requirements for stationary sources;
- Enforcement of CARB rules to reduce emissions from heavy-duty diesel engines;
- Allocation of grants and other funding by the Air District and/or partner agencies;
- Promotion of best policies and practices that can be implemented by local agencies through guidance documents, model ordinances, and other measures;
- Partnerships with local governments, other public agencies, the business community, non-profits, and other groups;
- Public outreach and education;
- Enhanced air quality monitoring;
- Development of land use guidance and CEQA guidelines, and Air District review and comment on Bay Area projects pursuant to CEQA; and
- Leadership and advocacy.

This approach relies upon lead agencies to assist in implementing some of the control measures. A key tool for local agency implementation is the development of land use policies and implementing measures that address new development or redevelopment in local communities. The consistency of the General Plan Update is evaluated with respect to each set of control measures.

Stationary and Area Source Control Measures

The Clean Air Plan includes Stationary Source Control measures that BAAQMD adopts as rules or regulations through their authority to control emissions from stationary and area sources. The BAAQMD is the implementing agency, since these control measures are applicable to sources of air pollution that must obtain District permits. The City uses BAAQMD's CEQA Air Quality Guidelines to evaluate air pollutant emissions from new sources.

Mobile Source Measures

The Clean Air Plan includes Mobile Source Measures that would reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD's Vehicle Buy-Back and Smoking Vehicle Programs, and promoting advanced technology vehicles that reduce emissions. The implementation of these measures rely heavily upon incentive programs, such as the Carl Moyer Program and the Transportation Fund for Clean Air, to achieve voluntary emission reductions in advance of, or in addition to, CARB requirements. CARB has new

regulations that require the replacement or retrofit of on-road trucks, construction equipment, and other specific equipment that is diesel powered.

Transportation Control Measures (TCMs)

The Clean Air Plan includes transportation control measures (TCMs) that are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the TCMs are implemented at the regional level (that is, by MTC or Caltrans), there are measures that the Clean Air Plan relies upon local communities to assist with implementation. In addition, the Clean Air Plan includes land use measures and energy and climate measures whose implementation is aided by proper land use planning decisions.

The policies contained in the General Plan Update would generally be consistent with Clean Air Plan measures intended to reduce automobile use and are discussed below. Table 3.3-4 lists the relevant Clean Air Plan policies to the General Plan Update and indicates consistency or non-consistency with the policies.

TABLE 3.3-4 BAAQMD CONTROL STRATEGY MEASURES

BAAQMD CONTROL STRATEGY MEASURES	*CONSISTENCY*
Transportation Control Measures	
TCM B-4: Goods Movement	Consistent This is primarily a regional measure; however, see Circulation Element Policies 1.1-2, 1.2-1, 1.5-2, 4.1, 4.3, and 4.4.
TCM C-1: Support Voluntary Employer-Based Trip Reduction Program	Consistent See Circulation Element Policies 1.15-2 and 2.9, and Climate Action Plan Program T3.
TCM C-2: Safe Routes to School and Safe Routes to Transit	Consistent See Circulation Element Policies 1.2-3, 1.11-1, 2.3, 2.5, 2.7, and 3.4, OSC-P-5.3, and Climate Action Plan Program T1.
TCM C-3: Promote Rideshare Services and Incentives	Consistent See Circulation Element Policy 1.15-2, and Climate Action Plan Program T3.
TCM C-4: Conduct Public Outreach	Consistent While this is mostly a regionally implemented TCM, see Circulation Element Policy 3.10, and Climate Action Plan Programs T6, E5, and A5.
TCM D-1: Improve Bicycle Access and Facilities	Consistent See Circulation Element Policies 1.1-3, 1.2-1, 1.2-3, 1.2-4, 1.10, 1.11, 1.12, 2.1, 2.8, and 2.10, and OSC-P-5.3.
TCM D-2: Improve Pedestrian Access and Facilities	Consistent See Circulation Element Policies 1.1-3, 1.2-1, 1.2-3, 1.2-4, 1.10, 1.11, 1.12, 2.1, 2.4-2, 2.5, 2.6, 2.7, and OSC-P-5.3.
TCM D-3: Support Local Land Use Strategies	Consistent See Circulation Element Policies 1.1-3, 1.2-3, 1.2-6, 1.10-1, 1.11-2, 1.11-5, 1.12, 1.13, 2.4, 3.3, and 3.8, OSC-P-6.19, and Climate Action Plan Programs T2 and T5.
TCM E-2: Parking Pricing and Management Strategies	Consistent See Circulation Element Policy 1.13-1.

BAAQMD CONTROL STRATEGY MEASURES	*CONSISTENCY*
Land Use and Local Impact Control Measures	
LUM 1: Goods Movement	Consistent While this is primarily a statewide and regional measure, see Circulation Element Policies 4.1, 4.3, and 4.5.
LUM 3: Enhanced CEQA Program	Consistent While this TCM addresses BAAQMD actions, the City requires appropriate air quality evaluation of projects during CEQA review using the BAAQMD CEQA Air Quality Guidelines.
LUM 5: Reduce Risk in Impacted Communities	This issue is addressed in this EIR, in which the impact of existing or new TAC sources upon sensitive receptors is evaluated and mitigation measures to reduce any substantial TAC exposures are identified.
Energy and Climate Measures	
ECM 1: Energy Efficiency	Consistent See Circulation Element Policy 1.3-1, OSC-P-6.2, OSC-P-6.3, OSC-P-6.6, OSC-P-6.8, OSC-P-7.2, and OSC-P-7.3, and Climate Action Plan Programs T8, E1, E2, and E4.
ECM 2: Renewable Energy	Consistent See OSC-P-6.6, OSC-P-6.10, and OSC-P-6.17.
ECM 3: Urban Heat Island Mitigation	Consistent See Climate Action Plan Program A4.
ECM 4: Tree-Planting	Consistent See Circulation Element Policies 1.10-4, 1.11-4, and 2.4-1, OSC-P-1.7, and Climate Action Plan Programs A1 and A2.

As indicated in Table 3.3-4, the plan would include features, policies, and implementing measures that are generally consistent with the Clean Air Plan control measures. Therefore, this impact is considered **less than significant**.

Impact 3.3-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (Significant and Unavoidable)

Implementation of the General Plan Update would result in short-term emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby.

Demolition and renovation of buildings can also generate PM_{10} and $PM_{2.5}$ emissions. Off-road construction equipment is often diesel-powered and can be a substantial source of NO_X emissions,

in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions. The BAAQMD CEQA Air Quality Guidelines do not identify plan level thresholds that apply to construction. Although construction activities at individual project sites are expected to occur during a relatively short time period, the combination of temporary dust from activities and diesel exhaust from construction equipment poses both a health and nuisance impact to nearby receptors. In addition, NO_X emissions during grading and soil import/export for large projects may exceed the BAAQMD NO_X emission thresholds. Without application of appropriate control measures to reduce construction dust and exhaust, construction period impacts would be considered a potentially significant impact. Implementation of Mitigation Measure AQ-1 would reduce this impact to less than significant in most cases. However, it is not possible to ensure that every very large construction project could be mitigated to a level of less than significant.

Additionally, implementation of the General Plan Update would result in long-term area and mobile source emissions from operation and use of subsequent development. Implementation of the General Plan Update could include stationary sources of pollutants that would be required to obtain permits to operate in compliance with BAAQMD rules. These sources include, but are not limited to, gasoline stations, dry cleaners, internal combustion engines, and surface coating operations. The BAAQMD stationary source permit process ensures that these sources would be equipped with the required emission controls and that, individually, these sources would result in a less than significant impact.

As discussed above, the BAAQMD Air Quality Guidelines do not have thresholds related to direct and indirect regional criteria pollutant emissions resulting from plan implementation. The BAAQMD CEQA Air Quality Guidelines only require emissions computations for project-level analysis. The General Plan update would result in increased short-term emissions associated with construction projects, increased emissions associated with stationary sources, and increased emissions associated with transportation and operation of future development. The specifics of future development are not known at this time. However, there is the potential for cumulative future development to result in a cumulatively considerable net increase in criteria pollutants for which the region is in nonattainment. Implementation of the measures described under Impact 3.3-1 as well mitigation measure AQ-1 would reduce potential impacts to the extent feasible. However, the potential for cumulatively considerable net increases in criteria pollutants would remain. Therefore, this impact is considered significant and unavoidable.

***Mitigation Measure AQ-1**:*

The City shall include a General Plan policy that includes the BAAQMD-Recommended Measures to Control Particulate Matter Emissions as a result of construction projects. Measures to reduce diesel particulate matter and PM_{10} from construction to reduce short-term health impacts to nearby sensitive receptors are summarized below:

<u>Dust (PM_{10}) Control Measures:</u>

- *Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.*

- *Cover all hauling trucks or maintain at least two feet of freeboard.*
- *Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.*
- *Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.*
- *Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).*
- *Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.*
- *Limit traffic speeds on any unpaved roads to 15 mph.*
- *Replant vegetation in disturbed areas as quickly as possible.*
- *Suspend construction activities that cause visible dust plumes to extend beyond the construction site.*
- *Post a publically visible sign(s) with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.*

Measures to Reduce Diesel Particulate Matter and $PM_{2.5}$ and Other Construction Emissions:

- *The developer or contractor shall provide a plan for approval by the City or BAAQMD demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the year 2011.*
- *Clear signage at all construction sites will be posted indicating that diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite or adjacent to the construction site.*
- *The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).*
- *Properly tune and maintain equipment for low emissions.*

Impact 3.3-3: Violate any air quality standard or contribute substantially to an existing or projected air quality violation. (Less than Significant)

Monitoring data from all ambient air quality monitoring stations in the Bay Area indicate that existing carbon monoxide levels are currently below national and California ambient air quality standards. Monitored CO levels have decreased substantially since 1990 as newer vehicles with greatly improved exhaust emission control systems have replaced older vehicles. The Bay Area has

been designated as an attainment area for the CO standards. The highest measured levels in Concord (the closest monitoring stations to the Planning Area) during the past three years are 0.82 ppm for eight-hour averaging periods, compared with State and federal criteria of 9.0 ppm.

Even though current CO levels in the Bay Area are well below ambient air quality standards, and there have been no exceedances of CO standards in the Bay Area since 1991, elevated levels of CO still warrant analysis. CO hotspots (occurrences of localized high CO concentrations) could still occur near busy congested intersections. Recognizing the relatively low CO concentrations experienced in the Bay Area, the BAAQMD's CEQA Air Quality Guidelines state that a project would have a less-than-significant impact if it would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. 2040 General Plan peak hour traffic volumes would be far less (Omni Means, 2015). Since intersections affected by the project would have volumes less than the threshold of 44,000 vehicles per hour, the impact of the project related to localized CO concentrations would therefore be **less than significant**.

Impact 3.3-4: Expose sensitive receptors to substantial pollutant concentrations. (Significant and Unavoidable)

Subsequent land use activities associated with implementation of the General Plan Update could potentially include short-term construction sources of TACs and long-term operational sources of TACs, including stationary and mobile sources.

Temporary Construction Sources

Implementation of the General Plan Update would result in the potential construction of a variety of projects. This construction would result in short-term emissions of diesel particulate matter (DPM), a TAC. Construction would result in the generation of DPM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The calculation of cancer risk associated with exposure to TACs is typically based on a 70-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. Cancer risk and $PM_{2.5}$ exposure would have to be analyzed through project-level analysis to identify the potential for significant impacts and measures to reduce those impacts to less than significant. Health risks associated with construction would, therefore, be considered **potentially significant**. Implementation of Mitigation Measure AQ-2 would reduce this impact to less than significant in most cases. However, it is not possible to ensure that very large construction projects could be mitigated to a level of less than significant. Therefore, this impact would remain **significant and unavoidable**.

Mitigation Measure AQ-2. Require Project-Level Construction Health Risk Assessment: *The City shall include a General Plan policy that requires a construction health risk assessment, either through screening or refined modeling, for large-scale construction projects that may result in*

significant DPM. The construction health risk assessment shall identify impacts and, if necessary, include measures to reduce exposure. Reduction in health risk can be accomplished through, though is not limited to, the following measures:

- *Construction equipment selection;*
- *Use of alternative fuels, engine retrofits, and added exhaust devices;*
- *Modify construction schedule; and*
- *Implementation of BAAQMD Basic and/or Additional Construction Mitigation Measures for control of fugitive dust.*

Long-Term Operational Sources

According to the BAAQMD CEQA Air Quality Guidelines, for a plan to have a less-than-significant impact with respect to TACs, overlay zones must be established around existing and proposed land uses that would emit these air pollutants. Overlay zones to avoid TAC impacts must be reflected in local plan policies, land use maps, or implementing ordinances.

The BAAQMD CEQA Air Quality Guidelines consider exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard, to be significant. For cancer risk, which is a concern with diesel particulate matter and other mobile-source TACs, the BAAQMD Risk Management Policy considers an increased risk of contracting cancer that is 10 in one million chances or greater, to be significant risk for a single source. The BAAQMD CEQA Guidelines also consider exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 micrograms per cubic meter ($\mu g/m^3$) to be significant. Non-cancer risk would be considered significant if the computed Hazard Index is greater than 1.0.[3] For cumulative sources, the BAAQMD CEQA Guidelines consider 100 in one million excess cancer risk, $PM_{2.5}$ concentrations that exceed 0.8 $\mu g/m^3$, and non-cancer Hazard Index greater than 10.0 to be significant.

The General Plan Update would permit and facilitate the development of new sensitive receptors, such as new homes, in locations near arterial and collector roadways, highways, rail lines, and stationary sources of TAC emissions. Screening levels indicate that sensitive receptors within the Planning Area would be exposed to levels of TACs and or $PM_{2.5}$ that could cause an unacceptable cancer risk or hazard near highways and stationary sources.

TAC sources were identified within a 1,000 foot radius from planned and entitled projects of the Planning Area. These sources include: stationary sources permitted by BAAQMD, roadways with more than 10,000 annual average daily traffic (AADT), and highways or freeways. Then, using the screening analysis tools – the stationary source screening analysis tool, the highway screening analysis tool, and the roadway screening analysis tool – potential risk and hazard impacts were assessed.

[3] The Hazard Index is the ratio of the computed receptor exposure level to the level known to cause acute or chronic adverse health impacts, as identified by BAAQMD.

Stationary Sources

The Planning Area has numerous permitted stationary sources. These sources are located throughout the City, but mostly in industrial and commercial areas. The impact of these sources can only be addressed on a project-by-project basis, since impacts are generally localized. To assist lead agencies, BAAQMD has provided a database of permitted sources for each County. The database is contained in a Google Earth tool that allows a user to identify stationary sources within 1,000 feet of a receptor. The database can then be accessed through Google Earth to determine conservative screening levels of cancer risk, hazards, and $PM_{2.5}$ concentrations. This allows many of the sources to be screened out of any additional analysis. Stationary sources that show the potential for significant community risk impacts after this first level of review are further analyzed by contacting BAAQMD for additional information and applying distance adjustment factors. A refined modeling analysis would be required if there are sources that still have potentially significant impacts after this level of review. A refined analysis would include dispersion modeling of the source using emissions and source information provided by BAAQMD. If the source still has significant community risk impacts following this level of effort, then risk reduction strategies would have to be implemented by the project on a case-by-case basis.

When siting new sensitive receptors, the BAAQMD Guidelines advise that lead agencies examine existing or future proposed sources of TAC and/or $PM_{2.5}$ emissions that would adversely affect individuals within the planned project. New residences and sensitive receptors could be located near stationary sources of TACs located throughout the City, such as refineries, gasoline dispensing stations, emergency back-up diesel generators, and dry cleaners. Without proper setbacks or mitigation measures, these sources could result in TAC levels that would be significant for new sensitive receptors.

Gasoline Stations

The Plan Bay Area DEIR[4] recommends a setback of 300 feet for large gasoline dispensing facilities (3.6 million gallons of throughput a year) and 50 feet for small facilities. This is consistent with CARB recommendations, which found that, except for the largest gasoline stations, health risks near gasoline stations should be less than 10 in one million at distances beyond 50 feet.

Dry Cleaning Facilities

Perchlorethylene (Perc) is the solvent used commonly in past dry cleaning operations. Perc is a TAC because it has the potential to cause cancer. In 2005, CARB recommended setbacks of 300 feet between dry cleaning facilities that emit Perc and sensitive land uses. Since then, CARB has enacted new rules to substantially reduce Perc emissions and phase out the use of TACs in dry cleaning by 2023. However, CARB's recommended buffers are based on cancer risk based on a 70-year exposure computation. Therefore, the 300-foot setback may be overly conservative. Most dry cleaning facilities would need to be analyzed on a project-by-project basis, starting by determining if the facility in question uses Perc in their cleaning process.

[4] Association of Bay Area Governments, Metropolitan Transportation Commission, 2013. *Draft Plan Bay Area Environmental Impact Report*. State Clearinghouse No. 2012062029. April.

Oil Refineries

The Plan Bay Area DEIR recommends a setback of 0.5 miles from oil refineries such as the Shell Refinery in Martinez.

Emergency Back-Up Generators

Electricity generators that are powered by diesel engines are common. They are typically located at facilities where uninterrupted electricity is necessary. Common facilities include fire and police stations, hospital or medical treatment facilities, pump stations, schools, offices, and data centers. Diesel engines powering these generators are regulated by BAAQMD and CARB. CARB has established strict emissions limits and operating restrictions for engines larger than 50 horsepower. BAAQMD has developed criteria (Regulation 2 Rule 5) for approval of projects with new or modified emission sources of TACs. As a result, all new engines have very localized impacts and would not be permitted if they would cause significant cancer risks or hazards. Existing engines are only permitted to operate for 50 hours per year for maintenance or routine testing.

Specific stationary sources in the Plan Area were identified using BAAQMD's *Stationary Source Screening Analysis Tool*, as described above. The BAAQMD data provide the screening risk, hazard and $PM_{2.5}$ concentration levels associated with each source. Table 3.3-5 identifies the approximate setback distances from stationary sources that have potentially significant impacts using the screening data provided by BAAQMD and the *Cancer Risk and Hazard Distance Adjustment Multiplier* tool. However, refined analysis of the effects from these sources through emissions and dispersion modeling would likely show lower TAC exposure.

The BAAQMD *Cancer Risk and Hazard Distance Adjustment Multiplier* does not provide adjustments for $PM_{2.5}$ concentration. Therefore, instances where $PM_{2.5}$ screening concentrations exceed the threshold have been marked in Table 3.3-5 as "project-specific analysis required." Similarly, certain stationary sources in the BAAQMD tool are marked as "No Data." Again, in these cases, project-specific analysis would be required by contacting BAAQMD and possibly conducting refined modeling if emissions are found to exceed thresholds. Stationary sources that do not have potentially significant impacts at 50 feet or greater were not included in Table 3.3-5. Stationary sources are generally reported in Table 3.3-5 from west to east and north to south across the City.

TABLE 3.3-5 APPROXIMATE SCREENING SETBACK DISTANCES FOR STATIONARY TAC SOURCES

SOURCE	*DISTANCE IN FEET TO CANCER RISK THRESHOLD*	*DISTANCE IN FEET TO $PM_{2.5}$ THRESHOLD*
Verizon Wireless generator, Plant 16117, 396 Cummings Skyway	198	<50
Verizon Wireless Franklin Canyon generator, Plant 15196, 2670 Franklin Canyon Road	231	<50
City of Martinez, Plant G7059, 7 N. Court Street	Project-specific analysis required	Project-specific analysis required
Central Contra Costa Sanitary District generator, Plant 14065, 292 Embarcadero	264	<50
Telfer Sheldon Oil Company, Plant G8845, 211 Foster Street	Project-specific analysis required	Project-specific analysis required
Back to the Past, Inc., Plant 19755, 221 Berrellesa Street	Project-specific analysis required	Project-specific analysis required

Source	*Distance in Feet to Cancer Risk Threshold*	*Distance in Feet to $PM_{2.5}$ Threshold*
Contra Costa County generator, Plant 18005, 555 Escobar Street	99	<50
General Services Department generator, Plant 14147 500 Court Street	83	<50
Contra Costa Community College District generator, Plant 20258, 500 Court Street	Project-specific analysis required	Project-specific analysis required
General Services Department generator, Plant 14130 651 Pine Street	99	<50
General Services Department generator, Plant 14132 1020 Ward Street	297	<50
Contra Costa County, Plant 2094, 1000 Ward Street	198	<50
Equilon Enterprises LLC, Plant 11956, 1801 Marina Vista	0.5 miles	0
Shell Martinez Refinery, Plant 11, 3485 Pacheco Boulevard	0.5 miles	Project-specific analysis required
Shell Chemical LP, Plant 12870, 10 Mococo Road	<50	Project-specific analysis required
Tesoro Refining and Marketing Company, Plant 14629, 1750 Marina Vista Way	0.5 miles	<50
Rhodia, Inc., Plant G5980, 100 Mococo Road	Project-specific analysis required	Project-specific analysis required
Rhodia, Inc., Plant 11661, 100 Mococo Road	<50	Project-specific analysis required
State of California DOT generator, Plant 14969, 78 Mococo Road	528	<50
Central Contra Costa Sanitary District generator, Plant 14060, 2001 Marina Vista	231	<50
USA Petroleum, Plant G11817, 2501 Pacheco Boulevard	131	na
Contra Costa County Fire Station #12, Plant G9782, 1240 Shell Avenue	Project-specific analysis required	Project-specific analysis required
Redwood Painting Co, Inc., Plant 16067, 3485 Pacheco Boulevard	<50	Project-specific analysis required
FastStop, Plant G8543, 3520 Pacheco Boulevard	115	na
Plains Products Terminals LLC, Plant 17559, 2801 Waterfront Road	0.5 miles	50
Acme Fill Corporation, Plant 1464, 950 Waterbird Way	0.5 miles	Project-specific analysis required
Contra Costa Transfer & Recovery Station, Plant 9680, 950 Waterbird Way	0	Project-specific analysis required
Bulldog Gas & Power, Inc., Plant 13782, 890 Waterbird Way	<50	Project-specific analysis required
Contra Costa County General Services, Plant G8561, 2471 Waterbird Way	Project-specific analysis required	Project-specific analysis required
General Services Department generator, Plant 14148	231	<50

SOURCE	*DISTANCE IN FEET TO CANCER RISK THRESHOLD*	*DISTANCE IN FEET TO $PM_{2.5}$ THRESHOLD*
2467 Waterbird Way		
Central Concrete Supply Co, Inc., Plant 18598, 993 Waterbird Way	0	Project-specific analysis required
General Services Department generator, Plant 14141 2483 Waterbird Way	330	Project-specific analysis required
Air Products & Chemicals, Inc., Plant 10295, Tesoro Avon Refinery	<50	Project-specific analysis required
Tesoro Refining and Marketing Company, Plant G7610, Tesoro Avon Refinery	Project-specific analysis required	Project-specific analysis required
Tesoro Refining and Marketing Company, Plant 14628, 150 Solano Way, Avon Refinery	0.5 miles	Project-specific analysis required
Martinez Cogen Limited Partnership, Plant 1820, 550 Solano Way, Avon Refinery	0.5 miles	Project-specific analysis required
MECS, Inc., Plant 14, 1778 Monsanto Way	<50	Project-specific analysis required
Central Contra Costa Sanitary District generator, Plant 14064, 990 Central Avenue	495	<50
Mt. View Sanitary District, Plant 4408, 3800 Arthur Road	Project-specific analysis required	<50
Valero Refining Co., SS#7947, Plant G10423, 4141 Alhambra Avenue	82	na
Martinez Gas and Carwash, G11582, 3950 Alhambra Avenue	82	na
Alhambra Shell, Plant G12409, 3630 Alhambra Avenue	148	na
Pacific Bell generator, Plant 13487, 515 E Street	462	<50
Contra Costa Regional Medical Center, Plant 3779, 2500 Alhambra Avenue	859	Project-specific analysis required
Tower Market #92, Plant G12038, 3012 Howe Road	131	na
O'Neal's Body Shop, Plant 20182, 895 Howe Road, Unit #4	Project-specific analysis required	Project-specific analysis required
Environmental Abrasive Blasting & Coating, Plant 16774, 876 Howe Road, #B&C	<50	Project-specific analysis required
Cresco Equipment, Plant G6385, 197 Howe Road	Project-specific analysis required	Project-specific analysis required
American Cleaners, Plant 11993, 1160A Arnold Drive	Project-specific analysis required[1]	0
Kaiser Permanente Medical Center generator, Plant 1669, 200 Muir Road	859	50
VA Medical Center, Plant 4096, 150 Muir Road	297	Project-specific analysis required
General Services Department generator, Plant 14140 30 Douglas Drive	165	<50
General Services Department generator, Plant 14143 595 Center Avenue	264	<50
Sunrise Cleaners, Plant 5400,	Project-specific analysis	0

SOURCE	*DISTANCE IN FEET TO CANCER RISK THRESHOLD*	*DISTANCE IN FEET TO $PM_{2.5}$ THRESHOLD*
518 Center Avenue	required[1]	
A-1 Liquor & Food, Plant G688, 81 Center Avenue	115	na
Contra Costa County Fire Protection District, Plant G8195, 251 Church Street, Station #13	Project-specific analysis required	Project-specific analysis required
Chevron #1338, Plant G9901, 1250 Morello Avenue	230	na
Tri-Convenience Store, Plant G7345, 3700 Pacheco Boulevard	98	na
Mt. View Sanitary District generator, Plant 14281, Morello Road	165	<50
Pacheco Shell, Plant G12435, 4355 Pacheco Boulevard	66	na
Laidlaw Environmental Services of California, Plant G6041, 4501 Pacheco Boulevard	Project-specific analysis required	Project-specific analysis required
Tosco Northwest Company – RJRB Ent., Inc., Plant G9300, 61 Arthur Road	131	na
Mt. View Sanitary District generator, Plant 14282, End of Austin Way	297	<50
7-Eleven, Inc. #32235, Plant G9745, 530 Morello Avenue	131	na
Contra Costa Water District generator, Plant 14043, Heather Leaf Lane	396	<50
Contra Costa County Animal Services Facility generator, Plant 15279, 4800 Imhoff Place	231	<50
County Quarry Products, Inc., Plant 3153, 5501 Imhoff Drive	0	Project-specific analysis required
County Asphalt, Plant 10408, 5501 Imhoff Drive	<50	50
Right Away Redy Mix, Plant 10639, 5501 Imhoff Drive	Project-specific analysis required	Project-specific analysis required
Mt. View Sanitary District generator, Plant 14283, Arnold Drive	132	<50
California Highway Patrol, Plant G8287, 5001 Blum Road	Project-specific analysis required	Project-specific analysis required
Central Contra Costa Sanitary District, Plant 907, 5019 Imhoff Place	1,000	Project-specific analysis required
Martinez Self Serve, Plant G11166, 1175 Muir Road	131	na
General Services Department generator, Plant 14136 40 Glacier Drive	495	<50
General Services Department generator, Plant 14144 202 Glacier Drive	264	<50
General Services Department generator, Plant 14137 255 Glacier Drive	297	<50
County of Contra Costa (Juvenile Hall), Plant 19589, 202 Glacier Drive	Project-specific analysis required	Project-specific analysis required

SOURCE	DISTANCE IN FEET TO CANCER RISK THRESHOLD	DISTANCE IN FEET TO $PM_{2.5}$ THRESHOLD
General Services Department generator, Plant 14138 1960 Muir Road	165	<50
General Services Department generator, Plant 14139 1980 Muir Road	495	<50
Sunstate Equipment Co., Plant G682, 5737 Pacheco Boulevard	Project-specific analysis required	Project-specific analysis required
Ebiwash, Inc., Plant G11685, 6606 Alhambra Avenue	115	na
Virginia Hill Auto Center, Plant G11944, 6655 Alhambra Avenue	82	na
Easy Serv, Plant G11316, 6710 Alhambra Avenue	164	na

Note: na = not applicable
[1] Dry cleaning operations will cease use of TACs by 2023.

Highway and Roadway Traffic

The BAAQMD Highway Screening Analysis Tool indicates significant TAC exposures along the following highways in terms of cancer risk and $PM_{2.5}$ exposure: Interstate 680 (I-680) and State Route 4 (SR 4). Table 3.3-6 identifies the approximate setback distances from highway sources that have potentially significant impacts at a distance of 50 feet or greater, using the data provided by BAAQMD. However, refined analysis of the effects from these sources through emissions and dispersion modeling would likely show lower TAC exposure.

In addition, BAAQMD provides a screening calculator that predicts community risk impacts that roadways pose. Using 2040 p.m. peak hour traffic volumes provided by Omni Means and assuming that average daily traffic (ADT) is approximately ten times p.m. peak hour, the highest volume roadway segment in the City would be Alhambra Avenue, north of Alhambra Valley Road with an estimated ADT of 25,700. The BAAQMD Roadway Screening Analysis Calculator indicates that community risk from high volume surface streets such Alhambra Avenue, Pacheco Boulevard, and Morello Avenue would be less than significant with ADT of 25,700 vehicles or less at a distance of 35 feet.

TABLE 3.3-6 APPROXIMATE SETBACK DISTANCES FOR HIGHWAY TAC SOURCES

SOURCE	DISTANCE IN FEET TO CANCER RISK THRESHOLD	DISTANCE IN FEET TO $PM_{2.5}$ THRESHOLD
I-680 – south of SR 4 (west of)	500	100
I-680 – north of SR 4 (west of)	750	100
State Route 4 – west of Alhambra Avenue (south of)	400	25
State Route 4 – west of Alhambra Avenue (north of)	1,000	75
State Route 4 – Alhambra Avenue to I-680 (south of)	500	50
State Route 4 – Alhambra Avenue to I-680 (north of)	1,000	200

Source: Illingworth & Rodkin, 2015

Railroad Operations

Potential health effects from railroad traffic along the Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe Railway (BNSF) rail lines in Martinez were evaluated. The UPRR rail line is located on the northern edge of Martinez between Downtown and the Carquinez Strait. The BNSF rail line bisects the City about 1.5 to 2 miles south of the UPRR tracks. The UPRR rail line is used by trains for passenger and freight service, while the BNSF rail line is used only for freight service.

Passenger rail service on the UPRR rail line includes diesel fueled trains for the California Zephyr, Coast Starlight, Capitol Corridor, and San Joaquin trains, all operated by Amtrak. There are 44 passenger trains that run along this line during the weekdays and 22 trains during the weekend, according to the Amtrak posted schedule. In addition, there are about 8 freight trains that also use this rail line on a daily basis. On the BNSF rail line there are up to six daily freight trains.[5]

Figures 3.3-1 and 3.3-2 show the sections of rail line segment and receptors modeled and list the computed cancer risk and maximum annual average $PM_{2.5}$ concentrations for trains traveling on the UPRR rail line (Case 1) and BNSF rail line (Case 2), respectively. As indicated in Figure 3.3-1, trains on the UPRR rail line would have a significant cancer risk (above 10 in one million excess risk) within approximately 350 feet in both directions (north and south) from the rail line. For the BNSF rail line, trains would have a less-than-significant cancer risk at all distances beyond 50 feet from the rail line in both directions (north and south). $PM_{2.5}$ concentration would not be significant (above 0.3 $\mu g/m^3$) for either the UPRR or BNSF rail lines at distances beyond 50 feet.

Hazard Index

Potential non-cancer health effects due to chronic exposure to DPM were not estimated since the concentration threshold for non-cancer effects is considerably higher than concentrations that would result in significant cancer risks that were described above. The chronic inhalation reference exposure level (REL) for DPM is 5 $\mu g/m^3$. The DPM modeling assessment predicted maximum annual DPM concentrations more than 10 times lower than the REL. Thus, the Hazard Index (HI), which is the ratio of the annual DPM concentration to the REL, would be much lower than significance criterion of a HI greater than 1.0.

Summary

The General Plan Update would allow growth of new residential land uses that would be sensitive receptors and new non-residential land uses that are a potential for new emissions sources. Typically, these sources would be evaluated through the BAAQMD permit process or the CEQA process to identify and mitigate any significant exposures. However, some sources that would not undergo such a review, such as truck loading docks or truck parking areas, may have the potential to cause significant increases in TAC exposure. This impact would be **potentially significant**. As previously described, there are recommended setback distances for long-term operational sources and stationary sources, including gasoline stations, dry cleaning facilities, oil refineries, emergency back-up generators, highways and roadways, and railroads. Implementation of Mitigation

[5] Metropolitan Transportation Commission, 2006. *Bay Area Regional Rail Plan Technical Memorandum 4a: Conditions, Configuration & Traffic on Existing System*. November 15.

Measure AQ-3 would reduce this impact to the extent feasible. However, it is not possible to determine at this stage of the planning process that all impacts could be reduced to a less-than-significant level from larger sources as the recommended setback distance may make development of property infeasible and implementation of project-specific mitigation measures may not fully avoid or mitigate potential risks. Therefore, this impact would remain **significant and unavoidable**.

Mitigation Measure AQ-3:

An implementation measure shall be added to the General Plan to ensure that the following measures shall be utilized in site planning and building designs to reduce TAC and PM2.5 exposure where new receptors are located within the setback distances identified above:

- *Future development under the General Plan Update that includes sensitive receptors (such as schools, hospitals, daycare centers, residential developments, and retirement homes) located within the setback distances from highways, railroads, local roadways, and stationary sources shall require site-specific analysis to determine the level of TAC and $PM_{2.5}$ exposure. This analysis shall be conducted following procedures outlined by BAAQMD. If the site-specific analysis reveals significant exposures, such as cancer risk greater than 10 in one million or cumulative cancer risk greater than 100 in one million, additional measures shall be employed to reduce the risk to below the threshold.*
- *Future non-residential developments would be evaluated through the CEQA process or BAAQMD permit process to ensure that they do not cause a significant health risk in terms of excess cancer risk greater than 10 in one million, acute or chronic hazards with a Hazard Index greater than 1.0, or annual $PM_{2.5}$ exposures greater than 0.3 $\mu g/m^3$, or a significant cumulative health risk in terms of excess cancer risk greater than 100 in one million, acute or chronic hazards with a Hazard Index greater than 10.0, or annual $PM_{2.5}$ exposures greater than 0.8 $\mu g/m^3$.*
- *For significant cancer risk exposure, as defined by BAAQMD, indoor air filtration systems shall be installed to effectively reduce particulate levels to a less-than-significant level. Project sponsors shall submit performance specifications and design details to demonstrate that lifetime residential exposures would result in less-than-significant cancer risks (less than 10 in one million chances or 100 in one million for cumulative sources).*
- *Air filtration systems installed shall be rated MERV-13 or higher and a maintenance plan for the air filtration system shall be implemented.*
- *Trees and/or vegetation shall be planted between sensitive receptors and pollution sources, if feasible. Trees that are best suited to trapping particulate matter shall be planted, including the following: Pine (Pinus nigra var. maritime), Cypress (X Cupressocyparis leylandii), Hybrid popular (Populus deltoids X trichocarpa), and Redwoods (Sequoia sempervirens).*
- *Sites shall be designed to locate sensitive receptors as far as possible from any freeways, roadways, refineries, diesel generators, distribution centers, and rail lines.*
- *Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall not be located immediately adjacent to a loading dock or where trucks concentrate to deliver goods.*

Impact 3.3-5: Create objectionable odors affecting a substantial number of people. (Less than Significant with Mitigation)

Subsequent land use activities associated with implementation of the General Plan Update could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (i.e., residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions.

Future construction activities could result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited.

Significant sources of offending odors are typically identified based on complaint histories received and compiled by BAAQMD. It is difficult to identify sources of odors without requesting information by specific facility from BAAQMD. Typical large sources of odors that result in complaints are wastewater treatment facilities, landfills including composting operations, food processing facilities, and chemical plants. Other sources, such as restaurants, paint or body shops, and coffee roasters typically result in localized sources of odors. Table 3.3-7 identifies screening buffers included in the BAAQMD CEQA Air Quality Guidelines that could apply to the Plan Area.

TABLE 3.3-7 ODOR SCREENING DISTANCES FOR THE GENERAL PLAN UPDATE

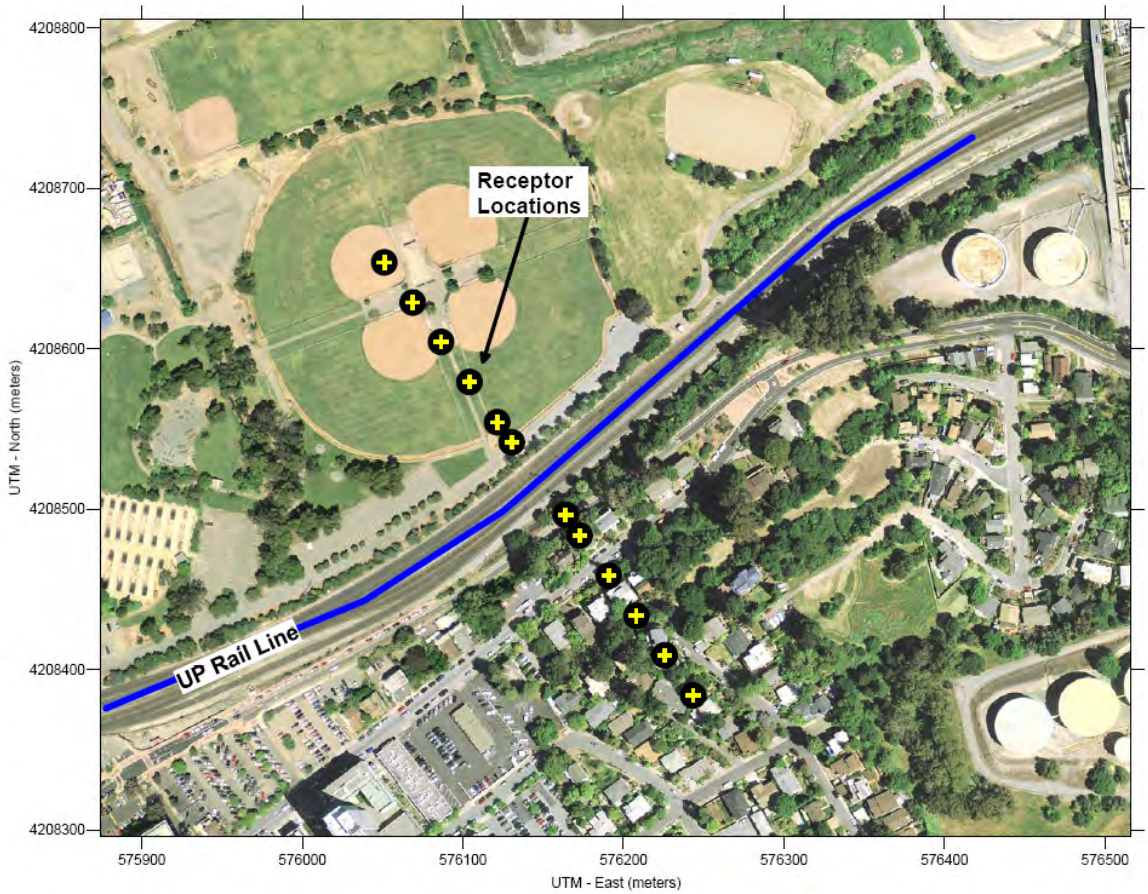
Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Green Waste and Recycling Operations	1 mile

According to the BAAQMD CEQA Guidelines, an odor source with five or more confirmed complaints per year averaged over three years is considered to have a significant impact. To avoid significant impacts, the BAAMQD CEQA Guidelines recommend that buffer zones to avoid adverse impacts from odors should be reflected in local plan policies, land use maps, or implementing ordinances. The Plan Area includes potential odor sources throughout that could affect new sensitive receptors. Most of these major existing sources are already buffered. However, it is possible that odors may be present. Responses to odors are subjective, and vary by individual and

type of use. Sensitive land uses that include outdoor uses, such as residences and possibly daycare facilities, are likely to be affected most by existing odors. The General Plan Update does not have policies or implementing measures that address potential conflicts in land uses that could result in odor complaints. As a result, the impact would be considered potentially significant. Implementation of Mitigation Measure AQ-4 would reduce this impact to a level of **less than significant**.

Mitigation Measure AQ-4: The following Policy and Implementation Measures should be added to the General Plan Update:

- *New Policy AQ-4.1: Avoid Odor Conflicts. Coordinate land use planning to prevent new odor complaints.*
- *New Implementation Measure AQ-4.1A: Identify Potential for Odor Complaints. Consult with BAAQMD to identify the potential for odor complaints from proposed development projects where the development could have the potential to adversely affect existing or planned sensitive receptors.*
- *New Implementation Measure AQ-4.1B: Odor Sources. Prohibit new sources of odors that have the potential to result in frequent odor complaints unless it can be shown that potential odor complaints can be mitigated to an acceptable level.*
- *New Implementation Measure AQ-4.1C: Limit Sensitive Receptors Near Odor Sources. Prohibit sensitive receptors from locating near odor sources where frequent odor complaints would occur, unless it can be shown that potential odor complaints can be mitigated to an acceptable level.*



Health Risks from Trains Traveling on Union Pacific Rail Line

	Lifetime Cancer Risk (chances in one million)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
North of Rail Line	22.3	18.5	13.9	11.0	9.0	7.5
South of Rail Line	25.6	20.7	14.8	11.2	8.7	6.9

	Annual PM2.5 Concentration ($\mu g/m^3$)					
Distance from Rail Line	**50 ft**	**100 ft**	**200 ft**	**300 ft**	**400 ft**	**500 ft**
North of Rail Line	0.09	0.08	0.06	0.05	0.04	0.03
South of Rail Line	0.11	0.09	0.06	0.05	0.04	0.03

SOURCE: ILLINGWORTH & RODKIN, 2015

FIGURE 3.3-1 UNION PACIFIC RAIL LINE - MARTINEZ

Health Risks from Trains Traveling on BNSF Rail Line

Distance from Rail Line	Lifetime Cancer Risk (chances in one million) 50 ft	100 ft	200 ft	300 ft	400 ft	500 ft
North of Rail Line	6.6	5.7	4.8	4.1	3.6	3.1
South of Rail Line	2.9	2.4	1.7	1.3	1.1	0.9

Distance from Rail Line	Annual PM2.5 Concentration ($\mu g/m^3$) 50 ft	100 ft	200 ft	300 ft	400 ft	500 ft
North of Rail Line	0.03	0.02	0.02	0.02	0.01	0.01
South of Rail Line	0.01	0.01	0.01	0.01	0.00	0.00

SOURCE: ILLINGWORTH & RODKIN, 2015

FIGURE 3.3 -2 BNSF RAIL LINE – MARTINEZ

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This section describes biological resources in the Planning Area from both a qualitative and quantitative perspective. This section provides a background discussion of the geomorphic provinces, bioregions, natural and developed communities, regionally important habitat and wildlife, watersheds, and special status species found in the vicinity of Martinez. This section is organized with an existing setting, regulatory setting, and impact analysis.

KEY TERMS

The following key terms are used throughout this section to describe biological resources and the framework that regulates them:

Hydric Soils. One of the three wetland identification parameters, according to the Federal definition of a wetland, hydric soils have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season. There are approximately 2,000 named soils in the United States that may occur in wetlands.

Hydrophytic Vegetation. Plant types that typically occur in wetland areas. Nearly 5,000 plant types in the United States may occur in wetlands. Plants are listed in regional publications of the U.S. Fish and Wildlife Service (USFWS) and include such species as cattails, bulrushes, cordgrass, sphagnum moss, bald cypress, willows, mangroves, sedges, rushes, arrowheads, and water plantains.

Sensitive Natural Community. A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, State, or Federal agencies. CEQA identifies the elimination or substantial degradation of such communities as a significant impact. The California Department of Fish and Wildlife (CDFW) tracks sensitive natural communities in the California Natural Diversity Database (CNDDB).

Special-Status Species. Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by Federal, State, or other agencies. Some of these species receive specific protection that is defined by Federal or State endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as "special status species" in this report, following a convention that has developed in practice but has no official sanction. For the purposes of this assessment, the term “special status” includes those species that are:

- Federally listed or proposed for listing under the Federal Endangered Species Act (50 CFR 17.11-17.12);
- Candidates for listing under the Federal Endangered Species Act (61 FR 7596-7613);

- State listed or proposed for listing under the California Endangered Species Act (14 CCR 670.5);
- Species listed by the U.S. Fish and Wildlife Service (USFWS) or the CDFW as a species of concern (USFWS), rare (CDFW), or of special concern (CDFW);
- Fully protected animals, as defined by the State of California (California Fish and Game Code Section 3511, 4700, and 5050);
- Species that meet the definition of threatened, endangered, or rare under CEQA (CEQA Guidelines Section 15380);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.); and
- Plants listed by the California Native Plant Society (CNPS) as rare, threatened, or endangered (List 1A and List 2 status plants in Skinner and Pavlik 1994).

Waters of the U.S. The Federal government defines waters of the U.S. as "lakes, rivers, streams, intermittent drainages, mudflats, sandflats, wetlands, sloughs, and wet meadows" [33 C.F.R. §328.3(a)]. Waters of the U.S. exhibit a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the USACE as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 C.F.R. §328.3(e)].

Wetlands. Wetlands are ecologically complex habitats that support a variety of both plant and animal life. The Federal government defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. §328.3(b)]. Wetlands require wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to waters of the U.S.

3.4.1 ENVIRONMENTAL SETTING

Martinez is a relatively small city in central Contra Costa County that has a total area of 13.1 square miles, of which 12.1 square miles is land and 1.0 square mile is water.

The City of Martinez is the County seat, located on the south side of the Carquinez Strait. The City is bordered by Carquinez Strait/Solano County to the north, the Cities of Pleasant Hill and Concord to the southeast, and unincorporated Contra Costa County to the west and northeast.

BIOREGIONS

Martinez is located within the Bay Area/Delta bioregion. A brief description of the Bay Area/Delta bioregion is presented below.

Bay Area/Delta Bioregion: The Bay Area/Delta Bioregion extends from the Pacific Ocean to the Sacramento Valley and San Joaquin Valley bioregions to the northeast and southeast, and a short

stretch of the eastern boundary joins the Sierra Bioregion at Amador and Calaveras counties. The bioregion is bounded by the Klamath/North Coast on the north and the Central Coast Bioregion to the south. The Bay Area/Delta Bioregion is one of the most populous areas of the State, encompassing the San Francisco Bay Area and the Sacramento-San Joaquin River Delta. The water that flows through the Delta supplies two-thirds of California's drinking water, irrigating farmland, and sustaining fish and wildlife and their habitat. The bioregion fans out from San Francisco Bay in a jagged semi-circle that takes in all or part of 12 counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and parts of Sacramento and Yolo. The habitats and vegetation of the Bay Area/Delta Bioregion are as varied as the geography.

CALIFORNIA WILDLIFE HABITAT RELATIONSHIP SYSTEM

The California Wildlife Habitat Relationship (CWHR) habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly-occurring birds, mammals, reptiles and amphibians. When first published in 1988, the classification scheme had 53 habitats. At present, there are 59 wildlife habitats in the CWHR System: 27 tree, 12 shrub, 6 herbaceous, 4 aquatic, 8 agricultural, 1 developed, and 1 non-vegetated.

According to the California Wildlife Habitat Relationship System there are fifteen cover types (wildlife habitat classifications) in the Planning Area out of 59 found in the State. These include: Annual Grassland, Blue Oak Woodland, Coastal Oak Woodland, Coastal Scrub, Estuarine, Eucalyptus, Fresh Emergent Wetland, Irrigated Row and Field Crops, Lacustrine, Montane Riparian, Riverine, Saline Emergent Wetland, Urban, Valley Oak Woodland, and Water. Figure 3.4-1 illustrates the location of each cover type (wildlife habitat classification) within Martinez. A brief description of each cover type follows.

SPECIAL-STATUS SPECIES

The following discussion is based on a background search of special-status species that are documented in the California Natural Diversity Database (CNDDB), the California Native Plant Survey (CNPS) Inventory of Rare and Endangered Plants, and the USFWS endangered and threatened species lists. The background search was both local and regional in scope and focused on the documented occurrences specifically within a 1 mile radius of the planning area.

The search revealed documented occurrences of 11 special status plants and 14 special status animals within one mile of Martinez Planning Area. Table 3.4-1 provides a list of special-status species that are documented within one mile of Martinez, their habitat, and current protective status. Figure 3.4-2 illustrates the special status species located within one mile of Martinez.

TABLE 3.4-1: SPECIAL STATUS SPECIES PRESENT OR POTENTIALLY PRESENT

SPECIES	STATUS	HABITAT
PLANTS		
Amsinckia lunaris bent-flowered fiddleneck	--; --;1B	Cismontane Woodland, Valley and Foothill grassland. Occurs at elevations between 50-500 meters (M).
Blepharizonia plumosa big tarplant	--;--;1B	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 15-455M.
Calochortus pulchellus Mt. Diablo fairy-lantern	--;--;1B	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. On wooded and brushy slopes. 200-800M.
Centromadia parryi ssp. Congdonii Congdon's tarplant	--;--;1B	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 1-230M.
Chloropyron molle ssp. molle soft salty bird's-beak	FE;CR;1B	Coastal salt marsh with distichlis, slaicornia, frankenia, etc. 0-3M.
Cicuta maculata var. bolanderi Bolander's water-hemlock	--;--;2	Marshes, fresh or brackish water. 0-200M.
Helianthella castanea Diablo helianthella	--;--;1B	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils often in partial shade. 25-1150M.
Isocoma arguta Carquinez goldenbush	--;--;1B	Alkaline soils, flats, lower hills on low benches near drainages and on tops and sides of mounds in swale habitat. 1-20M.
Lathyrus jepsonii var. jepsonii Delta tule pea	--/--/1B	Freshwater or brackish marsh; 5-330 m
Lilaeopsis masonii Mason's lilaeopsis	--;CR;1B	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10M.
Symphyotrichum lentum Suisun Marsh aster	--;--;1B	Marshes and swamps (brackish and freshwater). Most often seen along sloughs. 0-3M.
AMPHIBIANS		
Ambystoma californiense California tiger salamander	FT/CT (CSC)	Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.
Rana aurora draytoni California red-legged frog	FT/CSC	Permanent and semi-permanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.
BIRDS		
Agelaius tricolor	FSC/CSC	Highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water,

SPECIES	STATUS	HABITAT
tricolored blackbird		protected nesting substrate, and foraging area with insect prey within a few km of the colony.
Athene cuniculari Burrowing owl	FSC/CSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.
Geothlypis trichas sinuosa saltmarsh common yellowthroat	FSC/CSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.
Laterallus jamaicensis coturniculus California black rail	--/CT	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations
Melospiza melodia maxillaris Suisun song sparrow	--/CSC	Resident of brackish water marshes surrounding Suisun Bay. Inhabits cattails, tules and other sedges, and salicornia; also known to frequent tangles bordering sloughs.
Rallus longirostris obsoletus California clapper rail	CE/CE	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.
FISH		
Spirinchus thaleichthys longfin smelt	FC/CT	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.
INVERTEBRATES		
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	--/--	Inhabits open hillsides of Alameda and Contra Costa Counties. Tends to colonize under tall grasses and weeds.
Linderiella occidentalis California linderiella	--/--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS.
MAMMALS		
Nyctinomops Big free-tailed bat	--/CSC	Occurs in low lying arid areas in southern California. They need high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.
Reithrodontomys raviventris salt-marsh harvest mouse	FE/CE	Only in saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Do not burrow, build loosely organized nests. Require higher areas for flood

SPECIES	STATUS	HABITAT
		escape.
REPTILES		
Actinemys marmorata western pond turtle	--/CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying.

SOURCE: CDFW CNDDB 2015

NOTES: STATUS IS SHOWN FOR (FEDERAL, STATE, CNPS). (__) INDICATES NO LISTING STATUS.

ABBREVIATIONS:

FE FEDERAL ENDANGERED
FT FEDERAL THREATENED
FC FEDERAL CANDIDATE
FSC FEDERAL SPECIES OF CONCERN
FD FEDERAL DELISTED
MBTA PROTECTED BY MIGRATORY BIRD TREATY ACT
CE CALIFORNIA ENDANGERED
CT CALIFORNIA THREATENED
CP CALIFORNIA FULLY PROTECTED UNDER §3511, 4700, 5050 AND 5515 FG CODE
CSC CDFW SPECIES OF SPECIAL CONCERN
CR CALIFORNIA RARE (PROTECTED BY NATIVE PLANT PROTECTION ACT)
1B CNPS - RARE, THREATENED, OR ENDANGERED
2 CNPS - RARE, THREATENED, OR ENDANGERED IN CALIFORNIA, BUT MORE COMMON ELSEWHERE
4 CNPS - PLANTS OF LIMITED DISTRIBUTION - A WATCH LIST

Sensitive Natural Communities

The California Department of Fish and Wildlife (CDFW) considers sensitive natural communities to have significant biotic value, with species of plants and animals unique to each community. The CNDDB search revealed two sensitive natural communities within one mile of Martinez. This includes Coastal Brackish Marsh and Northern Coastal Marsh. Both of these community types were once more widely distributed throughout California, but have been modified or destroyed by grazing, cultivation, and urban development. Since the remaining examples of these sensitive natural communities are under continuing threat from future development, CDFW considers them "highest inventory priorities" for future conservation. Of these two sensitive natural communities documented within one mile of Martinez, all are along the waterfront. Figure 3.4-2 illustrates the location of the sensitive natural communities.

3.4.2 REGULATORY SETTING

There are a number of regulatory agencies whose responsibility includes the oversight of the natural resources of the State and nation including the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (USACE), and the National Marine Fisheries Service (NMFS). These agencies often respond to declines in the quantity of a particular habitat or plant or animal species by developing protective measures for those species or habitat type. The following is an overview of the Federal, State, and local regulations that are applicable to implementing the General Plan.

FEDERAL

Federal Endangered Species Act

The Federal Endangered Species Act, passed in 1973, defines an endangered species as any species or subspecies that is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Once a species is listed it is fully protected from a "take" unless a take permit is issued by the United States Fish and Wildlife Service. A take is defined as the harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct, including modification of its habitat (16 USC 1532, 50 CFR 17.3). Proposed endangered or threatened species are those species for which a proposed regulation, but not a final rule, has been published in the Federal Register.

Migratory Bird Treaty Act

To kill, posses, or trade a migratory bird, bird part, nest, or egg is a violation of the Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., §703, Supp. I, 1989), unless it is in accordance with the regulations that have been set forth by the Secretary of the Interior.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Section 668) protects these birds from direct take and prohibits the take or commerce of any part of these species. The USFWS administers the act, and reviews Federal agency actions that may affect these species.

Clean Water Act – Section 404

Section 404 of the Clean Water Act (CWA) regulates all discharges of dredged or fill material into waters of the U.S. Discharges of fill material includes the placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §323.2(f)].

Waters of the U.S. include lakes, rivers, streams, intermittent drainages, mudflats, sandflats, wetlands, sloughs, and wet meadows [33 C.F.R. §328.3(a)]. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. §328.3(b)]. Waters of the U.S. exhibit a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 C.F.R. §328.3(e)].

The USACE is the agency responsible for administering the permit process for activities that affect waters of the U.S. Executive Order 11990 is a Federal implementation policy, which is intended to result in no net loss of wetlands.

Clean Water Act – Section 401

Section 401 of the CWA (33 U.S.C. 1341) requires an applicant who is seeking a 404 permit to first obtain a water quality certification from the Regional Water Quality Control Board. To obtain the water quality certification, the Regional Water Quality Control Board must indicate that the proposed fill would be consistent with the standards set forth by the State.

Department of Transportation Act - Section 4(f)

Section 4(f) has been part of Federal law since 1966. It was enacted as Section 4(f) of the Department of Transportation (DOT) Act of 1966 and set forth in Title 49 United States Code (U.S.C.), Section 1653(f). In January 1983, as part of an overall recodification of the DOT Act, Section 4(f) was amended and codified in 49 U.S.C. Section 303. This law established policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites as follows:

> *It is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities. The Secretary of Transportation may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of a historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if: a) There is no prudent and feasible alternative to using that land; and b) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

STATE

Fish and Game Code §2050-2097 - California Endangered Species Act

The California Endangered Species Act (CESA) protects certain plant and animal species when they are of special ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the State. CESA established that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats.

CESA was expanded upon the original Native Plant Protection Act and enhanced legal protection for plants. To be consistent with Federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but

did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Under State law, plant and animal species may be formally designated by official listing by the California Fish and Game Commission.

Fish and Game Code §1900-1913 California Native Plant Protection Act

In 1977 the State Legislature passed the Native Plant Protection Act (NPPA) in recognition of rare and endangered plants of the State. The intent of the law was to preserve, protect, and enhance endangered plants. The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants. The NPPA includes provisions that prohibit the taking of plants designated as "rare" from the wild, and a salvage mandate for landowners, which requires notification of the CDFW 10 days in advance of approving a building site.

Fish and Game Code §3503, 3503.5, 3800 - Predatory Birds

Under the California Fish and Game Code, all predatory birds in the order Falconiformes or Strigiformes in California, generally called “raptors,” are protected. The law indicates that it is unlawful to take, posses, or destroy the nest or eggs of any such bird unless it is in accordance with the code. Any activity that would cause a nest to be abandoned or cause a reduction or loss in a reproductive effort is considered a take. This generally includes construction activities.

Fish and Game Code §1601-1603 – Streambed Alteration

Under the California Fish and Game Code, CDFW has jurisdiction over any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. Private landowners or project proponents must obtain a “Streambed Alteration Agreement” from CDFW prior to any alteration of a lake bed, stream channel, or their banks. Through this agreement, the CDFW may impose conditions to limit and fully mitigate impacts on fish and wildlife resources. These agreements are usually initiated through the local CDFW warden and will specify timing and construction conditions, including any mitigation necessary to protect fish and wildlife from impacts of the work.

Public Resources Code § 21000 - California Environmental Quality Act

The California Environmental Quality Act (CEQA) identifies that a species that is not listed on the Federal or State endangered species list may be considered rare or endangered if the species meets certain criteria. Under CEQA public agencies must determine if a project would adversely affect a species that is not protected by FESA or CESA. Species that are not listed under FESA or CESA, but are otherwise eligible for listing (i.e., candidate or proposed) may be protected by the local government until the opportunity to list the species arises for the responsible agency.

Species that may be considered for review are included on a list of “Species of Special Concern,” developed by the CDFW. Additionally, the California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. List 1A contains plants that are believed to be extinct. List 1B contains

plants that are rare, threatened, or endangered in California and elsewhere. List 2 contains plants that are rare, threatened, or endangered in California, but more numerous elsewhere. List 3 contains plants where additional information is needed. List 4 contains plants with a limited distribution.

Public Resources Code § 21083.4 - Oak woodlands conservation

In 2004, the California legislature enacted SB 1334, which added oak woodland conservation regulations to the Public Resources Code. This new law requires a county to determine whether a project, within its jurisdiction, may result in a conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect to oak woodlands, the county must require oak woodland mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. Such mitigation alternatives include: conservation through the use of conservation easements; planting and maintaining an appropriate number of replacement trees; contribution of funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements; and/or other mitigation measures developed by the county.

California Oak Woodland Conservation Act

The California Legislature passed Assembly Bill 242, known as the California Oak Woodland Conservation Act, in 2001 as a result of widespread changes in land use patterns across the landscape that were fragmenting oak woodland character over extensive areas. The Act created the California Oak Woodland Conservation Program within the Wildlife Conservation Board. The legislation provides funding and incentives to ensure the future viability of California's oak woodland resources by maintaining large scale land holdings or smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units. The Act acknowledged that the conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the State.

California Wetlands Conservation Policy

In August 1993, the Governor announced the "California Wetlands Conservation Policy." The goals of the policy are to establish a framework and strategy that will:

- Ensure no overall net loss and to achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.
- Reduce procedural complexity in the administration of State and Federal wetland conservation programs.
- Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetland conservation and restoration.

The Governor also signed Executive Order W-59-93, which incorporates the goals and objectives contained in the new policy and directs the Resources Agency to establish an Interagency Task Force to direct and coordinate administration and implementation of the policy.

LOCAL

City of Martinez General Plan

The adopted City of Martinez General Plan addresses biological resources in the Land Use and Open Space Elements. The Central Martinez Specific Area Plan, which is part of the adopted General Plan, provides additional policy framework related to biological species.

3.4.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on biological resources if it will:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

IMPACTS AND MITIGATION

Impact 3.4-1: General Plan implementation could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than Significant with Mitigation)

Approval of the proposed project would not directly approve or entitle any development or infrastructure projects. However, implementation of the General Plan and Land Use Map would allow and facilitate future development in Martinez, which could result in adverse impacts to special-status plant and wildlife species, as well as sensitive natural habitat or wildlife movement corridors. The following discussion is based on a background search of special-status species that are documented in the California Natural Diversity Database (CNDDB), the California Native Plant Survey (CNPS) Inventory of Rare and Endangered Plants, and the USFWS endangered and threatened species lists. The background search was both local and regional in scope and focused on the documented occurrences specifically within a 1 mile radius of the planning area, as well as a separate search of occurrences within 10 miles of the planning area.

SPECIAL-STATUS PLANT SPECIES

The search revealed documented occurrences of 11 special status plant species within a one mile radius of Martinez. Table 3.4-1 provides a list of special-status plant species that are documented within one mile of Martinez, their habitat, and current protective status. Figure 3.4-2 illustrates the special status plant species located within one mile of Martinez. Of the 11 special status plant species, one is federally endangered, two are California protected (Protected by Native Plant Protection Act), ten are listed as CNPS 1B, and one is listed as a CNPS 2. The habitat requirements for these species range from wetland habitat such as marshes, sloughs, and riparian areas, to upland habitat such as woodland, valley and foothill grassland, chaparral.

Subsequent development under the proposed General Plan could result in the direct loss of habitat areas associated with these special-status plant species, since suitable habitat for these species does occur in the region. Additionally, indirect impacts to special-status plant species could occur with implementation of the General Plan. Indirect impacts could include habitat degradation as a result of impacts to water quality.

Special-status plant species receive protection from various federal and state laws and regulations, including FESA and CESA. These regulations generally prohibit the taking of the plant species without a special permit. Additionally, the proposed General Plan includes numerous policies and implementation measures intended to reduce or avoid impacts to special-status plant species. These policies and implementation measures are listed below.

Special-Status Wildlife Species

The search revealed documented occurrences of 14 special status animal species within one mile of Martinez. This includes: two amphibians, six birds, one fish, two invertebrates, two mammals,

and one reptile. Table 3.4-1 provides a list of special-status animal species that are documented within one mile of Martinez, their habitat, and current protective status. Figure 3.4-2 illustrates the special status animal species located within one mile of Martinez. Of the 14 special status animals species, two are federally threatened, two are federal endangered, one is a federal candidate for listing, three are federal species of concern, three a state threatened, two are state endangered, and several are state species of special concern.

The habitat requirements for these species are wide ranging. They include wetland and aquatic habitat with seasonal, permanent, and semi-permanent water sources, open freshwater and saltwater habitat, including marshes, sloughs, and estuaries, and riparian areas. The habitat for these species also includes upland habitat such as various woodlands, valley and foothill grassland, chaparral, and rocky cliffs.

Subsequent development under the proposed General Plan could result in the direct loss of habitat areas associated with these special-status animal species, since suitable habitat for these species does occur in the region. Additionally, indirect impacts to special-status animal species could occur with implementation of the General Plan. Indirect impacts could include habitat degradation as a result of impacts to water quality, increased human presence, and the loss of foraging habitat.

Special-status animal species receive protection from various federal and state laws and regulations, including FESA and CESA. These regulations generally prohibit the taking of a species or direct impact to foraging and breeding habitat without a special permit. Additionally, the proposed General Plan includes numerous policies and action measures intended to reduce or avoid impacts to special-status animal species. These policies and action measures are listed below.

Conclusion

Construction and maintenance activities associated with future development projects under the proposed General Plan could result in the direct and indirect loss or indirect disturbance of special-status wildlife or plant species or their habitats that are known to occur, or have potential to occur, in the region. Impacts to special-status species or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Significant impacts on special-status species associated with individual subsequent projects could include:

- increased mortality caused by higher numbers of automobiles in new areas of development;
- direct mortality from the collapse of underground burrows, resulting from soil compaction;
- direct mortality resulting from the movement of equipment and vehicles through construction areas;
- direct mortality resulting from removal of trees with active nests;

- direct mortality or loss of suitable habitat resulting from the trimming or removal of obligate host plants;
- direct mortality resulting from fill of wetlands features;
- loss of breeding and foraging habitat resulting from the filling of seasonal or perennial wetlands;
- loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation;
- loss of suitable habitat for vernal pool invertebrates resulting from the destruction or degradation of vernal pools or seasonal wetlands;
- abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, and other non-special status migratory birds resulting from construction-related noises;
- loss or disturbance of rookeries and other colonial nests;
- loss of suitable foraging habitat for special-status raptor species;
- loss of migration corridors resulting from the construction of permanent structures or features; and
- impacts to fisheries/species associated with waterways.

Subsequent development projects will be required to comply with the General Plan and adopted state, federal, and local regulations for the protection of special status plants and wildlife, including habitat. The City of Martinez has prepared the General Plan to include numerous policies and implementation measures intended to protect special status plants and wildlife, including habitat, from adverse effects associated with future development and improvement projects. While future development has the potential to result in significant impacts to protected special status plants and wildlife, including habitat, the implementation of the policies and action measures listed below, as well as federal and state regulations, would reduce impacts to these resources to a **less than significant** level.

GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Conservation and Conservation Element

Open Space

Policies

OSC-P-1.1 Where feasible and appropriate, preserve visually significant skyline vegetation, particularly major woodlands and ridgelines.

OSC-P-1.4 Protect and enhance riparian vegetation along the drainage channels designated as Riparian Conservation Zones.

OSC-P-1.5 Support open space acquisition efforts by the East Bay Regional Parks District, the Martinez Land Trust, and other organizations.

OSC-P-1.6 Through land use policy and design review, evaluations of impacts that new development has minimal or no impact to the City's ridgelines will occur.

OSC-P-1.7 Continue to coordinate with residents, developers, East Bay Regional Parks, and other groups to provide visual continuity between natural vegetation and developed areas through the use of landscaping, planting street trees, and other "natural" buffers along natural areas. Encourage open shade structures, trees, white roofs, green roofs, and specialized paving materials in the downtown and other highly paved and highly built up areas to reduce the heat island effect.

OSC-P-1.8 During plan review and where appropriate, development proposals should include riparian corridor restoration.

OSC-P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats.

OSC-P-2.3 Encourage grading alterations which do not induce or accelerate natural channel grading, sheet erosion, gullying and other forms of erosion, through adoption of conditions of approval as part of the development process.

Conservation of Biological Resources

Policies

OSC-P-4.1 Preserve and protect special status plant and animal species in a manner consistent with the state and federal endangered species acts, including protection of their habitat.

OSC-P-4.2 Revise the design review guidelines and landscape ordinance to encourage the use of native plants in urban landscaping as a way to provide additional natural habitat for native wildlife.

OSC-P-4.3 Continue to support preservation of woodland, marshes, and sensitive tree species such as Oaks.

Implementation

OSC-I-4.1.a Prior to development within identified sensitive habitat areas, the area shall be surveyed for potential 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.

OSC-I-4.1.b Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.

Water Resource and Watershed Conservation

Policies

OSC-P-8.1 Water resources such as the Alhambra Creek Watershed, wetlands, flood plains, recharge zones, riparian areas, open space and native or natural habitat should be preserved.

OSC-P-9.1 Protect and improve the quality of water in all of Martinez's watersheds, creeks, and water bodies.

Impact 3.4-2: General Plan implementation could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than Significant with Mitigation)

The California Department of Fish and Wildlife (CDFW) considers sensitive natural communities to have significant biotic value, with species of plants and animals unique to each community. The CNDDB search revealed two sensitive natural communities within one mile of Martinez. This includes Coastal Brackish Marsh and Northern Coastal Marsh. Both of these community types were once more widely distributed throughout California, but have been modified or destroyed by grazing, cultivation, and urban development. Since the remaining examples of these sensitive natural communities are under continuing threat from future development, CDFW considers them "highest inventory priorities" for future conservation. Of these two sensitive natural communities documented within one mile of Martinez, all are along the waterfront. Figure 3.4-2 illustrates the location of the sensitive natural communities.

While not always documented as a sensitive natural community in the CNDDB, streams, rivers, wet meadows, and vernal pools are of high concern because they provide unique aquatic habitat for many endemic species, including special-status plants, birds, invertebrates, and amphibians. The City of Martinez contains numerous aquatic habitats that qualify as sensitive habitat. Alhambra Creek and the Carquinez Strait are the most prominent water features in Martinez.

Subsequent development projects will be required to comply with the General Plan and adopted state, federal, and local regulations for the protection of sensitive natural communities, including riparian habitat and the waterfront area of the Carquinez Strait. The City of Martinez has prepared the General Plan to include numerous policies and action measures intended to protect sensitive natural communities from adverse effects associated with future development and improvement projects. While future development has the potential to result in significant impacts to protected habitats, the implementation of the policies and action measures listed below, as well as federal and state regulations, would reduce impacts to these resources to a **less than significant** level.

GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Conservation and Conservation Element

Open Space

Policies

OSC-P-1.1 Where feasible and appropriate, preserve visually significant skyline vegetation, particularly major woodlands and ridgelines.

OSC-P-1.4 Protect and enhance riparian vegetation along the drainage channels designated as Riparian Conservation Zones.

OSC-P-1.5 Support open space acquisition efforts by the East Bay Regional Parks District, the Martinez Land Trust, and other organizations.

OSC-P-1.8 During plan review and where appropriate, development proposals should include riparian corridor restoration.

OSC-P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats.

OSC-P-2.3 Encourage grading alterations which do not induce or accelerate natural channel grading, sheet erosion, gullying and other forms of erosion, through adoption of conditions of approval as part of the development process.

Conservation of Biological Resources

Policies

OSC-P-4.1 Preserve and protect special status plant and animal species in a manner consistent with the state and federal endangered species acts, including protection of their habitat.

OSC-P-4.3 Continue to support preservation of woodland, marshes, and sensitive tree species such as Oaks.

Implementation

OSC-I-4.1.a Prior to development within identified sensitive habitat areas, the area shall be surveyed for potential 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.

OSC-I-4.1.b Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.

Water Resource and Watershed Conservation

Policies

OSC-P-8.1 Water resources such as the Alhambra Creek Watershed, wetlands, flood plains, recharge zones, riparian areas, open space and native or natural habitat should be preserved.

OSC-P-9.1 Protect and improve the quality of water in all of Martinez's watersheds, creeks, and water bodies.

Impact 3.4-3: General Plan implementation could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (Less than Significant with Mitigation)

Streams, rivers, wet meadows, and vernal pools (wetlands and jurisdictional waters) are of high concern because they provide unique aquatic habitat (perennial and ephemeral) for many endemic species, including special-status plants, birds, invertebrates, and amphibians. These aquatic habitats oftentimes qualify as protected wetlands or jurisdictional waters and are protected from disturbance through the CWA.

The City of Martinez contains numerous aquatic habitats that qualify as federally protected wetlands and jurisdictional waters. The most prominent creek draining the watershed is Alhambra Creek, and its tributaries the Arroyo del Hambre and Franklin Creek. The City also fronts on the Carquinez Strait.

Alhambra Creek: Alhambra Creek originates in the hills of Briones Regional Park. The water flows from a tunnel in the side of the hill. The major tributaries are Arroyo del Hambre and Franklin Creek. The linear distance from the source to the mouth of Alhambra Creek is about 6 miles. For the first two miles, Alhambra creek descends from about 1100 ft elevation to 200 ft. At this point, it is joined by Arroyo del Hambre, which comes from a source at an elevation of about 900 ft, 3 miles to the west.

Arroyo del Hambre: Historically, the open grassy rolling hills of the upper part of this watershed were in agricultural use. Arroyo del Hambre begins here and flows through Vaca Canyon and Alhambra Valley. It is joined by several tributaries, among them Vaca Creek, on its way to join Alhambra Creek. Vaca Canyon is primarily a rural area with steep slopes covered with oak woodland and Alhambra Valley is a flat-bottomed alluvial valley.

Franklin Creek: Franklin Creek joins Alhambra Creek about two miles below the confluence of Alhambra and Arroyo del Hambre. Franklin Creek drains a subwatershed of roughly the same size as the combined Upper Alhambra and Arroyo del Hambre basins. It originates about 3 miles northwest of its confluence with Alhambra and flows southeast through Franklin Canyon then bends to the north to flow through the John Muir National Historic Site and joins Alhambra Creek between Walnut Avenue and Alhambra Way.

Section 404 of the CWA requires any project that involves disturbance to a wetland or water of the U.S. to obtain a permit that authorizes the disturbance. If a wetland or jurisdictional water is determined to be present, then a permit must be obtained from the USACE to authorize a disturbance to the wetland. Although subsequent projects may disturb protected wetlands and/or jurisdictional waters, the regulatory process that is established through Section 404 of the CWA ensures that there is “no net loss” of wetlands or jurisdictional waters. If, through the design process, it is determined that a future development project cannot avoid a wetland or

jurisdictional water, then the USACE would require that there be an equal amount of wetland created elsewhere to mitigate any loss of wetland.

Construction activities associated with individual future projects could result in the disturbance or loss of waters of the United States. This includes perennial and intermittent drainages; unnamed drainages; vernal pools; freshwater marshes; and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), alteration of bed and bank, and other construction-related activities.

Because the proposed project is a planning document and thus, no physical changes will occur to the environment, adoption of the proposed project would not directly impact the environment. There is a reasonable chance that water features could be impacted throughout the buildout of individual projects pursuant to the General Plan. The implementation of an individual project would require a detailed and site-specific review of the site to determine the presence or absence of water features. If water features are present and disturbance is required, federal and state laws require measures to reduce, avoid, or compensate for impacts to these resources. The requirements of these federal and state laws are implemented through the permit process.

Subsequent development projects will be required to comply with the General Plan and adopted state, federal, and local regulations for the protection of sensitive natural communities, including protected wetlands. The City of Martinez has prepared the General Plan to include numerous policies and action measures intended to protect wetlands and waters of the U.S. from adverse effects associated with future development and improvement projects. While future development has the potential to result in significant impacts to protected water features, the implementation of the policies and action measures listed below, as well as federal and state regulations, would reduce impacts to these resources to a **less than significant** level.

GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Conservation and Conservation Element

Open Space

Policies

OSC-P-1.4 Protect and enhance riparian vegetation along the drainage channels designated as Riparian Conservation Zones.

OSC-P-1.8 During plan review and where appropriate, development proposals should include riparian corridor restoration.

OSC-P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats.

OSC-P-2.3 Encourage grading alterations which do not induce or accelerate natural channel grading, sheet erosion, gullying and other forms of erosion, through adoption of conditions of approval as part of the development process.

Conservation of Biological Resources

Policies

OSC-P-4.3 Continue to support preservation of woodland, marshes, and sensitive tree species such as Oaks.

Water Resource and Watershed Conservation

Policies

OSC-P-8.1 Water resources such as the Alhambra Creek Watershed, wetlands, flood plains, recharge zones, riparian areas, open space and native or natural habitat should be preserved.

OSC-P-9.1 Protect and improve the quality of water in all of Martinez's watersheds, creeks, and water bodies.

Wetlands Protection

Policies

OSC-P-12.2 Where feasible protect and preserve open space and remaining natural areas, including oak/woodland, riparian vegetation, creeks, saltwater and freshwater marsh, native grasslands, wildlife corridors and sensitive nesting and habitat areas.

OSC P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats. When resources are removed replacement shall be required at a minimum of 1:1 ratio.

Impact 3.4-4: General Plan implementation would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Less than Significant with Mitigation)

Habitat loss, fragmentation, and degradation resulting from land use changes or habitat conversion can alter the use and viability of wildlife movement corridors (i.e. linear habitats that naturally connect and provide passage between two or more otherwise disjunct larger habitats or habitat fragments). Wildlife habitat corridors maintain connectivity for daily movement, travel, mate-seeking, and migration; plant propagation; genetic interchange; population movement in response to environmental change or natural disaster; and recolonization of habitats subject to local extirpation or removal. The suitability of a habitat as a wildlife movement corridor is related to, among other factors, the habitat corridor's dimensions (length and width), topography, vegetation, exposure to human influence, and the species in question.

Species utilize movement corridors in several ways. "Passage species" are those species that use corridors as thru-ways between outlying habitats. The habitat requirements for passage species are generally less than those for corridor dwellers. Passage species use corridors for brief

durations, such as for seasonal migrations or movement within a home range. As such, movement corridors do not necessarily have to meet any of the habitat requirements necessary for a passage species' everyday survival. "Corridor dwellers" are those species that have limited dispersal capabilities – a category that includes most plants, insects, reptiles, amphibians, small mammals, and birds – and use corridors for a greater length of time.

Because the proposed project is a planning document and thus, no physical changes will occur to the environment, adoption of the proposed project would not directly impact the environment. There is a reasonable chance that movement corridors could be impacted throughout the buildout of individual projects which may be proposed pursuant to the General Plan update. The implementation of an individual project would require a detailed and site-specific review of the site to determine the presence or absence of movement corridors on a given project. If movement corridors are present and disturbance is required, federal and state laws require measures to reduce, avoid, or compensate for impacts to these resources. The requirements of these federal and state laws are implemented through the permit process.

Subsequent development projects will be required to comply with the General Plan and adopted state, federal, and local regulations for the protection of movement corridors. The City of Martinez has prepared the General Plan to include numerous policies and action measures intended to protect movement corridors from adverse effects associated with future development and improvement projects. While future development has the potential to result in significant impacts to protected movement corridors, the implementation of the policies and action measures listed below, as well as federal and state regulations, would reduce impacts to these resources to a **less than significant** level.

GENERAL PLAN POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Conservation and Conservation Element

Open Space

Policies

OSC-P-1.1 Where feasible and appropriate, preserve visually significant skyline vegetation, particularly major woodlands and ridgelines.

OSC-P-1.4 Protect and enhance riparian vegetation along the drainage channels designated as Riparian Conservation Zones.

OSC-P-1.5 Support open space acquisition efforts by the East Bay Regional Parks District, the Martinez Land Trust, and other organizations.

OSC-P-1.6 Through application of land use policy and design review, evaluation of impacts of new development will ensure that there is minimal or no impact to the City's ridgelines.

OSC-P-1.7 Continue to coordinate with residents, developers, East Bay Regional Parks, and other groups to provide visual continuity between natural vegetation and developed areas through the use of landscaping, planting street trees, and other "natural" buffers along natural areas. Encourage open shade structures, trees,

white roofs, green roofs, and specialized paving materials in the downtown and other highly paved and highly built up areas to reduce the heat island effect.

OSC-P-1.8 During plan review and where appropriate, development proposals should include riparian corridor restoration.

OSC-P-1.9 Collaborate with responsible agencies to plan and implement an integrated management plan for the long-term conservation and restoration of riparian and wetland habitats.

OSC-P-2.3 Encourage grading alterations which do not induce or accelerate natural channel grading, sheet erosion, gullying and other forms of erosion, through adoption of conditions of approval as part of the development process.

Conservation of Biological Resources

Policies

OSC-P-4.1 Preserve and protect special status plant and animal species in a manner consistent with the state and federal endangered species acts, including protection of their habitat.

OSC-P-4.2 Revise the design review guidelines and landscape ordinance to encourage the use of native plants in urban landscaping as a way to provide additional natural habitat for native wildlife.

OSC-P-4.3 Continue to support preservation of woodland, marshes, and sensitive tree species such as Oaks.

Implementation

OSC-I-4.1.a Prior to development within identified sensitive habitat areas, the area shall be surveyed for potential 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.

OSC-I-4.1.b Participate with regional, state, and federal agencies and organizations to establish and preserve open space that provides habitat for locally present wildlife.

Water Resource and Watershed Conservation

Policies

OSC-P-8.1 Water resources such as the Alhambra Creek Watershed, wetlands, flood plains, recharge zones, riparian areas, open space and native or natural habitat should be preserved.

OSC-P-9.1 Protect and improve the quality of water in all of Martinez's watersheds, creeks, and water bodies.

Impact 3.4-5: The General Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Less than Significant with Mitigation)

The proposed project is a policy document, in which local policies are established. This EIR presents the numerous policies of the General Plan. The General Plan itself does not conflict with its policies. Subsequent development projects will be required to comply with the General Plan policies, as well as the Municipal Code. Implementation of the policies and action measures listed below would ensure consistency with already established ordinances. This is a **less than significant** impact.

The City of Martinez has a Tree Protection Ordinance that regulates the removal of protected trees on private property (Chapter 8.12, Trees on Private Property – Preservation, Protection and Removal). The Ordinance defines protected trees as all oak trees and indigenous trees measuring 20 inches or larger in circumference (approximately 6.5 inches in diameter), measured 4 1/2 feet from ground level. Oak trees include but are not limited to: *Quercus agrifolia* (California or Coast Live Oak), *Quercus douglasi* (Blue Oak), *Quercus kelloggii* (California Black Oak) or *Quercus lobata* (Valley Oak). Indigenous trees include but are not limited to: *Sequoia Sempervirens* (Coast Redwood), *Alnus Rhombifolia* (White Alder), *Alnus Oregona* (Red Alder), *Acer Macrophyllum* (Bigleaf Maple), *Aesculus Californica* (California Buckeye), *Arbutus Menziesii* (Madrone), *Umbellularia Californica* (California Bay or Laurel), *Juglans Hindsii* (California Black Walnut), *Platanus Racemosa* (California Sycamore), or *Sambucus Calliarpa* (Coast Red Elderberry). The General Plan does not affect this existing ordinance.

Impact 3.4-6: General Plan implementation would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan (No Impact)

The boundary of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan) is approximately 15 miles east of the City of Martinez. There are no other HCP/NCCPs applicable to the project site. Implementation of the proposed project would have ***no impact*** relative to this issue.

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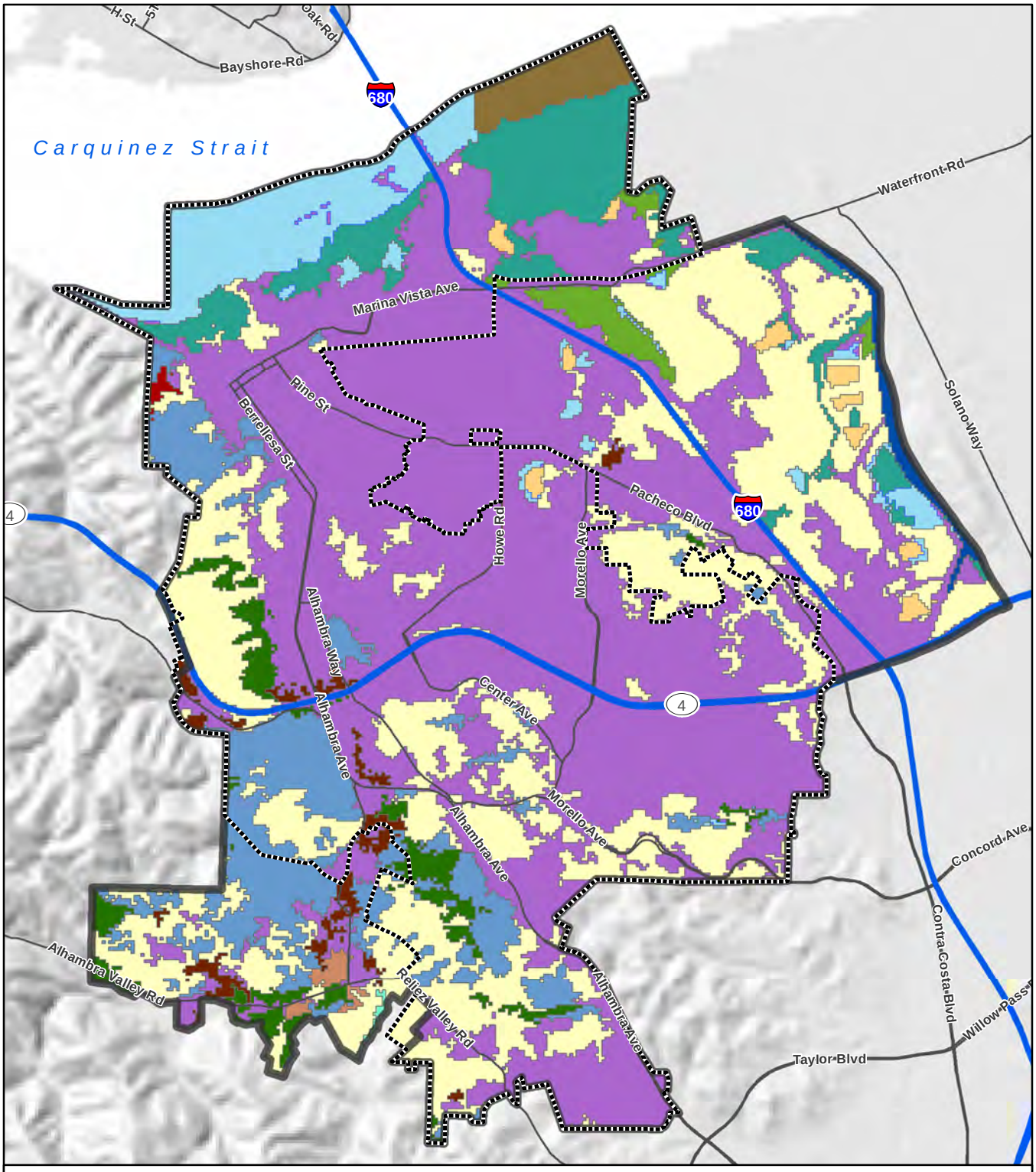

Annual Grassland
Blue Oak Woodland
Coastal Oak Woodland
Coastal Scrub
Estuarine
Eucalyptus
Fresh Emergent Wetland
Irrigated Row and Field Crops
Lacustrine
Montane Riparian
Riverine
Saline Emergent Wetland
Urban
Valley Oak Woodland
Water

Planning Areas
City Limit
Sphere of Influence

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.4-1: Land Cover

N
0 ½ 1
Miles

Data sources: City of Martinez GIS; ESRI's StreetMap North America; California Department of Forestry and Fire Protection-Fire and Resource Assessment Program (FRAP). Map date: October 27, 2014. (MartinezGPEIR_Landcover_Fig3-3-1_141027)

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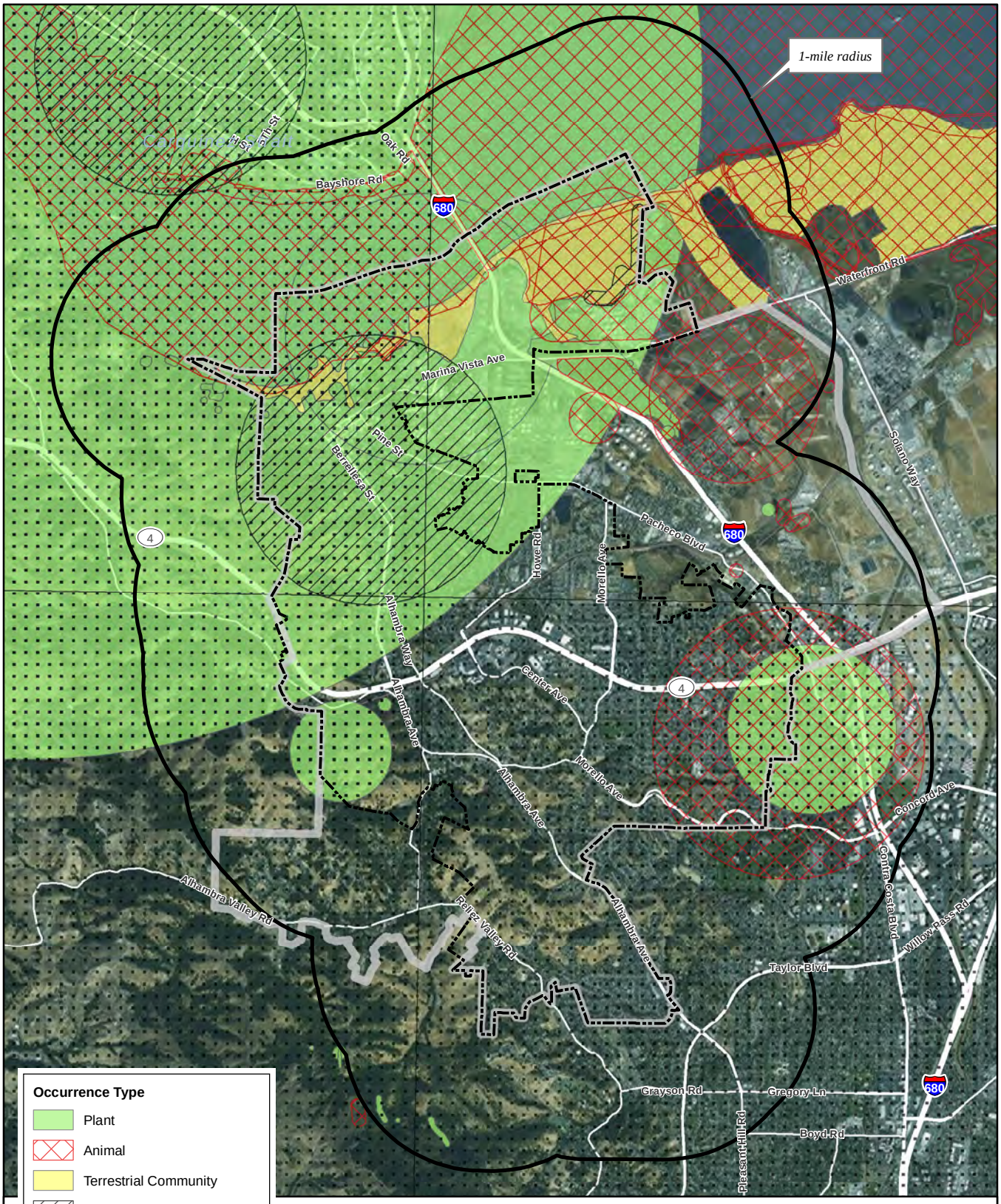

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.4-2: CNDDB 1-Mile Radius

Data sources: City of Martinez GIS; ESRI's StreetMap North America; California Natural Diversity Database, September 2, 2014; ArcGIS Online World Imagery Map Service. Map date: September 26, 2014. (MartinezGPEIR_CNDDB_1m_140926)

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This section of the EIR assesses potential effects to cultural resources that could result from implementation of the proposed project. Cultural resources are defined as buildings, sites, districts, structures, or objects having historical, architectural, archaeological, cultural, or paleontological importance. No comment letters addressing cultural resources were received during the Notice of Preparation scoping period for the EIR. This section is based primarily on information provided in the Cultural Resource Report for the Martinez General Plan Update Environmental Impact Report prepared by Peak and Associates, Inc. in January 2015, Section IV.G., Cultural Resources, of the Downtown Specific Plan Environmental Impact Report prepared by LSA in 2004, and information from the City of Martinez Historical Society Historical Resources Inventory.

3.5.1 ENVIRONMENTAL SETTING

The geographic setting for the analysis of cultural resources consists of all lands within the City of Martinez.

PREHISTORIC PERIOD

In general, the Bay Area was lightly occupied prior to about 2000 B.C. by hunter/gatherer populations that did not concentrate on estuarine or marine food resources. Shellfish were eaten, but they are not predominant in the diet and sites are located inland as commonly as near the ocean or bay. About 2000 B.C. a radically different cultural focus, the Berkeley Pattern, takes over. This way of life does emphasize the resources available near shorelines and is commonly thought to represent the movement of Penutian speakers, such as the Ramaytush Ohlone (Costanoan), into the area, displacing Hokan speakers.

In contrast to the inferred population movement that ushered in the Berkeley Pattern, the next major shift in cultural pattern appears to develop in the area over time as a result of population expansion and technological development. The Augustine Pattern, from around A.D. 500 to Euro-American contact, shows an increased reliance on vegetable foods (necessary to support a denser population), more settlements, wide-ranging trading patterns with both neighboring and distant groups and several other traits reflecting a mature cultural development.

ETHNOGRAPHIC BACKGROUND

Ohlone

The old name for the native population of peninsula, Costanoan, derives from the Spanish term for coastal people and was not used by the Indian people. Modern descendants generally prefer the term Ohlone to refer to this linguistic grouping. Ohlone territory extended from the Carquinez Strait in the northeast to just south of Chalome Creek in the southeast and from San Francisco to the Sur River along the Coast. This vast territory was broken into eight different language based zones. These eight branches of the Ohlone family were separate languages, not dialects (Levy 1978). The language of the Ohlone in the project vicinity was Ramaytush. The Ramaytush occupied

the land from San Francisco south through San Mateo County. It is estimated that the 1770 population of the Ramaytush was approximately 1,400.

Ancestors of the Ohlone moved into the San Francisco and Monterey Bay areas from the Delta of the San Joaquin and Sacramento rivers. These people divided up into what has been called "tribelets,' small groups who spoke a common language, lived in a contiguous area and identified themselves primarily as occupants of a central village. They situated their permanent villages on high ground above seasonal marshes that were inundated by high water for a few months of the year. Access to fresh drinking water was a criterion for selecting a village location. The tribelet was the basic unit of Ohlone political organization. Territorial boundaries of tribelets were defined by physiographic features. The Karkines were most heavily associated with the Martinez area. The Karkines were part of the Costanoan group a subset of the Ohlone family.

The Ohlone followed a seasonal round of subsistence activities, gathering plant and animal foods and materials for baskets and other manufactures. They insured a sustained yield of plant and animal foods by careful management of the land.

Between 1770 and 1797, the Franciscans established seven missions in Ohlone territory and effectively changed the Indian way of life. Unwilling recruits to the missions resisted control by Franciscans. In 1793, a runaway neophyte named Charquin began a three-year struggle during which tribes in the northeast Bay Area engaged in sporadic warfare with the Spanish. There was also resistance against Mission San Jose in 180). Levy reports that mission baptismal records demonstrate that the last Ohlone tribelets living an aboriginal existence had disappeared by 1810. By 1832, the Ohlone population had decreased to one-fifth or less than its pre-contact size. After the Mexican government secularized the missions (between 1834 and 1836), some Ohlone returned to traditional religious and subsistence practices while others worked on Mexican ranchos. Former mission residents formed multi-tribal Indian communities in Pleasanton and other locations within the aboriginal territory.

Bay Miwok

Linguistic data suggest that the Miwok have resided in the delta of the Sacramento and San Joaquin rivers for approximately 2,500 years. The Bay Miwok occupied an area south of the Sacramento River, including portions of Contra Costa County east of present-day Walnut Creek. The Julpun lived along the south bank of the San Joaquin River and on Sherman Island. Schenck (1926:136-137) suggested that the Julpun extended their territory northward at the time of contact in response to pressures in their own territory. The Chupcan lived west of the Julpun near present-day Antioch and probably bordered the Bolbon near Mount Diablo. The Bolbon or Wolwon lived along upper Marsh Creek near Mount. The pre-contact population of these Bay Miwok groups was undoubtedly greater than the 319 persons counted in mission baptismal records. In 1776, for instance, Anza's expedition visited a village near Antioch, presumably Chupcan, with a population estimated at 400 persons. This report implies that only 25 percent of the villagers were baptized. If the same proportion held true for other Bay Miwok villages, these three groups probably numbered about 1,275 persons before contact.

Bay Miwok, like the Costanoans, situated their villages on elevations above the seasonal marshes. Father Viader described the summer flooding of the rivers and said that "at that time the wild Indians live on a few small elevations". Cook categorized these elevations as two types:

> (1) small, scattered mounds formed of residual calcareous sand (the so-called “sand mounds”) on the summits of which the Indians established their villages; and
>
> (2) true habitation mounds, perhaps originally situated on a slight elevation, but built up by midden deposit to a height of several feet [Cook 1960:285].

Large, multi-lineage villages situated along waterways were occupied throughout the year except during the autumn acorn harvest. Single extended families occupied domed houses that were covered with tule mats and grass thatch. Wealthy men sometimes built semi-subterranean lodges. The Miwok also constructed assembly houses in the major villages and round, earth-covered semi-subterranean sweathouses used by men.

The Delta environment provided abundant food sources for the Miwok, including grasses, berries, and other plants, fish, and waterfowl, and herds of elk and deer. The Miwok used many of the same species as did the Costanoans. Their economy was based primarily on gathering plant foods. Fishing and hunting waterfowl and mammals were subsidiary subsistence activities. The Miwok relied on the acorn as a staple in their diet. Valley oak (*Quercus lobata*) yielded large crops, and the Miwok presumably gathered other acorn varieties as well. Women ground the acorns into a meal that they cooked as a gruel. The Bay Miwok supplemented this food by collecting seeds, nuts, roots, berries, and greens. The Miwok organized communal activities, such as hunting drives and fishing with nets and weirs (Bennyhoff 1977:10-11). Salmon were seasonally plentiful, and Viader observed Indians with large catches of fish (Cook 1960:258). Individual hunting skill may have been weakly developed. Although the Miwok used sinew-back bows and a variety of arrows, they often chose to run down their game and, after contact, many found it easier to steal horses and cattle than to rely on hunting game. Birds, rodents, and other small mammals apparently took a place in the Miwok diet more consistently than did deer, elk, or antelope.

The Miwok manufactured many specialized tools and utilitarian implements for subsistence activities, and they also excelled in crafting artistically-decorated baskets, ornaments, clothing, and ceremonial items. Men made baked clay net weights that were used for bird hunting and fishing, tule duck decoys, and ceremonial baked clay effigies. They created shell ornaments and bone ear decorations and feather-belts for the women. Men also made string and cords for nets and wove feather-cloaks and rabbit-skin blankets. Women twined and coiled baskets that they decorated with quail plumes and beads, and they also fashioned plainer basket utensils, tule mats, cradles, waist aprons, and clay cooking stones.

Religious ceremonies and rituals marked birth, puberty, and marriage. Ceremonies for the dead were the most elaborate observances. The Miwok ornamented the corpse and wrapped it in a tule mat. Common people buried their dead simply, while wealthy families set the corpse on fire and

then burned baskets and other mortuary gifts before the grave was filled. Guests feasted and engaged in ritual gift exchange and public displays of grief. The Miwok burned a house when its owner died, and burned or abandoned a village when its headman died.

In 1774, the first Bay Miwok converts were recorded at Mission San Francisco, although most of the Bay Miwok neophytes were taken to Mission San Jose. Some of those who escaped the rigid life at the missions hid in the tule marshes and sought protection from extant villages; but Spanish expeditions used military force to recapture runaways and discourage the villagers from harboring fugitives (Cook 1960:258-259). The last Bay Miwok baptisms were recorded in 1827. Subsequently, the original tribal groups lost their identity, it has been suggested, by joining more distant tribelets or because they were decimated by disease.

The Bay Miwok village site of *Bolbon* was located on the southeast flanks of Mount Diablo, about eight miles southeast of the Planning Area. From 1803 to 1813, 67 Miwok were recorded to have been baptized by the padres at the village. The village name, *Bolbones* was assigned to the local Bay Miwok tribe and triblets in the general Project area.

HISTORIC PERIOD

The discovery of the Carquinez Straits and exploration of Contra Costa County was accomplished by Pedro Fages, who toured the county with twelve soldiers, an Indian guide, and Father Juan Crespí in the spring of 1772. This expedition was followed in 1776 by a party led by Captain Juan Bautista de Anza that generally followed along the same route from San Francisco Bay to the Carquinez Straits, continued toward the interior and passed somewhere east of Mt. Diablo.

In 1824, the Alhambra Valley was included in a 17,000 acre land grant awarded to Don Ygnacio Martinez by the Mexican government for services rendered to the Royal Spanish and Mexican armies. In 1849, Don Ygnacio's son, Don Vicente, built the adobe house now located at the rear of the John Muir Home Historic Site.

In 1847, Dr. Robert Semple, a dentist from Kentucky who had served as a lieutenant in California's Bear Flag Revolt, contracted with General Mariano Vallejo to run a ferry service across the Carquinez Strait between Benicia and Martinez (the first such service in the Bay Area). The ferry was to play a major role in the development of Martinez. Beginning with the Gold Rush in 1849, Semple's primitive ferry boat was the only crossing on the Carquinez Strait, and one of the few ways from San Francisco and points south to get to the gold fields in a hurry. A ferry service between Martinez and Benicia would continue, with some interruptions, until 1962 when it ceased with the opening of the George Miller, Jr. Bridge. Recognizing that his wife's family (Martinez) could benefit from commerce with the waiting gold seekers and suppliers, Col. William M. Smith worked out an agreement with all the heirs to the Ygnacio Martinez property to allow him to establish a townsite at the ferry crossing (west of Alhambra Creek). The Welch family extended the townsite on to their land east of the creek in 1850. Martinez became the first town in the District of Contra Costa. Some months later, the California Legislature met to draw county lines and to designate a seat of Justice (government) for the new counties. Martinez was named county seat in 1851. The fledgling city developed rapidly.

Agriculture would bring real prosperity in the early years. Some of the disheartened gold seekers returned to settle on the fertile lands they had hurriedly passed through in their rush to "find their fortunes." A number of these earliest settlers were from Nantucket and other areas of Massachusetts, and from Pike's County, Missouri. Many others came from other lands. These settlers/farmers wrote to family members and friends living elsewhere about the wonderful climate and long springs and summer growing seasons as well as the lush vegetation that was characteristic of the area. Initially, wheat was a major crop in the Diablo, Reliez, and Alhambra Valleys. Orchards planted on the valley hills produced peaches, cherries, pears, figs, apricots, and walnuts. The burgeoning city of San Francisco became a ready market for area farm products.

Dr. John T. Strentzel (father-in-law of John Muir) pioneered the planting of fruit and nut orchards, and vineyards. As early as 1869, Dr Strentzel devised a method of shipping pears and other fruits in containers packed with carbonized bran which allowed fruits to retain freshness when being transported long distances. Farmers were no longer dependent upon local markets to sell their produce. Following Dr. Strentzel's death, John Muir and his wife, Louie Strentzel, took over managing Dr. Strentzel's vast orchard lands. Muir brought his sister and her husband out from Wisconsin to help manage the farm so he could continue his environmental pursuits. Today, the John Muir home, located on Alhambra Avenue adjacent to Highway 4 (along with the Martinez Adobe), is preserved as a National Historic Site.

Martinez became an important shipping point for agricultural products. Initially, most shipping was done via sailing vessels; however, in 1877 a subsidiary of the Central Pacific (later Southern Pacific) Railroad reached Martinez. In 1899, the Atchison, Topeka, and Santa Fe Railway arrived in Martinez. Much produce was shipped to distant markets over the rail routes.

The completion of the Southern Pacific Bridge between Martinez and Benicia in 1930 replaced a rail ferry service that moved trains between Port Costa and Benicia using the world's largest ferryboats ("Solano" and "Contra Costa"). This bridge enabled Martinez to become a stop on the transcontinental line as well as the main transfer point between the Shasta and Coastal routes to the Transcontinental Railroad.

In 1879, the Christian Brothers established a school on seventy acres - Twelve acres were planted as a vineyard. This would be the foundation of the Christian Bothers Winery now located in the Napa Valley. Wine production escalated with the arrival of Portuguese, Sicilian, and Italian immigrants beginning in the late 1870’s. They were attracted to the area by the mild climate, fertile soil, and abundant fish life in the Strait. Many of the newly arrived immigrant farmers bought small farms in the Vine Hill and Pleasant Hill areas.

Among those drawn to the area was Muir's friend John Swett, sometimes called the "father" of public education in California. He and his son Frank began planting vineyards in 1887. A number of other family vineyards and wineries thrived. Today the Viano family winery is the only vestige of the communities’ once prolific and profitable wine making industry.

As more and more people settled in Martinez, farmland was converted to residential areas. By the 1950's, commercial farming had practically ceased.

Starting in the 1870's, Portuguese and Italian fishermen reaped a harvest of another sort from the waters of the Carquinez Strait. Fishing was so productive that two of twelve fishing canneries operated on the Pacific Coast in 1882 were located in Martinez. Thousands of pounds of Salmon were shipped to Europe, the eastern U.S., Australia, New Zealand, and Hawaii. Fishing continued to provide a viable living for many families until Bay waters were closed to commercial fishing in 1957.

In 1915, the Shell Oil Company built a refinery in Martinez to take advantage of easy access to the harbor and the railroad. Associated Oil built a second refinery 3 miles away. These industries enhanced the growth and identity of Martinez, as refineries and chemical plants attracted new residents, and a small ferry terminus rapidly became a modern city.

Throughout the 1950s, 1960s, and 1970s, County facilities in Martinez expanded to meet the needs of a growing population. This expansion provided an investment in infrastructure, bolstered the economy of downtown Martinez, and provided government jobs to many residents. By 1990 the population of Martinez was over 30,000.[1]

KNOWN CULTURAL RESOURCES

Thirty seven cultural resources have been identified within the City of Martinez Study Area, according to a July 24, 2014 record search by the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS). The thirty seven recorded cultural resources span both the prehistoric and historic periods and range from Native American village sites to historic period adobes, residences, ranches, and water control features.

There are many known cultural resources within or adjacent to the Plan area. Known cultural resources in or adjacent to the Plan area consist of prehistoric archaeological sites, historical architectural properties, one National Historic Trail corridor, and sites at which notable historical events occurred or buildings and structures once stood. A Preliminary Historical Resources Inventory (1976; revised 1989 and 2010) lists 23 resources within the City of Martinez Study Area, two of which (Ferndale Springs Site and Berryessa Adobe Site) were not on the Contra Costa County Historic property Data File. A Historical Resource Inventory prepared jointly by The City of Martinez and the Martinez Historical Society (1982) lists 88 resources, 40 of which were located within the Downtown Commercial Area.

A number of public and privately-owned buildings within the Planning Area have been identified on the Contra Costa County Historic Property Resource Inventory, as well as the City of Martinez's Historical Resource Inventory (1982). Table 3.5-1 summarizes the known cultural resources listed in county, state, or federal inventories or archives.

[1] Martinez Historical Society

TABLE 3.5-1: CULTURAL RESOURCES LISTED IN COUNTY, STATE, AND FEDERAL INVENTORIES OR ARCHIVES

PROPERTY	ADDRESS	DATE	DESCRIPTION
069204	Not Listed	1905	Bridge Tender's House
107358	Not Listed	1920	Vine Hill Underpass, Bridge #28C-86
155871	Not Listed	1899	BSNF Railroad Line/Coast Line
155873	Not Listed	1962	Bridge 28-168/I-680 Crossing
155872	Not Listed	1899	Bridge #28C-86 / Pacheco Boulevard
169503	Alhambra Avenue	1849	John Muir NHS Carriage Drive Loop
070161	406 Alhambra Avenue	1914	River House Hotel
096299	1301 Alhambra Avenue	1910	Not Listed
010500	1521 Alhambra Avenue	1877	Paul's Place, Paul's Place Site
084793	1602 Alhambra Avenue	1903	Not Listed
178583	2500 Alhambra Avenue	1959	Not Listed
094230	4101 Alhambra Avenue	Not Listed	Maintenance Shed
010496	4202 Alhambra Avenue	1892	John Muir National Historic Site
010497	4202 Alhambra Avenue	1849	Vicente Martinez Home
094229	4202 Alhambra Avenue	Not Listed	Windmill
094231	4202 Alhambra Avenue	Not Listed	Visitor Center
094226	4202 Alhambra Avenue	1882	John Muir House
094227	4202 Alhambra Avenue	1891	Carriage House
094228	4202 Alhambra Avenue	1967	Bridge
169508	4202 Alhambra Avenue	1849	John Muir National Historic Site M
169507	4202 Alhambra Avenue	1849	John Muir National Historic Site E
169633	4202 Alhambra Avenue	1849	Paths Around Martinez Adobe and Ranch
196635	4202 Alhambra Avenue	1849	Patio West Side Martinez Adobe
169639	4202 Alhambra Avenue	1849	Visitor Center Parking Lot
169641	4202 Alhambra Avenue	1849	Walkway Incense Cedars
169654	4202 Alhambra Avenue	1849	John Muir NHS Muir-Strentzel-Hanna Gravesite
169655	4202 Alhambra Avenue	1849	John Muir NHS John Muir Grave Marker
169656	4202 Alhambra Avenue	1849	John Muir NHS Louie Strentzel Muir Grave Marker
169657	4202 Alhambra Avenue	1849	John Muir NHS Strentzel Family Grave Marker
169512	4202 Alhambra Avenue	1849	John Muir NHS Martinez Adobe Drive
169629	4202 Alhambra Avenue	1849	NPS Sidewalks and Patio
169628	4202 Alhambra Avenue	1849	Fire Lane House Unit
169627	4202 Alhambra Avenue	1849	Easy Access Trail
169534	4202 Alhambra Avenue	1849	John Muir National Historic Site V
169533	4202 Alhambra Avenue	1849	John Muir NHS Strain Ranch Building
169532	4202 Alhambra Avenue	1849	John Muir NHS Stabilization Structure
169531	4202 Alhambra Avenue	1849	John Muir National Historic Site R
169530	4202 Alhambra Avenue	1849	John Muir NHS Patio Wall and Steps
169626	4202 Alhambra Avenue	1849	California Riding and Hiking Trail

TABLE 3.5-1: CULTURAL RESOURCES LISTED IN COUNTY, STATE, AND FEDERAL INVENTORIES OR ARCHIVES

PROPERTY	ADDRESS	DATE	DESCRIPTION
169529	4202 Alhambra Avenue	1849	John Muir NHS Hanna Family Grave Marker
169528	4202 Alhambra Avenue	1849	John Muir National Historic Site B
169527	4202 Alhambra Avenue	1849	John Muir National Historic Site A
169513	4202 Alhambra Avenue	1849	John Muir NHS Triangle Intersection
169524	4202 Alhambra Avenue	1849	John Muir NHS Stone/Brick wall and Steps
169521	4202 Alhambra Avenue	1849	John Muir NHS Muir House Perimeter
169518	4202 Alhambra Avenue	1849	John Muir NHS Woodshed Road
169631	4202 Alhambra Avenue	1849	Park and Ride Lot
169658	4202 Alhambra Avenue	1849	John Muir NHS Strentzel family Monument
132774	5020 Alhambra Valley Road	1910	Second Residence/ Strain Ranch
132779	5020 Alhambra Valley Road	Not Listed	Animal Pens/ Strain Ranch
132778	5020 Alhambra Valley Road	Not Listed	Barn #4/ Strain Ranch
132780	5020 Alhambra Valley Road	Not Listed	Corrals/ Strain Ranch
132777	5020 Alhambra Valley Road	Not Listed	Barn #3/ Strain Ranch
132775	5020 Alhambra Valley Road	Not Listed	Garage/ Strain Ranch
132776	5020 Alhambra Valley Road	Not Listed	Barn #2/ Strain Ranch
132772	5020 Alhambra Valley Road	1910	Main Residence/ Strain Ranch
079356	5031 Alhambra Valley Road	Not Listed	Strentzel House
146828	615 Arch Street	1941	Childhood Center
154492	1785 Arnold Drive	1910	Not Listed
154493	2034 Arnold Drive	1920	Not Listed
107359	75 Arthur Road	1940	Not Listed
107360	120 Arthur Road	1900	Not Listed
107361	140 Arthur Road	1940	Not Listed
107362	190 Arthur Road	1935	Not Listed
107363	399 Arthur Road	1935	Not Listed
107364	493 Arthur Road	1935	Not Listed
107365	497 Arthur Road	1930	Not Listed
122948	15 Barber Lane	Matthew Barber House	Not Listed
010508	Berrellesa Street	1876	Granger's Wharf
010502	Berrellesa Street	1847	Martinez Benicia Ferry Landing
139487	4249 Cabrilho Drive	1953	Not Listed
010501	Carquinez Scenic Drive	1854	Martinez Cemetery / Alhambra Cemetery
153874	1314 Chestnut Street	1920	Not Listed
183481	100 Church Street	Not Listed	BA51981B/Martinez United Methodist Church
072999	625 Court Street	1901	Contra Costa County Courthouse Block
163658	630 Court Street	1926	The Sharkey Building
073002	725 Court Street	1932	Contra Costa County Courthouse

TABLE 3.5-1: CULTURAL RESOURCES LISTED IN COUNTY, STATE, AND FEDERAL INVENTORIES OR ARCHIVES

PROPERTY	ADDRESS	DATE	DESCRIPTION
087540	740 Court Street	1941	Martinez City Library
181213	815 Court Street	1937	Martinez Downtown Post Office
179806	Cummings Skyway	Not Listed	Telecommunications Facility
182944	1404 Date Street	Not Listed	Not Listed
010503	110 Escobar Street	1877	Tucker Home
123743	1005 Escobar Street	1949	Borland Home
098425	330 Ferry Street	Not Listed	Not Listed
010504	401 Ferry Street	1877	Martinez Railroad Station
066122	234 Foster Street	Not Listed	Not Listed
065251	614 Green Street	Not Listed	Residence
172326	305 Haven Street	Not Listed	Not Listed
077900	525 Henrietta Street	1917	Martinez City Hall
183209	4742 Howard Avenue	1951	Not Listed
141890	1990 La Salle Street	1945	Not Listed
144856	951 Lemon Street	1945	Not Listed
010506	Main Street and Court Street	1855	Contra Costa County Courthouse Site
010505	Main Street and Court Street	1858	Martinez Gazette
010507	235 Marina Vista Street	1877	Bunker Home
107366	1801 Marina Vista Street	1914	Shell Martinez Manufacturing Complex
010509	295 Millthwait Drive	1840	Altamirano House
137732	2561 Monterey Avenue	1940	Not Listed
010510	4500 Pacheco Boulevard	1856	John Marsh Murder Site
107357	4602 Pacheco Boulevard	1920	Not Listed
107355	4630 Pacheco Boulevard	1925	Not Listed
183875	4639 Pacheco Boulevard	1950	Discovery House
169370	1116 Pine Street	1924	Not Listed
087027	824 Richardson Drive	1923	Not Listed
087026	828 Richardson Drive	1923	Not Listed
087025	832 Richardson Drive	1923	Not Listed
087024	836 Richardson Drive	1923	Not Listed
172325	1435 Richardson Drive	1922	Not Listed
010511	1634 Richardson Drive	1890	Wittenmyer Home
163358	4197 Rita Drive	1953	Not Listed
141061	11 Robinsdale Road	1950	Not Listed
131293	1174 Santa Fe Avenue	1943	Not Listed
182931	1320 Santa Fe Avenue	Not Listed	Not Listed
--	921 Susana St	c.1902	Alhambra High School
010512	Strentzel Lane	1856	John Muir Burial Site
010513	608 Talbart Street	1888	Tennent Home
155879	817 Talbart Street	1930	Not Listed
084362	1115 Vine Street	1923	Not Listed
010514	524 Ward Street	1879	Stewarts Grocery
133293	Not Listed	1959	Generator Building / OZOL DFSP
133292	Not Listed	1959	Guardhouse / OZOL DFSP

TABLE 3.5-1: CULTURAL RESOURCES LISTED IN COUNTY, STATE, AND FEDERAL INVENTORIES OR ARCHIVES

PROPERTY	ADDRESS	DATE	DESCRIPTION
133291	Not Listed	1959	Administrative Building / OZOL DFSP
133294	Not Listed	1959	Fuel Dock / OZOL DFSP
133290	Not Listed	1958	Tank Farm / Tanks #83001-83012
164395	Not Listed	1946	Martinez Dam
010515	Alhambra Valley Road	1853	John Swett Winery Site
010499	SR 4	1925	Christie Underpass, BR. 28-39
--	0.1 miles west of Pine St	1929	Arroyo Del Hambre Creek Bridge
--	Ferry St	1940	Arroyo Del Hambre Creek Bridge
--	--	--	Juan de Anza National Historic Trail Corridor
--	--	--	Prehistoric archaeological site
--	--	--	Prehistoric archaeological site

SOURCE: CITY OF MARTINEZ, PEAK & ASSOCIATES, 2015

Martinez Historic Resources Inventory

The City of Martinez conducted a historical resource inventory in 1982, the inventory identified over 80 structures as being historically or architecturally significant. Table 3.5-2 summarizes the city's inventory of known resources.

TABLE 3.5-2: CULTURAL RESOURCES LISTED IN THE MARTINEZ HISTORIC RESOURCES INVENTORY

ADDRESS	YEAR BUILT	DESCRIPTION
700 Alhambra Ave	1914	First modern hotel built in Martinez after Shell Oil plant proposed for development.
800 Alhambra Ave	c. 1910	Built by Pistochini Family.
1014 Alhambra Ave	1884	Michael Winslow house.
1015 Alhambra Ave	pre-1860	Built by Martin Woolbart. Moved to present location in 1919.
1034 Alhambra Ave	pre-1884	Home of Mrs. M. Riley.
1134 Alhambra Ave	--	No additional information.
1234 Alhambra Ave	pre-1880	Built by T.Z. Witten.
1301 Alhambra Ave	1909	Built to replace 1873 school. Upper floor removed in 1960.
604 Berrellessa Drive	pre-1887	No additional information.
403 Buckley St	pre-1884	Addresses vary between 403 Berrellessa St and 403 Buckley St.
1205 Castro St	late 1800s	Hittman house.
1317 Castro St	late 1800s	No additional information.
815 Court St	1937	Maynard Dixon mural inside.
924 Court St	1907	Home of Professor G.A. Wilcox.
936 Court St	--	Home of H.C. Raap.
1126 Court St	1906	A.J. Soto house. Built by Alvarado J. Soto in 1906.
1225 Court St	c. 1880s	Former sanitarium building moved from Contra Costa County Hospital.
Court and Ward Sts	pre-1927	Veteran's Memorial Hall dedicated in 1927.
Court St	--	County Finance Building.
110 Escobar St	1877	Tucker house. Built by John Tucker. Moved to present location in the late 1920s.
301 Escobar St	1902	Built by G. Sparacino.
611 Escobar St	--	No additional information.
700 block Escobar St	--	Curry Chapel Building.
1005 Escobar St	1890	Borland house. Built by John Moore. Currently houses the Martinez Historical Society.
1312 Escobar St	c. 1872	Built by Judge Joseph P. Jones
815 Estudillo St	pre-1884	Built by M.H. Bailhache.

TABLE 3.5-2: CULTURAL RESOURCES LISTED IN THE MARTINEZ HISTORIC RESOURCES INVENTORY

ADDRESS	YEAR BUILT	DESCRIPTION
1135 Estudillo St	c. 1860s	Home of Miranda family.
1230 Estudillo St	late 1800s	No additional information.
Estudillo and Susana Sts	--	Currently Susana Park. Site of 1860 Masonic Lodge Hall, in use until 1920s.
401 Ferry St	c. 1876	Southern Pacific Railroad Depot.
516 Ferry St	1916	Office of first Contra Costa Gas Company.
600 block Ferry St	1914	Curry Hall. Community events building.
624 Ferry St	1906	Bergamini Building.
629 Ferry St	1854	Site of first Simon Blum store in 1854
631 Ferry St	--	Part of the original store that housed the Blue Bird Cigar Manufacturing Company.
729 Ferry St	1860	Home and store of Weiss
800 Ferry St	pre-1884	Built by J.J. McNamara.
811 Ferry St	--	Original site of Hauser's funeral home.
614 Green St	pre-1884	Built by Dr. Carothers.
525 Henrietta St	1916	Currently City Hall. Martinez School annex built to accommodate Shell Oil children
621 Las Juntas St	--	No additional information.
304 Main St	1856	Built by John Tucker.
316 Main St	pre-1884	No additional information.
524 Main St	1926	J.C. Penney store.
535 Main S	1925	Site of Montgomery Ward store.
600-620 Main St	--	Original site of Simon Blum and Bros.
659 Main St	1924	Site of National Bank of Martinez.
700 Main St	1913-14	Built by J.J. McNamara and G. Winkleman.
701 Main St	1906	Original grocery and meat market of McNamara and Winkleman.
714-18 Main St	--	Part of Novelty Theater.
800 block Main St	--	James Hotel, built by the Hook family. Used as a hotel until 1980.
825 Main St	pre-1884	Brick building that housed the Gazette office and press in 1870s
938 Main St	--	No additional information.
235 Marina Vista St	1876	Marina Vista Street formerly known as Howard St.
304 Marina Vista St	1876	Home of Gabriel Blum; later home of Aylward Lying-In Hospital.
405 Marina Vista St	pre-1887	No additional information.
411-437 Marina Vista St	--	Only example of San Francisco "row" houses in Martinez.
600 block Marina Vista St	1927	Site of Colton Winery. Present surface overlies frame structure.
635 Marina Vista St	1927	No additional information.
707 Marina Vista St	1884	First site of Martinez Laundry.
805-825 Marina Vista St	pre-1884	Moved from 805 to 824 Marina Vista between 1915 and 1917.
1310 Marina Vista St	c. 1900-20	Home of Madison Ralph Jones.
921 Susana St	--	Site of first Alhambra High School.
304 Talbart St	pre-1878	No additional information.
334 Talbart St	--	No additional information.
608 Talbart St	1888	Built by Dr. John Tennent
504 Ward St	--	Store and residence of James Stewart

SOURCE: CITY OF MARTINEZ HISTORICAL RESOURCE INVENTORY, MARTINEZ PLANNING DEPARTMENT AND THE MARTINEZ HISTORICAL SOCIETY.

NATIVE AMERICAN AND HISTORICAL SOCIETY CONSULTATION

Letters were sent to: the Native American Heritage Commission; Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan; Rosemary Cambra, Chairperson, Muwekma Ohlone Indian Tribe of SF Bay Area; Irene Zwierlein, Chairperson, Amah Matsun Tribal Band of Mission San Juan Bautista; Michelle Zimmer, Amah Matsun Tribal Band of Mission San Juan Bautista; Ramona

Garibay, Representative, Trina Marine Ruano Family; Andrew Galvin, The Ohlone Indian Tribe; Linda G. Yamane; Katherine Erolinda Perez; Jakki Kehl, Martinez Historical Society; and, Contra Costa County Historical Society requesting information on sites and concerns.

The Native American Heritage Commission responded with a letter dated August 8, 2014. The Contra Costa County Historical Society responded on September 16, 2014, providing no specific information on resources, but discussing that they are willing to conduct research if funding is available.

PALEONTOLOGICAL RESOURCES

Paleontology is a branch of geology that studies prehistoric life forms other than humans, through the study of plant and animal fossils. Paleontological resources are fossilized remains of organisms that lived in the region in the geologic past and therefore preserve an aspect of the City's, and County's prehistory which is important in understanding the development of the region as a whole, as many of these species are now extinct. Like archaeological sites and objects (which pertain to human occupation), paleontological sites and fossils are non-renewable resources. They are found primarily in sedimentary rock deposits and are most easily found in regions that may have been uplifted and eroded, but they may also be found anywhere that subsurface excavation is being carried out (e.g., streambeds, under roads).

Fossils and Their Associated Formations

Geologic formations are the matrix in which most fossils are found, occasionally in buried paleosols (ancient soils). These formations are totally different from modern soils and cannot be correlated with soil maps that depict modern surface soils representing only a thin veneer on the surface of the earth. Geologic formations may range in thickness from a few feet to hundreds of thousands of feet, and form complex relationships below the surface. Geologic maps (available through the U.S. Geological Survey [USGS] or California Geological Survey) show the surface expression (in two dimensions) of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other, much like a layer cake, over time the layers have been squeezed, tilted, folded, cut by faults and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a sensitive formation bearing fossils can be found at the surface in an outcrop, chances are that same formation may extend not only many feet into the ground straight down, it may well extend for miles just below the surface. Consequently, predicting which areas are paleontologically sensitive is a difficult task.

Determining Paleontological Potential

The most general paleontological information can be obtained from geologic maps, but geologic cross sections (slices of the layer cake to view the third dimension) must be reviewed for each area in question. These usually accompany geologic maps or technical reports. Once it can be determined which formations may be present in the subsurface, the question of paleontological resources must be addressed. Even though a formation is known to contain fossils, they are not usually distributed uniformly throughout the many square miles the formation may cover. If the

fossils were part of a bay environment when they died, perhaps a scattered layer of shells will be preserved over large areas. If on the other hand, a whale died in this bay, you might expect to find fossil whalebone only in one small area of less than a few hundred square feet. Other resources to be considered in the determination of paleontological potential are regional geologic reports, site records on file with paleontological repositories and site-specific field surveys.

Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant if they represent a new record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations. However, even a previously designated low potential site may yield significant fossils. The exact locations are considered proprietary and therefore not presented in CEQA documents (to prevent the removal or destruction of these important, nonrenewable resources).

3.5.2 REGULATORY SETTING

FEDERAL REGULATIONS

National Historic Preservation Act (NHPA)

The National Historic Preservation Act was enacted in 1966 as a means to protect cultural resources that are eligible to be listed on the National Register of Historic Places (NRHP). The law sets forth criteria that are used to evaluate the eligibility of cultural resources. The NRHP is composed of districts, sites, buildings, structures, objects, architecture, archaeology, engineering, and culture that are significant to American History.

Virtually any physical evidence of past human activity can be considered a cultural resource. Although not all such resources are considered to be significant and eligible for listing, they often provide the only means of reconstructing the human history of a given site or region, particularly where there is no written history of that area or that period. Consequently, their significance is judged largely in terms of their historical or archaeological interpretive values. Along with research values, cultural resources can be significant, in part, for their aesthetic, educational, cultural and religious values.

Section 106 of the National Historic Preservation Act

Specific regulations regarding compliance with Section 106 of the NHPA state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute. The Section 106 process is a consultation process that involves the State Historic Preservation Officer (SHPO) throughout; the process also calls for including Native American Tribes and interested members of the public, as appropriate, throughout the process. Implementing regulations for Section 106 (36 CFR 800) detail the following five basic steps.

1. Initiate the Section 106 process.
2. Identify and evaluate historic properties.

3. Assess the effects of the undertaking on historic properties within the area of potential effects (APE).

4. If historic properties are subject to adverse effects, the federal agency, the SHPO, and any other consulting parties (including Native American tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects.

5. Proceed in accordance with the terms of the MOA.

American Indian Religious Freedom Act and Native American Graves and Repatriation Act

The American Indian Religious Freedom Act recognizes that Native American religious practices, sacred sites, and sacred objects have not been properly protected under other statutes. It establishes as national policy that traditional practices and beliefs, sites (including right of access), and the use of sacred objects shall be protected and preserved. Additionally, Native American remains are protected by the Native American Graves and Repatriation Act of 1990.

Department of Transportation Act - Section 4(f)

The Department of Transportation (DOT) Act of 1966, is set forth in Title 49 United States Code (U.S.C.). This law established that it is the policy of the United States Government to make a special effort to preserve historic sites. The Secretary of Transportation may approve a transportation program or project that requires the use of a historic site of national, state, or local significance only if: a) There is no prudent and feasible alternative to using that land; and b) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Other Federal Legislation

Historic preservation legislation was initiated by the Antiquities Act of 1966, which aimed to protect important historic and archaeological sites. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbance of archaeological sites on federal land. New permits are currently issued under the Archaeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands. The Historic Sites Act of 1935 declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance."

STATE REGULATIONS

California Register of Historic Resources

The California Register of Historical Resources (CRHR) was established in 1992 and codified in the Public Resource Code §5020, 5024 and 21085. The law creates several categories of properties that may be eligible for the CRHR. Certain properties are included in the program automatically,

including: properties listed in the NRHP; properties eligible for listing in the NRHP; and certain classes of State Historical Landmarks. Determining the CRHR eligibility of historic and prehistoric properties is guided by CCR §15064.5(b) and Public Resources Code (PRC) §21083.2 and 21084.1. NRHP eligibility is based on similar criteria outlined in Section 106 of the NHPA (16 U.S. Code [USC] 470).

Cultural resources, under CRHR and NRHP guidelines, are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the CRHR and/or NRHP if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

If a prehistoric or historic period cultural resource does not meet any of the four CRHR criteria, but does meet the definition of a "unique" site as outlined in PRC §21083.2, it may still be treated as a significant resource if it is: an archaeological artifact, object or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information,
- it has a special and particular quality such as being the oldest of its type or the best available example of its type, or
- it is directly associated with a scientifically recognized important prehistoric or historic event.

California Environmental Quality Act

CEQA Guidelines §15064.5 provides guidance for determining the significance of impacts to archaeological and historical resources. Demolition or material alteration of a historical resource, including archaeological sites, is generally considered a significant impact. Determining the CRHR eligibility of historic and prehistoric properties is guided by CCR §15064.5(b) and Public Resources Code (PRC) §21083.2 and 21084.1. NRHP eligibility is based on similar criteria outlined in Section 106 of the NHPA (16 U.S. Code [USC] 470).

CEQA also provides for the protection of Native American human remains (CCR §15064.5[d]). Native American human remains are also protected under the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.), which requires federal agencies and certain recipients of federal funds to document Native American human remains and cultural items within their collections, notify Native American groups of their holdings, and provide an opportunity for repatriation of these materials. This act also requires plans for dealing with potential future

collections of Native American human remains and associated funerary objects, sacred objects, and objects of cultural patrimony that might be uncovered as a result of development projects overseen or funded by the federal government.

California Public Resources Code

Section 5097 of the Public Resources Code specifies the procedures to be followed in the event of the unexpected discovery of historic, archaeological, and paleontological resources, including human remains, historic or prehistoric resources, paleontological resources on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the California Native American Heritage Commission (NAHC). Section 5097.5 of the Code states the following:

> *No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.*

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission. CEQA Guidelines (Section 15064.5) specify the procedures to be followed in case of the discovery of human remains on non-federal land. The disposition of Native American burials falls within the jurisdiction of the Native American Heritage Commission.

Senate Bill 18 (Burton, Chapter 905, Statutes 2004)

SB 18, authored by Senator John Burton and signed into law by Governor Arnold Schwarzenegger in September 2004, requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places ("cultural places") through local land use planning. This legislation, which amended §65040.2, §65092, §65351, §65352, and §65560, and added §65352.3, §653524, and §65562.5 to the Government Code; also requires the Governor's Office of Planning and Research (OPR) to include in the General Plan Guidelines advice to local governments for how to conduct these consultations. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places. These consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

Assembly Bill 978

In 2001, Assembly Bill (AB) 978 expanded the reach of Native American Graves Protection and Repatriation Act of 1990 and established a state commission with statutory powers to assure that federal and state laws regarding the repatriation of Native American human remains and items of patrimony are fully complied with. In addition, AB 978 also included non-federally recognized tribes for repatriation.

Assembly Bill 52

Assembly Bill 52 (AB-52) establishes a consultation process with California Native American Tribes on the Native American Heritage Commission List including federally and non-federally recognized tribes. AB-52 requires the consideration of tribal cultural resources in determination of project impacts and mitigation and requires providing notice to tribes if they have requested notice of projects proposed within the area.

LOCAL REGULATIONS

Downtown Historic Overlay

Martinez has developed local City Ordinances including the Downtown Historic Overlay District. (Chapter 22.47 of the Zoning Ordinance) relating to Historic Resources, the Downtown Historic Overlay District was adopted in 1983 to establish a framework for treatment of structures, which significantly contribute to the cultural and architectural heritage of the City, and addresses historic preservation and cultural resources. The Downtown Historic Overlay District's purpose is to establish provisions for the preservation of buildings individually listed on the National and/or State Register of Historic Places, or buildings that become so listed in the future. In addition, it establishes advisory Design Review guidelines for the rehabilitation of structures and new infill construction in the historic district. It also provides owners of qualified properties, the optional, more flexible provisions of the State Historical Building Code. The presence of a local historic district also creates the possibility for the City to establish a Mills Act program, which could provide property tax relief for owners who restore and maintain historic properties.

The Downtown Specific Plan

The 2006 Downtown Specific Plan contains the following goals and policies for historic preservation.

2.2.5 Urban Design Goals and Policies

Goal

UD-1: Strengthen the identity and character of Downtown using the existing historic and architectural urban character of the community, while allowing for new structures that are architecturally compatible with, and complementary to, the existing architectural and historic fabric.

Policies

UD-1-1: Through design review, ensure that new development enhances the character of the Downtown Districts by requiring design qualities and elements that contribute to an active pedestrian environment, where appropriate, and ensuring that architectural elements are compatible and in scale with the existing historic structures in the Downtown.

UD-1-3: Improve streetscapes on key corridors in the Downtown and create a sense of arrival at key gateways which reinforce the City's natural, cultural and historic characteristics.

UD-1-5: Encourage appropriate public art and interpretational signage to further establish a sense of history and pride in the Downtown.

2.2.6 Historic Preservation Goals and Policies

Goal

HP-1: Strengthen and enhance the historic character of Downtown Martinez, which is unique to Contra Costa County, through the preservation and maintenance of Downtown's historically significant sites and structures.

Policies

HP-1-1: Promote community appreciation for the history of Martinez.

HP-1-2: Provide incentives to encourage the restoration of private historic structures to conserve the integrity of the buildings in the best possible condition.

HP-1-3: Through design review, encourage new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment.

6.1.4 Additional Measures

The intent of the Historic Overlay District is to preserve historic buildings to the maximum extent feasible. Therefore, no building more than 50 years old may be demolished before first investigating all feasible methods of re-using the structure. The City should consider preparing an ordinance providing that demolition of older buildings in the historic district should be allowed only after full evaluation of the feasibility of all alternatives available to the property owner that would allow the retention of the original structure: federal and/or state tax incentives, alternative methods of construction/rehabilitation etc. This ordinance should be developed in concert with the proposed ordinance governing unreinforced masonry buildings, but should also apply to non-unreinforced masonry buildings.

3.5.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project is considered to have a significant impact on cultural resources if it will:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5;
- Cause a substantial adverse change in the significance of archaeological resource pursuant to CEQA Guidelines §15064.5;

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Project implementation could result in a substantial adverse change in the significance of a archaeological resource (Less than Significant with Mitigation)

A substantial adverse change in the significance of an historic resource is defined in Section 15064.5 (b)(1) of the CEQA Guidelines as the "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

As described above, there are known significant archaeological resources located within the planning area. The majority of land within Martinez is developed and has been previously disturbed by construction and site grading activities. Site grading and construction activities can lead to the discovery of previously unknown archaeological and cultural resources. Development and redevelopment in areas that have been previously disturbed is often considered less likely to result in the disturbance of a previously undiscovered resource.

While the proposed project does not directly propose any adverse changes to any archaeological resources, future development allowed under the General Plan could affect known archaeological resources as well as unknown archaeological resources, which have not yet been identified.

It has been generally held that prehistoric Native American sites are most likely to occur where several environmental factors combine to provide readily available resources, such as at the interface between valley and hills, coastal areas, and watersheds. Native Americans have been present in the Martinez region, thus the Planning Area is considered sensitive for prehistoric Native American archaeological sites and there is potential to discover previously undisturbed resources remains.

Based upon the general planning nature of the proposed project, specific impacts to known and unknown resources cannot be identified. However, since there are known archaeological sites and the Planning Area is considered sensitive for prehistoric Native American archaeological sites, there is the potential for future development proposals to adversely affect archaeological resources. Future development proposals could propose removal of known archaeological resources. Further, construction activities, such as grading and excavation, associated with future development projects could uncover additional archaeological resources. The potential to remove, damage, or destroy both known and unknown archaeological resources is a potentially significant impact.

As future development and infrastructure projects are considered by the City, each project will be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable

State and local regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA.

All future development would be required to be consistent with the General Plan. A central theme of the proposed General Plan is to preserve and protect the City's cultural and archeological resources, and historical character. This is expressed in the Historic, Cultural and Arts element Goal HCA-G-1, which fosters the protection, preservation, and rehabilitation of Martinez's historic and cultural heritage. Goal HCA-G-is supported by various policies including: Policy HCA-P-1.1 promotes community and visitor appreciation for the history of Martinez. HCA-P-1.4 recognizes the importance of protecting significant archaeological resources by identifying, when possible, archaeological resources and potential impacts on such resources. HCA-P-1.5 calls for the avoidance of damaging effects to any tribal cultural resource when feasible. HCA-P-1.6 calls for the treatment of any Native American and human remains with cultural dignity when discovered during development or otherwise. HCA-P-1.7 encourages new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment. HCA-P-1.8 encourages the design review process to include adaptation and compatible reuse of historic buildings in order to preserve the historic resources that are a part of Martinez's heritage. HCA-P-1.9 encourages upkeep, restoration, rehabilitation, and reconstruction of private historic structures to conserve the integrity of the buildings with respect to the character of the buildings and their settings, in the best possible condition whenever possible and feasible. HCA-P-1.10 requires compliance with State and Federal laws to preserve and protect archaeological resources including the assessment and recovery of the resources. HCA-P-1.11 coordinates historic preservation activities and historic preservation groups, community groups, non-profits, and grass root efforts to educate the community and visitors through tours, special events, and commemorative arts.

Given that there are known archaeological resources located within the city and that the area is sensitive for archaeological resources, there is potential for future development within the city to impact such resources as previously described. Goals, policies, and implementation measures included in the General Plan aim to protect significant archaeological sites and resources as previously described. The General Plan requires compliance with State and Federal laws to preserve and protect archaeological resources, including assessment and recovery procedures. However, the proposed General Plan does not specifically include procedural guidance to identify potential resources or to provide direction in the event of a discovery of an archaeological resource that could be unearthed during construction activities. The following mitigation measure includes procedures for construction activities and notification of resource discovery to aid in the proper handling of archaeological resources. The following mitigation measure along with the goals, policies, and implementation measures included in the General Plan will reduce impacts to historical or archaeological resources to a **less than significant** level.

MITIGATION MEASURES

Mitigation Measure Cul-1: *Update the City of Martinez General Plan Historic, Cultural and Arts Element to include the following implementation measures. The following implementation measures shall apply during environmental review of individual projects.*

Implementation Measure: Require a cultural and archaeological survey prior to approval of any project where a known historical, archaeological, or other cultural resource is located or which would require excavation in an area that is sensitive for cultural or archaeological resources. If significant cultural or archaeological resources, including historic and prehistoric resources, are identified, appropriate measures shall be implemented, such as avoidance, capping of the resource site, or documentation and conservation, to reduce adverse impacts to the resource.

Implementation Measure: Require all new development, infrastructure, and other ground-disturbing projects to comply with the following conditions in the event of an inadvertent discovery of cultural resources, archaeological resources, or human remains:

1. *If construction or grading activities result in the discovery of significant historic or prehistoric archaeological artifacts or unique paleontological resources, all work within 100 feet of the discovery shall cease, the Community Development Director shall be notified, the resources shall be examined by a qualified archaeologist, paleontologist, or historian for appropriate protection and preservation measures; and work may only resume when appropriate protections are in place and have been approved by the Community Development Director.*

2. *If human remains are discovered during any ground disturbing activity, work shall stop until the Community Development Director and the San Mateo County Coroner have been contacted; if the human remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) and the most likely descendants have been consulted; and work may only resume when appropriate measures have been taken and approved by the Community Development Director.*

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Historic, Cultural and Arts Element

Goal

HCA-G-1 Foster protection, preservation, and rehabilitation of Martinez's historic and cultural heritage.

Policies

HCA-P-1.1 Promote community and visitor appreciation for the history of Martinez.
HCA-P-1.2 Strengthen and enhance the historic, natural, and cultural character of Martinez while promoting long-term sustainable economic development.
HCA-P-1.3 Encourage relocation of older buildings for preservation and restoration, rather than demolition.
HCA-P-1.4 Recognize the importance of protecting significant archaeological resources by identifying, when possible, archaeological resources and potential impacts on such resources.
HCA-P-1.5 Avoid damaging effects to any tribal cultural resource when feasible

HCA-P-1.6 Treat any Native American and human remains with culturally dignity when discovered during development or otherwise.

HCA-P-1.7 Encourage new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment.

HCA-P-1.8 Through the design review process, encourage the adaptation and compatible reuse of historic buildings in order to preserve the historic resources that are a part of Martinez's heritage.

HCA-P-1.9 Encourage upkeep, restoration, rehabilitation, and reconstruction of private historic structures to conserve the integrity of the buildings with respect to the character of the buildings and their settings, in the best possible condition when possible and feasible.

HCA-P-1.10 Comply with State and Federal laws to preserve and protect archaeological resources by complying with assessment and recovery of the resources.

HCA-P-1.11 Coordinate historic preservation activities and historic preservation groups, community groups, non-profits, and grass root efforts to educate the community and visitors through tours, special events, and commemorative art.

Implementation Measures

HCA-I-1.1a. Encourage reuse and rehabilitation of historic buildings in accordance with the Secretary of the Interior's Standards for the Preservation of Historic Structures.

HCA-I-1.1b Encourage the use of the State Historical Building Code where applicable.

HCA-I- 1.1c Taking into account the tribal cultural values and meaning of the resource by protecting the cultural character and integrity and its traditional use and confidentiality of the resource. Put in place permanent conservation easements or other interests in real property with culturally appropriate management criteria for the purpose of preserving and protecting the resource or place.

HCA–I- 1.1d Continue to update the comprehensive citywide inventory of historic resources and develop a citywide survey to identify structures that may be eligible for local state and national historic resource designation.

HCA- 1.1e Continue to work with and support the Martinez Historic Society in their efforts to archive documents, maps and photographs to properly chronicle the history of Martinez.

Impact 3.5-2: Project implementation could result in the inadvertent disturbance of human remains including those interred outside formal cemeteries. (Less than Significant)

Indications are that humans have occupied the Bay Area for over 10,000 years and it is not always possible to predict where human remains may occur outside of formal burials. Therefore, excavation and construction activities, regardless of depth, may yield human remains that may not be interred in marked, formal burials. Under CEQA, human remains are protected under the definition of archaeological materials as being "any evidence of human activity." Additionally, Public Resources Code Section 5097 has specific stop-work and notification procedures to follow in the event that human remains are inadvertently discovered during project implementation.

As future development and infrastructure projects are considered by the City, each project will be evaluated for conformance with the City's General Plan, Municipal Code, and other applicable State and local regulations. The proposed General Plan includes policies HCA-P-1.6, which calls for the treatment of any Native American and human remains with culturally dignity when discovered during development or otherwise, and HCA-P-1.10, which requires compliance with State and Federal laws to preserve and protect archaeological resources including the assessment and recovery of resources. Additionally, subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA.

The "Stop-Work and Consultation Procedures" mandated by Public Resources Code 5097 state that in the event of discovery or recognition of any human remains during construction or excavation activities, the implementing agency shall cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the following steps are taken:

- The County Coroner has been informed and has determined that no investigation of the cause of death is required.
- If the remains are of Native American origin, either of the following steps will be taken:
  - The coroner will contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner will make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods, which may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains.
  - The implementing agency or its authorized representative will retain a Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location that is not subject to further subsurface disturbance when any of the following conditions occurs:
    - The Native American Heritage Commission is unable to identify a descendent.
    - The descendant identified fails to make a recommendation.
    - The implementing agency or its authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Implementation of the requirements of Public Resources Code 5097 would ensure that all construction activities that inadvertently discover human remains implement state required consultation methods to determine the disposition and historical significance of any discovered human remains. These requirements are applicable to all future projects within the City. Compliance with the requirements of Public Resources Code 5097 would ensure that potential impacts associated with the inadvertent discovery of human remains are reduced to a **less than significant level**. No additional mitigation is required.

Impact 3.5-3: Project implementation could result in damage to or the destruction of unique paleontological resources (Less than Significant with Mitigation)

The Plan area is located on Intertidal deposits, fill material placed on top of coastal marshes, wetlands, and tidal areas that are not considered to be paleontologically significant. However, many of the rock formations that surround Martinez contain fossils, and it is possible that one or more of these fossil-bearing formations underlie the Plan area at unknown depths. Therefore, the Plan area has a low-to-moderate potential to contain fossils. It is possible, however, that a previously unknown paleontological resource could be discovered during future ground disturbing activities. As future development and infrastructure projects are considered by the City, subsequent development and infrastructure would be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Mitigation Measure Cul-1 provides guidance regarding the conservation of paleontological resources, ensuring that any unique paleontological resources discovered during future development activities are conserved appropriately. The implementation of Mitigation Measure Cul-1, listed above, would ensure potential impacts to paleontological resources are reduced to **less than significant levels**.

Impact 3.5-4: Project implementation could result in substantial adverse change in the significance of a historical resource (Less than Significant)

Future development and infrastructure projects may occur near or in close vicinity to historic architectural resources (buildings/structures/features) that are 50 years old or older. Given the age of these resources, it is possible they are historically significant and eligible for listing in the California Register of Historic Resources (CRHR) or the National Register of Historic Places (NRHP). The City of Martinez and Contra Costa County have completed surveys of architectural resources, which is a valuable step in the preservation of these resources.

Based upon the general planning nature of the proposed project, development of detailed, site-specific information on this impact at this planning level is not feasible. Nevertheless, the construction of potential individual projects pursuant to the General Plan may lead to physical demolition, destruction, relocation, or alteration of potential historical resources. The impact on architectural resources could be potentially significant and further studies would be required to determine the level of significance of this impact.

The proposed General Plan contain goals policies and implementation measures that specifically address the protection of historical and architectural resources. Goal HCA-G-1 fosters the protection, preservation, and rehabilitation of Martinez's historic and cultural heritage and is supported by many policies and implementation measures including: HCA-P-1.7 encourages new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment. HCA-P-1.8 encourages, through the design review process, the adaptation and compatible reuse of historic buildings in order to preserve the historic resources that are a part of Martinez's heritage. HCA-P-1.9 encourages the upkeep, restoration, rehabilitation, and reconstruction of private historic structures to conserve the integrity of the buildings with respect to the character of the buildings and their settings, in the best possible

condition when possible and feasible. HCA-I-1.1a encourages reuse and rehabilitation of historic buildings in accordance with the Secretary of the Interior's Standards for the Preservation of Historic Structures. HCA-I-1.1b encourages the use of the State Historical Building Code where applicable. HCA –I- 1.1d ensures the continued update to the comprehensive citywide inventory of historic resources and develop a citywide survey to identify structures that may be eligible for local state and national historic resource designation. HCA- 1.1e allows for the continued effort to work with and support the Martinez Historic Society in their efforts to archive documents, maps and photographs to properly chronicle the history of Martinez.

Additionally Implementation Measure LU-2.1a requires the City to continue to implement the Downtown Specific Plan. The Downtown Specific Plan includes goals and policies related to the protection and preservation of historic structures. Policy UD-1-1 ensures that architectural elements are compatible and in scale with the existing historic structures in the downtown. Goal HP-1 is intended to strengthen and enhance the historic character of Downtown Martinez through the preservation and maintenance of Downtown's historically significant sites and structures. This goal is supported by several policies including: Policy HP-1-1, which promotes community appreciation for the history of Martinez; Policy HP-1-2, which provides incentives to encourage the restoration of private historic structures to conserve the integrity of the buildings in the best possible condition; and Policy HP-1-3, which encourages new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment.

All future development would be required to be consistent with the General Plan. A central theme of the proposed General Plan is to preserve and protect the City's cultural and architectural resources, and historical character. Implementation of the requirements of proposed General Plan listed below, would ensure that impacts to architecturally significant and historical structures are **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Historic, Cultural and Arts Element

Goal

HCA-G-1 Foster protection, preservation, and rehabilitation of Martinez's historic and cultural heritage.

Policies

HCA-P-1.3 Encourage relocation of older buildings for preservation and restoration, rather than demolition.

HCA-P-1.4 Recognize the importance of protecting significant archaeological resources by identifying, when possible, archaeological resources and potential impacts on such resources.

HCA-P-1.7 Encourage new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment.

HCA-P-1.8 Through the design review process, encourage the adaptation and compatible reuse of historic buildings in order to preserve the historic resources that are a part of Martinez's heritage.

HCA-P-1.9 Encourage upkeep, restoration, rehabilitation, and reconstruction of private historic structures to conserve the integrity of the buildings with respect to the character of the buildings and their settings, in the best possible condition when possible and feasible.

Implementation Measures

HCA-I-1.1a Encourage reuse and rehabilitation of historic buildings in accordance with the Secretary of the Interior's Standards for the Preservation of Historic Structures.

HCA-I-1.1b Encourage the use of the State Historical Building Code where applicable.

HCA–I- 1.1d Continue to update the comprehensive citywide inventory of historic resources and develop a citywide survey to identify structures that may be eligible for local state and national historic resource designation.

HCA- 1.1e Continue to work with and support the Martinez Historic Society in their efforts to archive documents, maps and photographs to properly chronicle the history of Martinez.

<u>Land Use Element</u>

Implementation Measures

LU-2.1a Continue implementation of the Downtown Specific Plan.

DOWNTOWN SPECIFIC PLAN GOALS AND POLICIES THAT MITIGATE POTENTIAL IMPACTS

2.2.5 Urban Design Goals and Policies

Goal

UD-1: Strengthen the identity and character of Downtown using the existing historic and architectural urban character of the community, while allowing for new structures that are architecturally compatible with, and complementary to, the existing architectural and historic fabric.

Policies

UD-1-1: Through design review, ensure that new development enhances the character of the Downtown Districts by requiring design qualities and elements that contribute to an active pedestrian environment, where appropriate, and ensuring that architectural elements are compatible and in scale with the existing historic structures in the Downtown.

UD-1-3: Improve streetscapes on key corridors in the Downtown and create a sense of arrival at key gateways which reinforce the City's natural, cultural and historic characteristics.

UD-1-5: Encourage appropriate public art and interpretational signage to further establish a sense of history and pride in the Downtown.

2.2.6. Historic Preservation Goals and Policies

Goal

HP-1: Strengthen and enhance the historic character of Downtown Martinez, which is unique to Contra Costa County, through the preservation and maintenance of Downtown's historically significant sites and structures.

Policies

HP-1-1: Promote community appreciation for the history of Martinez.

HP-1-2: Provide incentives to encourage the restoration of private historic structures to conserve the integrity of the buildings in the best possible condition.

HP-1-3: Through design review, encourage new development to be compatible with adjacent historical structures in scale, massing, building materials, and general architectural treatment.

6.1.4 Additional Measures

The intent of the Historic Overlay District is to preserve historic buildings to the maximum extent feasible. Therefore, no building more than 50 years old may be demolished before first investigating all feasible methods of re-using the structure. The City should consider preparing an ordinance providing that demolition of older buildings in the historic district should be allowed only after full evaluation of the feasibility of all alternatives available to the property owner that would allow the retention of the original structure: federal and/or state tax incentives, alternative methods of construction/rehabilitation etc. This ordinance should be developed in concert with the proposed ordinance governing unreinforced masonry buildings, but should also apply to non-unreinforced masonry buildings.

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Geology is the science and study of the solid Earth and the processes by which it is shaped and changed. Modern geology is publicly important for predicting and understanding natural hazards, such as seismicity, erosion, and landslides, which each play an essential role in geotechnical engineering structures for safety, as well as mineral and energy resource availability.

This section provides a background discussion of the seismic and geologic hazards, and other geologic hazards, and mineral resources found in the City of Martinez and the regional vicinity. This section is organized with an existing setting, regulatory setting, and impact analysis.

3.6.1 ENVIRONMENTAL SETTING

The City of Martinez is located in the central portion of Contra Costa County, approximately 25 miles northeast of San Francisco. Martinez is situated roughly 5 miles northwest of the Diablo Range which forms the eastern boundary of the Coast Ranges. The City is located in a relatively geologically young and seismically-active region. The composition of geologic material, soils, topography, and groundwater conditions affect geologic hazards at any given site.

Martinez consists of two general topographic areas: the lowland area and the upland area. The lowland area extends from the Carquinez Strait south throughout most of the study area. Outside of the study area, it extends along Alhambra Creek in the western portion of Martinez, and along Pacheco Boulevard in the eastern portion of Martinez. The upland areas consist of hills that border the lowland areas on the west, east, and south. These hills represent the surface expression of structural folding and uplift. The topography of the lowland area is generally level with a gentle increase of surface elevation toward the southeast.

GEOMORPHIC PROVINCE

California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize eleven provinces in California. Each region displays unique, defining features based on geology, faults, topographic relief, and climate. These geomorphic provinces are remarkably diverse. They provide spectacular vistas and unique opportunities to learn about Earth's geologic processes and history. The city of Martinez lies in the Coast Range Geomorphic Province.

The Coast Range is a northwest-trending mountain range (2,000 to 4,000, occasionally 6,000 feet elevation above sea level) and set of valleys. The ranges and valleys trend northwest, subparallel to the San Andreas Fault. Strata dip beneath alluvium of the Great Valley. To the west is the Pacific Ocean. The coastline is uplifted, terraced and wave-cut. The Coast Range is composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby, landslide-topography of the Franciscan Complex. The eastern border is characterized by strike-ridges and valleys in Upper Mesozoic strata. In several areas, Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma, and Clear Lake volcanic fields. The Coast Ranges are subparallel to the active San Andreas Fault. The San Andreas is more than 600 miles long, extending from Pt. Arena to the Gulf of California. West of the San Andreas is

the Salinian Block, a granitic core extending from the southern extremity of the Coast Ranges to the north of the Farallon Islands.

REGIONAL GEOLOGY

The geology of the region is to a large extent controlled by major active faults in the Coast Range, tidal lands located directly north, and the Sacramento San Joaquin Delta region to the east.

The Planning Area is underlain by a variety of geologic units including modern sediments of the San Francisco Bay Estuary and Delta lowland sediments. These sediments are characterized as soft, water saturated muds, peat and loose sands, which are subject to differential settlement under load, and may be prone to slump and slide under stress. Additionally, muds may contain expansive clays, which may require special design considerations. Sands within the Planning Area may be subject to liquefaction under ground shaking stresses. Quaternary Alluvium consolidated and unconsolidated sediments within the Planning Area present localized problems for building and include expansive clays, potential susceptibility to hillside earthflows and unstable cut slopes. Tertiary Formations within the Planning Area include hard marine sandstone and shale overlain by soft non-marine (Pliocene) units. Slope stability conditions within this unit range from good (marine sandstone) to poor (Orinda Formation). The Great Valley Sequence includes hard marine sandstone, shale and conglomerates. Within this geologic unit, foundation and slope stability conditions range from good to fair, and are subject to sliding where sheared, fractured or contorted.

FAULTS

Faults are classified as Historic, Holocene, Late Quaternary, Quaternary, and Pre-Quaternary according to the age of most recent movement (California Geological Survey, 2002). These classifications are described as follows:

- **Historic:** faults on which surface displacement has occurred within the past 200 years;
- **Holocene:** shows evidence of fault displacement within the past 11,000 years, but without historic record;
- **Late Quaternary:** shows evidence of fault displacement within the past 700,000 years, but may be younger due to a lack of overlying deposits that enable more accurate age estimates;
- **Quaternary:** shows evidence of displacement sometime during the past 1.6 million years; and
- **Pre-Quaternary:** without recognized displacement during the past 1.6 million years.

Faults are further distinguished as active, potentially active, or inactive. (California Geological Survey, 2002).

- **Active:** An active fault is a Historic or Holocene fault that has had surface displacement within the last 11,000 years;

- **Potentially Active:** A potentially active fault is a pre-Holocene Quaternary fault that has evidence of surface displacement between about 1.6 million and 11,000 years ago; and
- **Inactive:** An inactive fault is a pre-Quaternary fault that does not have evidence of surface displacement within the past 1.6 million years. The probability of fault rupture is considered low; however, this classification does not mean that inactive faults cannot, or will not, rupture.

There are no known active faults located within the city limits of Martinez. However, a small section of the Concord Fault is located within the City's SOI, and there are numerous active faults located in the regional vicinity of Martinez. Active faults in the region include the Antioch, Calaveras, Concord, Green Valley, Greenville, Franklin, Hayward, Rodgers Creek, and the San Andreas. Within the region are additional faults that are not considered active, but show evidence of being active within the 1.6 million years including the Southampton fault which has a small portion within the western city limit of Martinez. Figure 3.6-1 illustrates the location of nearby faults. Below is a brief summary of the most notable faults in the regional vicinity:

- **Antioch Fault**: The Antioch fault, which is located approximately 15 miles west of the Planning Area, was previously considered active and was zoned under the Alquist-Priolo Act as potentially capable of surface rupture. However, studies over the past few decades have indicated that the Antioch fault is not active and does not pose a surface-faulting hazard. The fault is no longer zoned by the State of California as an earthquake fault zone under the Alquist-Priolo Act.
- **Calaveras Fault:** The 75-mile-long Calaveras fault represents a significant seismic source in the southern and eastern San Francisco Bay region. It extends from an intersection with the Paicines fault south of Hollister, through the Diablo Range east of San Jose, and along the Pleasanton-Dublin-San Ramon urban corridor. The fault consists of three major sections: the southern Calaveras fault (from the Paicines fault to San Felipe Lake), the central Calaveras fault (from San Felipe Lake to Calaveras Reservoir), and the northern Calaveras fault (from Calaveras Reservoir to Danville). The level of contemporary seismicity along the southern section is low to moderate, whereas the central section has generated numerous moderate earthquakes in historic time. The northern section has a relatively low level of seismicity and may be locked. Paleoseismologic studies suggest a recurrence interval for large ruptures of between 250 and 850 years on the northern fault section. The timing of the most recent rupture on the northern Calaveras fault is unknown, but is estimated to have occurred several hundred years ago. Seismologic evidence suggests that the southern and central sections may produce earthquakes as large as MWMw 6.2. Geologic and seismologic data suggest that the northern section may produce earthquakes as large as MWMw 7.0. This fault is located approximately 12 miles south of Martinez.
- **Concord Fault:** The Concord-Green Valley fault is a northwest-striking, right-lateral strike-slip fault zone that extends from the Walnut Creek area across Suisun Bay and continues to the north. The Concord fault extends approximately 12 miles, from the northern slopes of Mt. Diablo to Suisun Bay. North of Suisun Bay, the Green Valley fault continues to the north about 28 miles. The Concord fault is an actively creeping structure that has a long-term creep rate of approximately 5 mm/yr. It is estimated that rupture of both faults would produce a maximum earthquake of about MWMw 6.9 with a recurrence interval of approximately 180 years. This fault is located approximately 0.2 miles east of Martinez.

- **Greenville-Marsh Creek Fault:** The Greenville-Marsh Creek fault is a northwest-striking strike-slip fault of the San Andreas system in the northern Diablo Range, extending from Bear Valley to the east side of Mount Diablo. This fault has a lower slip rate than other structures within the San Andreas system with a long-term rate of approximately 1 to 3 mm/yr. This fault produced a moderate magnitude earthquake in 1980. Research is currently being conducted on the fault zone to better constrain its slip rate and its history of past earthquakes. A maximum earthquake of MWMw 6.9 has been estimated to the Greenville fault; the recurrence interval is estimated to be about 550 years. This fault is located approximately 2 miles northeast of Martinez.
- **Hayward Fault:** The Hayward fault is approximately 62 miles long and has been divided into two fault segments: a longer southern segment and a shorter northern segment. This structure is considered to be the most likely source of the next major earthquake in the San Francisco Bay Area. A maximum earthquake of MWMw 6.9 has been estimated for both the northern and southern segments of the Hayward fault. This fault is located approximately 12 miles west of Martinez.
- **Mount Diablo Thrust Fault:** The Mount Diablo thrust fault is a northeast-dipping structure located beneath the Mount Diablo anticline. This blind thrust fault is estimated to be capable of generating a maximum earthquake of MWMw 6.25.
- **Rodgers Creek Fault:** The Rodgers Creek fault is a 38-mile-long, northwest-striking, right-lateral strike-slip fault that extends northward from the projection of the Hayward fault on the south side of San Pablo Bay. Paleoseismic investigations identified evidence for three earthquakes in the last 925 to 1,000 years, yielding a predicted earthquake recurrence interval of 230 years for an earthquake of MWMw 7.0.
- **San Andreas Fault:** The San Andreas Fault is the largest active fault in California, and extends from the Gulf of California to Cape Mendocino. It was the source of the 1906 MWMw 7.9 San Francisco earthquake. In the Bay Area, various segments of the fault include the southern Santa Cruz Mountains, possible source of the 1989 MWMw 7.0 Loma Prieta earthquake; the Peninsula segment; and the North Coast segment. These segments have been estimated to have a maximum earthquake of MWMw 7, MWMw 7.1, and MWMw 7.9, respectively. This fault is located approximately 30 miles west of Martinez.
- **West Napa Fault:** The West Napa fault consists of a north-northwest-striking zone of short right-lateral strike-slip fault segments in the hills to the west of the city of Napa. The fault extends about 19 miles from Napa to Yountville. It is characterized by well-defined active fault features such as tonal lineations, scarps in late Pleistocene and Holocene alluvium, closed depressions, and right-laterally deflected drainages. The estimated maximum earthquake for the West Napa fault based on fault length and continuity is MWMw 6.5.

SEISMIC HAZARDS

Seismic hazards include both rupture (surface and subsurface) along active faults and ground shaking, which can occur over wider areas. Ground shaking, produced by various tectonic phenomena, is the principal source of seismic hazards in areas devoid of active faults. All areas of the state are subject to some level of seismic ground shaking.

Several scales may be used to measure the strength or magnitude of an earthquake. Magnitude scales (ML) measure the energy released by earthquakes. The Richter scale, which represents

magnitude at the earthquake epicenter, is an example of an ML. As the Richter scale is logarithmic, each whole number represents a 10-fold increase in magnitude over the preceding number. The following table represents effects that would be commonly associated with Richter Magnitudes:

TABLE 3.6-1: RICHTER MAGNITUDES AND EFFECTS

MAGNITUDE	*EFFECTS*
< 3.5	Typically not felt
3.5 – 5.4	Often felt but damage is rare
5.5 – < 6	Damage is slight for well-built buildings
6.1 – 6.9	Destructive potential over ±60 miles of occupied area
7.0 – 7.9	"Major Earthquake" with the ability to cause damage over larger areas
≥ 8	"Great Earthquake" can cause damage over several hundred miles

SOURCE: ASSOCIATION OF BAY AREA GOVERNMENTS, 2015.

Moment Magnitude (Mw) is used by the United States Geological Service (USGS) to describe the magnitude of large earthquakes in the U.S. The value of moment is proportional to fault slip multiplied by the fault surface area. Thus, moment is a measurement that is related to the amount of energy released at the point of movement. The Mw scale is often preferred over other scales, such as the Richter, because it is valid over the entire range of magnitudes. Moment is normally converted to Mw, a scale that approximates the values of the Richter scale.

The last major earthquake on any of these faults was the M 6.0 Livermore Earthquake on the Greenville fault, followed by the Great Hayward Earthquake in 1868, with an estimated magnitude of between 6.8 and 7.0. Neither of these earthquakes had epicenters within Contra Costa County. The Hayward fault has the greatest likelihood of rupturing in the next 30 years of all the faults in the Bay Area, at 31% of a magnitude 6.7 or higher. This earthquake will cause damage roads and utilities, and many homes will be uninhabitable. Contra Costa County (including Martinez) will likely experience liquefaction from this or another major earthquake along the bay and delta regions.

In contrast, other scales describe earthquake intensity, which can vary depending on local characteristics. The Modified Mercalli Scale (MM) expresses earthquake intensity at the surface on a scale of I through XII.

The chart below describes the damage that three common building types can experience at the five highest intensity levels expected in the San Francisco Bay region.

Contra Coast County and the Martinez planning area could experience considerable ground shaking generated by faults located near Martinez. For example, Martinez could experience intensities of MMI-VIII to MMI- IX generated by seismic events occurring along the Concord-Green Valley (ABAG, 2015). The following table represents the potential effects of an earthquake based on the Modified Mercalli Intensities.

TABLE 3.6-2: MODIFIED MERCALLI INTENSITIES AND EFFECTS

MM	*EFFECTS*
I	Movement is imperceptible
II	Movement may be perceived (by those at rest or in tall buildings)
III	Many feel movement indoors; may not be perceptible outdoors
IV	Most feel movement indoors; Windows, doors, and dishes will rattle
V	Nearly everyone will feel movement; sleeping people may be awakened
VI	Difficulty walking; Many items fall from shelves, pictures fall from walls
VII	Difficulty standing; Vehicle shaking felt by drivers; Some furniture breaks
VIII	Difficulty steering vehicles; Houses may shift on foundations
IX	Well-built buildings suffer considerable damage; ground may crack
X	Most buildings and foundations and some bridges destroyed
XI	Most buildings collapse; Some bridges destroyed; Large cracks in ground
XII	Large scale destruction; Objects can be thrown into the air

SOURCE: ASSOCIATION OF BAY AREA GOVERNMENTS, 2011.

The Significant United States Earthquakes 1568 – 2009 data published by the USGS in the National Atlas identifies earthquakes that caused deaths, property damage, geologic effects, or were felt by populations near the epicenter. No significant earthquakes are identified within Martinez; however, significant earthquakes are documented in the region. The following table presents the significant earthquakes in the region.

The City of Martinez could also be subject to major earthquakes along currently inactive or unrecognized faults. Two examples in California include the 1983 Coalinga Quake (6.5 magnitude) and the 1994 Northridge Quake (6.7 magnitude), which was an unknown fault, and a “blind” thrust fault over 10 miles below the surface, respectively. The West Napa Fault which stretches 35 miles (57 km) from the City of St. Helena south to San Pablo Bay, is known to have displaced Holocene-age sediment — which is positive evidence of surface fault rupture in the last 11,000 years. In 2014 this fault produced a magnitude 6.0 earthquake. The West Napa Fault is part of the larger fault zone extending outward from the San Andreas Fault. The San Andreas marks the boundary where the Pacific and North American tectonic plates grind past one another. The West Napa Fault is sandwiched between two larger fault systems: the Hayward-Rodgers Creek Fault, and the Concord-Green Valley Fault. The West Napa 6.0-magnitude earthquake is the largest earthquake in California since the 6.7 magnitude Northridge earthquake in 1994, and the biggest in Northern California since the 1989 Loma Prieta earthquake, a magnitude 6.9.

TABLE 3.6-3: SIGNIFICANT EARTHQUAKES IN THE REGION

MAGNITUDE	*INTENSITY*	*LOCATION*	*YEAR*
6.0	VIII	North Bay (Napa)	2014
6.5	VII	Mendocino	2010
6.6	VIII	San Simeon	2003
5.0	VII	Napa	2000
6.9	IX	Loma Prieta (San Andreas)	1989
5.4	N/A	Santa Cruz County	1989
6.2	N/A	Morgan Hill	1984
5.8, 5.8	VII	Livermore	1980
5.7	N/A	Coyote Lake	1979
5.7, 5.6	N/A	Santa Rosa	1969
5.3, 4.2	N/A	Daly City	1957
5.4	N/A	Concord	1954
6.5	N/A	Calaveras fault	1911
7.9	IX	San Francisco	1906
6.8	N/A	Mendocino	1898
6.2	N/A	Mare Island	1898
6.3	N/A	Calaveras fault	1893
6.2	VIII	Winters	1892
6.4	N/A	Vacaville	1892
6.8	VII	Hayward	1868
6.5	VIII	Santa Cruz Mountains	1865
6.8	N/A	San Francisco Peninsula	1838

SOURCE: CALIFORNIA GEOLOGICAL SURVEY AND USGS 2014

Alquist-Priolo Fault Zones

An active earthquake fault, per California's Alquist-Priolo Act, is one that has ruptured within the Holocene Epoch (≈11,000 years). Based on this criterion, the California Geological Survey identifies Earthquake Fault Zones. These Earthquake Fault Zones are identified in Special Publication 42 (SP42), which is updated as new fault data become available. The SP42 lists all counties and cities within California that are affected by designated Earthquake Fault Zones. The Fault Zones are delineated on maps within SP42 (Earthquake Fault Zone Maps).

There are no Alquist-Priolo Earthquake Fault Zones located within the city limits of Martinez; however, the Concord-Green Valley Fault, which is delineated as Alquist-Priolo Fault Zone is located within the SOI. There are four other major faults delineated as Alquist-Priolo Fault Zones between 20 and 40 miles from Martinez (Hayward fault, West Napa fault, Rodgers Creek fault, and the San Andreas Fault). Figure 3.6-1 illustrates the location of the closest Alquist-Priolo Earthquake Fault Zones.

LIQUEFACTION

Liquefaction, which is primarily associated with loose, saturated materials, is most common in areas of sand and silt or on reclaimed lands. Cohesion between the loose materials that comprise the soil may be jeopardized during seismic events and the ground will take on liquid properties. Thus, liquefaction requires specific soil characteristics and seismic shaking.

In collaboration with the USGS Earthquake Hazard Program, the California Geological Survey (CGS) produces Liquefaction Susceptibility Maps and identifies "Zones of Required Investigation" per the State's Seismic Hazard Zonation Program.

The article *Mapping Liquefaction-Induced Ground Failure Potential* (Youd and Perkins, 1978) provides a generalized matrix to demonstrate the relationship between liquefaction potential and depositional landscapes. The following table, which is recreated from Youd and Perkins, demonstrates the general relationship between the nature and age of sediment and the anticipated liquefaction potential.

Table 3.6-4: LIQUEFACTION POTENTIAL BASED ON SEDIMENT TYPE AND AGE OF DEPOSIT

SEDIMENT	*SUSCEPTIBILITY BASED ON AGE OF DEPOSITS (YEARS BEFORE PRESENT)*			
	MODERN (< 500 YEARS)	*HOLOCENE (< 10,000)*	*PLEISTOCENE (< 2MILLION)*	*PRE-PLEISTOCENE (> 2 MILLION)*
River Channel	Very High	High	Low	Very Low
Flood Plain	High	Moderate	Low	Very Low
Alluvial Fan/Plain	Moderate	Low	Low	Very Low
Lacustrine/Playa	High	Moderate	Low	Very Low
Colluvium	High	Moderate	Low	Very Low
Talus	Low	Low	Very Low	Very Low
Loess	High	High	High	- ? -
Glacial Till	Low	Low	Very Low	Very Low
Tuff	Low	Low	Very Low	Very Low
Tephra	High	High	- ? -	- ? -
Residual Soils	Low	Low	Very Low	Very Low
Sebka	High	Moderate	Low	Very Low
Un-compacted Fill	Very High	NA	NA	NA
Compacted fill	Low	NA	NA	NA

SOURCE: YOUD AND PERKINS, 1978

The CGS Liquefaction Susceptibility Maps and "Zones of Required Investigation" are produced per the State's Seismic Hazard Zonation Program. In Northern California, the areas of high liquefaction potential identified by the CGS are confined to the nine counties comprising the Bay Area, which includes Contra Costa County. Figure 3.6-2 illustrates the liquefaction potential in the vicinity of the Planning Area.

Liquefaction potential in the Planning Area varies from very low to very high. The area designated "very low" potential for liquefaction are located central and southern portions of Planning Area. Moving to the north towards the Carquinez Straight, the potential for liquefaction increases to "very high."

OTHER GEOLOGIC HAZARDS

Soils

Soil is generally defined as the unconsolidated mixture of mineral grains and organic material that mantles the land surface. Soils can develop on unconsolidated sediments and weathered bedrock. The characteristics of soil reflect the five major influences on their development: topography, climate, biological activity, parent (source) material, and time. Soils in Contra Costa County have been mapped by the United States Department of Agriculture (USDA) Soil Conservation Service.[1]

Soils found within the planning area are primarily loams, which is a soil consisting of sand, clay, silt, and organic matter. Soils found in the lowland areas are formed on level to gently sloping alluvial fans and flood plains. In the lowland area, most of the soil within the study area is a clay loam (Botella clay loam). Silty loams are mapped along the western margin (Millsholm complex in cut and fill land and Zamora silty clay loam); and silty clay (Omni silty clay) is mapped along the northern margin. Soils in the upland areas are composed of a loam that forms on steep hillsides underlain by sandstone and shale (Lodo clay loam) and interbedded sedimentary rock (Los Gatos loam). Figure 3.6-3 presents a map of the soils located in the Planning Area.

Erosion

The U.S. Natural Resource Conservation Service (NRCS) delineates soil units and compiles soils data as part of the National Cooperative Soil Survey. The following description of erosion factors is provided by the NRCS Physical Properties Descriptions:

- Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Erosion factor Kw indicates the erodibility of the whole soil, whereas Kf indicates the erodibility of the fine soils. The estimates are modified by the presence of rock fragments.

Soil erosion data for the city of Martinez were obtained from the NRCS. As identified in the table below, the erosion factor Kf varies from 0.15 to 0.37, which is considered moderately low to moderate potential for erosion.

[1] United States Department of Agriculture Soil Conservation Service, 1977. Soil Survey of Contra Costa County, California.

TABLE 3.6-5: SOIL EROSION FACTORS

MAP SYMBOL AND SOIL NAME	KF	REPRESENTATIVE VALUE		
		% SAND	% SILT	% CLAY
AaE: Alo clay, 15-30% slopes	.24	20.6	25.8	42.0
AbD: Altamont clay, 9-15% slopes	.20	20.4	25.8	46.2
AbE: Altamont clay, 15-30% percent slopes	.20	20.4	25.8	46.2
AcF: Altamont-Fontana Complex, 30 -50% slopes	0.20	20.4	25.8	46.2
BaA: Botella clay loam, 0-2% slopes	0.24	18.5	49.1	32.4
BdE2: Briones loamy sand, 15-30% slopes, eroded	0.15	69.6	14.7	2.2
BdF2: Briones loamy sand, 30-50% slopes, eroded	0.15	66.7	14.1	2.1
Cc: Clear Lake clay, 0-15% slopes, MLRA 15	0.24	26.9	29.2	43.8
CeA: Conejo clay loam, 0-2% slopes	0.20	35.4	33.6	31.0
CkB: Cropley clay, 2-5% slopes	0.20	22.8	28.7	48.5
CmE: Cut and fill land-Diablo complex, 9-30% slopes	--		50.9	31
CnE: Cut and fill land-Los Osos complex, 9-30% slopes	--	22.1	27.9	50.0
CoE: Cut and fill land-Millsholm complex, 9-30% slopes	--		33.6	30.0
DdE: Diablo clay, 15-30% slopes	0.20	15.5	30.3	45.7
DeF: Dibble silty clay loam, 30-50% slopes	0.37	12.7	41.5	34.2
GaA: Garretson loam, 0-2% slopes	0.37	40.8	37.8	21.4
GbE: Gaviota sandy loam, 15-30% slopes, MLRA 15	0.28	60.0	25.0	15
GbG: Gaviota sandy loam, 50-75% slopes, MLRA 15	0.28	60.0	25.0	15
Ja: Joice muck	--	18.1	50.9	13.8
LcE: Lodo clay loam, 9-30% slopes	0.28	29.1	27.6	25.5
LcF: Lodo clay loam, 30-50% slopes, very rocky, MLRA 15	--	6.7	62.3	30.1
LeE: Los Gatos loam, 15-30% slopes	0.28	32.1	33.5	25.3
LeF: Los Gatos loam, 30-50% slopes	0.28	32.1	33.5	25.3
LeG: Los Gatos loam, 50-75% slopes	0.28	32.1	33.5	25.3
LhE: Los Osos clay loam, 15-30% slopes	0.28	26.7	27.6	34.7
LhF: Los Osos clay loam, 30-50% slopes, MLRA 15	0.28	32.8	28.0	39.2
MeE: Millsholm loam, 15-30% slopes, MLRA 15	0.32	40.0	36.9	23.1
MeF: Millsholm loam, 30-50% slopes	0.37	28.7	27.3	17.2
Oa: Omni clay loam	0.28	29.5	29.4	41.1
Ob: Omni silty clay	0.32	24.9	33.4	41.8
PkA: Positas loam, 0-2% slopes	--	--	--	--
PkC: Positas loam, 2-9% slopes	0.37	29.1	31.4	39.5
Ra: Reyes silty clay	0.24	5.3	44.7	50.0
TaC: Tierra loam, 2-9% slopes	0.28	28.7	34.8	36.5
Ub: Urban land	--	--	--	--
ZaA: Zamora silty clay loam, 0-2% slopes	0.37	12.2	55.9	31.9
ZaB: Zamora silty clay loam, 2-5% slopes	0.37	12.2	55.9	31.9

SOURCE: NATURAL RESOURCE CONSERVATION SERVICE, 2015. "REPRESENTATIVE" VALUE INDICATES THE EXPECTED VALUE OF THIS ATTRIBUTE FOR THE COMPONENT.

Expansive Soils

The NRCS delineates soil units and compiles soils data as part of the National Cooperative Soil Survey. The following description of linear extensibility (also known as shrink-swell potential or expansive potential) is provided by the NRCS Physical Properties Descriptions:

> *"Linear extensibility" refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.*
>
> *The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.*

The linear extensibility of the soils within Martinez ranges from Low (1.1) to High (8.3). Figure 3.6-4 illustrates the shrink-swell potential of soils in the Planning Area. The majority of the Planning Area has moderate or high expansive soils, including most of the undeveloped land. The areas with moderate to high expansive soils would require special design considerations due to shrink-swell potentials.

Landslide

The California Geological Survey classifies landslides with a two-part designation based on Varnes (1978) and Cruden and Varnes (1996). The designation captures both the type of material that failed and the type of movement that the failed material exhibited. Material types are broadly categorized as either rock or soil, or a combination of the two for complex movements. Landslide movements are categorized as falls, topples, spreads, slides, or flows.

Landslide potential is influenced by physical factors, such as slope, soil, vegetation, and precipitation. Landslides require a slope, and can occur naturally from seismic activity, excessive saturation, and wildfires, or from human-made conditions such as construction disturbance, vegetation removal, wildfires, etc.

Within Martinez, the hillsides have a high susceptibility for landslides, while the relatively flat areas have a low susceptibility. Figure 3.6-5 illustrates the landslide potential in the vicinity of the Planning Area. Given the relatively steep slopes in the western portion of the planning area, the western arras of the city experience a high potential for earthflow (landslide) events.

Lateral Spreading

Lateral spreading generally is a phenomenon where blocks of intact, non-liquefied soil moves down slope on a liquefied substrate of large areal extent. The potential for lateral spreading is present where open banks and unsupported cut slopes provide a free face (unsupported vertical

slope face). Ground shaking, especially when inducing liquefaction, may cause lateral spreading toward unsupported slopes. The greatest potential for lateral spreading in the Planning Area is in the sloped terrain (also susceptible to liquefaction) to the west and east.

Subsidence

Subsidence is the settlement of soils of very low density generally from either oxidation of organic material, or desiccation and shrinkage, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. In Contra Costa County, subsidence occurs in the Delta plain and is caused by the natural process of oxidation of island peat soils, resulting in a gradual sinking of the ground. As many of the islands in the Delta (along with their levees) sink in elevation, the levees that protect the island's agricultural and/or residential uses must be raised and reinforced by adding more earth fill to the top of the levees.

Recent evidence indicates that many Delta islands in the region have experienced significant subsidence over the last several decades. For example, it is estimated that Webb Tract in Contra Costa County has subsided up to 17 feet. Most reclaimed portions of the Delta in the County have subsided at least 10 feet. Modern sediments in northern portion of the Planning Area include soft, water saturated muds, peat and loose sands. These soils are potentially susceptible to oxidation and are associated with land subsidence.

Corrosivity

Corrosivity refers to potential soil-induced electrochemical or chemical action that could corrode or deteriorate concrete, reinforcing steel in concrete structures, and bare-metal structures exposed to these soils. The rate of corrosion is related to factors such as soil moisture, particle-size distribution, and the chemical composition and electrical conductivity of the soil. The natural soils found in the Planning Area may be moderately corrosive. The materials used in the construction of modern infrastructure are typically designed to resist the effects of corrosion over the design life of the infrastructure. In addition, native soils are typically replaced by engineered backfill which generally has a low corrosive potential.

Naturally Occurring Asbestos

The term “asbestos” is used to describe a variety of fibrous minerals that, when airborne, can result in serious human health effects. Naturally occurring asbestos is commonly associated with ultramafic rocks and serpentinite. Ultramafic rocks, such as dunite, peridotite, and pyroxenite are igneous rocks comprised largely of iron-magnesium minerals. As they are intrusive in nature, these rocks often undergo metamorphosis, prior to their being exposed on the Earth’s surface. The metamorphic rock serpentinite is a common product of the alteration process. The Department of Conservation Division of Mines and Geology has mapped Naturally occurring asbestos in Contra Costa County. There are no mapped deposits of naturally occurring asbestos within the planning area. The nearest deposits are located in mountainous areas south of the planning area.

Tsunami/Seiches

Tsunamis and seiches are standing waves that occur in the ocean or relatively large, enclosed bodies of water (i.e., large lakes and bays) that can follow seismic, landslide, and other events from local sources (California, Oregon, Washington coast) or distant sources (Pacific Rim, South American Coast, Alaska/Canadian coast). The Planning Area is sufficiently distant from the open Ocean and San Francisco Bay to reduce effects from a tsunami. However, a small portion of land along the Martinez shoreline along the mudflats is at risk of inundation.

STRUCTURAL DAMAGE

Fault Rupture Damage. There are known active faults that have been mapped within the Planning Area, and the potential for structures to be adversely affected by fault rupture is considered to be high based on the close proximity of known faults. The California Geological Survey has established Alquist-Priolo Earthquake Fault Zones in the Planning Area outside the city limits (located within the city's SOI to the east). Several area faults including the nearby Concord fault have a greater than a 50% probability of occurrence to experience a magnitude 5.0 - 6.0 over the next 50 years.

Ground Shaking Damage. As is the case for most areas within California, the potential for seismic ground shaking in the Planning Area is expected. As a result, the State requires special design considerations for all structural improvements in accordance with the seismic design provisions in the California Building Code. California's seismic design provisions require enhanced structural integrity based on several risk parameters with the ultimate objective of protecting the life and safety of building occupants and the public. For large earthquakes, the seismic design standards primarily ensure that the building will not collapse, but some structural and non-structural damage may be expected. Older buildings constructed of unreinforced masonry, including materials such as brick, concrete, and stone, pre-1940 wood frame houses, and pre-1973 tilt-up concrete buildings are particularly susceptible to structural damage from ground shaking. In most cases, these older buildings require retrofit, or they risk significant structural damage during an earthquake.

Liquefaction Damage. The liquefaction potential in the Planning Area varies from "very low" to "very high," with the majority of the Planning Area designated "very low" or "moderate." Portions of the planning area that are increasingly susceptible to liquefaction are located along the northern portions of the city near the shoreline areas. Liquefaction poses a substantial source of hazard to structures and infrastructure located throughout the Planning Area. There are a variety of geotechnical strategies that can be implemented to mitigate the potential for structural damage. These include appropriate foundation design, engineering soils, groundwater management, and the use of special flexible materials for construction.

Landslide and Lateral Spreading Damage. Given the relatively steep slopes throughout the western portion of the Planning Area, the landslide and lateral spreading potential is high. The landslide and lateral spreading potential increases some in the hilly terrain in the west portion of the Planning Area, and is moderate throughout the central portion where the slopes decrease. There are a variety of geotechnical strategies that can be implemented to mitigate the potential for

landslide and lateral spreading in this area. These include engineering soils, groundwater management, surface water control, slope reconfiguration, and structural reinforcement if necessary.

3.6.2 REGULATORY SETTING

FEDERAL REGULATIONS

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act of 1977 (42 USC, 7701 et seq.) requires the establishment and maintenance of an earthquake hazards reduction program by the federal government.

Executive Order 12699

Signed in January 1990, this executive order of the President implements provisions of the Earthquake Hazards Reduction Act for “federal, federally assisted or federally regulated new building construction” and requires the development and implementation of seismic safety programs by federal agencies.

International Building Code (IBC)

The purpose of the International Building Code (IBC) is to provide minimum standards to preserve the public peace, health, and safety by regulating the design, construction, quality of materials, certain equipment, location, grading, use, occupancy, and maintenance of all buildings and structures. IBC standards address foundation design, shear wall strength, and other structurally related conditions.

STATE REGULATIONS

California Building Standards Code

Title 24 of the California Code of Regulations, known as the California Building Standards Code (CBSC) or simply "Title 24," contains the regulations that govern the construction of buildings in California. The CBSC includes 12 parts: California Building Standards Administrative Code, California Building Code, California Residential Building Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Historical Building Code, California Fire Code, California Existing Building Code, California Green Building Standards Code (CAL Green Code), and the California Reference Standards Code. Through the CBSC, the State provides a minimum standard for building design and construction. The CBSC contains specific requirements for seismic safety, excavation, foundations, retaining walls, and site demolition. It also regulates grading activities, including drainage and erosion control.

CA Health and Safety Code

Section 19100 et seq. of the California Health and Safety Code establishes the state’s regulations for earthquake protection. This section of the code requires structural designs to be capable of resisting likely stresses produced by phenomena such as strong winds and earthquakes.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 sets forth the policies and criteria of the State Mining and Geology Board, which governs the exercise of governments' responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The policies and criteria are limited to potential hazards resulting from surface faulting or fault creep within Earthquake Fault Zones, as delineated on maps officially issued by the State Geologist. Working definitions include:

- Fault – a fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side;
- Fault Zone – a zone of related faults, which commonly are braided and sub parallel, but may be branching and divergent. A fault zone has a significant width (with respect to the scale at which the fault is being considered, portrayed, or investigated), ranging from a few feet to several miles;
- Sufficiently Active Fault – a fault that has evidence of Holocene surface displacement along one or more of its segments or branches (last 11,000 years); and
- Well-Defined Fault – a fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface. The geologist should be able to locate the fault in the field with sufficient precision and confidence to indicate that the required site-specific investigations would meet with some success.

"Sufficiently Active" and "Well Defined" are the two criteria used by the State to determine if a fault should be zoned under the Alquist-Priolo Act.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically-induced landslides. Under the Act, seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning. The program and actions mandated by the Seismic Hazards Mapping Act closely resemble those of the Alquist-Priolo Earthquake Fault Zoning Act (which addresses only surface fault-rupture hazards) and are outlined below:

The State Geologist is required to delineate the various "seismic hazard zones."

- Cities and counties, or other local permitting authority, must regulate certain development "projects" within the zones. They must withhold the development permits for a site within a zone until the geologic and soil conditions of the site are investigated and appropriate mitigation measures, if any, are incorporated into development plans.
- The State Mining and Geology Board provides additional regulations, policies, and criteria to guide cities and counties in their implementation of the law. The Board also provides

guidelines for preparation of the Seismic Hazard Zone Maps and for evaluating and mitigating seismic hazards.

- Sellers (and their agents) of real property within a mapped hazard zone must disclose that the property lies within such a zone at the time of sale.

Caltrans Seismic Design Criteria

The California Department of Transportation (Caltrans) has Seismic Design Criteria (SDC), which is an encyclopedia of new and currently practiced seismic design and analysis methodologies for the design of new bridges in California. The SDC adopts a performance-based approach specifying minimum levels of structural system performance, component performance, analysis, and design practices for ordinary standard bridges. The SDC has been developed with input from the Caltrans Offices of Structure Design, Earthquake Engineering and Design Support, and Materials and Foundations. Memo 20-1 Seismic Design Methodology (Caltrans 1999) outlines the bridge category and classification, seismic performance criteria, seismic design philosophy and approach, seismic demands and capacities on structural components, and seismic design practices that collectively make up Caltrans' seismic design

Division of Mines and Geology

The California Division of Mines and Geology (DMG) operates within the Department of Conservation. The DMG is responsible for assisting in the utilization of mineral deposits and the identification of geological hazards.

State Geological Survey

Similar to the DMG, the California Geological Survey is responsible for assisting in the identification and proper utilization of mineral deposits, as well as the identification of fault locations and other geological hazards.

LOCAL REGULATIONS

City of Martinez General Plan

The adopted City of Martinez General Plan identifies goals and policies related to geologic and seismic hazards in the Safety Element.

3.6.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on geology and soils if it will:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault; or

  - Strong seismic ground shaking; or
  - Seismic-related ground failure, including liquefaction, or
  - Landslides.

- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; or
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;

IMPACTS AND MITIGATION MEASURES

Impact 3.6-1: General Plan implementation has the potential to expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction (Less than Significant)

There are known active or potentially active faults, or Alquist-Priolo Earthquake Fault Zones, located within the Planning Area. Additionally, there are numerous faults located in the region. Figure 3.6-1 illustrates the location of these faults. Active faults in the region include the Antioch, Calaveras, Concord, Green Valley, Greenville, Franklin, Hayward, Rodgers Creek, and the San Andreas. Within the region are additional faults that are not considered active, but show evidence of being active within the last 1.6 million years including the Southampton fault which has a small portion within the western city limit of Martinez. Rupture of any of these faults, or of an unknown fault in the region could cause seismic ground shaking. As a result, future development in the City of Martinez may expose people or structures to potential adverse effects associated with a seismic event, including strong ground shaking and seismic-related ground failure.

There are seismic hazard zones mapped in the Planning Area; additionally, the Contra Costa County Conservation and Development Department estimates greater than a 50% probability of occurrence of a 5.0 - 6.0 magnitude earthquake over the next 50 years in the Martinez Planning Area, as well as many other communities within eastern Contra Costa County.

Because there are known active faults within the regional vicinity, and located within the Martinez Planning Area, the area could experience considerable ground shaking generated by nearby faults. For example, according to ABAG, Martinez could experience intensities of MMI-VIII to MMI- IX generated by seismic events occurring along the Concord-Green Valley (ABAG, 2015). The effect of this intensity level could cause poorly constructed buildings to suffer partial or full collapse. Some well-constructed buildings could be damaged, and unreinforced walls could fall. Poorly

constructed buildings could collapse, well-constructed buildings could be heavily damaged, and retrofitted buildings could be damaged.

All projects would be required to comply with the provisions of the California Building Standards Code, which requires development projects to: perform geotechnical investigations in accordance with state law, engineer improvements to address potential seismic and ground failure issues, and to use earthquake-resistant construction techniques to address potential earthquake loads when constructing buildings and improvements. As future development and infrastructure projects are considered by the City, each project will be evaluated for conformance with the California Building Code, the City's General Plan, Zoning Ordinance, and other regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. In addition to the requirements associated with the CBC and the Municipal Code, the General Plan includes policies and actions to address potential impacts associated with seismic activity.

The General Plan policies (listed below) require new land development proposals to avoid unreasonable exposure to geologic hazards, including earthquake damage, subsidence, liquefaction and expansive soils. All development and construction proposals must be reviewed by the City to ensure conformance with applicable building standards. Implementation of applicable General Plan policies and building code requirements ensure that development on soils sensitive to seismic activity is only allowed after adequate site analysis, including appropriate siting, design of structure, and foundation integrity. With the implementation of the policies and actions in the General Plan, as well as applicable state and City codes listed above, potential impacts as associated with a seismic event, including rupture of an earthquake fault, seismic ground shaking, and liquefaction would be **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Seismic and Geologic Hazards

Goals

PS-G-1 *Minimize the risks associated with seismic and subsidence activity.*

PS-G-2 *Minimize risks of property damage and personal injury posed by geologic and seismic hazards.*

PS-G-3 *Reduce Risks Associated with Seismic and Subsidence Activity.*

Policies

PS-P-1.1 *Assure existing and proposed structures are designed to contemporary standards for seismic safety.*

PS-P-1.2 *In areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions.*

PS-P-2.1 *Continue to use structural design criteria, codes, and other programs and policies to protect the public from seismic effects, such as, liquefaction, seismic response of*

unconsolidated geologic formations, collapse-hazard buildings, and other seismic-induced failures of existing structures.

PS-P-3.1 Consider prohibiting construction of buildings, roads, and utilities in landslide-prone hillsides.

PS-P-3.2 Study on a site-specific basis, the density, suitability, and selection of appropriate construction techniques in those areas where moderate soil limitations are present.

PS-P-3.3 Discourage for reasons of public health, the use of septic tanks, tile filter fields, or sewerage ponds in areas where soil conditions constitute a severe limitation for such practices.

PS-P-3.4 Support efforts by State and regional agencies to promote public awareness of potential geologic and seismic hazards.

PS-P-3.5 New development and redevelopment projects with the potential for geological hazards, such as slope failures or soil subsidence, shall be subject to geotechnical evaluation prior to approval.

PS-P-3.6 Require that soils reports concerning hillside development are subject to peer review.

PS-P-3.7 Conduct landslide repair operations in conjunction with new development.

PS-P-3.8 Maintain current information on seismic hazards and landsliding.

Implementation Measures

PS –I- 2.1.a Enforce California Building Code.

Enforce requirements of the California Building Code, including seismic design provisions, as part of the building permit issuance and inspection process.

PS –I- 2.1.b Adopt Updated CBC.

Adopt updated versions of the California Building Code to address new technical and structural requirements to improve safety.

PS –I-3.1.a Denial Conditions

The City may deny applications for development on excessively steep hillsides where slope stability mitigations are not deemed feasible by the City Engineer and where a significant hazard to City residents may result from construction of a proposed development.

PS –I- 3.1.b Geotechnical Reports

Require new development and redevelopment projects in hillside areas or areas subject to subsidence to submit a geologic investigation and a report by a qualified engineering geologist with application materials. The reports shall address potential for slope failure, soil subsidence and related geologic events, and recommend measures to minimize hazards.

PS –I- 3.1.c Development Standards

In areas with identified geotechnical hazards, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

PS –I-3.1d Drought Resistant Plants

Require the use of drought-tolerant plants in hillside areas to reduce excessive watering of hillsides.

PS –I- 3.1.f Site and Building Design

Include site planning and building design features that reduce potential impacts from geologic hazards in the City's Design Guidelines, including provisions to limit damage to structures caused by subsidence and accepted grading practices on hillsides.

PS –I- 3.1.g Subdivision Design

Condition subdivision and lot line adjustment approvals to assure that lots on hillsides are large enough to provide flexibility in finding a stable buildable site and driveway location.

PS – 3.7.a Landslide Mitigation

Where known landslide areas exist, require comprehensive landslide mitigation actions to improve slope stability. This can include, with affected property owner support, landslide repair extending beyond the boundaries of a proposed development project site. As part of the review and approval of development and public works projects, the planting of vegetation on unstable slopes to protect structures at lower elevations or other appropriate measures shall be incorporated into the project design. Native plants may be required for landscaping in areas with landslide potential to eliminate the need for supplemental watering and to reduce the risk of landslide.

PS- I– 3.8.a Seismic and Landslide Hazards

Develop and periodically update City maps and information on seismic and landslide hazards for use in evaluating development proposals.

Impact 3.6-2: General Plan implementation has the potential to result in substantial soil erosion or the loss of topsoil (Less than Significant)

The General Plan would allow development and improvement projects that would involve some land clearing, mass grading, and other ground-disturbing activities that could temporarily increase soil erosion rates during and shortly after project construction. Construction-related erosion could result in the loss of a substantial amount of nonrenewable topsoil and could adversely affect water quality in nearby surface waters.

Soil erosion data for the city of Martinez were obtained from the NRCS. As identified in Table 3.6-5, the erosion factor Kf varies from 0.15 to 0.37, which is considered a moderately low to moderate potential for erosion.

As future development and infrastructure projects are considered by the City of Martinez, each project will be evaluated for conformance with the California Building Code, the General Plan, Zoning Ordinance, and other regulations. In addition to compliance with City standards and policies, the Regional Water Quality Control Board will require a project specific Storm Water Pollution Prevention Plan (SWPPP) to be prepared for each projects that disturbs an area of one acre or larger. The SWPPPs will include project specific best management measures that are designed to control drainage and erosion. Subsequent development and infrastructure projects

would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA.

The General Plan Public Safety and Open Space and Conservation elements include goals policies and implementation measures related to development on slopes, revegetation of slopes, erosion and sediment control, drainage and erosion requirements, and stabilization slopes after grading. With the implementation of the policies and actions in the General Plan, as well as applicable state and City requirements listed above, potential impacts associated with erosion including the loss of topsoil would be **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Seismic and Geologic Hazards

Goals

PS-G-1 Minimize the risks associated with seismic and subsidence activity.

PS-G-2 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

PS-G-3 Reduce Risks Associated with Seismic and Subsidence Activity.

Policies

PS-P-1.2 In areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions.

PS-P-3.1 Consider prohibiting construction of buildings, roads, and utilities in landslide-prone hillsides.

PS-P-3.4 Support efforts by State and regional agencies to promote public awareness of potential geologic and seismic hazards.

PS-P-3.5 New development and redevelopment projects with the potential for geological hazards, such as slope failures or soil subsidence, shall be subject to geotechnical evaluation prior to approval.

PS-P-3.6 Require that soils reports concerning hillside development are subject to peer review.

PS-P-3.7 Conduct landslide repair operations in conjunction with new development.

PS – 3.8 Maintain current information on seismic hazards and land sliding.

Implementation Measures

PS –I- 3.1.b Geotechnical Reports

Require new development and redevelopment projects in hillside areas or areas subject to subsidence to submit a geologic investigation and a report by a qualified engineering geologist with application materials. The reports shall address potential for slope failure, soil subsidence and related geologic events, and recommend measures to minimize hazards.

PS –I- 3.1.c Development Standards

In areas with identified geotechnical hazards, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

PS –I- 3.1.f Site and Building Design

Include site planning and building design features that reduce potential impacts from geologic hazards in the City's Design Guidelines, including provisions to limit damage to structures caused by subsidence and accepted grading practices on hillsides.

PS – 3.7.a Landslide Mitigation

Where known landslide areas exist, require comprehensive landslide mitigation actions to improve slope stability. This can include, with affected property owner support, landslide repair extending beyond the boundaries of a proposed development project site. As part of the review and approval of development and public works projects, the planting of vegetation on unstable slopes to protect structures at lower elevations or other appropriate measures shall be incorporated into the project design. Native plants may be required for landscaping in areas with landslide potential to eliminate the need for supplemental watering and to reduce the risk of landslide.

PS- I-3.8.a Seismic and Landslide Hazards

Develop and periodically update City maps and information on seismic and landslide hazards for use in evaluating development proposals.

Open Space and Conservation Element

Policies

OSC-P-2.2 Discourage the large scale alteration of the topography to accommodate incompatible development patterns to prevent severe erosion and hydrologic hazard through planning and engineering review of soils and hydrology reports.

OSC-P-2.3 Encourage grading alterations which do not induce or accelerate natural channel grading, sheet erosion, gullying and other forms of erosion, through adoption of conditions of approval as part of the development process.

OSC-P-9.1 Grading, filling and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

Implementation Measures

OSC-I-9.1d Enforce development guidelines that protect areas that are susceptible to erosion or other factors that would pose significant impacts to local waterways.

OSC-I-2.1.a In areas with identified geologic conditions, including, but not limited to unstable soils, landslides, or soil creep, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions, typically requiring the placement of hazard areas within parcels to be designated as open space.

Impact 3.6-3: General Plan implementation has the potential to be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse (Less than Significant)

Development allowed under the General Plan could result in the exposure of people and structures to conditions that have the potential for adverse effects associated with ground instability or failure. Soils and geologic conditions in the City of Martinez have the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse. Each are discussed below:

Landslide: Within Contra Costa County, the hillsides have some susceptibility for landslides, while the valleys have a low susceptibility. Figure 3.6-5 illustrates the landslide potential in the vicinity of the Planning Area. Given the relatively level slopes throughout eastern portion of Martinez, the landslide potential is very low. The landslide potential increases in the foothills and mountainous areas to the west and south of the Planning Area.

Lateral Spreading: Lateral spreading generally is a phenomenon where blocks of intact, non-liquefied soil moves down slope on a liquefied substrate of large areal extent. The potential for lateral spreading is present where open banks and unsupported cut slopes provide a free face (unsupported vertical slope face). Ground shaking, especially when inducing liquefaction, may cause lateral spreading toward unsupported slopes. The greatest potential for lateral spreading in the Planning Area is in the hilly terrain to the west and east that has a moderate potential for liquefaction.

Subsidence: In Contra Costa County, subsidence occurs in the Delta plain and is caused by the natural process of oxidation of island peat soils, resulting in a gradual sinking of the ground. As many of the islands in the Delta (along with their levees) sink in elevation, the levees that protect the island's agricultural and/or residential uses must be raised and reinforced by adding more earth fill to the top of the levees.

Recent evidence indicates that many Delta islands in the region have experienced significant subsidence over the last several decades. For example, it is estimated that Webb Tract in Contra Costa County has subsided up to 17 feet. Most reclaimed portions of the Delta in the County have subsided at least 10 feet. The greatest potential for subsidence is in the northern portion of the Planning Area where modern sediments include soft, water saturated muds, peat and loose sands. These soils are potentially susceptible to oxidation and are associated with land subsidence.

Liquefaction: Liquefaction potential in the Planning Area varies from very low to very high. The majority of the Planning Area is designated "very low" or “low” potential for liquefaction. The Alhambra Creek area has a “moderate” potential for liquefaction. Moving to the north along the waterfront the potential for liquefaction increases to “very high.” Figure 3.6-2 illustrates the liquefaction potential in the vicinity of the Planning Area.

Collapse: Collapsible soils undergo a rearrangement of their grains and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. Collapsible soils occur predominantly at the base of mountain ranges, where Holocene-age alluvial fan and wash sediments have been deposited during rapid run-off events. Differential settlement of structures typically occurs when heavily irrigated landscape areas are near a building foundation. Examples of common problems associated with collapsible soils include tilting floors, cracking or separation in structures, sagging floors, and nonfunctional windows and doors.

Conclusion: As future development and infrastructure projects are considered by the City of Martinez, each project will be evaluated for conformance with the California Building Code, the General Plan, Zoning Ordinance, and other regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA. Future development and improvement projects would be required to have a specific geotechnical study prepared and incorporated into the improvement design, consistent with the requirements of the state and city codes. In addition to the requirements associated with the CBC and the Municipal Code, the General Plan includes policies and actions to ensure that development, infrastructure, and other projects address potential ground failure and instability issues through compliance with applicable building standards, identification of potential geologic hazards, preparation of geotechnical studies, and appropriate site analysis and engineering measures to mitigate any identified hazards, including landslides, lateral spreading, liquefaction, and other potential ground failures, to an acceptable level. With the implementation of the policies and actions in the General Plan, as well as applicable state and city codes, potential impacts as associated ground instability or failure would be **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Safety Element

Seismic and Geologic Hazards

Goals

PS-G-1 Minimize the risks associated with seismic and subsidence activity.

PS-G-2 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

PS-G-3 Reduce Risks Associated with Seismic and Subsidence Activity.

Policies

PS-P-1.1 Assure existing and proposed structures are designed to contemporary standards for seismic safety.

PS-P-1.2 In areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions.

PS-P-2.1 Continue to use structural design criteria, codes, and other programs and policies to protect the public from seismic effects, such as, liquefaction, seismic response of

unconsolidated geologic formations, collapse-hazard buildings, and other seismic-induced failures of existing structures.

PS-P-3.1 Consider prohibiting construction of buildings, roads, and utilities in landslide-prone hillsides.

PS-P-3.2 Study on a site-specific basis, the density, suitability, and selection of appropriate construction techniques in those areas where moderate soil limitations are present.

PS-P-3.3 Discourage for reasons of public health, the use of septic tanks, tile filter fields, or sewerage ponds in areas where soil conditions constitute a severe limitation for such practices.

PS-P-3.4 Support efforts by State and regional agencies to promote public awareness of potential geologic and seismic hazards.

PS-P-3.5 New development and redevelopment projects with the potential for geological hazards, such as slope failures or soil subsidence, shall be subject to geotechnical evaluation prior to approval.

PS-P-3.6 Require that soils reports concerning hillside development are subject to peer review.

PS-P-3.7 Conduct landslide repair operations in conjunction with new development.

PS – 3.8 Maintain current information on seismic hazards and landsliding.

Implementation Measures

PS –I- 2.1.a Enforce California Building Code. Enforce requirements of the California Building Code, including seismic design provisions, as part of the building permit issuance and inspection process.

PS-I- 2.1.b Adopt Updated CBC. Adopt updated versions of the California Building Code to address new technical and structural requirements to improve safety.

PS –I-3.1.a Denial Conditions. The City may deny applications for development on excessively steep hillsides where slope stability mitigations are not deemed feasible by the City Engineer and where a significant hazard to City residents may result from construction of a proposed development.

PS –I- 3.1.b Geotechnical Reports. Require new development and redevelopment projects in hillside areas or areas subject to subsidence to submit a geologic investigation and a report by a qualified engineering geologist with application materials. The reports shall address potential for slope failure, soil subsidence and related geologic events, and recommend measures to minimize hazards.

PS –I- 3.1.c Development Standards. In areas with identified geotechnical hazards, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

PS –I-3.1d Drought Resistant Plants. Require the use of drought-tolerant plants in hillside areas to reduce excessive watering of hillsides.

PS –I- 3.1.f Site and Building Design. Include site planning and building design features that reduce potential impacts from geologic hazards in the City's Design Guidelines, including provisions to limit damage to structures caused by subsidence and accepted grading practices on hillsides.

PS –I- 3.1.g Subdivision Design. Condition subdivision and lot line adjustment approvals to assure that lots on hillsides are large enough to provide flexibility in finding a stable buildable site and driveway location.

PS – 3.7.a Landslide Mitigation. Where known landslide areas exist, require comprehensive landslide mitigation actions to improve slope stability. This can include, with affected property owner support, landslide repair extending beyond the boundaries of a proposed development project site. As part of the review and approval of development and public works projects, the planting of vegetation on unstable slopes to protect structures at lower elevations or other appropriate measures shall be incorporated into the project design. Native plants may be required for landscaping in areas with landslide potential to eliminate the need for supplemental watering and to reduce the risk of landslide.

PS- I-3.8.a Seismic and Landslide Hazards. Develop and periodically update City maps and information on seismic and landslide hazards for use in evaluating development proposals.

Impact 3.6-4: General Plan implementation has the potential to result in development on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property (Less than Significant)

Expansive soil properties can cause substantial damage to building foundations, piles, pavements, underground utilities, and/or other improvements. Structural damage, such as warping and cracking of improvements, and rupture of underground utility lines may occur if the expansive potential of soils is not considered during the design and construction of all improvements.

Linear extensibility is a method for measuring expansion potential. The expansion potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

The linear extensibility of the soils within Martinez ranges from Low (1.1) to High (8.3). Figure 3.6-4 illustrates the shrink-swell potential of soils in the Planning Area. The majority of the Planning Area has moderate or high expansive soils, including most of the undeveloped land. The areas with moderate to high expansive soils would require special design considerations due to shrink-swell potentials.

As future development and infrastructure projects are considered by the City, each project will be evaluated for conformance with the California Building Code, City's General Plan, Zoning Ordinance, and other applicable regulations. Subsequent development and infrastructure projects would also be analyzed for potential environmental impacts, consistent with the requirements of CEQA.

The Public Safety Element of the General Plan establishes goals, policies and implementation measures that are designed to protect people and structures from geologic hazards. Goal PS-G-2 is to minimize the risk of property damage and personal injury posed by geologic and seismic hazards. PS-P-1.2 ensures that areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions. PS-P-3.2 requires geologic study on a site-specific basis, the density, suitability, and selection of appropriate construction techniques in areas where moderate soil limitations are present. PS-P-3.5 requires new development and redevelopment projects with the potential for geological hazards to be subject to geotechnical evaluation prior to approval. PS –I- 3.1.c provides development standards In areas with identified geotechnical hazards, and requires development to conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

Consistency with the General Plan goals, policies, and implementation measures will require a site-specific design-level geotechnical investigation, prepared by a licensed professional, and submitted to the City for review and confirmation. A site-specific geotechnical investigation will identify the potential for damage related to expansive soils and non-uniformly compacted fill and engineered fill. If a risk is identified, design criteria and specification options may include removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill material that is designed to withstand the forces exerted during the expected shrink-swell cycles and settlements.

Design criteria and specifications set forth in the design-level geotechnical investigation will ensure impacts from problematic soils are minimized. There are no additional significant adverse environmental impacts, apart from those disclosed in the relevant chapters of this Draft EIR, that are anticipated to occur associated with expansive soils. Therefore, this impact is considered **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Seismic and Geologic Hazards

Goals

PS-G-2 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

Policies

PS-P-1.2 In areas with identified geotechnical hazards, development shall conform to the mitigation measures identified in a site-specific geotechnical report and/or project and site modification to respond to the site's hazards and conditions.

PS-P-2.1 Continue to use structural design criteria, codes, and other programs and policies to protect the public from seismic effects, such as, liquefaction, seismic response of

unconsolidated geologic formations, collapse-hazard buildings, and other seismic-induced failures of existing structures.

PS-P-3.2 Study on a site-specific basis, the density, suitability, and selection of appropriate construction techniques in those areas where moderate soil limitations are present.

PS-P-3.4 Support efforts by State and regional agencies to promote public awareness of potential geologic and seismic hazards.

PS-P-3.5 New development and redevelopment projects with the potential for geological hazards, such as slope failures or soil subsidence, shall be subject to geotechnical evaluation prior to approval.

Implementation Measures

PS –I- 2.1.a Enforce California Building Code.

Enforce requirements of the California Building Code, including seismic design provisions, as part of the building permit issuance and inspection process.

PS-I-2.1.b Adopt Updated CBC.

Adopt updated versions of the California Building Code to address new technical and structural requirements to improve safety.

PS-I- 3.1.b Geotechnical Reports

Require new development and redevelopment projects in hillside areas or areas subject to subsidence to submit a geologic investigation and a report by a qualified engineering geologist with application materials. The reports shall address potential for slope failure, soil subsidence and related geologic events, and recommend measures to minimize hazards.

PS –I- 3.1.c Development Standards

In areas with identified geotechnical hazards, development shall conform to geotechnical report mitigation measures and/or project and site modifications to respond to site-specific hazards and conditions.

PS –I- 3.1.f Site and Building Design

Include site planning and building design features that reduce potential impacts from geologic hazards in the City's Design Guidelines, including provisions to limit damage to structures caused by subsidence and accepted grading practices on hillsides.

Impact 3.6-5: General Plan implementation does not have the potential to have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water (Less than Significant)

Wastewater services are provided by Central Contra Costa Sanitary District (CCCSD) and Mt. View Sanitary District (MVSD). CCCSD treats about two-thirds of the wastewater generated within Martinez. MVSD treats the central eastern portion of the City. County Sanitation District #6 does use septic tank disposal of wastewater; however, no new connections to SD-6 would occur under the General Plan. No septic tanks or alternative waste water disposal systems utilized for new development are planned under the General Plan. Additionally General Plan Policy PS-P-3.3 discourages the use of septic tanks, tile filter fields, or sewerage ponds in areas where soil

conditions constitute a severe limitation for such practices. There are no additional environmental impacts, apart from those disclosed in the relevant chapters of this EIR, which are anticipated to occur. The following General Plan policies and actions address the provision of wastewater treatment. Therefore, this impact is considered **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Goals

PCU-G-7 Continue to provide water service to residents by maintaining our water infrastructure and work with Contra Costa Water District (CCWD), Central Contra Costa Sanitary District (CCCSD) and Mt. View Sanitary District (MVSD) so that demand for existing and future residents can be met.

Policies

PS-P-3.3 Discourage for reasons of public health, the use of septic tanks, tile filter fields, or sewerage ponds in areas where soil conditions constitute a severe limitation for such practices.

PCU-P-7.1 Continue working with CCWD, CCCSD, SD-6,and MVSD to insure the demand can be met for existing and future residents.

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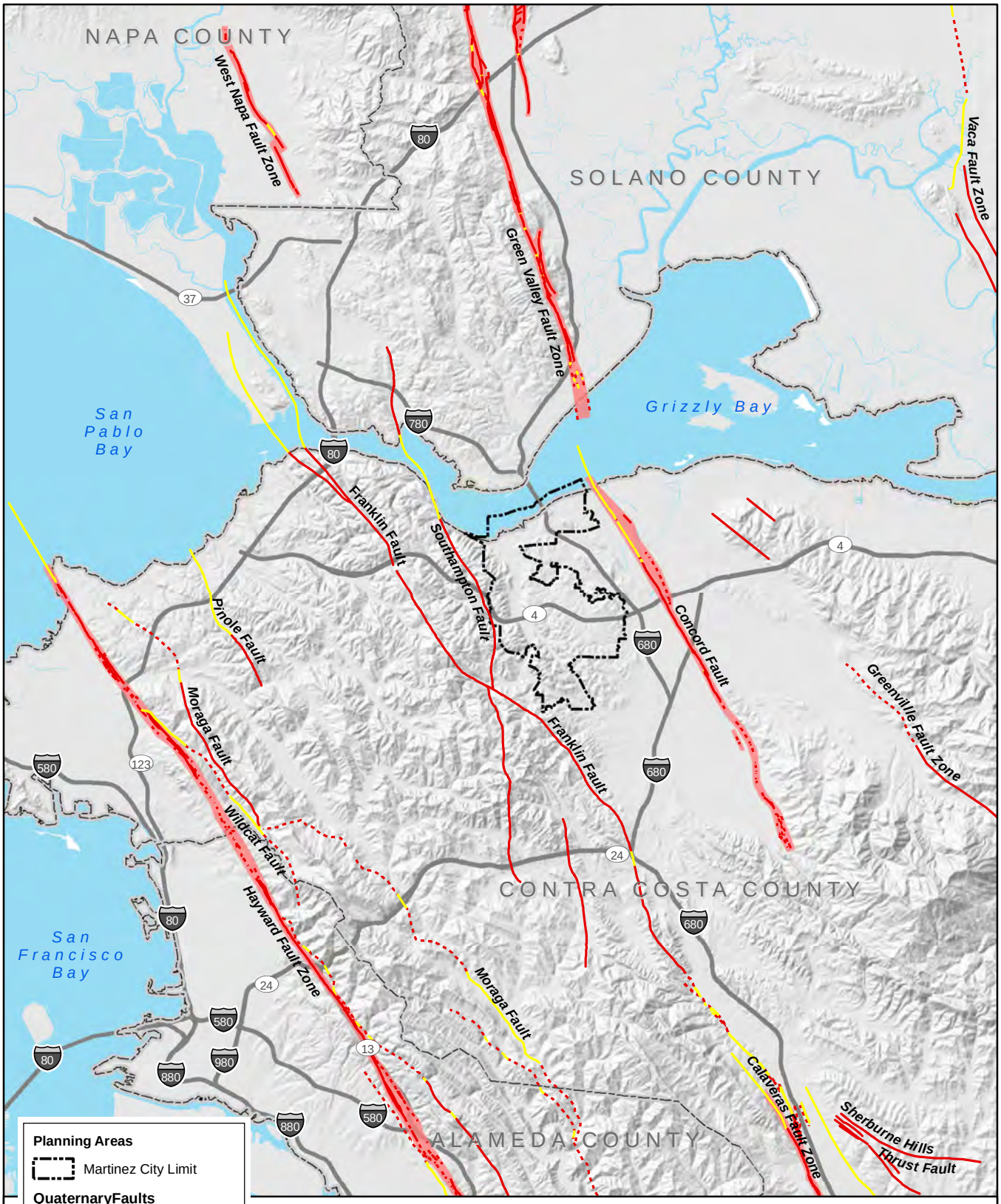

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.6-1: USGS Faults Map

Data sources: City of Martinez GIS; ESRI's StreetMap North America; USGS and California Geologic Survey, 2006, Quaternary fault and fold database for the Unites States, accessed October 14,5, 2014. from USGS web site: http//earthquakes.usgs.gov/regional/qfaults/. Map date: October 22, 2014. (MartinezGPEIR_Faults_Fig3-5-1_141023)

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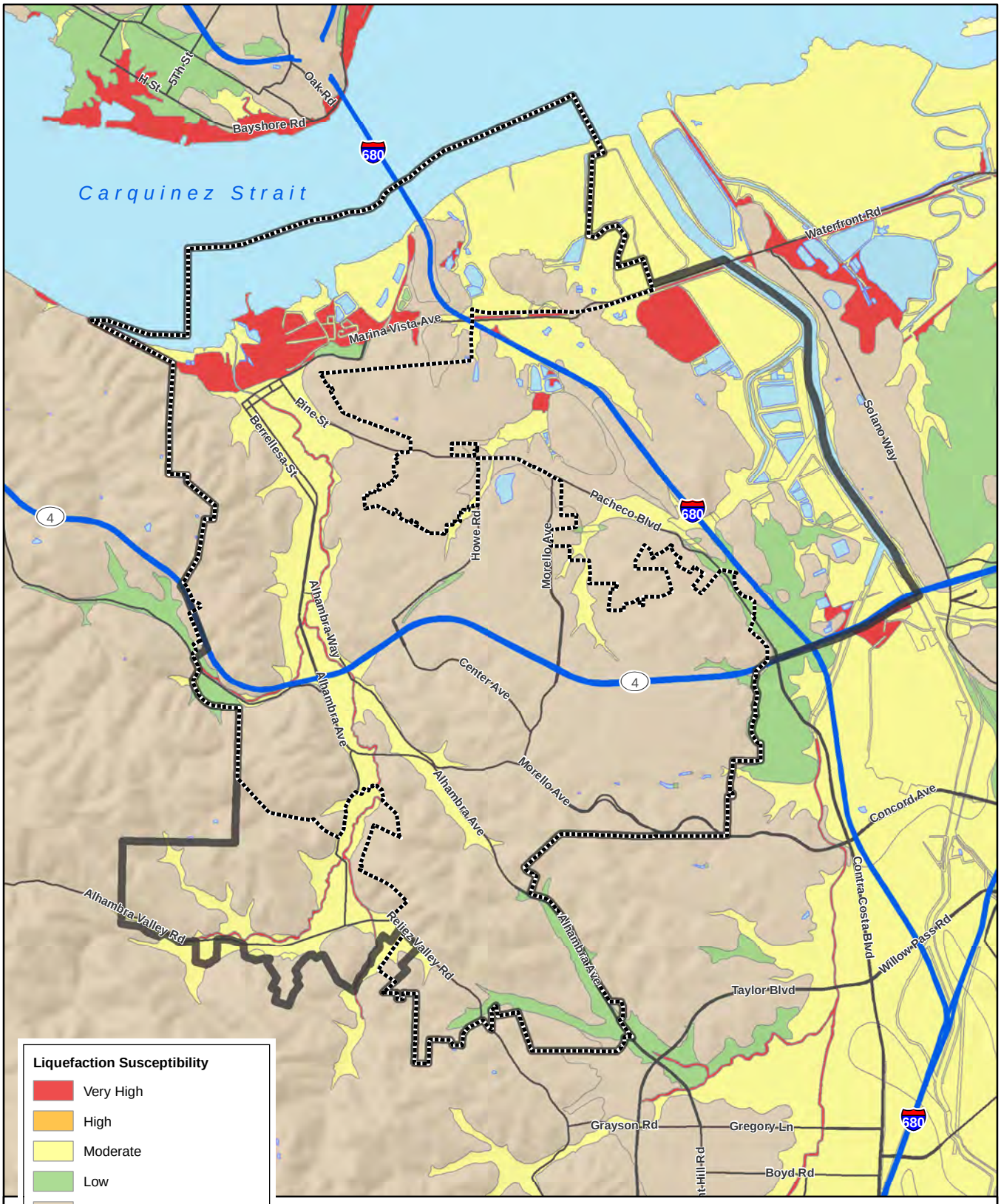

Liquefaction Susceptibility

- Very High
- High
- Moderate
- Low
- Very Low
- Water

Planning Areas

- Martinez City Limit
- Martinez Sphere of Influence

N

0 0.5 1
Miles

Data sources: City of Martinez GIS; ESRI's StreetMap North America; U.S. Geological Survey in cooperation with the California Geological Survey Open File Report 06-1037: Liquefaction Susceptibility, 2000. Map date: October 23, 2014. (MartinezGPEIR_Liquefaction_Fig3-5-2_141023)

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.6-2: Liquefaction Map

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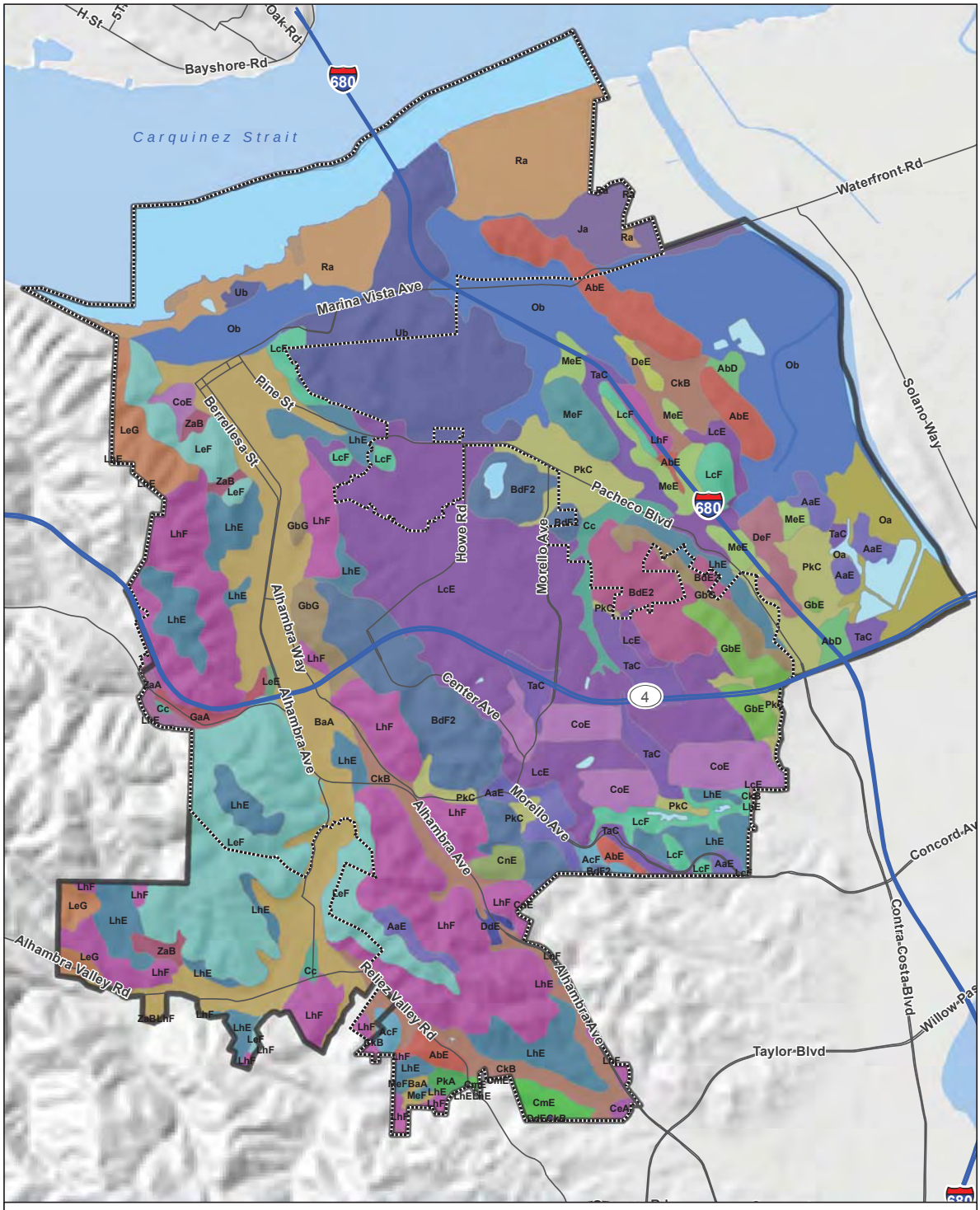

AaE: Alo clay, 15-30% slopes
AbD: Altamont clay, 9-15% slopes
AbE: Altamont clay, 15-30% percent slopes
AcF: Altamont-Fontana complex, 30-50% slopes
BaA: Botella clay loam, 0-2% slopes
BdE2: Briones loamy sand, 15-30% slopes, eroded
BdF2: Briones loamy sand, 30-50% slopes, eroded
Cc: Clear Lake clay, 0-15% slopes, MLRA 15
CeA: Conejo clay loam, 0-2% slopes
CkB: Cropley clay, 2-5% slopes
CmE: Cut and fill land-Diablo complex, 9-30% slopes
CnE: Cut and fill land-Los Osos complex, 9-30% slopes
CoE: Cut and fill land-Millsholm complex, 9-30% slopes
DdE: Diablo clay, 15-30% slopes
DeE: Dibble silty clay loam, 15-30% slopes
DeF: Dibble silty clay loam, 30-50% slopes
GaA: Garretson loam, 0-2% slopes
GbE: Gaviota sandy loam, 15-30% slopes, MLRA 15
GbG: Gaviota sandy loam, 50-75% slopes, MLRA 15
Ja: Joice muck
LcE: Lodo clay loam, 9-30% slopes
LcF: Lodo clay loam, 30-50% slopes, very rocky, MLRA 15
LeE: Los Gatos loam, 15-30% slopes
LeF: Los Gatos loam, 30-50% slopes
LeG: Los Gatos loam, 50-75% slopes
LhE: Los Osos clay loam, 15-30% slopes
LhF: Los Osos clay loam, 30-50% slopes, MLRA 15
MeE: Millsholm loam, 15-30% slopes, MLRA 15
MeF: Millsholm loam, 30-50% slopes
Oa: Omni clay loam
Ob: Omni silty clay
PkA: Positas loam, 0-2% slopes
PkC: Positas loam, 2-9% slopes
Ra: Reyes silty clay
TaC: Tierra loam, 2-9% slopes
Ub: Urban land
ZaA: Zamora silty clay loam, 0-2% slopes
ZaB: Zamora silty clay loam, 2-5% slopes

Martinez City Limit
Martinez Sphere of Influence

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.6-3: Soils Map

N
0 0.25 0.5
Miles

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Data sources: City of Martinez GIS; ESRI's StreetMap North America; NRCS Web Soil Survey, Contra Costa County. Map date: October 24, 2014. (MartinezGPEIR_Soils_Fig3-5-3_141024_11x17)

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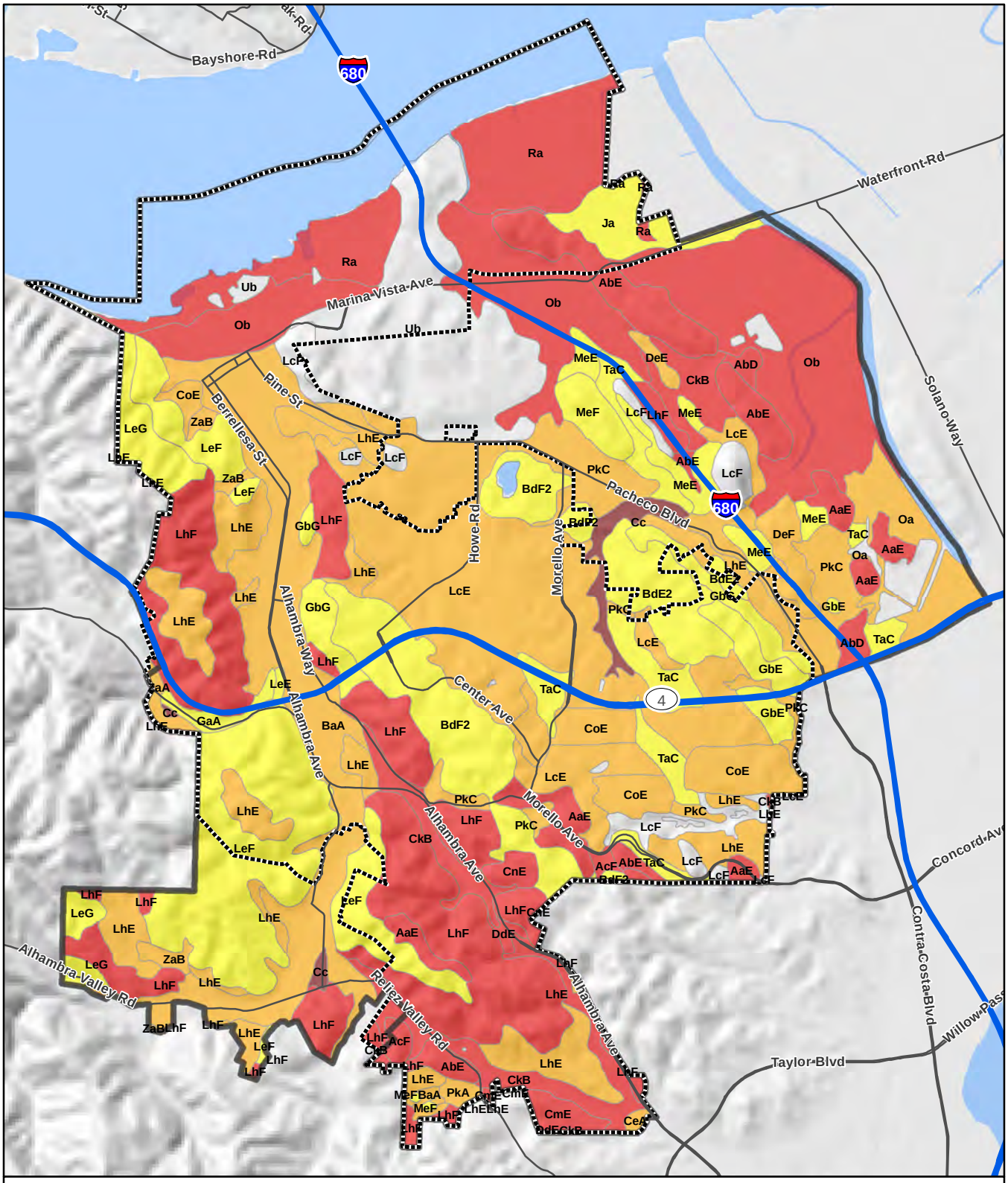

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.6-4: Shrink-Swell Potential of Soils

Shrink-Swell Potential

- Low
- Moderate
- High
- Very High
- No Data

Planning Areas

- Martinez City Limit
- Martinez Sphere of Influence

N

0 0.25 0.5 Miles

Data sources: City of Martinez GIS; ESRI's StreetMap North America; NRCS Web Soil Survey, Contra Costa County. Map date: October 24, 2014. (MartinezGPEIR_SoilsShrinkSwell_Fig3-5-4_141024)

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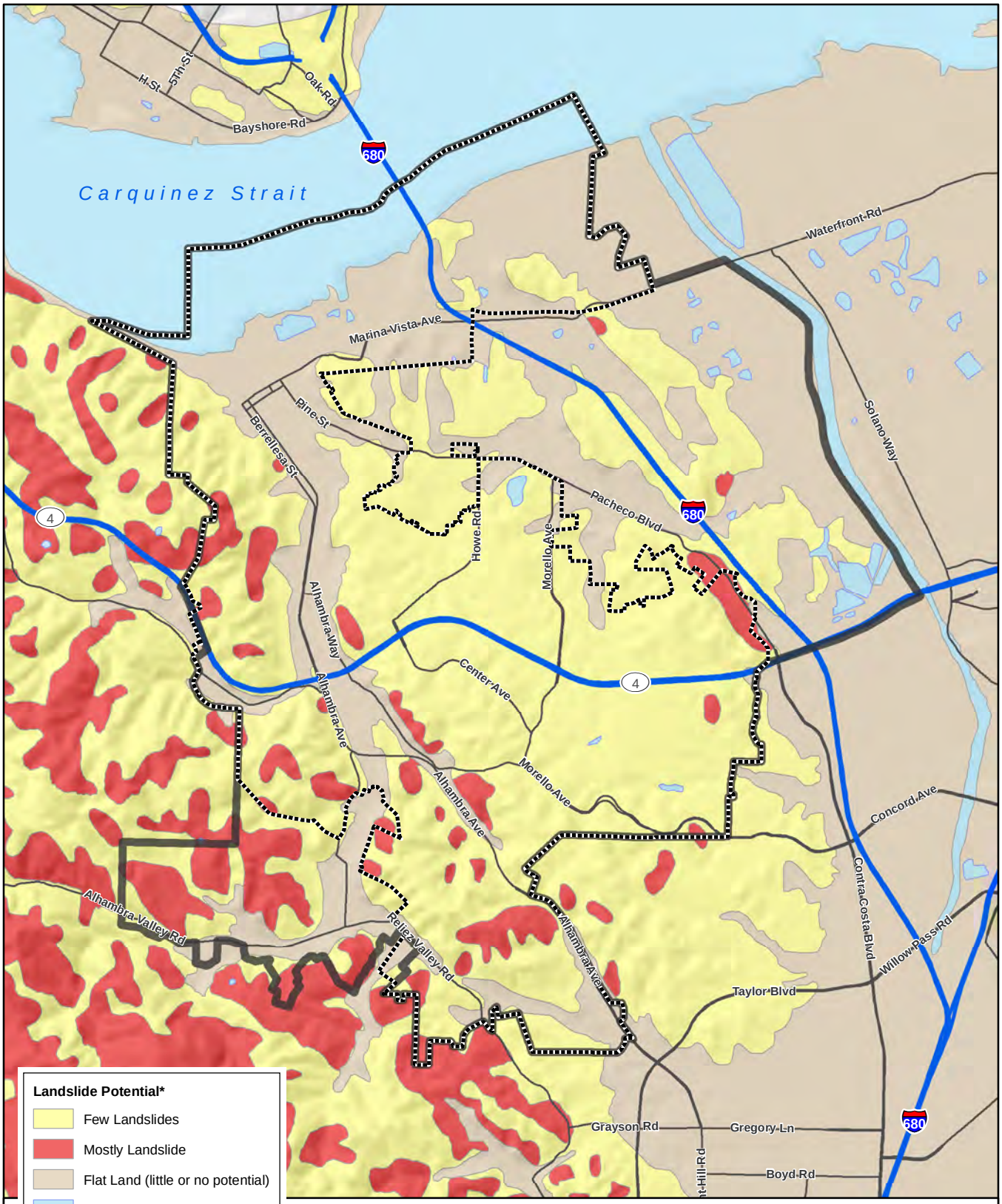

CITY OF MARTINEZ GENERAL PLAN UPDATE

Figure 3.6-5: Landslide Potential

** The best available predictor of where movement of slides and earth flows might occur is the distribution of past movements (Nilsen and Turner, 1975.)*

Data sources: City of Martinez GIS; ESRI's StreetMap North America; U.S. Geological Survey Open File Report 97-745 C: Summary Distribution of Slides and Earth Flows in Contra Costa County, California. Map date: October 27, 2014. (MartinezGPEIR_Landslide_Fig3-5-5_141027)

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This section addresses the Project's potential to result in adverse impacts related to the generation of greenhouse gas emissions.

As described in greater detail below, emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment in a cumulative context. The emissions from a single project will not cause global climate change, however, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change. Therefore, the analysis of GHGs and climate change presented in this section is presented in terms of the proposed project's contribution to cumulative impacts and potential to result in cumulatively considerable impacts related to GHGs.

Cumulative impacts are the collective impacts of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a proposed project's contribution to anticipated adverse future conditions, a lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the proposed project *and* other projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether "the proposed project's *incremental* effects are cumulatively considerable" and thus significant in and of themselves. The cumulative project list for this issue (climate change) comprises anthropogenic (i.e., human-made) GHG emissions sources across the globe and no project alone would reasonably be expected to contribute to a noticeable incremental change to the global climate. However, legislation and executive orders on the subject of climate change in California have established a statewide context and process for developing an enforceable statewide cap on GHG emissions. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies consider evaluating the cumulative impacts of GHGs. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and, therefore, significant.

3.7.1 ENVIRONMENTAL SETTING

GREENHOUSE GASES AND CLIMATE CHANGE LINKAGES

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Naturally occurring greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. Although the direct greenhouse gases CO_2, CH_4, and N_2O occur

naturally in the atmosphere, human activities have changed their atmospheric concentrations. From the pre-industrial era (i.e., ending about 1750) to 2011, concentrations of these three greenhouse gases have increased globally by 40, 150, and 20 percent, respectively (IPCC 2013)[1].

Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs).

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2014)[2]. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (California Energy Commission 2014).

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California produced 459 million gross metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2012 (California Energy Commission 2014)[3]. By 2020, California is projected to produce 509 $MMTCO_2e$ per year.[4]

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

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[1] Intergovernmental Panel on Climate Change. 2013. "Climate Change 2013: The Physical Science Basis, Summary for Policymakers." http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf

[2] California Energy Commission. 2014. California Greenhouse Gas Emission Inventory. http://www.arb.ca.gov/cc/inventory/inventory_current.htm

[3] California Energy Commission. 2006a. Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004. http://www.arb.ca.gov/cc/inventory/archive/archive.htm

[4] California Air Resources Board. 2015. "2020 Business-as-Usual (BAU) Emissions Projection *2014 Edition*". http://www.arb.ca.gov/cc/inventory/data/bau.htm

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 40.7% of total GHG emissions in the state (California Energy Commission 2006a). This category was followed by the electric power sector (including both in-state and out of-state sources) (22.2%) and the industrial sector (20.5%) (California Energy Commission 2014).

EFFECTS OF GLOBAL CLIMATE CHANGE

The effects of increasing global temperature are far-reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature as a result of increased GHGs are anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

If the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. The snowpack portion of the supply could potentially decline by 70 percent to 90 percent by the end of the 21st century (Cal EPA 2006)[5]. This phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

Sea level has risen approximately seven inches during the last century and it is predicted to rise an additional 22 to 35 inches by 2100, depending on the future GHG emissions levels (Cal EPA 2006). If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion and disruption of wetlands (Cal EPA 2006). As the existing climate throughout California changes over time, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result. Under the emissions scenarios of the Climate Scenarios report (Cal EPA 2006), the impacts of global warming in California are anticipated to include, but are not limited to, the following.

Public Health

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25 percent to 35 percent under the lower warming range

5 California Environmental Protection Agency, Climate Action Team. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. http://www.climatechange.ca.gov/climate_action_team/reports/

and to 75 percent to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply. Global warming is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25 percent of the water supply they need; decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the snow dependent winter recreational season at lower elevations could be reduced by as much as one month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing, snowboarding, and other snow dependent recreational activities.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70 percent to 90 percent. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. How much snow pack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

Agriculture

Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon

dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

Crop growth and development will be affected, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global warming is expected to alter the distribution and character of natural vegetation thereby resulting in a possible increased risk of large of wildfires. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30 percent toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90 percent.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60 percent to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Historical records show that sea level in San Francisco Bay has risen about seven inches (18 cm) over the past 100 years. Scientists agree that the rate of sea level rise is accelerating, but projections of future sea levels vary considerably. Present California coastline projections reported by the California Natural Resources Agency and the California

Energy Commission predict 10 to 18 inches of sea level rise by 2050 (using 2000 as the baseline) and between 40 and 55 inches by 2100, depending upon the emission scenario used[6]. Risks associated with sea level rise are discussed in greater detail in Section 3.7, Hydrology and Water Quality.

GREENHOUSE GAS EMISSIONS INVENTORY

In partnership with ICLEI, the City conducted an inventory of City-wide greenhouse gas emissions for calendar year 2005. The inventory shows that Martinez residents, businesses, and government emitted approximately 321,000 metric tonnes2 of CO_2e in 2005. Figure 3.7-1 provides a graphic depiction of the relative contribution of different sources; Table 3.7-1 shows a breakdown of emissions by source. As shown in Figure 3.7-1 and Table 3.7-1, the emissions category contributing the largest share of GHG emissions is transportation (emissions from trucks and autos), accounting for nearly half of the total inventory. Other major sources are residential and commercial electricity and natural gas use, and emissions related to solid waste collection and disposal. Municipal operations account for a relatively small part of the inventory (less than one percent) but are nonetheless important for the Climate Action Plan (CAP), because these emissions are under the direct control of the City.

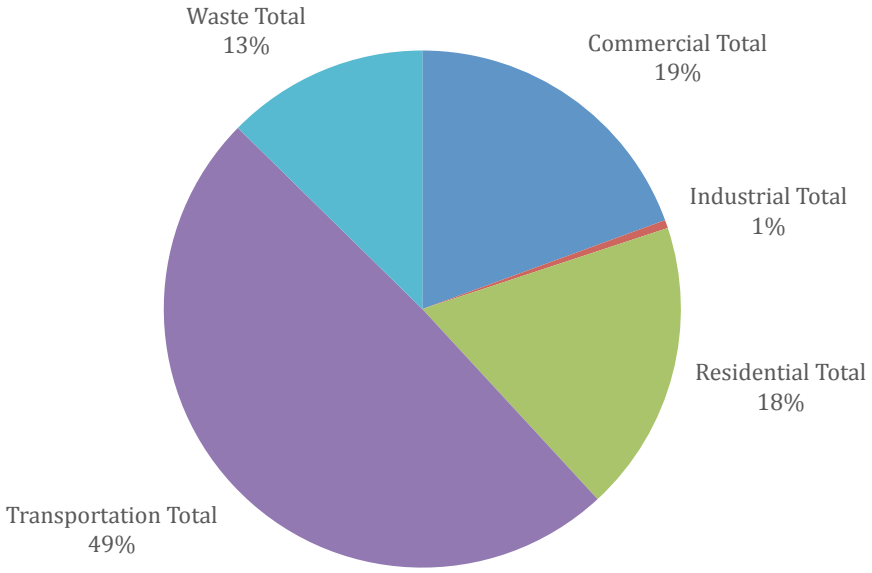

FIGURE 3.7-1 CITY OF MARTINEZ 2005 GREENHOUSE GAS INVENTORY

[6] The Impacts of Sea Level Rise on the San Francisco Bay: http://www.energy.ca.gov/2012publications/CEC-500-2012-014/CEC-500-2012-014.pdf

TABLE 3.7-1 CITY OF MARTINEZ 2005 GREENHOUSE GAS INVENTORY

Inventory	Sector	Emission Source	CO2e (metric tonnes)	Percent of Total Inventory
Community	Commercial	Electricity	21,947	6.8%
		Electricity - Direct Access	6,510	2.0%
		Natural Gas	33,337	10.4%
	Commercial Total	61,794		19.2%
	Industrial	Electricity	1,627	0.5%
	Industrial Total	1,627		0.5%
	Residential	Electricity	22,457	7.0%
		Natural Gas	35,549	11.1%
	Residential Total	58,006		18.1%
	Transportation	Diesel	8,218	2.6%
		Gasoline	148,433	46.2%
	Transportation Total	156,651		48.8%
	Waste	ADC - Plant Debris	8,119	2.5%
		Food Waste	6,111	1.9%
		Paper Products	18,445	5.7%
		Plant Debris	2,684	0.8%
		Wood/Textiles	4,889	1.5%
	Waste Total	40,248		12.5%
Community Total		**318,326**		**99.1%**
Government	Electricity	Buildings	198	0.1%
		Street Lighting	381	0.1%
		Water/Sewage	1,035	0.3%
	Electricity Total	1,614		0.5%
	Recreation	Electricity	88	0.0%
	Recreation Total	88		0.0%
	Transportation	Commute - Gasoline	454	0.1%
		Diesel	74	0.0%
		Gasoline	525	0.2%
	Transportation Total	1,053		0.3%
Government Total		**2,755**		**0.9%**
Grand Total		321,081		100.0%

3.7.2 REGULATORY SETTING

FEDERAL

The EPA is the federal agency responsible for implementing the Federal Clean Air Act (FCAA). The Supreme Court of the United States ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the FCAA, and that EPA has the authority to regulate emissions of GHGs. In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publically available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Federal Climate Change Policy

According to the EPA, “the United States government has established a comprehensive policy to address climate change” that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, “the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science.” The federal government’s goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including “ENERGY STAR”, “Climate Leaders”, and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

STATE

California Strategy to Reduce Petroleum Dependence (AB 2076)

AB 2076 (Chapter 936, Statutes of 2000) requires the CEC and the ARB to develop and submit to the Legislature a strategy to reduce petroleum dependence in California. The statute requires the strategy to include goals for reducing the rate of growth in the demand for petroleum fuels. In addition, the strategy is required to include recommendations to increase transportation energy efficiency as well as the use of non-petroleum fuels and advanced transportation technologies including alternative fuel vehicles, hybrid vehicles, and high-fuel efficiency vehicles.

The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce inroad gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and increase the use of non- petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard shall be incorporated into the State Alternative Fuels Plan required by AB 1007 and is one of the proposed discrete early action GHG reduction measures identified by CARB pursuant to AB 32.

Senate Bill 97 (SB 97)

Senate Bill 97 was signed by the Governor on August 24, 2007. The bill required the Office of Planning and Research (OPR), by July 1, 2009, to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010. The OPR is required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to the California Global Warming Solutions Act of 2006.

Climate Action Program at Caltrans

In December 2006, the California Department of Transportation, Business, Transportation, and Housing Agency, issued a Climate Action Program. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and CO_2 from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emission reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that "the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards)."

Senate Bill 375

Senate Bill 375 (Stats. 2008, Ch. 728) was built on AB 32 (California's 2006 climate change law). SB 375's core provision is a requirement for regional transportation agencies to develop a Sustainable Communities Strategy (SCS) in order to reduce GHG emissions from passenger vehicles. The SCS is one component of the existing Regional Transportation Plan (RTP).

On July 18, 2013 the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) adopted Plan Bay Area, an integrated transportation and land-use strategy through 2040 that marks the nine-county region's first long-range plan to meet the requirements of Senate Bill 375, which calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Working in collaboration with cities and counties, Plan Bay Area advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy.

Additionally, SB 375 modified the state's Housing Element Law to achieve consistency between the land use pattern outlined in the SCS and the Regional Housing Needs Assessment allocation. The legislation also substantially improved cities' and counties' accountability for carrying out their housing element plans.

Assembly Bill 1493

In 2002, then Governor Gray Davis signed AB 1493. AB 1493 required the CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state." To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards in 2004.

In response to AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

CARB requested a waiver of federal preemption of California's Greenhouse Gas Emissions Standards. The intent of the waiver is to allow California to enact emissions standards to reduce carbon dioxide and other greenhouse gas emissions from automobiles in accordance with the

regulation amendments to the CCRs that fulfill the requirements of AB 1493. The EPA granted a waiver to California to implement its greenhouse gas emissions standards for cars.

California Executive Orders S-3-05 and S-20-06, and Assembly Bill 32

On June 1, 2005, then Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order was to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by 2020 and 3) 80 percent below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

CARB, which is part of Cal-EPA, develops air quality regulations at the state level. The state regulations mirror federal regulations by establishing industry-specific pollution controls for criteria, toxic, and nuisance pollutants. California also requires areas to develop plans and strategies for attaining state ambient air quality standards as set forth in the California Clean Air Act of 1988. In addition to developing regulations, CARB develops motor vehicle emission standards for California vehicles.

Assembly Bill 32- Climate Change Scoping Plan

On December 11, 2008 ARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. The Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 169 million metric tons (MMT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT of CO_2e under a business-as-usual scenario. (This is a reduction of 42 MMT CO_2e, or almost 10 percent, from 2002–2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.) The Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the State's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO2e),
- the Low-Carbon Fuel Standard (15.0 MMT CO2e),
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO2e), and
- a renewable portfolio standard for electricity production (21.3 MMT CO2e).

Senate Bill 1368

SB 1368 requires the California Energy Commission (CEC) and the California Public Utilities Commission (CPUC) to set a global warming emissions standard for electricity used in California — regardless of whether it's generated in-state or purchased from plants in other states. The new standard applies to any new long-term financial contracts for base load electricity, and applies both to investor-owned utilities and municipal utilities. The standard for baseload generation owned by, or under long-term contract to publicly owned utilities, is and emissions performance standard (EPS) of 1,100 lbs CO_2 per megawatt-hour (MWh).

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020.

Title 24 and the CALGreen Building Code

Title 24 is the California Building Standards code, and is updated every three years. The last update was in 2013. CALGreen is one of the 12 parts of Title 24. CALGreen is a set of mandatory green building standards for new construction that went into effect throughout California on January 1, 2011. The 2013 California Green Building Standards Code went into effect on January 1, 2014. These building standards apply to all new public and privately-constructed commercial and residential buildings. CALGreen is referred to officially as the California Green Building Standards Code and includes a matrix of mandatory requirements tailored to residential and non-residential building classifications, as well as two sets of voluntary measures (CALGreen Tier 1 and Tier 2) that provide a host of more stringent sustainable building practices and features. Among the key mandatory provisions are requirements that new buildings:

- reduce indoor potable water use by at least 20% below current standards;
- recycle or salvage at least 50% of construction waste;
- utilize low VOC-emitting finish materials and flooring systems;
- install separate water meters tracking non-residential buildings' indoor and outdoor water use;
- utilize moisture-sensing irrigation systems for larger landscape areas;
- receive mandatory inspections by local officials of building energy systems, such as HVAC and mechanical equipment, to verify performance in accordance with specifications in non-residential buildings exceeding 10,000 square feet; and
- earmark parking for fuel-efficient and carpool vehicles.

LOCAL

Bay Area Air Quality Management District CEQA Guidelines

BAAQMD is the regional government agency that regulates sources of air pollution within the nine San Francisco Bay Area counties. The BAAQMD regulates GHG emissions through the following plans, programs, and guidelines.

Regional Clean Air Plans. BAAQMD and other air districts prepare clean air plans in accordance with the State and Federal Clean Air Acts. The Bay Area 2010 Clean Air Plan (CAP) is a comprehensive plan to improve Bay Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The most recent CAP also includes measures designed to reduce GHG emissions.

BAAQMD Climate Protection Program. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the San Francisco Bay Area Air Basin. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD adopted revised CEQA Air Quality Guidelines on June 2, 2010 and then adopted a modified version of the Guidelines in May, 2011. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance for greenhouse gas emissions.[7] Under the latest CEQA Air Quality Guidelines, a local government may prepare a qualified greenhouse gas Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified greenhouse gas Reduction Strategy and General Plan that addresses the project's GHG emissions, it can be presumed that the project will not have significant GHG emissions under CEQA.[8] The BAAQMD also developed a quantitative threshold for project- and plan-level analyses based on estimated GHG emissions, as well as per capita metrics.

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[7] On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the 2011 BAAQMD *CEQA Air Quality Guidelines*. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA. The First District of the California Court of Appeal reversed this earlier judgment in August 2013. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds.

[8] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May.

City of Martinez Climate Action Plan

The City of Martinez adopted a Climate Action Plan (CAP) in June, 2009.[9] The Climate Action Plan presents goals, principles, and strategies for reducing the City's GHG emissions. A 2005 emissions inventory for community-wide GHG emissions equaled approximately 321,000 metric tons (MT) of CO_2e, with emissions from transportation constituting the single largest source in the City at about 49 percent. To achieve the City's goals, the Climate Action Plan developed objectives and strategies in transportation, energy, solid waste and recycling, water conservation, and adaptation and carbon sequestration.

3.7.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the State CEQA Guidelines, the Project will have a significant impact related to greenhouse gases and climate change if it will:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

IMPACTS AND MITIGATION

Impact 3.7-1: Project implementation may generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant)

The BAAQMD CEQA Air Quality Guidelines contain methodology and thresholds of significance for evaluating GHG emissions from land use type projects. The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions. BAAQMD intends to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets. The BAAQMD suggests applying a Plan-level GHG efficiency threshold of 6.6 MT per year per capita (BAAQMD, 2011). Plans with emissions above the threshold would be considered to have a cumulatively significant impact.

Illingsworth & Rodkin computed GHG emissions the full build-out traffic scenario in the *Martinez General Plan Update Draft Air Quality and Greenhouse Gas Emissions Assessment*, with operational emissions in 2040 using the California Emissions Estimator Model Version 2013.2.2 (CalEEMod).

[9] City of Martinez, 2009. *City of Martinez Climate Action Plan*. June.

General Plan land use types and size, and trip generation rate were input to CalEEMod. CalEEMod predicts emissions of GHG in the form of equivalent carbon dioxide emissions or CO_2e.

Construction Period Emissions

The BAAQMD does not have an adopted Threshold of Significance for construction-related GHG emissions. BAAQMD encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable, including, but not limited to: using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet, using local building materials of at least 10 percent, and recycling or reusing at least 50 percent of construction waste or demolition materials.

Operational Period Emissions

The CalEEMod model along with the project vehicle trip generation rates were used to predict GHG emissions associated with operation of fully developed sites under the General Plan Update.

Per Capita Rate

The per capita rate for this project is the annual GHG emissions expressed in metric tons divided by the estimated number of new residents and employees. The number of 2040 Plan Area residents is anticipated to be 51,304 and the number of 2040 Plan Area employees is anticipated at 23,174, for a total service population of 74,478 for the City.

GHG Operational Emissions

Table 3.7-2 presents the results of the CalEEMod model analysis in terms of annual metric tons of equivalent CO_2e emissions (MT of CO_2e/yr) and per capita values.

As shown in Table 3.7-2, 2040 full build-out operation of the General Plan Update would have per capita emissions of 5.8 MT of CO_2e/yr, which would not exceed the BAAQMD general plan-level threshold of 6.6 MT CO_2e/year. This impact is, therefore, considered **less than significant**.

TABLE 3.7-2 2040 PROJECT GHG EMISSIONS (METRIC TONS CO_2E)

SOURCE CATEGORY	*2040 CO_2E*
Area	3,231
Energy Consumption	93,758
Mobile	310,772
Solid Waste Generation	15,363
Water Usage	6,867
Total	429,991
Per Capita Emissions[1]	5.8
BAAQMD Threshold	6.6MT CO_2e/year/capita

Notes: [1]Based on a total service population of 74,478.

SOURCE: ILLINGTON & RODKIN, 2015. MARTINEZ GENERAL PLAN UPDATE DRAFT AIR QUALITY AND GREENHOUSE GAS EMISSIONS ASSESSMENT. JUNE.

Impact 3.7-2: Project implementation may conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant with Mitigation)

The Project represents a comprehensive and long-term commitment by the City to reduce GHGs and the effects of climate change from community-wide and municipal operations over the life of the City's General Plan.

In particular, the Project includes several policies and implementation actions in Chapter 3 (Open Space and Conservation Element) that will directly or indirectly result in fewer greenhouse gas emissions. These policies and implementation actions are listed below:

Policies

OSC-P-5.1 *Reduce local contributions of airborne pollutants to the air basin.*

OSC-P-5.2 *Cooperate with regional efforts to expand public and mass transit services.*

OSC-P-5.3 *Encourage the use of non-vehicular means of transportation through land use patterns and investing in pedestrian and bicycle infrastructure and as feasible support a Safe Routes to School Program.*

OSC-P-5.4 *Encourage efforts to improve indoor air quality and to provide a comfortable and healthy environment.*

OSC-P-5.5 *Continue to participate in regional efforts to meet state and federal air quality standards.*

OSC-P-6.1 *Reduce Energy, Water, and Resource Consumption wherever possible as they pertain to buildings and construction.*

OSC-P-6.2 *Promote and encourage compliance with sustainable building standards.*

OSC-P-6.3 *Strongly encourage landscaping that promotes more efficient use of water and energy including an evaluation of xeriscaping (no/low water use landscaping plants), native plants in landscaping, drip irrigation and irrigation controls.*

OSC-P-6.4 *Encourage existing buildings and new construction to incorporate renewable energy and energy- and water-efficient technologies.*

OSC-P-6.5 *Cooperate with PG&E, Contra Costa County, State of California and all relevant public and private organizations efforts to retrofit existing homes with energy saving devices.*

OSC-P-6.6 *Support the use of Solar Power by streamlining the permitting process.*

OSC-P-6.7 *Encourage use of recycled-content construction materials.*

OSC-P-6.8 *Encourage rehabilitation and reuse of buildings whenever appropriate and feasible as an alternative to new construction.*

OSC-P-6.9 *Continue supporting recycling and composting programs.*

OSC-P-6.10 *Continue to support the use of electric and other alternative fuel-sourced vehicles.*

OSC-P-6.11 *Promote land use patterns which minimize energy consumption.*

Implementing Actions

OSC-7.1 *Continue coordinating with Pacific Gas and Electric to identify projected energy demands for residential, commercial, industrial, and other land uses.*

OSC-7.2 *Support incentive programs that promote reduction of energy use.*

OSC-5.1.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 to encourage the use of non-vehicular means of transportation, and/or shared transportation where possible, with the:*

- *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.*

OSC-I-6.1.a *Indentify opportunities for creating energy conservation and efficiency programs for application in all City facilities, schools and local businesses*

OSC-I-6.1.b *Institute a water conservation program for all City facilities to include such features as: installation of waterless urinals and low flow toilets.*

OSC-I-6.1.c *Continue to implement Zoning Guidelines for landscaping to absorb pollutants.*

OSC-I-6.1.d *Continue to incorporate measures to reduce runoff and control stormwater.*

OSC-I-6.1.e *Continue to support the building material recycling program through education of the public, contractors and developers.*

OSC-I-7.1.a *Consider adoption of ordinance implementing green" building practices that include the use of solar power.*

OSC-I-7.1b *Adopt an ordinance that limits or prohibits the introduction of new wood burning stoves in new or remodeled residential buildings.*

Additionally, the CAP includes goals and measures to be implemented by the City and by future development projects within the City over the life of the General Plan.

The City's CAP identifies existing and proposed initiatives to reduce greenhouse gas emissions. The CAP ensures that the City's future activities and development patterns conform to California climate change legislation. The purpose of the CAP is to identify how the City will help the State achieve the State GHG emission reduction target of 15 percent by the year 2020. The CAP provides goals and associated measures, also referred to as GHG reduction measures, in the sectors of energy use, transportation, land use, water, and solid waste. In addition, the CAP provides goals and measures for longer-term adaptation to the potential risks associated with climate change.

The CAP includes all of the elements identified under CEQA Guidelines Section 15183.5(b)(1), which identifies the elements that a plan for the reduction of GHGs should include. Specifically, the CAP complies with the provisions of CEQA Guidelines Section 15183(b)(1) by providing a quantified inventory of GHG emissions and by providing a level based on substantial evidence below which activities subject to the plan will not make a cumulatively considerable contribution to GHG impacts. That level is based on the State's AB 32 goals.

While the City's General Plan takes a broad and comprehensive approach to sustainability, the CAP focuses specifically on GHG reductions. The CAP identifies and quantifies the impact of the City's sustainability vision, policies, and programs on GHG emissions. The sustainability components of the General Plan and the CAP function together as part of the City's comprehensive toolkit to achieve a vibrant and sustainable community. The CAP provides specific and concrete direction to the City and development community and includes numerous specific measures (strategies and programs) that would apply to new development in order to reduce individual subsequent projects' contributions to climate change.

There is no preexisting mandatory requirement that the City implement all of the policies and measures within the CAP. However, the addition of Mitigation Measure GHG-1 below would require that new projects within the City comply with the strategies and programs included within the CAP. Below is a list of relevant strategies and programs from the CAP:

Transportation Strategies

Program T1: Safe Route to Schools
Program T2: Zone and Code for Neighborhoods Serving Commercial Areas
Program T3: Community-Based Carpool and Ride Share Program
Program T4: Pursue Alternative Mass Transit Options
Program T5: Implement the Downtown Martinez Community-Based Transportation Plan
Program T6: Improve Vehicle Fuel Efficiency through Community Education
Program T7: Find Funding to Replace City Vehicles with Low-Emissions Alternatives
Program T8: Replace City Tools and Equipment with More Energy-Efficient Alternatives
Program T9: Upgrade Signal Timers
Program T10: Designated Motorcycle and Scooter Parking Downtown
Program T11: Develop Alternative and Flexible-Fuel Vehicle Power/ Fuel Sources

Energy Strategies

Program E1: Martinez Green Building Standards
Program E2: Energy Efficiency and Rebate Program
Program E3: Greening and Streamlining the Permit Process
Program E4: Municipal Energy Efficiency Program
Program E5: Martinez Is Renewable

Solid Waste and Recycling Strategies

Program SW1: Think Reusable, Less Disposable
Program SW2: Municipal Purchasing Policy
Program SW3: Martinez Schools Outreach
Program SW4: Commercial Recycling Study
Program SW5: Composting Workshops
Program SW6: Contra Costa County Compost Initiative

Water Conservation Strategies

Program W1: Promote Water Conservation Program W2: Reduce Water Use in Municipal Operations

Adaptation and Carbon Sequestration Strategies

Program A1: Tree City USA
Program A2: Investigate and Prioritize Afforestation and Wetland Restoration Projects within City Limits
Program A3: Promote PG&E ClimateSmart and other Offset Programs
Program A4: Reduce Urban Heat Islands
Program A5: Increase Public Awareness Regarding Potential Health Impacts of Global Warming
Program A6: Plan for Sea Level Rise

Compliance with the CAP and implementation of applicable CAP measures would ensure that subsequent projects, which are consistent with the General Plan, would not conflict with the CAP or with any other greenhouse gas emissions reduction plan, policy, or regulation. Furthermore, compliance with the CAP would mean that the project would have a less than cumulatively considerable contribution to climate change and greenhouse gases.

The analysis presented above demonstrates that the implementation of the CAP for all subsequent development projects would assist the City in helping the State meet its reduction goals. Therefore, subsequent projects, including development projects, that are consistent with the General Plan and implement applicable CAP measures, would not result in a significant or considerable cumulative contribution to climate change and the generation of GHGs. Therefore, this impact is **less than significant with mitigation and less than cumulatively considerable**.

MITIGATION MEASURE

Mitigation Measure GHG-1: *The City of Martinez should ensure that any new development project within the City complies with the Greenhouse Gas Reduction Strategies and Programs included within the City of Martinez Climate Action Plan. These programs are described in detail in the full City of Martinez Climate Action Plan.*

Hazards include man-made or natural materials or man-made or natural conditions that may pose a threat to human health, life, property, or the environment. Hazardous materials and waste present health hazards for humans and the environment. These health hazards can result during the manufacture, transportation, use, or disposal of such materials if not handled properly. Hazards to humans can also existing from natural or human induced wildfire and air traffic accidents.

This section provides a background discussion of the hazardous materials and waste, fire hazards, and hazards from air traffic found in the City of Martinez. This section is organized with an existing setting, regulatory setting, and impact analysis.

3.8.1 ENVIRONMENTAL SETTING

HAZARDOUS MATERIALS AND WASTE

Hazardous Materials

A hazardous material is 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 irreversible illness; or (2) pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported, or disposed of. Hazardous materials are mainly present because of industries involving chemical byproducts from manufacturing, petrochemicals, and hazardous building materials.

Hazardous Waste

Hazardous waste is the subset of hazardous materials that has been abandoned, discarded, or recycled and is not properly contained, including contaminated soil or groundwater with concentrations of chemicals, infectious agents, or toxic elements sufficiently high to increase human mortality or to destroy the ecological environment. If a hazardous material is spilled and cannot be effectively picked up and used as a product, it is considered to be hazardous waste. If a hazardous material site is unused, and it is obvious there is no realistic intent to use the material, it is also considered to be a hazardous waste. Examples of hazardous materials include flammable and combustible materials, corrosives, explosives, oxidizers, poisons, materials that react violently with water, radioactive materials, and chemicals.

Transportation of Hazardous Materials

The transportation of hazardous materials within the State of California is subject to various federal, State, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery, or the loading of such materials (California Vehicle Code §§ 31602(b), 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Transportation of hazardous materials is restricted to these routes except in

cases where additional travel is required from that route to deliver or receive hazardous materials to and from users.

HAZARDOUS SITES

Cortese List

The Cortese List is a planning document used by the State, local agencies, and land owners to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. California Department of Toxic Substances Control (DTSC) and the State Water Resources Board are responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

Envirostor Data Management System

The DTSC maintains the *Envirostor Data Management System*, which provides information on hazardous waste facilities (both permitted and corrective action) as well as any available site cleanup information. This site cleanup information includes: Federal Superfund Sites (NPL), State Response Sites, Voluntary Cleanup Sites, School Cleanup Sites, Corrective Action Sites, Tiered Permit Sites, and Evaluation / Investigation Sites. The hazardous waste facilities includes: Permitted–Operating, Post-Closure Permitted, and Historical Non-Operating.

There are no sites within the Planning Area that are included on the "List of Hazardous Waste and Substances Sites" from the DTSC EnviroStor database.

There are no sites within the Planning Area that are included on the "List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code."

GeoTracker

GeoTracker is the California Water Resource Control Board's data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense, Site Cleanup Program) as well as permitted facilities such as operating USTs and land disposal sites.

Leaking Underground Storage Tanks (LUST): There are 56 locations with a Martinez address that are listed in the GeoTracker database for Leaking Underground Storage Tanks (LUST). Forty-seven of the locations have undergone LUST cleanup and the State has closed the case. There are nine locations in Martinez with an open case. Table 3.8-1 lists the location of open and closed cases for LUSTs in Martinez.

TABLE 3.8-1: MARTINEZ LUST CLEANUP SITES

NAME	*ACTIVITY*	*LOCATION*
CLOSED CASES (CLEANUP COMPLETED)		
7 Eleven	Completed - Case Closed	4001 Pacheco Blvd
Arco	Completed - Case Closed	3700 Pacheco Blvd
Bay Area Diablo Petroleum Company	Completed - Case Closed	3575 Pacheco Blvd
Beneto Tank Lines	Completed - Case Closed	990 Howe Rd
Billing's Plumbing	Completed - Case Closed	4095 Pacheco Blvd
Black Mountain Spring Water	Completed - Case Closed	888 Howe Rd
Bp	Completed - Case Closed	61 Arthur Rd
Ccc Consolidated Fire Dist Station #12	Completed - Case Closed	1210 Shell Ave
Chevron Avon Terminal	Completed - Case Closed	611 Solano Way
Contra Costa County Hospital	Completed - Case Closed	2500 Alhambra Ave
Contra Costa Landscaping Inc	Completed - Case Closed	261 Arthur Rd
Crockett Electric Company	Completed - Case Closed	3440 Pacheco Blvd
Delvatti Prporerty	Completed - Case Closed	615 Alhambra Ave
Former Arco	Completed - Case Closed	906 Alhambra Avenue
Golden Bear Equipment Company	Completed - Case Closed	3655 Alhambra Ave
Heim Brothers Econo Storage	Completed - Case Closed	375 Arthur Rd
Heinsen Construction (Former)	Completed - Case Closed	4022 Pacheco Blvd.
Housing For Independent People	Completed - Case Closed	719 Alhambra Ave
It Truck Yard	Completed - Case Closed	4501 Pacheco Blvd
Ivy High Lift	Completed - Case Closed	1000 Howe Rd
J & S Paper Company	Completed - Case Closed	885 Howe Rd
L & L Shopping Center	Completed - Case Closed	911 41 Alhambra Ave
L & L Shopping Center	Completed - Case Closed	917 Alhambra Ave
Landsea Terminals Inc	Completed - Case Closed	2801 Waterfront Rd
Lonestar Industries	Completed - Case Closed	4796 Imhoff Pl
Martinez City Hall	Completed - Case Closed	525 Henrietta St
Martinez Mini Market	Completed - Case Closed	2250 Pacheco Blvd
Martinez Municipal Marina	Completed - Case Closed	7 Court St N
Martinez Unified School District	Completed - Case Closed	921 Susana St
Mayflower Contract Services	Completed - Case Closed	3300 Pacheco Blvd
Moeller Property	Completed - Case Closed	875 Howe Rd
Mountain View Sanitary District	Completed - Case Closed	3800 Arthur Rd
Mountain View Sanitary District	Completed - Case Closed	3800 Arthur Rd
Nu Way Cleaners	Completed - Case Closed	618 Las Juntas
P&M Arco	Completed - Case Closed	2201 Berrellesa Ave (Now 400 Soto St)
Pacific Bell	Completed - Case Closed	515 E St
Riley's Striping	Completed - Case Closed	3350 Pacheco Blvd
Santa Fe Railway	Completed - Case Closed	Unknown Franklin Canyon Rd
Shell	Completed - Case Closed	4355 Pacheco Blvd
Shell	Completed - Case Closed	3630 Alhambra Ave
Southern Pacific	Completed - Case Closed	401 Ferry St
Telfer Tank Lines	Completed - Case Closed	211 Foster St
Texaco	Completed - Case Closed	3850 Alhambra Ave
Ultramar (Beacon Ss # 3714)	Completed - Case Closed	3767 Alhambra Ave
Unocal	Completed - Case Closed	3750 Alhambra Ave

TABLE 3.8-1: MARTINEZ LUST CLEANUP SITES

NAME	*ACTIVITY*	*LOCATION*
CLOSED CASES (CLEANUP COMPLETED)		
Valley Furniture	Completed - Case Closed	735 Escobar St
Willis Trucking	Completed - Case Closed	874 Howe Rd
Open Cases		
Ccc Martinez Corporation Yard	Open - Site Assessment	1801 Shell Ave
Contra Costa County Pool Garage	Open - Eligible For Closure	1215 Main St
Delta Tech	Open - Remediation	950 Howe Rd
Martinez Auto Parts	Open - Site Assessment	636 Ward St
Martinez Corporation Yard	Open - Site Assessment	300 Alhambra Ave
Martinez Marina	Open - Site Assessment	Unknown Harbormaster Bldg
Papaioannou Property	Open - Site Assessment	2250 Pacheco Blvd
Scaife Property	Open - Remediation	921 Arnold Dr
Ultramar Beacon #3713 (Former)	Open - Eligible For Closure	2501 Pacheco Blvd

SOURCE: CALIFORNIA WATER RESOURCES CONTROL BOARD GEOTRACKER DATABASE, 2014.

Permitted Underground Storage Tank (UST): There are 19 locations with a Martinez address that have Underground Storage Tanks (UST) that are permitted through the California Water Resources Control Board. Table 3.8-2 lists the location of the 16 permitted underground storage tanks in Martinez.

TABLE 3.8-2: MARTINEZ PERMITTED UST SITES

NAME	*LOCATION*
7-Eleven #23837	4001 Pacheco Blvd
Beacon Station #3713	2501 Pacheco Blvd
Beneto Tank Lines	990 Howe Rd
Contra Costa Co Administration	651 Pine St
Contra Costa Fire Sta #14	521 Jones St
Contra Costa Regional Med Ctr	2500 Alhambra Ave
Defense Fuel Support Pt Ozol	700 Carquinez Way
Equilon Enterprises Llc/Mtz	1801 Marina Vista Ave
Golden Gate Petro Fast Stop	3520 Pacheco Blvd
Golden Gate Petroleum	3575 Pacheco Blvd
Gregg Drilling & Testing Inc	950 Howe Rd
Jeffco Painting & Coating Inc	901 Howe Rd
Martinez Marina	7 N Court St
Martinez Refining Co	3485 Pacheco Blvd
Pacheco Blvd 76 #2611150	61 Arthur Rd
Pacheco Shell	4355 Pacheco Blvd
Pacific Bell/Martinez	515 E St
Pg&E Martinez Switching Yard	1622 Shell Ave
Tri Convenience	3700 Pacheco Blvd

SOURCE: CALIFORNIA WATER RESOURCES CONTROL BOARD GEOTRACKER DATABASE, 2014.

Water Board Program Cleanup Sites: There are 28 locations with a Martinez address that are listed in the GeoTracker database for Water Board Cleanup Sites. Nine of the locations have undergone cleanup and the State has closed the case, with one site eligible for closure. There are seven locations in Martinez under remediation, three locations with verification monitoring, three

locations under site assessment, and five sites listed as open but inactive. Table 3.8-3 lists the location of open and closed cases for Water Board Program Cleanup Sites in Martinez.

TABLE 3.8-3: MARTINEZ WATER BOARD CLEANUP SITES

NAME	*LOCATION*
CLOSED CASES (LAND USE RESTRICTIONS)	
Berrellessa Apartment Complex	301 Berrellessa Street
Harris Property	1000 Howe Road
CLOSED CASES (CLEANUP COMPLETED)	
Tucker Property	735 Escobar St
Kinder Morgan Pipe Line Release	Waterfront Rd/ Railroad Tracks
Alhambra Site Bank Of Oakland	3500 Alhambra Ave
Chevron Pipeline Martinez	4585 Pacheco Blvd
Southern Pacific Property - Martinez	Marina Vista @ Ferry St
Texaco Trading	Mocco Rd @ Waterfront Rd
It Facility - Martinez (Former)	4501 Pacheco Blvd
OPEN – ELIGIBLE FOR CLOSURE	
Santa Fe Pacific Pipeline Partners	Closed Unk Pipeline Area Pacheco Creek
OPEN – REMEDIATION	
Tesoro Avon Refinery	150 Solano Way
Tesoro Golden Eagle Refinery	150 Solano Way
Monsanto Chemical Facility	1778 Monsanto Way
Crystal Cleaners Facility	6672 Alhambra Avenue
Tesoro / Tdpi / Cop Committee Site	150 Solano Way
Tosco Avon Refinery	1 Solano Way
Chevron, Avon Terminal Agt, Martinez	611 Solano Way
OPEN – VERIFICATION MONITORING	
Shell Oil Co - Martinez Refinery	North End Marina Vista Blvd
Acme Fill Corp	950 Waterbird Way, North Parcel
Solvay Usa Inc. (Formerly Rhodia Inc Basic Chemicals)	100 Mococo Road
OPEN – SITE ASSESSMENT	
Amorco Terminal	200 Waterfront Road
Shell Refinery Martinez	1801 Marina Vista
Shore Terminals Martinez (Wickland)	488 Wright Avenue
OPEN - INACTIVE CASE	
Shell Oil Pipeline	3575-3700 Pacheco Boulevard
Exxon Bulls Head	Dna No Street
Tosco Pipeline - Wickland	Waterfront Rd @ Waterbird Way
Al Auto Detail	209 Berrellesa
Landscape Care Company	4026 Pacheco Blvd

SOURCE: CALIFORNIA WATER RESOURCES CONTROL BOARD GEOTRACKER DATABASE, 2014.

Solid Waste Disposal Sites with High Hazardous Waste Levels: There are no sites listed on the Water Board's list of solid waste disposal sites with waste constituents above hazardous waste levels.

Water Board Cease and Desist Orders: The California Water Resources Control Board has issued a Cease and Desist Order to five facilities in Martinez, all of which occurred in the 80s and 90s.

Solid Waste Information System (SWIS)

FACILITY/SITE LISTING

The Solid Waste Information System (SWIS) is a database of solid waste facilities that is maintained by the California Integrated Waste Management Board (CIWMB). The SWIS data identifies active, planned and closed sites. The City of Martinez has two active facilities and two closed facilities listed in the database. The active facilities are the Acme Landfill and the Contra Costa TS and Recovery, both located on Waterbird Way. The Acme Landfill is a permitted Solid Waste Landfill. The Contra Costa TS and Recovery is a permitted Large Volume Transfer/Processing Facility. The closed facilities include the Acme Composting Compost Facility and the Martinez City Rubbish facility. The site details are listed in Table 3.8-4 below.

TABLE 3.8-4: CIWMB CLOSED FACILITIES/SITES

NUMBER	*NAME*	*LOCATION*	*ACTIVITY*	*REGULATORY*	*STATUS*
07-AA-0002	Acme Landfill	950 Waterbird Way	Solid Waste Landfill	Permitted	Active
07-AA-0027	Contra Costa TS And Recovery	951 Waterbird Way	Large Volume Transfer/Proc Facility	Permitted	Active
07-AA-0035	Acme Composting Compost Facility	950 Waterbird Wy, E Parcel Acme Lf	Composting Facility (Green Waste)	Exempt	Clean Closed
07-CR-0018	Martinez City Rubbish	301 Waterfront Road	Solid Waste Disposal Site	Pre-regulations	Closed

SOURCE: CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY, 2014.

CRUDE OIL BY RAIL

The State of California Interagency Rail Safety Working Group (IRSWG) issued the Oil by Rail Safety in California, Preliminary Findings and Recommendations report in July 2014. The following information regarding crude oil by rail movement and safety is taken from the IRSWG report. In 2012, approximately 70% of oil imported by California refineries came through marine terminals and one million barrels or 0.3% came by rail. In 2013, crude oil imports by rail increased 506% to 6.3 million barrels. Planned infrastructure projects statewide would facilitate greatly expanded oil by rail shipments, either refinery expansions and retrofits allowing for processing of more imported oil, such as from the Bakken shale formation in North Dakota, or expansion of rail terminal facilities. As of 2014, most crude oil by rail has come from Canada and North Dakota.

The IRSWG report identifies that the number of incidents involving crude oil by rail has increased as crude oil by rail shipments have increased. Nationally, rail incidents rose from several per year prior to 2010 to 155 in 2013, and 90 thus far in 2014. More crude oil by volume was spilled in rail incidents in 2013 than was spilled in the nearly four decades prior. Incidents involving oil by rail in California increased from 3 in 2011 to 25 in 2013; as of May, there were 24 in 2014. Total petroleum spills by rail in California (crude oil and other) increased from 98 in 2010 to 182 in 2013. Most reported incidents document a relatively small volume of oil released, but as detailed below, the potential for high-consequence incidents will increase as more oil is transported by rail. The report identified nine major accidents in 2013 and 2014, including three in Canada and six in the United States. One of the derailments in Canada involved 47 fatalities; the eight other accidents did not result in injuries or fatalities. The report did not identify any crude oil derailments in California that have resulted in injuries or fatalities.

In California, trains transporting crude oil to the Bay Area are expected to travel via the Feather River or Donner Pass. Other California routes include transporting crude oil via the Tehachapi Pass into Bakersfield or Los Angeles.

The IRSWG report identified and mapped areas along rail routes with potential high vulnerability and the locations of emergency response teams relative to the vulnerabilities. The IRSWG identified risks from oil by rail as well as gaps in local emergency response capabilities. Specifically, the following findings were identified:

- High hazard areas for derailments are primarily located in the mountains, with at least one such site along every rail route into California. Some high hazard areas are also located in more urban areas, such as in the San Bernardino-Riverside and San Luis Obispo regions. Overall, high hazard areas represent an estimated 2% of track and 18% of the derailments that have occurred. None of the high hazard areas are located in the vicinity of Martinez. "High hazard areas" are areas that were identified in Decision 97-09-045 of the California Public Utilities Commission, and were identified either by a statistically significant high frequency of derailments, or by the existence of restrictive railroad operating rules to address unusually risky operating characteristics such as steep grade and sharp curves.
- Areas of vulnerable natural resources are located throughout the state, including in urban areas. A rail accident almost anywhere in California would place waterways and sensitive ecosystems at risk. The high hazard areas for derailments are generally located in areas with high natural resources vulnerability and nearby waterways (e.g., Dunsmuir, the Feather River Canyon). ·
- Emergency hazardous material response teams in California have generally good coverage of urban areas, but none are located near the high hazard areas in rural Northern California.
- Population centers, schools, and hospitals are frequently located near rail lines in urban areas and in the Central Valley. The Martinez area does not include any highly populated areas in the vicinity of a high hazard area identified by the IRSWG report.

- Earthquake faults are located along rail lines in many areas, especially in urban areas in and around Los Angeles and the Bay Area. A major earthquake could damage tracks and bridges beyond the immediate area of the marked faults.

WILDFIRE HAZARDS

The Planning Area contains a wide range of land use types, from developed urban areas to expanses of unirrigated open space. Wildfires are a potential hazard to development and land uses located in the foothill and mountain areas of the region. The severity of wildfire problems depends on a combination of vegetation, climate, slope and people. The grassland, chaparral, woodland, and forest vegetation found in areas of Contra Costa County, coupled with hot, dry summers, present extreme fire hazards during critical fire periods for much of the County. In addition to natural factors such as lightning, human activity is a primary factor contributing to the incidence of wildfires. Campfires, smoking, debris burning, arson and equipment use are common human-related causes of wildfires.

Prevention through implementation of ordinances and standards is the best way to minimize fire hazards. Contra Costa County Fire Protection District's ordinances and standards cover topics such as location of fire hydrants, provision of sprinklers and roadway widths, and provide the basis for the rural fire prevention capital facilities standards and response time performance standards specified in the City's Growth Management Element.

In the event of a fire emergency, fire services are provided to the Planning Area by the Contra Costa County Fire Protection District, and much of the City is served by the Martinez Water Department, which takes into account fire flow needs when determining storage.

Identifying Fire Hazards

Fuel Rank

Fuel rank is a ranking system developed by CalFire that incorporates four wildfire factors: fuel model, slope, ladder index, and crown index.

The U.S. Forest Service has developed a series of fuel models, which categorize fuels based on burn characteristics. These fuel models help predict fire behavior. In addition to fuel characteristics, slope is an important contributor to fire hazard levels. A surface ranking system has been developed by CalFire, which incorporates the applicable fuel models and slope data. The model categorizes slope into six ranges: 0-10%, 11-25%, 26-40%, 41-55%, 56-75% and >75%. The combined fuel model and slope data are organized into three categories, referred to as surface rank. Thus, surface rank is a reflection of the quantity and burn characteristics of the fuels and the topography in a given area.

The ladder index is a reflection of the distance from the ground to the lowest leafy vegetation for tree and plant species. The crown index is a reflection of the quantity of leafy vegetation present within individual specimens of a given species.

The surface rank, ladder index, and crown index for a given area are combined in order to establish a fuel rank of medium, high, or very high. Fuel rank is used by CalFire to identify areas in the California Fire Plan where large, catastrophic fires are most likely.

The CalFire fuel ranks for the city of Martinez vary from moderate to high. The majority of the developed land warrants a “moderate” fuel rank. These areas possess combustible material in sufficient quantities combined with topographic characteristics that pose a wildfire risk. The land in the westernmost portion of the planning area warrants a “high” fuel rank. These areas generally have more severe topographic characteristics combined with more undeveloped open space that pose an increased wildfire risk. CalFire data for the foothill and mountain areas to the west of the Planning Area include a preponderance of “high” and “very high” fuel ranks.

Fire Threat

The fuel rank data are used by CalFire to delineate fire threat based on a system of ordinal ranking. Thus, the Fire Threat model creates discrete regions, which reflect fire probability and predicted fire behavior. The four classes of fire threat range from moderate to extreme.

Fire Hazard Severity Zones

The state has charged CalFire with the identification of Fire Hazard Severity Zones (FHSZ) within State Responsibility Areas. In addition, CalFire must recommend Very High Fire Hazard Severity Zones (VHFHSZ) identified within any Local Responsibility Areas. The FHSZ maps are used by the State Fire Marshall as a basis for the adoption of applicable building code standards.

Local Responsibility Areas

Local Responsibility Areas (LRA) are concentrated in the incorporated areas of Contra Costa County. Martinez is an LRA that is served by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD provides fire protection services to Martinez. CalFire categorizes the western portion of the city of Martinez as a “Very High” FHSZ.

State Responsibility Areas

State Responsibility Areas within the Planning Area are found to the southwest, outside of the city limits, but within the sphere of influence. The State Responsibility Area covers the hilly and mountainous terrain that separates the City of Martinez and the City of Hercules. The hilly terrain in the southwest portion of the Planning Area is categorized as a "High" FHSZ.

Federal Responsibility Areas

There is a Federal Responsibility Area within the city limits of Martinez. The National Park Service is responsible for the Mt. Wanda area, which is designated for Open Space and Preservation.

HAZARDS FROM AIR TRAFFIC

The State Division of Aeronautics has compiled extensive data regarding aircraft accidents around airports in California. This data is much more detailed and specific than data currently available from the FAA and the National Transportation Safety Board (NTSB). According to the California Airport Land Use Planning Handbook (2002), prepared by the State Division of Aeronautics, 18.2% of general aviation accidents occur during takeoff and initial climb and 44.2% of general aviation

accidents occur during approach and landing. The State Division of Aeronautics has plotted accidents during these phases at airports across the country and has determined certain theoretical areas of high accident probability.

Approach and Landing Accidents

As nearly half of all general aviation accidents occur in the approach and landing phases of flight, considerable work has been done to determine the approximate probability of such accidents. Nearly 77% of accidents during this phase of flight occur during touchdown onto the runway or during the roll-out. These accidents typically consist of hard or long landings, ground loops (where the aircraft spins out on the ground), departures from the runway surface, etc. These types of accidents are rarely fatal and often do not involve other aircraft or structures. Commonly these accidents occur due to loss of control on the part of the pilot and, to some extent, weather conditions. (California Division of Aeronautics, 2002).

The remaining 23% of accidents during the approach and landing phase of flight occur as the aircraft is maneuvered towards the runway for landing, in a portion of the airspace around the airport commonly called the traffic pattern. Common causes of approach accidents include the pilot's misjudging of the rate of descent, poor visibility, unexpected downdrafts, or tall objects beneath the final approach course. Improper use of rudder on an aircraft during the last turn toward the runway can sometimes result in a stall (a cross-control stall) and resultant spin, causing the aircraft to strike the ground directly below the aircraft. The types of events that lead to approach accidents tend to place the accident site fairly close to the extended runway centerline. The probability of accidents increases as the flight path nears the approach end of the runway. (California Division of Aeronautics, 2002).

According to aircraft accident plotting provided by the State Division of Aeronautics, most accidents that occur during the approach and landing phase of flight occur on the airport surface itself. The remainder of accidents that occur during this phase of flight are generally clustered along the extended centerline of the runway, where the aircraft is flying closest to the ground and with the lowest airspeed. (California Division of Aeronautics, 2002).

Takeoff and Departure Accidents

According to data collected by the State Division of Aeronautics, nearly 65% of all accidents during the takeoff and departure phase of flight occur during the initial climb phase, immediately after takeoff. This data is correlated by two physical constraints of general aviation aircraft:

- The takeoff and initial climb phase are times when the aircraft engine(s) is under maximum stress and is thus more susceptible to mechanical problems than at other phases of flight; and
- Average general aviation runways are not typically long enough to allow an aircraft that experiences a loss of power shortly after takeoff to land again and stop before the end of the runway.

While the majority of approach and landing accidents occur on or near to the centerline of the runway, accidents that occur during initial climb are more dispersed in their location as pilots are not attempting to get to any one specific point (such as a runway). Additionally, aircraft vary widely in payload, engine power, glide ratio, and several other factors that affect glide distance, handling characteristics after engine loss, and general response to engine failure. This further disperses the accident pattern. However, while the pattern is more dispersed than that seen for approach and landing accidents, the departure pattern is still generally localized in the direction of departure and within proximity of the centerline. This is partially due to the fact that pilots are trained to fly straight ahead and avoid turns when experiencing a loss of power or engine failure. Turning flight causes the aircraft to sink faster and flying straight allows for more time to attempt to fix the problem. (California Division of Aeronautics, 2002).

Local Airport Facilities

There are no private or public airport facilities in the Planning Area.

Buchanan Field Airport: Buchanan Field Airport, located on a 495-acre site in an unincorporated area of north central Contra Costa County, is owned and operated by the County and administered by the County Public Works Department. The Airport borders the cities of Concord and Pleasant Hill and the unincorporated community of Pacheco. Buchanan Field is a general aviation airport without scheduled commercial air service.

Flight Paths. Martinez area residents are subject to small aircraft overflights from operations at Buchanan Field Airport. Traffic patterns vary at Buchanan Field, depending on whether aircraft are moving under Visual Flight Rules (VFR) conditions or during Instrument Flight Rules (IFR) weather. During VFR conditions, the pattern altitude above mean sea level is determined for light aircraft and for heavy aircraft. During IFR weather, flight altitude may have a lower ceiling. Approaches also differ depending on whether the aircraft are general aviation and commuter flights versus air carrier and business jets.

Height Limits. The maximum allowable structural height limits are defined in the ALUC Plan in accord with Part 77 of the Federal Aviation Regulations. These limits have been designed to ensure safety where buildings or other structures (such as chimneys, landscaping and antennae) would intrude into needed airspace. Approximately the eastern third of the Martinez area is affected by height limits of some sort. Height limits especially apply along the higher elevations (above 173 feet) east of Morello Avenue. The City's height restrictions are consistent with these limitations.

Crash Zones. Safety (crash hazard) zones are designated by the ALUC. Only a relatively small portion of the Martinez area is within these designated safety zones, specifically within the Martinez Sphere of Influence at the northern end of the Buchanan Field runways along State Route 4.

Major Regional Airport Facilities

San Francisco International Airport (SFO): SFO is the largest airport in the region, and a hub for United Airlines. It provides a wide range of domestic airline service and all of the region's long-haul

international flights. San Francisco serves 68% of regional Bay Area air passengers and 43% of regional air cargo shipments.

Metropolitan Oakland International Airport (OAK): Oakland Airport has traditionally been the hub for low cost carriers and a major air cargo center due to operations by FedEx and UPS. Oakland serves 17% of Bay Area regional air passengers and 52% of air cargo.

Norman Y. Mineta San Jose International Airport (SJC): Traffic at San Jose Airport has been affected by the recent realignment of airline services in the Bay Area. The airport does not currently offer any long-haul international flights, and air cargo facilities are limited due to space constraints. San Jose serves 15% of the Bay Area regional air passengers and 6% of air cargo.

Sacramento International Airport (SMF): The Sacramento Airport served nearly 9 million passengers in 2012 with 150 daily departures to 36 destinations. Southwest provides the majority of flights. Many Sacramento area air passengers use Oakland and San Francisco for their air service needs. Conversely, some Bay Area passengers choose Sacramento Airport.

National Transportation Safety Board Aviation Accident Database

The National Transportation Safety Board Aviation Accident Database identifies a total of two aircraft accidents in Martinez. (National Transportation Safety Board, 2014). The accidents occurred in 1983 (aircraft) and in 1992 (helicopter). Both accidents resulted in two fatalities.

3.8.2 Regulatory Setting

Federal Regulations

Aviation Act of 1958

The Federal Aviation Act resulted in the creation of the Federal Aviation Administration (FAA). The FAA was charged with the creation and maintenance of a National Airspace System.

Clean Air Act

According to the Clean Air Act, the EPA has established National Emissions Standards for Hazardous Air Pollutants. Exceeding the emissions standard for a given air pollutant may cause an increase in illnesses and/or fatalities.

Clean Water Act

The CWA, which amended the WPCA of 1972, sets forth the §404 program to regulate the discharge of dredged and fill material into Waters of the U.S. and the §402 National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of pollutants into Waters of the U.S. The §401 Water Quality Certification program establishes a framework of water quality protection for activities requiring a variety of Federal permits and approvals (including CWA §404, CWA §402, FERC Hydropower and §10 Rivers and Harbors).

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. The Act was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances releases. CERCLA deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

Environmental Protection Agency

The primary regulator of hazards and hazardous materials is the EPA, whose mission is to protect human health and the environment. The City of Martinez is located within EPA Region 9, which includes Arizona, California, Hawaii and New Mexico.

Federal Aviation Regulations (CFR, Title 14)

The Federal Aviation Regulations (FAR) establish regulations related to aircraft, aeronautics, and inspections and permitting.

FY 2001 Appropriations Act

Title IV of the Appropriations Act required the identification of "Urban Wildland Interface Communities in the Vicinity of Federal Lands that are at High Risk from Wildfire" by the U.S. Departments of the Interior and Agriculture.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act, as amended, is the basic statute regulating hazardous materials transportation in the United States. The purpose of the law is to provide adequate protection against the risks to life and property inherent in transporting hazardous materials in interstate commerce. This law gives the U.S. Department of Transportation (USDOT) and other agencies the authority to issue and enforce rules and regulations governing the safe transportation of hazardous materials (DOE 2002).

Natural Gas Pipeline Safety Act

The Natural Gas Pipeline Safety Act authorizes the U.S. Department of Transportation Office of Pipeline Safety to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases as well as the transportation and storage of liquefied natural gas. The Office of Pipeline Safety regulates the design, construction, inspection, testing, operation, and maintenance of pipeline facilities. While the federal government is primarily responsible for developing, issuing, and enforcing pipeline safety regulations, the pipeline safety statutes provide for State assumption of the intrastate regulatory, inspection, and enforcement responsibilities under an annual

certification. To qualify for certification, a state must adopt the minimum federal regulations and may adopt additional or more stringent regulations as long as they are not incompatible.

Pipeline and Hazardous Materials Safety Administration and Federal Railroad Administration

In May 2015, Pipeline and Hazardous Materials Safety Administration (PHMSA) in coordination with the Federal Railroad Administration (FRA), issued a final rulemaking on the movement of "high-hazard flammable trains." A high hazard flammable train is a continuous block of 20 or more tank cars loaded with a flammable liquid or 35 or more tank cars loaded with a flammable liquid dispersed through a train. The rule affects movement of flammable liquids by rail, including crude oil and ethanol. The final rule includes enhanced tank car standards and retrofitting requirements for older tank cars carrying crude oil and ethanol, requires a new braking standard, designates new operational protocols for trains transporting large volumes of flammable liquids, such as routing requirements, speed restrictions, and information sharing with local government agencies, and provides new sampling and testing requirements to improve classification of energy products placed into transport.

Resource Conservation and Recovery Act (RCRA)

This act established EPA's "cradle to grave" control (generation, transportation, treatment, storage and disposal) over hazardous materials and wastes. In California, the Department of Toxic Substances Control (DTSC) has RCRA authorization.

STATE REGULATIONS

Aeronautics Act (Public Utilities Code §21001)

The Caltrans Division of Aeronautics bases the majority of its aviation policies on the Aeronautics Act. Policies include permits and annual inspections for public airports and hospital heliports and recommendations for schools proposed within two miles of airport runways.

Airport Land Use Commission Law (Public Utilities Code §21670 et seq.)

The law, passed in 1967, authorized the creation of Airport Land Use Commissions (ALUC) in California. Per the Public Utilities Code, the purpose of an ALUC is to protect *public health, safety, and welfare by encouraging orderly expansion of airports and the adoption of land use measures that minimizes exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses* (§21670). Furthermore, each ALUC must prepare an Airport Land Use Compatibility Plan (ALUCP). Each ALUCP, which must be based on a twenty-year planning horizon, should focus on broadly defined noise and safety impacts.

Assembly Bill 337

Per AB 337, local fire prevention authorities and the California Department of Forestry and Fire Protection (CalFire) are required to identify "Very High Fire Hazard Severity Zones (VHFHSZ) in

Local Responsibility Areas (LRA). Standards related to brush clearance and the use of fire resistant materials in fire hazard severity zones are also established.

California Code of Regulations

Title 3 of the CCR pertains to the application of pesticides and related chemicals. Parties applying regulated substances must continuously evaluate application equipment, the weather, the treated lands and all surrounding properties. Title 3 prohibits any application that would:

- Contaminate persons not involved in the application
- Damage non-target crops or animals or any other public or private property
- Contaminate public or private property or create health hazards on said property

Title 8 of the CCR establishes California Occupational Safety and Health Administration (Cal OSHA) requirements related to public and worker protection. Topics addressed in Title 8 include materials exposure limits, equipment requirements, protective clothing, hazardous materials, and accident prevention. Construction safety and exposure standards for lead and asbestos are set forth in Title 8.

Title 14 of the CCR establishes minimum standards for solid waste handling and disposal.

Title 17 of the CCR establishes regulations relating to the use and disturbance of materials containing naturally occurring asbestos.

Title 19 of the CCR establishes a variety of emergency fire response, fire prevention, and construction and construction materials standards.

Title 22 of the CCR sets forth definitions of hazardous waste and special waste. The section also identifies hazardous waste criteria and establishes regulations pertaining to the storage, transport, and disposal of hazardous waste.

Title 26 of the CCR is a medley of State regulations pertaining to hazardous materials and waste that are presented in other regulatory sections. Title 26 mandates specific management criteria related to hazardous materials identification, packaging, and disposal. In addition, Title 26 establishes requirements for hazardous materials transport, containment, treatment, and disposal. Finally, staff training standards are set forth in Title 26.

Title 27 of the CCR sets forth a variety of regulations relating to the construction, operation and maintenance of the State's landfills. The title establishes a landfill classification system and categories of waste. Each class of landfill is constructed to contain specific types of waste (household, inert, special, and hazardous).

California Fire Code

The California Fire Code (CFC) is Part 9 of Title 24, California Code of Regulations, also referred to as the California Building Standards Code. The CFC incorporates the 2009 International Fire Code of the International Code Council with necessary California amendments. The purpose of the CFC is to establish the minimum requirements consistent with nationally recognized good practices to

safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations.

California Government Code Section 65302

This section, which establishes standards for developing and updating General Plans, includes fire hazard assessment and Safety Element content requirements.

California Health & Safety Code

Division 11 of the Health and Safety Code establishes regulations related to a variety of explosive substances and devices, including high explosives and fireworks. Section 12000 et seq. establishes regulations related to explosives and explosive devices, including permitting, handling, storage, and transport (in quantities greater than 1,000 pounds).

Division 12 establishes requirements for buildings used by the public, including essential services buildings, earthquake hazard mitigation technologies, school buildings, and postsecondary buildings.

Division 20 of the Health and Safety Code establishes Department of Toxic Substances Control (DTSC) authority and sets forth hazardous waste and underground storage tank regulations. In addition, the division creates a State superfund framework that mirrors the Federal program.

Division 26 of the Health and Safety Code establishes California Air Resources Board (CARB) authority. The division designates CARB as the air pollution control agency per Federal regulations and charges the Board with meeting Clean Air Act requirements.

CA Health and Safety Code and UBC Section 13000 et seq.

State fire regulations are set forth in §13000 *et seq*. of the California Health and Safety Code, which is divided into "Fires and Fire Protection" and "Buildings Used by the Public." The regulations provide for the enforcement of the UBC and mandate the abatement of fire hazards.

The code establishes broadly applicable regulations, such as standards for buildings and fire protection devices, in addition to regulations for specific land uses, such as childcare facilities and high-rise structures.

CA Vehicle Code §31600 (Transportation of Explosives)

Establishes requirements related to the transportation of explosives in quantities greater than 1,000 pounds, including licensing and route identification.

California Public Resources Code

The State's Fire Safe Regulations are set forth in Public Resources Code §4290, which include the establishment of State Responsibility Areas (SRA).

Public Resources Code §4291 sets forth defensible space requirements, which are applicable to anyone that …*owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material* (§4291(a)).

California Public Utilities Commission (CPUC)

CPUC is the State agency charged with ensuring the safety of freight railroads, inter-city and commuter railroads, and highway-railroad crossings in the State of California. CPUC performs these railroad safety responsibilities through the Railroad Operations and Safety Branch (ROSB) of the Safety & Enforcement Division. ROSB's mission is to ensure that California communities and railroad employees are protected from unsafe practices on freight and passenger railroads by enforcing state and federal rail safety rules, regulations, and inspection efforts; and by carrying out proactive assessments of potential risks before they create dangerous conditions. ROSB investigates rail accidents and safety related complaints, and recommends safety improvements to the Commission, railroads, and the federal government as appropriate. In addition to enforcing California Public Utilities Code and CPUC General Orders, ROSB inspectors enforce FRA regulations in a state/federal enforcement partnership.

Food and Agriculture Code

Division 6 of the California Food and Agricultural Code (FAC) establishes pesticide application regulations. The division establishes training standards for pilots conducting aerial applications as well as permitting and certification requirements.

State Oversight of Hazards and Hazardous Materials

The Department of Toxic Substances Control (DTSC) is chiefly responsible for regulation, handling, use and disposal of toxic materials while the State Water Resources Control Board (SWRCB) regulates discharge of potentially hazardous materials to waterways and aquifers and administers the basin plans for groundwater resources in the various regions of the state. The Regional Water Quality Control Board (RWQCB) oversees surface and groundwater in Contra Costa County. Programs intended to protect workers from exposure to hazardous materials and from accidental upset are covered under the Occupational Health and Safety Administration at both the federal level (OSHA) and at the State level through the California Division of Occupational Safety and Health (CAL/OSHA), as well as through the California Department of Health Services (DHS). Air quality is regulated through the California Air Resources Board and Bay Area Air Quality Management District. The State Fire Marshal is responsible for the protection of life and property through the development and application of fire prevention engineering, education and enforcement; the California Department of Forestry and Fire Protection (CalFIRE) provides fire protection services for California's state- and privately-owned wildlands.

Uniform Fire Code

The Uniform Fire Code (UFC) establishes standards related to the design, construction, and maintenance of buildings. The standards set forth in the UFC range from designing for access by

firefighters and equipment and minimum requirements for automatic sprinklers and fire hydrants to the appropriate storage and use of combustible materials.

Water Code

Division 7 of the California Water Code, commonly referred to as the Porter-Cologne Water Quality Control Act, created the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In addition, water quality responsibilities are established for the SWRCB and RWQCBs.

LOCAL REGULATIONS

Certified Unified Program Agency (CUPA)

The California Environmental Protection Agency designates specific local agencies as Certified Unified Program Agencies (CUPA), typically at the county level. In Contra Costa County, the Contra Costa County Health Services Department Hazardous Materials Division is responsible for the County's Certified Unified Program Agency (CUPA) programs. Each designated CUPA is responsible for the implementation of six statewide programs within its jurisdiction. These programs include:

- Underground storage of hazardous substances (USTs)
- Hazardous Materials Business Plan (HMP) requirements
- Hazardous Waste Generator requirements
- California Accidental Release Prevention (Cal-ARP) program
- Uniform Fire Code hazardous materials management plan
- Above Ground Storage Tanks (Spill Prevention Control and Countermeasures Plan only)

Implementation of these programs involves:

- Permitting and inspection of regulated facilities
- Providing educational guidance and notice of changing requirements stipulated in State or Federal laws and regulations
- Investigations of complaints regarding spills or unauthorized releases
- Administrative enforcement actions levied against facilities that have violated applicable laws and regulations

City of Martinez General Plan

The adopted City of Martinez General Plan identifies policies related to hazardous materials in relation to waterway impacts in the Alhambra Creek Enhancement Plan component of the General Plan and addresses wildfire fire hazards in the Safety Element.

3.8.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact from hazards and hazardous materials if it will:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: General Plan implementation has the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (Less than Significant)

Future residential development projects allowed under the General Plan could result in an increase in the exposure of persons to potential hazardous materials releases. Future development, infrastructure, and other projects allowed under the General Plan may involve the transportation, use, and/or disposal of hazardous materials. Hazardous materials are typically used in industrial, and commercial uses, as well as residential uses. Future uses may involve the transport and disposal of such materials from time to time. Future activities may involve equipment or construction activities that use hazardous materials (e.g., coatings, solvents and fuels, diesel-fueled equipment), cleanup of sites with known hazardous materials, the transportation of excavated soil and/or groundwater containing contaminants from areas that are identified as being contaminated, or disposal of contaminated materials at an approved disposal

site. While hazardous materials may be associated with industrial and commercial activities, hazardous materials may also be associated with the regular cleaning and maintenance of residential and other less intense uses. Accidental release of hazardous materials that are used in the construction or operation of a project may occur. There is also the potential for accidental release of pre-existing hazardous materials, either associated with previous activities on a site or naturally occurring hazards such as asbestos.

Additionally, the Martinez Planning Area is surrounded by a heavy concentration of petroleum and chemical processing plants and may be subject to the occurrence of accidental releases of dangerous substances from a variety of sources. Hazardous materials are transported into and out of the area on a daily basis utilizing various transportation routes and systems including: Interstate 680, Highway 4, local streets, the Union Pacific and BNSF Railroads, San Pablo Bay, Carquinez Straits, and Suisun Bay, Buchanan Field, and petroleum and natural gas pipelines and pump stations. Over the past five years, there has been an increase in the volumes crude oil moving by rail throughout the nation, resulting in increased trains moving crude oil through Martinez. As shown in Figure 3.8-1, Martinez is not located in or near a high hazard area for crude oil incidents. The Martinez area is served by a Type 1 hazardous materials response team as well as a non-certified hazardous materials response team. The proposed General Plan does not include any specific development proposals and would not increase the movement of crude oil by rail. The project would not directly result in significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. All future projects allowed under the General Plan would be required to comply with the provisions of federal, state, and local requirements related to hazardous materials. As future development and infrastructure projects are considered by the City, each project would be evaluated for potential impacts, specific to the project, associated with hazardous materials as required under CEQA.

In the event of a hazardous materials emergency, the City's *Emergency Response Plan* specifies the primary responsibilities of responding agencies, based on the Contra Costa County management system for response to hazardous materials spills.

Federal State and local agencies have developed regulations to investigate and mitigate effects, resulting from the storage, use, transport and disposal of hazardous materials and waste.

In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted the California Environmental Protection agency (Cal EPA) enforcement authority for management of hazardous materials. Locally the Hazardous Materials Program of Contra Costa Health Services (CCHS) has been granted responsibility for implementation and enforcement of many hazardous materials in Contra Costa under the Certified Unified Program Agency (CUPA).

The federal Department of Transportation PHMSA and FRA establishes rules and regulations related to the transport of hazardous materials, including crude oil by rail. The State CPUC ensures the safety of freight railroads, inter-city and commuter railroads, and highway-railroad crossings through the Railroad Operations and Safety Branch (ROSB) of the Safety & Enforcement Division.

ROSB enforces state and federal rail safety rules, regulations, inspection, and assessment efforts to ensure that California communities and railroad employees are protected from unsafe practices on freight and passenger railroads.

Certified Unified Program Agencies (CUPAs) and Program Agencies (PAs) throughout the State created a partnership and formed the California CUPA Forum. Together, members of the California CUPA Forum and representatives of local, state and federal agencies established the Unified Program Administration and Advisory Group (UPAAG) to effectively address policy decisions, education and problem –solving. The Unified Program consolidates the administration, permit, inspection, and enforcement activities of the following environmental and emergency management programs: Aboveground Petroleum Storage Act (APSA) Program Area Plans for Hazardous Materials Emergencies California Accidental Release Prevention (CalARP) Program Hazardous Materials Release Response Plans and Inventories (Business Plans) Hazardous Material Management Plan (HMMP) and Hazardous Material Inventory Statements (HMIS) (California Fire Code) Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs Underground Storage Tank Program State agency partners involved in the implementation of the Unified Program are responsible for setting program element standards, working with CalEPA to ensure program consistency and provide technical assistance to CUPAs and PAs.

The use, transportation, and disposal of hazardous materials is regulated and monitored by local fire departments, Certified Unified Program Agencies (CUPAs), the State Division of Occupational Safety and Health, and the Department of Toxic Substances Control consistent with the requirements of federal, state, and local regulations and policies. Facilities that store hazardous materials on-site are required to maintain a Hazardous Materials Business Plan in accordance with state regulations. In the event of an accidental release of hazardous materials, the local CUPA, and emergency management agencies (e.g., Police Department, Fire Department) would respond.

The General Plan includes policies and implementation measures that are intended to reduce the risk of hazards associated with hazardous materials. Policy PS-P-11.1 encourages adequate separation between areas that contain hazardous materials and sensitive receptors. Policy PS-P-11.2 recommends that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts. Policy PS-P-11.3 requires the City to coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal. Implementation Measure PS-I-11.1a establishes an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible. Implementation Measure PS-P-11.4 requires that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards. In addition to these policies, all projects must comply with state and federal regulations related to hazardous materials. Implementation of the General Plan, including the above policies and implementation measures, would ensure a **less than significant** impact with regard to this issue.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Hazardous Materials

Goal

PS-G-11 Minimize feasible risks to life, property and the environment resulting from the use, storage, transportation and disposal of hazardous materials.

Policy

PS-P-11.1 Encourage adequate separation between areas that contain hazardous materials and sensitive receptors.

PS-P-11.2 Recommend that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts.

PS-P-11.3 Coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal.

Implementation

PS-I-11.1a Through land use policy and text amendments, establish an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible.

PS-P-11.4 Require that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards.

Impact 3.8-2: General Plan implementation has the potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Less than Significant)

The Martinez Unified School District (MUSD) serves over 4,000 students grades K-12 and operates four elementary schools (grades K-5), one middle school (grades 6-8), and one high school (grades 9-12), two alternative/independent study schools, and one Adult Education school. Additionally, Mount Diablo Unified School District (MDUSD) operates one elementary school within City limits. Table 3.y- 5 displays public schools serving the City of Martinez.

TABLE 3.ψ- 5: PUBLIC SCHOOLS SERVING MARTINEZ

SCHOOL	*GRADES SERVED*	*ENROLLMENT 2013-2014*
MDUSD		
Hidden Valley	K-5	785
MUSD		
John Muir Elementary	K-5	382
John Swett Elementary	K-5	508

TABLE 3.7-5: PUBLIC SCHOOLS SERVING MARTINEZ

SCHOOL	*GRADES SERVED*	*ENROLLMENT 2013-2014*
Las Juntas Elementary	K-5	453
Morello Park Elementary	K-5	539
Martinez Junior High	6-8	887
Alhambra Senior High	9-12	1,202
Vicente Martinez High	9-12	114
Briones (Alternative)	K-12	46
Total		**4,916**

SOURCES: CALIFORNIA DEPARTMENT OF EDUCATION EDUCATIONAL DEMOGRAPHICS UNIT. ENROLLMENT BY GRADE FOR 2013-14. MT. DIABLO UNIFIED REPORT, AND MARTINEZ UNIFIED REPORT.

The General Plan land use element includes land use designations, but does not propose actual businesses. As such, it is not possible to determine if a specific use will result in hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste. The land use designations with the highest possibility of having businesses that result in hazardous emissions or require handling of hazardous or acutely hazardous materials, substances, or waste would be commercial or industrial. The General Plan land use element does not include any commercial or industrial uses immediately adjacent to an existing or proposed school. Additionally, there are no known existing commercial or industrial businesses that are known to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of a school.

All hazardous materials would be handled in accordance with federal, state, and county requirements, which would limit the potential for a project to expose nearby uses, including schools, to hazardous emissions or an accidental release. Hazardous emissions are monitored by the Bay Area Air Quality Management District, Regional Water Quality Control Board, and Department of Toxic Substances Control, and the local CUPA. In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable federal, state, and local regulations and policies, including hazard mitigation plans. Compliance with all existing regulations and hazard mitigation plans as well as General Plan policies and implementation measures would ensure that the impact would be **less than significant**.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Hazardous Materials

Goals

PS-G-11 Minimize feasible risks to life, property and the environment resulting from the use, storage, transportation and disposal of hazardous materials.

Policies

PS-P-11.1 Encourage adequate separation between areas that contain hazardous materials and sensitive receptors.

PS-P-11.2 Recommend that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts.

PS-P-11.3 Coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal.

Implementation Measures

PS-I-11.1a Through land use policy and text amendments, establish an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible.

PS-P-11.4 Require that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards.

Impact 3.8-3: General Plan implementation has the potential to have projects located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Less than Significant)

There are no sites within the Planning Area that are included on the "List of Hazardous Waste and Substances Sites" from the DTSC EnviroStor database.

There are no sites within the Planning Area that are included on the "List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code."

There are 56 locations with a Martinez address that are listed in the GeoTracker database for Leaking Underground Storage Tanks (LUST). Forty-seven of the locations have undergone LUST cleanup and the State has closed the case. There are nine locations in Martinez with an open case.

There are 19 locations with a Martinez address that have Underground Storage Tanks (UST) that are permitted through the California Water Resources Control Board.

There are 28 locations with a Martinez address that are listed in the GeoTracker database for Water Board Cleanup Sites. Nine of the locations have undergone cleanup and the State has closed the case, with one site eligible for closure. There are seven locations in Martinez under remediation, three locations with verification monitoring, three locations under site assessment, and five sites listed as open but inactive.

There are no sites listed on the Water Board's list of solid waste disposal sites with waste constituents above hazardous waste levels.

The California Water Resources Control Board has issued a Cease and Desist Order to five facilities in Martinez, all of which occurred in the 80s and 90s.

The City of Martinez has two active facilities and two closed facilities listed in the database. The active facilities are the Acme Landfill and the Contra Costa TS and Recovery, both located on Waterbird Way. The Acme Landfill is a permitted Solid Waste Landfill. The Contra Costa TS and Recovery is a permitted Large Volume Transfer/Processing Facility. The closed facilities include the Acme Composting Compost Facility and the Martinez City Rubbish facility. The most recent inspections of these facilities by the Local Enforcement Agency (Contra Costa County Health Services Department Environmental Health Division) show no violations or areas of concern.

The above mentioned sites are subject to various State and federal laws and regulators, including the CERCLA, EPA, DTSC, and RWQCB. Development allowed by the General Plan could create a hazard to the public or the environment through a disturbance or release of contaminated materials if the development occurs on or adjacent to contaminated sites (whether previously documented or not) without appropriate measures to contain or mitigate the existing contamination. State and federal regulations ensure that existing hazards, including those associated with known hazardous materials sites, are addressed prior to development.

The General Plan includes policies and implementation measures that are intended to reduce the risk of hazards associated with hazardous materials. Policy PS-P-11.1 encourages adequate separation between areas that contain hazardous materials and sensitive receptors. Policy PS-P-11.2 recommends that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts. Policy PS-P-11.1 encourages adequate separation between areas that contain hazardous materials and sensitive receptors. Policy PS-P-11.2 recommends that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts. Policy PS-P-11.3 requires the City to coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal. Implementation Measure PS—I-11.1a establishes an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible. Implementation Measure PS-P-11.4 requires that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards. In addition to these policies, all projects must comply with state and federal regulations related to hazardous materials. Implementation of the General Plan, including the above policies and implementation measures, would ensure a **less than significant** impact with regard to this issue.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Hazardous Materials

Goal

PS-G-11 Minimize feasible risks to life, property and the environment resulting from the use, storage, transportation and disposal of hazardous materials.

Policy

PS-P-11.1 Encourage adequate separation between areas that contain hazardous materials and sensitive receptors.

PS-P-11.2 Recommend that hazardous materials storage and handling areas are designed to minimize the possibility of environmental contamination and adverse off-site impacts.

PS-P-11.3 Coordinate with appropriate local, state, and federal agencies regarding hazardous waste reduction, handling, and disposal.

Implementation

PS-I-11.1a Through land use policy and text amendments, establish an appropriate buffer between land uses involving hazardous materials and those where the presence of hazardous materials is incompatible.

PS-P-11.4 Require that all processes involving hazardous waste (including its transportation, storage, and disposal), are conducted in a manner that meets or exceeds state and federal standards.

Impact 3.8-4: General Plan implementation is not located within an airport land use plan, two miles of a public airport or public use airport, or within the vicinity of a private airstrip, and would not result in a safety hazard for people residing or working in the project area. (Less than Significant)

Hazards related to airports are typically grouped into two categories: air hazards and ground hazards. Air hazards jeopardize the safety of an airborne aircraft and expose passengers, pilots and crews to danger. Examples of air hazards include tall structures, glare-producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with take-off or landing procedures, posing a risk to aircraft. Ground hazards jeopardize the safety of current and future residents and/or workers in the vicinity of an airport. The most obvious ground hazard is a crash, which may produce a serious, immediate risk to those residing in or using areas adjacent to the airport. Most accidents occur during take-off and landing. Therefore, the higher the density around an airport, including transportation facilities, the higher the risk associated with this type of hazard.

The City of Martinez does not have any airport facilities located within the Planning Area. The Byron Airport is the closest airport, located on a 495-acre site in an unincorporated area of north central Contra Costa County. This airport is owned and operated by the County and administered by the County Public Works Department. The Airport borders the cities of Concord and Pleasant Hill and the unincorporated community of Pacheco.

Martinez area residents are subject to small aircraft overflights from operations at Buchanan Field Airport. Traffic patterns vary at Buchanan Field, depending on whether aircraft are moving under Visual Flight Rules (VFR) conditions or during Instrument Flight Rules (IFR) weather. During VFR conditions, the pattern altitude above mean sea level is determined for light aircraft and for heavy aircraft. During IFR weather, flight altitude may have a lower ceiling. Approaches also differ

depending on whether the aircraft are general aviation and commuter flights versus air carrier and business jets.

Approximately the eastern third of the Martinez area is affected by height limits of some sort. Height limits especially apply along the higher elevations (above 173 feet) east of Morello Avenue. The City's height restrictions are consistent with these limitations.

Safety (crash hazard) zones are designated by the Airport Land Use Commission (ALUC). Only a relatively small portion of the Martinez area is within these designated safety zones, specifically within the Martinez Sphere of Influence at the northern end of the Buchanan Field runways along State Route 4.

The National Transportation Safety Board Aviation Accident Database identifies a total of two aircraft accidents in Martinez. (National Transportation Safety Board, 2014). The accidents occurred in 1983 (aircraft) and in 1992 (helicopter).

The General Plan includes policies that are intended to reduce the risk of hazards associated with the operation of Buchanan Field Airport. Policy S-P-12.1 requires the City to continue to work with the County Public Works Department, Aviation Advisory Committee, Airport Land Use Commission (ALUC), the Metropolitan Transportation Commission (MTC), Federal Aviation Administration (FAA), and other relevant agencies to protect and minimize the risk to lives and property due to hazards associated with the operation of Buchanan Field Airport. Additionally Implementation Measure PS-I-12.1a ensures land use policy takes into account the flight paths and reduces height limits and location of structures. Implementation of the General Plan, including Policy S-P-12.1, and Implementation Measure PS-I-12.1a would ensure a **less than significant** impact with regard to this issue.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Airport Safety

Goals

S-G-12 *Reduce the Risk of Hazards Associated with the operation of Buchanan Field Airport*

Policies

S-P-12.1 *Continue to work with the County Public Works Department, Aviation Advisory Committee, Airport Land Use Commission (ALUC), the Metropolitan Transportation Commission (MTC), Federal Aviation Administration (FAA), and other relevant agencies to protect minimize the risk to lives and property due to hazards associated with the operation of Buchanan Field Airport.*

Implementation Measures

PS-I-12.1a Through land use policy insure that development takes into account the flight paths and reduces height limits and location of structures.

Impact 3.8-5: General Plan implementation does not have the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Less than Significant)

The General Plan would allow a variety of new development, including residential, commercial, industrial, and public service projects, which would result in increased jobs and population in the City of Martinez. Roads and infrastructure improvements would occur to accommodate the new growth. Future projects are not anticipated to remove or impede evacuation routes and the General Plan does not include land uses, policies, or other components that conflict with adopted emergency response or evacuation plans.

The General Plan includes policies that are intended to manage emergency situations. Policy PS-P-9.1 requires the use the City's Emergency Response Plan as the guide for emergency management in Martinez. Policy PS-P-9.2encourages critical public facilities to remain operative during emergencies. Policy PS-P-10.2requires the City to maintain and update the City's Emergency Response Plan on a regular basis, designating emergency shelters and evacuation routes. Policy PS-P-9.4 encourages coordination of emergency drills with the Contra Costa County Fire Protection District, County Sheriff, and the City Police Department, so that the Plan's implementation during an emergency will happen smoothly. Additionally, the General Plan includes provisions to ensure that transportation systems are maintained and/or improved throughout the City. Therefore, through consistency and adherence to the following general plan policies, implementation of the General Plan have a **less than significant impact** with regard to this issue.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Community Emergency Preparedness

Goals

PS-G-9 Be Prepared to Act in Emergency Situations.

PS-G-10 Provide effective, efficient, and immediately available Community Preparedness programs response in the event of a natural or man-made disaster.

Policies

PS-P-9.1 Use the City's Emergency Response Plan as the guide for emergency management in Martinez.

PS-P-9.2 Encourage critical public facilities to remain operative during emergencies.

PS-P-9.3 Promote greater community awareness and preparedness by working with business associations, homeowners' associations, community groups, and utility providers.

PS-P-9.4 Encourage coordination of emergency drills with the Contra Costa County Fire Protection District, County Sheriff, and the City Police Department, so that the Plan's implementation during an emergency will happen smoothly.

PS-P-10.1 Maintain efficient and effective City government operation in case of any catastrophic emergency or disaster.

PS-P-10.2 Maintain a current disaster management operations plan and adequately train personnel. This includes annual training of City employees.

Implementation Measures

PS-I-9.1a Continually evaluate response time and make improvements to equipment and personnel when necessary to ensure goals.

PS-I-9.1b Periodically review the adequacy of training exercises and facilities to evaluate the need for improvements.

PS-I-9.1c Evaluate the City's Emergency Operations center on an annual basis to verify that it is adequately equipped.

PS-I-9.1d Maintain and update the City's Emergency Response Plan on a regular basis, designating emergency shelters and evacuation routes.

PS-9.1a Provide relevant community groups, and businesses, with an overview of the City's Emergency Response Plan, and periodically inform them of updates to the Plan when necessary.

PS--10.1a Provide annual training for city employees and update the emergency preparedness

PS-10.1b Conduct seminars and make public presentation on personal, family and neighborhood emergency preparedness when possible.

PS-10.1c Encourage public participation in the Community Emergency Response Team (CERT) program.

Impact 3.8-6: General Plan implementation does not have the potential to expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (Less than Significant)

Wildfires are a potential hazard to development and land uses located in the foothill and mountain areas of the County. The severity of wildfire problems depends on a combination of vegetation, climate, slope and people. In addition to natural factors such as lightning, human activity is a primary factor contributing to the incidence of wildfires. Campfires, smoking, debris burning, arson and equipment use are common human-related causes of wildfires.

The grassland, chaparral, woodland, and forest vegetation found in areas of Contra Costa County, coupled with hot, dry summers, present extreme fire hazards during critical fire periods for much

of the County. The Planning Area contains a wide range of land use types, from developed urban areas to expanses of unirrigated open space. The CalFire fuel ranks for the city of Martinez vary from moderate to high. The majority of the developed land warrants a “moderate” fuel rank. These areas possess combustible material in sufficient quantities combined with topographic characteristics that pose a wildfire risk. The land in the westernmost portion of the planning area warrants a “high” fuel rank. These areas generally have more severe topographic characteristics combined with more undeveloped open space that pose an increased wildfire risk. CalFire data for the foothill and mountain areas to the west of the Planning Area include a preponderance of “high” and “very high” fuel ranks.

Local Responsibility Areas (LRA) are concentrated in the incorporated areas of Contra Costa County. Martinez is an LRA that is served by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD provides fire protection services to Martinez. The western portion of the city of Martinez is categorized as a "Very High" FHSZ by CalFire.

State Responsibility Areas within the Planning Area are found to the southwest, outside of the city limits, but within the sphere of influence. The State Responsibility Area covers the hilly and mountainous terrain that separates the City of Martinez and the City of Hercules. The hilly terrain in the southwest portion of the Planning Area is categorized as a "High" FHSZ.

There is a Federal Responsibility Area within the city limits of Martinez. The National Park Service is responsible for the Mt. Wanda area, which is designated for Open Space and Preservation.

In the event of a fire emergency, fire services are provided to the Planning Area by the Contra Costa County Fire Protection District, and much of the City is served by the Martinez Water Department, which takes into account fire flow needs when determining storage.

Prevention through implementation of ordinances and standards is the best way to minimize fire hazards. Contra Costa County Fire Protection District’s ordinances and standards cover topics such as location of fire hydrants, provision of sprinklers and roadway widths, and provide the basis for the rural fire prevention capital facilities standards and response time performance standards specified in the City’s Growth Management Element.

Wildland-Urban Interface Fire Areas are a geographical area identified by the state as a “Fire Hazard Severity Zone” in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The California Building Commission adopted the Wildland-Urban Interface (WUI) codes in late 2005. These codes include provisions for ignition resistant construction standards in the wildland urban interface and are used by building officials to determine appropriate construction materials for new buildings in the wildland urban interface. California Building Code Chapter 7a includes materials and construction methods for exterior wildfire exposure within Wildland-Urban Interface Fire Areas. New buildings located in any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of the California Building Code Chapter 7.

Within the Martinez Planning Area, hilly vegetated areas in the western portion of the city and eastern portion of the Plan Area are designated as High, and Moderate local responsibility Fire Hazard Severity Zones. The General Plan also includes policies that are intended to protect citizens of Martinez from potential fire hazards. General Plan policy PS–P--5.1 requires fire safe construction practices, such as fire preventive site design, landscaping and building materials, and installation of sprinklers on new development and redevelopment projects. Policy PS-P-4.1 ensures that there is necessary maintenance on open space brush areas that are susceptible to burning. Policy PS-P-4.2 is intended to prevent the invasion of grassland by Baccaharis (a highly fire prone plant) by retaining grazing on publicly owned rangelands and integrating grazing practices within developed areas. Policy PS-P-4.3 requires the City to continue to work with Contra Costa Fire Department to make Martinez more resilient to fire hazards. Policy PS-P-4.4 requires the City to work with Contra Costa Fire Department to promote public awareness. Policy PS-P-4.5 requires the City to review, amend, and update, at regular intervals, all relevant City codes and ordinances to incorporate the most current knowledge and highest standards for safety. Policy PS-P-4.6 encourages the use of fire retardant vegetation for landscaping, especially in high fire hazard areas.

In addition to the above referenced policies, the City maintains adequate water supply and water flow availability, ensures adequate emergency access, provides adequate fire protection services, and ensures public awareness regarding fire safety. Implementation of the General Plan, including the above referenced policies, would ensure a **less than significant** impact with regard to this issue.

GENERAL PLAN GOALS POLICIES AND IMPLEMENTATION MEASURES THAT MITIGATE POTENTIAL IMPACTS

Public Safety Element

Fire Hazards

Goals

PS-G-4 Protect citizens of Martinez from potential fire hazards.
PS-G-5 Reduce fire hazards City-wide.

Policies

PS-P- 4.1 Perform necessary maintenance on open space brush areas that are susceptible to burning.
PS-P- 4.2 Prevent the invasion of grassland by Baccaharis (a genus of perennials and shrubs) (a highly fire prone plant) by retaining grazing on publically owned rangelands and integrating grazing practices within developed areas.
PS-P-4.3 Continue to work with Contra Costa Fire Department to make Martinez more resilient to fire hazards.
PS-P-4.4 Work with Contra Costa Fire Department to promote public awareness.

PS-P-4.5 Review, amend, and update, at regular intervals, all relevant City codes and ordinances to incorporate the most current knowledge and highest standards for safety.

PS-P-4.6 Encourage the use of fire retardant vegetation for landscaping, especially in high fire hazard areas.

PS –P- 5.1 Require fire safe construction practices, such as fire preventive site design, landscaping and building materials, and installation of sprinklers on new development and redevelopment projects.

PS –P- 5.2 Encourage landscaping maintenance programs to reduce potential fire hazards in the hills, wildland areas and urban interface.

PS -P– 5.3 Reduce fire hazard risks in existing developments by ensuring that private property is maintained to minimize vulnerability.

Implementation Measures

PS—I-4.1a Work with Contra Costa Fire Protection to support and consider providing fire safety demonstrations at public schools, civic and local organizations, businesses, industries, institutions and public gatherings.

PS-I-4.1b Review current building and planning codes to require new developments and renovations to comply with the California Building Code, Fire Code and local ordinances for construction and adequacy of water flow and pressure, ingress/egress and other measures for fire protection.

PS-I-5.3.a: Non-Combustible Construction

Consider implementation of requirements for non-combustible roofs, and exterior siding in high fire areas. Continue to enforce regulations related to fire resistant construction, sprinkler systems and early warning fire detection system installation.

PS –I- 5.3b Development Review

Through the project review process, continue to ensure that landscaping, lighting, building siting and design, adequate water pressure and peak load storage capacity, and building construction materials reduce the opportunity for fire hazards.

PS –I- 5.3c Firefighting Access

Continue to require access for emergency vehicles and firefighting equipment on all new development and redevelopment projects. The City shall also identify the feasibility of constructing additional emergency access improvements, such as:

- *Additional vehicle pullouts at key hillside locations.*
- *Limiting or restricting on-street parking at key hillside locations.*
- *Potential for construction of new or improved emergency access routes.*

PS –I-5.3.d Urban WildLand Interface Ordinance

Continue to implement the Urban Wildland Interface Ordinance.

PS – I-5.3e Update Fire Hazard Maps

Periodically update maps identifying fire hazard areas in Martinez.

PS-I-5.3.f Public Facility Location

Ensure the location of public facilities, such as schools and hospitals are not located in Fire Hazard and if they are in the event of a fire they can safely evacuate and or operate

PS –I- 5.3g: Vegetation Management

Continue to consider the requirement of vegetation management plans in all new development. The City shall also identify the feasibility of other vegetation management options, including:

- *Increased landscaping safety through elimination of use of fire-hazardous plants.*
- *Use of non-prolific landscaping species.*
- *Requiring project proponents in hillside areas to evaluate and upgrade as necessary fire flows and water supplies to hillside areas.*

PS –I- 5.3h: Construction Materials

Continue to require use of construction materials that decrease fire hazards in new developments in hillside areas, including mandatory use of spark arresters on chimneys. Include provisions in the Design Guidelines.

PS –I- 5.3.i:Landscaping Requirements

Require the use of fire-safe planting materials in landscape plans for new development, including the use of non-prolific species. Include provisions in the Design Guidelines.

PS –I- 5.3j: Use Website for Fire Awareness

Provide information on methods for reducing fire hazards through the City's website and newsletter, including clearing of plant debris and using fire-safe landscaping.

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